WEST RIDGE MINE

007/041

AMENDMENT
TO
THE MINING AND RECLAMATION PLAN

TO ALLOW INSTALLATION OF A GOB GAS VENT HOLE (GVH)

LOCATED IN THE
RIGHT FORK OF BEAR CANYON

ON

SITLA COAL LEASE ML 49287

SUBMITTED: OCTOBER 22, 2008

R645-301-100 PERMIT APPLICATION REQUIREMENTS: GENERAL CONTENTS

SCOPE

The objective of this chapter is to set forth all relevant information concerning ownership and control of WEST RIDGE Resources, Inc., the ownership and control of the property to be affected by mining activities and all other information and documentation required under Part UMC.

R645-301-112 IDENTIFICATION OF INTERESTS

112.100 WEST RIDGE Resources, Inc. is a corporation organized and existing under the laws of Utah and qualified to do business in Utah.

112.200 The applicant, WEST RIDGE Resources, Inc. will also be the operator.

WEST RIDGE Resources, Inc.
P.O. Box 910
East Carbon, Utah 84520
(435) 888-4000
Bruce Hill - President

Employer Identification Number: 87-0585129

112.220 The resident agent of the applicant, WEST RIDGE Resources, Inc., is:

Dave Shaver
WEST RIDGE Resources, Inc.
P.O. Box 910
East Carbon, Utah 84520

(435) 888-4000

112.230 WEST RIDGE Resources, Inc. will pay the abandoned mine land reclamation fee.

R645-301-115 STATUS OF UNSUITABILITY CLAIMS

115.100 The proposed permit area is not within an area designated as unsuitable for mining. WEST RIDGE Resources, Inc. is not aware of any petitions currently in progress to designate the area as unsuitable for coal mining and reclamation activities.

The area in which the proposed facility will be located has been evaluated within area management plans. It has not been found unsuitable for mining activities under any categories of examination.

115.200 Not applicable.

115.300 WEST RIDGE Resources, Inc. will not be conducting mining operations within 100 feet of an occupied dwelling. WEST RIDGE Resources, Inc. has received permission from Carbon County to construct facilities and operate coal mining activities within 100 feet of a public road. Refer to the letter from Carbon County in Appendix 1-8.

R645-301-116 PERMIT TERM

116.100 The anticipated starting and termination dates of the coal mining and reclamation operation are as follows:

	Begin	Complete
Construction of Mining Pad, Mining Support Structures, and Portals	Apr. 1999	Dec. 1999
Begin Mining	Jan. 2000	
Terminate Mining		Dec. 2017*
Remove Facilities	Jan. 2018*	June 2018*
Regrade Area	July 2018*	Sept. 2018*
Revegetate Site	Oct. 2018*	Nov. 2018*

*This assumes mine life extended through acquisition of adjacent state and federal coal reserves.

Approximately 6,114.89 acres are within the permit boundary. Of this acreage, about 29.06 disturbed acres are utilized for surface facilities and structures in C Canyon (all on BLM land), and 0.34 acres are utilized for the Gob Gas Vent Hole (GVH) in the Right Fork of Bear Canyon (all on SITLA land). Refer to Appendix 5-14 for a detailed description of the Bear anyon GVH facility. The surface facilities should be capable of supporting the life of the mine operations as presented in this permit application.

Mining and exploration activities had been conducted in the currently proposed disturbed area prior to August 3, 1977. A road existed into C Canyon in 1952 when drill hole B-6 was drilled in the right fork. A road was also constructed up the left fork of C Canyon to a drill hole site during the same year. In addition to the drill holes, the coal outcrop in the left fork of C Canyon was exposed for sampling purposes. A small pad was built at the outcrop location and it was left in place as were the roads.

In 1986, another drill hole, 86-2, was drilled west of the first drill hole in the right fork. A minor amount of road work was done in conjunction with this second drill hole. Kaiser Coal Company obtained permission from the BLM to grade the existing road and make it passable for the drill rig. The drill hole site was reclaimed but the road, a public road, was left in place.

Through use of aerial photography and site evaluations, it is possible to document previous mining related disturbances in C Canyon. Refer to Map 5-1 for delineation of the disturbance prior to August 3, 1977.

The total of all the previously disturbed areas within the minesite disturbed area is estimated to be as follows:

roads in right and left forks	=	1.27 acres
road culvert	=	.05 acres
water monitoring well	=	.05 acres
material storage pad	=	.05 acres
		1.62 acres

WEST RIDGE Resources, Inc. is proposing to utilize the entire previously disturbed area in their current proposal and to reclaim it upon cessation of mining operations.

In the 1950's a road was constructed in the Right Fork of Bear Canyon to access an exploratory drillhole site. This road now provides access to the site of the Bear Canyon GVH installation.

ATTACHMENT 1-5
VERIFICATION STATEMENT

I hereby certify that I am a responsible official (Resident Agent) of the applicant (ANDALEX and IPA for WEST RIDGE Resources, Inc.) 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

David Shaver, Resident Agent **Signed - Name - Position - Date**

Subscribed and sworn to before me this 21st day of October 2008

Linda Kerns
Notary Public

My commission Expires: April 6, 2009)

Attest: STATE OF Utah) ss:

COUNTY OF Carbon)

Notary Public
LINDA KERNS
345 N. 700 E.
Price, UT 84501
My Commission Expires
April, 6, 2009
State of Utah

APPENDIX 1-2

VIOLATION INFORMATION

VIOLATION INFORMATION

Information updated to October , 2008

Name of Operation	Identifying number for operation	Federal or State Permit Number	MSHA ID Number
Centennial		007/019	42-01750 42-01474 42-02028 42-0186

Date Issued	Violation Number	Name of Issuing Agency	Person Issued To	Permit Number	Brief Description of Violation	Status (Abated, Term. etc.)	Abatement Action	Appeal Y or N
9/27/2006	10000	DOGM			Failure to renew	9/29/2006	terminated	N
10/6/2006	10002	DOGM			Failure to submit fan plan	12/4/2006	terminated	N
2/7/2007	10003	DOGM			Non coal Waste	2/12/2007	terminted	N
7/6/2007	10007	DOGM			Vehicle in ditch	7/06/07	terminated	N
8/27/2007	10008	DOGM			vehicle in ditch	8/28/2007	terminated	N
8/27/2007	10009	DOGM			no sed pond inspection	8/27/07	terminated	N
6/18/2007	10024	DOGM			non coal waste	6/18.08	terminated	N

Name of Operation	Identifying number for operation	Federal or State Permit Number	MSHA ID Number
Crandall		015/032	42-01715

Date Issued	Violation Number	Name of Issuing Agency	Person Issued To	Permit Number	Brief Description of Violation	Status (Abated, Term. etc.)	Abatement Action	Appeal Y or N
8/19/2004	Nov4-49-4-1	DOGM			Parking in Forest	Term	moved vehicle	N
9/13/2004	Nov4-49-5-1	DOGM			non-coal waste	Term	moved waste	N
9/8/2005	Nov5-49-2-1	DOGM			Failure annual subsidene	Term		N
10/4/2006	#10001	DOGM			Culvet Plugged	TErm	Unplugged	N
9/6/2007	10014	DOGM			no sed pond inspection	TERM	Inspected	N
9/10/2007	10015	DOGM			plugged culvert	term	unplugged	N
1/14/2008	10016	DOGM			mine water stored in pond	Term	rerouted water	N
1/14/2008	10017	DOGM			grvity flow fro m portals	Term	stopped flow	N
2/06/2008	10019	DOGM			failure to request permit renewal	Term	submitted renewal	N
5/28/2008	10021	DOGM			Plugged culverts	Term	Unplugged	N
5/28/2008	10022	DOGM			Failure to maintain silt fence	Term	Cleaned fence	N

Name of Operation	Identifying number for operation	Federal or State Permit Number	MSHA ID Number
West Ridge		007/041	42-02233

Date Issued	Violation Number	Name of Issuing Agency	Person Issued To	Permit Number	Brief Description of Violation	Status (Abated, Term. etc.)	Abatement Action	Appeal Y or N
1/22/2004	Nov4-49-1-1	DOGM			Failure to request renewal	Term		N
4/6/2005	Nov5-39-1-1	DOGM			Failure to submit 4qtr water	Term		N
7/31/2008	10025	DOGM			coal pushed on topsoil	Term		N

Name of Operation	Identifying number for operation	Federal or State Permit Number	MSHA ID Number
Horse Cyn.		007/013	42-00100

Date Issued	Violation Number	Name of Issuing Agency	Person Issued To	Permit Number	Brief Description of Violation	Status (Abated, Term. etc.)	Abatement Action	Appeal Y or N

Name of Operation			Identifying number for operation			Federal or State Permit Number	MSHA ID Number
Canterbury Coal Inc.			644			D-024-1/S-1020	3600813/3605708
Date Issued	**Violation Number**	**Name of Issuing Agency**	**Person Issued To**	**Permit Number**	**Brief Description of Violation**	**Abatement Action**	**Appeal Y or N**
5/13/2004	143419	PADEP		3743701	90.124		N
7/29/2004	165278	PADEP		3743701	90.106		N
7/29/2004	165278	PADEP		3743701	90.152		N
7/29/2004	169136	PADEP		3743701	90.152		N
7/29/2004	165279	PADEP		3743701	89.68		N
7/29/2004	165279	PADEP		3743701	89.83		N
8/13/2004	169138	PADEP		3743701	90.124		N
9/7/2004	169139	PADEP		3743701	89.81		N
5/13/2004	143416	PADEP		3743701	86.13 CO		N
6/15/2004	145872	PADEP		3743701	89.52 CO		N
2/8/2005	182734	PADEP		3743701	90.124		N
8/5/2005	199322	PADEP		3743701	90.159		N

Name of Operation			Identifying number for operation				Federal or State Permit Number	MSHA ID Number
UMCO			74645				PA 63921301	3608375
Date Issued	Violation Number	Name of Issuing Agency	Person Issued To	Permit Number	Brief Description of Violation	Status (Abated, Term. etc.)	Abatement Action	Appeal Y or N
9/1/2004	426787	DMRM		63921301	86.13	No resolution		N
9/3/2004	426786	DMRM		63921301	89.142a(b)	No resolution		N
9/20/2004	427936	DMRM		63921301	89.142a(b)	No resolution		N
1/4/2005	445603	Air Quality		63921301	25.127.25	ADM. Close Out		N
1/13/2005	445603	Air Quality		63921301	25.127.25	ADM Close Out		N
3/18/2005	445603	Air Quality		63921301	25.127.25	ADM Close Out		N
6/10/2005	466153	DEP		63921301	25.89.21	No resolution		N
7/15/2005	448412	DEP		63921301	25.89.68	Abated		N
7/15/2005	448413	DEP		63921301	25.89.83(a)	Abated		N
10/10/2006	499479	PADEP		63921301	89.142a(f)	No resolution		Y

Name of Operation			Identifying number for operation				Federal or State Permit Number	MSHA ID Number
Maple Creek			4244				63723707	36-00970
Date Issued	Violation Number	Name of Issuing Agency	Person Issued To	Permit Number	Brief Description of Violation	Status (Abated, Term. etc.)	Abatement Action	Appeal Y or N
5/7/2004	394440	MCM		63841302	89.142A.F.1	Abated		N
5/12/2004	394880	MCM		63841302	89.142A.F.1	No resolution		N
5/13/2004	395344	MCM		63841302	89.142A.F.1	No resolution		N
5/13/2004	395345	MCM		63841302	89.142A.F.1V	No resolution		N
5/13/2004	395346	MCM		63841302	89.142A.E	Abated		N
5/7/2004	394440	MCM		63841302	89.142A.F.1	Abated		N
7/7/2004	401714	MCM		63841302	89.142A.F.1	No resolution		N
7/30/2004	421806	MCM		63841302	SMCRA.18.6	Abated		N
8/26/2004	425804	MCM		63841302	89.142A.F.1	No resolution		N
8/13/2004	426148	MCM		63723707	86.13	Abated		N
9/8/2004	427302	MCM		63723707	90.102	Abated		N
9/10/2004	427564	MCM		63723707	90.102	Abated		N
9/13/2004	427565	MCM		63723707	90.102	Abated		N
9/14/2004	427566	MCM		63723707	90.102	Abated		N
9/14/2004	427567	MCM		63723707	90.112	Abated		N
10/19/2004	432068	MCM		63723707	90.102	Abated		N
7/29/2005	469866	DEP		63723707	89.142a(b)(1)(iii)	No Resolution		N
12/1/2005	478486	PADEP		63841302	89.145a(b)	No Resolution		N
12/1/2005	478487	PADEP		63841302	89.145a(f)(1)(v)	No Resolution		N
12/1/2005	478488	PADEP		63841302	89.145a(b)	No Resolution		N
1/9/2006	480660	PADEP		63841302	1396.18(f)	Abated		N
6/12/2006	491619	PADEP		6381302	89.142a(e)	No Resolution		Y

Name of Operation	Identifying number for operation	Federal or State Permit Number	MSHA ID Number
PENNAMERICAN COAL LP	93081	32951301	36-00970

Kim Betcher

Date Issued	Violation Number	Name of Issuing Agency	Person Issued To	Permit Number	Brief Description of Violation	Status (Abated, Term. etc.)	Abatement Action	Appeal Y or N

Name of Operation	Identifying number for operation	Federal or State Permit Number	MSHA ID Number
Ohio American Coal, Inc.	N/A	N/A	3304550/3304569

Kim Betcher

Date Issued	Violation Number	Name of Issuing Agency	Person Issued To	Permit Number	Brief Description of Violation	Status (Abated, Term. etc.)	Abatement Action	Appeal Y or N
8/9/2006	21861	ODNR	OAEI	D-2180	outside of permit bndry	Abadted	IBR	N
3/1/2007	13101	ODNR	OAEI	D-2291	mining without a permit	Abadted	Permit issued	N

Name of Operation	Identifying number for operation	Federal or State Permit Number	MSHA ID Number
Energy Resources, Inc.	470	License # 1465	360 269 5

Charlie Shestak

Date Issued	Violation Number	Name of Issuing Agency	Person Issued To	Permit Number	Brief Description of Violation	Status (Abated, Term. etc.)	Abatement Action	Appeal Y or N
5/11/2004	143258	PaDEP	ERI	24010101	87.147	Abated	Corrected	N
8/26/2004	167665	PaDEP	ERI	24010101	87.140	Abated	Corrected	N
8/30/2004	168590	PaDEP	ERI	24970102	87.147	Abated	Corrected	N
7/6/2004	147120	PaDEP	ERI	33901602	89.52	Abated	Corrected	N
7/31/2006	211989	PaDEP	ERI	17841607	86.152	Abated	Corrected	N
4/11/2006	486936	PaDEP	ERI	17930120	87.157	Abated	Corrected	N

Name of Operation	Identifying number for operation	Federal or State Permit Number	MSHA ID Number
TDK Coal Sales, Inc.	27182	17910124	3608867

Charlie Shestak

Date Issued	Violation Number	Name of Issuing Agency	Person Issued To	Permit Number	Brief Description of Violation	Status (Abated, Term. etc.)	Abatement Action	Appeal Y or N
5/13/2004	143257	PaDEP	TDK	24970104	87.147	Abated	Waved	N
6/1/2004	144659	PaDEP	TDK	03940101	87.148	Abated	Corrected	N
9/15/2004	169382	PaDEP	TDK	03940102	87.106	Abated	Corrected	N
9/20/2004	169388	PaDEP	TDK	24970104	87.14	Abated	Corrected	N
10/7/2004	170575	PaDEP	TDK	24970104	87.106	Abated	Corrected	N
4/11/2006	486945	PaDEP	TDK	17900143	87.157	Abated	Corrected	N

Name of Operation	Identifying number for operation	Federal or State Permit Number	MSHA ID Number
Belmont Coal Company		D-0241/D-1020	33-04397/33-03048

David Bartsch

Date Issued	Violation Number	Name of Issuing Agency	Person Issued To	Permit Number	Brief Description of Violation	Status (Abated, Term. etc.)	Abatement Action	Appeal Y or N
2/24/2004	24541	DMR	Mine	D-0241	Gullies exis in regraded	Terminated	regraded	N

David Bartsch

Name of Operation	Identifying number for operation	Federal or State Permit Number	MSHA ID Number
The Ohio Valley Coal Co.	Powhatan No. 6 Mine	State – D-0360	33-01159

Date Issued	Violation Number	Name of Issuing Agency	Person Issued To	Permit Number	Brief Description of Violation	Status (Abated, Term. etc.)	Abatement Action	Appeal Y or N
8/2/2004	19662	DMRM	Mine	D-0360	Failure to maintain sediment control	Terminated	Cleaned Ditch	N
5/23/2006	19656	DMRM	Mine	D-0360	Failure to maintain the perimeter of diversion ditch	Terminated	Cleaned Ditch	N
11/30/2006	28473	DMRM	Mine	D-0360	Undirected Drainage	Terminated	Cleaned Ditch	N
11/30/2006	28484	DMRM	Mine	D-0360	Coal Blocking Diversion Ditch	Terminated	Cleaned Ditch	N

Name of Operation			Identifying number for operation				Federal or State Permit Number	MSHA ID Number
American Energy Corp							D-0425	33-01070
Date Issued	Violation Number	Name of Issuing Agency	Person Issued To	Permit Number	Brief Description of Violation	Status (Abated, Term. etc.)	Abatement Action	Appeal Y or N
1/25/2005	21807	ODNR		D-0425	subsided residnet ran out of water	Terminated	filled tank with water	N
4/27/2005	19696	ODNR		D-0425	Coal located outside stockpile area	Terminated	cleaned coal	N
4/29/2005	19695	ODNR		D-0425	Maintenance on pond 018	Terminated	cleaned out pond	N
4/27/2005	19697	ODNR		D-0425	drainage from property not entering sumps	Terminated	construct sumps	N
10/3/2005	21871	ODNR		D-0425	Failure to sub specific repairs (landowner)	Active		N
6/15/2006	21860	ODNR		D-1159	Segregate Prim Farmland soils	Active	Waiting on ODNR, All information submitted	N
Aug-05	CO-1726	ODNR		D-0425	Uncontroled discharge (Slurry)	Avtive	Will submit revised Plan Mid Month	N

Name of Operation			Identifying number for operation				Federal or State Permit Number	MSHA ID Number
The American Coal Co.					Galatia Mine & Millennium Portal		IDNR Mining Pemrit #2 and #352	11-02752
Date Issued	**Violation Number**	**Name of Issuing Agency**	**Person Issued To**	**Permit Number**	**Brief Description of Violation**	**Status (Abated, Term. etc.)**	**Abatement Action**	**Appeal Y or N**
9/27/2004	37-1-04	IDNR	DeNeal	Permit #2	Failure to submit groundwater report on schedule	Terminited		N
4/13/2005	37-01-05	IDNR	DeNeal	Permit #2	Failure to submit u/g mining maps	Terminited		N
5/12/2005	37-02-05	IDNR	DeNeal	Shadow Area 9	failure to complete subsidence mitigation in	Modified		N
					contemporaneous manner.			
6/1/2005	37-03-05	IDNR	DeNeal	352	broken waterline-fialure to prevent minepumpage from passing through sediment pond before going offsite	Terminated		N

The following companies either did not have any violations in the last three years or do not have permits.

Oklahoma Coal Company

KenAmerican Resources, Inc.

Onieda Coal, Inc.

MonValley Transportation Center, Inc.

Mill Creek Mining Co.

Pinski Corp

American Compliance Coal Inc.

Coal Resources Inc.

PA Transloading, Inc.

West Virginia Resources Inc.

WildCat Loadout

American Coal Sales Co.

Hocking Valley Resources Co..

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R645-301-200 CHAPTER 2

CHAPTER 2
R645-301-200 SOILS

R645-301-200 SOILS

NOTE: The following discussion for the remainder of R645-301-200 applies specifically to the Gob Gas Vent Hole (GVH) installation proposed in Bear Canyon. In order to facilitate the review it is presented here in its entirety rather than interspersed throughout the chapter. A more detailed and complete discussion of the Bear Canyon GVH proposal can be found in Appendix 5-14. Unless specifically noted in this following discussion, nothing related to the Bear Canyon GVH proposal affects the contents of the existing approved MRP as described hereinafter.

The location of the GVH in Bear Canyon is adjacent to the end of the existing road in the canyon. Construction of the GVH facilities will involve disturbing about 0.24 acres in the east side of the bottom of the canyon. Before any excavation begins at the GVH site, all available topsoil will be salvaged. Bob Long, CPSS, of Long Resource Consultants, Inc., has conducted an Order 1 soils survey of the site. His report is included in Appendix 2-10, and also Attachment 2 of Appendix 5-14. Three test pits were dug in the hillside and the soil resources were measured and catalogued. There is a significant layer of soil material present, which will be salvaged and stored nearby for final reclamation. Due to its location in the bottom of the canyon, and the varying steepness of the sideslope, the thickness of the soil varies considerably over the site. Also, as is typical for the Book Cliff canyons, there are a number of large boulders lying on the surface, surrounded by pockets of topsoil. Based on the results of the survey, the average depth of topsoil at the site is about 16". The area of the GVH site, including both the pad and the adjacent cutslope, is approximately 0.24 acres. Therefore, according to the soils survey, at least 515 cu. yds., or 13,878 cu. ft. of topsoil should be salvaged from the site.

Soils samples were taken by Mr. Long and have been sent to the laboratory for analysis. Once the analysis results are obtained they will be submitted to the Division and inserted as part of Appendix 2-10. If laboratory analysis of the soils indicates a need for additives, fertilizers, or enhancement of other kinds, the Company commits to providing such at the time of final reclamation as determined by the Division . However, it is felt that this soil in its existing condition should be adequate for final reclamation because it appears to be well developed and of sufficient quantity. In fact, it is the identical same soil removed from the site which will be replaced at the time of reclamation. The Order 1 Soils Reports concludes that *"the potential for successfully reclaiming the Bear Canyon GVH location is good based on the estimated quality and quantity of topsoil that may be salvaged."*

The topsoil will be carefully removed using a trackhoe which can reach up the slope from the road surface below. Large boulders will be separated from the material, and the topsoil will then be loaded into rock-trucks and hauled off-site for storage. The storage site is located approximately 3300' down-canyon from the GVH site, in a flat area adjacent to the road. This storage area is located on SITLA surface and SITLA coal lease ML49287 (see Attachment 1 of Appendix 5-14 for location). The pile will be constructed with overall dimensions of approximately 100' long, 40' wide, and 8' high, with 2:1 sideslopes (see Appendix 2-10 and/or Attachment 3 of Appendix 5-14 for details of the pile configuration). The pile will be kept low to prevent unnecessary compaction, and to help maintain viable micro-organisms. Attachment 3 shows that a pile configuration with a capacity in excess of 700 cu. yds. can easily be stored at this site.

Upon completion of topsoil salvage, the storage pile will be pocked (roughened) and reseeded with a previously approved seed mix as shown in Table 3-3, and is also included in Attachment 13 of Appendix 5-14 for ready reference. As an alternate, Attachment 13 also includes a seed mix which was used on the Crandall Canyon East Mountain drillhole reclamation project and is readily available, subject to Division concurrence of its use. A layer of wood straw will then be scattered over the surface. The pocking, re-seeding and wood straw are all measures to help minimize erosion, and promote a healthy interim re-vegetation until the time of final reclamation. A containment berm made of sub-soil material, and a siltation control structure (such as excelsior logs) will be installed around the perimeter of the pile to prevent erosional loss of topsoil material from the pile. A topsoil identification sign will be installed on the pile upon completion. An as-built drawing of the pile will be prepared and supplied to the Division, and a final assessment of the volume of salvaged material will be updated in the MRP.

During topsoil salvaging and stockpiling, the Company commits to having an monitor on site at all times. The purpose of this person will be to make sure that all topsoil resources are properly salvaged, to maintain accurate truck count of material, take photos, and generally make sure that the salvage and stockpiling operations are done according to the plan. The monitor will be someone familiar with topsoil salvaging and pre-approved by the Division.

R645-301-220 ENVIRONMENTAL DESCRIPTION

The West Ridge Mine is located in eastern Carbon County, Utah on the east side of the Price River drainage basin at the western edge of the Book Cliffs. The Book Cliffs are oriented northwest-southeast in the vicinity of the proposed permit area. The mine site surface facilities is located in C Canyon (just north of B Canyon) in an east-west trending canyon incised down through the cliff face. The elevation differences in the area of the mine site range from approximately 6,800 feet amsl at the mouth of C Canyon to over 8,800 feet on top of West Ridge. Elevations of the mine site area range from 6,900 feet amsl to 7,200 feet amsl.

In addition to the mine site, a substitute topsoil borrow area has been permitted as backup soil material for reclamation at the proposed mine site. This site is located approximately 1 ½ miles west of the mine site and would only be used to supplement existing soil resources at the mine site if reclamation efforts do not prove successful utilizing the materials on site. The elevation of the proposed borrow site is about 6,500-6,600 feet. Refer to Map 2-3 for details of the proposed borrow site disturbed area and soil mapping information.

The average annual precipitation in the area of the mine site is 12-14 inches with the majority of the precipitation occurring from October to March. The mean annual air temperature is 45-47 degrees F and the average frost-free period is 80 to 120 days.

No shallow water table is present as evidenced through the soil pits dug throughout the proposed mine site area. The ephemeral streams flow only in direct response to heavy rainfall events. Valley bottoms are narrow and comprised of sands and coarse alluvial soil materials with low organic matter content. Steep hillslopes and narrow benches have been formed in the alternating sedimentary lithologic units, primarily sandstones and shales. The majority of the soils are shallow and well drained.

APPENDIX 2-10

BEAR CANYON GVH SOILS INFORMATION

a) ORDER 1 SOILS SURVEY
LONG RESOURCE CONSULTANTS

b) TOPSOIL STORAGE AREA

Long Resource Consultants, Inc.
1960 W Deep Creek Road, Morgan, UT 84050-966, Office 801-829-6416, Cell 801-791-3447, Email lrcsoils@msn.com

Mr. Dave Shaver
Utah American Energy
West Ridge Mine
P.O. Box 1077
Price, Utah 84501

October 15, 2008

Dave,

Attached is the soils evaluation report for the Bear Canyon Gas Vent Hole location. It includes an assessment of existing soil conditions correlated to established soil series that are presently in use by the NRCS in either Carbon or Emery counties. An estimate of the potential topsoil salvage quantity is also included. All salvage operations should be closely monitored.

Thank you for the opportunity to conduct this soil resource evaluation for the Westridge Mine. Please contact me if you have any questions (801-791-3447).

Sincerely,

Robert E. Long

Robert E. Long, CPSS
President

Bear Canyon – Left Fork
Soils Evaluation

Gas Vent Hole

Location:	Easting	547580
	Northing	4387075
	Zone	12
	NAD	1983
	Township	14 South
	Range	13 East
	Section	3
	Meridian	Salt Lake
	USGS Quad: Mount Bartles, Utah	
Elevation:	7185 to 7240 feet	

Purpose of Soil Resource Assessment

The purpose of this soil resource assessment was to determine how closely the soils at the Bear Canyon Gas Vent Hole (GVH) site correlated with the Carbon County Soil Survey produced by the Natural Resource Conservation Service (NRCS, USDA 2007). Topsoil and subsoil salvage depths were estimated based on soil profile descriptions. Soil types vary across the site and monitoring should be part of the topsoil salvage operations.

The identification of hazardous or toxic materials was not part of this soil resource assessment.

Assessment Methods

This assessment was made by comparing the soil map unit delineated by the NRCS in the Carbon County Soil Survey with the soils actually identified at the site. Three soil profile descriptions were completed for the Bear Canyon GVH location using the Field *Book for Describing and Sampling Soils* (Schoeneberger, P.J., et. al., 2002).

The soil resource assessment was conducted by Robert E. Long, Certified Professional Soil Scientist (CPSS, No. 02346 ARCPACS) on October 7, 2008.

Taxonomic classification of the soil pedons was based on *Keys to Soil Taxonomy*, Tenth Edition (USDA 2006). The pedons were correlated to established soil series (USDA 2008) currently in use in Carbon and Emery Counties, Utah.

Soil colors were compared with color chips in the *Munsell Soil Color Charts* (Munsell 2000).

Soil pH was measured with field indicator dyes (phenol red and thymol blue).

Percent calcium carbonate was determined with a field calcimeter.

Digital photographs were taken at each soil profile location to document current conditions.

The *Soil Pit Location Map* was drawn to scale by Westridge mine staff. Elevations for each soil profile location were based on the soil map topographic lines. Soil area delineations were estimated in the field by visual observation of the cutbank.

Dominant vegetation was identified. A separate quantitative vegetation assessment is being prepared by Mt. Nebo Scientific.

Site locations were recorded with a Garmin GPSmap 60CSX in UTM, NAD 1983. The UTM location listed at the beginning of this report is for soil pit BC-GVH-02 which is located near the center of the Bear Canyon GVH evaluation area.

General Site Description

A soil resource evaluation was conducted at the Gas Vent Hole location in the right fork of Bear Canyon on October 7, 2008. The access road leading to the site had been upgraded just prior to the soils evaluation. The road upgrade exposed an 8 to 12 foot cutbank along the north side of the proposed GVH site. The Bear Canyon GVH location is 0.24 acres (*Soil Pit Location Map*).

The proposed GVH site is at the footslope of a very steep north-northwest facing mountain sideslope. Slopes on the GVH site range from 6 to 10 percent on the footslope and 25 to 40 percent above the footslope. Soils developed from alluvial and colluvial deposition.

Elevation at the site ranges from 7,185 to approximately 7,240 feet.

Estimated annual precipitation ranges from 20 to 35 inches based on the official soil series descriptions (USDA 2008).

Sandstone rock outcrops occur on the upslope perimeter and are shown on the *Soil Pit Location Map* as rock ledges.

NRCS Soil Map Unit

The south side of the right fork of Bear Canyon was delineated (NRCS 2007) as map unit 21 by the NRCS (Croydon loam, 8 to 30 percent slopes). Croydon soils are very deep with a thick mollic (dark) surface and an argillic horizon (Pachic Argicryoll, fine-loamy, mixed, superactive). Soils identified at the Bear Canyon GVH site were similar to Croydon, but they have calcic horizons and contain large amounts of subangular sandstone fragments. Descriptions of the soils identified at the Bear Canyon GVH site are in the *Topsoil Resource* section of this report.

The north side of the right fork of Bear Canyon was delineated (NRCS 2007) as map unit 84 (Podo – Rock outcrop complex, 50 to 70 percent slopes) by the NRCS. Disturbance is not anticipated on the north side of the right fork of Bear Canyon.

Soil Resource

Three soil pedons were evaluated along the access road cutbank. Soil pedon BC-GVH-01 was trimmed back with shovels, while pedons BC-GVH-02 and BC-GVH-03 were dug approximately 6 to 8 feet into the cutbank with a backhoe. Table 1 lists the taxonomic classification and correlated soil series for the described soil pedons. The location of each soil pedon is shown on the *Soil Pit Location map*.

Table 1. Taxonomic classification of Bear Canyon GVH soil profiles.

Pedon	Soil Series	Taxonomic Classification
1	Aagard skeletal taxadjunct	Calcic Pachic Argicryoll, loamy-skeletal, mixed, superactive
2	Northorn	Calcic Argicryoll, fine-loamy, mixed, superactive
3	Aagard	Calcic Pachic Argicryoll, fine-loamy, mixed, superactive

Coarse fragments ranging in size from gravels to stones and some boulders were observed in all three soil pedons. Percent, size, and location of sandstone fragments varied between and within the pits.

Each of the three soil pedons exhibited evidence of multiple episodes of alluvial and colluvial deposition. This determination was based on irregular changes in soil color, texture, carbonates, and rock fragments (size and percent).

Pedon BC-GVH-01 was located near the east end of the Bear Canyon GVH evaluation area, photos 1 through 3. This pedon is pachic with mollic soil colors extending to a depth of 17 inches. Rock fragments were approximately 40 percent in the surface 12 inches and none in the buried A horizon (2A, 12-17 inches). Rock fragment content below 17 inches ranged from 5 to 45 percent. Calcium carbonate percent increased significantly below 17 inches. The amount of calcium carbonate present in the soil met the requirements for a calcic horizon from 17 to 44 inches. This soil was correlated to a skeletal taxadjunct of the Aagard soil series.

Pedon BC-GVH-02 was located near the center of the Bear Canyon GVH evaluation area, photos 4 through 6. Mollic soil colors only extended to 12 inches in this pedon. Rock fragments ranged from 18 to 30 percent in the surface 12 inches; and from 10 to 70 percent below 12 inches. Calcium carbonate percent began to increase significantly at 12 inches. Two calcic horizons were present at 20 to 38 inches and from 51 to 84 inches. This soil was correlated to the Northorn soil series.

Pedon BC-GVH-03 was located near the west end of the Bear Canyon GVH evaluation area, photos 7 through 9. This pedon is pachic with mollic soil colors extending to a depth of 17 inches. Rock fragments were approximately 15 percent in the surface 17 inches; and ranged from 40 to 70 percent below 17 inches. Calcium carbonate percent ranged from 18 to 25 percent below 17 inches and met the requirements of a calcic horizon. This soil was correlated to the Aagard soil series.

Topsoil Salvage

The depth of topsoil salvage varies across the Bear Canyon GVH location. The GVH location was divided into three soil areas to describe the potential topsoil salvage depths. Table 2 illustrates the range of soil characteristics within each pedon that have an effect on topsoil suitability. The depth of suitable topsoil corresponds directly with the depth of mollic soil colors.

Large stones and boulders should be removed from the salvaged topsoil, as much as may be feasibly possible, during the salvage operations.

Table 2. Soil characteristics influencing topsoil suitability (Utah DOGM 2005).

Depth	Horizon	Mollic Soil Colors	pH[1]	$CaCO_3$ [2]	Rock Fragments[3]	Topsoil Salvage Depth	Topsoil Salvage Depth Determining Feature(s)
inches				%	%	inches	
BC-GVH-01							
2-0	Oi		Leaves, needles & twigs				
0-3	A1	Yes	7.6	6	40		
3-12	A2	Yes	7.6	11	40		
12-17	2A	Yes	7.9	8	0	17	
17-34	2Btk	No	8.4	16	45		Alkaline soil pH (>8.2), CaCO3% (>15), rock fragments (>35%).
34-44	3A	No	8.2	15	30		
44-56	3Bw	No	8.2	10	5		
56-84	4Bk	No	8.4	8	40		
BC-GVH-02							
2-0	Oi		Leaves, needles & twigs				
0-3	A	Yes	7.8	2	18		
3-12	Bt	Yes	7.9	8	30	12	
12-20	BC	No	8	12	40		Alkaline soil pH (>8.2), CaCO3% (>15), rock fragments (>35%).
20-38	2CA	No	8.1	19	10		
38-45	3Bk	No	8.2	15	70		
45-51	4A	Yes	7.9	5	10		
51-72	5Bk	No	8.4	15	70		
72-84	6C	No	8.1	9	15		
BC-GVH-03							
2-0	Oi		Leaves, needles & twigs				
0-4	A	Yes	7.6	3	15		
4-17	Bt	Yes	7.9	7	15	17	
17-30	BC	No	8.2	18	40		Alkaline soil pH (>8.2), CaCO3% (>15), rock fragments (>35%).
30-57	2CA	No	8.4	18	40		
57-90	3Bk	No	8.4	25			

1. Soil pH was measured with indicator dyes; good (6.2-8.2), fair (8.2-8.5), and poor (8.6-9.0).
2. Percent CaCO3 was measured with field calcimeter; good (<15%), fair (15-30%), and poor (>30%).
3. Percent rock fragments was estimated visually in the field; good (<35%), fair (35-65%), poor (>65%).

Topsoil suitability: Good Fair Poor

Table 3 lists the potential topsoil salvage depths and estimated quantities for the Bear Canyon GVH location. Topsoil depths may decrease as the slope increases. Topsoil salvage operations should be monitored by a Certified Professional Soil Scientist. The estimated total topsoil salvage quantity of 514.2 cubic yards will allow approximately 15 to 16 inches of topsoil to be spread evenly over the final graded surface of 0.24 acres.

Table 3. Potential topsoil salvage depths and estimated quantities by soil area and total GVH project location.

Soil Area	Soil Pedon	Potential Topsoil Depth[1]	Area[2]	Estimated Topsoil Quantity[3]
		inches	acres	cubic yards
A	1	17	0.08	182.8
B	2	12	0.05	80.7
C	3	17	0.11	251.4
Total			0.24	514.2

1. Potential topsoil salvage depth is based on depths observed in representative soil pedons evaluated in each soil area.
2. Area is based on acres measured by Westridge Mine staff and delineated on the *Soil Pit Location Map*.
3. Estimated topsoil salvage quantity is based on potential topsoil salvage depth and measured area.

Vegetation

The dominant vegetation community consists of an overstory of Douglas fir, bigtooth maple, and quaking aspen. The understory shrub community is dominated by mountain snowberry. The vegetation report written by Mt. Nebo Scientific contains a more detailed quantitative description of the site vegetation.

Reclamation Potential

The potential for successfully reclaiming the Bear Canyon GVH location is good based on the estimated quality and quantity of topsoil that may be salvaged.

Site Photos

Photo 1. Soil profile BC-GVH-01 located at the east end of the Bear Canyon GVH evaluation area. This soil was correlated to be a skeletal taxadjunct of the Aagard soil series (Calcic Pachic Argicryoll, loamy-skeletal, mixed, superactive).

Photo 2. Location of soil profile BC-GVH-01 at east end of Bear Canyon soils evaluation area. Description was done in cutbank on convex knoll of mountain footslope.

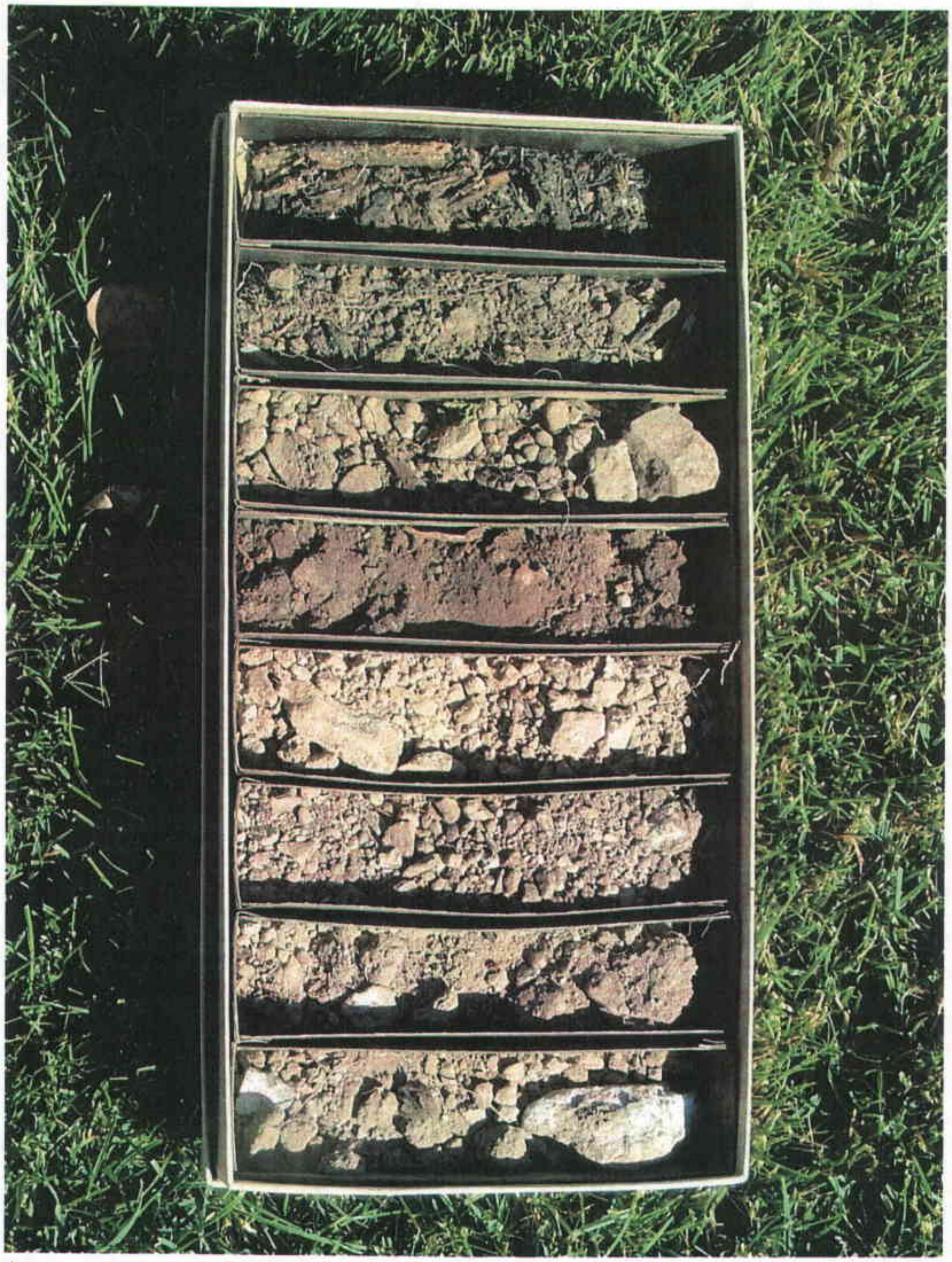


Photo 3. BC-GVH-01 pedon sample box. Top tray contains the Oi horizon (needles, leaves, and twigs). Potential topsoil salvage depth (0-17 inches) is limited to trays 2 (A1, 0-3 inches), 3 (A2, 3-12 inches), and 4 (2A, 12-17 inches) from top. The calcic horizon is contained in trays 5 (2Btk, 17-34 inches) and 6 (3A, 34-44 inches) from the top. Tray 8 (4Bk, 56-84 inches) has poor soil pH and poor percent rock fragments.

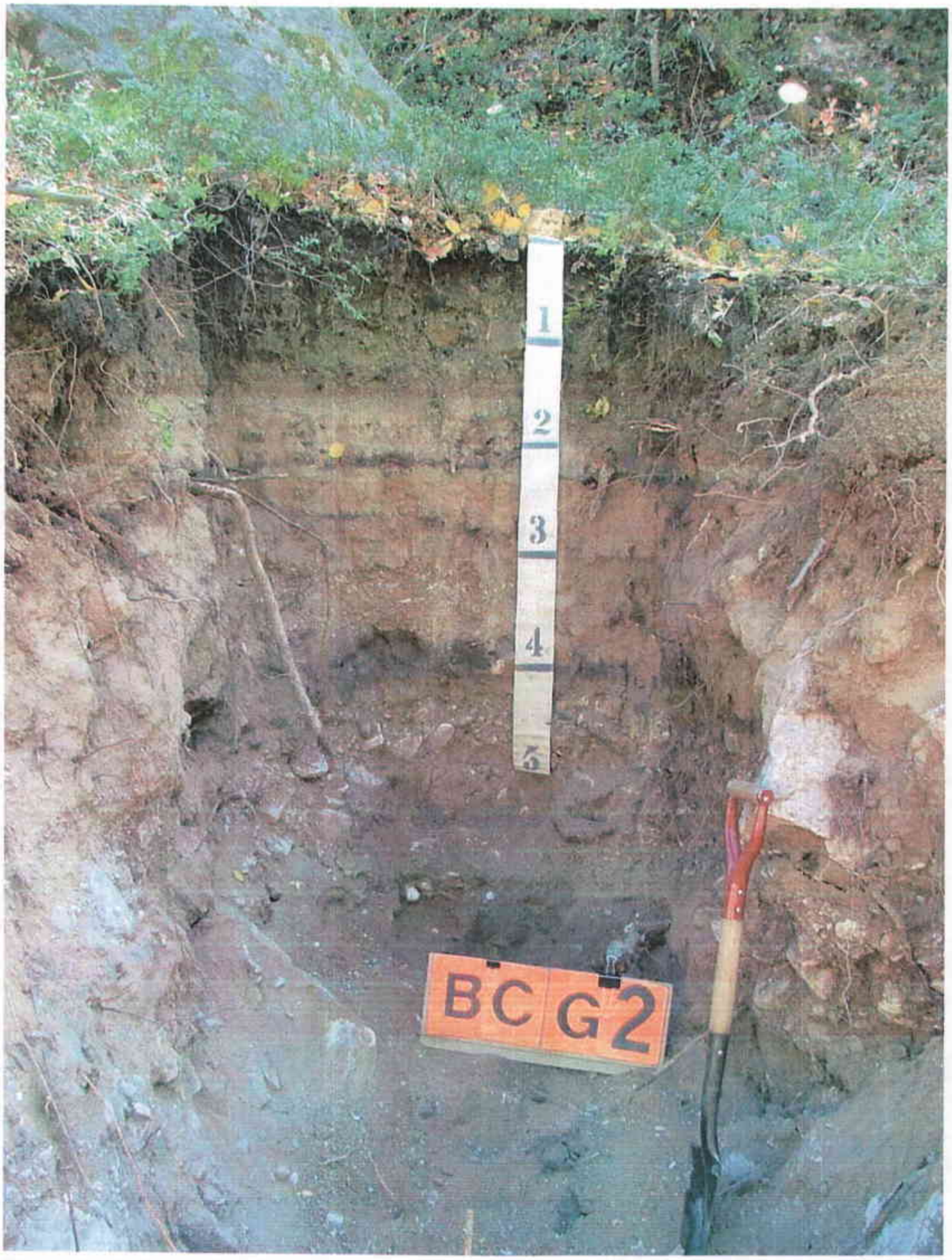


Photo 4. Soil profile BC-GVH-02 near center of Bear Canyon GVH evaluation area. Soil was correlated to Northorn series (Calcic Argicryolls, fine-loamy, mixed, superactive).

Photo 5. Location of soil profile BC-GVH-02 near center of Bear Canyon GVH soils evaluation area. Pit was on cutbank on concave mountain footslope near sandstone rock outcrop (at right in photo).

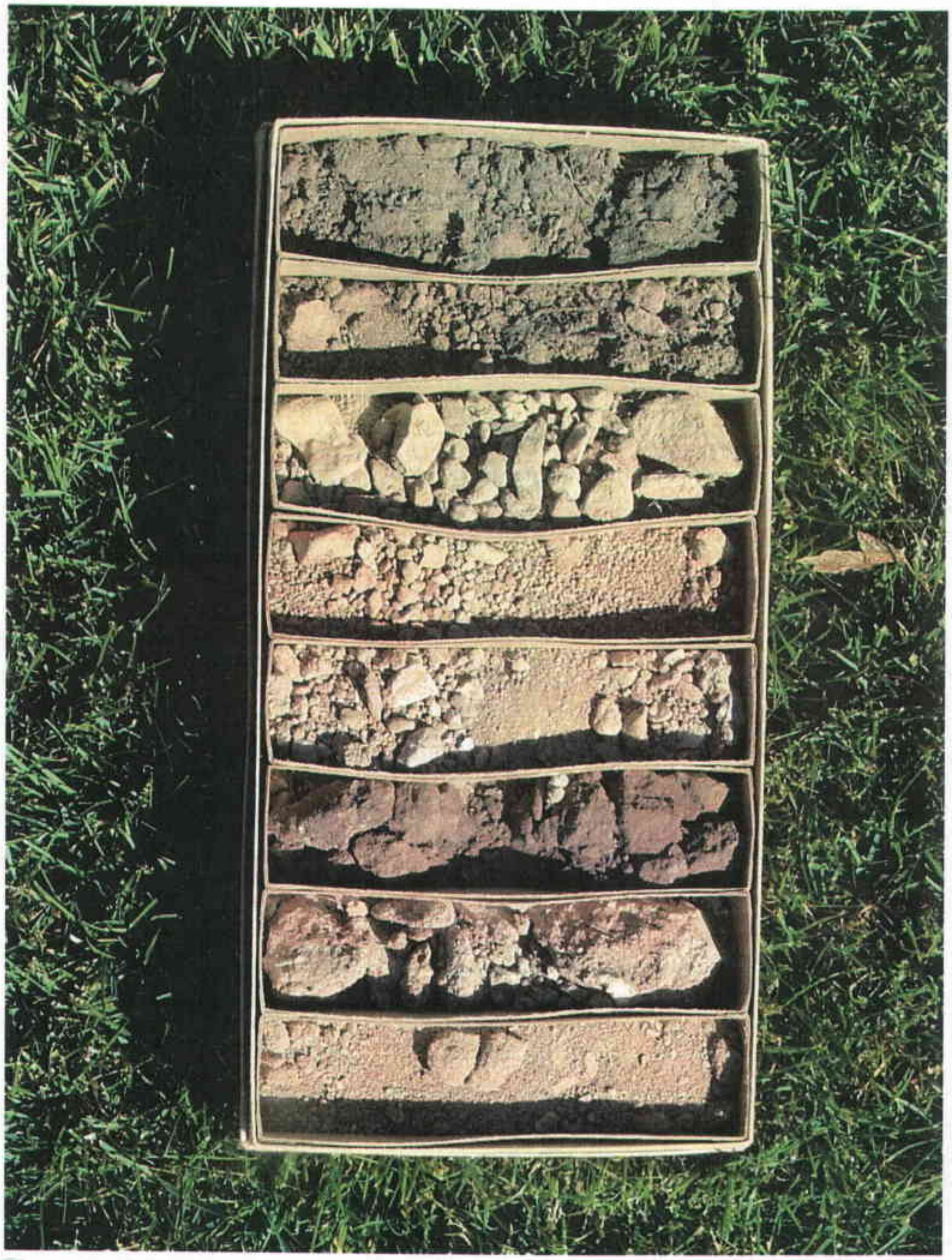


Photo 6. BC-GVH-02 soil pedon box. The Oi horizon is not displayed in box. Potential topsoil salvage depth is limited to the top trays 1 (A, 0-3 inches) and 2 (Bt, 3-12 inches) at the top of box. Soil material in tray 3 (BC, 12-20 inches) has 12 percent calcium carbonate with 40 percent rock fragments and was determined to not be suitable for topsoil salvage. The upper calcic horizon is contained in trays 4 (2CA, 20-38 inches) and 5 (3Bk, 38-45 inches) from the top. Tray 5 (4A, 45-51) inches contains a buried surface. The lower calcic horizon is in trays 7 (5Bk, 51-72 inches) and 8 (6C, 72-84 inches).

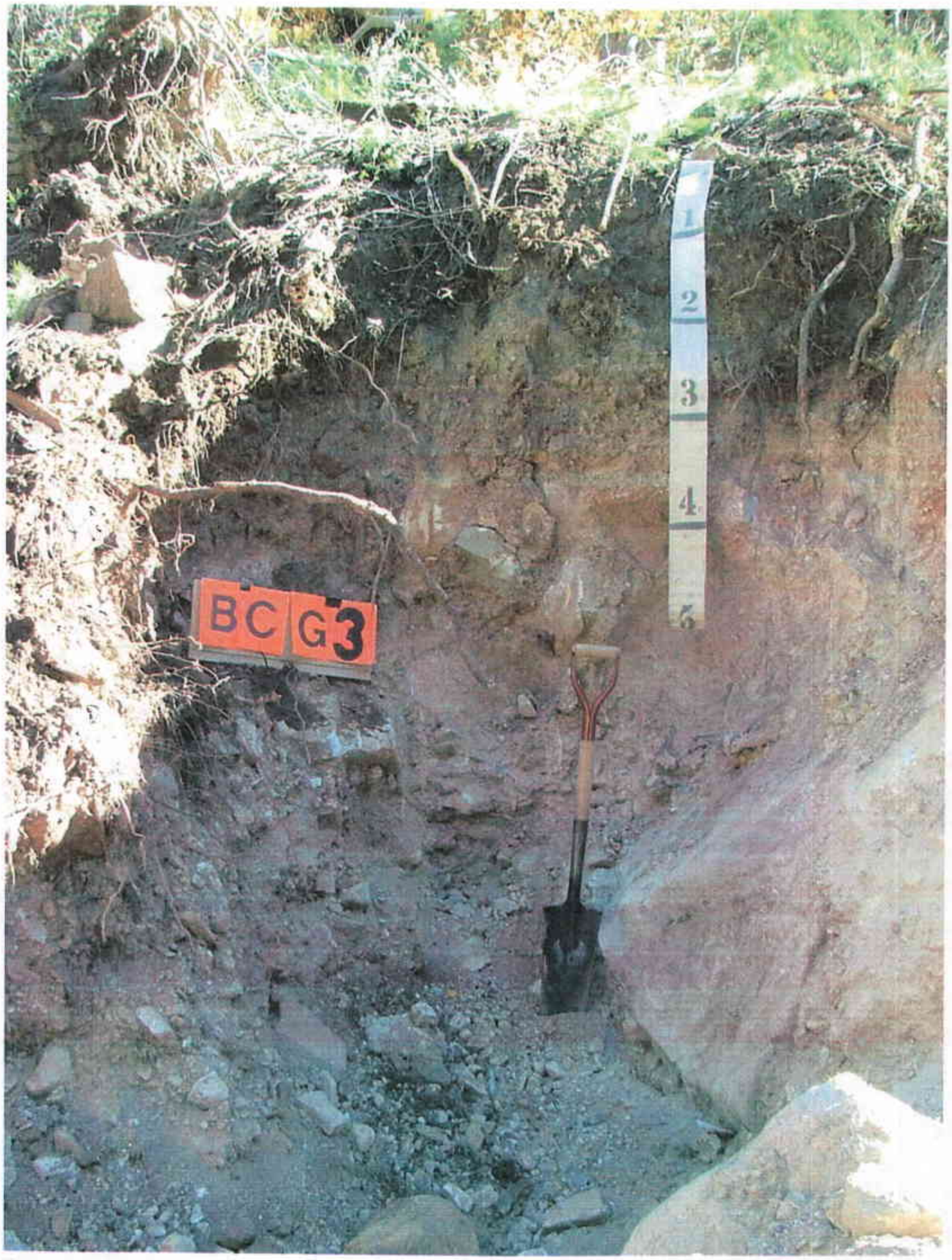


Photo 7. Soil profile BC-GVH-03 located near west end of Bear Canyon soils evaluation area. This soil was correlated to the Aagard series (Calcic Pachic Argicryoll, fine-loamy, mixed, superactive). Large boulders can be seen on the right next to the shovel and in the lower right.

Photo 8. Location of soil profile BC-GVH-03 on convex portion of a mountain footslope. This site is located between two sandstone outcrops (one is at left in photo).

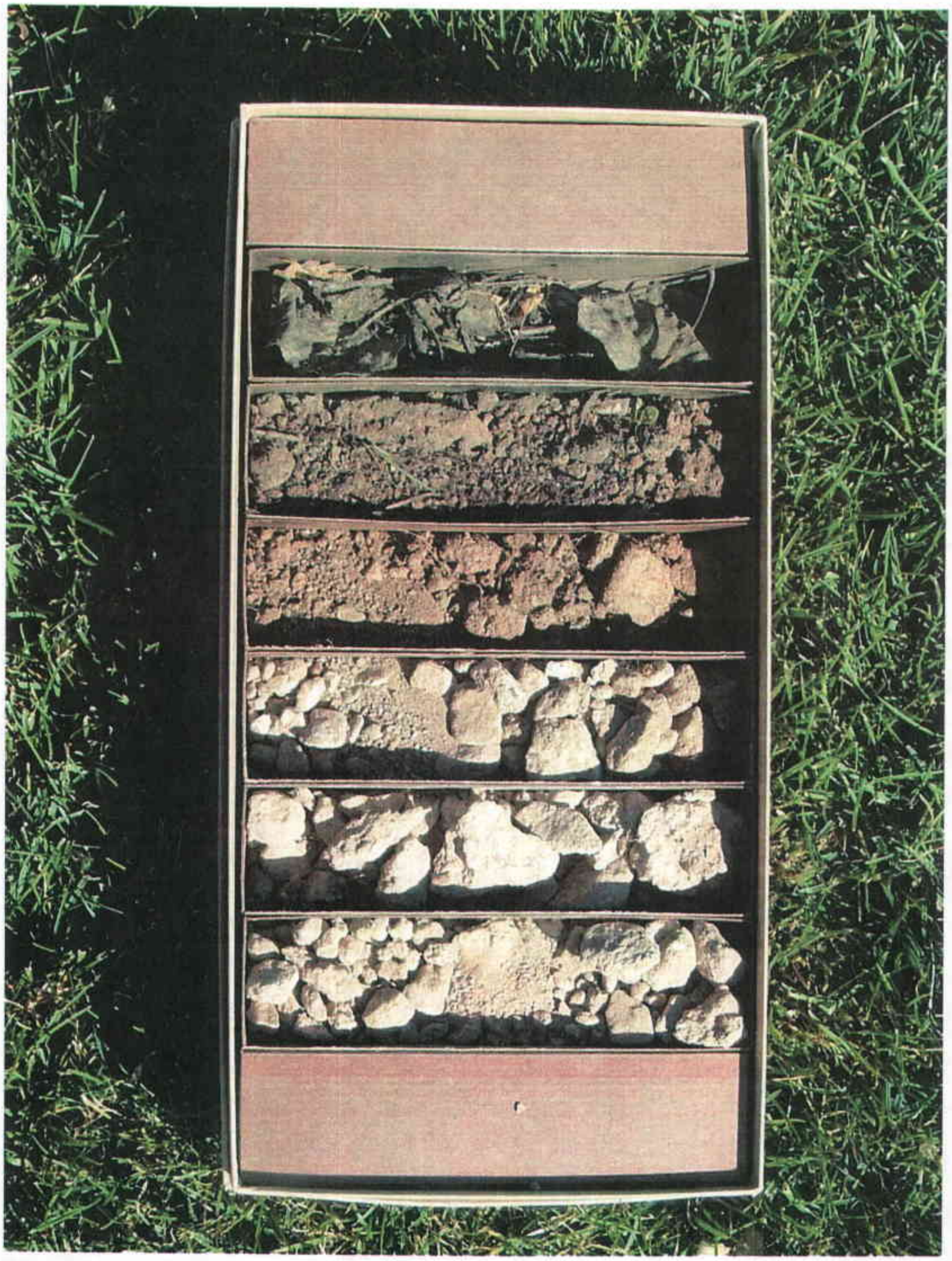


Photo 9. BC-GVH-03 soil pedon box. The Oi horizon (needles, leaves, and twigs) is in the top tray. Potential topsoil salvage depth is limited to trays 2 (A, 0-4 inches) and 3 (Bt, 4-17 inches) from the top. The calcic horizon is contained in trays 4 (BC, 17-30 inches), 5 (2CA, 30-57 inches), and 6 (3Bk, 57-90 inches) from the top. Soil texture in tray 6 is extremely stony loamy sand.

Literature Cited

Munsell Soil Color Charts, 2002.

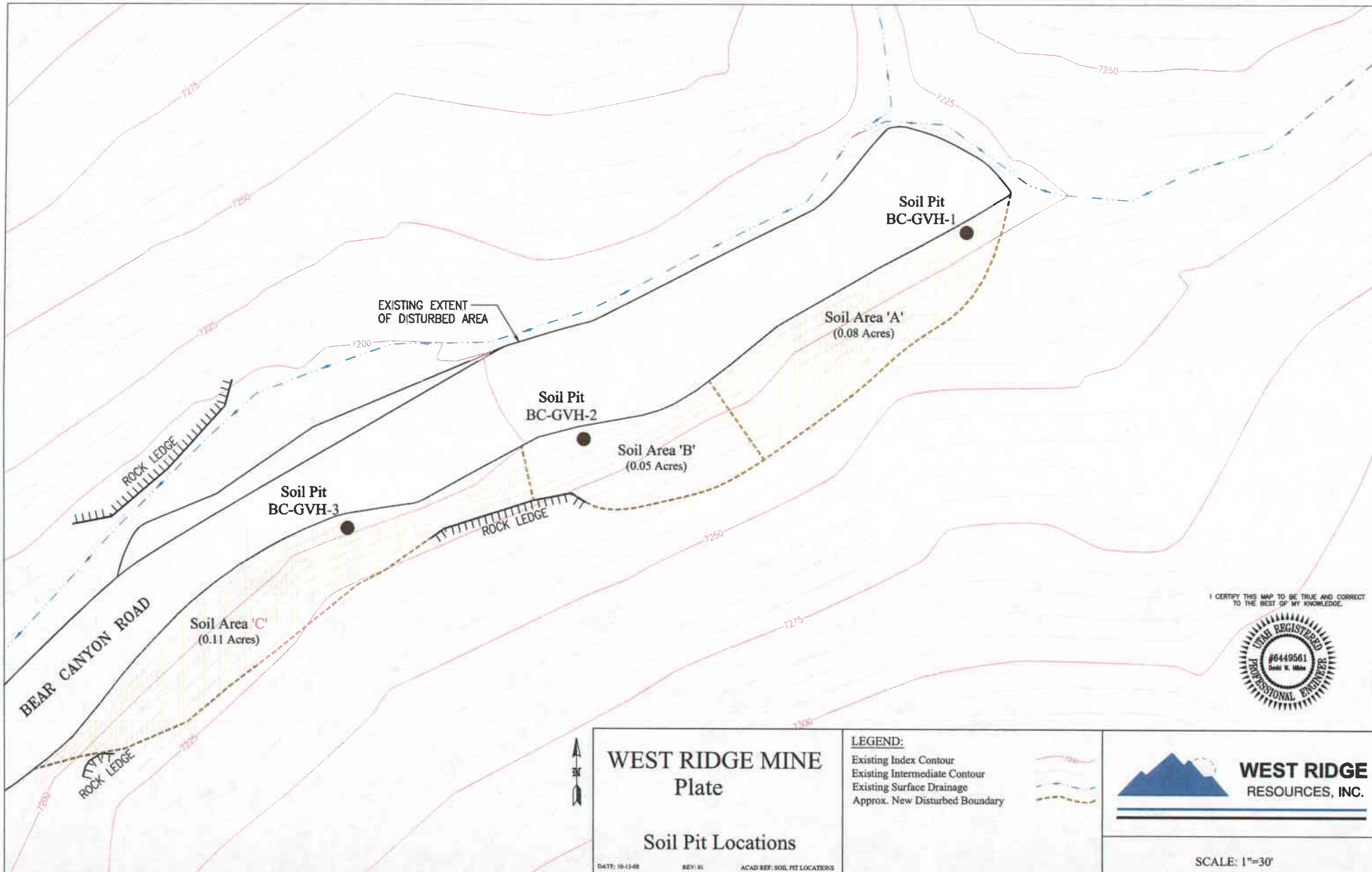
Schoeneberger, P.J., Wysocki, D.A., Benham, E.C., and Broderson, W.D. (editors), 2002. Field Book for describing and sampling soils, Version 2.0. Natural Resource Conservation Service, National Soil Survey Center, Lincoln, NE.

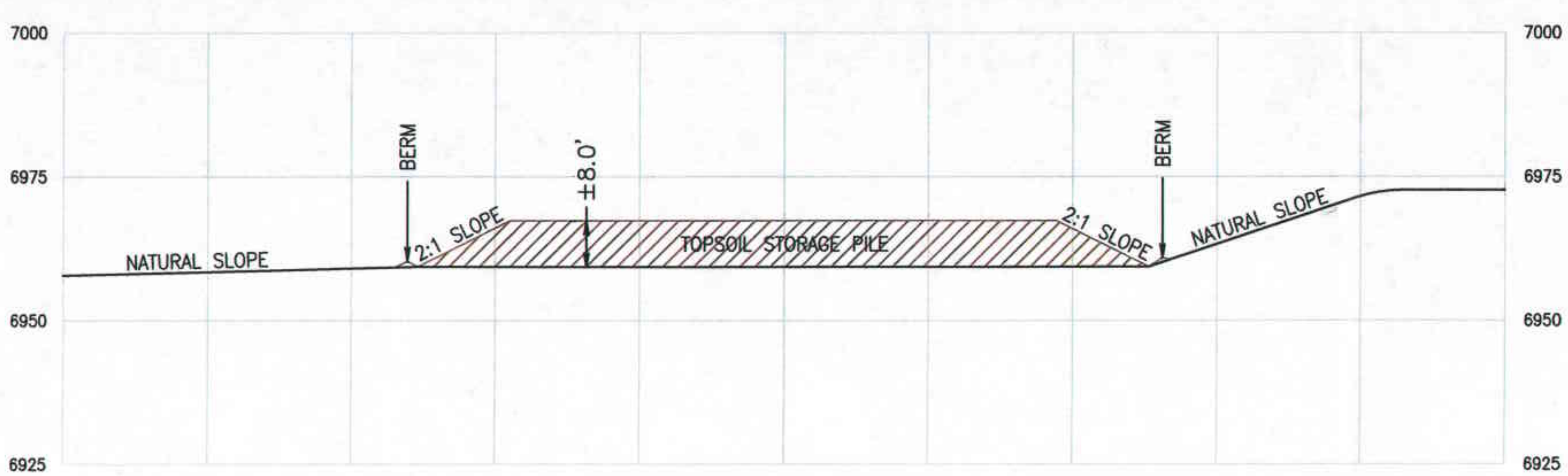
USDA – Natural Resource Conservation Service, 2006. Keys to Soil Taxonomy, Tenth Edition.

USDA – Natural Resource Conservation Service, 2007. National cooperative Soil Survey, Web Soil Survey. Carbon Area, Utah, Parts of Canbon and Emery Counties. Accessed October 6, 2008.

USDA – Natural Resource Conservation Service, 2008. Official Soil Series Descriptions (http://soils.usda.gov/technical/classification/osd/).

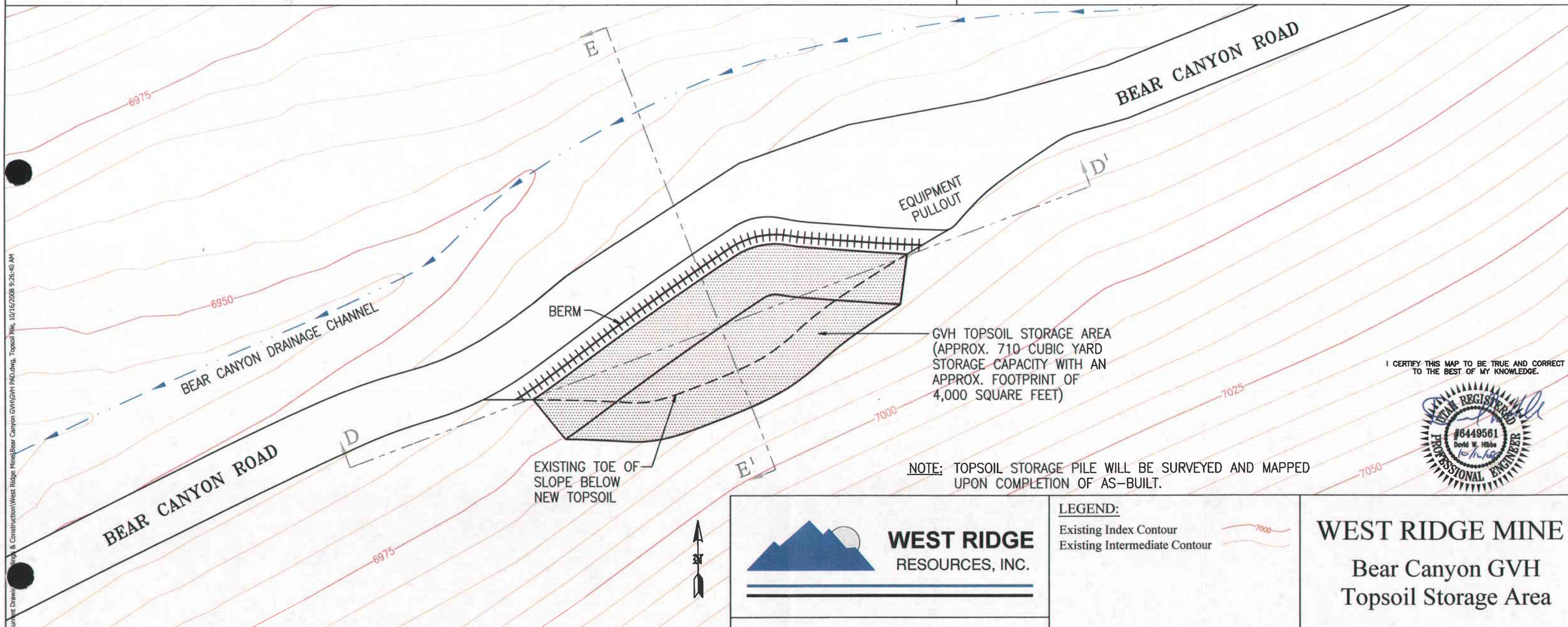
Utah Division of Oil, Gas, and Mining, October 2005. Guidelines for Management of Topsoil and Overburden.


Soil Pit
BC-GVH-1
Soil Area 'A'
(0.08 Acres)
Soil Pit
BC-GVH-2
Soil Area 'B'
(0.05 Acres)
Soil Pit
BC-GVH-3
Soil Area 'C'
(0.11 Acres)
EXISTING EXTENT
OF DISTURBED AREA
ROCK LEDGE
ROCK LEDGE
ROCK LEDGE
BEAR CANYON ROAD
7200
7225
7250
7275
7300
N
I CERTIFY THIS MAP TO BE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.
UTAH REGISTERED PROFESSIONAL ENGINEER
#6449561
WEST RIDGE MINE
Plate
Soil Pit Locations
DATE: 10-13-08
REV: 01
ACAD REF: SOIL PIT LOCATIONS
LEGEND:
Existing Index Contour
Existing Intermediate Contour
Existing Surface Drainage
Approx. New Disturbed Boundary
WEST RIDGE
RESOURCES, INC.
SCALE: 1"=30'



SECTION D-D[1]

SECTION E-E[1]



NOTE: TOPSOIL STORAGE PILE WILL BE SURVEYED AND MAPPED UPON COMPLETION OF AS-BUILT.

I CERTIFY THIS MAP TO BE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.

UTAH REGISTERED PROFESSIONAL ENGINEER #6449561 David W. Hibbs 10/16/08

TOPSOIL STORAGE AREA PLAN

WEST RIDGE RESOURCES, INC.

SCALE: 1"=30'

LEGEND:
Existing Index Contour — 7000
Existing Intermediate Contour

WEST RIDGE MINE

Bear Canyon GVH
Topsoil Storage Area

DATE: 10-16-08 REV: 01 ACAD REF: GVH PAD

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R645-301-300 CHAPTER 3

CHAPTER 3
R645-301-300 BIOLOGY

R645-301-320 ENVIRONMENTAL DESCRIPTION

The West Ridge Mine is located on the western escarpment of the Book Cliffs about 25 miles east of Price and 5 miles northwest of the town of East Carbon. The Book Cliffs consist of steep canyons and high mountains east of the mine site. Topographic elevations within the permit area range from 6,500 to over 8,800 feet. The highest point located above West Ridge is approximately 8,866 feet. Because of the rugged topography in the region, the present land uses are limited to wildlife habitat, rangeland and recreation. A large portion of the surface area is public land managed by the Bureau of Land Management (BLM).

The permit area lies within the cool, semiarid climatic zone characterized by warm, moist springs and summers and by cold, dry winters. The mean annual precipitation is about 12 inches in the vicinity of the mine site, with most of the annual precipitation occurring during the summer months. Temperatures range from summer highs in the 90's to below zero during the winter months. The average frost free period is 141 days per year.

Habitat types in the canyons range from mixed mountain conifer on north and east-facing slopes and pinyon-juniper woodland on south and west-facing slopes to rock outcrops which form multi-layered barren cliffs. Where barren rock outcrop is present, little or no vegetation exists. On the ridges above the canyons, mixed mountain brush and sage/grass plateau dominate with some extensive aspen woodland below West Ridge to the northeast of the permit area. Pinyon-juniper woodland occurs at the mouths of the canyons with interspersed patches of sagebrush shrubland, such as the area around the proposed borrow site. An area of Pinyon-Juniper adjacent to the mouth of B and C Canyons was chained in the late 1960's, however, the trees have now regrown at this site.

Vegetation types for the permit and surrounding area were mapped on color aerial photos at a scale of 1" = 2,000', with six primary vegetation types being identified. The information was then field checked for accuracy of mapping. The regional vegetation map is included as Map 3-1 General Vegetation Communities

NOTE: The following discussion for the remainder of R645-301-320 applies specifically to the Gob Gas Vent Hole (GVH) installation proposed in Bear Canyon. In order to facilitate the review it is presented here in its entirety rather than interspersed throughout the chapter. A more detailed and complete discussion of the Bear Canyon GVH proposal can be found in Appendix 5-14. Unless specifically noted in this following discussion, nothing related to the Bear Canyon GVH proposal affects the contents of the existing approved MRP as described hereinafter.

The GVH site is located in the bottom of Bear Canyon at an elevation of 7200'. The site is located less than 6000 feet (straight-line) from the main surface facilities which are located one canyon over to the southeast in C Canyon, which also sits at an elevation of 7200'. Both canyons face in the same direction, i.e., to the northeast. The canyons are nearly identical in terms of elevation, lithology, orientation, exposure, rainfall, etc. Therefore, the vegetation at the Bear Canyon GVH site is basically identical to that found at the C Canyon minesite. The vegetation at the Bear Canyon site is classified as Douglas Fir/Maple Community. Much of the minesite in C Canyon is also identified as Douglas Fir/Maple Community. Dr. Patrick Collins of Mt. Nebo Scientific, conducted a vegetation survey of the GVH site and concluded that, given the similarities in the locales, the existing vegetation reference source for the mine in C Canyon is appropriate to represent the GVH site as well as a basis for determining final reclamation performance. According to the report, Dr Collinss is of the opinion that *"...the Douglas Fir/Maple Reference Area (1998) would be an appropriate area for revegetation success standards at the time of final reclamation....".* A copy of Dr. Collins' report is included in Appendix 3-13, and also in Attachment 4 of Appendix 5-14. Also refer to Appendix 3-1 for a description of the Dougas Fir/Maple Community nearby in C Canyon, and to Appendix 3-1A for a discussion of the existing Douglas Fir/Maple vegetation reference are in C Canyon.

The sensitive plant species Canyon Sweetvetch (Hydysarum occidentale var. canone) exists in Bear Canyon, as well as all other outward-facing Book Cliff canyons within the permit area, including C Canyon where the minesuite is located.. The Canyon Sweetvetch generally occurs in the canyon bottom in and adjacent to the stream channel. As a pro-active mitigation measure, however, West Ridge employees, working on species identification from Dr. Patrick Collins of Mt. Nebo Scientific, have collected a significant amount of Sweetvech seed from the surrounding area in September, 2008. This seed will be included in the seed mix for interim cutslope revegetation, and/or topsoil pile revegetation, if requested by the Division. A similar commitment was included previously in the MRP prior to the construction of the West Ridge Mine surface facilities in C Canyon, which occurs in R645-341.100, and is reprinted herein for ready reference:

Canyon sweetvetch seed was collected by Dr. Patrick Collins (Mount Nebo Scientific) in C Canyon in 1999 prior to construction of the minesite. This seed was later used to re-seed the topsoil pile. This constitutes the on-going field test to determine the viability of using canyon sweetvetch in the seed mix for final reclamation. Dr. Collins is presently monitoring the success of the sweetvetch population on the topsoil pile. If it appears that the sweetvetch is successful and can be added to the reclamation seed mix, seed will be collected from the topsoil population, as well as other populations in C Canyon and/or nearby canyons, at the time of final reclamation.

At the location of the GVH site, Bear Canyon is an ephemeral stream, and there is no riparian habitat located at or near the GVH site. The GVH site is located close to the area where the depth of cover over the longwall panels is the shallowest within the permit area. As a result, this area has been an area of interest in previous MRP amendments, and a more detailed discussion of the biology and hydrology can be found in R645-301-322.100 of the approved MRP. It should be noted that the area has been now been completely undermined since November, 2006, and subsidence has stabilized at about 3'. No adverse affects to biologic or hydrologic resources has been observed. The area is subject to on-going hydrologic and subsidence monitoring under the presently approved MRP.

After the topsoil has been removed and the GVH pad area constructed, the new cutslopes will be prepared for interim reclamation. This will be done by pocking the newly exposed surface (roughening) and re-seeding with the previously approved interim seed mix as shown in Table 3-3 (reprinted in Attachment 13 of Appendix 5-14 for ready reference), or with an alternate seed mix approved by the Division subject to availability. (Attachment 13 of Appendix 5-14 includes a seed mix which was used on the Crandall Canyon East Mountain drillhole reclamation project and is readily available, subject to Division concurrence.) A layer of wood straw will then be scattered over the surface. The pocking, re-seeding and wood straw are all measures to help minimize erosion, and promote a healthy interim re-vegetation until the time of final reclamation.

On final reclamation, the pad area and cutslopes will be backfilled to approximate original contour, and topsoil will be re-applied to the reclaimed slope (see Attachment 1) The slope will be re-vegetated according to the same existing approved plan for the minesite in nearby Canyon, as specified in R645-301-341. For completeness, the reclamation plan elements are included herein as taken directly from the currently approved plan:

a) *Fill will be placed in the cut in 18" lifts until approximate original contour is achieved. The fill will be obtained from the adjacent pad fill.*

b) *A certified noxious weed-free alfalfa hay mulch will be blown over the topsoiled surface at a rate of 2000 pounds per acre. Fertilizer, if determined necessary by soil testing, would also be applied at this time.*

c) *The surface will be gouged with irregular depressions approximately 24" x 36" x 18" deep. This will also mix the hay into the upper portion of the soil surface.*

d) *The appropriate seed mix (Table 3-2B, for Douglas Fir/Maple Community) will be either broadcast by hand or hydroseeded on the area at the rate specified on the table. (Table 3-2B is reprinted in Attachment 13 for ready reference.)*

e) *A certified noxious weed-free straw mulch will be applied to the surface at a rate of 2000 pounds per acre and held to the surface with a wood fiber mulch and tackifier applied to the surface at a rate of 500 pounds per acre.*

The revegetation monitoring schedule for the Bear Canyon GVH site will be the same as for the minesite reclamation, and is reprinted in Table 3-4 in Attachment 13 of Appendix 5-14 for ready reference.

Revegetation success standards for the GVH site will be the same as for the C Canyon minesite, as presented in R645-341.250. The revegetation timetable for the GVH site will also be the same as the minesite, as presented in Table 3-1, reprinted in Attachment 13 of Appendix 5-14 for ready reference.

Due to the proximity of the GVH site to the minesite within the permit area, all threatened and endangered (T&E) species information applicable to the existing permit area in the MRP (mid-term review approved on July 7, 2008) is current and therefore applicable to the GVH site as well. Refer to Appendix 3-4 and 3-4A for current T&E information. There are no threatened or endangered species in the Bear Canyon GVH area. Various species of concern during previous amendments, such as the Mexican Spotted Owl and the Yellow-Billed Cuckoo have been adequately addressed in the presently approved MRP and are not a factor. Dr. Collins has addressed the current status of T & E species in his report (see Attachment 4).

An annual raptor survey was conducted for the permit area, including Bear Canyon, by Division of Wildlife Resources (DWR) in the spring of 2008, and is included in Appendix 3-2B, and also in Attachment 5 of Appendix 5-14. The survey shows no raptor nests in the Bear Canyon area, neither at the GVH site nor the topsoil storage area.

As shown on Maps 3-4A,3-4B and 3-4C, wildlife range for deer, elk, and antelope is basically the same at the GVH site as for the minesite, which is to be expected given their proximity and many similarities.

There will be no additional water consumption, nor disruption of flow, from the West Ridge Mine as a result of the GVH installation. Therefore, construction and operation of the GVH facility will have no affect on the Colorado River Endangered Fish Recovery Program.

APPENDIX 3-2B

DWR RAPTOR SURVEY, 2008

CONFIDENTIAL INFORMATION

(See Confidential Binder)

APPENDIX 3-2B

DWR RAPTOR SURVEY, 2008

NOTE: THIS APPENDIX IS LOCATED IN THE CONFIDENTIAL BINDER

APPENDIX 3-13

VEGETATION OF THE GVH SITE
IN THE RIGHT FORK OF BEAR CANYON
WEST RIDGE MINE

MT. NEBO SCIENTIFIC

MT NEBO SCIENTIFIC, INC.
research & consulting

HAPPY HALLOWEEN

October 15, 2008

Dave Shaver
ANDALEX RESOURCES
P.O. Box 902
Price, Utah 84501

Dear Dave:

Enclosed please find one bound copy of the following report for the West Ridge Mine.

Vegetation of the
GVH Site in
Bear Canyon,
Book Cliffs, Utah

For the
West Ridge Mine,
Carbon County, Utah

An electronic file of the report was also submitted in an email to you previously. Please call if you have questions or comments.

Sincerely,

(Transmitted Electronically)

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Enclosures

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Vegetation of the GVH Site in Bear Canyon, Book Cliffs, Utah

For the West Ridge Mine, Carbon County, Utah

Right Fork of Bear Canyon

Prepared by

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INTRODUCTION

Operations at the West Ridge Mine has found it necessary to construct a gas vent hole (GVH) as a safety measure to continue mining activities in their underground coal mine. The proposed GVH site is located in the right (east) fork of Bear Canyon within the Book Cliffs plateau in Carbon County, Utah. The site is less than one-quarter acre in size (0.24 acre).

This report provides the results from quantitative sampling the plant community that will be disturbed as a result of the drilling activities necessary to construct the GVH. The native plant community that will be disturbed is a Douglas Fir/ Maple community. This report also provides data from a "reference area" that could be used for future revegetation success standards following final reclamation of the site. Results from threatened, endangered and sensitive plant survey as well as a vegetation and sample location map of the area have also been provided herein.

METHODS

Methodologies used for this study were performed in accordance with the guidelines supplied by the State of Utah, Division of Oil, Gas and Mining (DOGM). Quantitative and qualitative data were recorded within the plant communities proposed GVH site on September 24, 2008. The reference area proposed for this site was sampled in the growing season of 1998.

Sampling Design and Transect/Quadrat Placement

Transect lines for vegetation sampling were placed randomly within the boundaries of the proposed disturbed and reference areas. The transect placement technique was employed with the goal to adequately sample a representative subset of the entire site. Once the transects were established, quadrat locations for sampling were chosen using random numbers from the transect lines with the objective to record data without preconceived bias.

Cover and Composition

Cover estimates were made using ocular methods with meter square quadrats. Species composition, cover by species, and relative frequencies were also assessed from the quadrats. Additional information recorded on the raw data sheets notes such as: slope, exposure, grazing use, disturbance and/or other appropriate notes. Plant nomenclature follows "A Utah Flora" (Welsh et al., 2003).

Woody Species Density

Density of woody plant species for the proposed disturbed and reference areas were estimated using the point-quarter method. In this method, random points were placed on the sample sites and measured into four quarters. The distances to the nearest woody plant species were then recorded in each quarter. The average point-to-individual distance was equal to the square root of the mean area per individual. The number of individuals per acre was the end results of the calculations.

Sample Size & Adequacy

Sampling adequacy for cover and density was attempted by using the formula given below.

$$nMIN=\frac{t^2 s^2}{(dx)^2}$$

where,

nMIN	= minimum adequate sample
t	= appropriate confidence t-value
s	= standard deviation
x	= sample mean
d	= desired change from mean

Statistical Analyses

Student's t-tests were employed to compare the total living cover and total woody species density of each proposed disturbed GVH site with its reference area.

Photographs

Color photographs of the sample areas were taken at the time of sampling and have been submitted with this report.

Threatened & Endangered Plant Species

Prior to recording quantitative data on the plant communities, a sensitive plant species survey was conducted. To initiate the study, appropriate agencies had been consulted and other sources were reviewed (sensitive species files at *Mt. Nebo Scientific, Inc.*) for potential plant species that are known to be rare, endemic, threatened, endangered or otherwise sensitive in the study area.

Raw Data

The raw data for cover and density have been summarized on a spreadsheet and is available upon request.

RESULTS

Proposed Disturbed Douglas Fir/Maple Community

The plant community proposed for disturbance by construction of the GVH site is that of a

Douglas Fir/Maple community. Dominants, and equally represented in the understory cover estimates, were Douglas fir (*Pseudotsuga menziesii*) and bigtooth maple (*Acer grandidentatum*). These tree species also dominated the overstory cover. Grasses and forbs played a relatively minor role in the plant cover of the community. For a list of all species present in the sample quadrats along with their cover and frequency values, refer to Table 1.

The total living cover including overstory and understory cover of the proposed disturbed Douglas Fir/Maple community was estimated at 82.25 %; 46.00% of this value was comprised of understory and 36.25% was from overstory cover (Table 2-A). The understory composition consisted of 91.74% woody species (Table 2-B).

Woody species density was also sampled at the site. As shown on Table 3, the total density of the area was 2,254 individuals per acre and was dominated by Douglas fir, bigtooth maple and Rocky Mountain juniper (*Juniperus scopulorum*).

<u>Douglas Fir/Maple Reference Area</u> ("New")

A Douglas Fir/Maple plant community was sampled in 1998 and was established as a reference area to be used for future revegetation success standards for specific areas at the West Ridge mine site following final reclamation. This reference area was called "new" because there was another Douglas Fir/Maple Reference area established earlier, but because it was necessary to later disturb this reference area due to changes to the surface facilities of the mine site, the "new" reference area was later established.

Cover and frequency by species are shown on Table 4. Overstory dominant species by cover and frequency were bigtooth maple and Douglas fir. The most common understory woody species were bigtooth maple, mountain lover *(Pachistima myrsinites)* and Oregon grape (*Mahonia repens*). Most common forbs were aster (*Aster* sp.) and pinnate tansy mustard (*Descurainia pinnata*). Finally, the most common grasses by cover and frequency were muttongrass (*Poa fendleriana*) and smooth brome (*Bromus inermis*).

The mean total living cover of this community was estimated to be 63.63%, 31.38% of which was overstory and 32.25% was understory cover (Table 5-A). Trees and shrubs were the dominant lifeform of the understory species and comprised 61.57% of the cover, whereas, forbs and grasses comprised 25.33% and 13.11%, respectively (Table 5-B).

Woody species density measurements resulted in 2,256 individuals per acre (Table 6). The dominant woody species by density were bigtooth maple, mountain lover and Douglas fir.

Threatened, Endangered & Sensitive Plants

A threatened, endangered and sensitive plant survey was conducted at the GVH site. A small population of the sensitive plant species called canon sweetvetch (*Hedysarum occidentalis* var. *canone*) was located at the site and will likely be disturbed by the proposed construction activities.

DISCUSSION

Statistical analyses were employed to compare the cover and woody species density of the proposed disturbed GVH site in Bear Canyon with the reference area. The total living cover, or overstory and understory cover combined, was significantly greater in the area proposed for disturbance when compared to the Douglas Fir/Maple Reference Area (Figure 1). Interestingly, the woody species densities of the two areas were nearly identical; a Student's t-test analysis reflects this similarity by showing a t-value of -0.005 (Figure 2).

Because there was a significant difference in the cover values of the two areas, there are some options and considerations for establishment for standards of revegetation success for the GVH site in Bear Canyon. One idea is that the West Ridge Mine operator could have another reference area sampled later and compared to the GVH site. Next, representatives from DOGM and the West Ridge Mine could agree that the proposed reference area would be appropriate for final revegetation success standards, even though the cover value is less than that of the area proposed for disturbance.

The author of this report favors the later scenario. I believe the Douglas Fir/Maple Reference Area (1998) would be an appropriate area for revegetation success standards at the time of final reclamation for the following reasons.

1. Because the GVH site was quite small (0.24 acres), sample quadrats were placed relatively close to each other as compared to larger sample areas. This meant localized "patches" for the cover of plants were weighted higher in this sample area. When larger areas are sampled using random methods, distances between quadrats are greater, differences from these isolated patches are minimized, and variability between quadrats usually reflect a sample mean closer to the true mean for the entire plant community.

2. Several areas with this same plant community have been sampled previously in the West Ridge Mine area, all of which had cover values closer the Douglas Fir/Maple Reference Area (1998). A summary of these results have been provided in Table 7 below.

Table 7: A comparison of mean percent total living cover value in several Douglas Fir/Maple plant communities near the West Ridge Mine site.

	PERCENT TOTAL LIVING COVER
Proposed Disturbed Douglas Fir/Maple Community (1997)	55.50
Douglas Fir/Maple Reference Area (1997)	65.75
Douglas Fir/Maple Community "New" Reference Area (1998)	63.63
Proposed Disturbed Douglas Fir/Maple Community in Bear Canyon's Left Fork (2008)	69.75
Proposed Disturbed Douglas Fir/Maple Community for Bear Canyon GVH Site (2008)	82.25

SUMMARY

A small area has been chosen for construction of a gas vent or GVH site for the West Ridge Mine as a safety measure for underground mining conditions. Construction of this site will result in disturbance to a native plant community, a Douglas Fir/Maple community. A reference area to represent future revegetation success standards for this same plant community had already been established prior to any surface disturbance for construction of the mine facility (1997-98). This same reference area has been proposed to be used for the revegetation standard for the GVH site in Bear Canyon with final approval required by biologists from the State of Utah, Division of Oil, Gas & Mining.

SUMMARY TABLES
&
FIGURES

Table 1. West Ridge Mine: Proposed Disturbed Bear Canyon GVH Site. Total Cover, Standard Deviation and Frequency by Species (2008).

Douglas Fir / Maple Community	Mean Percent	Standard Deviation	Percent Frequency
OVERSTORY			
Acer grandidentatum	9.25	19.38	20.00
Juniperus scopulorum	4.50	13.59	10.00
Populus tremuloides	5.75	14.94	15.00
Pseudotsuga menziesii	16.75	22.38	40.00
UNDERSTORY			
TREES & SHRUBS			
Acer glabrum	0.75	2.38	10.00
Acer grandidentatum	10.50	16.35	40.00
Juniperus scopulorum	8.75	14.39	30.00
Pachistima myrsinites	4.50	8.79	30.00
Populus tremuloides	1.75	5.76	10.00
Pseudotsuga menziesii	10.50	13.31	45.00
Purshia tridentata	1.00	4.36	5.00
Symphoricarpos oreophilus	4.50	8.50	30.00
FORBS			
Apocynum canabinum	0.25	1.09	5.00
Fragaria vesca	0.25	1.09	5.00
Hedysarum occidentalis canone	0.75	3.27	5.00
Solidago sp.	1.50	4.77	10.00
GRASSES			
Bromus carinatus	1.00	2.55	15.00

Table 2. West Ridge Mine: Proposed Disturbed Bear Canyon GVH Site. Total Cover, Standard Deviation and Sample Size (2008).

Douglas Fir/ Maple Community			
	Mean Percent	Standard Deviation	Sample Size
A. TOTAL COVER			
Overstory (O)	36.25	19.74	20
Understory (U)	46.00	14.37	20
Litter	26.00	20.16	20
Bareground	10.25	7.98	20
Rock	17.75	13.65	20
O + U	82.25	16.69	20
B. % COMPOSITION			
% COMPOSITION			
Trees & Shrubs	91.74	14.20	20
Forbs	5.94	14.10	20
Grasses	2.32	5.53	20

Table 3. West Ridge Mine: Proposed Disturbed Bear Canyon GVH Site Woody Species Densities (2008).

Douglas Fir/ Maple Community	
Species	**Individuals Per Acre**
Acer glabrum	197.21
Acer grandidentatum	422.59
Cercocarpus montanus	28.17
Juniperus scopulorum	338.07
Pseudotsuga menziesii	760.66
Pachistima myrsinites	225.38
Populus tremuloides	28.17
Purshia tridentata	28.17
Ribes cereum	28.17
Rosa woodsii	28.17
Symphoricarpos oreophilus	169.03
Sambucus caerulea	
TOTAL	2253.80

Table 4. West Ridge Mine: Reference Area. Total Cover, Standard Deviation and Frequency by Species (1998).

Douglas Fir/ Maple Community Reference Area (New)	Mean Percent	Standard Deviation	Percent Frequency
OVERSTORY COVER			
Acer grandidentatum	15.88	21.30	50.00
Juniperus scopulorum	1.38	6.22	5.00
Pseudotsuga menziesii	14.13	20.67	45.00
UNDERSTORY COVER			
TREES & SHRUBS			
Acer grandidentatum	6.18	11.30	47.50
Juniperus scopulorum	1.30	2.90	20.00
Mahonia repens	3.33	5.82	40.00
Pachistima myrsinites	5.73	11.04	35.00
Pseudotsuga menziesii	1.95	6.19	6.00
Symphoricarpos oreophilus	1.43	3.35	20.00
FORBS			
Antennaria parvifolia	0.25	1.09	5.00
Artemisia dracunculus	0.88	3.33	10.00
Aster sp.	3.13	7.65	30.00
Circium sp.	0.13	0.78	2.50
Descurania pinnata	1.78	7.12	10.00
Erigeron engelmannii	0.25	1.09	5.00
Erysimum asperum	0.13	0.78	2.50
Fragaria vesca	0.38	1.73	5.00
Mitella stauropetala	0.05	0.31	2.50
Senecio pudicus	0.15	0.79	5.00
Smilacina racemosa	0.33	1.03	10.00
Stellaria jamesiana	0.03	0.16	2.50
Taraxicum officinale	0.13	0.78	2.50
Thalictrum fendleri	0.13	0.78	2.50
Viola adunca	0.13	0.78	2.50
GRASSES			
Bromus inermis	1.25	5.67	7.50
Poa fendleriana	2.90	4.15	45.00
Poa pratensis	0.38	1.73	5.00

Table 5. West Ridge Mine: Reference Area. Total Cover, Standard Deviation and Sample Size (1998).

Douglas Fir/ Maple Community Reference Area (New)	Mean Percent	Standard Deviation	Sample Size
A. TOTAL COVER			
Overstory Cover (O)	31.38	25.69	40
Understory Cover (U)	32.25	19.27	40
Cryptogams	0.25	1.09	40
Litter	18.20	12.80	40
Bareground	8.20	9.39	40
Rock	9.73	9.67	40
O+U	63.63	13.51	40
B. % COMPOSITION			
Trees & Shrubs	61.57	33.67	40
Forbs	25.33	29.49	40
Grasses	13.11	19.14	40

Table 6. West Ridge Mine: Reference Area. Woody Species Densities (1998).

Douglas Fir/ Maple Community Reference Area (New)	
Species	Individuals Per Acre
Acer grandidentatum	874.13
Cercocarpus ledifolius	28.20
Juniperus scopulorum	141.00
Juniperus osteosperma	14.10
Pseudotsuga menziesii	310.18
Pachistima myrsinites	549.86
Rosa woodsii	14.10
Symphoricarpos oreophilus	296.08
Sambucus caerulea	28.20
TOTAL	2255.83

Figure 1. A statistical comparison (Student's t-tests) of the **total living cover** between the proposed disturbed GVH site and the reference area.

	$\bar{x}$	s	n	t	df	SL
Bear Canyon GVH						
Proposed Disturbed:	82.25	16.69	20			
DF/M Reference Area:	63.63	13.51	40			
t-test				4.648	58	$p<0.01$

$\bar{x}$ = mean
s = standard deviation
n = sample size
t = Student's t-value
df = degrees of freedom
p = probability
SL= Significance Level
N.S.=Non-Significant
DF/M = Douglas Fir/Maple

Figure 2. A statistical comparison (Student's t-tests) of the **woody species density** between the proposed disturbed GVH site and the reference area.

	$\bar{x}$	s	n	t	df	SL
Bear Canyon GVH						
Proposed Disturbed:	2253.80	853.56				
DF/M Reference Area:		2255.83	1548.09			
t-test				-0.005	58	N.S.

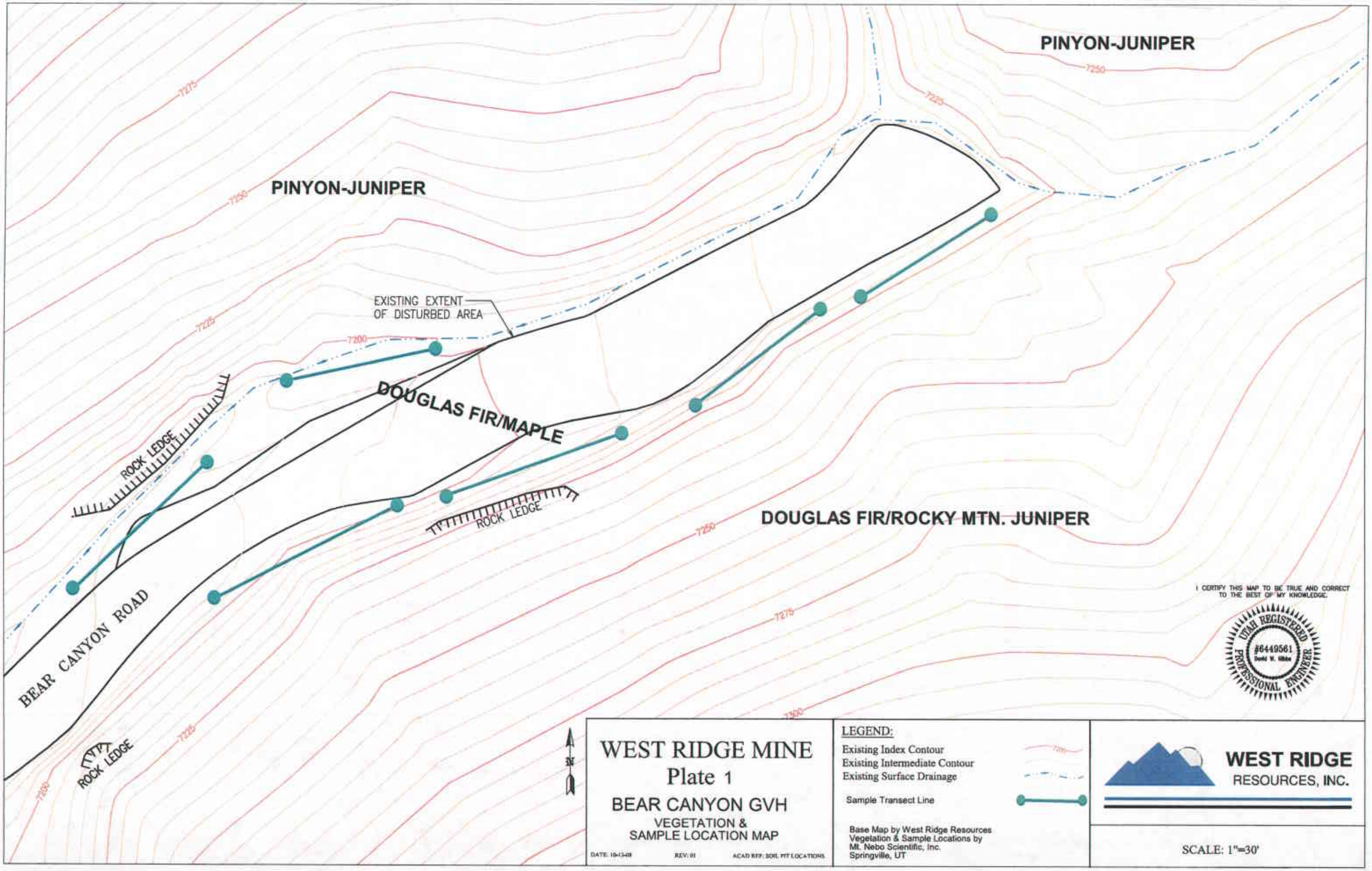
$\bar{x}$ = mean
s = standard deviation
n = sample size
t = Student's t-value
df = degrees of freedom
n/a = not applicable
p = probability
SL= Significance Level
N.S.=Non-Significant
DF/M = Douglas Fir/Maple

COLOR PHOTOGRAPHS
OF THE
SAMPLE AREAS

Bear Canyon GVH: Proposed Disturbed Douglas Fir/Maple Community

Douglas Fir/Maple Reference Area

VEGETATION & SAMPLE LOCATION MAP


PINYON-JUNIPER
PINYON-JUNIPER
DOUGLAS FIR/MAPLE
DOUGLAS FIR/ROCKY MTN. JUNIPER
EXISTING EXTENT OF DISTURBED AREA
ROCK LEDGE
ROCK LEDGE
ROCK LEDGE
BEAR CANYON ROAD
7200
7225
7250
7275
7300
I CERTIFY THIS MAP TO BE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.
UTAH REGISTERED PROFESSIONAL ENGINEER
#6449561
WEST RIDGE MINE
Plate 1
BEAR CANYON GVH
VEGETATION &
SAMPLE LOCATION MAP
REV: 01
ACAD REF: SOIL PIT LOCATIONS
LEGEND:
Existing Index Contour
Existing Intermediate Contour
Existing Surface Drainage
Sample Transect Line
Base Map by West Ridge Resources
Vegetation & Sample Locations by
Mt. Nebo Scientific, Inc.
Springville, UT
WEST RIDGE
RESOURCES, INC.
SCALE: 1"=30'

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R645-301-400 CHAPTER 4

CHAPTER 4
R645-301-400 LAND USE AND AIR QUALITY

R645-301-410 LAND USE

Pre-mining land use of the C Canyon/West Ridge region in and around the permit area includes grazing, wildlife habitat, coal mining and recreational activities such as hunting. No agricultural activities have been or are currently being conducted in or around the proposed permit area.

Post-mining land use will be the same as those which existed prior to construction of the mine. Land use will include grazing, wildlife habitat, and recreational activities such as hunting.

NOTE: The following discussion for the remainder of R645-301-410 applies specifically to the Gob Gas Vent Hole (GVH) installation proposed in Bear Canyon. In order to facilitate the review it is presented here in its entirety rather than interspersed throughout the chapter. A more detailed and complete discussion of the Bear Canyon GVH proposal can be found in Appendix 5-14. Unless specifically noted in this following discussion, nothing related to the Bear Canyon GVH proposal affects the contents of the existing approved MRP as described hereinafter.

The site is located in the Bear Canyon grazing allotment, and no change in grazing activity will result from the GVH installation. (Refer to Map 4.1)

The GVH site is located at the site of previous coal exploration drilling done in the early 1950's.

The site is located at the end of the Bear Canyon Road. This is a pre-existing road constructed in the early 1950's, and is a public road located on public land. The road has been upgraded to provide better year-around access to the GVH site. The improved road access will facilitate existing public uses of the area such as grazing management, big-game hunting, and other recreational pursuits, and on-going environmental monitoring associated with the West Ridge Mine operation. The road will be used on a daily basis by mine maintenance personnel.

It is SITLA's position that the road will be left in place (i.e., not reclaimed) to facilitate grazing management, hunting and other recreational use, mineral development, and other public multiple use (refer to correspondence in Appendix 4-8 and Attachment 9 of Appendix 5-14)

Class 3 (intensive) cultural resources surveys have been completed for both the GVH site and the topsoil storage site by Senco-Phenix Archeological Consultants. These surveys conclude that, for both sites, *"no cultural resources were located and the potential for undetected remains is remote. A finding of no effect is appropriate and archeological clearance without stipulation is recommended."* Copies of these reports are included in Appendix 4-7 and also in Attachment 6 of Appendix 5-14, and will be transferred to the Confidential Binder after Division review.

Installation of the GVH facility will have no affect on air quality, or the Air Quality Approval Order.

R645-301-411 ENVIRONMENTAL DESCRIPTION

411.110 Land use of the C Canyon/West Ridge region in and around the permit area consist primarily of grazing, wildlife habitat, coal mining and recreational activities such as hunting. No agricultural activities (other than grazing) are currently being conducted in or around the proposed permit area. This is primarily because of lack of an available water source and the steep, rugged terrain. Refer to Map 4-1, Existing Land Use, for the grazing allotment boundaries and existing land uses.

There is no evidence that the land use in this area has changed within the last five years prior to the submittal of this permit application.

Grazing allotments in the West Ridge region have remained the same for the last ten years or more. The permit area is located primarily within the Bear Canyon Allotment and, to a smaller extent, in the Grassy Trail and Mud Springs Allotments. The Mud Springs Allotment lies along the western sloping pediment surfaces of the Book Cliffs. The vegetation consists of native Pinyon-Juniper close to the cliff face and Grassland on the lower pediment surfaces. About 338 cattle use the allotment from October 20 - December 20 and April 10 - June 10, for a total of 2,314 AUM's. Water for the cattle is hauled to the northeast portions of the allotment. The Grassy Trail allotment lies to the south and east of the Bear Canyon allotment. The allotment is active from November 1 to March 31, with a total of 50 AUM's. The Bear Canyon allotment lies to the north and east of the Mud Springs Allotment. The allotment is used to graze 42 cattle from June 10 to October 31. This allotment contains 100 AUM's.

411.120 The land surface of the permit area consists of rugged, southwest-facing cliffs which are deeply dissected by steep ephemeral drainages. The elevation ranges from 6,800 near the minesite to 8,800 feet on top of the ridge two miles to the northeast. Large boulders and sandstone slabs from cliff weathering lie along the sides of the canyon bottoms. Given the rugged terrain and lack of available water in the region, this area has limited historical usage other than for wildlife habitat, grazing and coal mining.

The SCS performed a range capacity survey of the mine site area in 1985 and found the range condition to be fair with an estimated vegetation yield of about 300 pounds per acre of forage per year.

Due to the topography, limited available water resources, limited access and remote location, the capability of the land to support a variety of uses is limited. The narrow, steep topography of this area as well as lack of available water limits its use for agricultural or residential purposes. The greatest variety of compatible uses for this land is a combination of recreation, wildlife habitat, grazing and coal mining.

411.130 Carbon County's zoning classification for the mine area is Mining and Grazing. Carbon County has also issued a Conditional Use Permit to WEST RIDGE Resources, Inc. for a Major Underground And Surface Mine Development for the West Ridge mine in C Canyon. Grazing is the most pervasive existing use of the land in the West Ridge area. Previous mining activity also has taken place in B and C Canyons. The road along the bottom of C Canyon was first constructed in the mid-1950's for a drill site in the right hand fork. The road was improved again in 1985 to facilitate drilling equipment for a drill hole site also in the right hand fork. A road also leads up the left hand fork to the coal outcrop where the coal seam was exposed and coal was mined for testing purposes.

The BLM and SITLA are the land managers for most of the area. Within the permit area, most of the permit acreage is managed by the BLM and SITLA.. There is a small area of privately owned land (surface only) in the permit area on the east side. Also, the surface and subsurface of the proposed topsoil borrow area is owned by the School and Institutional Trust Lands Administration. Refer to Map 5-2.

411.140 Archeological investigations have been performed in the vicinity of the permit area in the past. Refer to Map 4-2, Archeology Map, for the locations of previous survey work. Appendix 4-3 includes information from previous survey work as well as a compilation of previously known archeological sites within and adjacent to the permit area. Detailed archeological ground surveys have been conducted at the mine site and topsoil borrow area by Senco-Phenix personnel. The surveys found no evidence of cultural resources within either of these proposed disturbed areas. Refer to the Senco-Phenix report which is included as Appendix 4-1. No sites eligible for the National Register of Historic Places were found within the proposed disturbed areas. Clearance letters from SHPO to the BLM and State School Trust can be found in Appendix 4-2. Senco-Phenix has also prepared a cultural survey for the site of the GVH installation in the right Fork of Bear Canyon (see Appendix 4-7 and Attachment 6 of Appendix 5-14).

411.141.1 The locations of cultural and historical resources listed in the National Register of Historic Places and known archeological sites within and adjacent to the permit area are presented in Appendix 4-3. The file search was prepared by Senco-Phenix.

411.141.2 No cemeteries are located in or within 100 feet of the proposed permit area.

411.141.3 No land within the proposed permit area is within the boundaries of any units of the National System of Trails or the Wild and Scenic Rivers System.

411.142 As discussed under 411.140, no cultural resources of significance were located. SHPO has issued a determination of No Historic Properties for the proposed minesite and the topsoil borrow area.

No publicly owned parks or places listed on the National Register of Historic Places would be adversely affected by the proposed coal mine.

411.200 Previous Mining Activity

Previous mining and exploration activities have occurred with the proposed permit area within the last 20 years. In the mid-1950's, the road along the bottom of C Canyon was constructed to a drill site located in the right fork. The road was improved again in 1985 to facilitate drilling equipment for a water monitoring drill hole site in the right fork. Another road also leads up the left fork to the coal outcrop where the coal seam was exposed and bulk coal samples were collected for testing purposes. Coal was probably removed from the outcrop with hand tools or a front-end loader. The excavation indicates only a small amount of coal was previously removed. Coal was removed from the Lower Sunnyside Seam. Only a small amount of coal (less than one ton) was removed for testing purposes. The exact date of the coal outcrop excavation is unknown, but done sometime in the late 1960's or early 1970's. The land use prior to the outcrop excavation was the same a currently exists in the area, which is: wildlife habitat, grazing, and coal exploration and mining.

Mining has also occurred underground within this lease from the Sunnyside No. 2 mine. During 1959 and 1960 Kaiser Coal mined a two entry exploration section northwestward into the center of the coal lease (SL-068754), for a total distance of 11,000 feet along the strike of the Lower Sunnyside coal seam. A section was developed off from this main entry in which mining proceeded in an up-dip direction to the west for approximately 2,000' feet before breaking out in B Canyon. This breakout was utilized as an intake air portal until 1991 when the portal was sealed and backfilled. This mining was conducted utilizing continuous mining equipment, no longwall mining was done in this lease. Only development work was performed, no pillars were pulled. The land use in B Canyon prior to portal development was wildlife habitat, grazing and coal exploration and mining.

R645-301-412 RECLAMATION PLAN

412.100 Post mining land use will be the same as currently exists today, that being: wildlife habitat, grazing and limited recreational activities.

412.110 After all mining activity has been completed and the disturbed area regraded and reseeded, the site will enter a post reclamation phase. During the first ten years the site will be monitored for vegetative success and erosion control. The reclaimed, revegetated area may be fenced to discourage livestock grazing until final reclamation has been achieved and the reclamation bond released.

Support activities to achieve the postmining land use plan include: site monitoring, remedial actions including regrading, reseeding, remulching and replanting; and fencing as necessary to restrict access and grazing on the site until the reclamation bond has been released.

412.120 After the reclamation bond has been released, the property will be returned to the care of the surface land owner which in this case is the BLM and SITLA. Management of the site will be according to the BLM and SITLA's current range management plan for the region existing at that time.

412.130 Not applicable.

412.140 This postmining program is in accordance with the Carbon County and BLM management framework plans.

Based on the desire expressed by the BLM, SITLA or Carbon County, at the time of reclamation of the mine site, WEST RIDGE Resources, Inc. would agree to work with the BLM, SITLA and/or Carbon County to achieve future land use objectives.

412.200 Resumption of the original land use at the mine site should not need approval of the land management agency.

412.300 WEST RIDGE Resources, Inc. does not propose to leave fills containing excess spoil.

R645-301-413 PERFORMANCE STANDARDS

413.100 All disturbed areas will be restored to the conditions equal to or better than existed prior to disturbance.

413.200 Wildlife habitat and grazing will resume following reclamation activities of the mine site.

413.300 No alternative postmining land use is being proposed at this time.

R645-301-420 **AIR QUALITY**

R645-301-421 Coal mining and reclamation activities will be conducted in compliance with appropriate state and federal air quality regulations.

R645-301-422 The applicant is in the process of applying for an air quality permit from the Utah Division of Air Quality. The Air Quality Approval Order is included in Appendix 4-5.

R645-301-423 All mining will be conducted by underground mining methods. Efforts will be made through seeding, mulching and erosion control technologies to eliminate excessive fugitive dust resulting from erosion.

Areas where rills and gullies have formed will be repaired and reseeded as soon as possible with an interim or permanent seed mix.

Fugitive dust will be controlled by establishing temporary vegetative coverage where possible and by watering road and other unpaved surfaces frequently used by mine vehicles.

The air quality permit for the West Ridge Mine is included in Appendix 4-5. Mining activities will meet the requirements of the air quality permit issued by the State of Utah in accordance with applicable State and Federal air quality regulations.

Climatological Information

The U.S. Geological Survey's "Final Environmental Statement, Development of Coal Resources in Central Utah" (1979) provides climatological information for the region as well as for the C Canyon area. Daily climatic information is also collected at a National Weather Service station in Sunnyside, Utah.

Precipitation in the permit area consists of occasional winter snow, with an average annual accumulation of about one foot of snow and summer thundershowers which occur during July, August and September. Figure 7-1 in Chapter 7 shows the mean annual precipitation for the Sunnyside area to be about thirteen inches. Snow accumulation over the permit area varies with elevation, topography and aspect. At the mouth of Whitmore Canyon, elevation 6750, snow accumulations range from 0 to 21 inches during October through March while snow accumulations at an elevation of 7,280 ranged from 0 to 50 inches. Mean, minimum and maximum daily snow accumulations have been collected and compiled for a 10 year period for years 1973 through 1983 and are presented below.

SNOW ACCUMULATION 1973-1983 (Inches)

	Maximum	Mean Maximum	Mean Daily
October	6.5	1.35	0.73
November	6.0	1.69	0.28
December	14.00	4.42	1.73
January	21.00	9.86	4.01
February	21.00	6.44	2.84
March	15.00	5.30	0.60

Ground accumulations of snow are characteristically of short duration due to melting and sublimation.

Temperature ranges of the permit area are typical for the semi-arid region. Colder temperatures would be encountered above 8,000 feet above the mine site.

The pan evaporation rate for the area is 0.69.

Wind

Canyon topography dominates both wind direction and speed. The wind high in the atmosphere tend to be strong but decease toward the surface where obstructions and surface friction come into play. Thus high ridges and plateaus will generally have stronger winds than the valleys. Upper level winds, 1,600 feet or more above the ground level, are generally from the southwest during most of the year. During the winter, air flow from the northeast is more common.

Night air flow in the region is primarily drainage controlled, generally following the canyon bottoms from the mountains down to the valleys. Wind speed is induced by decent of colder air and is generally light. The daytime flow is strongly influenced by surface heating effects which result in mixing between the surface and upper flows. There is a general air flow toward the north and northeast during the day, and movement toward the southwest away from the high surface elevations during the night. Winds are usually light to moderate (less than 20 mph) unless influenced by localized thunderstorms or moving frontal systems.

The area around the permit area has been designated as a Class II air area for the purpose of determining significant air quality deterioration. The mine will not have a wash plant or coal processing plant. The conveyor belt leading across the yard to the coal pile will be covered. Parking areas and roads will be paved to control dust. Gravel areas will be sprayed with a chemical surface stabilizer, such as potassium chloride, or sprayed with water to control dust during prolonged dry spells. Refer to R645-301-526.400 for a complete discussion of the air quality control measures proposed for the West Ridge Mine.

APPENDIX 4-7

a) CULTURAL RESOURCE SURVEY
BEAR CANYON GVH SITE

b) CULTURAL RESOURCE SURVEY
BEAR CANYON TOPSOIL STORAGE AREA

SENCO-PHENIX ARCHEOLOGICAL
CONSULTANTS

CONFIDENTIAL INFORMATION

(See Confidential Binder)

APPENDIX 4-8

SITLA CORRESPONDENCE
REGARDING
BEAR CANYON ROAD

Shaver, Dave

From: John Blake [jblake@utah.gov]
Sent: Wednesday, October 15, 2008 8:42 AM
To: Shaver, Dave
Cc: Daron Haddock; Tom Faddies
Subject: Re: West Ridge Mine, GVH installlation, ML 49287

Dear Mr. Shaver,

The Trust Lands Administration received fee simple title to the lands described below in your E-mail through the 1998 Utah Schools and Federal Land Exchange Act, P.L. 105-335. Andalex Resources, Inc. and Intermountain Power Agency obtained coal lease ML 49287 covering the subject lands on April 1, 2004. West Ridge Resources is the operator of the leasehold estate.

Section 8.1 of the lease agreement provides that the Lessee may use the surface estate to the extent reasonably necessary for the economic operation of the leasehold. Your request to construct a GVH and stockpile area as described below in your E-mail appear to meet that criteria and are hereby granted approval to proceed by the Lessor. This approval applies only to the specific operations described below in Sections 3 and 10, T14S, R13E, SLB&M. Any other permits, access, rights of way or operations upon or across any other lands as may be necessary to achieve such operations shall be the sole responsibility of the Lessee.

I note that the lands within ML 49287 are not presently under lease for oil and gas. Andalex Resources, Inc. is hereby given approval from the Trust Lands Administration to vent non-economic quantities of methane gas from the leasehold estate pursuant to the proposed operations in an environmentally sound and safe manner. In the event that venting of the methane gas becomes economical then Andalex Resources, Inc. must obtain oil & gas rights and pay royalties the Trust Lands Administration upon such gas production. Non-economical venting of the gases, however, does not require the payment of royalties.

Thank you for your notification.

John T. Blake
Trust Lands Administration.

>>> "Shaver, Dave" <dshaver@coalsource.com> 10/14/2008 5:37 PM >>>
Dear Mr. Blake

As you are aware, West Ridge Resources is pursuing plans to permit and construct a gob gas vent hole (GVH) installation in the Right Fork of Bear Canyon over the worked out longwall cave area of the West Ridge Mine. This installation is required by MSHA as a safety concern for the underground workforce, due to the high rate of methane liberation from the longwall panel. Toward this end we are presently engaged in an emergency permitting submittal with DOGM for this installation. The purpose of this email is to obtain SITLA concurrence for our proposal.
The GVH installation is to be located on SITLA coal lease ML 49287 in NW1/4NE1/4SW1/4SE1/4 of Section 3, T14S, R13E. It will occupy an area of about 0.25 acres in a narrow strip immediately adjacent to the Bear Canyon Road. Associated with the installation will be a topsoil storage area, also located on ML 49287, in NW1/4SE1/4NW1/4NW1/4 of Section 10, T14S, R13E. It will occupy an area of about 0.1 acres. It also will be located immediately adjacent to the Bear Canyon Road. As you know, the Bear Canyon Road is an existing public road. Attached is a map showing the location of the proposed facilities. Please note that the affected surface area is owned by SITLA. We request your concurrence with this proposal in terms of lease surface activities, and in terms of mine-related facilities located within 100' of a public road. Please note that the methane gas will be vented to atmosphere, and we make no claims to associated gas rights. Our only purpose is to liberate the methane from the underground works for safety sake, as mandated by MSHA.
Also be advised that the GVH installation, and topsoil storage, will be permitted, constructed, operated, bonded and reclaimed under a SMCRA permit amendment to be approved

and issued by DOGM. Please call me if you have questions or comments. Your expedient review of this request is appreciated.

Dave Shaver
Project Engineer, Agent
West Ridge Resources, Inc.
435-888-4017

Shaver, Dave

From: John Blake [jblake@utah.gov]
Sent: Wednesday, September 17, 2008 4:06 PM
To: Shaver, Dave
Subject: Re: Bear Canyon road access

Mr. Shaver,

Thank you for your notice of intent to improve the access road into Section 3 and to drill a gob vent hole upon trust lands under Mineral Lease ML 49287-Coal. The lease provides that the lessee may use the surface of the leasehold estate as may be necessary to produce the leased substances. I understand that this is somewhat of an emergency situation in order to meet MSHA mine ventilation requirements for the continuation of mining.

Your E-mail is herewith accepted as meeting the lease requirement that Lessee notify the Lessor and obtain approval for operations under the lease, but only as pertaining to the action that you describe below. The Trust Lands Administration concurs with the proposed action and you may proceed upon first meeting such requirements as may be imposed under your DOGM Mine Permit. Please work with DOGM in this regard and contact me if I may be of any assistance.

Thank you,
John T. Blake
Trust Land Specialist

>>> "Shaver, Dave" <dshaver@coalsource.com> 9/17/2008 2:36 PM >>>
Dear Mr. Blake:

As you are aware, MSHA has notified West Ridge Resources that gob gas ventilation must be added at the West Ridge Mine before we can begin production from longwall panel 13. This issue involves the need to reduce explosive methane levels in the mine for the safety of the underground work force. We propose to meet this requirement by drilling a gob gas vent hole into the gob from the surface at a location in Right Fork Bear Canyon. This location is in Section 3, T14S, R13E which is owned in fee by SITLA, surface and mineral. We own SITLA coal lease
ML49287 in this section, and are currently producing off this lease.

There is presently an existing old road in the bottom of Bear Canyon which runs past the location of the proposed drillsite. This road is a continuation of a BLM road with assigned right-of-way UTU0001756 which we as a company own. In order to access the drillsite we would intend to upgrade this road through the Right Fork Bear Canyon on the surface of ML49287 for a distance of approximately 3000'. Upgrade on the BLM portion of road is already underway under the authority of the right-of-way. All disturbance associated with the upgrade would be within the footprint of the existing roadway. We are aware that the road is a public road and will continue to provide uninterrupted public access to SITLA and BLM lands in the vicinity. The purpose of this email is to apprise SITLA of our plans to upgrade this road on ML49287 and to seek your concurrence. Due to the importance of this gob gas venthole to the safety of our miners as determined by MSHA, and to keep the longwall running to supply existing contracts, we consider this a matter of great urgency, and request an expedited review of this request. The projected date to begin production from panel 13 is the end of October, so time is of the essence. Thank you.

Dave Shaver
Project Engineer
Wesr Ridge Resources, Inc.

State of Utah
School & Institutional
Trust Lands Administration

Jon M.Huntsman, Jr.
Governor

Kevin S. Carter
Director

675 East 500 South, Suite 500
Salt Lake City, UT 84102-2818
801-538-5100
801-355-0922 (Fax)
www.trustlands.com

Wednesday, October 22, 2008

Dave Shaver, Project Engineer/Agent
West Ridge Resources, Inc.
P.O. Box 910
East Carbon, Utah 84520-0910

RE: Bear Canyon Road Status, West Ridge Mine C0070041, lease ML 49827

Dear Mr. Shaver:

In response to your request regarding the status of the Bear Canyon road and upgrades to that road from the intersection of the C Canyon road up to the site proposed for the gob vent hole installation in the Right Fork of Bear Canyon.

Federal right-of-way U 01756 was issued on 9/3/1951 as a tramroad and was constructed and used in the 1950's for oil & gas and coal lease activities. See attached BLM Plat. SITLA is the surface owner and maintains jurisdiction over portions of that road which are on Trust Lands including portions of T 14S R13 E Sections 3, 10, and 16. SITLA maintains this public road for multiple land use including oil and gas leasing, coal and other minerals, industrial use and grazing.

SITLA approved the upgrading of the Bear Canyon road by West Ridge on September 17, 2008 in anticipation of the construction of a gob vent hole installation on Section 3, immediately adjacent to the existing road. SITLA maintains jurisdiction over the use, maintenance and upgrading of this road on Trust Lands. Such activities within this existing public road are not considered by SITLA to be surface coal mining activities subject to permitting by DOGM.

Any upgrades to the road or maintenance performed on the road will remain under the jurisdiction of SITLA regardless of the duration or use by West Ridge. The existing road will remain in place and under SITLA's jurisdiction to support other land use activities even following the use and eventual reclamation of the gob vent hole installation.

SITLA concurs that the gob vent hole installation facility is a coal mine related surface activity and should be under DOGM permit requirements. The existing road however will remain as a public use road where it exists on Trust Lands.

Please let us know if you have any other questions or concerns regarding use of the Bear Canyon road or construction of the gob gas vent hole installation.

Sincerely,

/S/

J. Randall Harden
Minerals Resource Specialist

CC: Tom Faddies, John Blake, Daron Haddock (DOGM)

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R645-301-500 CHAPTER 5

CHAPTER 5
R645-301-500 ENGINEERING

R645-301-511 GENERAL REQUIREMENTS

Chapter 5 contains information regarding the proposed coal mining operation and reclamation plans, a discussion of its potential impact to the environment and methods to achieve compliance with design criteria.

Reclamation plans and estimates are presented for postmining restoration of the area.

NOTE: The following discussion for the remainder of R645-301-511 applies specifically to the Gob Gas Vent Hole (GVH) installation proposed in Bear Canyon. In order to facilitate the review it is presented here in its entirety rather than interspersed throughout the chapter. A more detailed and complete discussion of the Bear Canyon GVH proposal can be found in Appendix 5-14. Unless specifically noted in this following discussion, nothing related to the Bear Canyon GVH proposal affects the contents of the existing approved MRP as described hereinafter.

The GVH facility will consist of three drillholes, four methane extractor units, and interconnecting piping. A detailed description of the drillhole installation, and the assembly and operation of the methane extractor units can be found in Attachment 7 of Appendix 5-14. The site pad will consist of a narrow strip (approximately 35' wide x 300' long) located adjacent to and parallel with the road. The drillholes will be located at the southern (down-canyon) end of the site pad. The extractor units will be located in a serial arrangement along the northern (up-canyon) end of the site pad. The total facility area will be about 0.24 acres, including the adjacent cutslopes.

Before construction starts identification signs will be posted at the site. These signs will list the company name as permit holder, the permit number, address and phone number. During the initial phase of construction, topsoil will be salvaged. Based on a recent Order 1 soils survey the current estimate of topsoil to be salvaged is approximately 515 cubic yds. (See Appendix 2-10 and also Attachment 2 of Appendix 5-14.). After the topsoil has been removed, the slope will be excavated back for a distance of about 20', leaving a 1:1 cutslope against the hillside. Based on current surveys it is estimated that about 1,357 total yds of material will be excavated from the bank. This includes the estimated 515 yds of topsoil, so the remaining amount of excavated material will be about 842 yds (see Cut Slope Excavation Volumes, Attachment 1 of Appendix 5-14 for details). Material excavated from the cutslope will be used to level off the area for the drillhole (for the drilling operation) and for the individual methane extractor units. Excess material may be used to raise the grade of the adjacent roadway. All fill areas will then be compacted for stability.

During the drilling phase of the GVH installation, the pad area will be used as an equipment lay-down area for drill steel, drill casing, drilling mud, concrete, etc. The pad will also be used to accommodate the mud pits needed during the drilling operation. After the drillholes have been completed, the pits will be backfilled and eliminated. The site will then be cleaned up and fine-graded prior to installing the methane extractor units (see Attachments 1 and 7 of Appendix 5-14 for details).

After the cutslopes have been excavated, the slopes with be reclaimed (interim reclamation) by pocking, re-seeding and applying a layer of wood straw as described above. A disturbed area drainage ditch will be constructed along the toe of the cut. This ditch will be designed to handle the flow from the up-slope undisturbed area, the reclaimed cutslope, the drillpad, and the adjacent section of road. Runoff from the ditch will be routed through a series of sediment-control structures (silt fences, excelsior logs, etc.) to effectively remove sediment. (A more detailed description of the sediment control measures associated with the site can be found in the Chapter 7, Hydrology discussion of Appendix 5-14.)

A security fence may be installed around the perimeter of the pad between the facilities and the road.. The facilities will not encroach upon nor affect the road nor the road turn-around, and neither will public use of the road be affected. The Company will provide the Division with an as-built drawing of the facility upon completion of construction.

Operation of the GVH facility is expected to continue for the life of the West Ridge operation. Therefore, reclamation of the site will be done at the same time and under the same conditions as for the minesite surface facilities in C Canyon. However, if temporary cessation of mining operations occurs, the GVH well will continue to function.

Prior to final reclamation, all drillholes will be plugged and sealed in accordance with State and Federal regulations. The casings will be plugged at the bottom to hold the concrete. A lean concrete mixture will be poured into the casing until the concrete is within five (5) feet of the surface. At that time the casing will be cut off at ground level and the rest of the casing will be filled with lean concrete. The concrete will be allowed to harden before final reclamation is completed. There will be three drillholes installed and therefore plugged at reclamation. (This commitment is identical to the currenty approved plan for the Tower (Centennial, C/007/014) GVH reclamation plan.) Based on current projections the holes will be drilled at 45 degree angles into the mine, and will have individual depths (lengths) of 504', 376', and 502', for a combined total depth of 1382'. Using 9-5/8" casing for all holes, the volume of concrete needed to plug all three holes would be 26 cu. yds.

On final reclamation, the pad area and cutslopes will be backfilled to approximate original contour (see Reclamation Contours, Attachment 1 of Appendix 5-14). Fill material will be obtained from the adjacent roadway and leveling pads. This is the exact same material that was excavated from the cutslope during initial construction. The cutslope will be backfilled in 18"-24" lifts and compacted with rubber-tired vehiclesand/or vibratory mechanical equipment. The reclaimed slopes, at approximate original contour, will average about 1.5: 1, so slope stability will not be an issue. Because of the compaction in lifts, and the rocky nature of the backfill material (one and the same as the original native material), stability of the reclaimed slopes is sufficient to achieve approximate original contour and eliminate the potential for remnant cutslope exposures. A slope stability analysis prepared by Blackhaek Engineering concludes that *"calculations show safety factors well in excess of the required 1.3 for the reclaimed cut slopes of 1.5H:1V and up to 30' in height. This is not inconsistent with the natural conditions of the area, and will allow for complete reclamation of all cut slopes created by the emergency drilling pads."* (See Attachment 8 of Appendix 5-14 for the complete slope stability analysis report.) The slope will then be re-topsoiled and re-vegetated according to the same existing approved plan for the minesite in nearby Canyon, as specified in R645-301-341, and as described in the Chapter 3, Biology discussion in Appendix 5-14.

The amount of backfill material is estimated to be up to 842 cubic yards, and the amount of replaced topsoil is estimated at about 515 cubic yards. Total reclaimed area, including both pad and cutslopes will be approximately 0.24 acres. Because the cutslopes are only about 20' maximum high, all work, both backfilling and topsoil replacement, can easily be done from the existing adjacent road-pad surface, using trackhoes with sufficient boom reach. After the reclaimed slopes have been topsoiled and reseeded, a row of excelsior logs will be installed along the full length of the toe of the slope between the slope and the remaining road. The purpose of this row of excelsior logs is to control sediment of the site until the revegetation has become established.

Bonding and reclamation costs for the Bear Canyon GVH installation can be found in Appendix 5-14 in the Chapter 8, Bonding discussion.

R645-301-512 CERTIFICATION

512.100 Cross Sections And Maps

Maps, cross sections, figures and tables which require certification will be certified by a qualified, registered, professional engineer or land surveyor.

Cross sections, maps and drawings will be certified prior to determination of completeness for the permit application.

512.200 Plans And Engineering Designs

A qualified registered professional engineer will certify plans and designs for impoundments and primary roads. No excess spoil or durable rock fill designs are proposed.

R645-301-513 COMPLIANCE WITH MSHA REGULATIONS AND APPROVALS

513.100 MSHA regulations 30 CFR 77.216-1 & 30 CFR 77.216-2 do not apply as no coal processing dams or embankments are being proposed.

513.200 MSHA regulation 30 CFR 77.216 (a) does not apply because of the restricted size of the sediment ponds and low hazard potential.

513.300 No coal processing waste is proposed to be disposed of in underground workings. Refer to R645-301-528.321.

513.400 No refuse piles are being proposed.

CHAPTER 6
R645-301-600 GEOLOGY

R645-301-610 INTRODUCTION

R645-301-611 GENERAL REQUIREMENTS

Descriptions of the geology within and adjacent to the permit area are provided in R645-301-621 and R645-301-627. A description of the proposed operation plan for the casing and sealing of exploration holes and boreholes is provided in R645-301-630.

NOTE: The following discussion for the remainder of R645-301-611 applies specifically to the Gob Gas Vent Hole (GVH) installation proposed in Bear Canyon. In order to facilitate the review it is presented here in its entirety rather than interspersed throughout the chapter. A more detailed and complete discussion of the Bear Canyon GVH proposal can be found in Appendix 5-14. Unless specifically noted in this following discussion, nothing related to the Bear Canyon GVH proposal affects the contents of the existing approved MRP as described hereinafter.

The geology of the GVH site is essentially the same as at the West Ridge Mine surface facilities located nearby in C Canyon, as shown on Map 6-1. The primary difference is that the mine site is located in the upper part of the Blackhawk Formation where the Sunnyside coal seam outcrops, whereas the Bear Canyon GVH site is located stratigraphically about 384' above the coal seam within the part of the canyon where the Castle Gate Sandstone begins to outcrop. This results in the GVH site being situated in a narrow, ledgebound part of the canyon. The drillholes will reach down to near the top of the mined out coal seam horizon (see Attachment 7 of Appendix 5-14 for details). Because the coal seam in this area has been completely extracted by longwall mining, the GVH drillholes will penetrate through subsided and fractured strata. Based on previous subsidence monitoring the GVH site has subsided about 3 feet, but subsidence has now stabilized.

R645-301-612 CROSS SECTIONS, MAPS, AND PLANS

Certified cross sections, maps, and plans have been provided per R645-301-622 and R645-301-512.100.

R645-301-620 **ENVIRONMENTAL DESCRIPTION**

R645-301-621 **GENERAL REQUIREMENTS**

Regional Geologic Description

The Book Cliffs contain major coal beds of economic importance in central Utah. The rocks of this continuous, roughly horseshoe-shaped band of Cretaceous age rocks partly surround and dip gently away from the broad regional dome of the San Rafael Swell. Steep escarpments and deeply incised canyons are prominent features, above which are gently rolling plateaus. In the Book Cliffs coal field, of which the lease area is part, elevations range from 4,000 to 6,000 feet along the base of the Book Cliffs to nearly 10,300 feet at the highest point. The strike of the beds in the Book Cliffs is generally parallel to the face of the cliffs with a dip of 3 to 8 degrees to the northeast. Scattered faults of a west-northwest trend are limited to a few miles in length and from 25 to 200 feet in displacement.

Clark (1928) mapped the geology and coal outcrops in the western part of the Book Cliffs coal field from the Standardville 7 ½ minute quadrangle on the west

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R645-301-700 CHAPTER 7

CHAPTER 7
R645-301-700 HYDROLOGY

R645-301-711 General Requirements

This chapter includes a description of hydrology and hydrogeology of the West Ridge permit area. Specifically, this permit application includes:

711.100 Existing hydrologic resources according to R645-301-720.

711.200 Proposed operations and potential impacts to the hydrologic balance according to R645-301-730.

711.300 The methods and calculations utilized to achieve compliance with the hydrologic design criteria and plans according to R645-301-740.

711.400 Applicable hydrologic performance standards according to R645-301-750.

711.500 Reclamation activities according to R645-301-760.

NOTE: The following discussion for the remainder of R645-301-711 applies specifically to the Gob Gas Vent Hole (GVH) installation proposed in Bear Canyon. In order to facilitate the review it is presented here in its entirety rather than interspersed throughout the chapter. A more detailed and complete discussion of the Bear Canyon GVH proposal can be found in Appendix 5-14. Unless specifically noted in this following discussion, nothing related to the Bear Canyon GVH proposal affects the contents of the existing approved MRP as described hereinafter.

The GVH site will be located on the opposite side of the road (southeast side) from the primary canyon drainage channel. Therefore, construction and operation of the GVH facility will have no affect on the natural canyon drainage. Because of the limited size of the site (0.24 acres) and the narrow configuration within the confines of the narrow ledges of the canyon, there is insufficient room to construct a sediment control pond. Therefore the company intends to employ a combination of alternate sediment control methods at the site. During the construction phase of the pad site, adequate rows of excelsior logs will be placed downgrade from the site to prevent construction sediment from entering the channel. Once the pad site is finished, which should take less than two weeks, a disturbed area drainage ditch will be constructed along the toe of the cut. This ditch will be designed to handle the flow from the up-slope undisturbed area, the reclaimed cutslope, the drillpad, and the adjacent section of road. This ditch will discharge into the natural drainage channel a short distance below the drillhole location. This ditch will be armored with adequately-sized rip-rap for its entire length. This rip-rap will decrease the potential for erosion in the ditch, and will also act initially as a siltation trap as a certain amount of sediment is allowed to settle into the rip-rap voids.

The total length of the drainage ditch will be approximately 350'. At 50' intervals along its length energy dissipaters will be installed in the ditch. These energy dissipaters will consist of excelsior logs laid in the ditch perpendicular to the flow direction, and anchored securely with stakes. These dissipaters will reduce the flow velocity to help reduce erosion, and will also serve as siltation filters to help remove sediment prior to reaching the natural channel. In addition, a terminal set of excelsior logs will be installed in the ditch immediately above the point where it discharges into the natural channel. The installation, consisting of four (4 ea.) closely-spaced rows of excelsior logs will serve primarily as sediment traps, rather than energy dissipaters. This set will be located conveniently close to the road to facilitate regular cleaning and maintenance. All excesior logs will be installed according to the manufacture's instructions.

Immediately after the cutslopes have been excavated to create the pad-site, the slopes will be pocked, and reseeded. A layer of woodstraw will then be spread over the reseeded slopes. This straw serves to not only provide microclimate conditions to encourage seed germination, it also absorbs some of the energy from falling raindrops, and therefore helps control erosion on the slopes until revegetation can become established. The pocking, which consists of irregular depressions measuring about 24" x 36" x 18" deep, helps revegetation by holding the seed and water in place, and thereby helps minimize erosion as well.

After the site has been constructed the entire operational pad area, as well as the adjacent road area and turnaround, will be graveled from the channel crossing up to the end of the road . This gravel will consist of a crushed rock 1.5" x 0" road base material, laid down and then compacted to a tight surface. This graveled surface will also serve to reduce erosion on the pad (and adjacent road segment) and thereby decrease sedimentation to the natural drainage.

In summary, the site will be an alternate sediment control area. Sediment will be controlled by the following combination of treatment methods:

1) Armoring the entire length of the drainage ditch with rip-rap.

2) Installation of energy dissipaters within the ditch to slow the flow velocity.

3) Installation of set of sediment control excelsior logs in the ditch ahead of the discharge point.

4) Pocking and revegetating the cutslope, including a layer of protective wood straw.

5) Graveling the pad-site and adjacent roadway

Refer to the site plan in Attachment 1 of Appendix 5-14 for the location of the drainage ditch, energy dissipaters, excelsior log siltation controls, and graveled area. See Attachment 11 of Appendix 5-14 for the drainage control calculations determined by Blackhawk Engineering. This report concludes that with *"....installation of the proposed sediment and erosion controls, there should be no adverse effects to the surface hydrology of this area."*

The GVH installation and operation should have no adverse affect on ground-water hydrology. The GVH site is located close to the area where the depth of cover over the longwall panels is the shallowest within the permit area. As a result, this area has been an area of interest in previous MRP amendments, resulting in enhanced water monitoring and subsidence monitoring requirements both above and below the GVH site. A more detailed discussion of the area hydrology can be found in R645-301-322.100 and R645-301-738 of the approved MRP. It should be noted that this area has been now been completely undermined since November, 2006, subsidence has stabilized, and no adverse affects to underground or surface hydrologic resources have been observed. Prior to final reclamation, all drillholes will be plugged and sealed in accordance with State and Federal regulations, as discussed in the Chapter 5 section of Appendix 5-14. See Attachment 10 of Appendix 5-14, prepared by Petersen Hydrologic, for a discussion of the potential hydrologic affects from the GVH installation and operation. This report concludes that *"adverse impacts to the hydrologic balance resulting from the installation and operation of the Bear Canyon GVH system are not anticipated."* The probable hydrologic consequences (PHC) section of the MRP (645-301-738) has been updated to include a discussion of the Bear Canyon GVH installation.

R645-301-712 **Certification**

All cross sections, maps, and plans have been prepared per R645-301-512.

R645-301-713 **Inspection**

Impoundments will be inspected as described under R645-301-514.300.

R645-301-720 **Environmental Description**

R645-301-721 **General Requirements**

The existing, pre-mining hydrologic resources within the permit and adjacent areas that may be affected by coal mining and reclamation operations are described by Mayo and Associates (1997; 7-1 "Groundwater Investigation of Proposed Mine Permit Area", 2001; 7-1A "Investigation of Surface-Water and Groundwater Systems in the Whitmore LBA Area") and summarized below.

transport stream water across the fracture zone to continue the flow downstream. Any work done in the stream channel would most likely require the issuance of a channel alteration permit from the Utah Division of Water Rights.

Adverse impacts to the hydrologic balance resulting from the installation and operation of the Bear Canyon gob vent holes (GVH) are not anticipated. The basis for this conclusion is summarized below.

The gob vent holes will be constructed in a manner that minimizes the potential for adverse impacts to groundwater and surface-water resources and the hydrologic balance in the area. The proposed construction designs for the GVH holes include a nominal 20 foot length of 16-inch non-perforated steel surface casing that will be cemented in place. The surface casings will isolate the wells from surface-water, soil moisture, and any shallow groundwater potentially present in the upper 20 feet and will prevent shallow water from entering the GVH wells. From approximately 20 to 200 feet below the surface, the proposed well construction plans call for the placement of 9.625-inch non-perforated steel casing that will be cemented into place. The cemented steel well casing will isolate groundwaters that may be present in bedrock groundwater systems in the upper 200 feet from the GVH wells and prevent the inflow of groundwater into the wells.

Proposed construction plans call for the lower approximately 150 feet of the GVH wells to be cased with 8.75-inch slotted steel casing that will be left open to the rock strata and will not be cemented. The purpose of the slotted steel casing is to allow the drainage of gob gasses into the well bore in the fractured rock strata overlying the Panel 8 gob. While there is the potential for drainage of some Blackhawk Formation groundwater into the GVH holes in the 150 feet interval overlying the longwall gob, the potential for appreciable or sustained groundwater drainage through these wells is minimal. This is because 1) groundwater systems in the Blackhawk Formation occur in hydraulically isolated groundwater partitions that are not in hydraulic communication with adjacent groundwater partitions, which limits the amount of groundwater that could potentially be drained, 2) the GVH holes are situated near the up-dip ends (outcrop locations) of the Castlegate Sandstone and Blackhawk Formation which limits groundwater recharge potential and the potential for the interception of regional groundwater systems, and 3) the 150-foot interval of the Blackhawk Formation overlying the gob area was likely intensely fractured as a result of the longwall mining prior to the construction of the wells which would likely have drained the groundwater partitions immediately overlying the gob area at the time of mining. For these reasons, the potential for drainage of appreciable groundwater or surface-water resources through the GVH drill holes is considered low.

The potential for detrimental impacts to the ephemeral Bear Canyon Creek drainage of Bear Canyon. The first site (ST-11) will be located within the tension zone described above. This site was chosen because this location should be well-suited to determine if tension cracks have affected stream flow. It is also, coincidentally, one of the areas where the bedrock nature of the channel bottom forces water to the surface, thereby making streamflow measurements more accurate. The second site (ST-12) will be located about 2400' farther up-canyon in another area where, again, the bedrock nature of the channel allows for a more accurate streamflow measurement. A third monitoring site (ST-13) will be located below the forks of Bear Canyon just outside the permit area boundary. This site will replace the existing monitoring site ST-4.

During the flow season of 2005 and 2006 (that is, May 15 through September 15) site ST-11 will be monitored monthly as long as flow is present. This monthly monitoring will help better define the nature of streamflow prior to longwall extraction in the area, which is presently scheduled for May, 2007. Thereafter, monitoring will be done on the regular quarterly basis. Site ST-12 is more inaccessible, and could be dangerous to reach in the winter. Therefore this site will be monitored twice a year, once during late spring/early summer (expected peak flow) and once in late summer/early fall, when the canyons are normally much drier. Site ST-13 will be monitored quarterly.

The longwall is presently scheduled to pass under Bear Canyon in the spring of 2007. Prior to that, WEST RIDGE will complete a survey of a series of subsidence monitoring points established up the bottom of the drainage on either side of the inflection point. After the longwall has passed under the drainage these points will be re-surveyed and an accurate account undermined WEST RIDGE will visually inspect the area to determine if any effects of subsidence are apparent. Within thirty days of the inspection WEST RIDGE will submit a written report to the Division outlining the results of this inspection .

Recent site visits have determined the existence of riparian type vegetation in the lower reaches of Bear Canyon below the forks. WEST RIDGE commits to preparing a detailed vegetation survey and mapping of the canyon bottom with emphasis on the existence of riparian specie. This survey will be conducted during the growing season of 2005 or 2006. The survey will be done in consultation with Division biologists and the completed report will be added to the Mining and Reclamation Plan as an appendix.

If it is determined that mining-related subsidence has adversely impacted the hydrologic resources of Bear Canyon, including and state-appropriated water rights, WEST RIDGE will mitigate the damage. The first option would be to seal any cracks with the application of bentonite clay. Bentonite sealing compounds are available commercially made specifically for such applications. If bentonite sealing proved ineffective, WEST RIDGE would propose the installation of piping to transport stream water across the fracture zone to continue the flow downstream. Any work done in the stream channel would most likely require the issuance of a channel alteration permit from the Utah Division of Water Rights.

Adverse impacts to the hydrologic balance resulting from the installation and operation of the Bear Canyon gob vent holes (GVH) are not anticipated. The basis for this conclusion is summarized below.

The gob vent holes will be constructed in a manner that minimizes the potential for adverse impacts to groundwater and surface-water resources and the hydrologic balance in the area. The proposed construction designs for the GVH holes include a nominal 20 foot length of 16-inch non-perforated steel surface casing that will be cemented in place. The surface casings will isolate the wells from surface-water, soil moisture, and any shallow groundwater potentially present in the upper 20 feet and will prevent shallow water from entering the GVH wells. From approximately 20 to 200 feet below the surface, the proposed well construction plans call for the placement of 9.625-inch non-perforated steel casing that will be cemented into place. The cemented steel well casing will isolate groundwaters that may be present in bedrock groundwater systems in the upper 200 feet from the GVH wells and prevent the inflow of groundwater into the wells.

Proposed construction plans call for the lower approximately 150 feet of the GVH wells to be cased with 8.75-inch slotted steel casing that will be left open to the rock strata and will not be cemented. The purpose of the slotted steel casing is to allow the drainage of gob gasses into the well bore in the fractured rock strata overlying the Panel 8 gob. While there is the potential for drainage of some Blackhawk Formation groundwater into the GVH holes in the 150 feet interval overlying the longwall gob, the potential for appreciable or sustained groundwater drainage through these wells is minimal. This is because 1) groundwater systems in the Blackhawk Formation occur in hydraulically isolated groundwater partitions that are not in hydraulic communication with adjacent groundwater partitions, which limits the amount of groundwater that could potentially be drained, 2) the GVH holes are situated near the up-dip ends (outcrop locations) of the Castlegate Sandstone and Blackhawk Formation which limits groundwater recharge potential and the potential for the interception of regional groundwater systems, and 3) the 150-foot interval of the Blackhawk Formation overlying the gob area was likely intensely fractured as a result of the longwall mining prior to the construction of the wells which would likely have drained the groundwater partitions immediately overlying the gob area at the time of mining. For these reasons, the potential for drainage of appreciable groundwater or surface-water resources through the GVH drill holes is considered low.

The potential for detrimental impacts to the ephemeral Bear Canyon Creek drainage or any associated alluvial groundwater systems is considered remote. Appreciable baseflow alluvial groundwater systems were not identified near the GVH location during the 7 October 2008 site visit. Additionally, because the GVH well bores will be hydraulically isolated from the upper approximately 200 feet, the potential for impacts to water quality in the drainage are unlikely. The implementation of appropriate sediment control management practices will minimize the potential for increased sediment yield from the GVH site during the construction and operational phases of the GVH system.

Prior to final reclamation, the GVH drillholes will be plugged and sealed in accordance with State and Federal regulations. The casings will be plugged at the bottom to hold the concrete. A lean concrete mixture will be poured into the casing until the concrete is within five feet of the surface. At that time the casing will be cut off at ground level and the rest of the casing will be filled with lean concrete. The concrete will be allowed to harden before final reclamation is completed. In this manner, the potential for any long-term impacts to the hydrologic balance resulting from the GVH system will be minimized.

Spring Canyon is located in the northern part of the permit area in SITLA lease 44771. There are no state-appropriated water rights on this lease. (Refer to Appendix 7-5 for additional details.) The surface is privately owned by Penta Creek with whom WEST RIDGE maintains coal mining rights. Longwall mining in this area is not scheduled until the year 2014. In this area the coal seam is 2500' deep under the bottom of the Canyon. Spring Canyon, as the name would imply, contains several springs. The drainage area of Spring Canyon is well in excess of one square mile. The canyon supports a number of beaver dams indicative of perennial flow. WEST RIDGE will add three additional monitoring points to collect baseline water monitoring data in Spring Canyon, namely ST-15 located upstream from the junction of Grassy Trail Creek, SP-101 located on a channel-bottom spring a short ways up Little Spring Canyon (a fork of Spring Canyon), and SP-102 located about 1000' upstream from the junction of Little Spring Canyon. This spring emanates from the west side of the canyon approximately 200' up from the canyon bottom. Refer to Map 7-7 and Table 7-1 for details. For the first two years (starting with the third quarter of 2005) these sites will be monitored on a quarterly basis for baseline data according to the field measurements and laboratory measurements outlined in Table 7-2 (Surface Monitoring) and Table 7-3 (Groundwater Monitoring). Thereafter, all sites will be monitored for flow and field parameters on a quarterly basis.

The Grassy Trail Dam and Reservoir is located immediately outside the eastern boundary of the permit area. This dam/reservoir is owned and operated by the cities of East Carbon and Sunnyside, has a storage capacity of 916 acre-feet, and provides most of the culinary water supply to these municipalities. The dam lies approximately 1664' vertically and 995' horizontally away from the nearest point of projected underground mining (longwall panel #7). This equates to 31 degrees, which is greater than the normal angle of draw associated with longwall subsidence. WEST RIDGE Resources has hired R,B&G Engineering to prepare a detailed evaluation report of the potential effects of longwall mining on the dam and reservoir. This evaluation report was reviewed by the Division of Dam Safety, DOGM, Bureau of Land Management, and the cities of East Carbon and Sunnyside. The report analyzed the potential impacts from both subsidence and seismicity associated with full extraction mining, with specific emphasis on panel #7, the longwall panel projected for mining nearest to the dam. The report concluded that the risk to the dam and reservoir is minimal, and that event the maximum probable seismic event or subsidence scenario would be well within the safety factor of the dam. In addition, there are no known faults that intercept the dam that could be encountered in the mining of Panel #7. The Division of Dam Safety, the BLM, and the cities of East Carbon and Sunnyside have all accepted the conclusions of the report. This report (Grassy Trail Dam and Reservoir Seismicity Report) is included in Appendix 5-11. This report also includes as an appendix an independent report prepared by Agapito Associates (Estimated Impacts to the Grassy Trail Reservoir due to Longwall Mining) which addresses the potential effects on the dam/reservoir due to longwall induced subsidence. A companion report (Grassy Trail Dam & Reservoir Phase II Dam Safety Study) is included as Appendix 5-12. WEST RIDGE has committed to an intensive program of monitoring of the dam and reservoir during the mining of Panel #7. This monitoring plan is outlined in section 301-114.100 of this Mining & Reclamation Plan and is included indetail in Appendix 5-13.

728.320 Presence of acid-forming or toxic-forming materials

Acid-forming materials in western coal mines generally consist of sulfide minerals, namely pyrite and marcasite, which, when exposed to air and water, are oxidized causing the production of H^+ ions (acid). Oxidation of pyrite will occur in the mine; however, acidic waters will not be observed in the mine. The acid is quickly consumed by dissolution of abundant, naturally occurring carbonate minerals. Iron is readily precipitated, as iron-hydroxide, and excess iron will be not observed in mine discharge water.

No other acid-forming materials or any toxic-forming materials have been identified or are suspected to exist in materials to be disturbed by mining.

728.331 Sediment yield from the disturbed area

Undisturbed drainage from C Canyon upstream from the mine yard facility area will, for the most part, be culverted underneath the mine site by means of a 4' diameter corrugated metal pipe in the right fork and a 3' diameter culvert in the left fork drainage. This culvert has been sized to meet or exceed the design storm for this drainage area. Runoff from the mine site disturbed area and whatever natural runoff which flows onto the disturbed area will be channeled to the mine site sediment pond. The drainage control system for the mine site is shown on Map 7-2.

The culvert and ditch system is designed to handle drainage from a 10 year, 24 hour event. Any storm event that exceeds this amount will flow through the mine yard drainage structures to the sediment pond. If a storm should exceed the design event and the magnitude of the runoff exceeds the pond capacity, the over flow will be channeled through the pond cells and out the emergency spillway to the natural drainage channel below the sediment pond. This overflow will have a lower suspended solid content than the inflow to the pond or any drainage which may be flowing down the natural drainage channel. The sediment pond will detain the inflowing water and allow suspended solids to settle out in the pond cells prior to discharge. Given the ephemeral nature of the drainages and the fact that the sediment pond is designed for the complete retention of the 10 year, 24 hour storm event, it is unlikely that discharge from the sediment pond will occur very often if ever. Since the sediment pond is designed to completely contain the 10 year, 24 hour event, only a limited amount of outflow, that in excess of the design event, would be discharged. Excess water contained in the sediment pond following runoff events would be

APPENDIX 7-11

BEAR CANYON GVH HYDROLOGY REPORT
PETERSEN HYDROLOGIC, LLC

PH

PETERSEN HYDROLOGIC, LLC

15 October 2008

Mr. Dave Shaver
West Ridge Resources, Inc.
P.O. Box 902
Price, Utah 84501

Dave,

At your request, we have evaluated the probable hydrologic consequences relating to the proposed installation and operation of the West Ridge Panel 8 gob gas vent holes (GVH) in Bear Canyon. We are providing this letter report to present the findings of a hydrogeologic investigation we have performed in this regard and to describe the probable hydrologic consequences of the GVH drilling and operational activities.

This report includes the following sections:

- Methods of Study
- Physical setting
- Geologic Setting
- Hydrologic Conditions
- Probable Hydrologic Consequences
- References Cited

2695 N. 600 E. LEHI, UTAH 84043 (801) 766-4006

Methods of Study

On 7 October 2008 we made a site visit to the GVH drilling site in the right fork of Bear Canyon. During this visit we examined the Bear Canyon surface-water systems adjacent to the GVH drilling site. The stream channel characteristics and the shallow alluvial and colluvial sediments in the canyon were observed. The geologic and hydrogeologic conditions at the drilling site and adjacent areas were observed and photographed.

Information regarding proposed GVH drilling plans and pertinent hydrogeologic reports and maps were obtained and reviewed as part of this investigation.

Physical Setting

The GVH area is situated in the right fork of Bear Canyon in the southwest quarter of the southeast quarter of Section 3, Township 14 South, Range 13 East, in Carbon County, Utah. The Bear Canyon GVH area overlies the previously mined Panel 8 longwall panel at the West Ridge Mine and is designed to vent gasses from the longwall gob area in the underground coal mine workings for mine safety purposes. The venting of the gas will occur through drill holes advanced from the land surface in Bear Canyon to the underlying mine gob area. The underground mine workings are separated from the overlying land surface in Bear Canyon by approximately 380 feet of overburden (Personal communication, Dave Shaver, 2008). Current plans call for the installation of three drillholes at the GVH site. Based on current plans the holes will be drilled at 45 degree angles into the mine, and will have individual depths (lengths) of 504, 376, and 502 feet.

Geologic Setting

The land surface in Bear Canyon at the GVH site is underlain by sandstone bedrock of the Cretaceous Castlegate Sandstone formation. In some areas, the bedrock is directly exposed at the land surface, while in other areas relatively thin deposits of alluvium, colluvium, and soil are present.

The stream channel substrate in the right fork of Bear Canyon Creek near the GVH exists either directly on Castlegate Sandstone bedrock or on thin deposits of alluvium overlying the sandstone bedrock.

The rock strata comprising the overburden between the Panel 8 mine workings and the land surface in Bear Canyon near the GVH consists of rocks of the Castlegate Sandstone and the Cretaceous Blackhawk Formation. The Castlegate Sandstone consists predominantly of lenticular fluvial sandstones interbedded with minor siltstone or claystone layers. The Blackhawk Formation in the region consists of interbedded sandstones, siltstones, claystones and coal deposits. The bedrock strata locally dip at approximately three to eight degrees to the northeast. Major faulting has not been observed in the GVH area (Mayo and Associates, 1997).

Hydrologic Conditions

Groundwater and surface-water systems in the West Ridge Mine permit and adjacent area have previously been characterized by Mayo and Associates (1997). During the 7 October 2008 site visit to the GVH area, no springs or seeps were observed. Wetness in the near-surface unconsolidated sediments in the vicinity of the GVH was likewise not observed, which suggests a lack of appreciable groundwater baseflow discharge locally. Because the GVH location is near the up-dip ends of the Castlegate and Blackhawk geologic formations (which have been truncated by the erosional Book Cliffs escarpment), regional, long-flowpath type groundwater systems are likely not present in the area.

In previous spring and seep surveys in the area, no springs or seeps were identified in either the Castlegate Sandstone or the Blackhawk Formation in the vicinity of the GVH drill sites (Mayo and Associates, 1997). It should be noted that two seeps discharging at less than 1 gallon per minute each were previously identified in the two upper forks of the right fork of Bear Canyon Creek above the GVH area (S-27 and S-28; Mayo and Associates, 1997). However, these seeps discharge from the Price River Formation topographically and stratigraphically above the drilling area and thus are not of concern in this investigation.

The right fork of Bear Canyon Creek appears to be an ephemeral drainage (Mayo and Associates, 1997). No discharge was present in the drainage during the 7 October 2008 site visit. The complete absence of flow in the creek in areas where the stream channel sits directly on clean bedrock surfaces demonstrates that there is at present no appreciable alluvial groundwater system associated with Bear Canyon Creek in the vicinity of the GVH area.

Probable Hydrologic Consequences

Adverse impacts to the hydrologic balance resulting from the installation and operation of the Bear Canyon GVH system are not anticipated. The basis for this conclusion is summarized below.

The gob vent holes will be constructed in a manner that minimizes the potential for adverse impacts to groundwater and surface-water resources and the hydrologic balance in the area. The proposed construction designs for the GVH holes include a nominal 20 foot length of 16-inch non-perforated steel surface casing that will be cemented in place. The surface casings will isolate the wells from surface-water, soil moisture, and any shallow groundwater potentially present in the upper 20 feet and will prevent shallow water from entering the GVH wells. From approximately 20 to 200 feet below the surface, the proposed well construction plans call for the placement of 9.625-inch non-perforated steel casing that will be cemented into place. The cemented steel well casing will isolate groundwaters that may be present in bedrock groundwater systems in the upper 200 feet from the GVH wells and prevent the inflow of groundwater into the wells.

Proposed construction plans call for the lower approximately 150 feet of the GVH wells to be cased with 8.75-inch slotted steel casing that will be left open to the rock strata and will not be cemented. The purpose of the slotted steel casing is to allow the drainage of gob gasses into the well bore in the fractured rock strata overlying the Panel 8 gob. While there is the potential for drainage of some Blackhawk Formation groundwater into the GVH holes in the 150 feet interval overlying the longwall gob, the potential for appreciable or sustained groundwater drainage through these wells is minimal. This is because 1) groundwater systems in the Blackhawk Formation occur in hydraulically isolated groundwater partitions that are not in hydraulic communication with adjacent groundwater partitions, which limits the amount of groundwater that could potentially be drained, 2) the GVH holes are situated near the up-dip ends (outcrop locations) of the Castlegate Sandstone and Blackhawk Formation which limits groundwater recharge potential and the potential for the interception of regional groundwater systems, and 3) the 150-foot interval of the Blackhawk Formation overlying the gob area was likely intensely fractured as a result of the longwall mining prior to the construction of the wells which would likely have drained the groundwater partitions immediately overlying the gob area at the time of mining. For these reasons, the potential for drainage of appreciable groundwater or surface-water resources through the GVH drill holes is considered low.

The potential for detrimental impacts to the ephemeral Bear Canyon Creek drainage or any associated alluvial groundwater systems is considered remote. As discussed above, appreciable baseflow alluvial groundwater systems were not identified near the GVH location during the 7 October 2008 visit. Additionally, because the GVH well bores will be hydraulically isolated from the upper approximately 200 feet, the potential for impacts to water quality in the drainage are unlikely The implementation of appropriate sediment control management practices will minimize the potential for increased sediment yield from the GVH site during the construction and operational phases of the GVH system.

Prior to final reclamation, all drillholes will be plugged and sealed in accordance with State and Federal regulations. The casings will be plugged at the bottom to hold the concrete. A lean concrete mixture will be poured into the casing until the concrete is within five feet of the surface. At that time the casing will be cut off at ground level and the rest of the casing will be filled with lean concrete. The concrete will be allowed to harden before final reclamation is completed. In this manner, the potential for any long-term impacts to the hydrologic balance resulting from the GVH system will be minimized.

References Cited

Mayo and Associates, 1997, Investigation of surface-water and groundwater systems in the West Ridge Area, Carbon County, Utah: unpublished consulting report, 80 p.

Please feel free to contact me should you have any questions in this regard.

Sincerely,

Erik C. Petersen, P.G.
Principal Hydrogeologist
Utah PG #5373615-2250

APPENDIX 7-12

BEAR CANYON GVH
DRAINAGE CONTROL PLAN

DRAINAGE CONTROL PLAN
FOR
GOB GAS VENT HOLE SITE

BEAR CANYON
WEST RIDGE MINE

PREPARED BY: **DAN W. GUY, P.E.**
BLACKHAWK ENGINEERING, INC.
OCTOBER 2008

UTAH REGISTERED PROFESSIONAL ENGINEER
#154168
DAN W. GUY
10/20/08

DRAINAGE CONTROL PLAN
GOB GAS VENT HOLE SITE

I. Introduction

This report will provide the drainage control plan and calculations for the proposed gob gas vent hole site in Bear Canyon, above the East Ridge Mine. The parameters used in the calculations (i.e. rainfall, runoff curve number, etc.) were taken directly from Appendix 7-4, "West Ridge Mine Sedimentation and Drainage Control Plan (As Constructed)". Drainage area and slopes were measured directly from the maps provided with the proposal.

General Plan

The proposed drill pad and blower location is a very small area located just south of the existing public road in Bear Canyon. The new disturbance is proposed to be approximately 0.246 acres. Due to the extremely small surface area and limited space for a sediment pond, this site will be treated as an Alternate Sediment Control Area (ASCA). The majority of the natural runoff above the site is diverted around and north of the turnaround and road through an existing ditch. This report will discuss only the drainage that will actually be affected by the new construction.

It is proposed to first remove the topsoil from the proposed disturbed area and store it in a protected location elsewhere in the canyon. The proposed drill pad and blower location site will then be constructed. Due to the narrow canyon, the pad areas will be created by cutting into the existing hillside, creating a small cut slope along the south side of the pad. Runoff from above and on the pad areas will be collected in an adequately sized cut ditch at the toe of the cut slope. The pad and existing road will also be sloped toward this ditch. All runoff from the pad and road area will then flow into the ditch, through a series of excelsior logs place at 50' intervals as energy dissipaters, through a final set of 4 closely-spaced excelsior logs for sediment control and then into the natural channel below the site. The entire drainage ditch will be rip-rapped for added protection. The average slope of the drainage ditch is approximately 8.11%; however, the slope does steepen at the lower end of the pad to approximately 11.17%. Rip-rap sizing is based on the expected flow velocities in this steepest, worst-case section of the ditch. Rip-rap sizing is based on the Rip-Rap Chart, Figure 2 in Appendix 7-4 of the West Ridge MRP. The cut slopes will be pocked and reseeded and covered with woodstraw, and the pad and road areas will be graveled. This will further enhance the erosion protection on the site.

Calculations

Runoff calculations and ditch sizing were calculated using the computer program "Office of Surface Mining Watershed Model", Storm Version 6.20 by Gary E. McIntosh. Runoff curve numbers and rip-rap sizing were taken from Appendix 7-4. Drainage areas and slopes were measured directly from the enclosed maps. All calculations are based on the 10 year-24 hour precipitation event for this area.

The following are the specific parameters used for the runoff calculations at this site:

10 year-24 hour precipitation	=	2.00"
Runoff Curve Number (Undisturbed)	=	64
Runoff Curve Number (Disturbed)	=	90
Undisturbed Runoff Area	=	2.790 ac.
Undisturbed Runoff Slope	=	60.45%
Existing Road Area	=	0.305 ac.
New Disturbed Area	=	0.246 ac.
Disturbed Runoff Slope	=	8.11%
Manning's n for Ditch	=	0.035
Average Ditch Slope	=	8.11%
Maximum Ditch Slope	=	11.17%

Peak flows were calculated for the undisturbed slope drainage to the pad area and for the pad and road area. These flows were added together for a total peak flow to be routed through the ditch. Calculations are included in Attachment A of this report.

The following are the results of the calculations:

Peak Flow - Undisturbed	=	0.06 cfs
Peak Flow - Disturbed	=	0.53 cfs
Peak Flow - Total	=	0.59 cfs
Average Ditch Flow Depth	=	0.42 ft.
Average Ditch Flow Velocity	=	3.39 fps
Maximum Ditch Flow Depth	=	0.39 ft.
Maximum Ditch Flow Velocity	=	3.82 fps

Proposed Construction

Based on the calculated peak flow runoff for this site, the following proposed hydrologic controls will provide adequate protection:

1. Ditch Size - Triangular/Minimum 12" depth
2. Rip-Rap Size – 3" D_{50}/Minimum 6" Depth
3. Velocity Control – Excelsior Logs – 50' spacing along Ditch
4. Sediment Control - Excelsior Logs - 4 Rows Minimum 5' apart

It is proposed to construct a triangular shaped ditch with maximum average of 1:1 slopes and minimum depth of 12" along the base of the cut slope along the entire length of the disturbed area. The entire ditch will be armored with 3" Minimum D50 rip-rap. Excelsior logs will also be placed at 50' intervals along the ditch as energy dissipaters. The lower end of the ditch will pass through a series of at least 4 rows of excelsior logs for velocity and sediment control, and then to the natural channel below the site. Excelsior logs will be installed per manufactures recommendations.

Conclusion:

Due to the small size of the site and installation of the proposed sediment and erosion controls, there should be no adverse effects to the surface hydrology of this area.

ATTACHMENT A

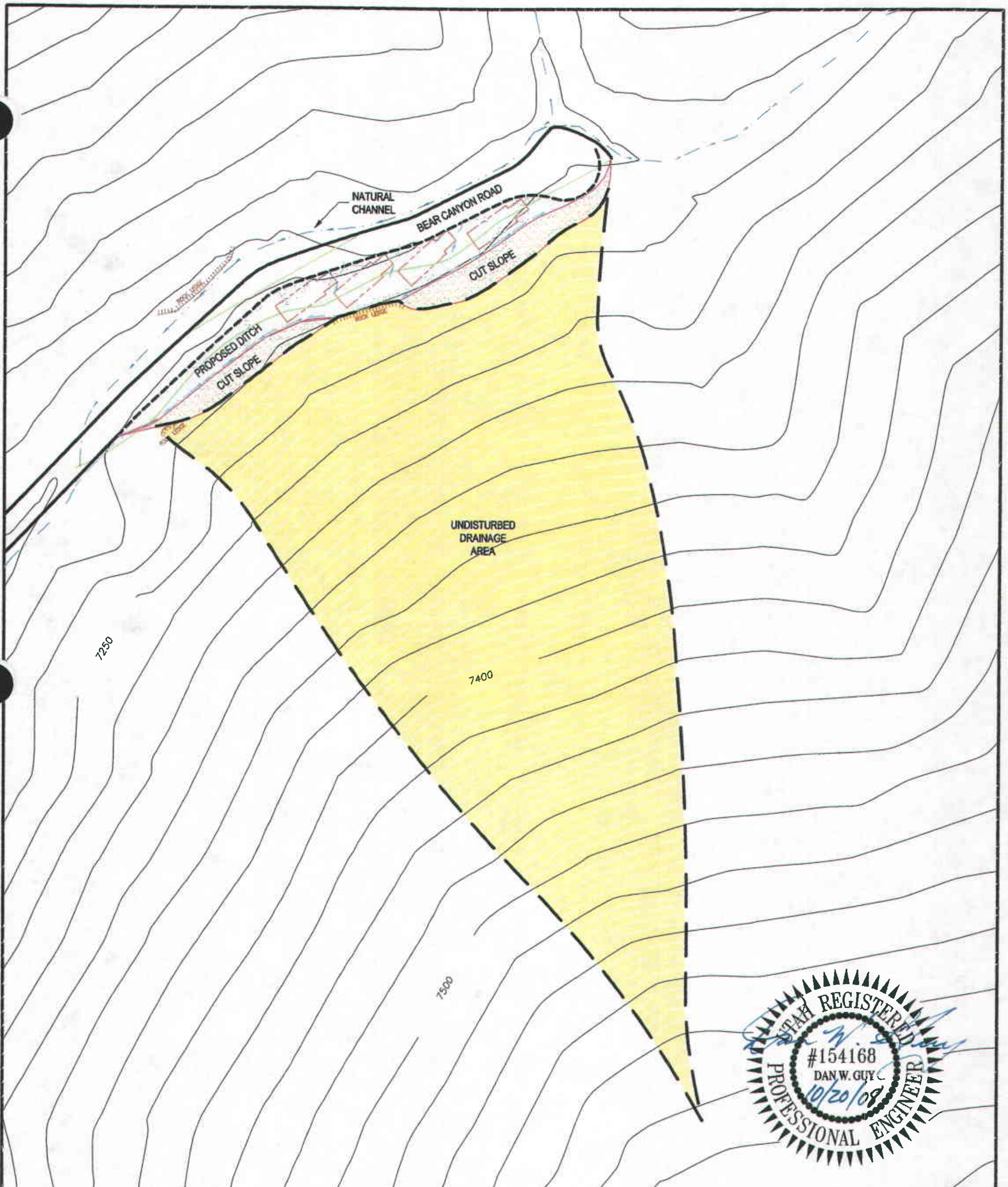
HYDROLOGY CALCULATIONS

```
Project Title               = WEST RIDGE GVH UNDIST 10/24
WATERSHED HYDROGRAPH
     Inflow into structure #  1
     Structure type:          Null


-- Watershed data for watershed # 1
     Curve number                =     64.0
     Area                        =      2.8 acres
     Hydraulic length            =   670.00 Feet
     Elevation change            =    405.0 feet.
     Concentration time          =     0.09 hours
     Concentration time type = SCS Upland Curves
     Unit hydrograph type        = Forested

-- Total Area               =      2.8 acres

-- Storm data
     Total precipitation    =      2.0 inches
     Storm type             = SCS Type 2 storm, 24 hour storm
     Peak Discharge         =     0.06 cfs
     Discharge volume       =     0.03 acre ft
```

```
Project Title                  = WEST RIDGE GVH DIST 10/24
WATERSHED HYDROGRAPH
     Inflow into structure #  1
     Structure type:            Null

-- Watershed data for watershed # 1
    Curve number                  =     90.0
    Area                          =      0.6 acres
    Hydraulic length              =   370.00 Feet
    Elevation change              =     30.0 feet.
    Concentration time            =     0.04 hours
    Concentration time type       = SCS Upland Curves
    Unit hydrograph type          = Disturbed

-- Total Area               =      0.6 acres

-- Storm data
    Total precipitation      =      2.0 inches
    Storm type               = SCS Type 2 storm, 24 hour storm
    Peak Discharge           =     0.53 cfs
    Discharge volume         =     0.05 acre ft
```

```
Title of run: WEST RIDGE GVH AVG.
   Solving for...............= Depth Normal
Triangle
   Flow depth (ft)...........=     0.42
   First Side slope..........=      1.0
   Second Side slope.........=      1.0
   Slope of diversion........=   0.0811
   Manning"s n...............=    0.035
   CFS.......................=     0.59
   Cross section area (sqft)..=    0.17
   Hydrualic radius..........=     0.15
   fps.......................=     3.39
   Froude number.............=     1.55
```

```
Title of run: WEST RIDGE GVH MAX.
   Solving for...............= Depth Normal
Triangle
   Flow depth (ft)............=    0.39
   First Side slope...........=     1.0
   Second Side slope..........=     1.0
   Slope of diversion.........=  0.1117
   Manning"s n................=   0.035
   CFS........................=    0.59
   Cross section area (sqft)..=    0.15
   Hydrualic radius...........=    0.14
   fps........................=    3.82
   Froude number..............=    1.80
```

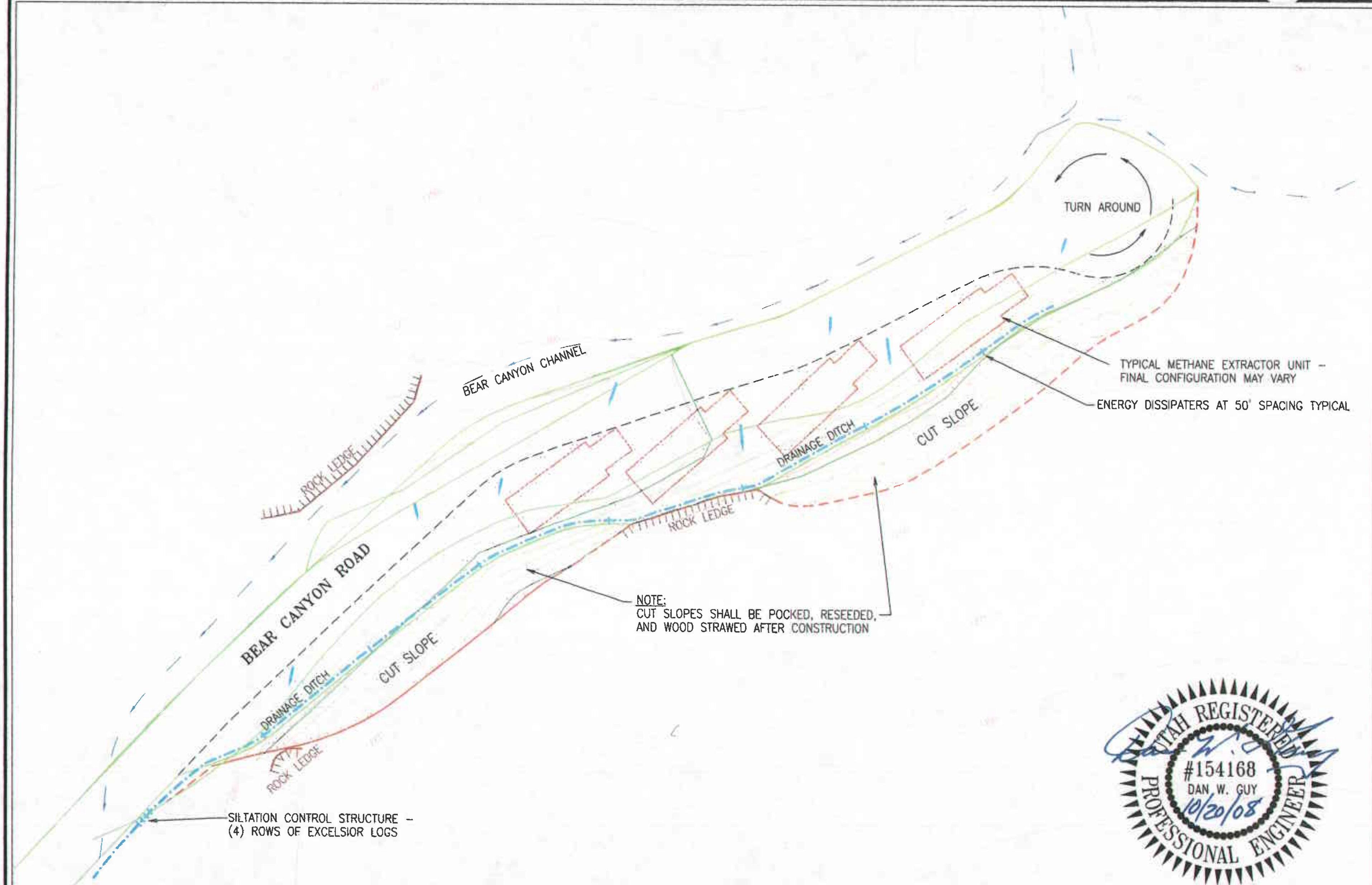


N

SCALE: 1" = 100'

BEAR CANYON HYDROLOGY
WEST RIDGE MINE
UNDISTURBED DRAINAGE AREA
FIGURE 1

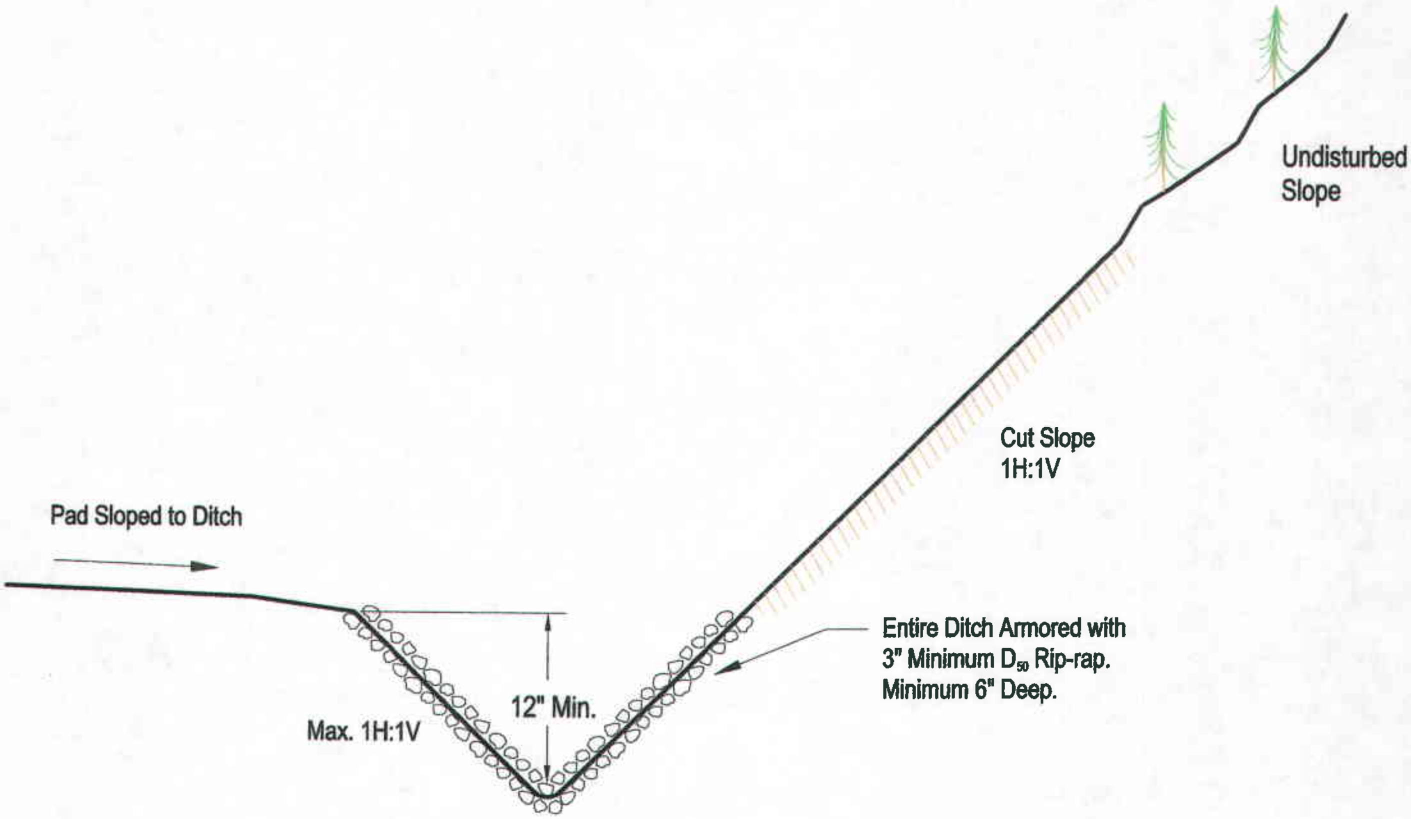
BLACKHAWK ENGINEERING, INC.



NOTE:
ALL PAD AND ROAD AREA ABOVE CHANNEL CROSSING TO BE GRAVELED

BEAR CANYON HYDROLOGY
WEST RIDGE MINE
DRAINAGE PLAN
FIGURE 2

BLACKHAWK ENGINEERING, INC.



TYPICAL SECTION

UTAH REGISTERED PROFESSIONAL ENGINEER
#154168
DAN W. GUY
10/20/08

NOTE:

Ditch Side Slopes may vary - Average Side Slopes will not exceed 1H:1V.

BEAR CANYON GVH
WEST RIDGE MINE
DRAINAGE DITCH
FIGURE 3

BLACKHAWK ENGINEERING, INC.

APPENDIX 5-14

BEAR CANYON GOB GAS VENT HOLE (GVH)

APPENDIX 5-14

BEAR CANYON GOB GAS VENT HOLE (GVH)

ATTACHMENTS

1)	Attachment 1	Bear Canyon GVH, a) Location b) Site Plan c) Cross-Sections d) Earthwork Volumes e) Reclamation Contours
2)	Attachment 2	Soils Survey, Bob Long, CPSS
3)	Attachment 3	Topsoil Storage Area
4)	Attachment 4	Vegetation Report, Mt. Nebo Scientific
5)	Attachment 5	2008 Raptor Survey, DWR
6)	Attachment 6	Archeology Surveys, Senco-Phenix
7)	Attachment 7	GVH Operational Drawings (Dave Canning)
8)	Attachment 8	Slope Stability Analysis, Blackhawk Engineering
9)	Attachment 9	SITLA Correspondence regarding Bear Canyon Road and GVH Facilities
10)	Attachment 10	Hydrology Report, Petersen Hydrologic LLC
11)	Attachment 11	Drainage Control Plan, Blackhawk Engineering
13)	Attachment 12	Tower (Centennial) GVH Bonding Calculations
14)	Attachment 13	Reclamation Seed Mixes

WEST RIDGE RESOURCES, INC.
BEAR CANYON GOB GAS VENT HOLE (GVH)

Due to the increasing levels of methane liberation within the West Ridge Mine workings the Company must immediately pursue gob gas ventilation. On September 26, 2008, MSHA wrote a letter stating, "degasification of the longwall gob area for Panel 13 will be required prior to commencement of longwall mining". Therefore, MSHA has determined that this action is necessary for the safety of the underground workforce. Under our current production projections, initial longwall mining in Panel 13 is scheduled for mid-November, 2008. Therefore, without rapid and immediate development of a gob gas vent hole, under the requirements of the MSHA dictate, planned longwall production from Panel 13 is in risk of being stopped. This would have very serious consequences for the company in terms of meeting existing power-supply contracts, and maintaining the workforce against potential layoffs.

Upon subsequent meeting, MSHA agreed that a gob gas vent hole (GVH) drilled from the surface in the Right Fork of Bear Canyon into gob from extracted Panel 8 will satisfy their requirement for gob degasification. Refer to Attachment 1 for the location of the GVH site within the permit area. The site of the GVH pad lies at the end of the Bear Canyon Road. This is an old existing public road that was recently upgraded to provide better access to the GVH site. The GVH site will be located adjacent to the road in a narrow strip measuring approximately 35' wide x 300' long in the bottom of the canyon. Total disturbance associated with the site, including cutslopes, is about 0.24 acres. Another 0.1 acres will be involved at an off-site topsoil storage area located approximately 3300' down-canyon from the GVH site, which will also be located adjacent the Bear Canyon Road (see Attachment 1 for location). Thus, the GVH installation will involve a total increase of disturbed area of 0.34 acres.

The GVH site will contain three separate holes drilled at 45 degree angles to intercept the longwall cave area (gob) located below. The depth of cover at this site above the mine is approximately 380'. From the well heads the methane gas will be piped to four methane extractor units, each measuring approximately 14' wide x 50' long. Details of a typical extractor unit can be found in Attachment 7. The extractor units will be positioned in a linear arrangement along the narrow strip-pad located between the road and the canyon hillside. The GVH facility is expected to be operational for the remaining life of the West Ridge Mine, and will be reclaimed at the same time as the minesite in C Canyon. During the life of the operation the facility will require daily inspection and maintenance by mine personnel. Refer to Attachment 1 for a site plan of the Bear Canyon GVH facility, and Attachment 3 for the topsoil storage area. Because both the GVH site and the topsoil storage are to be located on SITLA land adjacent to the Bear Canyon road, SITLA has concurred with these facilities being located within 100' of the public road (refer to Attachment 9).

It should be noted that the GVH installation proposed for West Ridge Mine is quite similar to the GVH installations presently permitted and operational nearby at the Company's sister Tower Mine (Andalex Resources, Inc., Centennial Project, C/007/019, Appendix X). The differences are that the West Ridge GVH is smaller (0.24 acres vs 1.0 acre, typical), it will involve more methane extractor units (four vs one or two), and topsoil will be stored off-site rather than on-site. The holes are also shallower (three each, totaling 1380' vs 2700'). Refer to Attachment 7 for photos of typical Tower GVH installations.

The following narrative is intended to give an overall description of the proposed GVH installation in terms related to the individual MRP chapters. Specific relevant information is included in each chapter, but this appendix supplies the total information in a common overview source. It should be noted that, unless specifically noted in this appendix, all elements of the plan amendment for the Bear Canyon GVH site are identical to those already approved for the C Canyon minesite regarding facility construction, final reclamation, and environmental protection issues. Detailed and general descriptions of the soils, biology, land use, geology and hydrology for the overall permit area, which includes the Bear Canyon GVH site, can be found in the appropriate chapters of the approved MRP. Pertinent consultant reports and surveys for the GVH site have been included in both the individual chapters and in this Appendix as well in order to facilitate review. All affected Maps have been updated to show the GVH site and, where appropriate, the topsoil storage area.

CHAPTER 1, LEGAL:

The GVH site, and associated topsoil storage area, is located on SITLA coal lease ML49287 in the extreme western part of the existing DOGM permit area. The GVH site is located in Section 3, T14S,R13E, NW1/4NE1/4SW1/4SE1/4, and involves 0.24 acres of disturbance. The topsoil storage area is located in Section 10, T14S, R13E, NW1/4SE1/4NW1/4NW1/4 and involves 0.1 acre of disturbance. All affected surface is owned by SITLA. Other than increasing the total disturbed area by 0.34 acres from 29.06 acres to 29.4 acres there are no changes in Chapter 1.

Right-of-entry for the GVH facilities is granted under the terms of SITLA coal lease ML49287. Concurrence for the specific surface use for the GVH installation and the topsoil storage area has been provided by SITLA (see Attachment 9). The correspondence states *"Section 8.1 of the lease agreement provides that the Lessee may use the surface estate to the extent reasonably necessary for the economic operation of the leasehold. Your request to construct a GVH and stockpile area ....appear to meet that criteria and are hereby granted approval to proceed by the Lessor."*

Refer to the Location Map in Attachment 1 for the location of the GVH site and the associated topsoil storage area.

Appendix 1-2 (Violation Information) has been updated.

There is no change in the Company Ownership and Control

CHAPTER 2, SOILS:

Before any excavation begins at the GVH site, all available topsoil will be salvaged. Bob Long, CPSS, of Long Resource Consultants, Inc., has conducted an Order 1 soils survey of the site. His report is included in Attachment 2. Three test pits were dug in the hillside and the soil resources were measured and catalogued. There is a significant layer of soil material present, which will be salvaged and stored nearby for final reclamation. Due to its location in the bottom of the canyon, and the varying steepness of the sideslope, the thickness of the soil varies considerably over the site. Also, as is typical for the Book Cliff canyons, there are a number of large boulders lying on the surface, surrounded by pockets of topsoil. Based on the results of the survey, the average depth of topsoil at the site is about 16". The area of the GVH site, including both the pad and the adjacent cutslope, is approximately 0.24 acres. Therefore, according to the soils survey, at least 515 cu. yds., or 13,878 cu. ft. of topsoil should be salvaged from the site.

Soils samples were taken by Mr. Long and have been sent to the laboratory for analysis. Once the analysis results are obtained they will be submitted to the Division and inserted as part of Appendix 2-10. If laboratory analysis of the soils indicates a need for additives, fertilizers, or enhancement of other kinds, the Company commits to providing such at the time of final reclamation as determined by the Division . However, it is felt that this soil in its existing condition should be adequate for final reclamation because it appears to be well developed and of sufficient quantity. In fact, it is the identical same soil removed from the site which will be replaced at the time of reclamation. The Order 1 Soils Reports concludes that *"the potential for successfully reclaiming the Bear Canyon GVH location is good based on the estimated quality and quantity of topsoil that may be salvaged."*

The topsoil will be carefully removed using a trackhoe which can reach up the slope from the road surface below. Large boulders will be separated from the material, and the topsoil will then be loaded into rock-trucks and hauled off-site for storage. The storage site is located approximately 3300' down-canyon from the GVH site, in a flat area adjacent to the road. This storage area is located on SITLA surface and SITLA coal lease ML49287 (see Attachment 1 for location). The pile will be constructed with overall dimensions of approximately 100' long, 40' wide, and 8' high, with 2:1 sideslopes (see Attachment 3 for details of the pile configuration). The pile will be kept low to prevent unnecessary compaction, and to help maintain viable micro-organisms. Attachment 3 shows that a pile configuration with a capacity in excess of 700 cu. yds. can easily be stored at this site.

Upon completion of topsoil salvage, the storage pile will be pocked (roughened) and reseeded with a previously approved seed mix as shown in Table 3-3 included in Attachment 13 for ready reference. As an alternate, Attachment 13 also includes a seed mix which was used on the Crandall Canyon East Mountain drillhole reclamation project and is readily available, subject to Division concurrence of its use. A layer of wood straw will then be scattered over the surface. The pocking, re-seeding and wood straw are all measures to help minimize erosion, and promote a healthy interim re-vegetation until the time of final reclamation. A containment berm made of sub-soil material, and a siltation control structure (such as excelsior logs) will be installed around the perimeter of the pile to prevent erosional loss of topsoil material from the pile. A topsoil identification sign will be installed on the pile upon completion. An as-built drawing of the pile will be prepared and supplied to the Division, and a final assessment of the volume of salvaged material will be updated in the MRP.

During topsoil salvaging and stockpiling, the Company commits to having an monitor on site at all times. The purpose of this person will be to make sure that all topsoil resources are properly salvaged, to maintain accurate truck count of material, take photos, and generally make sure that the salvage and stockpiling operations are done according to the plan. The monitor will be someone familiar with topsoil salvaging and pre-approved by the Division.

CHAPTER 3, BIOLOGY:

The GVH site is located in the bottom of Bear Canyon at an elevation of 7200'. The site is located less than 6000 feet (straight-line) from the main surface facilities which are located one canyon over to the southeast in C Canyon, which also sits at an elevation of 7200'. Both canyons face in the same direction, i.e., to the northeast. The canyons are nearly identical in terms of elevation, lithology, orientation, exposure, rainfall, etc. Therefore, the vegetation at the Bear Canyon GVH site is basically identical to that found at the C Canyon minesite. The vegetation at the Bear Canyon site is classified as Douglas Fir/Maple Community. Much of the minesite in C Canyon is also identified as Douglas Fir/Maple Community. Dr. Patrick Collins of Mt. Nebo Scientific, conducted a vegetation survey of the GVH site and concluded that, given the similarities in the locales, the existing vegetation reference source for the mine in C Canyon is appropriate to represent the GVH site as well as a basis for determining final reclamation performance. According to the report, Dr Collinss is of the opinion that *"...the Douglas Fir/Maple Reference Area (1998) would be an appropriate area for revegetation success standards at the time of final reclamation....".* A copy of Dr. Collins' report is included in Attachment 4. Also refer to Appendix 3-1 for a description of the Dougas Fir/Maple Community nearby in C Canyon, and to Appendix 3-1A for a discussion of the existing Douglas Fir/Maple vegetation reference are in C Canyon.

The sensitive plant species Canyon Sweetvetch (Hydysarum occidentale var. canone) exists in Bear Canyon, as well as all other outward-facing Book Cliff canyons within the permit area, including C Canyon where the minesuite is located.. The Canyon Sweetvetch generally occurs in the canyon bottom in and adjacent to the stream channel. As a pro-active mitigation measure, however, West Ridge employees, working on species identification from Dr. Patrick Collins of Mt. Nebo Scientific, have collected a significant amount of Sweetvech seed from the surrounding area in September, 2008. This seed will be included in the seed mix for interim cutslope revegetation, and/or topsoil pile revegetation, if requested by the Division. A similar commitment was included previously in the MRP prior to the construction of the West Ridge Mine surface facilities in C Canyon, which occurs in R645-341.100, and is reprinted herein for ready reference:

> *Canyon sweetvetch seed was collected by Dr. Patrick Collins (Mount Nebo Scientific) in C Canyon in 1999 prior to construction of the minesite. This seed was later used to re-seed the topsoil pile. This constitutes the on-going field test to determine the viability of using canyon sweetvetch in the seed mix for final reclamation. Dr. Collins is presently monitoring the success of the sweetvetch population on the topsoil pile. If it appears that the sweetvetch is successful and can be added to the reclamation seed mix, seed will be collected from the topsoil population, as well as other populations in C Canyon and/or nearby canyons, at the time of final reclamation.*

At the location of the GVH site, Bear Canyon is an ephemeral stream, and there is no riparian habitat located at or near the GVH site. The GVH site is located close to the area where the depth of cover over the longwall panels is the shallowest within the permit area. As a result, this area has been an area of interest in previous MRP amendments, and a more detailed discussion of the biology and hydrology can be found in R645-301-322.100 of the approved MRP. It should be noted that the area has been now been completely undermined since November, 2006, and subsidence has stabilized at about 3'. No adverse affects to biologic or hydrologic resources has been observed. The area is subject to on-going hydrologic and subsidence monitoring under the presently approved MRP.

After the topsoil has been removed and the GVH pad area constructed, the new cutslopes will be prepared for interim reclamation. This will be done by pocking the newly exposed surface (roughening) and re-seeding with the previously approved interim seed mix as shown in Table 3-3 (reprinted in Attachment 13 for ready reference), or with an alternate seed mix approved by the Division subject to availability. (Attachment 13 includes a seed mix which was used on the Crandall Canyon East Mountain drillhole reclamation project and is readily available, subject to Division concurrence.) A layer of wood straw will then be scattered over the surface. The pocking, re-seeding and wood straw are all measures to help minimize erosion, and promote a healthy interim re-vegetation until the time of final reclamation.

On final reclamation, the pad area and cutslopes will be backfilled to approximate original contour, and topsoil will be re-applied to the reclaimed slope (see Attachment 1) The slope will be re-vegetated according to the same existing approved plan for the minesite in nearby Canyon, as specified in R645-301-341. For completeness, the reclamation plan elements are included herein as taken directly from the currently approved plan:

a) *Fill will be placed in the cut in 18" lifts until approximate original contour is achieved. The fill will be obtained from the adjacent pad fill.*

b) *A certified noxious weed-free alfalfa hay mulch will be blown over the topsoiled surface at a rate of 2000 pounds per acre. Fertilizer, if determined necessary by soil testing, would also be applied at this time.*

c) *The surface will be gouged with irregular depressions approximately 24" x 36" x 18" deep. This will also mix the hay into the upper portion of the soil surface.*

d) *The appropriate seed mix (Table 3-2B, for Douglas Fir/Maple Community) will be either broadcast by hand or hydroseeded on the area at the rate specified on the table. (Table 3-2B is reprinted in Attachment 13 for ready reference.)*

e) *A certified noxious weed-free straw mulch will be applied to the surface at a rate of 2000 pounds per acre and held to the surface with a wood fiber mulch and tackifier applied to the surface at a rate of 500 pounds per acre.*

The revegetation monitoring schedule for the Bear Canyon GVH site will be the same as for the minesite reclamation, and is reprinted in Table 3-4 in Attachment 13 for ready reference.

Revegetation success standards for the GVH site will be the same as for the C Canyon minesite, as presented in R645-341.250. The revegetation timetable for the GVH site will also be the same as the minesite, as presented in Table 3-1, reprinted in Attachment 13 for ready reference.

Due to the proximity of the GVH site to the minesite within the permit area, all threatened and endangered (T&E) species information applicable to the existing permit area in the MRP (mid-term review approved on July 7, 2008) is current and therefore applicable to the GVH site as well. Refer to Appendix 3-4 and 3-4A for current T&E information. There are no threatened or endangered species in the Bear Canyon GVH area. Various species of concern during previous amendments, such as the Mexican Spotted Owl and the Yellow-Billed Cuckoo have been adequately addressed in the presently approved MRP and are not a factor. Dr. Collins has addressed the current status of T & E species in his report (see Attachment 4).

An annual raptor survey was conducted for the permit area, including Bear Canyon, by Division of Wildlife Resources (DWR) in the spring of 2008, and is included in Attachment 5. The survey shows no raptor nests in the Bear Canyon area, neither at the GVH site nor the topsoil storage area.

As shown on Maps 3-4A,3-4B and 3-4C, wildlife range for deer, elk, and antelope is basically the same at the GVH site as for the minesite, which is to be expected given their proximity and many similarities.

There will be no additional water consumption, nor disruption of flow, from the West Ridge Mine as a result of the GVH installation. Therefore, construction and operation of the GVH facility will have no affect on the Colorado River Endangered Fish Recovery Program.

CHAPTER 4, LAND USE:

There will be no changes in the current land use of the Bear Canyon area as a result of the construction and operation of the GVH units.

The site is located in the Bear Canyon grazing allotment, and no change in grazing activity will result from the GVH installation. (Refer to Map 4.1)

The GVH site is located at the site of previous coal exploration drilling done in the early 1950's.

The site is located at the end of the Bear Canyon Road. This is a pre-existing road constructed in the early 1950's, and is a public road located on public land. The road has been upgraded to provide better year-around access to the GVH site. The improved road access will facilitate existing public uses of the area such as grazing management, big-game hunting, and other recreational pursuits, and on-going environmental monitoring associated with the West Ridge Mine operation. The road will be used on a daily basis by mine maintenance personnel.

It is SITLA's position that the Bear Canyon road will be left in place (i.e., not reclaimed) to facilitate grazing management, hunting and other recreational use, mineral development, and other public multiple use (refer to correspondence in Appendix 4-8 and Attachment 9 of Appendix 5-14)

Class 3 (intensive) cultural resources surveys have been completed for both the GVH site and the topsoil storage site by Senco-Phenix Archeological Consultants. These surveys conclude that, for both sites, *"no cultural resources were located and the potential for undetected remains is remote. A finding of no effect is appropriate and archeological clearance without stipulation is recommended."* Copies of these reports are included in Attachment 6, and will be transferred to the Confidential Binder after Division review.

Installation of the GVH facility will have no affect on air quality, or the Air Quality Approval Order.

CHAPTER 5, ENGINEERING:

The GVH facility will consist of three drillholes, four methane extractor units, and interconnecting piping. A detailed description of the drillhole installation, and the assembly and operation of the methane extractor units can be found in Attachment 7. The site pad will consist of a narrow strip (approximately 35' wide x 300' long) located adjacent to and parallel with the road. The drillholes will be located at the southern (down-canyon) end of the site pad. The extractor units will be located in a serial arrangement along the northern (up-canyon) end of the site pad. The total facility area will be about 0.24 acres, including the adjacent cutslopes.

Before construction starts identification signs will be posted at the site. These signs will list the company name as permit holder, the permit number, address and phone number. During the initial phase of construction, topsoil will be salvaged. Based on a recent Order 1 soils survey the current estimate of topsoil to be salvaged is approximately 515 cubic yds. (See Attachment 2). After the topsoil has been removed, the slope will be excavated back for a distance of about 20', leaving a 1:1 cutslope against the hillside. Based on current surveys it is estimated that about 1,357 total yds of material will be excavated from the bank. This includes the estimated 515 yds of topsoil, so the remaining amount of excavated material will be about 842 yds (see Cut Slope Excavation Volumes, Attachment 1 for details). Material excavated from the cutslope will be used to level off the area for the drillhole (for the drilling operation) and for the individual methane extractor units. Excess material may be used to raise the grade of the adjacent roadway. All fill areas will then be compacted for stability.

During the drilling phase of the GVH installation, the pad area will be used as an equipment lay-down area for drill steel, drill casing, drilling mud, concrete, etc. The pad will also be used to accommodate the mud pits needed during the drilling operation. After the drillholes have been completed, the pits will be backfilled and eliminated. The site will then be cleaned up and fine-graded prior to installing the methane extractor units (see Attachments 1 and 7 for details).

After the cutslopes have been excavated, the slopes with be reclaimed (interim reclamation) by pocking, re-seeding and applying a layer of wood straw as described above. A disturbed area drainage ditch will be constructed along the toe of the cut. This ditch will be designed to handle the flow from the up-slope undisturbed area, the reclaimed cutslope, the drillpad, and the adjacent section of road. Runoff from the ditch will be routed through a series of sediment-control structures (silt fences, excelsior logs, etc.) to effectively remove sediment. (A more detailed description of the sediment control measures associated with the site can be found in the Chapter 7, Hydrology discussion below.)

A security fence may be installed around the perimeter of the pad between the facilities and the road.. The facilities will not encroach upon nor affect the road nor the road turn-around, and neither will public use of the road be affected. The Company will provide the Division with an as-built drawing of the facility upon completion of construction.

Operation of the GVH facility is expected to continue for the life of the West Ridge operation. Therefore, reclamation of the site will be done at the same time and under the same conditions as for the minesite surface facilities in C Canyon. However, if temporary cessation of mining operations occurs, the GVH well will continue to function.

Prior to final reclamation, all drillholes will be plugged and sealed in accordance with State and Federal regulations. The casings will be plugged at the bottom to hold the concrete. A lean concrete mixture will be poured into the casing until the concrete is within five (5) feet of the surface. At that time the casing will be cut off at ground level and the rest of the casing will be filled with lean concrete. The concrete will be allowed to harden before final reclamation is completed. There will be three drillholes installed and therefore plugged at reclamation. (This commitment is identical to the currenty approved plan for the Tower (Centennial, C/007/014) GVH reclamation plan.) Based on current projections the holes will be drilled at 45 degree angles into the mine, and will have individual depths (lengths) of 504', 376', and 502', for a combined total depth of 1382'. Using 9-5/8" casing for all holes, the volume of concrete needed to plug all three holes would be 26 cu. yds.

On final reclamation, the pad area and cutslopes will be backfilled to approximate original contour (see Reclamation Contours, Attachment 1). Fill material will be obtained from the adjacent roadway and leveling pads. This is the exact same material that was excavated from the cutslope during initial construction. The cutslope will be backfilled in 18"-24" lifts and compacted with rubber-tired vehiclesand/or vibratory mechanical equipment. The reclaimed slopes, at approximate original contour, will average about 1.5: 1, so slope stability will not be an issue. Because of the compaction in lifts, and the rocky nature of the backfill material (one and the same as the original native material), stability of the reclaimed slopes is sufficient to achieve approximate original contour and eliminate the potential for remnant cutslope exposures. A slope stability analysis prepared by Blackhaek Engineering concludes that *"calculations show safety factors well in excess of the required 1.3 for the reclaimed cut slopes of 1.5H:1V and up to 30' in height. This is not inconsistent with the natural conditions of the area, and will allow for complete reclamation of all cut slopes created by the emergency drilling pads."* (See Attachment 8 for the complete slope stability analysis report.) The slope will then be re-topsoiled and re-vegetated according to the same existing approved plan for the minesite in nearby Canyon, as specified in R645-301-341, and as described in the Chapter 3, Biology discussion above.

The amount of backfill material is estimated to be up to 842 cubic yards, and the amount of replaced topsoil is estimated at about 515 cubic yards. Total reclaimed area, including both pad and cutslopes will be approximately 0.24 acres. Because the cutslopes are only about 20' maximum high, all work, both backfilling and topsoil replacement, can easily be done from the existing adjacent road-pad surface, using trackhoes with sufficient boom reach. After the reclaimed slopes have been topsoiled and reseeded, a row of excelsior logs will be installed along the full length of the toe of the slope between the slope and the remaining road. The purpose of this row of excelsior logs is to control sediment of the site until the revegetation has become established.

For bonding information refer to Chapter 8 discussion below

CHAPTER 6, GEOLOGY:

The geology of the GVH site is essentially the same as at the West Ridge Mine surface facilities located nearby in C Canyon, as shown on Map 6-1. The primary difference is that the mine site is located in the upper part of the Blackhawk Formation where the Sunnyside coal seam outcrops, whereas the Bear Canyon GVH site is located stratigraphically about 384' above the coal seam within the part of the canyon where the Castle Gate Sandstone begins to outcrop. This results in the GVH site being situated in a narrow, ledgebound part of the canyon. The drillholes will reach down to near the top of the mined out coal seam horizon (see Attachment 7 for details). Because the coal seam in this area has been completely extracted by longwall mining, the GVH drillholes will penetrate through subsided and fractured strata. Based on previous subsidence monitoring the GVH site has subsided about 3 feet, but subsidence has now stabilized.

CHAPTER 7, HYDROLOGY:

The GVH site will be located on the opposite side of the road (southeast side) from the primary canyon drainage channel. Therefore, construction and operation of the GVH facility will have no affect on the natural canyon drainage. Because of the limited size of the site (0.24 acres) and the narrow configuration within the confines of the narrow ledges of the canyon, there is insufficient room to construct a sediment control pond. Therefore the company intends to employ a combination of alternate sediment control methods at the site. During the construction phase of the pad site, adequate rows of excelsior logs will be placed downgrade from the site to prevent construction sediment from entering the channel. Once the pad site is finished, which should take less than two weeks, a disturbed area drainage ditch will be constructed along the toe of the cut. This ditch will be designed to handle the flow from the up-slope undisturbed area, the reclaimed cutslope, the drillpad, and the adjacent section of road. This ditch will discharge into the natural drainage channel a short distance below the drillhole location. This ditch will be armored with adequately-sized rip-rap for its entire length. This rip-rap will decrease the potential for erosion in the ditch, and will also act initially as a siltation trap as a certain amount of sediment is allowed to settle into the rip-rap voids.

The total length of the drainage ditch will be approximately 350'. At 50' intervals along its length energy dissipaters will be installed in the ditch. These energy dissipaters will consist of excelsior logs laid in the ditch perpendicular to the flow direction, and anchored securely with stakes. These dissipaters will reduce the flow velocity to help reduce erosion, and will also serve as siltation filters to help remove sediment prior to reaching the natural channel. In addition, a terminal set of excelsior logs will be installed in the ditch immediately above the point where it discharges into the natural channel. The installation, consisting of four (4 ea.) closely-spaced rows of excelsior logs will serve primarily as sediment traps, rather than energy dissipaters. This set will be located conveniently close to the road to facilitate regular cleaning and maintenance. All excesior logs will be installed according to the manufacture's instructions.

Immediately after the cutslopes have been excavated to create the pad-site, the slopes will be pocked, and reseeded. A layer of woodstraw will then be spread over the reseeded slopes. This straw serves to not only provide microclimate conditions to encourage seed germination, it also absorbs some of the energy from falling raindrops, and therefore helps control erosion on the slopes until revegetation can become established. The pocking, which consists of irregular depressions measuring about 24" x 36" x 18" deep, helps revegetation by holding the seed and water in place, and thereby helps minimize erosion as well.

After the site has been constructed the entire operational pad area, as well as the adjacent road area and turnaround, will be graveled from the channel crossing up to the end of the road . This gravel will consist of a crushed rock 1.5" x 0" road base material, laid down and then compacted to a tight surface. This graveled surface will also serve to reduce erosion on the pad (and adjacent road segment) and thereby decrease sedimentation to the natural drainage.

In summary, the site will be an alternate sediment control area. Sediment will be controlled by the following combination of treatment methods:

1) Armoring the entire length of the drainage ditch with rip-rap.

2) Installation of energy dissipaters within the ditch to slow the flow velocity.

3) Installation of set of sediment control excelsior logs in the ditch ahead of the discharge point.

4) Pocking and revegetating the cutslope, including a layer of protective wood straw.

5) Graveling the pad-site and adjacent roadway

Refer to the site plan in Attachment 1 for the location of the drainage ditch, energy dissipaters, excelsior log siltation controls, and graveled area. See Attachment 11 for the drainage control calculations determined by Blackhawk Engineering. This report concludes that with *"....installation of the proposed sediment and erosion controls, there should be no adverse effects to the surface hydrology of this area."*

The GVH installation and operation should have no adverse affect on ground-water hydrology. The GVH site is located close to the area where the depth of cover over the longwall panels is the shallowest within the permit area. As a result, this area has been an area of interest in previous MRP amendments, resulting in enhanced water monitoring and subsidence monitoring requirements both above and below the GVH site. A more detailed discussion of the area hydrology can be found in R645-301-322.100 of the approved MRP. It should be noted that this area has been now been completely undermined since November, 2006, subsidence has stabilized, and no adverse affects to underground or surface hydrologic resources have been observed. Prior to final reclamation, all drillholes will be plugged and sealed in accordance with State and Federal regulations, as discussed in the Chapter 5 section above. See Attachment 10, prepared by Petersen Hydrologic, for a discussion of the potential hydrologic affects from the GVH installation and operation. This report concludes that *"adverse impacts to the hydrologic balance resulting from the installation and operation of the Bear Canyon GVH system are not anticipated."* The probable hydrologic consequences (PHC) section of the MRP (645-301-738) has been updated to include a discussion of the Bear Canyon GVH installation.

CHAPTER 8, BONDING:

Note: In the West Ridge Mine MRP C/007/041, the bonding discussion appears in Chapter 5, Engineering. Bonding is included in this Appendix 5-14 as a Chapter 8 item to make the discussion more clear.

To aid in the determination of the bonding requirements for the Bear Canyon GVH, the following information is provided:

1) Volume of topsoil to salvage, and later to respread (as per the Order 1 soils survey, Attachment 2) ....515 yds

2) Volume of cut material to be backfilled upon reclamation (based on on-site surveys, and 1.5:1 reclaimed slopes, per Attachment 1)..842 yds

3) Number of methane extractor units to remove...4 each

4) Drillhole to be plugged............3 each, totaling 1380' deep, requiring 26yds of concrete

5) Total area of disturbance to be reclaimed and re-vegetated.............................0.24 acres

As a basis of comparison, the existing Tower GVH reclamation costs, as taken from the currently approved MRP C/007/019, are broken down on a per-hole basis as follows:

Demolition	Structure removal (one unit/ site)	$8,220
	Plugging (average 2700' hole)	$5,000
	Total Demolition	$8,220
Earthwork	Backfill/Grading (5000 yds/site)	$3265
	Topsoil replacement (1600 yds/site)	$1258
	Support	$330
	Total Earthwork	$4861
Reveg	(Assumes one acre site)	$3575
Total Direct Costs		$16,656
Indirect Costs (26.8%)		$4,464
Total Cost		$21,120
Escalation (0.012 x 4 years)		$1,032

Reclamation Cost	$22,120
Bond amount (rounded to nearest $1000)	$23,000

It should be noted that the reclamation bonds for the most recent GVH installations at Tower Mine (Centennial Project, C/007/017, April, 2007) is $28,000. The allows an additional amount to reclaim the dedicated access roads leading to various pads. Complete details of the Tower GVH bonding calculations can be found in Appendix B of the Centennial Project Mining and Reclamation Plan on file with the Division. Relative pages from those calculations pertinent to the most recent Tower GVHs are included herein in Attachment 12 for ready reference.

In comparison to the West Ridge Bear Canyon GVH, the typical Tower GVH sites involve:

a) deeper holes to be plugged.......................... (2700' vs 1380')
b) greater volume of topsoil to be replaced..... (1600 yds. vs 515 yds)
c) larger pad areas to be topsoiled.................. (1.0 acre vs 0.24 acres)
d) greater backfill volume.............................. (5000 yds. vs 842 yds.)

One the other hand, the West Ridge GVH has four units to dissemble vs one or two at Tower, and at the West Ridge GVH the topsoil must be hauled about 3300' back to the site whereas at Tower the topsoil is stockpiled on the site itself. On balance, it would appear that the reclamation bonding cost of the West Ridge GVH should reasonably be no greater than the Tower cost, especially since the actual Tower bonding amount is $28,000 per site rather than the calculated $23,000.

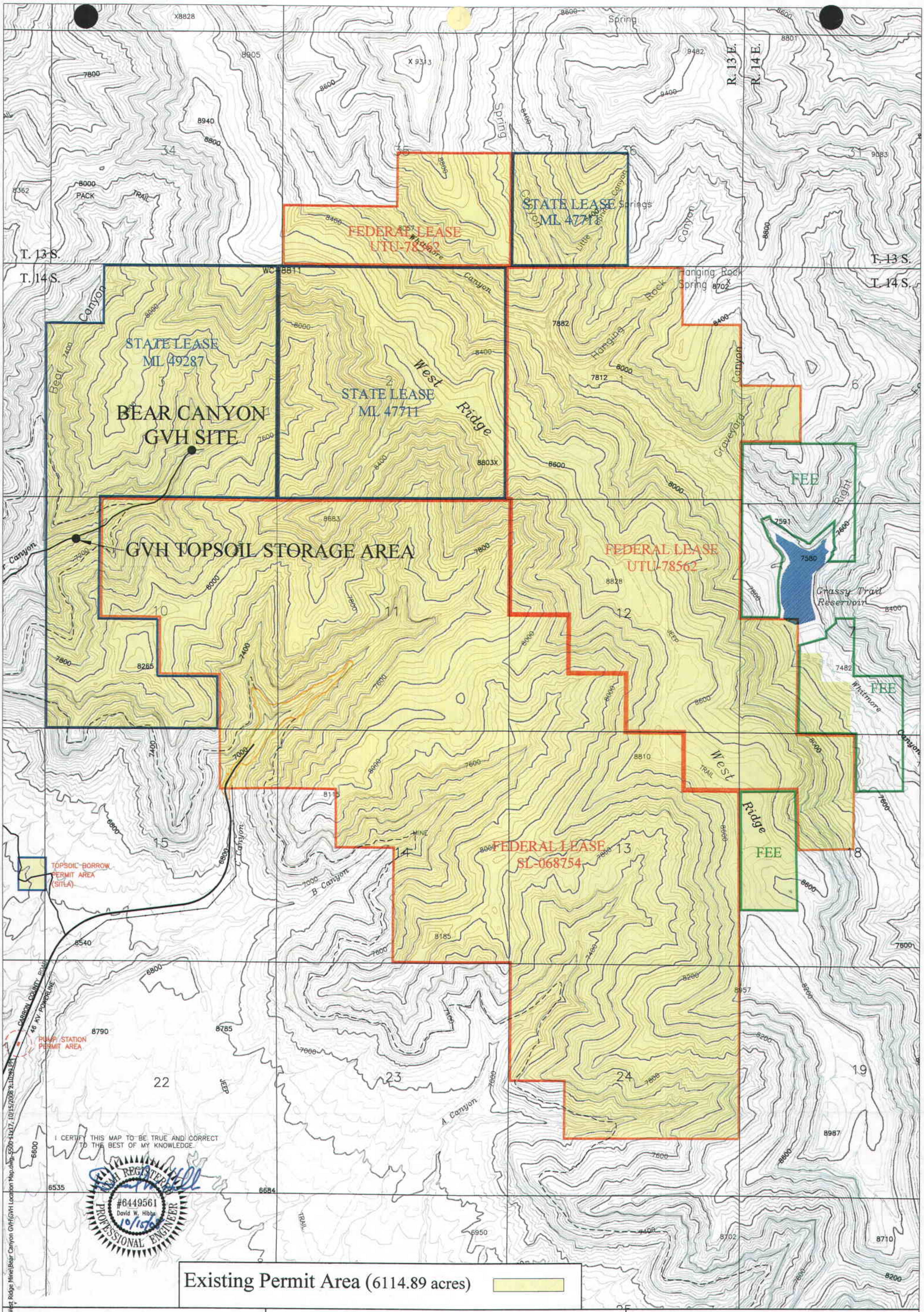
However, the most important consideration is the fact that the West Ridge Mine reclamation bond is presently posted at $2,117,000, while the reclamation cost escalated to 2011 is $1,735,000. Therefore West Ridge Resources presently has $382,000 excess bonding in place (22.2% difference) which should be more than adequate to cover the conservatively estimated reclamation cost of $28,000 for the Bear Canyon GVH site.

In the interest of time, West Ridge Resources is agreeable to using the $28,000 bonding amount currently accepted by the Division for the Tower GVH installations as sufficient for the West Ridge Bear Canyon GVH as well, subject to Division concurrence. This would increase the total (2011) West Ridge Mine bond obligation to $1,763,000 ($1,735,000 + $28,000), but would still leave a bonding surplus of $354,000 ($2,117,000 - $1,763,000).

ATTACHMENT 1

BEAR CANYON GVH SITE

a) LOCATION
b) PRE-EXISTING SITE
c) FACILITY SITE PLAN
d) TYPICAL CROSS-SECTIONS
e) CUTSLOPE EXCAVATION VOLUMES
f) RECLAMATION CONTOURS



WEST RIDGE MINE
Bear Canyon GVH Location Map

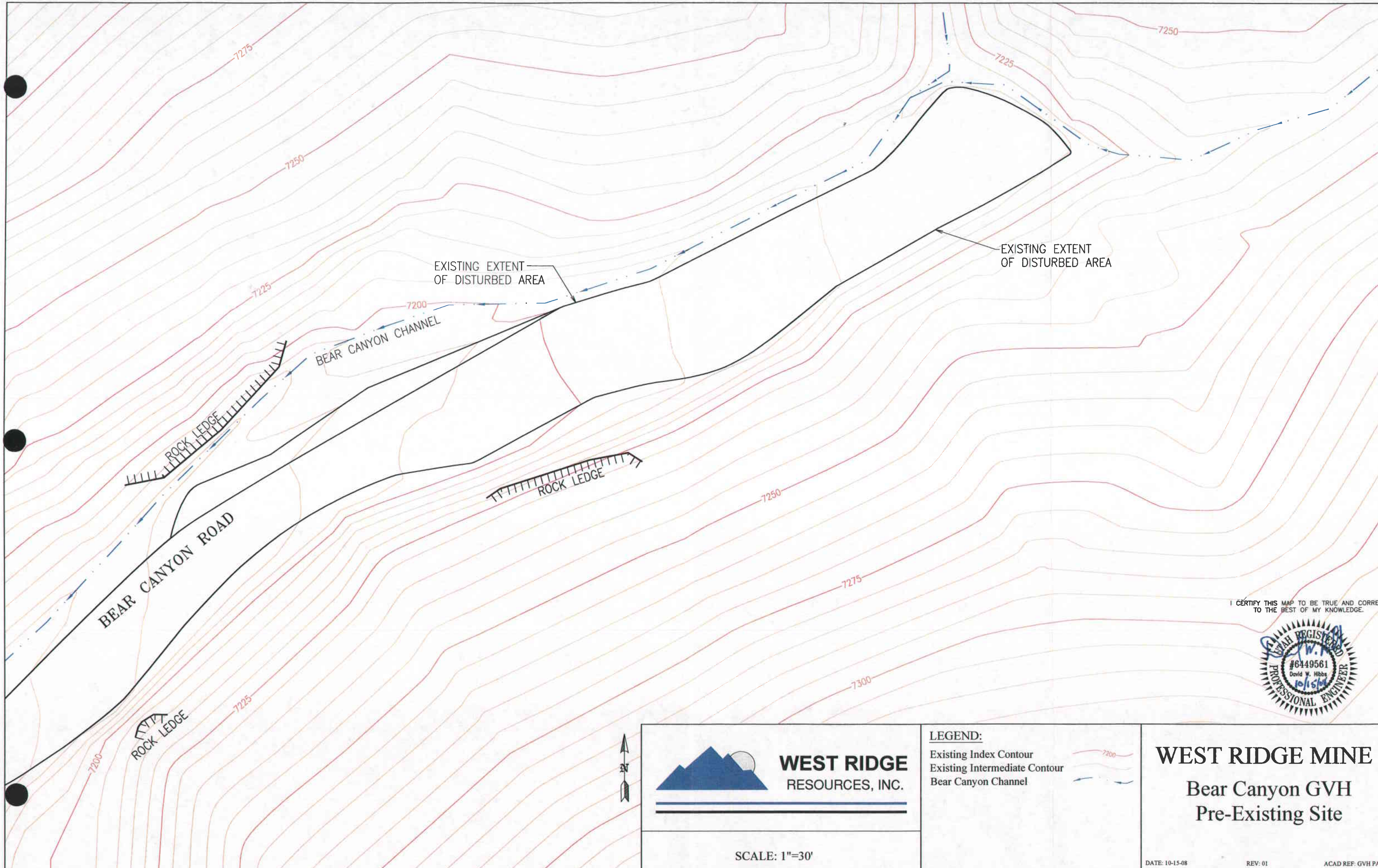
LEGEND:
- Federal Lease
- State Lease
- Penta Creek Fee
- Surface Facility Area
- GVH Site
- Outcrop

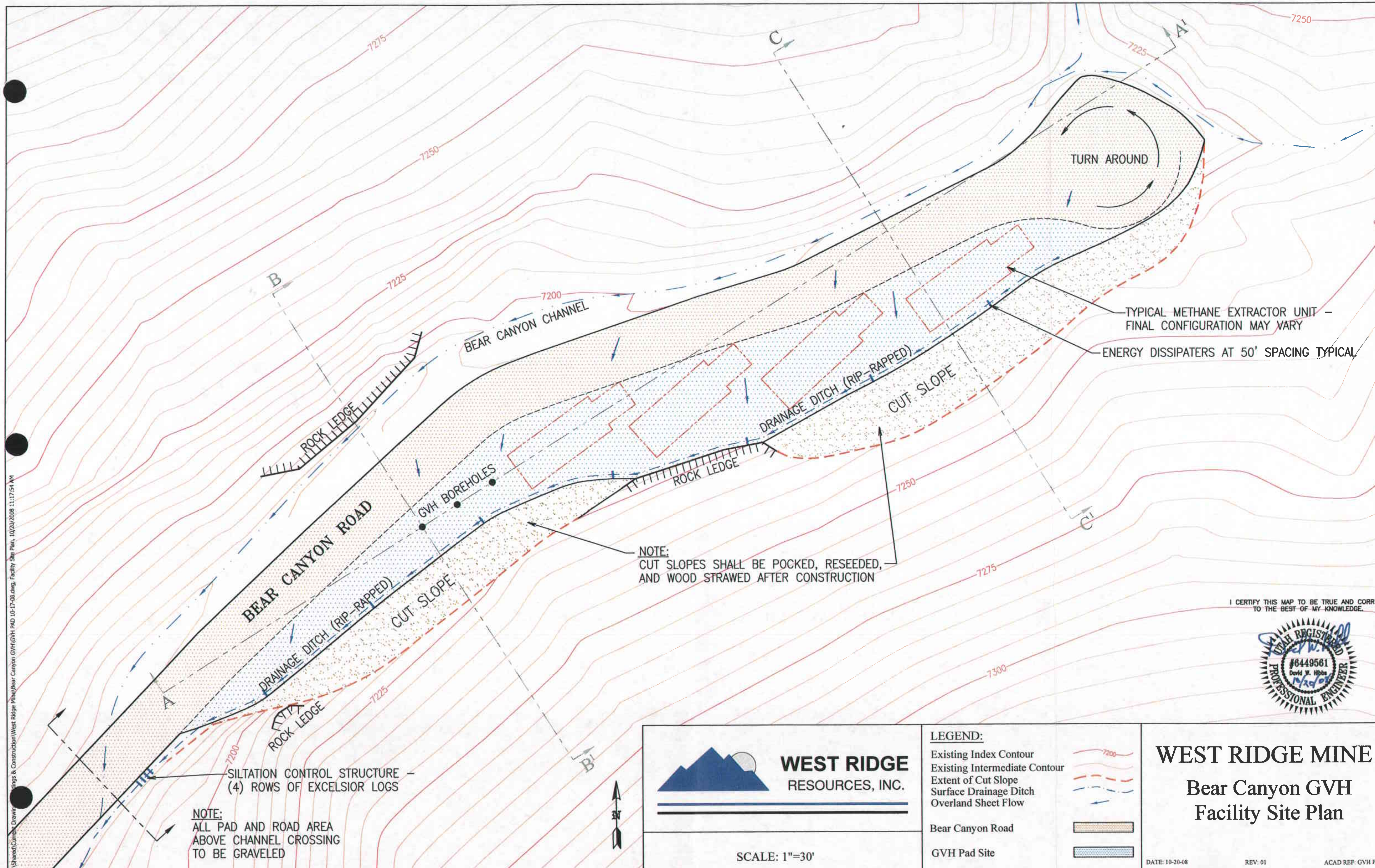
N

WEST RIDGE RESOURCES, INC.

SCALE: 1"=2000'

DATE: 10-15-08 REV: 1 ACAD REF: GVH Location Map


EXISTING EXTENT OF DISTURBED AREA
EXISTING EXTENT OF DISTURBED AREA
BEAR CANYON CHANNEL
BEAR CANYON ROAD
ROCK LEDGE
ROCK LEDGE
ROCK LEDGE
7200
7225
7250
7275
7300
N
I CERTIFY THIS MAP TO BE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.
UTAH REGISTERED PROFESSIONAL ENGINEER
#6449561
David W. Hibbs
10/15/08
WEST RIDGE RESOURCES, INC.
SCALE: 1"=30'
LEGEND:
Existing Index Contour
Existing Intermediate Contour
Bear Canyon Channel
WEST RIDGE MINE
Bear Canyon GVH
Pre-Existing Site
DATE: 10-15-08
REV: 01
ACAD REF: GVH PAD



WEST RIDGE RESOURCES, INC.

SCALE: 1"=30'

LEGEND:

Existing Index Contour
Existing Intermediate Contour
Extent of Cut Slope
Surface Drainage Ditch
Overland Sheet Flow

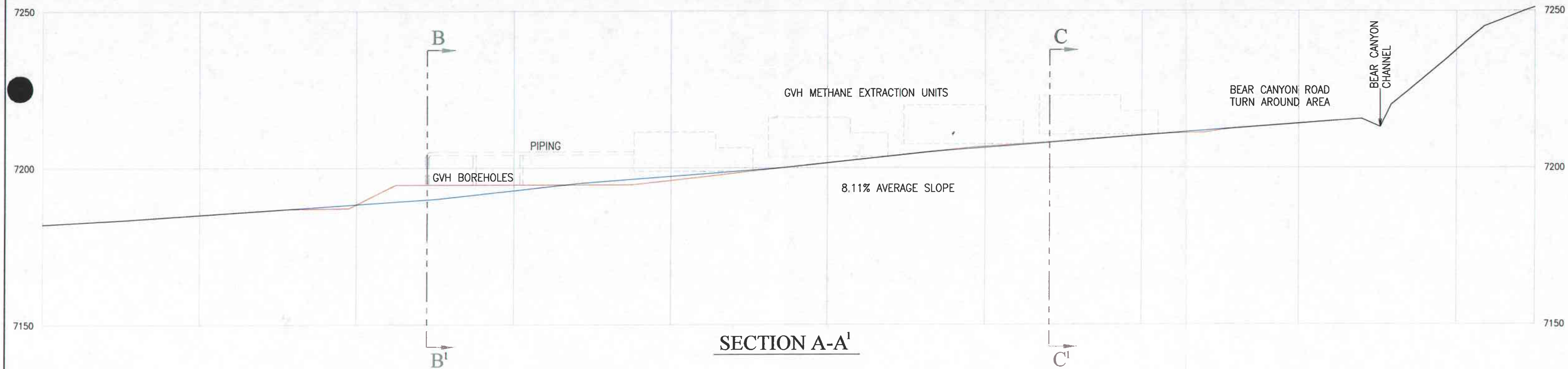
Bear Canyon Road

GVH Pad Site

WEST RIDGE MINE

Bear Canyon GVH Facility Site Plan

DATE: 10-20-08 REV: 01 ACAD REF: GVH PAD



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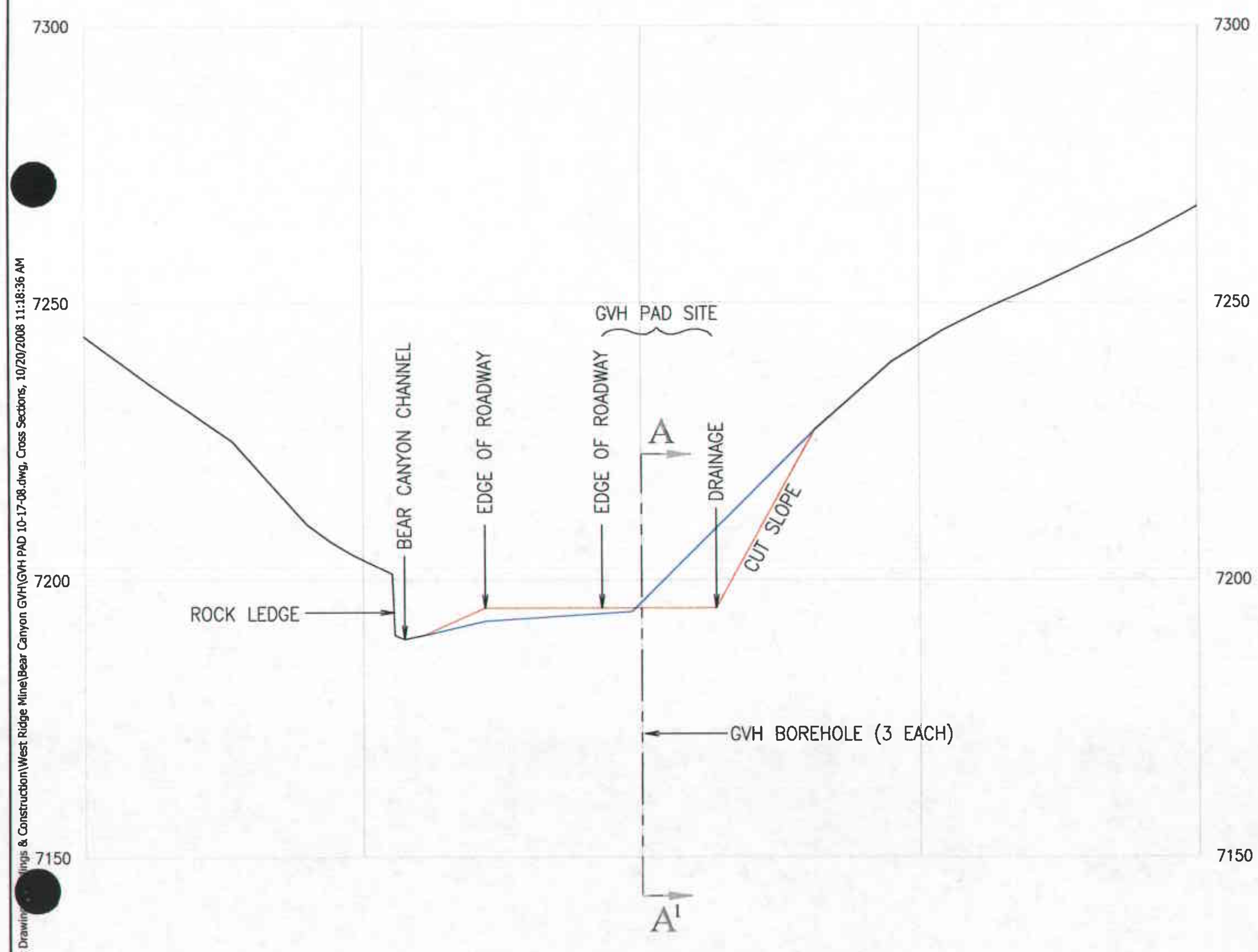

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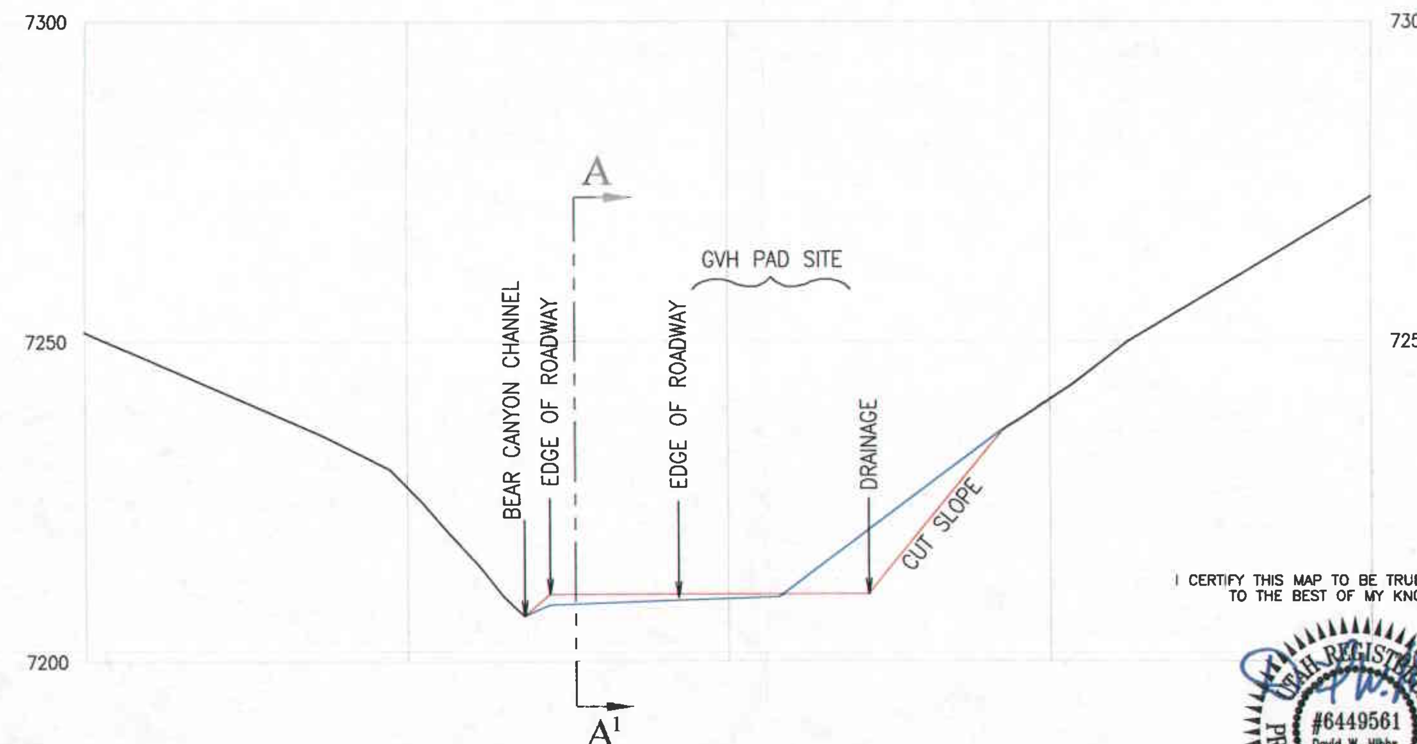


SECTION C-C[1]

I CERTIFY THIS MAP TO BE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.

UTAH REGISTERED PROFESSIONAL ENGINEER #6449561 David W. Hibbs 10/20/08

WEST RIDGE RESOURCES, INC.

SCALE: 1"=30'

LEGEND:

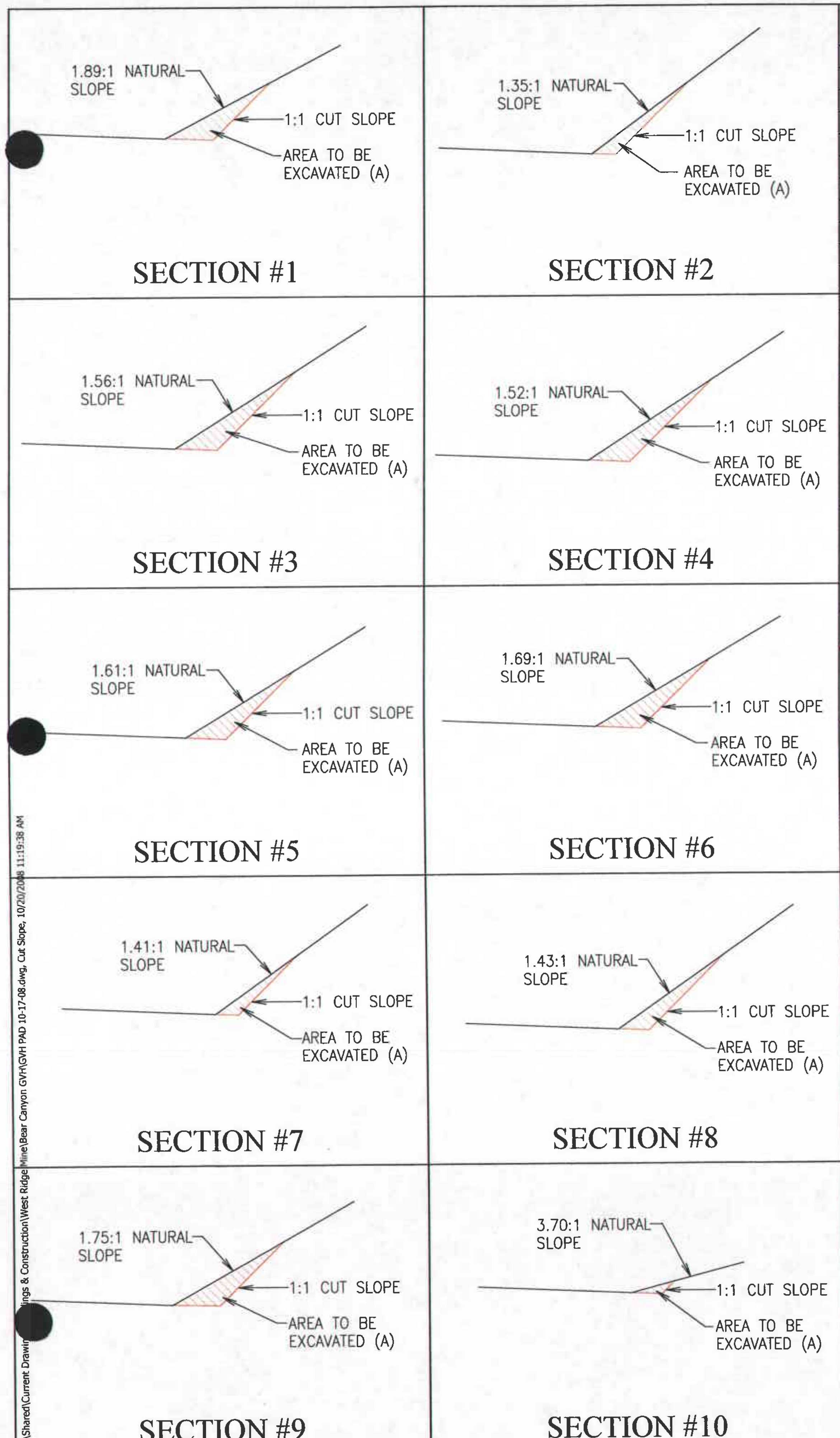
Pre-construction Profile
Operational Profile

WEST RIDGE MINE

Bear Canyon GVH Typical Cross-Sections

DATE: 10-20-08 REV: 01 ACAD REF: GVH PAD

G:\Shared\Current Drawings & Construction\West Ridge Mine\Bear Canyon GVH\GVH PAD 10-17-08.dwg, Cross Sections, 10/20/2008 11:18:36 AM

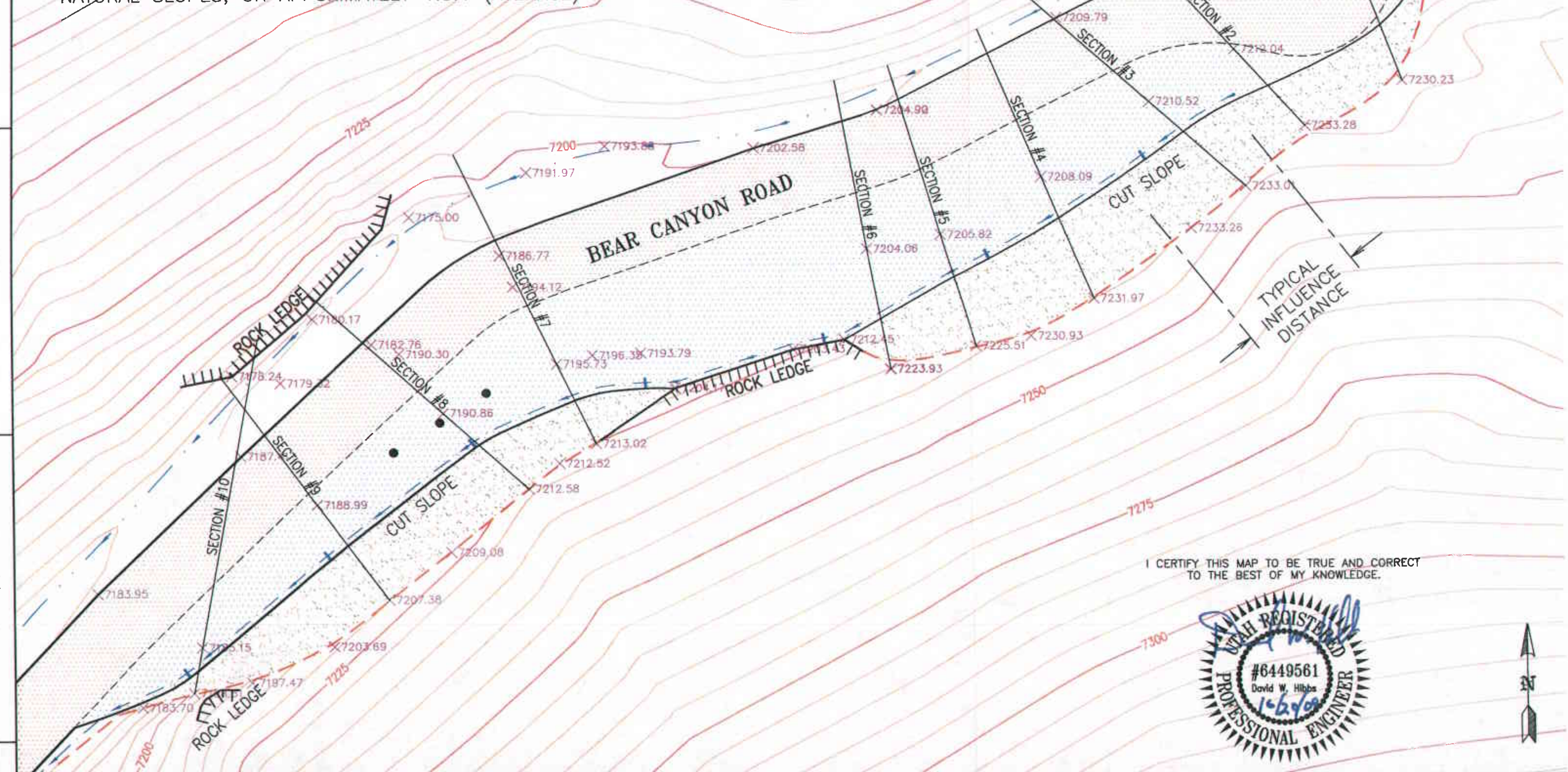


EXCAVATION VOLUME TABULATION

SECTION NUMBER	AREA (A)	INFLUENCE DISTANCE (L)	VOLUME (cubic feet)	Volume (cubic yards)
SECTION #1	120 s.f.	32'	3,820 cu.ft.	142 cu.yds.
SECTION #2	80 s.f.	29'	2,320 cu.ft.	86 cu.yds.
SECTION #3	150 s.f.	35'	5,250 cu.ft.	194 cu.yds.
SECTION #4	152 s.f.	40'	6,080 cu.ft.	225 cu.yds.
SECTION #5	127 s.f.	28'	3,556 cu.ft.	132 cu.yds.
SECTION #6	146 s.f.	17'	2,482 cu.ft.	92 cu.yds.
SECTION #7	64 s.f.	26'	1,664 cu.ft.	62 cu.yds.
SECTION #8	104 s.f.	36'	3,744 cu.ft.	139 cu.yds.
SECTION #9	132 s.f.	52'	6,864 cu.ft.	254 cu.yds.
SECTION #10	18 s.f.	46'	828 cu.ft.	31 cu.yds.
TOTALS			36,608 cu.ft.	1,357 cu.yds.

NOTES:

1. ALL MEASUREMENTS AND VOLUMES ARE APPROXIMATE.
2. EXCAVATION VOLUMES INCLUDE APPROX. 515 CUBIC YARDS OF TOPSOIL.
3. THE RECLAIMED SLOPES WILL BE NEARLY IDENTICAL TO THE PRE-EXISTING NATURAL SLOPES, OR APPOXIMATELY 1.5:1 (AVERAGE).



I CERTIFY THIS MAP TO BE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.

UTAH REGISTERED PROFESSIONAL ENGINEER #6449561 David W. Hibbs

WEST RIDGE RESOURCES, INC.

SCALE: 1"=40'

LEGEND:

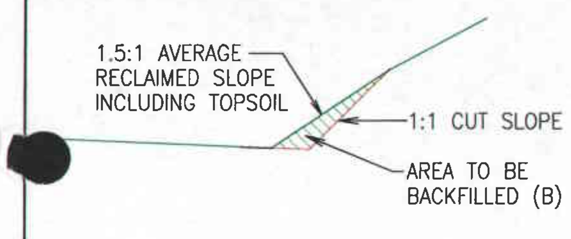
- Existing Index Contour
- Existing Intermediate Contour
- Extent of Cut Slope
- Existing Bear Canyon Channel
- New Surface Drainage
- Bear Canyon Road
- GVH Pad Site

WEST RIDGE MINE

Cut Slope Excavation Volumes

DATE: 10-20-08 REV: 01 ACAD REF: GVH PAD

G:\Shared\Current Drawings & Construction\West Ridge Mine\Bear Canyon GVH\GVH PAD 10-17-08.dwg, Cut Slope, 10/20/2008 11:19:38 AM



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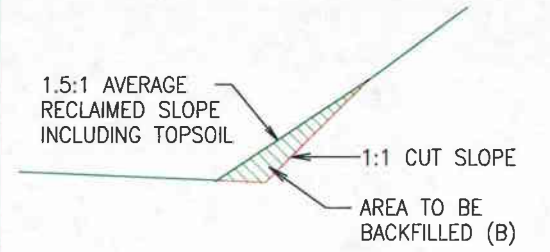

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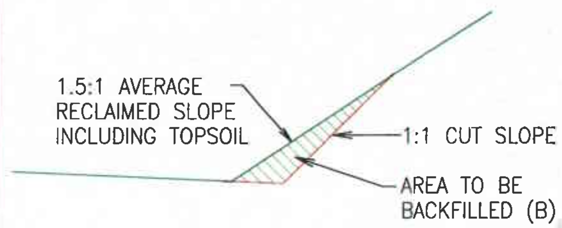

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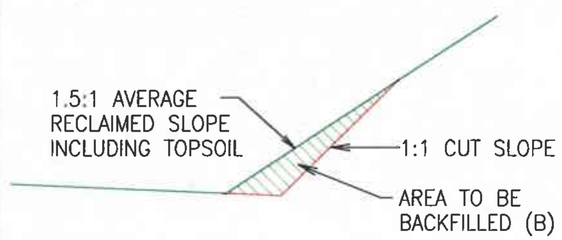

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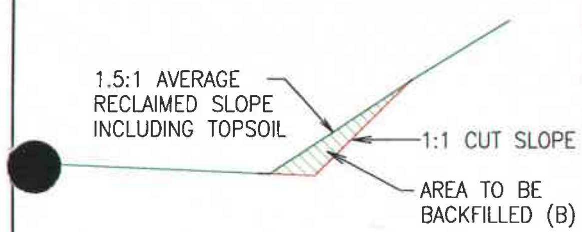
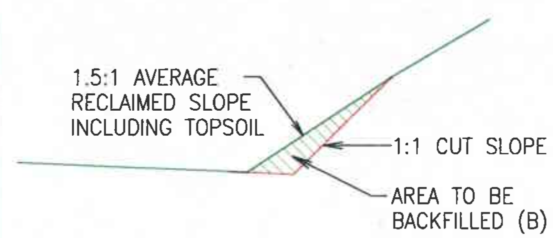
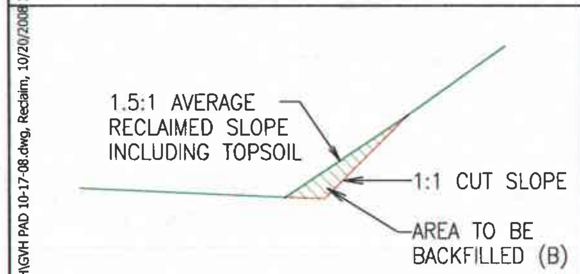


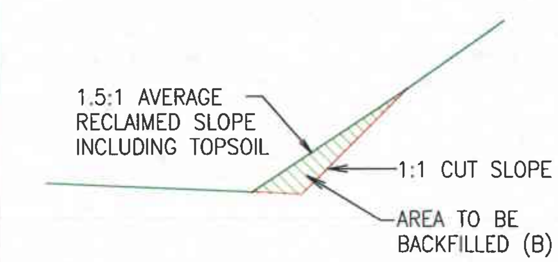
SECTION #5



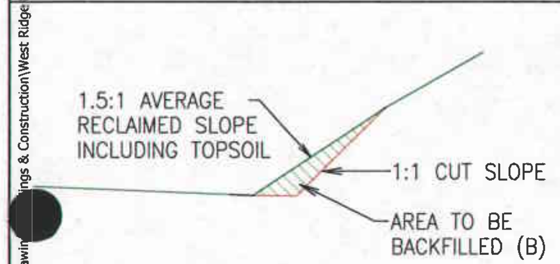
SECTION #6



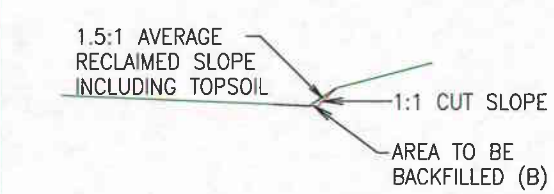
SECTION #7



SECTION #8



SECTION #9

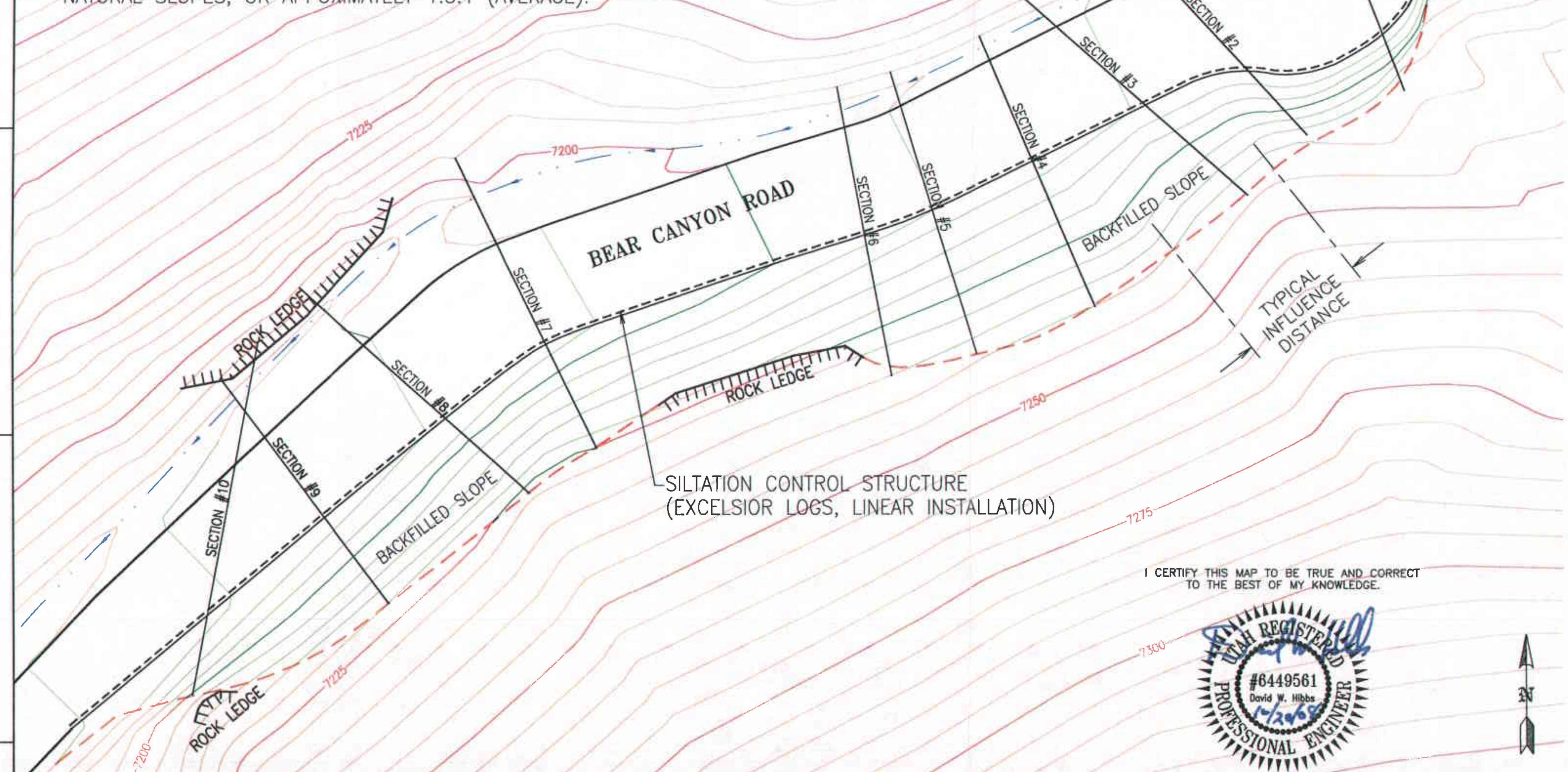


SECTION #10

BACKFILL VOLUME TABULATION

SECTION NUMBER	BACKFILL AREA (B)	INFLUENCE DISTANCE (L)	VOLUME (cubic feet)	Volume (cubic yards)
SECTION #1	69 s.f.	32'	2,208 cu.ft.	82 cu.yds.
SECTION #2	114 s.f.	29'	3,306 cu.ft.	122 cu.yds.
SECTION #3	130 s.f.	35'	4,550 cu.ft.	169 cu.yds.
SECTION #4	146 s.f.	40'	5,840 cu.ft.	216 cu.yds.
SECTION #5	100 s.f.	28'	2,800 cu.ft.	104 cu.yds.
SECTION #6	103 s.f.	17'	1,751 cu.ft.	65 cu.yds.
SECTION #7	76 s.f.	26'	1,976 cu.ft.	72 cu.yds.
SECTION #8	120 s.f.	36'	4,320 cu.ft.	160 cu.yds.
SECTION #9	87 s.f.	52'	4,524 cu.ft.	168 cu.yds.
SECTION #10	3 s.f.	46'	138 cu.ft.	5 cu.yds.
TOTALS			31,413 cu.ft.	1,163 cu.yds.

NOTES:
1. ALL MEASUREMENTS AND VOLUMES ARE APPROXIMATE.
2. BACKFILL VOLUMES INCLUDE APPROX. 515 CUBIC YARDS OF TOPSOIL.
3. THE RECLAIMED SLOPES WILL BE NEARLY IDENTICAL TO THE PRE-EXISTING NATURAL SLOPES, OR APPOXIMATELY 1.5:1 (AVERAGE).



WEST RIDGE RESOURCES, INC.

SCALE: 1"=40'

LEGEND:
- Existing Index Contour
- Existing Intermediate Contour
- Extent of Cut Slope
- Existing Bear Canyon Channel
- Siltation Control Structure
- Reclaimed Index Contour
- Reclaimed Intermediate Contour

WEST RIDGE MINE
Reclamation Plan with Backfill Volumes

DATE: 10-20-08 REV: 01 ACAD REF: GVH PAD

G:\Shared\Current Drawin...ngs & Construction\West Ridge Mine\Bear Canyon GVH\GVH PAD 10-17-08.dwg, Reclaim, 10/20/2008 11:23:48 AM

ATTACHMENT 2

ORDER 1 SOILS SURVEY
LONG RESOURCE CONSULTANTS

Long Resource Consultants, Inc.

1960 W Deep Creek Road, Morgan, UT 84050-966, Office 801-829-6416, Cell 801-791-3447, Email lrcsoils@msn.com

Mr. Dave Shaver
Utah American Energy
West Ridge Mine
P.O. Box 1077
Price, Utah 84501

October 15, 2008

Dave,

Attached is the soils evaluation report for the Bear Canyon Gas Vent Hole location. It includes an assessment of existing soil conditions correlated to established soil series that are presently in use by the NRCS in either Carbon or Emery counties. An estimate of the potential topsoil salvage quantity is also included. All salvage operations should be closely monitored.

Thank you for the opportunity to conduct this soil resource evaluation for the Westridge Mine. Please contact me if you have any questions (801-791-3447).

Sincerely,

Robert E. Long, CPSS
President

Bear Canyon – Left Fork
Soils Evaluation

Gas Vent Hole

Location:	Easting	547580
	Northing	4387075
	Zone	12
	NAD	1983
	Township	14 South
	Range	13 East
	Section	3
	Meridian	Salt Lake

USGS Quad: Mount Bartles, Utah

Elevation: 7185 to 7240 feet

Purpose of Soil Resource Assessment

The purpose of this soil resource assessment was to determine how closely the soils at the Bear Canyon Gas Vent Hole (GVH) site correlated with the Carbon County Soil Survey produced by the Natural Resource Conservation Service (NRCS, USDA 2007). Topsoil and subsoil salvage depths were estimated based on soil profile descriptions. Soil types vary across the site and monitoring should be part of the topsoil salvage operations.

The identification of hazardous or toxic materials was not part of this soil resource assessment.

Assessment Methods

This assessment was made by comparing the soil map unit delineated by the NRCS in the Carbon County Soil Survey with the soils actually identified at the site. Three soil profile descriptions were completed for the Bear Canyon GVH location using the Field *Book for Describing and Sampling Soils* (Schoeneberger, P.J., et. al., 2002).

The soil resource assessment was conducted by Robert E. Long, Certified Professional Soil Scientist (CPSS, No. 02346 ARCPACS) on October 7, 2008.

Taxonomic classification of the soil pedons was based on *Keys to Soil Taxonomy*, Tenth Edition (USDA 2006). The pedons were correlated to established soil series (USDA 2008) currently in use in Carbon and Emery Counties, Utah.

Soil colors were compared with color chips in the *Munsell Soil Color Charts* (Munsell 2000).

Soil pH was measured with field indicator dyes (phenol red and thymol blue).

Percent calcium carbonate was determined with a field calcimeter.

Digital photographs were taken at each soil profile location to document current conditions.

The *Soil Pit Location Map* was drawn to scale by Westridge mine staff. Elevations for each soil profile location were based on the soil map topographic lines. Soil area delineations were estimated in the field by visual observation of the cutbank.

Dominant vegetation was identified. A separate quantitative vegetation assessment is being prepared by Mt. Nebo Scientific.

Site locations were recorded with a Garmin GPSmap 60CSX in UTM, NAD 1983. The UTM location listed at the beginning of this report is for soil pit BC-GVH-02 which is located near the center of the Bear Canyon GVH evaluation area.

General Site Description

A soil resource evaluation was conducted at the Gas Vent Hole location in the right fork of Bear Canyon on October 7, 2008. The access road leading to the site had been upgraded just prior to the soils evaluation. The road upgrade exposed an 8 to 12 foot cutbank along the north side of the proposed GVH site. The Bear Canyon GVH location is 0.24 acres (*Soil Pit Location Map*).

The proposed GVH site is at the footslope of a very steep north-northwest facing mountain sideslope. Slopes on the GVH site range from 6 to 10 percent on the footslope and 25 to 40 percent above the footslope. Soils developed from alluvial and colluvial deposition.

Elevation at the site ranges from 7,185 to approximately 7,240 feet.

Estimated annual precipitation ranges from 20 to 35 inches based on the official soil series descriptions (USDA 2008).

Sandstone rock outcrops occur on the upslope perimeter and are shown on the *Soil Pit Location Map* as rock ledges.

NRCS Soil Map Unit

The south side of the right fork of Bear Canyon was delineated (NRCS 2007) as map unit 21 by the NRCS (Croydon loam, 8 to 30 percent slopes). Croydon soils are very deep with a thick mollic (dark) surface and an argillic horizon (Pachic Argicryoll, fine-loamy, mixed, superactive). Soils identified at the Bear Canyon GVH site were similar to Croydon, but they have calcic horizons and contain large amounts of subangular sandstone fragments. Descriptions of the soils identified at the Bear Canyon GVH site are in the *Topsoil Resource* section of this report.

The north side of the right fork of Bear Canyon was delineated (NRCS 2007) as map unit 84 (Podo – Rock outcrop complex, 50 to 70 percent slopes) by the NRCS. Disturbance is not anticipated on the north side of the right fork of Bear Canyon.

Soil Resource

Three soil pedons were evaluated along the access road cutbank. Soil pedon BC-GVH-01 was trimmed back with shovels, while pedons BC-GVH-02 and BC-GVH-03 were dug approximately 6 to 8 feet into the cutbank with a backhoe. Table 1 lists the taxonomic classification and correlated soil series for the described soil pedons. The location of each soil pedon is shown on the *Soil Pit Location map*.

Table 1. Taxonomic classification of Bear Canyon GVH soil profiles.

Pedon	Soil Series	Taxonomic Classification
1	Aagard skeletal taxadjunct	Calcic Pachic Argicryoll, loamy-skeletal, mixed, superactive
2	Northorn	Calcic Argicryoll, fine-loamy, mixed, superactive
3	Aagard	Calcic Pachic Argicryoll, fine-loamy, mixed, superactive

Coarse fragments ranging in size from gravels to stones and some boulders were observed in all three soil pedons. Percent, size, and location of sandstone fragments varied between and within the pits.

Each of the three soil pedons exhibited evidence of multiple episodes of alluvial and colluvial deposition. This determination was based on irregular changes in soil color, texture, carbonates, and rock fragments (size and percent).

Pedon BC-GVH-01 was located near the east end of the Bear Canyon GVH evaluation area, photos 1 through 3. This pedon is pachic with mollic soil colors extending to a depth of 17 inches. Rock fragments were approximately 40 percent in the surface 12 inches and none in the buried A horizon (2A, 12-17 inches). Rock fragment content below 17 inches ranged from 5 to 45 percent. Calcium carbonate percent increased significantly below 17 inches. The amount of calcium carbonate present in the soil met the requirements for a calcic horizon from 17 to 44 inches. This soil was correlated to a skeletal taxadjunct of the Aagard soil series.

Pedon BC-GVH-02 was located near the center of the Bear Canyon GVH evaluation area, photos 4 through 6. Mollic soil colors only extended to 12 inches in this pedon. Rock fragments ranged from 18 to 30 percent in the surface 12 inches; and from 10 to 70 percent below 12 inches. Calcium carbonate percent began to increase significantly at 12 inches. Two calcic horizons were present at 20 to 38 inches and from 51 to 84 inches. This soil was correlated to the Northorn soil series.

Pedon BC-GVH-03 was located near the west end of the Bear Canyon GVH evaluation area, photos 7 through 9. This pedon is pachic with mollic soil colors extending to a depth of 17 inches. Rock fragments were approximately 15 percent in the surface 17 inches; and ranged from 40 to 70 percent below 17 inches. Calcium carbonate percent ranged from 18 to 25 percent below 17 inches and met the requirements of a calcic horizon. This soil was correlated to the Aagard soil series.

Topsoil Salvage

The depth of topsoil salvage varies across the Bear Canyon GVH location. The GVH location was divided into three soil areas to describe the potential topsoil salvage depths. Table 2 illustrates the range of soil characteristics within each pedon that have an effect on topsoil suitability. The depth of suitable topsoil corresponds directly with the depth of mollic soil colors.

Large stones and boulders should be removed from the salvaged topsoil, as much as may be feasibly possible, during the salvage operations.

Table 2. Soil characteristics influencing topsoil suitability (Utah DOGM 2005).

Depth	Horizon	Mollic Soil Colors	pH[1]	$CaCO_3$ [2]	Rock Fragments[3]	Topsoil Salvage Depth	Topsoil Salvage Depth Determining Feature(s)
inches				%	%	inches	
BC-GVH-01							
2-0	Oi		Leaves, needles & twigs				
0-3	A1	Yes	7.6	6	40		
3-12	A2	Yes	7.6	11	40		
12-17	2A	Yes	7.9	8	0	17	
17-34	2Btk	No	8.4	16	45		Alkaline soil pH (>8.2), CaCO3% (>15), rock fragments (>35%).
34-44	3A	No	8.2	15	30		
44-56	3Bw	No	8.2	10	5		
56-84	4Bk	No	8.4	8	40		
BC-GVH-02							
2-0	Oi		Leaves, needles & twigs				
0-3	A	Yes	7.8	2	18		
3-12	Bt	Yes	7.9	8	30	12	
12-20	BC	No	8	12	40		Alkaline soil pH (>8.2), CaCO3% (>15), rock fragments (>35%).
20-38	2CA	No	8.1	19	10		
38-45	3Bk	No	8.2	15	70		
45-51	4A	Yes	7.9	5	10		
51-72	5Bk	No	8.4	15	70		
72-84	6C	No	8.1	9	15		
BC-GVH-03							
2-0	Oi		Leaves, needles & twigs				
0-4	A	Yes	7.6	3	15		
4-17	Bt	Yes	7.9	7	15	17	
17-30	BC	No	8.2	18	40		Alkaline soil pH (>8.2), CaCO3% (>15), rock fragments (>35%).
30-57	2CA	No	8.4	18	40		
57-90	3Bk	No	8.4	25	70		

1. Soil pH was measured with indicator dyes; good (6.2-8.2), fair (8.2-8.5), and poor (8.6-9.0).
2. Percent CaCO3 was measured with field calcimeter; good (<15%), fair (15-30%), and poor (>30%).
3. Percent rock fragments was estimated visually in the field; good (<35%), fair (35-65%), poor (>65%).

Topsoil suitability: Good Fair Poor

Table 3 lists the potential topsoil salvage depths and estimated quantities for the Bear Canyon GVH location. Topsoil depths may decrease as the slope increases. Topsoil salvage operations should be monitored by a Certified Professional Soil Scientist. The estimated total topsoil salvage quantity of 514.2 cubic yards will allow approximately 15 to 16 inches of topsoil to be spread evenly over the final graded surface of 0.24 acres.

Table 3. Potential topsoil salvage depths and estimated quantities by soil area and total GVH project location.

Soil Area	Soil Pedon	Potential Topsoil Depth[1]	Area[2]	Estimated Topsoil Quantity[3]
		inches	acres	cubic yards
A	1	17	0.08	182.8
B	2	12	0.05	80.7
C	3	17	0.11	251.4
Total			0.24	514.2

1. Potential topsoil salvage depth is based on depths observed in representative soil pedons evaluated in each soil area.
2. Area is based on acres measured by Westridge Mine staff and delineated on the *Soil Pit Location Map*.
3. Estimated topsoil salvage quantity is based on potential topsoil salvage depth and measured area.

Vegetation

The dominant vegetation community consists of an overstory of Douglas fir, bigtooth maple, and quaking aspen. The understory shrub community is dominated by mountain snowberry. The vegetation report written by Mt. Nebo Scientific contains a more detailed quantitative description of the site vegetation.

Reclamation Potential

The potential for successfully reclaiming the Bear Canyon GVH location is good based on the estimated quality and quantity of topsoil that may be salvaged.

Site Photos

Photo 1. Soil profile BC-GVH-01 located at the east end of the Bear Canyon GVH evaluation area. This soil was correlated to be a skeletal taxadjunct of the Aagard soil series (Calcic Pachic Argicryoll, loamy-skeletal, mixed, superactive).

Photo 2. Location of soil profile BC-GVH-01 at east end of Bear Canyon soils evaluation area. Description was done in cutbank on convex knoll of mountain footslope.

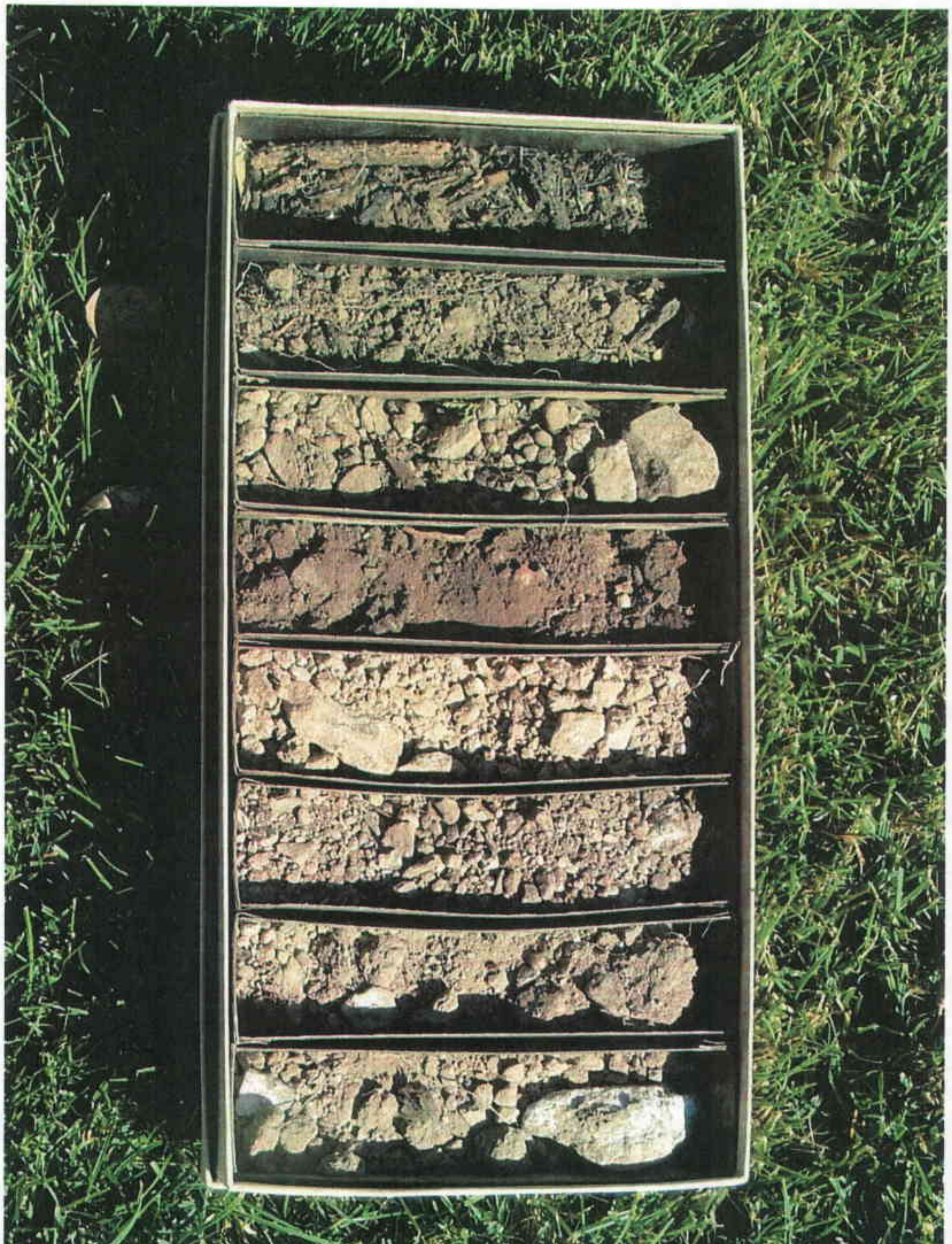


Photo 3.BC-GVH-01 pedon sample box. Top tray contains the Oi horizon (needles, leaves, and twigs). Potential topsoil salvage depth (0-17 inches) is limited to trays 2 (A1, 0-3 inches), 3 (A2, 3-12 inches), and 4 (2A, 12-17 inches) from top. The calcic horizon is contained in trays 5 (2Btk, 17-34 inches) and 6 (3A, 34-44 inches) from the top. Tray 8 (4Bk, 56-84 inches) has poor soil pH and poor percent rock fragments.

Photo 4. Soil profile BC-GVH-02 near center of Bear Canyon GVH evaluation area. Soil was correlated to Northorn series (Calcic Argicryolls, fine-loamy, mixed, superactive).

Photo 5. Location of soil profile BC-GVH-02 near center of Bear Canyon GVH soils evaluation area. Pit was on cutbank on concave mountain footslope near sandstone rock outcrop (at right in photo).

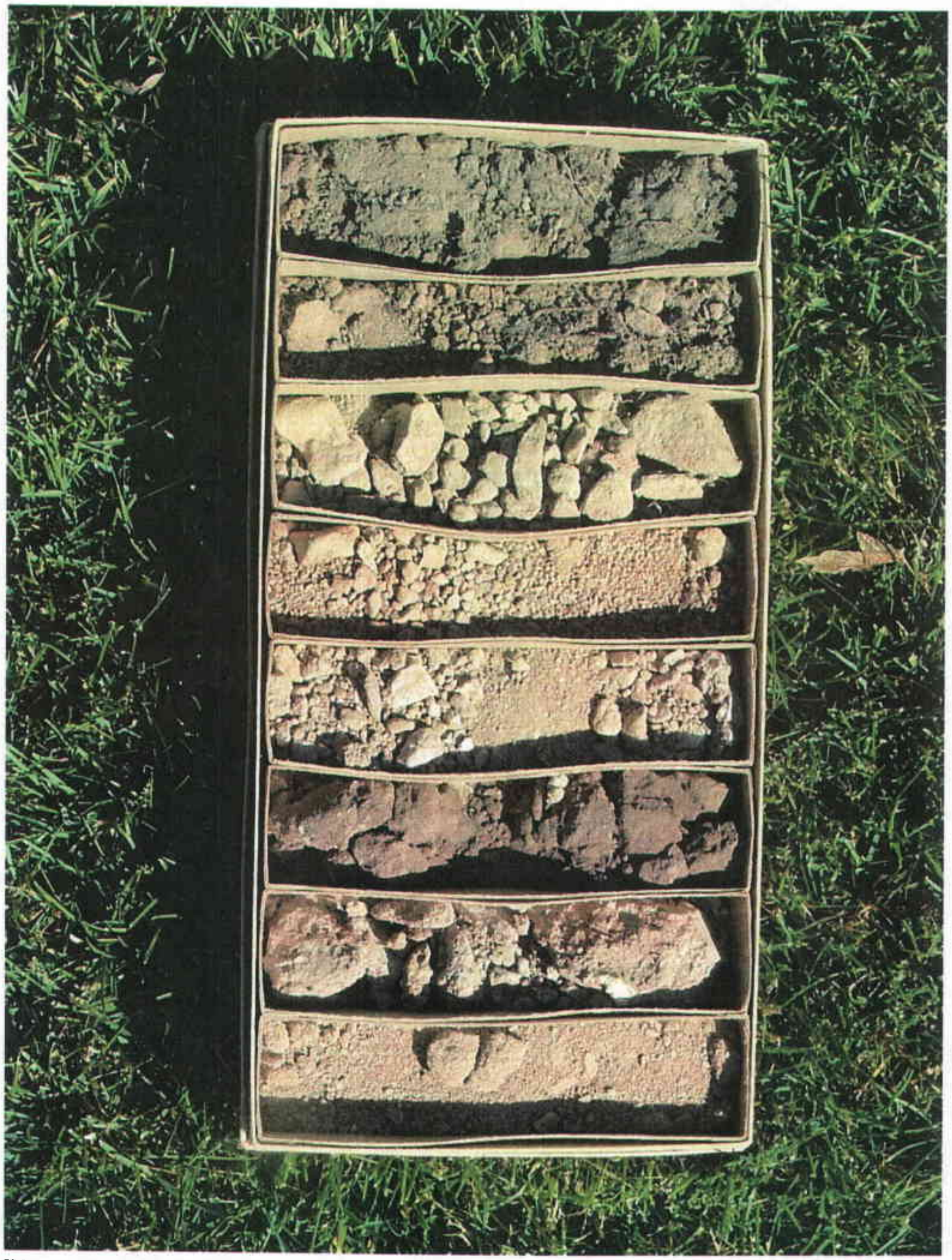


Photo 6. BC-GVH-02 soil pedon box. The Oi horizon is not displayed in box. Potential topsoil salvage depth is limited to the top trays 1 (A, 0-3 inches) and 2 (Bt, 3-12 inches) at the top of box. Soil material in tray 3 (BC, 12-20 inches) has 12 percent calcium carbonate with 40 percent rock fragments and was determined to not be suitable for topsoil salvage. The upper calcic horizon is contained in trays 4 (2CA, 20-38 inches) and 5 (3Bk, 38-45 inches) from the top. Tray 5 (4A, 45-51) inches contains a buried surface. The lower calcic horizon is in trays 7 (5Bk, 51-72 inches) and 8 (6C, 72-84 inches).

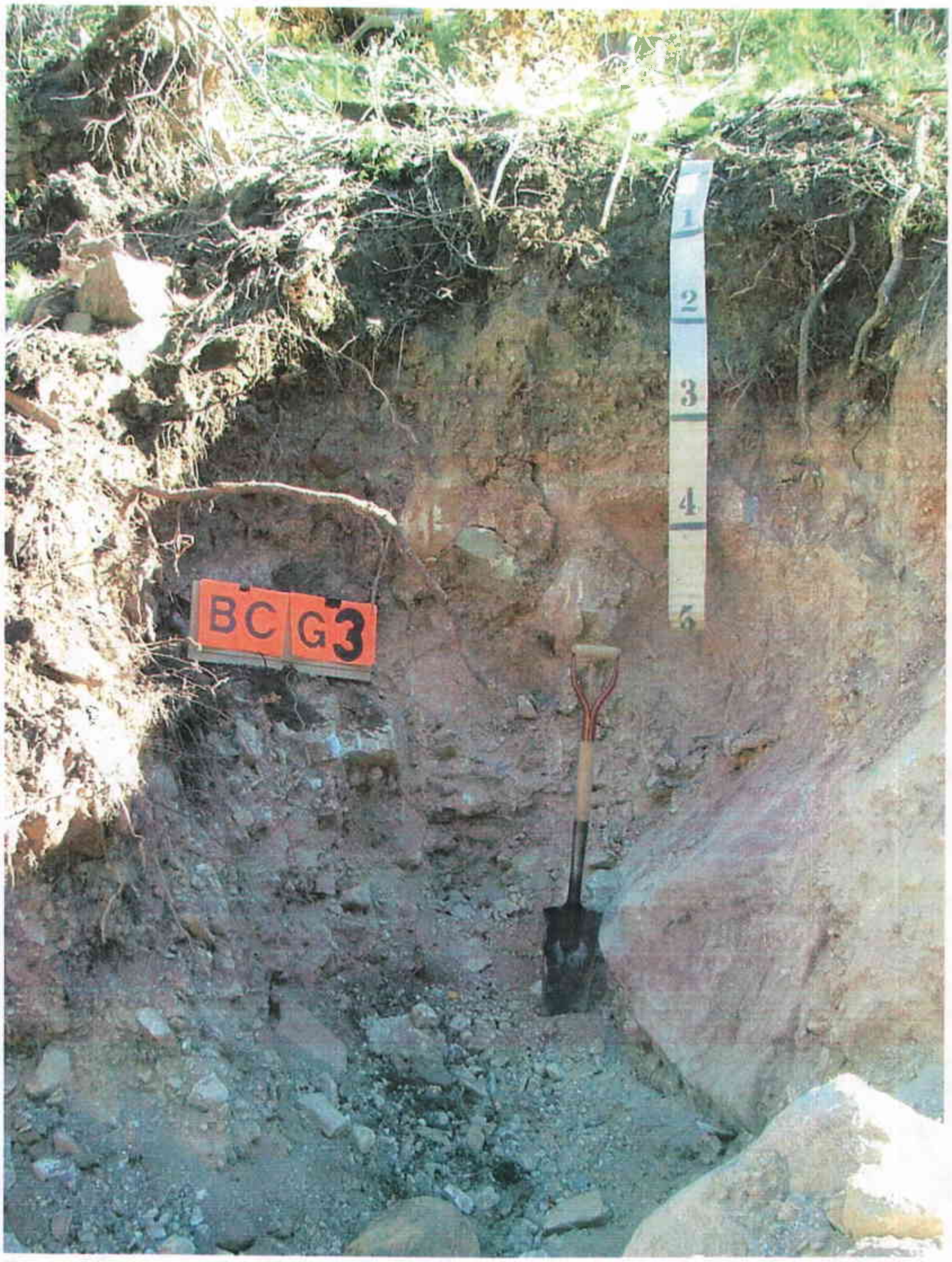


Photo 7. Soil profile BC-GVH-03 located near west end of Bear Canyon soils evaluation area. This soil was correlated to the Aagard series (Calcic Pachic Argicryoll, fine-loamy, mixed, superactive). Large boulders can be seen on the right next to the shovel and in the lower right.

Photo 8. Location of soil profile BC-GVH-03 on convex portion of a mountain footslope. This site is located between two sandstone outcrops (one is at left in photo).

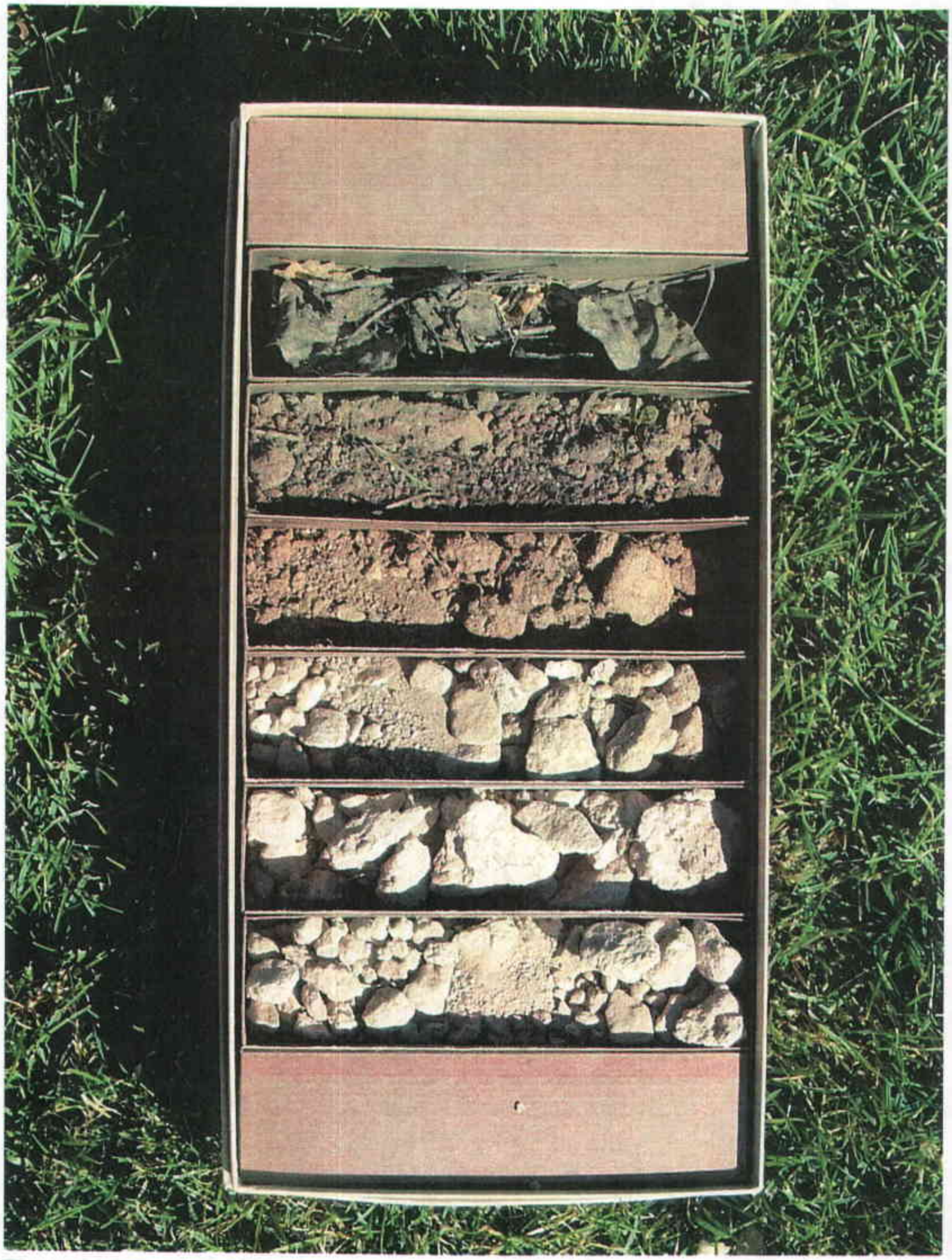


Photo 9. BC-GVH-03 soil pedon box. The Oi horizon (needles, leaves, and twigs) is in the top tray. Potential topsoil salvage depth is limited to trays 2 (A, 0-4 inches) and 3 (Bt, 4-17 inches) from the top. The calcic horizon is contained in trays 4 (BC, 17-30 inches), 5 (2CA, 30-57 inches), and 6 (3Bk, 57-90 inches) from the top. Soil texture in tray 6 is extremely stony loamy sand.

Literature Cited

Munsell Soil Color Charts, 2002.

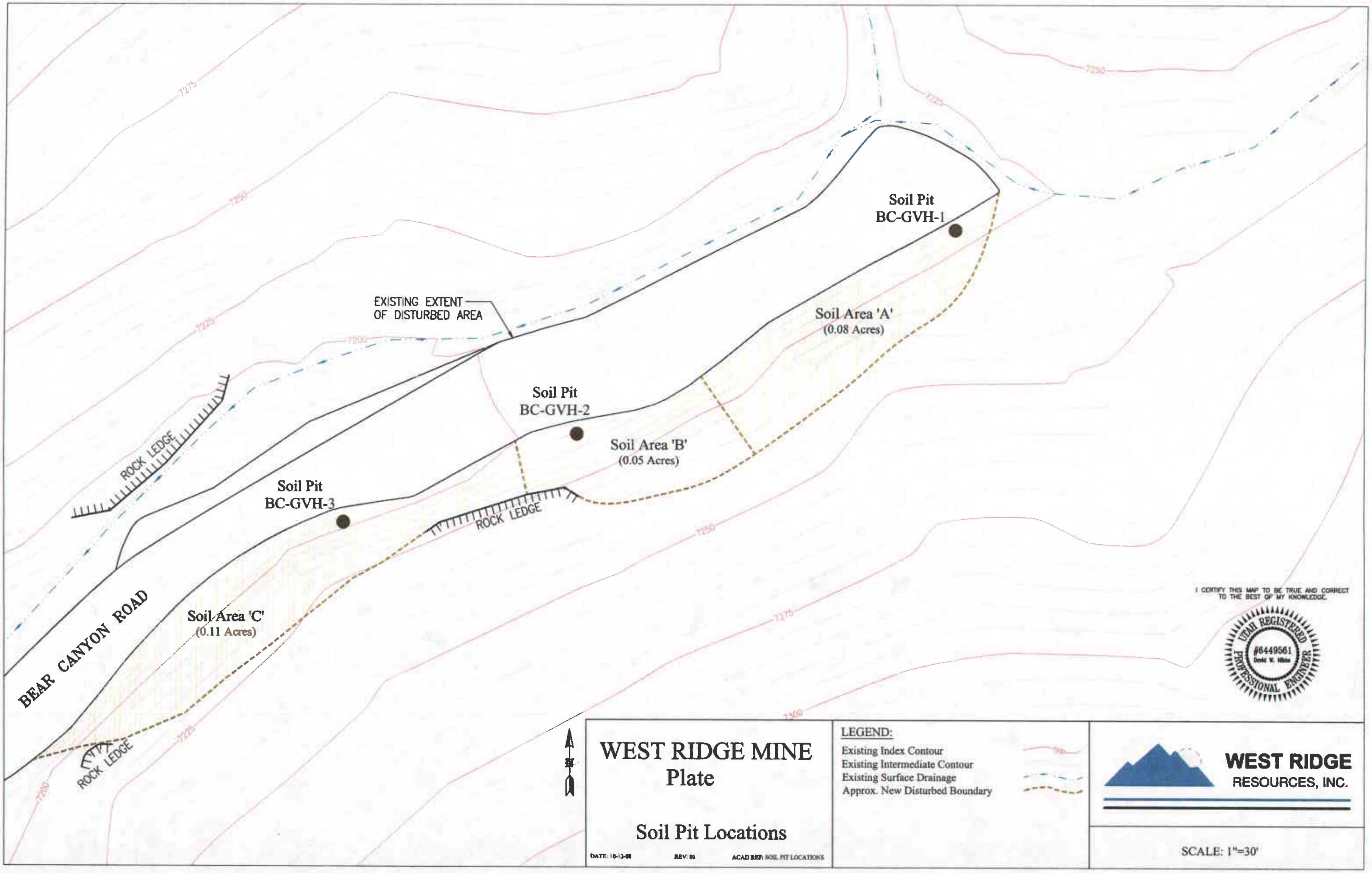
Schoeneberger, P.J., Wysocki, D.A., Benham, E.C., and Broderson, W.D. (editors), 2002. Field Book for describing and sampling soils, Version 2.0. Natural Resource Conservation Service, National Soil Survey Center, Lincoln, NE.

USDA – Natural Resource Conservation Service, 2006. Keys to Soil Taxonomy, Tenth Edition.

USDA – Natural Resource Conservation Service, 2007. National cooperative Soil Survey, Web Soil Survey. Carbon Area, Utah, Parts of Canbon and Emery Counties. Accessed October 6, 2008.

USDA – Natural Resource Conservation Service, 2008. Official Soil Series Descriptions (http://soils.usda.gov/technical/classification/osd/).

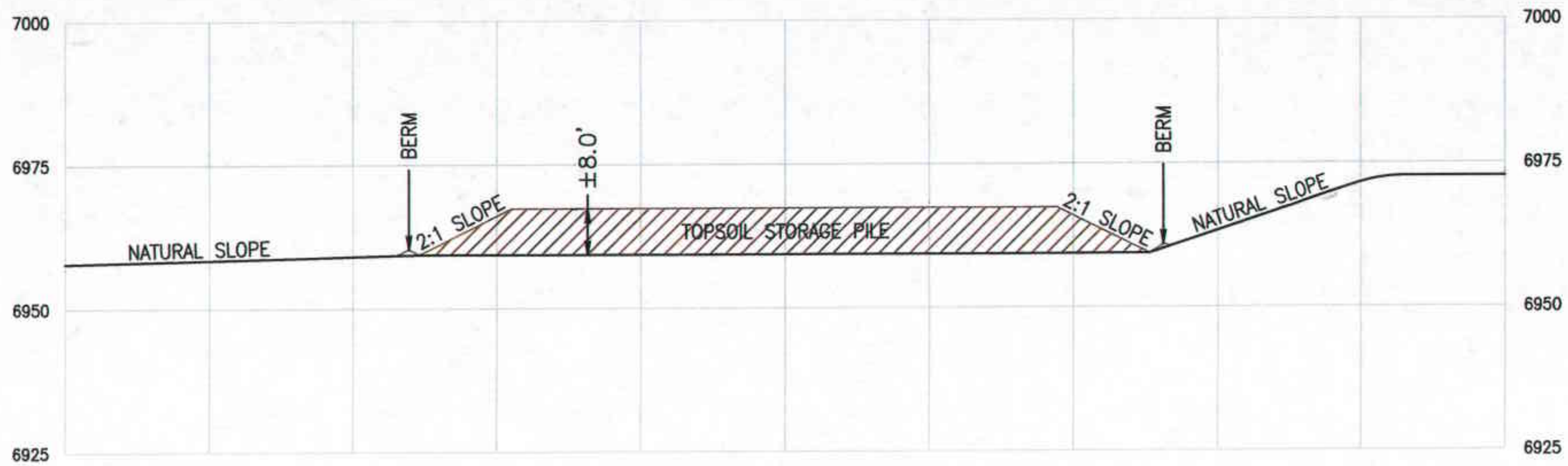
Utah Division of Oil, Gas, and Mining, October 2005. Guidelines for Management of Topsoil and Overburden.



Soil Pit
BC-GVH-1
Soil Area 'A'
(0.08 Acres)
Soil Pit
BC-GVH-2
Soil Area 'B'
(0.05 Acres)
Soil Pit
BC-GVH-3
Soil Area 'C'
(0.11 Acres)
EXISTING EXTENT
OF DISTURBED AREA
ROCK LEDGE
ROCK LEDGE
ROCK LEDGE
BEAR CANYON ROAD
7200
7225
7250
7275
7300
I CERTIFY THIS MAP TO BE TRUE AND CORRECT
TO THE BEST OF MY KNOWLEDGE.
UTAH REGISTERED PROFESSIONAL ENGINEER
#6449561
WEST RIDGE MINE
Plate
Soil Pit Locations
LEGEND:
Existing Index Contour
Existing Intermediate Contour
Existing Surface Drainage
Approx. New Disturbed Boundary
WEST RIDGE
RESOURCES, INC.
SCALE: 1"=30'

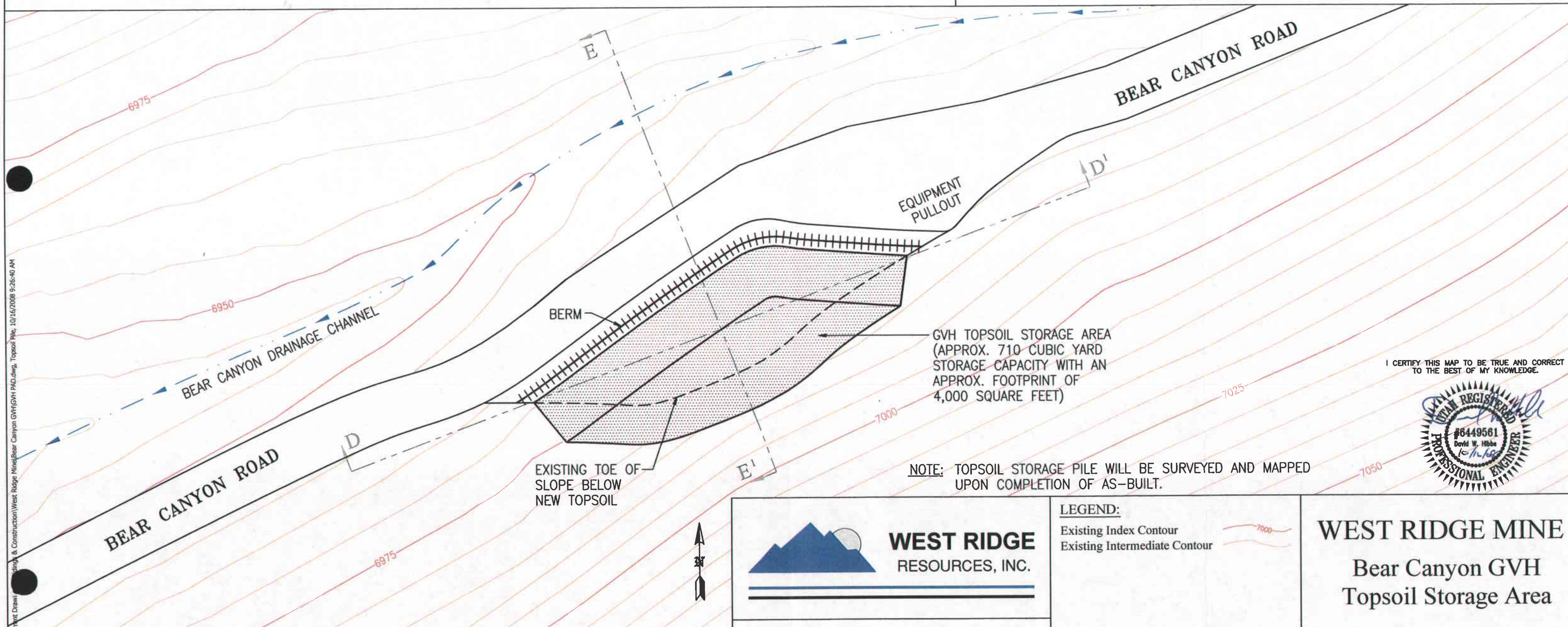
ATTACHMENT 3

TOPSOIL STORAGE AREA



SECTION D-D[1]

SECTION E-E[1]



NOTE: TOPSOIL STORAGE PILE WILL BE SURVEYED AND MAPPED UPON COMPLETION OF AS-BUILT.

I CERTIFY THIS MAP TO BE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.

UTAH REGISTERED PROFESSIONAL ENGINEER #6449561 David W. Hibbs

TOPSOIL STORAGE AREA PLAN

WEST RIDGE RESOURCES, INC.

SCALE: 1"=30'

LEGEND:
Existing Index Contour
Existing Intermediate Contour

WEST RIDGE MINE

Bear Canyon GVH Topsoil Storage Area

DATE: 10-16-08 REV: 01 ACAD REF: GVH PAD

G:\Shared\Current Drawi...ings & Construction\West Ridge Mine\Bear Canyon GVH\GVH PAD.dwg, Topsoil Pile, 10/16/2008 9:26:40 AM

ATTACHMENT 4

VEGETATION REPORT
MT. NEBO SCIENTIFIC

MT NEBO SCIENTIFIC, INC.
research & consulting

October 15, 2008

HAPPY HALLOWEEN

Dave Shaver
ANDALEX RESOURCES
P.O. Box 902
Price, Utah 84501

Dear Dave:

Enclosed please find one bound copy of the following report for the West Ridge Mine.

**Vegetation of the
GVH Site in
Bear Canyon,
Book Cliffs, Utah**

**For the
West Ridge Mine,
Carbon County, Utah**

An electronic file of the report was also submitted in an email to you previously. Please call if you have questions or comments.

Sincerely,

(Transmitted Electronically)

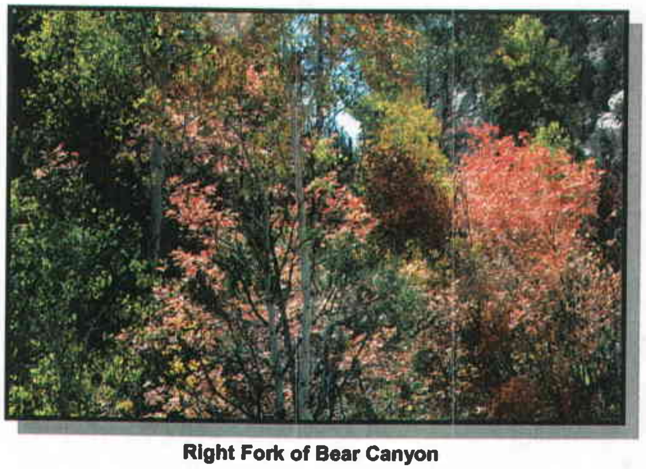
Patrick D. Collins, Ph.D.
Biologist/Environmental Consultant

Enclosures

330 East 400 South, Ste. 6, P.O. Box 337, Springville, Utah 84663
(801) 489-6937, (fax) 489-6779

Vegetation of the GVH Site in Bear Canyon, Book Cliffs, Utah

For the West Ridge Mine, Carbon County, Utah



Right Fork of Bear Canyon

Prepared by

MT. NEBO SCIENTIFIC, INC.
330 East 400 South, Suite 6
P.O. Box 337
Springville, Utah 84663
(801) 489-6937

Patrick D. Collins, Ph.D.

for

ANDALEX RESOURCES
Post Office Box 902
Price, Utah 84501

October 2008

TABLE OF CONTENTS

INTRODUCTION

Operations at the West Ridge Mine has found it necessary to construct a gas vent hole (GVH) as a safety measure to continue mining activities in their underground coal mine. The proposed GVH site is located in the right (east) fork of Bear Canyon within the Book Cliffs plateau in Carbon County, Utah. The site is less than one-quarter acre in size (0.24 acre).

This report provides the results from quantitative sampling the plant community that will be disturbed as a result of the drilling activities necessary to construct the GVH. The native plant community that will be disturbed is a Douglas Fir/ Maple community. This report also provides data from a "reference area" that could be used for future revegetation success standards following final reclamation of the site. Results from threatened, endangered and sensitive plant survey as well as a vegetation and sample location map of the area have also been provided herein.

METHODS

Methodologies used for this study were performed in accordance with the guidelines supplied by the State of Utah, Division of Oil, Gas and Mining (DOGM). Quantitative and qualitative data were recorded within the plant communities proposed GVH site on September 24, 2008. The reference area proposed for this site was sampled in the growing season of 1998.

Sampling Design and Transect/Quadrat Placement

Transect lines for vegetation sampling were placed randomly within the boundaries of the proposed disturbed and reference areas. The transect placement technique was employed with the goal to adequately sample a representative subset of the entire site. Once the transects were established, quadrat locations for sampling were chosen using random numbers from the transect lines with the objective to record data without preconceived bias.

Cover and Composition

Cover estimates were made using ocular methods with meter square quadrats. Species composition, cover by species, and relative frequencies were also assessed from the quadrats. Additional information recorded on the raw data sheets notes such as: slope, exposure, grazing use, disturbance and/or other appropriate notes. Plant nomenclature follows "A Utah Flora" (Welsh et al., 2003).

Woody Species Density

Density of woody plant species for the proposed disturbed and reference areas were estimated using the point-quarter method. In this method, random points were placed on the sample sites and measured into four quarters. The distances to the nearest woody plant species were then recorded in each quarter. The average point-to-individual distance was equal to the square root of the mean area per individual. The number of individuals per acre was the end results of the calculations.

Sample Size & Adequacy

Sampling adequacy for cover and density was attempted by using the formula given below.

$$nMIN = \frac{t^2 s^2}{(dx)^2}$$

where,

nMIN	= minimum adequate sample
t	= appropriate confidence t-value
s	= standard deviation
x	= sample mean
d	= desired change from mean

Statistical Analyses

Student's t-tests were employed to compare the total living cover and total woody species density of each proposed disturbed GVH site with its reference area.

Photographs

Color photographs of the sample areas were taken at the time of sampling and have been submitted with this report.

Threatened & Endangered Plant Species

Prior to recording quantitative data on the plant communities, a sensitive plant species survey was conducted. To initiate the study, appropriate agencies had been consulted and other sources were reviewed (sensitive species files at *Mt. Nebo Scientific, Inc.*) for potential plant species that are known to be rare, endemic, threatened, endangered or otherwise sensitive in the study area.

Raw Data

The raw data for cover and density have been summarized on a spreadsheet and is available upon request.

RESULTS

Proposed Disturbed Douglas Fir/Maple Community

The plant community proposed for disturbance by construction of the GVH site is that of a

Douglas Fir/Maple community. Dominants, and equally represented in the understory cover estimates, were Douglas fir (*Pseudotsuga menziesii*) and bigtooth maple (*Acer grandidentatum*). These tree species also dominated the overstory cover. Grasses and forbs played a relatively minor role in the plant cover of the community. For a list of all species present in the sample quadrats along with their cover and frequency values, refer to Table 1.

The total living cover including overstory and understory cover of the proposed disturbed Douglas Fir/Maple community was estimated at 82.25 %; 46.00% of this value was comprised of understory and 36.25% was from overstory cover (Table 2-A). The understory composition consisted of 91.74% woody species (Table 2-B).

Woody species density was also sampled at the site. As shown on Table 3, the total density of the area was 2,254 individuals per acre and was dominated by Douglas fir, bigtooth maple and Rocky Mountain juniper (*Juniperus scopulorum*).

Douglas Fir/Maple Reference Area ("New")

A Douglas Fir/Maple plant community was sampled in 1998 and was established as a reference area to be used for future revegetation success standards for specific areas at the West Ridge mine site following final reclamation. This reference area was called "new" because there was another Douglas Fir/Maple Reference area established earlier, but because it was necessary to later disturb this reference area due to changes to the surface facilities of the mine site, the "new" reference area was later established.

Cover and frequency by species are shown on Table 4. Overstory dominant species by cover and frequency were bigtooth maple and Douglas fir. The most common understory woody species were bigtooth maple, mountain lover *(Pachistima myrsinites*) and Oregon grape (*Mahonia repens*). Most common forbs were aster (*Aster* sp.) and pinnate tansy mustard (*Descurainia pinnata*). Finally, the most common grasses by cover and frequency were muttongrass (*Poa fendleriana*) and smooth brome (*Bromus inermis*).

The mean total living cover of this community was estimated to be 63.63%, 31.38% of which was overstory and 32.25% was understory cover (Table 5-A). Trees and shrubs were the dominant lifeform of the understory species and comprised 61.57% of the cover, whereas, forbs and grasses comprised 25.33% and 13.11%, respectively (Table 5-B).

Woody species density measurements resulted in 2,256 individuals per acre (Table 6). The dominant woody species by density were bigtooth maple, mountain lover and Douglas fir.

<u>Threatened, Endangered & Sensitive Plants</u>

A threatened, endangered and sensitive plant survey was conducted at the GVH site. A small population of the sensitive plant species called canon sweetvetch (*Hedysarum occidentalis* var. *canone*) was located at the site and will likely be disturbed by the proposed construction activities.

DISCUSSION

Statistical analyses were employed to compare the cover and woody species density of the proposed disturbed GVH site in Bear Canyon with the reference area. The total living cover, or overstory and understory cover combined, was significantly greater in the area proposed for disturbance when compared to the Douglas Fir/Maple Reference Area (Figure 1). Interestingly, the woody species densities of the two areas were nearly identical; a Student's t-test analysis reflects this similarity by showing a t-value of -0.005 (Figure 2).

Because there was a significant difference in the cover values of the two areas, there are some options and considerations for establishment for standards of revegetation success for the GVH site in Bear Canyon. One idea is that the West Ridge Mine operator could have another reference area sampled later and compared to the GVH site. Next, representatives from DOGM and the West Ridge Mine could agree that the proposed reference area would be appropriate for final revegetation success standards, even though the cover value is less than that of the area proposed for disturbance.

The author of this report favors the later scenario. I believe the Douglas Fir/Maple Reference Area (1998) would be an appropriate area for revegetation success standards at the time of final reclamation for the following reasons.

1. Because the GVH site was quite small (0.24 acres), sample quadrats were placed relatively close to each other as compared to larger sample areas. This meant localized "patches" for the cover of plants were weighted higher in this sample area. When larger areas are sampled using random methods, distances between quadrats are greater, differences from these isolated patches are minimized, and variability between quadrats usually reflect a sample mean closer to the true mean for the entire plant community.

2. Several areas with this same plant community have been sampled previously in the West Ridge Mine area, all of which had cover values closer the Douglas Fir/Maple Reference Area (1998). A summary of these results have been provided in Table 7 below.

Table 7: A comparison of mean percent total living cover value in several Douglas Fir/Maple plant communities near the West Ridge Mine site.

	PERCENT TOTAL LIVING COVER
Proposed Disturbed Douglas Fir/Maple Community (1997)	55.50
Douglas Fir/Maple Reference Area (1997)	65.75
Douglas Fir/Maple Community "New" Reference Area (1998)	63.63
Proposed Disturbed Douglas Fir/Maple Community in Bear Canyon's Left Fork (2008)	69.75
Proposed Disturbed Douglas Fir/Maple Community for Bear Canyon GVH Site (2008)	82.25

SUMMARY

A small area has been chosen for construction of a gas vent or GVH site for the West Ridge Mine as a safety measure for underground mining conditions. Construction of this site will result in disturbance to a native plant community, a Douglas Fir/Maple community. A reference area to represent future revegetation success standards for this same plant community had already been established prior to any surface disturbance for construction of the mine facility (1997-98). This same reference area has been proposed to be used for the revegetation standard for the GVH site in Bear Canyon with final approval required by biologists from the State of Utah, Division of Oil, Gas & Mining.

SUMMARY TABLES
&
FIGURES

Table 1. West Ridge Mine: Proposed Disturbed Bear Canyon GVH Site. Total Cover, Standard Deviation and Frequency by Species (2008).

Douglas Fir / Maple Community	Mean Percent	Standard Deviation	Percent Frequency
OVERSTORY			
Acer grandidentatum	9.25	19.38	20.00
Juniperus scopulorum	4.50	13.59	10.00
Populus tremuloides	5.75	14.94	15.00
Pseudotsuga menziesii	16.75	22.38	40.00
UNDERSTORY			
TREES & SHRUBS			
Acer glabrum	0.75	2.38	10.00
Acer grandidentatum	10.50	16.35	40.00
Juniperus scopulorum	8.75	14.39	30.00
Pachistima myrsinites	4.50	8.79	30.00
Populus tremuloides	1.75	5.76	10.00
Pseudotsuga menziesii	10.50	13.31	45.00
Purshia tridentata	1.00	4.36	5.00
Symphoricarpos oreophilus	4.50	8.50	30.00
FORBS			
Apocynum canabinum	0.25	1.09	5.00
Fragaria vesca	0.25	1.09	5.00
Hedysarum occidentalis canone	0.75	3.27	5.00
Solidago sp.	1.50	4.77	10.00
GRASSES			
Bromus carinatus	1.00	2.55	15.00

Table 2. West Ridge Mine: Proposed Disturbed Bear Canyon GVH Site. Total Cover, Standard Deviation and Sample Size (2008).

Douglas Fir/ Maple Community			
	Mean Percent	Standard Deviation	Sample Size
A. TOTAL COVER			
Overstory (O)	36.25	19.74	20
Understory (U)	46.00	14.37	20
Litter	26.00	20.16	20
Bareground	10.25	7.98	20
Rock	17.75	13.65	20
O + U	82.25	16.69	20
B. % COMPOSITION			
% COMPOSITION			
Trees & Shrubs	91.74	14.20	20
Forbs	5.94	14.10	20
Grasses	2.32	5.53	20

Table 3. West Ridge Mine: Proposed Disturbed Bear Canyon GVH Site Woody Species Densities (2008).

Douglas Fir/ Maple Community	
Species	**Individuals Per Acre**
Acer glabrum	197.21
Acer grandidentatum	422.59
Cercocarpus montanus	28.17
Juniperus scopulorum	338.07
Pseudotsuga menziesii	760.66
Pachistima myrsinites	225.38
Populus tremuloides	28.17
Purshia tridentata	28.17
Ribes cereum	28.17
Rosa woodsii	28.17
Symphoricarpos oreophilus	169.03
Sambucus caerulea	
TOTAL	2253.80

Table 4. West Ridge Mine: Reference Area. Total Cover, Standard Deviation and Frequency by Species (1998).

Douglas Fir/ Maple Community Reference Area (New)			
	Mean Percent	Standard Deviation	Percent Frequency
OVERSTORY COVER			
Acer grandidentatum	15.88	21.30	50.00
Juniperus scopulorum	1.38	6.22	5.00
Pseudotsuga menziesii	14.13	20.67	45.00
UNDERSTORY COVER			
TREES & SHRUBS			
Acer grandidentatum	6.18	11.30	47.50
Juniperus scopulorum	1.30	2.90	20.00
Mahonia repens	3.33	5.82	40.00
Pachistima myrsinites	5.73	11.04	35.00
Pseudotsuga menziesii	1.95	6.19	6.00
Symphoricarpos oreophilus	1.43	3.35	20.00
FORBS			
Antennaria parvifolia	0.25	1.09	5.00
Artemisia dracunculus	0.88	3.33	10.00
Aster sp.	3.13	7.65	30.00
Circium sp.	0.13	0.78	2.50
Descurania pinnata	1.78	7.12	10.00
Erigeron engelmannii	0.25	1.09	5.00
Erysimum asperum	0.13	0.78	2.50
Fragaria vesca	0.38	1.73	5.00
Mitella stauropetala	0.05	0.31	2.50
Senecio pudicus	0.15	0.79	5.00
Smilacina racemosa	0.33	1.03	10.00
Stellaria jamesiana	0.03	0.16	2.50
Taraxicum officinale	0.13	0.78	2.50
Thalictrum fendleri	0.13	0.78	2.50
Viola adunca	0.13	0.78	2.50
GRASSES			
Bromus inermis	1.25	5.67	7.50
Poa fendleriana	2.90	4.15	45.00
Poa pratensis	0.38	1.73	5.00

Table 5. West Ridge Mine: Reference Area. Total Cover, Standard Deviation and Sample Size (1998).

Douglas Fir/ Maple Community Reference Area (New)	Mean Percent	Standard Deviation	Sample Size
A. TOTAL COVER			
Overstory Cover (O)	31.38	25.69	40
Understory Cover (U)	32.25	19.27	40
Cryptogams	0.25	1.09	40
Litter	18.20	12.80	40
Bareground	8.20	9.39	40
Rock	9.73	9.67	40
O+U	63.63	13.51	40
B. % COMPOSITION			
Trees & Shrubs	61.57	33.67	40
Forbs	25.33	29.49	40
Grasses	13.11	19.14	40

Table 6. West Ridge Mine: Reference Area. Woody Species Densities (1998).

Douglas Fir/ Maple Community Reference Area (New)	
Species	Individuals Per Acre
Acer grandidentatum	874.13
Cercocarpus ledifolius	28.20
Juniperus scopulorum	141.00
Juniperus osteosperma	14.10
Pseudotsuga menziesii	310.18
Pachistima myrsinites	549.86
Rosa woodsii	14.10
Symphoricarpos oreophilus	296.08
Sambucus caerulea	28.20
TOTAL	2255.83

Figure 1. A statistical comparison (Student's t-tests) of the **total living cover** between the proposed disturbed GVH site and the reference area.

	$\bar{x}$	s	n	t	df	SL
Bear Canyon GVH						
Proposed Disturbed:	82.25	16.69	20			
DF/M Reference Area:	63.63	13.51	40			
t-test				4.648	58	p<0.01

$\bar{x}$ = mean
s = standard deviation
n = sample size
t = Student's t-value
df = degrees of freedom
p = probability
SL= Significance Level
N.S.=Non-Significant
DF/M = Douglas Fir/Maple

Figure 2. A statistical comparison (Student's t-tests) of the **woody species density** between the proposed disturbed GVH site and the reference area.

	$\bar{x}$	s	n	t	df	SL
Bear Canyon GVH						
Proposed Disturbed:	2253.80	853.56				
DF/M Reference Area:		2255.83	1548.09			
t-test				-0.005	58	N.S.

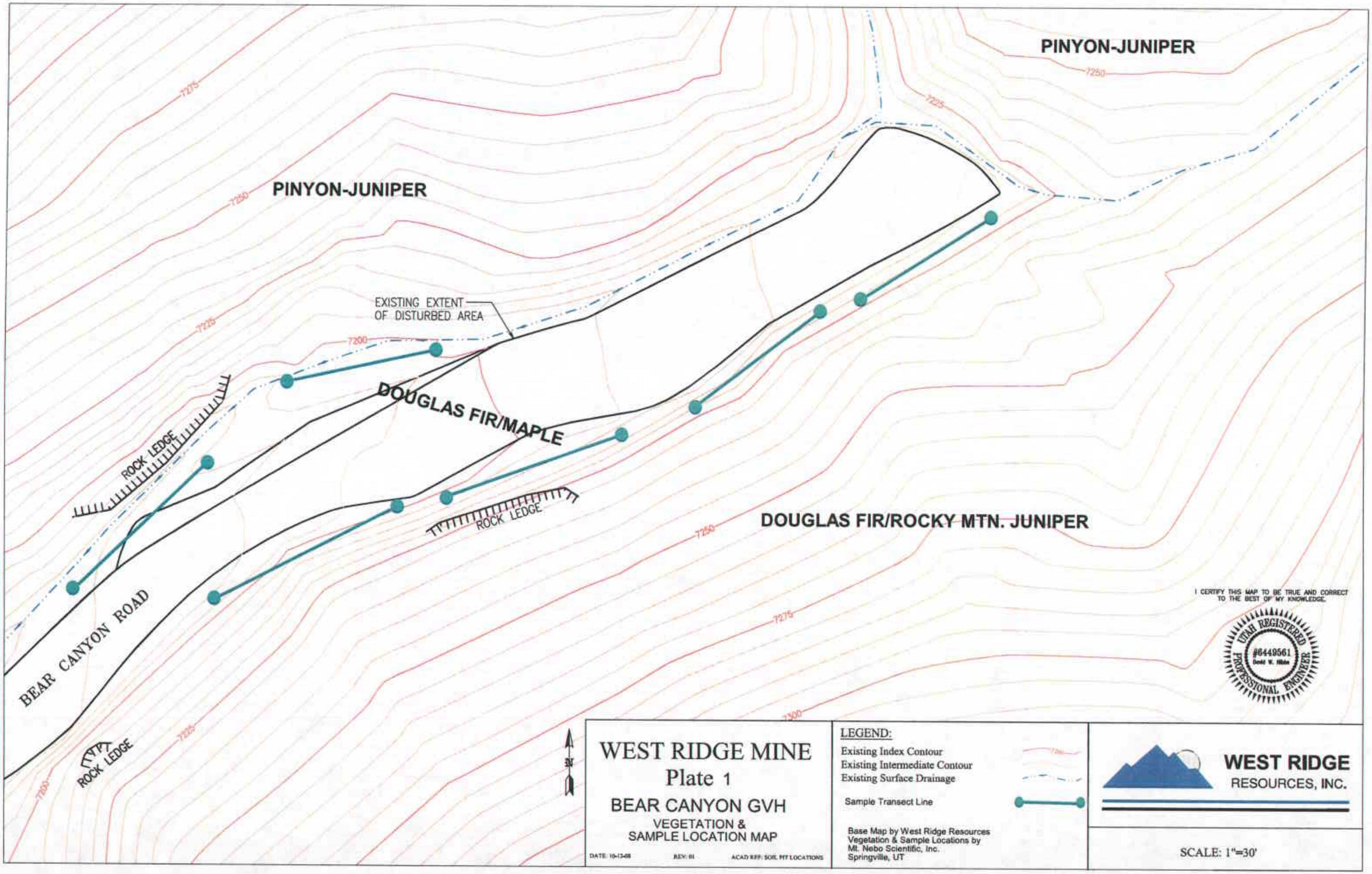
$\bar{x}$ = mean
s = standard deviation
n = sample size
t = Student's t-value
df = degrees of freedom
n/a = not applicable
p = probability
SL= Significance Level
N.S.=Non-Significant
DF/M = Douglas Fir/Maple

COLOR PHOTOGRAPHS
OF THE
SAMPLE AREAS

Bear Canyon GVH: Proposed Disturbed Douglas Fir/Maple Community

Douglas Fir/Maple Reference Area

VEGETATION &
SAMPLE LOCATION MAP


PINYON-JUNIPER
PINYON-JUNIPER
DOUGLAS FIR/MAPLE
DOUGLAS FIR/ROCKY MTN. JUNIPER
EXISTING EXTENT OF DISTURBED AREA
ROCK LEDGE
ROCK LEDGE
ROCK LEDGE
BEAR CANYON ROAD
7275
7250
7225
7200
7250
7225
7250
7275
7300
7225
7200
I CERTIFY THIS MAP TO BE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.
UTAH REGISTERED PROFESSIONAL ENGINEER
#6449561
WEST RIDGE MINE
Plate 1
BEAR CANYON GVH
VEGETATION & SAMPLE LOCATION MAP
ACAD REF: SOIL PIT LOCATIONS
LEGEND:
Existing Index Contour
Existing Intermediate Contour
Existing Surface Drainage
Sample Transect Line
Base Map by West Ridge Resources
Vegetation & Sample Locations by
Mt. Nebo Scientific, Inc.
Springville, UT
WEST RIDGE
RESOURCES, INC.
SCALE: 1"=30'

ATTACHMENT 5

2008 RAPTOR SURVEY
DWR

CONFIDENTIAL INFORMATION

(See Confidential Binder)

ATTACHMENT 6

CULTURAL RESOURCES SURVEYS
GVH SITE AND TOPSOIL STORAGE AREA
SENCO-PHENIX ARCHEOLOGICAL

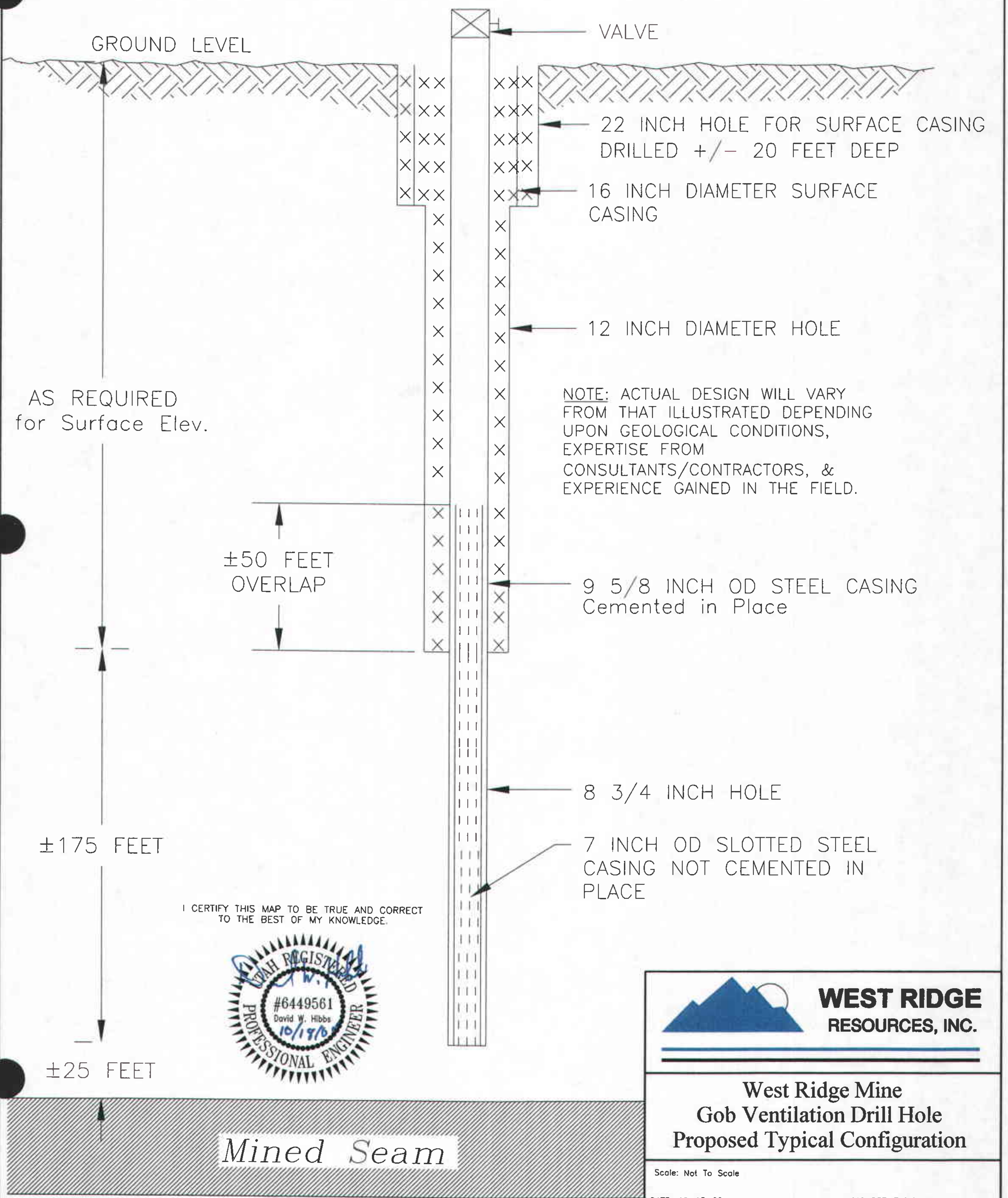
CONFIDENTIAL INFORMATION

(See Confidential Binder)

ATTACHMENT 7

GVH OPERATIONAL DRAWINGS

TYPICAL GVH DRILL HOLE DESIGN



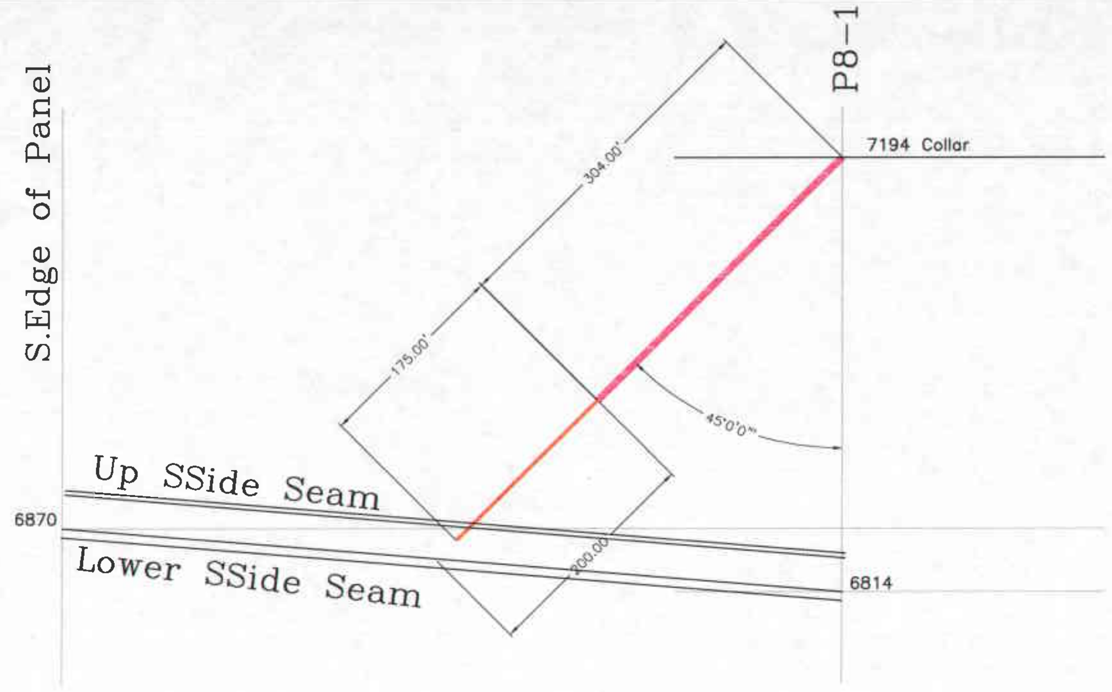
WEST RIDGE RESOURCES, INC.

West Ridge Mine
Gob Ventilation Drill Hole
Proposed Typical Configuration

Scale: Not To Scale

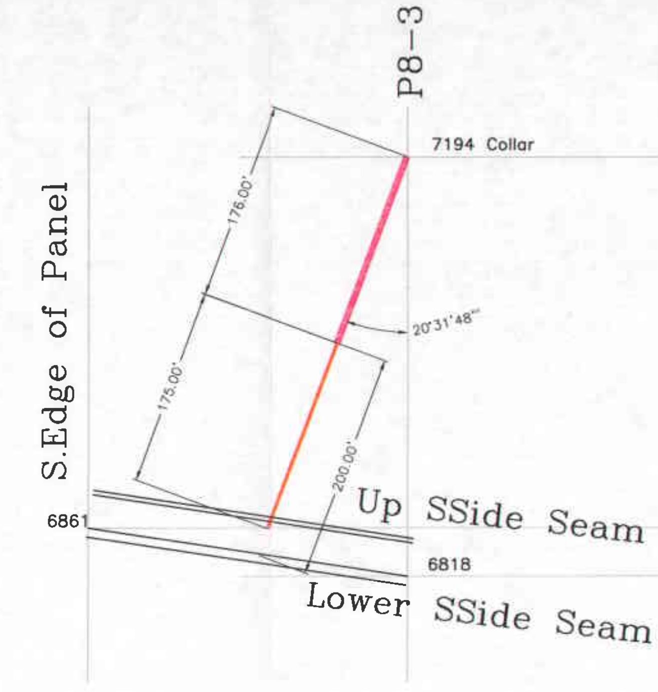
DATE: 10-15-08

ACAD REF: TYPICAL GVH

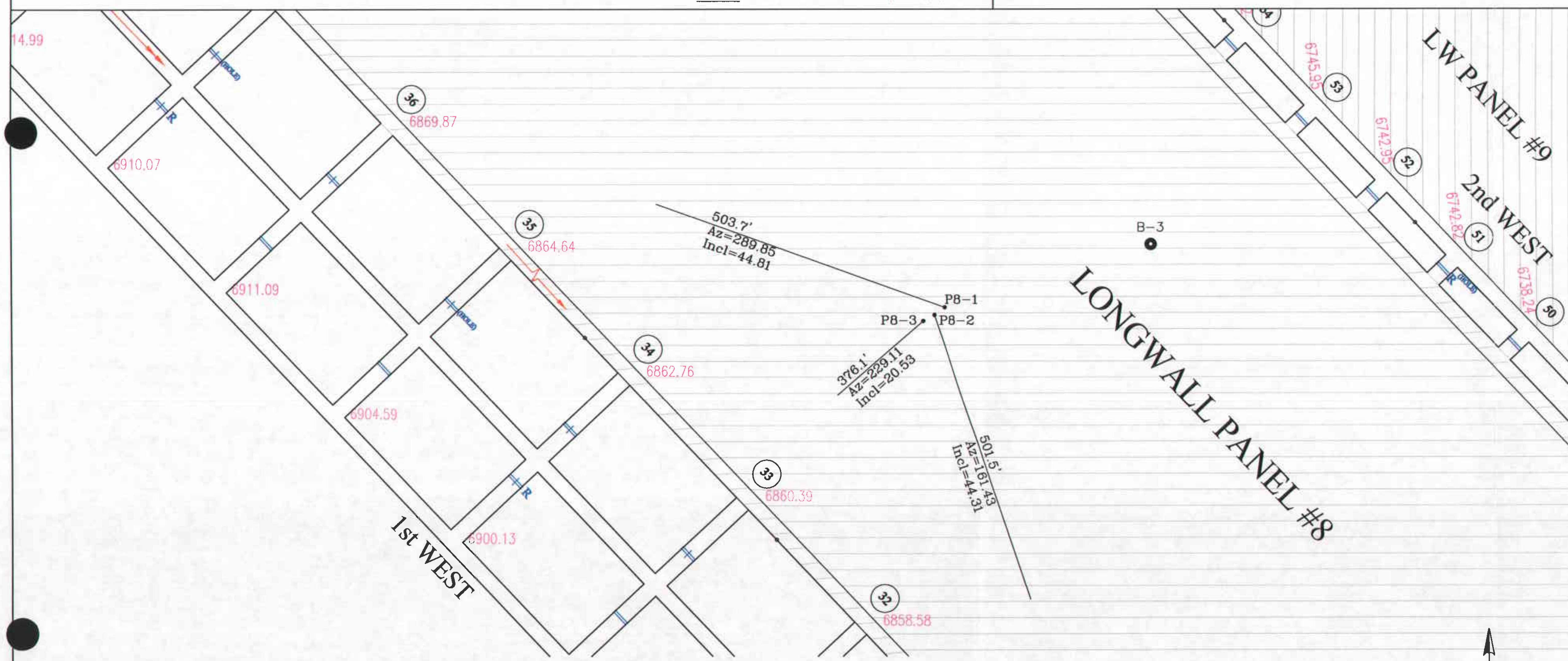


BOREHOLE P8-1

NOTE: BOREHOLE P8-2 IS SIMILAR.



BOREHOLE P8-3



BOREHOLE / PARTIAL MINE PLAN

I CERTIFY THIS MAP TO BE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.

UTAH REGISTERED PROFESSIONAL ENGINEER #6449561 David W. Hibbs

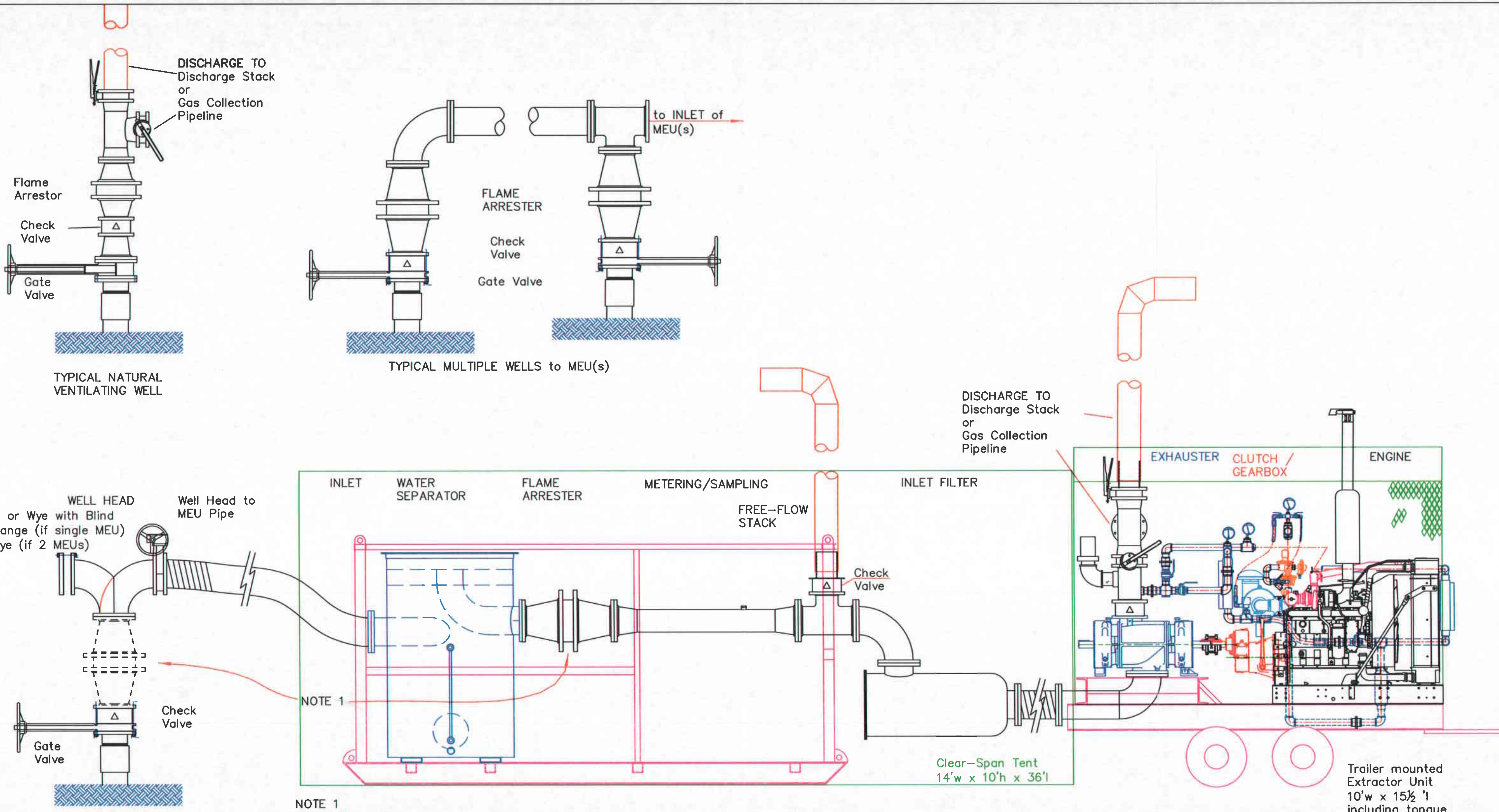
WEST RIDGE RESOURCES, INC.

SCALE: 1"=30'

WEST RIDGE MINE

Bear Canyon GVH Borehole Plan and Details

DATE: 10-15-08 REV: 01 ACAD REF: GVH P-8-3



NOTE 1
For single well connected to single/multiple MEUs, Flame Arrester may be located on well or MEUs

I CERTIFY THIS MAP TO BE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.

UTAH REGISTERED PROFESSIONAL ENGINEER #6449561 David W. Hibbs 10/15/08

WEST RIDGE RESOURCES, INC.

SCALE: NONE

WEST RIDGE MINE

Gob Gas Vent Hole Methane Extractor Unit

DATE: 10-15-08 REV: 01 ACAD REF: GVH Piping

ATTACHMENT 8

SLOPE STABILITY ANALYSIS
BLACKHAWK ENGINEERING

STABILITY ANALYSIS
FOR
BEAR CANYON GVH DRILLING

CUT SLOPE RECLAMATION
WEST RIDGE MINE

PREPARED BY: **DAN W. GUY, P.E.**
BLACKHAWK ENGINEERING, INC.
OCTOBER 2008

UTAH REGISTERED PROFESSIONAL ENGINEER
#154168
DAN W. GUY
10/15/08

Introduction:

This report is an evaluation of the expected factors of safety based on the proposed cut slope reclamation on the Bear Canyon GVH Drill Pad. The reclaimed section was evaluated at a slope of 1.5H:1V and the expected slope height of 23' to ensure a minimum factor of safety of 1.30 could be achieved. An additional calculation was run on a slope height of 30' to allow for any variance in actual cut slope heights.

Procedure:

Soil characteristics for the reclaimed area have been estimated based on similar soils which have been sampled and analyzed for stability at the West Ridge Mine. The parameters were taken directly from Appendix 5-9, "Alternate Highwall Area Reclamation Using a Smaller Verical Angle Slope", West Ridge Mine.

Both sites are in the Blackhawk Formation with very similar characteristics.

Calculations:

Stability calculations were performed using the Hoek Method from Rock Slope Engineering. Under this method, stability projections can be made using soil characteristics such as density, cohesion and internal friction angle, as well as proposed slope height. This information can then be plotted on the provided circular failure charts to determine factors of safety for both Dry and Saturated Conditions.

The Hoeck Method for stability analyses was selected for the following reasons:

This method provides for a "worst-case" scenario by using a circular failure prediction based on the total height of the slope.

The proposed reclaimed slopes are comparable to other reclaimed slopes in this area that have been designed, approved and successfully reclaimed based on the Hoeck Method of stability analyses.

As mentioned above, the density, cohesion and internal friction angle of the proposed backfill material were taken from West Ridge Mine soil samples taken in similar conditions.

Slope heights and angles were taken from the cross-sections included in this submittal. These numbers were then applied to the equations on the Circular Failure Charts No. 1 and No. 5 to determine the Static Safety Factor for Dry and Saturated Conditions, respectively (Figures 1 and 2). It should be noted that the cut slope height of 23' and reclaimed slope angle of 1.5H:1V (33.69°) represent the probable "worst-case" scenario of the cut slope reclamation. This is shown on the attached Figure 3, "Cut Slope Reclamation – Typical Section". A calculation was also run on a cut slope height of 30' in case the height may vary slightly.

Based on the proposed soil characteristics and slope angles, a factor of safety of <u>2.83</u> for saturated conditions and <u>3.60</u> for dry conditions can be achieved for the proposed slopes of 1.5H:1V (33.69°) up to <u>23'</u> in height. A factor of safety of <u>2.40</u> for saturated conditions and <u>3.17</u> for dry conditions can be achieved for the same slope at a height of <u>30'.</u>

<u>Summary:</u>

Calculations show safety factors well in excess of the required 1.30 can be achieved for reclaimed cut slopes of 1.5H:1V (33.69°) and up to 30' in height. This is not inconsistent with the natural conditions of the area, and will allow for complete reclamation of all cut slopes created by the emergency drilling pads.

TABLE 1
CALCULATION SUMMARY

			Proposed
Slope Height (H)	-	23'	30'
Slope Angle	-	33.69° (1.5H:1V)	33.69° (1.5H:1V)
Safety Factor (Dry)	-	3.60	3.17
Safety Factor (Saturated)	-	2.83	2.40

*Density (γ)	=	121.6 pcf
*Cohesion (c)	=	771.7 psf
*Internal Friction Angle (φ)	=	38.4°

*Taken from Appendix 5-9, "Alternate Highwall Area Reclamation Using a Smaller Vertical Angle slope", West Ridge Mine.

FIGURES

C=Cohesion–psf

Y=Density–pcf

H=Slope Height–ft.

ϕ=Internal Friction Angle

(DRYCONDITIONS)

CIRCULAR FAILURE CHART NUMBER 1

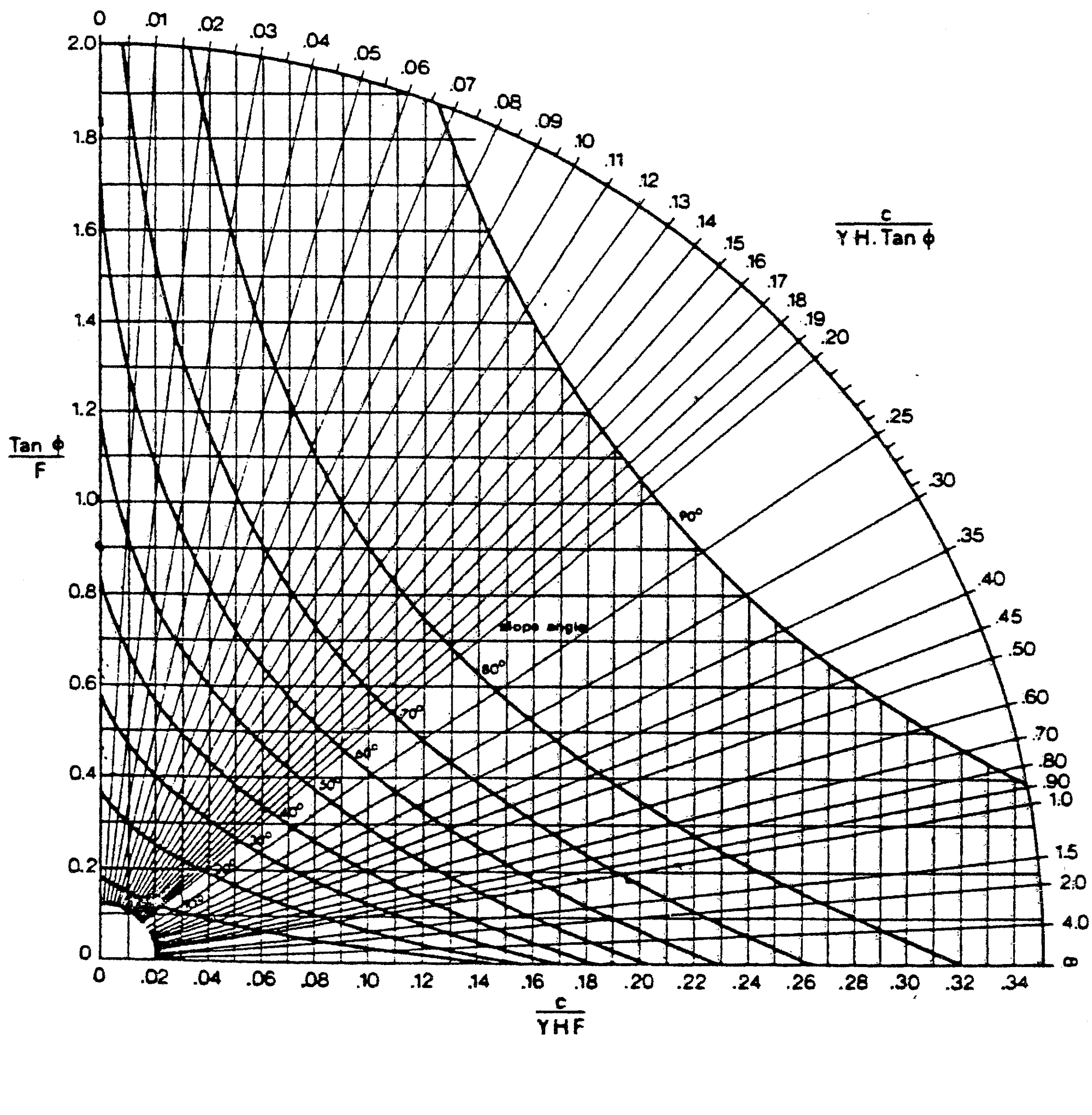


Figure 1

C=Cohesion–psf

Y=Density–pcf

H=Slope Height–ft.

ϕ=Internal Friction Angle

(SATURATED CONDITIONS)

CIRCULAR FAILURE CHART NUMBER 5

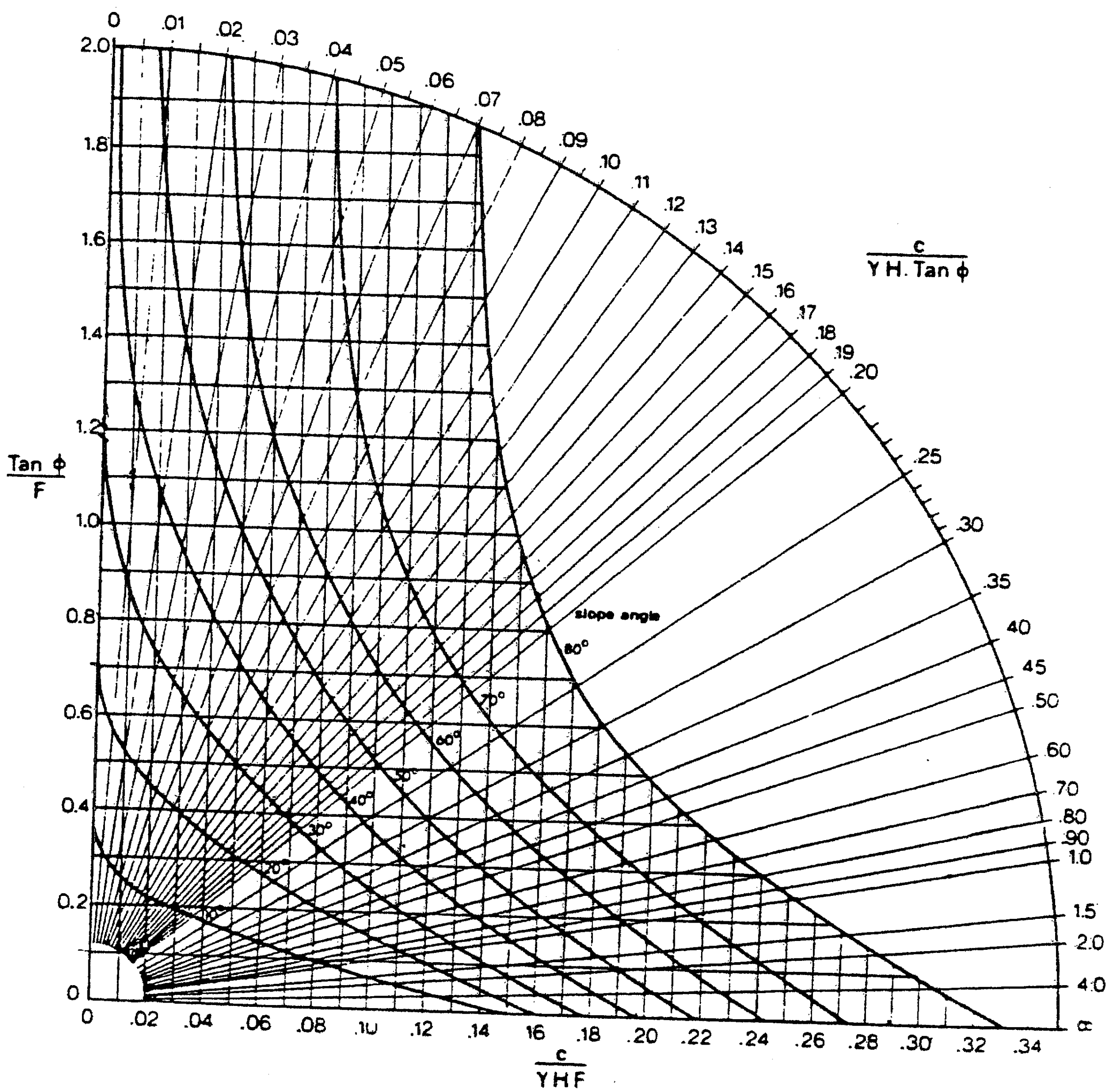
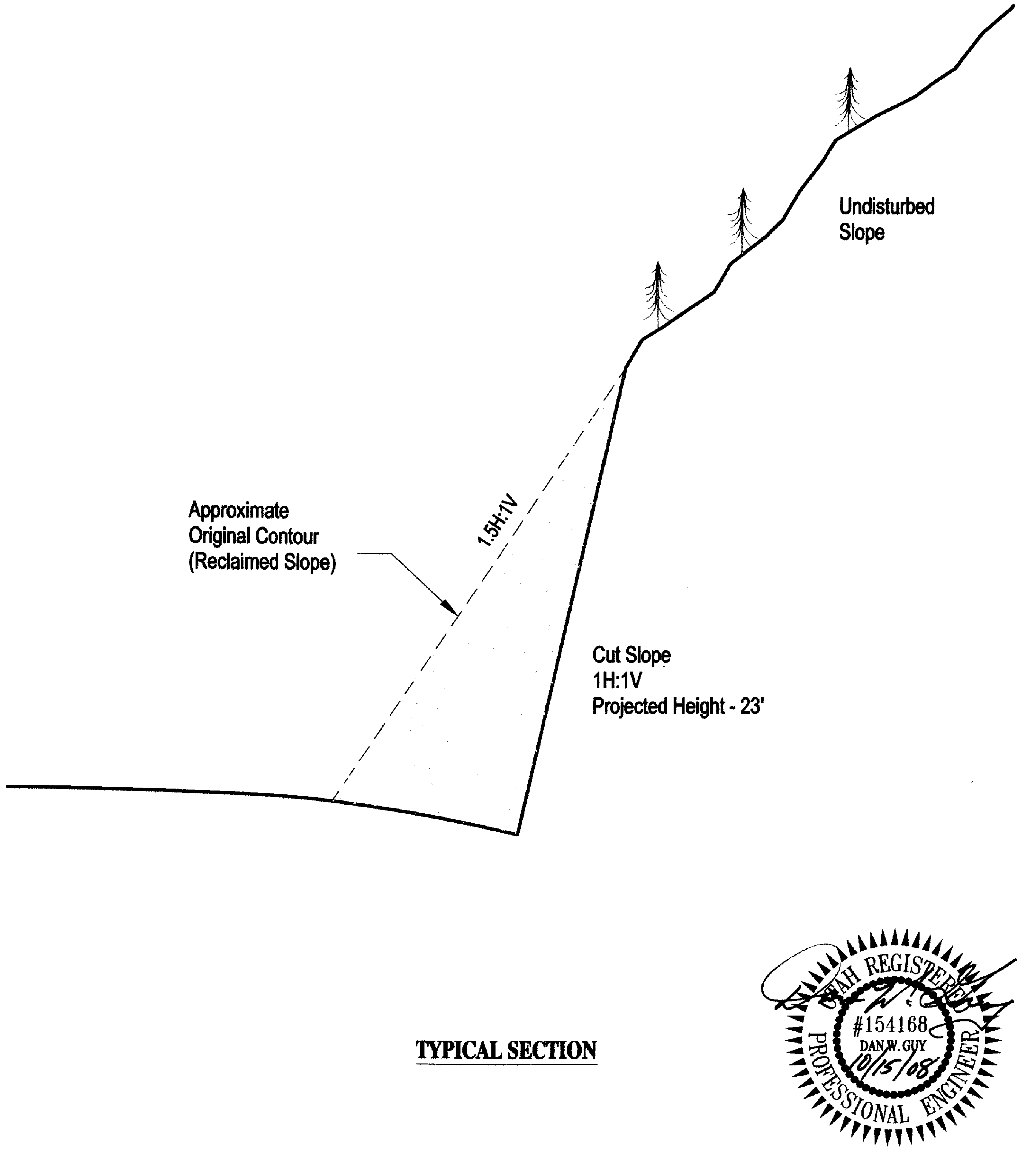


Figure 2



TYPICAL SECTION

BEAR CANYON HYDROLOGY
WEST RIDGE MINE
CUT SLOPE RECLAMATION
FIGURE 3

BLACKHAWK ENGINEERING, INC.

ATTACHMENT 9

SITLA CORRESPONDENCE

Shaver, Dave

From:	John Blake [jblake@utah.gov]
Sent:	Wednesday, October 15, 2008 8:42 AM
To:	Shaver, Dave
Cc:	Daron Haddock; Tom Faddies
Subject:	Re: West Ridge Mine, GVH installlation, ML 49287

Dear Mr. Shaver,

The Trust Lands Administration received fee simple title to the lands described below in your E-mail through the 1998 Utah Schools and Federal Land Exchange Act, P.L. 105-335. Andalex Resources, Inc. and Intermountain Power Agency obtained coal lease ML 49287 covering the subject lands on April 1, 2004. West Ridge Resources is the operator of the leasehold estate.

Section 8.1 of the lease agreement provides that the Lessee may use the surface estate to the extent reasonably necessary for the economic operation of the leasehold. Your request to construct a GVH and stockpile area as described below in your E-mail appear to meet that criteria and are hereby granted approval to proceed by the Lessor. This approval applies only to the specific operations described below in Sections 3 and 10, T14S, R13E, SLB&M. Any other permits, access, rights of way or operations upon or across any other lands as may be necessary to achieve such operations shall be the sole responsibility of the Lessee.

I note that the lands within ML 49287 are not presently under lease for oil and gas. Andalex Resources, Inc. is hereby given approval from the Trust Lands Administration to vent non-economic quantities of methane gas from the leasehold estate pursuant to the proposed operations in an environmentally sound and safe manner. In the event that venting of the methane gas becomes economical then Andalex Resources, Inc. must obtain oil & gas rights and pay royalties the Trust Lands Administration upon such gas production. Non-economical venting of the gases, however, does not require the payment of royalties.

Thank you for your notification.

John T. Blake
Trust Lands Administration.

>>> "Shaver, Dave" <dshaver@coalsource.com> 10/14/2008 5:37 PM >>>
Dear Mr. Blake

As you are aware, West Ridge Resources is pursuing plans to permit and construct a gob gas vent hole (GVH) installation in the Right Fork of Bear Canyon over the worked out longwall cave area of the West Ridge Mine. This installation is required by MSHA as a safety concern for the underground workforce, due to the high rate of methane liberation from the longwall panel. Toward this end we are presently engaged in an emergency permitting submittal with DOGM for this installation. The purpose of this email is to obtain SITLA concurrence for our proposal.
The GVH installation is to be located on SITLA coal lease ML 49287 in NW1/4NE1/4SW1/4SE1/4 of Section 3, T14S, R13E. It will occupy an area of about 0.25 acres in a narrow strip immediately adjacent to the Bear Canyon Road. Associated with the installation will be a topsoil storage area, also located on ML 49287, in NW1/4SE1/4NW1/4NW1/4 of Section 10, T14S, R13E. It will occupy an area of about 0.1 acres. It also will be located immediately adjacent to the Bear Canyon Road. As you know, the Bear Canyon Road is an existing public road. Attached is a map showing the location of the proposed facilities. Please note that the affected surface area is owned by SITLA. We request your concurrence with this proposal in terms of lease surface activities, and in terms of mine-related facilities located within 100' of a public road. Please note that the methane gas will be vented to atmosphere, and we make no claims to associated gas rights. Our only purpose is to liberate the methane from the underground works for safety sake, as mandated by MSHA.
Also be advised that the GVH installation, and topsoil storage, will be permitted, constructed, operated, bonded and reclaimed under a SMCRA permit amendment to be approved

and issued by DOGM. Please call me if you have questions or comments. Your expedient review of this request is appreciated.

Dave Shaver
Project Engineer, Agent
West Ridge Resources, Inc.
435-888-4017

State of Utah
School & Institutional
Trust Lands Administration

Jon M.Huntsman, Jr.
Governor

Kevin S. Carter
Director

675 East 500 South, Suite 500
Salt Lake City, UT 84102-2818
801-538-5100
801-355-0922 (Fax)
www.trustlands.com

Wednesday, October 22, 2008

Dave Shaver, Project Engineer/Agent
West Ridge Resources, Inc.
P.O. Box 910
East Carbon, Utah 84520-0910

RE: Bear Canyon Road Status, West Ridge Mine C0070041, lease ML 49827

Dear Mr. Shaver:

In response to your request regarding the status of the Bear Canyon road and upgrades to that road from the intersection of the C Canyon road up to the site proposed for the gob vent hole installation in the Right Fork of Bear Canyon.

Federal right-of-way U 01756 was issued on 9/3/1951 as a tramroad and was constructed and used in the 1950's for oil & gas and coal lease activities. See attached BLM Plat. SITLA is the surface owner and maintains jurisdiction over portions of that road which are on Trust Lands including portions of T 14S R13 E Sections 3, 10, and 16. SITLA maintains this public road for multiple land use including oil and gas leasing, coal and other minerals, industrial use and grazing.

SITLA approved the upgrading of the Bear Canyon road by West Ridge on September 17, 2008 in anticipation of the construction of a gob vent hole installation on Section 3, immediately adjacent to the existing road. SITLA maintains jurisdiction over the use, maintenance and upgrading of this road on Trust Lands. Such activities within this existing public road are not considered by SITLA to be surface coal mining activities subject to permitting by DOGM.

Any upgrades to the road or maintenance performed on the road will remain under the jurisdiction of SITLA regardless of the duration or use by West Ridge. The existing road will remain in place and under SITLA's jurisdiction to support other land use activities even following the use and eventual reclamation of the gob vent hole installation.

SITLA concurs that the gob vent hole installation facility is a coal mine related surface activity and should be under DOGM permit requirements. The existing road however will remain as a public use road where it exists on Trust Lands.

Please let us know if you have any other questions or concerns regarding use of the Bear Canyon road or construction of the gob gas vent hole installation.

Sincerely,

/S/

J. Randall Harden
Minerals Resource Specialist

CC: Tom Faddies, John Blake, Daron Haddock (DOGM)

ATTACHMENT 10

HYDROLOGY REPORT
PETERSEN HYDROLOGIC

PH

PETERSEN HYDROLOGIC, LLC

15 October 2008

Mr. Dave Shaver
West Ridge Resources, Inc.
P.O. Box 902
Price, Utah 84501

Dave,

At your request, we have evaluated the probable hydrologic consequences relating to the proposed installation and operation of the West Ridge Panel 8 gob gas vent holes (GVH) in Bear Canyon. We are providing this letter report to present the findings of a hydrogeologic investigation we have performed in this regard and to describe the probable hydrologic consequences of the GVH drilling and operational activities.

This report includes the following sections:

- Methods of Study
- Physical setting
- Geologic Setting
- Hydrologic Conditions
- Probable Hydrologic Consequences
- References Cited

Methods of Study

On 7 October 2008 we made a site visit to the GVH drilling site in the right fork of Bear Canyon. During this visit we examined the Bear Canyon surface-water systems adjacent to the GVH drilling site. The stream channel characteristics and the shallow alluvial and colluvial sediments in the canyon were observed. The geologic and hydrogeologic conditions at the drilling site and adjacent areas were observed and photographed.

Information regarding proposed GVH drilling plans and pertinent hydrogeologic reports and maps were obtained and reviewed as part of this investigation.

Physical Setting

The GVH area is situated in the right fork of Bear Canyon in the southwest quarter of the southeast quarter of Section 3, Township 14 South, Range 13 East, in Carbon County, Utah. The Bear Canyon GVH area overlies the previously mined Panel 8 longwall panel at the West Ridge Mine and is designed to vent gasses from the longwall gob area in the underground coal mine workings for mine safety purposes. The venting of the gas will occur through drill holes advanced from the land surface in Bear Canyon to the underlying mine gob area. The underground mine workings are separated from the overlying land surface in Bear Canyon by approximately 380 feet of overburden (Personal communication, Dave Shaver, 2008). Current plans call for the installation of three drillholes at the GVH site. Based on current plans the holes will be drilled at 45 degree angles into the mine, and will have individual depths (lengths) of 504, 376, and 502 feet.

Geologic Setting

The land surface in Bear Canyon at the GVH site is underlain by sandstone bedrock of the Cretaceous Castlegate Sandstone formation. In some areas, the bedrock is directly exposed at the land surface, while in other areas relatively thin deposits of alluvium, colluvium, and soil are present.

The stream channel substrate in the right fork of Bear Canyon Creek near the GVH exists either directly on Castlegate Sandstone bedrock or on thin deposits of alluvium overlying the sandstone bedrock.

The rock strata comprising the overburden between the Panel 8 mine workings and the land surface in Bear Canyon near the GVH consists of rocks of the Castlegate Sandstone and the Cretaceous Blackhawk Formation. The Castlegate Sandstone consists predominantly of lenticular fluvial sandstones interbedded with minor siltstone or claystone layers. The Blackhawk Formation in the region consists of interbedded sandstones, siltstones, claystones and coal deposits. The bedrock strata locally dip at approximately three to eight degrees to the northeast. Major faulting has not been observed in the GVH area (Mayo and Associates, 1997).

Hydrologic Conditions

Groundwater and surface-water systems in the West Ridge Mine permit and adjacent area have previously been characterized by Mayo and Associates (1997). During the 7 October 2008 site visit to the GVH area, no springs or seeps were observed. Wetness in the near-surface unconsolidated sediments in the vicinity of the GVH was likewise not observed, which suggests a lack of appreciable groundwater baseflow discharge locally. Because the GVH location is near the up-dip ends of the Castlegate and Blackhawk geologic formations (which have been truncated by the erosional Book Cliffs escarpment), regional, long-flowpath type groundwater systems are likely not present in the area.

In previous spring and seep surveys in the area, no springs or seeps were identified in either the Castlegate Sandstone or the Blackhawk Formation in the vicinity of the GVH drill sites (Mayo and Associates, 1997). It should be noted that two seeps discharging at less than 1 gallon per minute each were previously identified in the two upper forks of the right fork of Bear Canyon Creek above the GVH area (S-27 and S-28; Mayo and Associates, 1997). However, these seeps discharge from the Price River Formation topographically and stratigraphically above the drilling area and thus are not of concern in this investigation.

The right fork of Bear Canyon Creek appears to be an ephemeral drainage (Mayo and Associates, 1997). No discharge was present in the drainage during the 7 October 2008 site visit. The complete absence of flow in the creek in areas where the stream channel sits directly on clean bedrock surfaces demonstrates that there is at present no appreciable alluvial groundwater system associated with Bear Canyon Creek in the vicinity of the GVH area.

Probable Hydrologic Consequences

Adverse impacts to the hydrologic balance resulting from the installation and operation of the Bear Canyon GVH system are not anticipated. The basis for this conclusion is summarized below.

The gob vent holes will be constructed in a manner that minimizes the potential for adverse impacts to groundwater and surface-water resources and the hydrologic balance in the area. The proposed construction designs for the GVH holes include a nominal 20 foot length of 16-inch non-perforated steel surface casing that will be cemented in place. The surface casings will isolate the wells from surface-water, soil moisture, and any shallow groundwater potentially present in the upper 20 feet and will prevent shallow water from entering the GVH wells. From approximately 20 to 200 feet below the surface, the proposed well construction plans call for the placement of 9.625-inch non-perforated steel casing that will be cemented into place. The cemented steel well casing will isolate groundwaters that may be present in bedrock groundwater systems in the upper 200 feet from the GVH wells and prevent the inflow of groundwater into the wells.

Proposed construction plans call for the lower approximately 150 feet of the GVH wells to be cased with 8.75-inch slotted steel casing that will be left open to the rock strata and will not be cemented. The purpose of the slotted steel casing is to allow the drainage of gob gasses into the well bore in the fractured rock strata overlying the Panel 8 gob. While there is the potential for drainage of some Blackhawk Formation groundwater into the GVH holes in the 150 feet interval overlying the longwall gob, the potential for appreciable or sustained groundwater drainage through these wells is minimal. This is because 1) groundwater systems in the Blackhawk Formation occur in hydraulically isolated groundwater partitions that are not in hydraulic communication with adjacent groundwater partitions, which limits the amount of groundwater that could potentially be drained, 2) the GVH holes are situated near the up-dip ends (outcrop locations) of the Castlegate Sandstone and Blackhawk Formation which limits groundwater recharge potential and the potential for the interception of regional groundwater systems, and 3) the 150-foot interval of the Blackhawk Formation overlying the gob area was likely intensely fractured as a result of the longwall mining prior to the construction of the wells which would likely have drained the groundwater partitions immediately overlying the gob area at the time of mining. For these reasons, the potential for drainage of appreciable groundwater or surface-water resources through the GVH drill holes is considered low.

The potential for detrimental impacts to the ephemeral Bear Canyon Creek drainage or any associated alluvial groundwater systems is considered remote. As discussed above, appreciable baseflow alluvial groundwater systems were not identified near the GVH location during the 7 October 2008 visit. Additionally, because the GVH well bores will be hydraulically isolated from the upper approximately 200 feet, the potential for impacts to water quality in the drainage are unlikely The implementation of appropriate sediment control management practices will minimize the potential for increased sediment yield from the GVH site during the construction and operational phases of the GVH system.

Prior to final reclamation, all drillholes will be plugged and sealed in accordance with State and Federal regulations. The casings will be plugged at the bottom to hold the concrete. A lean concrete mixture will be poured into the casing until the concrete is within five feet of the surface. At that time the casing will be cut off at ground level and the rest of the casing will be filled with lean concrete. The concrete will be allowed to harden before final reclamation is completed. In this manner, the potential for any long-term impacts to the hydrologic balance resulting from the GVH system will be minimized.

References Cited

Mayo and Associates, 1997, Investigation of surface-water and groundwater systems in the West Ridge Area, Carbon County, Utah: unpublished consulting report, 80 p.

Please feel free to contact me should you have any questions in this regard.

Sincerely,

Erik C. Petersen, P.G.
Principal Hydrogeologist
Utah PG #5373615-2250

ATTACHMENT 11

DRAINAGE CONTROL PLAN
BLACKHAWK ENGINEERING

DRAINAGE CONTROL PLAN
FOR
GOB GAS VENT HOLE SITE

BEAR CANYON
WEST RIDGE MINE

PREPARED BY: **DAN W. GUY, P.E.**
BLACKHAWK ENGINEERING, INC.
OCTOBER 2008

UTAH REGISTERED PROFESSIONAL ENGINEER
#154168
DAN W. GUY
10/20/08

DRAINAGE CONTROL PLAN
GOB GAS VENT HOLE SITE

I. Introduction

This report will provide the drainage control plan and calculations for the proposed gob gas vent hole site in Bear Canyon, above the East Ridge Mine. The parameters used in the calculations (i.e. rainfall, runoff curve number, etc.) were taken directly from Appendix 7-4, "West Ridge Mine Sedimentation and Drainage Control Plan (As Constructed)". Drainage area and slopes were measured directly from the maps provided with the proposal.

General Plan

The proposed drill pad and blower location is a very small area located just south of the existing public road in Bear Canyon. The new disturbance is proposed to be approximately 0.246 acres. Due to the extremely small surface area and limited space for a sediment pond, this site will be treated as an Alternate Sediment Control Area (ASCA). The majority of the natural runoff above the site is diverted around and north of the turnaround and road through an existing ditch. This report will discuss only the drainage that will actually be affected by the new construction.

It is proposed to first remove the topsoil from the proposed disturbed area and store it in a protected location elsewhere in the canyon. The proposed drill pad and blower location site will then be constructed. Due to the narrow canyon, the pad areas will be created by cutting into the existing hillside, creating a small cut slope along the south side of the pad. Runoff from above and on the pad areas will be collected in an adequately sized cut ditch at the toe of the cut slope. The pad and existing road will also be sloped toward this ditch. All runoff from the pad and road area will then flow into the ditch, through a series of excelsior logs place at 50' intervals as energy dissipaters, through a final set of 4 closely-spaced excelsior logs for sediment control and then into the natural channel below the site. The entire drainage ditch will be rip-rapped for added protection. The average slope of the drainage ditch is approximately 8.11%; however, the slope does steepen at the lower end of the pad to approximately 11.17%. Rip-rap sizing is based on the expected flow velocities in this steepest, worst-case section of the ditch. Rip-rap sizing is based on the Rip-Rap Chart, Figure 2 in Appendix 7-4 of the West Ridge MRP. The cut slopes will be pocked and reseeded and covered with woodstraw, and the pad and road areas will be graveled. This will further enhance the erosion protection on the site.

Calculations

Runoff calculations and ditch sizing were calculated using the computer program "Office of Surface Mining Watershed Model", Storm Version 6.20 by Gary E. McIntosh. Runoff curve numbers and rip-rap sizing were taken from Appendix 7-4. Drainage areas and slopes were measured directly from the enclosed maps. All calculations are based on the 10 year-24 hour precipitation event for this area.

The following are the specific parameters used for the runoff calculations at this site:

10 year-24 hour precipitation	=	2.00"
Runoff Curve Number (Undisturbed)	=	64
Runoff Curve Number (Disturbed)	=	90
Undisturbed Runoff Area	=	2.790 ac.
Undisturbed Runoff Slope	=	60.45%
Existing Road Area	=	0.305 ac.
New Disturbed Area	=	0.246 ac.
Disturbed Runoff Slope	=	8.11%
Manning's n for Ditch	=	0.035
Average Ditch Slope	=	8.11%
Maximum Ditch Slope	=	11.17%

Peak flows were calculated for the undisturbed slope drainage to the pad area and for the pad and road area. These flows were added together for a total peak flow to be routed through the ditch. Calculations are included in Attachment A of this report.

The following are the results of the calculations:

Peak Flow - Undisturbed	=	0.06 cfs
Peak Flow - Disturbed	=	0.53 cfs
Peak Flow - Total	=	0.59 cfs
Average Ditch Flow Depth	=	0.42 ft.
Average Ditch Flow Velocity	=	3.39 fps
Maximum Ditch Flow Depth	=	0.39 ft.
Maximum Ditch Flow Velocity	=	3.82 fps

Proposed Construction

Based on the calculated peak flow runoff for this site, the following proposed hydrologic controls will provide adequate protection:

1. **Ditch Size - Triangular/Minimum 12" depth**
2. **Rip-Rap Size – 3" D_{50}/Minimum 6" Depth**
3. **Velocity Control – Excelsior Logs – 50' spacing along Ditch**
4. **Sediment Control - Excelsior Logs - 4 Rows Minimum 5' apart**

It is proposed to construct a triangular shaped ditch with maximum average of 1:1 slopes and minimum depth of 12" along the base of the cut slope along the entire length of the disturbed area. The entire ditch will be armored with 3" Minimum D50 rip-rap. Excelsior logs will also be placed at 50' intervals along the ditch as energy dissipaters. The lower end of the ditch will pass through a series of at least 4 rows of excelsior logs for velocity and sediment control, and then to the natural channel below the site. Excelsior logs will be installed per manufactures recommendations.

Conclusion:

Due to the small size of the site and installation of the proposed sediment and erosion controls, there should be no adverse effects to the surface hydrology of this area.

ATTACHMENT A

HYDROLOGY CALCULATIONS

```
Project Title              = WEST RIDGE GVH UNDIST 10/24
WATERSHED HYDROGRAPH
     Inflow into structure #  1
     Structure type:          Null

-- Watershed data for watershed # 1
    Curve number                =    64.0
    Area                        =     2.8 acres
    Hydraulic length            =  670.00 Feet
    Elevation change            =   405.0 feet.
    Concentration time          =    0.09 hours
    Concentration time type     = SCS Upland Curves
    Unit hydrograph type        = Forested

-- Total Area               =      2.8 acres

-- Storm data
    Total precipitation     =     2.0 inches
    Storm type              = SCS Type 2 storm, 24 hour storm
    Peak Discharge          =    0.06 cfs
    Discharge volume        =    0.03 acre ft
```

```
Project Title              = WEST RIDGE GVH DIST 10/24
WATERSHED HYDROGRAPH
     Inflow into structure #  1
     Structure type:          Null

-- Watershed data for watershed # 1
    Curve number                =     90.0
    Area                        =      0.6 acres
    Hydraulic length            =   370.00 Feet
    Elevation change            =     30.0 feet.
    Concentration time          =     0.04 hours
    Concentration time type     = SCS Upland Curves
    Unit hydrograph type        = Disturbed

-- Total Area               =      0.6 acres

-- Storm data
    Total precipitation     =      2.0 inches
    Storm type              = SCS Type 2 storm, 24 hour storm
    Peak Discharge          =     0.53 cfs
    Discharge volume        =     0.05 acre ft
```

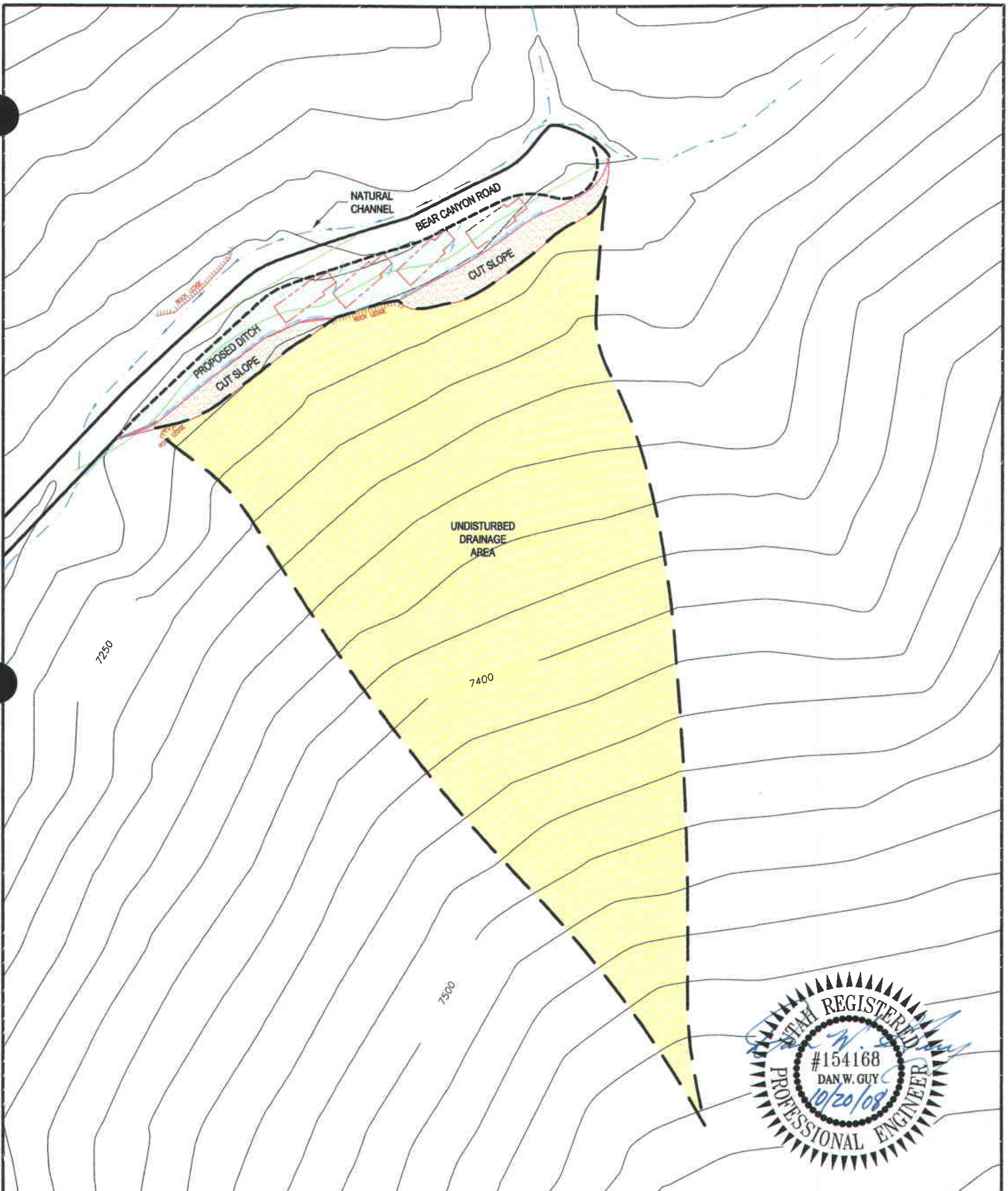
Title of run: WEST RIDGE GVH AVG.

Solving for...............= Depth Normal

Triangle

Flow depth (ft)............=	0.42
First Side slope...........=	1.0
Second Side slope..........=	1.0
Slope of diversion.........=	0.0811
Manning"s n................=	0.035
CFS........................=	0.59
Cross section area (sqft)..=	0.17
Hydrualic radius...........=	0.15
fps........................=	3.39
Froude number..............=	1.55

```
Title of run: WEST RIDGE GVH MAX.
   Solving for...............= Depth Normal
Triangle
   Flow depth (ft)...........=    0.39
   First Side slope..........=     1.0
   Second Side slope.........=     1.0
   Slope of diversion........=  0.1117
   Manning"s n...............=   0.035
   CFS.......................=    0.59
   Cross section area (sqft)..=   0.15
   Hydrualic radius..........=    0.14
   fps.......................=    3.82
   Froude number.............=    1.80
```

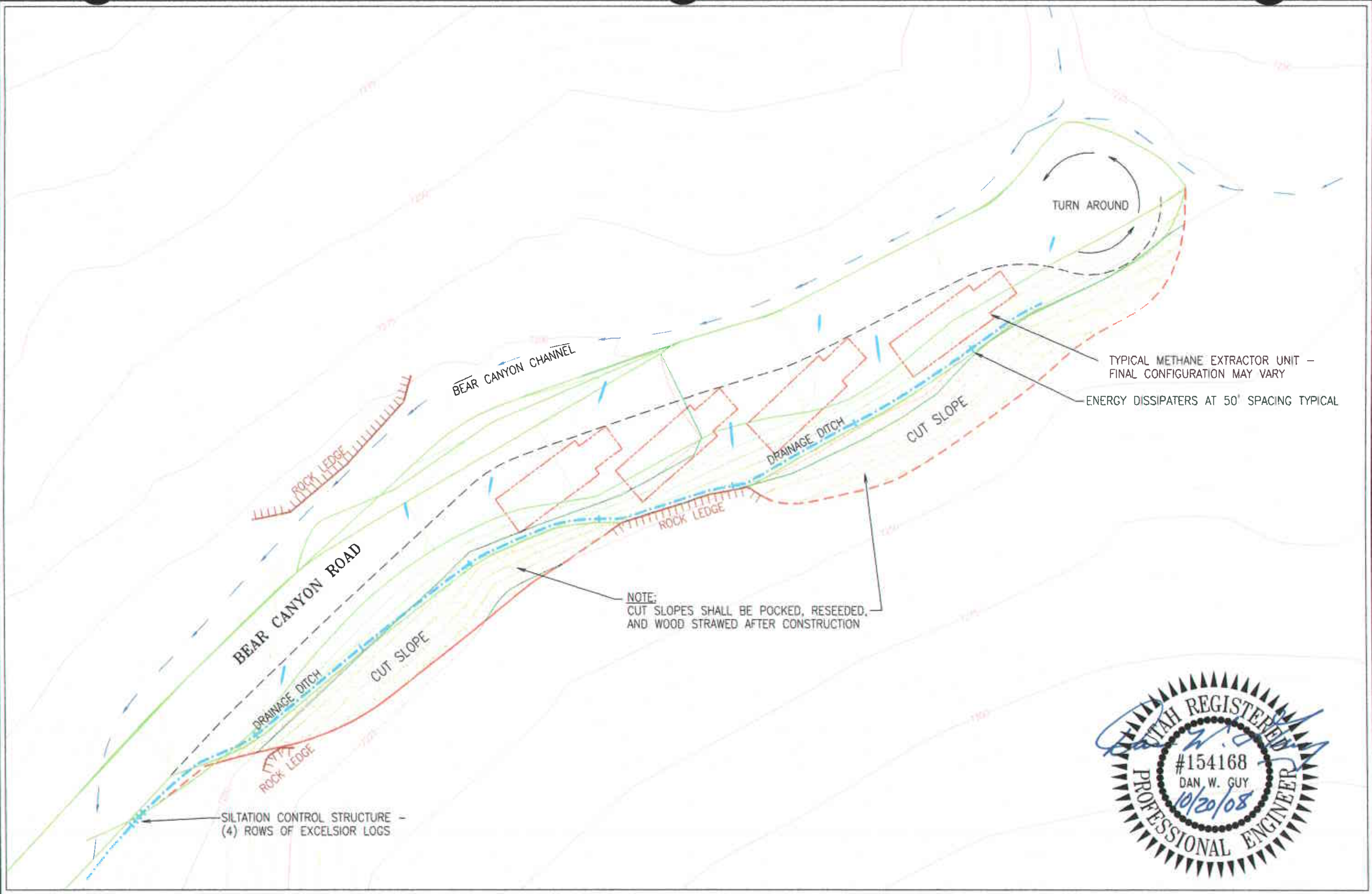


N

SCALE: 1" = 100'

BEAR CANYON HYDROLOGY
WEST RIDGE MINE
UNDISTURBED DRAINAGE AREA
FIGURE 1

BLACKHAWK ENGINEERING, INC.



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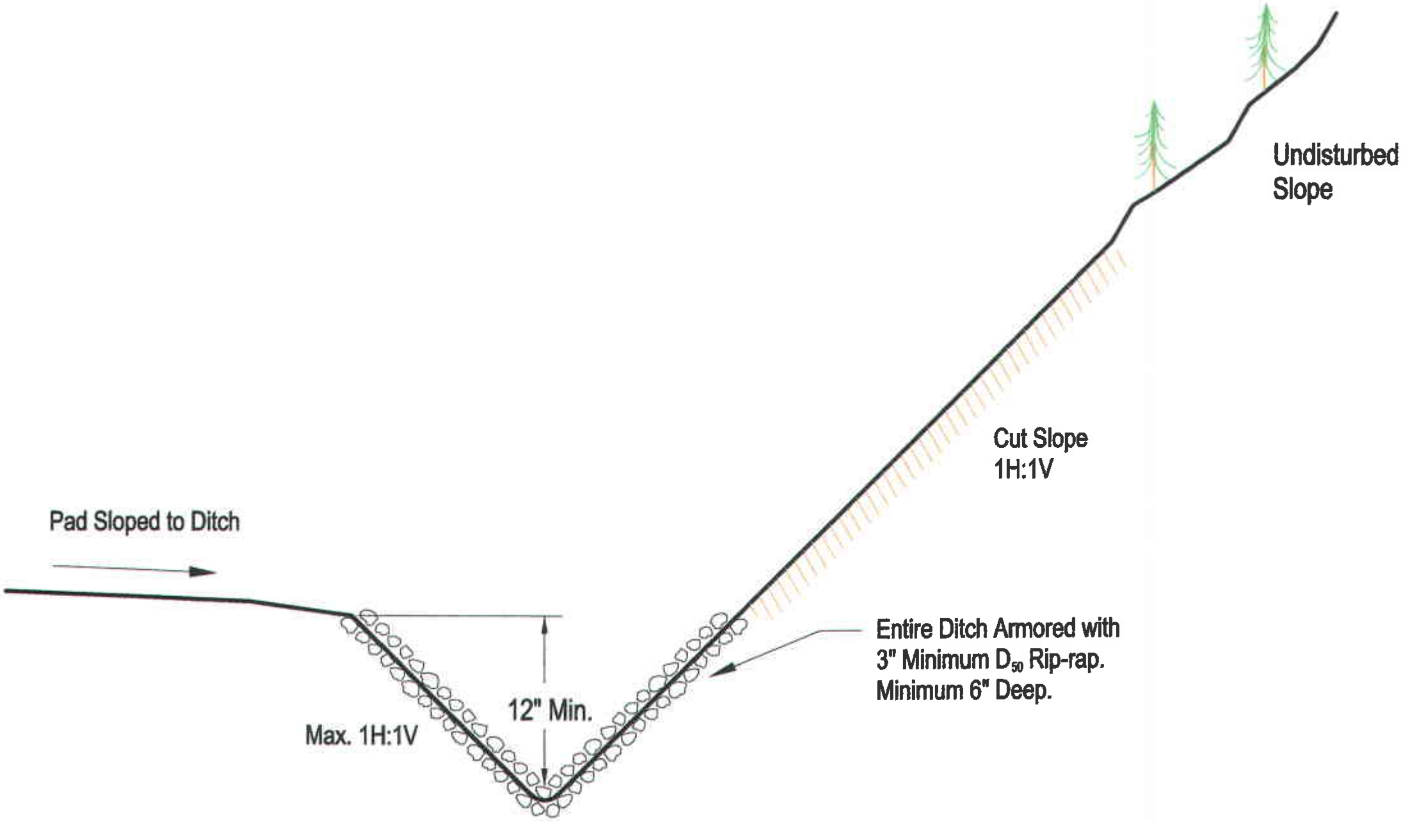
NOTE:
ALL PAD AND ROAD AREA ABOVE CHANNEL CROSSING TO BE GRAVELED

BEAR CANYON HYDROLOGY
WEST RIDGE MINE
DRAINAGE PLAN
FIGURE 2

BLACKHAWK ENGINEERING, INC.



TYPICAL SECTION

STATE OF UTAH REGISTERED PROFESSIONAL ENGINEER #154168 DAN W. GUY 10/20/08

NOTE:

Ditch Side Slopes may vary - Average Side Slopes will not exceed 1H:1V.

BEAR CANYON GVH
WEST RIDGE MINE
DRAINAGE DITCH
FIGURE 3

BLACKHAWK ENGINEERING, INC.

ATTACHMENT 12

TOWER (CENTENNIAL) GVH
C/007/019
BONDING CALCULATIONS

Current Tower Bond

Bonding Calculations
Centennial Mine C/007/019

Bond Summary

Direct Costs

Subtotal Demolition and Removal	$371,538.00	
Subtotal Backfilling and Grading	$426,800.00	
Subtotal Revegetation	$210,074.00	
Direct Costs	$1,008,412.00	
Indirect Costs		
Mob/Demob	$100,841.00	10.0%
Contingency	$50,421.00	5.0%
Engineering Redesign	$25,210.00	2.5%
Main Office Expense	$68,572.00	6.8%
Project Mainagement Fee	$25,210.00	2.5%
Subtotal Indirect Costs	$270,254.00	26.8%
Total Cost	$1,278,666.00	
Escalation factor		0.012
Number of years		4
Escalation	$62,490.00	
Reclamation Cost	$1,341,156.00	
Bond Amount (rounded to nearest $1,000) 2009 Dollars	$1,341,000.00	
Bond Posted	$1,520,000.00	
Difference Between Cost Estimate and Bond	-$179,000.00	
Percent Difference	13.35%	

Task ID	Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
2359		Gob Vent Well 10 thru 17																			
		7A is a redrill																			
		Structure's Demolition Cost																			
		Plug Well	Mechanical equipment heavy	15055 300 3600	805	/ton							4			8	tons		32	tons	25760
		Rubble's Weight (exclude steel)	Plug Well	AML3	5000	EA.										8	EA		8	EA	40000
		Truck's Capacity																			
		Haulage																			
		Transportation Cost Non Steel Truck																			
		Transportation Cost Non Steel Drive																			
		Disposal Cost Non Steel																			
		Steel's Weight																			
		Truck's Capacity																			
		Haulage																			
		Transportation Cost Steel Truck																			
		Transportation Cost Steel Truck Drive																			
		Disposal Cost Steel																			
		Subtotal																			
																					65760
		Equipment 's Disposal Cost																			
		Dismantling Cost																			
		Equipment 's Vol. Demolished																			
		Loading Costs																			
		Transport Costs																			
		Disposal Costs																			
		Subtotal																			
		Concrete Demolition																			
		Demolition Cost																			
		Concrete's Vol. Demolished																			
		Loading Cost																			
		Transportation Cost																			
		Disposal Costs																			
		Subtotal																			
		Concrete Demolition																			
		Demolition Cost																			
		Concrete's Vol. Demolished																			
		Loading Cost																			
		Transportation Cost																			
		Disposal Costs																			
		Subtotal																			
		Concrete Demolition																			
		Demolition Cost																			
		Concrete's Vol. Demolished																			
		Loading Cost																			
		Transportation Cost																			
		Disposal Costs																			
		Subtotal																			
		Total																			
																					65760

Tower GVH
Demolition

Task ID		Equipment Cost	Hourly Operating Costs	Equipment Overhead	Operator's Hourly Wage Rate	Hourly Cost	Number of Men or Eq.	Total Eq. & Lab. Costs	Units	Quantity	Units	Production Rate	Units	Equip. + Labor Time/Dis.	Units	Cost
	Gob Hole 10 thru 17															
	Grading 5,000 CY per hole															
	Grading															
	Backfill and rough grade pond, canyon and bench areas															
	D7R Series II (9-55) (2nd2004)															
	Subtotal	10585	41.1	0.1	52	163.24	1	163.24	$/HR	40000	CY	250	CY/HR	160	HR	26118
																26118
	Topsoil 1,600 CY per hole															
	Haul and spread topsoil															
	D7R Series II (9-55) (2nd2004)															
	Subtotal	13720	53.4	0.1	52	196.49	1	196.49	$/HR	12800	CY	250	CY/HR	51.2	HR	10060
																10060
	Support Personel															
	4,000 gal H2O truck Diesel (20-16) (2N04)															
	Subtotal	3350	19.85	0.1	42	84.77	1	84.77	$/HR					32	HR	2713
																2713
	Total															38891

Tower GVH
Earthwork

Ref.	Description	Materials
	Gob Holes New	
	Ground Preparation	
	Gouging/Pocking	Excavation Bulk Bank 2 CY (322BL)
	Assume vol = area(18.1 AC) x 1 ft.	
	Seed for hydromulch	Seed Mix for Centennial Drainage
	Hydroseed application	Hydro Spreader (equip. & labor) B-81 80MSI
	Mulch material	Hay 1" material only 029105000250
	Hydroseed application	Hydro Spreader (equip. & labor) B-81
	Subtotal	
	Reseeding	
	Assume 25% reseeding rate	
	Subtotal	
	Total	

Tower GVH
Reveg

Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area
M023154240260	1.7	/CY					
Centennial 001	447.7	$/AC					8
Reveg002	19.13	/MSF					8
Reveg001	68	/MSF					8
Reveg005	19.13	/MSF					8

Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit
3200					CY		3200	CY
					AC		8	AC
					AC		348	MSF
					AC		8	AC
					AC		348	MSF

Cost
5440
3582
6657
544
6657
22880
5720
5720
28600

Current West Ridge Bond

West Ridge Mine C/007/041 Task 2233 | Bond Amount | Revised April 2007

Bonding Calculations

Direct Costs		
Subtotal Demolition and Removal	$303,444.00	
Subtotal Backfilling and Grading	$777,302.00	
Subtotal Revegetation	$142,999.00	
Direct Costs	$1,223,745.00	
Indirect Costs		
Mob/Demob	$122,375.00	10.0%
Contingency	$61,187.00	5.0%
Engineering Redesign	$30,594.00	2.5%
Main Office Expense	$83,215.00	6.8%
Project Mainagement Fee	$30,594.00	2.5%
Subtotal Indirect Costs	$327,965.00	26.8%
Total Cost	$1,551,710.00	
Escalation factor		0.038
Number of years		3
Escalation	$183,702.00	
Reclamation Cost	$1,735,412.00	
Bond Amount (rounded to nearest $1,000) 2011 Dollars	$1,735,000.00	
Bond Posted 2004	$2,117,000.00	
Difference Between Cost Estimate and Bond	$382,000.00	
Percent Difference	22.02%	

ATTACHMENT 13

RECLAMATION SEED MIXES

TABLE 3-1
REVEGETATION TIMETABLE

Refer to Table 5-1, Reclamation Time Table - West Ridge Mine for details of entire reclamation schedule.

YEAR 1	BEGIN	END
Reseed/ mulch	following regrading	October 31

YEAR 2 - 4	BEGIN	END
Perform Maintenance Work On Site	as needed	
Perform Annual Qualitative Vegetation Monitoring	June	June
Perform Quantitative Vegetation Monitoring During Second & Third Years	June	August

YEAR 5 - 10	BEGIN	END
Perform Quantitative Vegetation Monitoring During Fifth, Ninth and Tenth Years	June	August
Obtain Bond Release	September	

TABLE 3-2B

MINESITE RECLAMATION -FINAL RECLAMATION
SPECIES LIST AND SEEDING RATE
SEED MIXTURE FOR THE DOUGLAS FIR/MAPLE COMMUNITY

RATE SCIENTIFIC NAME	COMMON NAME	BROADCAST #PLS LBS/ACRE
GRASSES		
Elymus trachycaulus	Slender Wheatgrass	2.0
Elymus lanceolatus	Thickspike Wheatgrass	2.0
Elymus spicatus	Bluebunch Wheatgrass	3.0
Poa pratensis	Kentucky Bluegrass	0.2
Stipa comata	Needle-and-thread	2.0
Poa fendleriana	Muttongrass	0.3
Stipa hymenoides	Indian ricegrass	2.0
FORBS		
Achillea millefolium	Yarrow	0.1
Aster chilensis	Pacific Aster	0.1
Geranium viscosissimum	Sticky Geranium	1.0
Hedysarum boreale	Northern Sweetvetch	1.5
Hedysarum occidentale var. canone	Canyon Sweetvetch	0.0*
Linum lewisii	Lewis Flax	1.0

TABLE 3-2B (CONTINUED)

TREES/SHRUBS		
Acer glabrum	Rocky Mountain Maple	2.5
Prunus virginiana	Chokecherry	2.0
Rhus trilobata	Squawbush	1.0
Symphoricarpos oreophilus	Snowberry	0.5
	TOTAL	212

The following would be planted as five gallon containerized plants along the reclaimed channel. The plants would be spaced about five feet apart along each side.

Amelanchier alnifolia	Serviceberry
Cercocarpus ledifolius	Mountain Mahogany

* To be determined by future field tests and on-site seed availability.

TABLE 3-3

MINESITE RECLAMATION -INTERIM RECLAMATION SPECIES LIST AND SEEDING RATE INTERIM REVEGETATION SEED MIXTURE FOR TEMPORARY DISTURBANCE AT THE MINESITE

SCIENTIFIC NAME	COMMON NAME	BROADCAST RATE #PLS LBS/ACRE
GRASSES		
Elymus lanceolatus	Thickspike Wheatgrass	4.5
Elymus smithii	Western Wheatgrass	5.0
Poa pratensis	Kentucky Bluegrass	0.4
Stipa hymenoides	Indian Ricegrass	4.0
Elymus spicatus	Bluebunch Wheatgrass	6.0
FORBS		
Achillea millefolium	Yarrow	0.1
Artemisia ludoviciana*	Louisiana sage	0.1
Hedysarum occidentale var. canone	Canyon Sweetvetch	0.0**
	TOTAL	20.1

* Subject to availability

**Hedysarum occidentale var. canone (Canyon Sweetvetch) will be seeded on the topsoil stockpile only as an interim revegetation measure and to propagate seed. The seeding rate would be determined by future field tests and on-site seed availability.

TABLE 3-4

REVEGETATION MONITORING SCHEDULE

QUALITATIVE OBSERVATIONS

TYPE OF REVEGETATION	YEAR 1	2	3	4	5	6	7	8	9	10
Permanent Revegetation	X	X	X	X	X	X	X	X	X	X
Interim Stabilization	X	X	X	X	X	X	X	X	X	X
Test Plots/Field Trials	X	X	X	X	X	X	X	X	X	X

QUANTITATIVE OBSERVATIONS

PARAMETER	YEAR 1	2	3	4	5	6	7	8	9	10
Cover		X	X		X				X	X
Frequency		X	X		X				X	X
Woody Plant Density		X		X				X	X	X
Productivity:										
Test Plots					X					X
All Other Revegetation								X	X	X

East Mtn Drillhole Reclamation
Alternate Seed Mix

Final Seed Mix

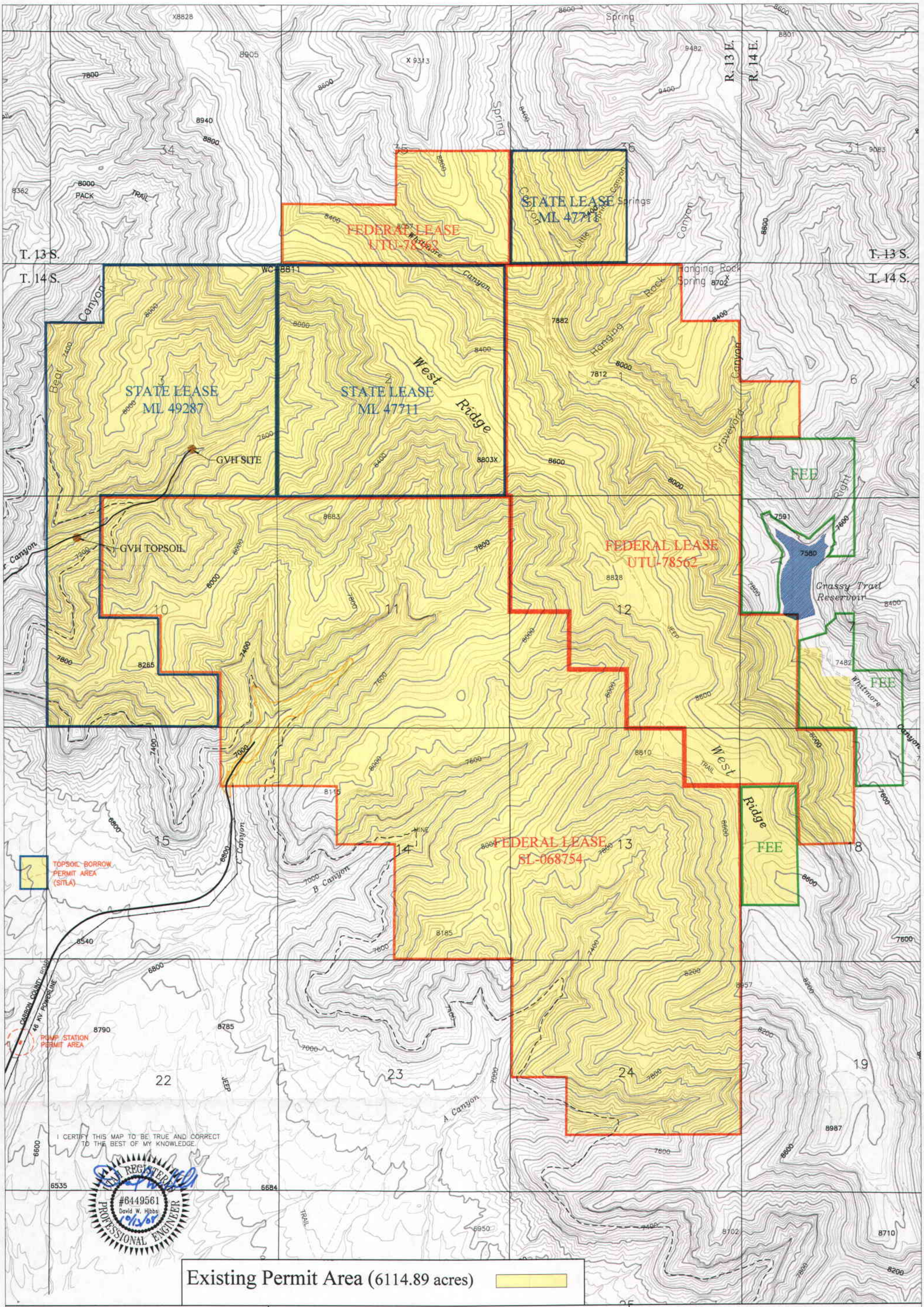
Seed Mix for Crandall mine Drill Pads and roads

Revisited September 14, 2007

Species	**Variety**	**Common Name**	**Pounds/ Acre (PLS)**	**seeds/lbs**	**seeds/acre**	**Seeds/ft^2**
Bromus marginatus	var. Garnet	Mountain Brome	2.5	90,000.00	225000.0	5.2
Elymus trachycaulus ssp. Traychycaulus	var. Primar	Slender Wheatgrass	2	159,000.00	318000.0	7.3
Dactylis glomerata	var. Paiute	Dryland Orchardgrass	2	654,000.00	1308000.0	30.0
Poa alpina		Alpine Bluegrass	1	1,000,000.00	1000000.0	23.0
Elymus lanceolatus ssp. Lanceolatus	var. Critana	Thickspike Wheatgrass	2	154,000.00	308000.0	7.1
Phleum pratense		Timothy	1	1,300,000.00	1300000	29.84
Festuca rubra		Red Fescue	1	500,000.00	500,000.00	11.48
Festuca trachyphylla		Hard Fescue	1	565,000.00	565,000.00	12.97
Secale cereale		Cereal Rye	9	18,000.00	162,000.00	3.72
Triticum aestivum x Secale cereale	QuickGuard Sterile Triticale	Triticale	10	13,000.00	130,000.00	2.98
Heliiomris multiflora		Showey Goldeneye	0.25	1,055,000.00	263,750.00	6.05
Vicia americana		American vetch	0.5	33,000.00	16,500.00	0.38
Artemisia ludoviciana		Prairie sage	0.1	4,500,000.00	450,000.00	10.33
Achillea millefolium	var. occidentalis	Westren yarrow	0.2	2,770,000.00	554000.0	12.7
Total			**32.55**		**7100250.0**	**163.0**

MAP 1-0

PERMIT MAP



WEST RIDGE MINE
Map 1-0
Permit Map

LEGEND:
- Federal Lease
- State Lease
- Penta Creek Fee
- Surface Facility Area
- GVH Site
- Outcrop

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DIV. OF OIL, GAS & MINING

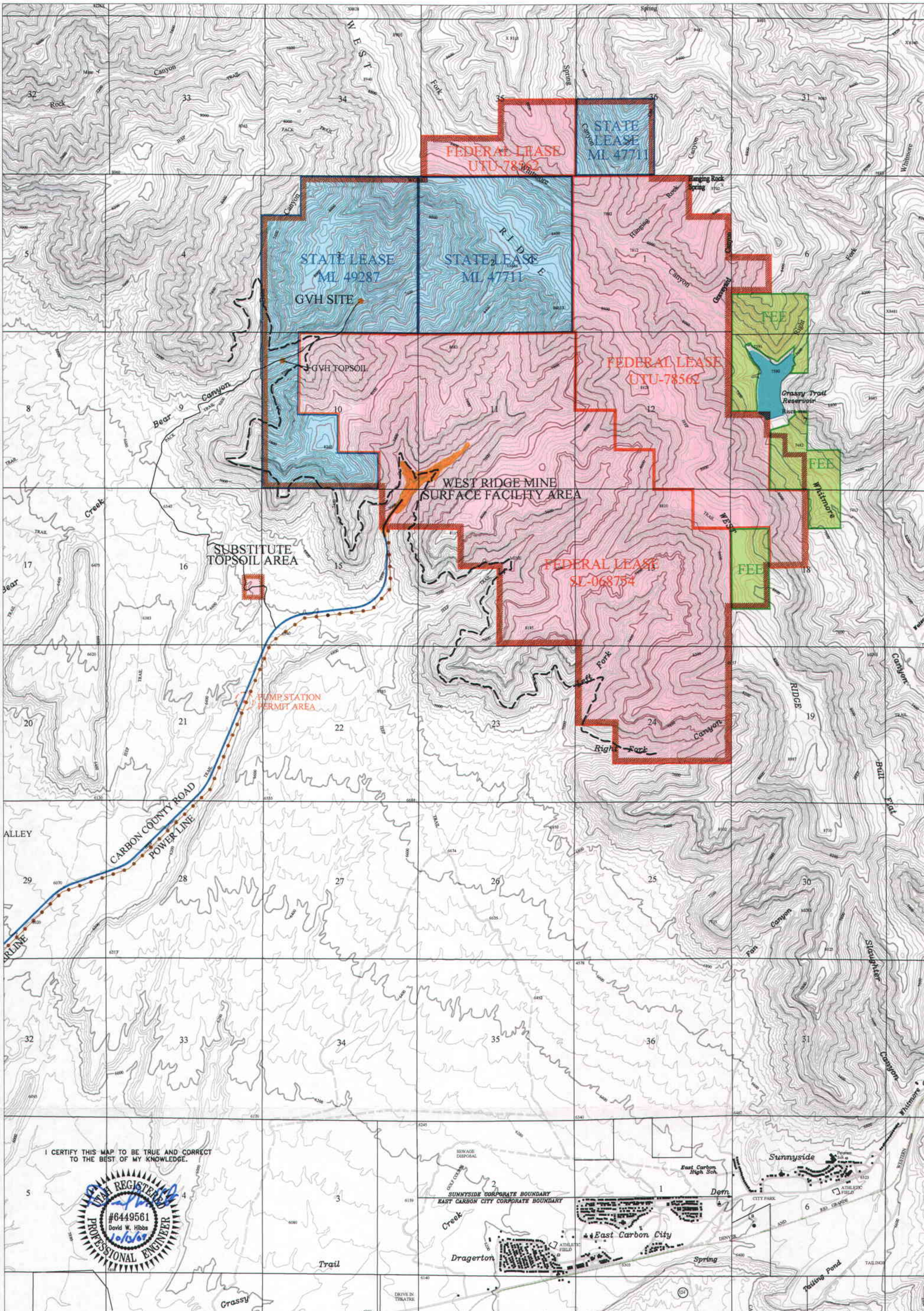
WEST RIDGE RESOURCES, INC.

SCALE: 1"=2000'

DATE: 10-13-08 REV: 3 ACAD REF: MAP1-0 PERMITMAP REV3

MAP 1-1

LOCATION MAP



WEST RIDGE MINE

Map 1-1

Location Map

DATE: 10-13-08 REV: 10 ACAD REF: MAP1-1 LOCATION Rev10

LEGEND:

- Permit Boundary
- Federal Lease
- State Lease
- Penta Creek Fee
- Surface Facility Area
- GVH Site
- Outcrop
- Power Line

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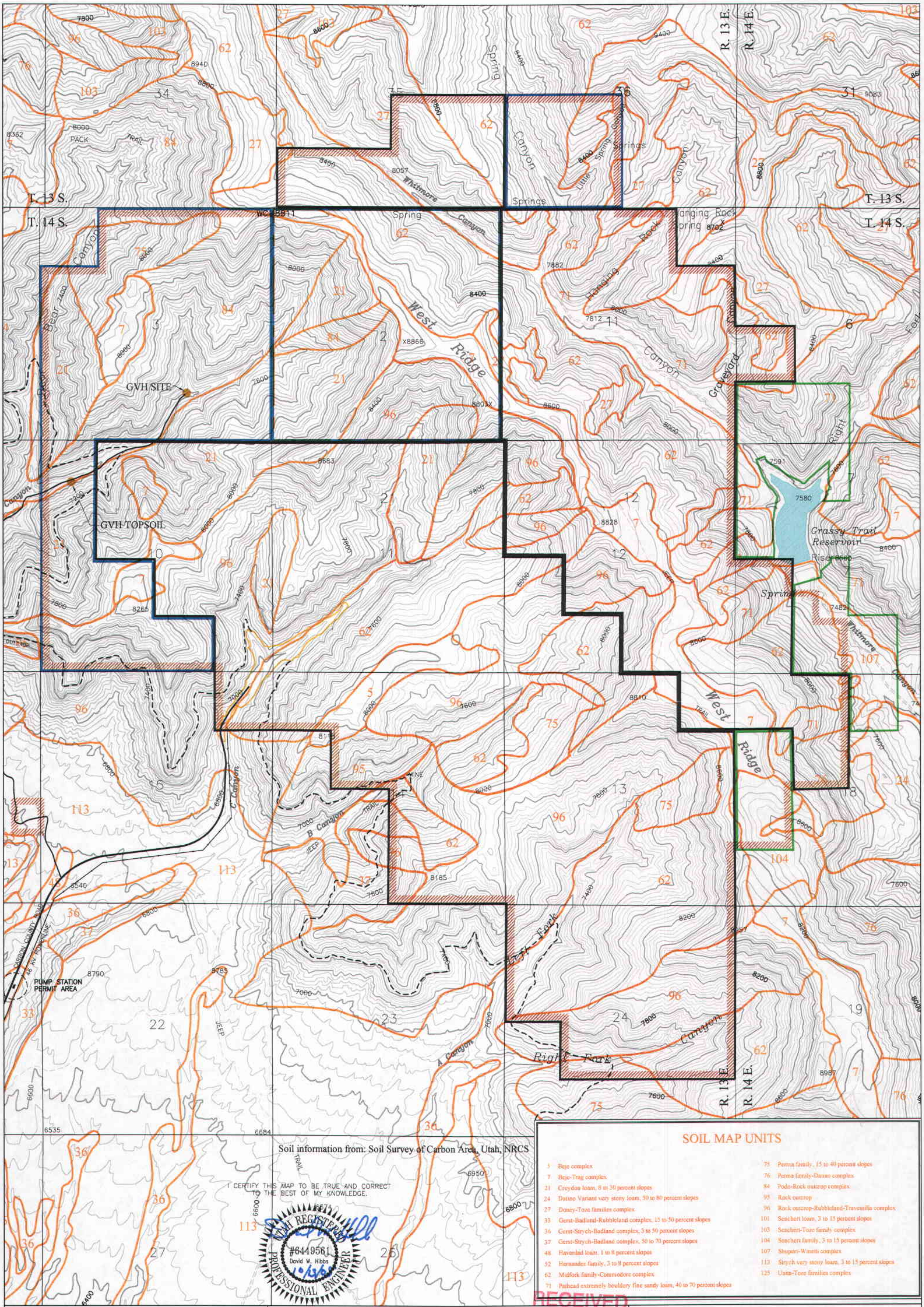
WEST RIDGE
RESOURCES, INC.

SCALE: 1"=3000'

MAP 2-1

REGIONAL SOIL MAP



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WEST RIDGE MINE
Map 2-1
Regional Soil Map

DATE: 10-13-08 REV: 9 ACAD REF: MAP2-1 REGSOIL REV9

LEGEND:
- Permit Boundary
- Federal Lease
- State Lease
- Penta Creek Fee
- Surface Facility Area
- GVH Site
- Soil Mapping Boundary
- Soil Map Number 113

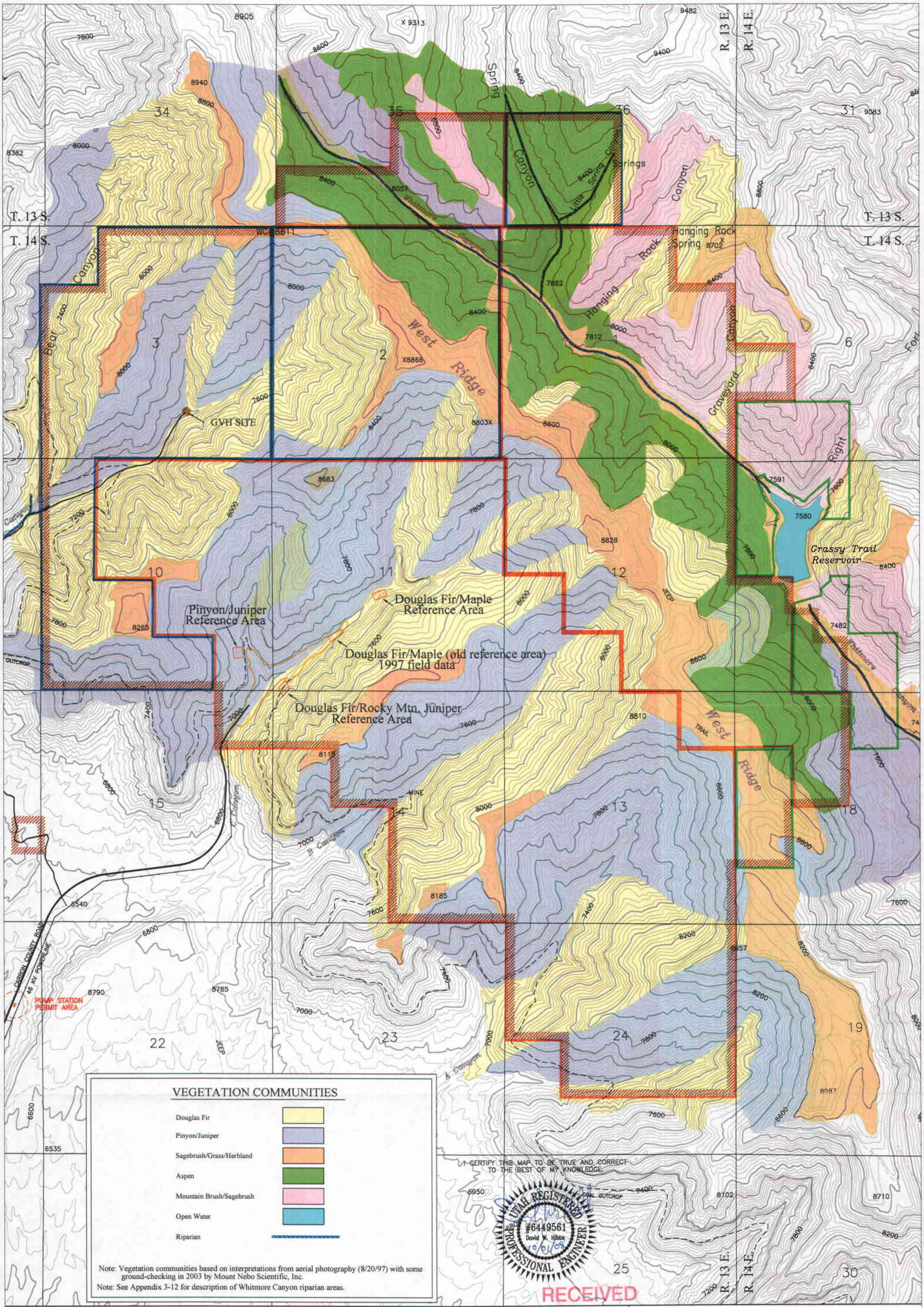
N

WEST RIDGE RESOURCES, INC.

SCALE: 1"=2000'

MAP 3-1

GENERAL VEGETATION COMMUNITIES



WEST RIDGE MINE

Map 3-1

General Vegetation Communities

DATE: 10-01-08 REV: 13 ACAD REF: MAP3-1 GENVEG REV13

LEGEND:

- Permit Boundary
- Federal Lease
- State Lease
- Penta Creek Fee
- Surface Facility Area
- GVH Site
- Outcrop

OCT 22 2008

DIV. OF OIL, GAS & MINING

WEST RIDGE RESOURCES, INC.

SCALE: 1"=2000'

CONFIDENTIAL INFORMATION

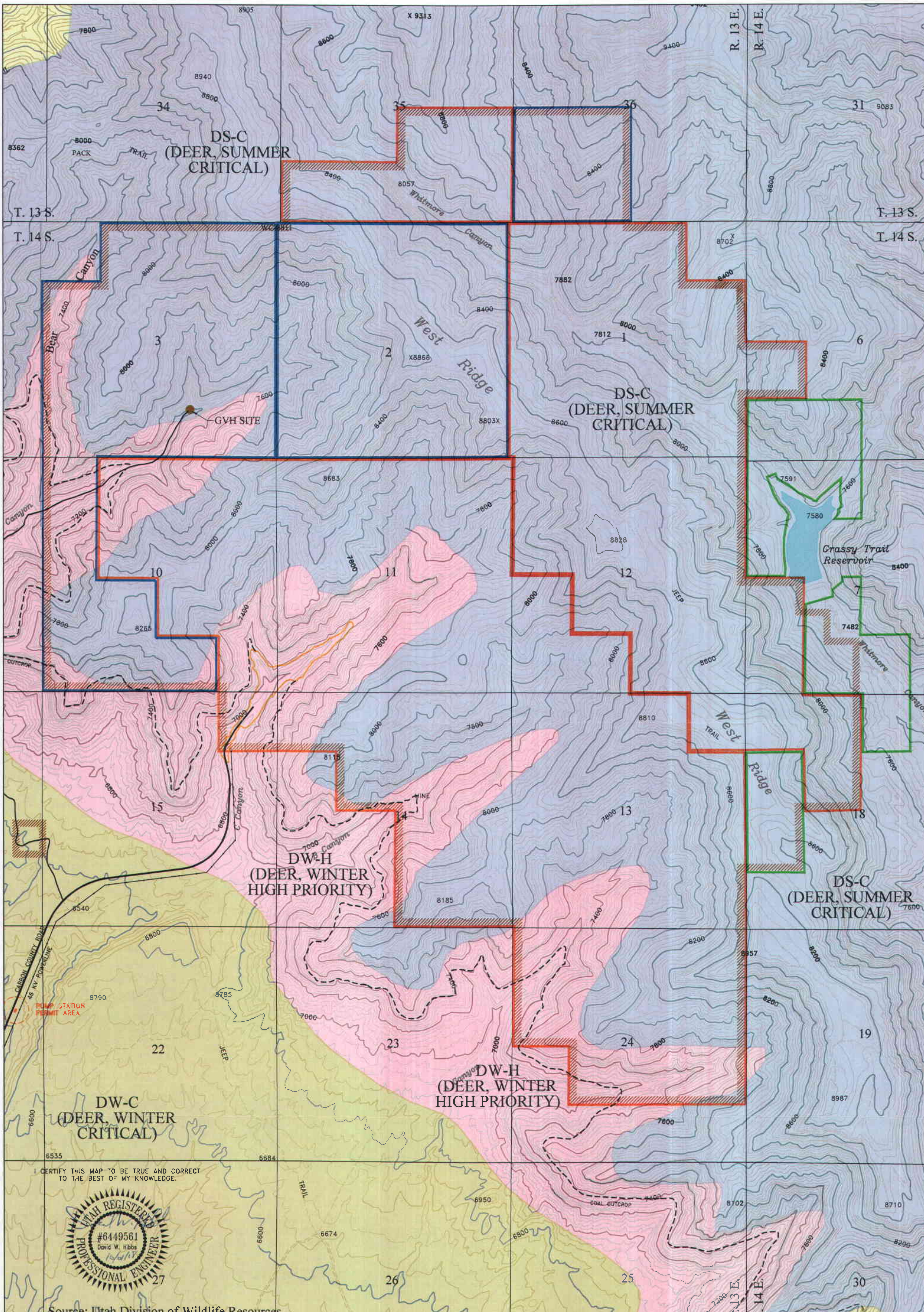
(See Confidential Binder)

MAP 3-4A

WILDLIFE MAP
RAPTOR SURVEY

MAP 3-4B

WILDLIFE MAP
DEER RANGE



WEST RIDGE MINE

Map 3-4B

Wildlife Map - Deer Range

DATE: 10-01-08 REV: 10 ACAD REF: MAP3-4B DEER REV10

LEGEND:

- Permit Boundary
- Federal Lease
- State Lease
- Penta Creek Fee
- Surface Facility Area
- GVH Site
- DW-C
- DW-H
- DS-C

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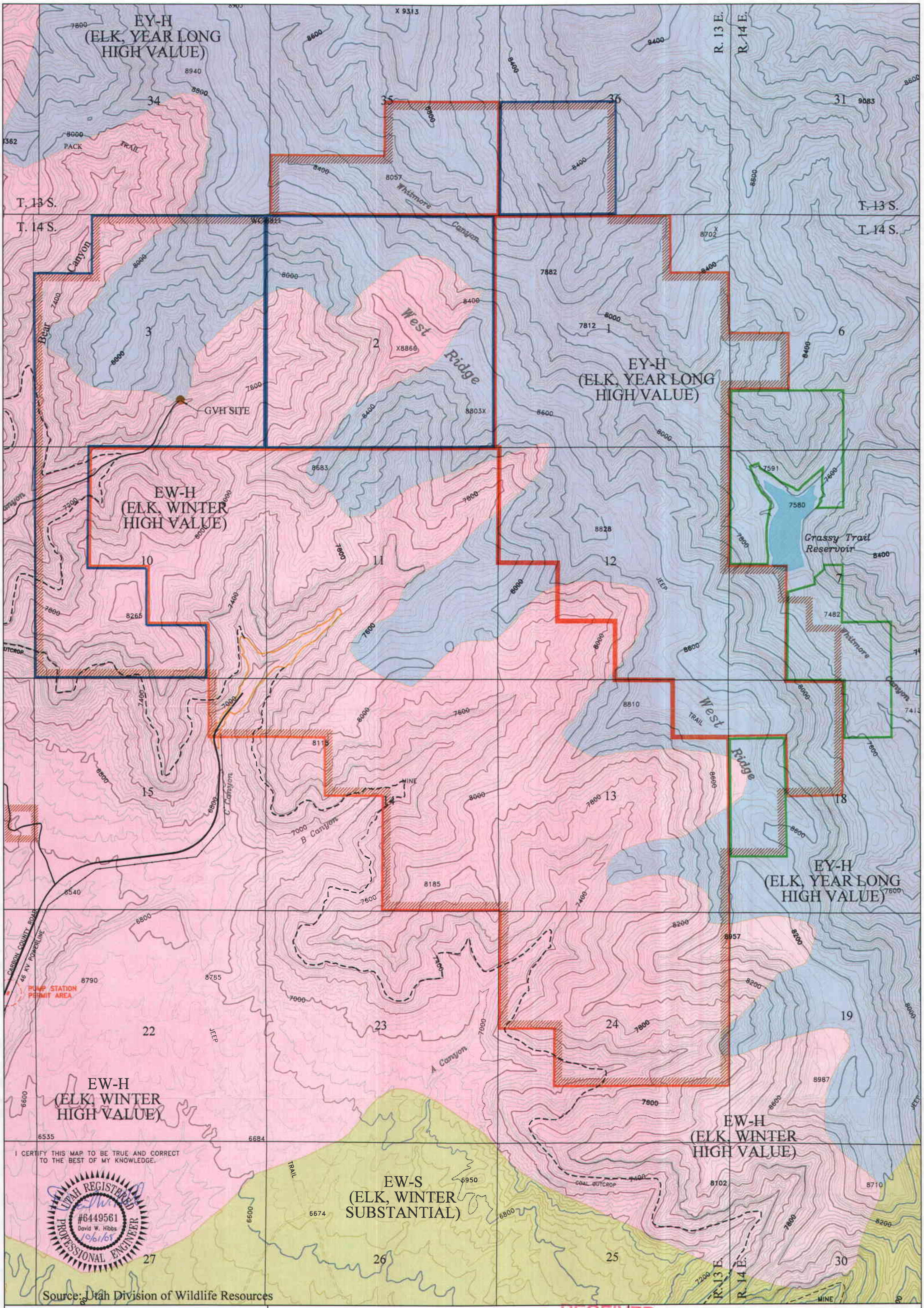
RESOURCES, INC.

SCALE: 1"=2000'

MAP 3-4C

WILDLIFE MAP
ELK RANGE



WEST RIDGE MINE

Map 3-4C

Wildlife Map - Elk Range

DATE: 10-01-08 REV: 10 ACAD REF: MAP 3-4C ELK REV10

Permit Boundary
Federal Lease
State Lease
Penta Creek Fee
Surface Facility Area
GVH Site
EW-S
EY-H
EW-H

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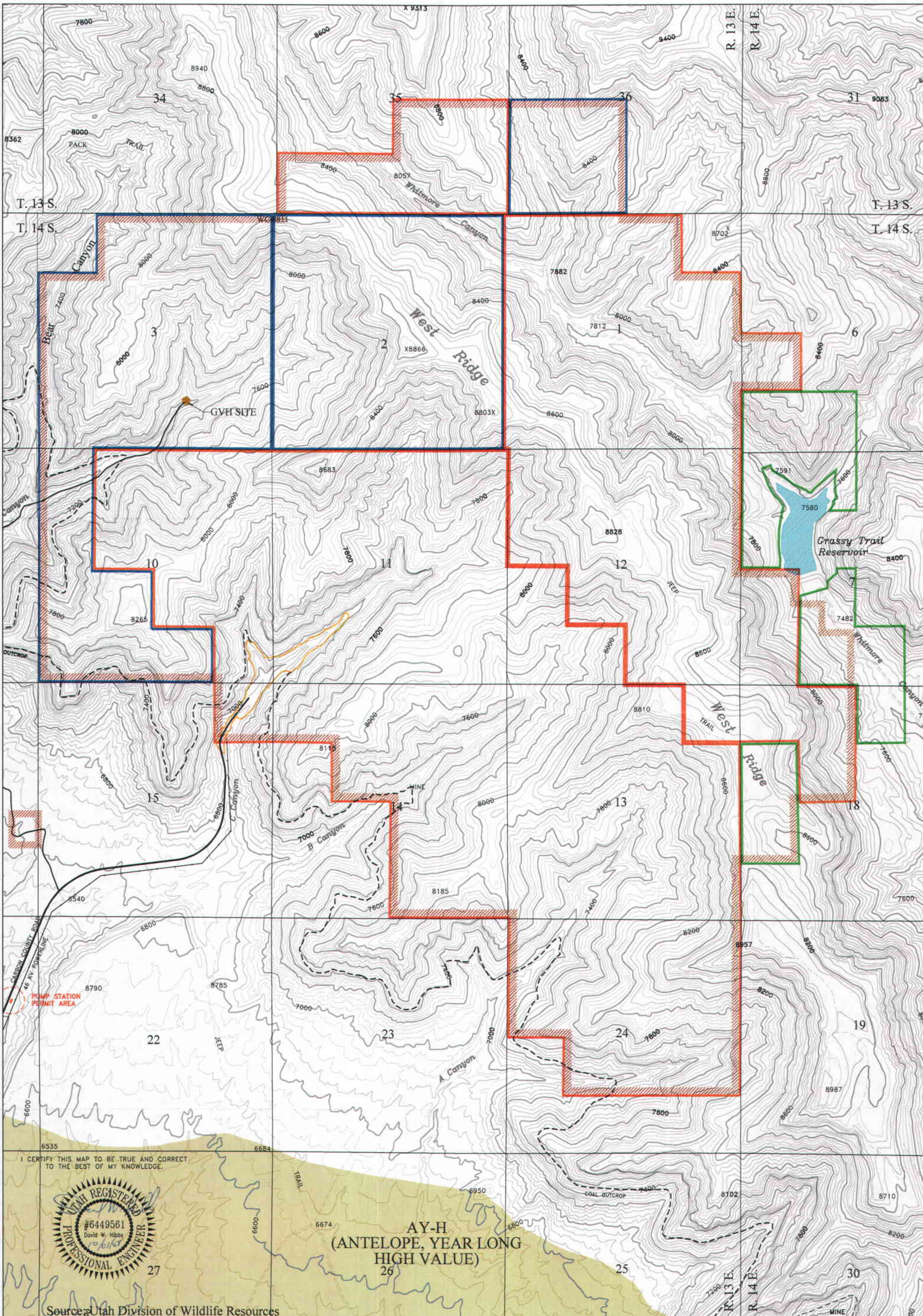
WEST RIDGE RESOURCES, INC.

SCALE: 1"=2000'

MAP 3-4D

WILDLIFE MAP
ANTELOPE RANGE



WEST RIDGE MINE

Map 3-4D

Wildlife Map - Antelope Range

DATE: 10-01-08 REV: 10 ACAD REF: MAP3-4D ANTELOPE REV10

LEGEND:

- Permit Boundary
- Federal Lease
- State Lease
- Penta Creek Fee
- Surface Facility Area
- GVH Site
- AY-H

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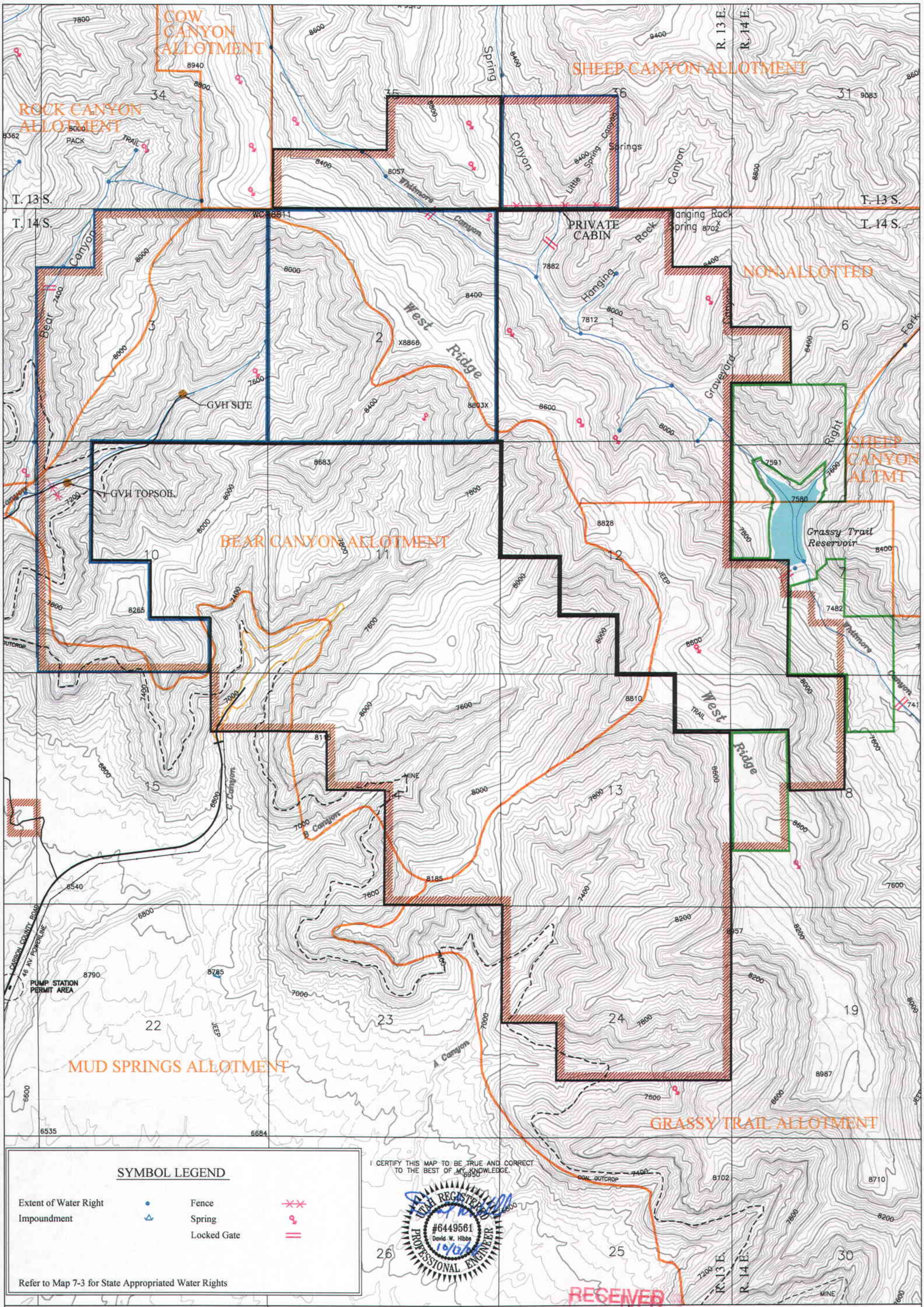
WEST RIDGE
RESOURCES, INC.

SCALE: 1"=2000'

MAP 4-1

EXISTING LAND USE



WEST RIDGE MINE

Map 4-1

Existing Land Use

LEGEND:

- Permit Boundary
- Federal Lease
- State Lease
- Penta Creek Fee
- Surface Facility Area
- GVH Site
- Grazing Allotment Boundary

N

WEST RIDGE RESOURCES, INC.

SCALE: 1"=2000'

DATE: 10-13-08 REV: 11 ACAD REF: MAP4-1 LANDUSE REV11

CONFIDENTIAL INFORMATION

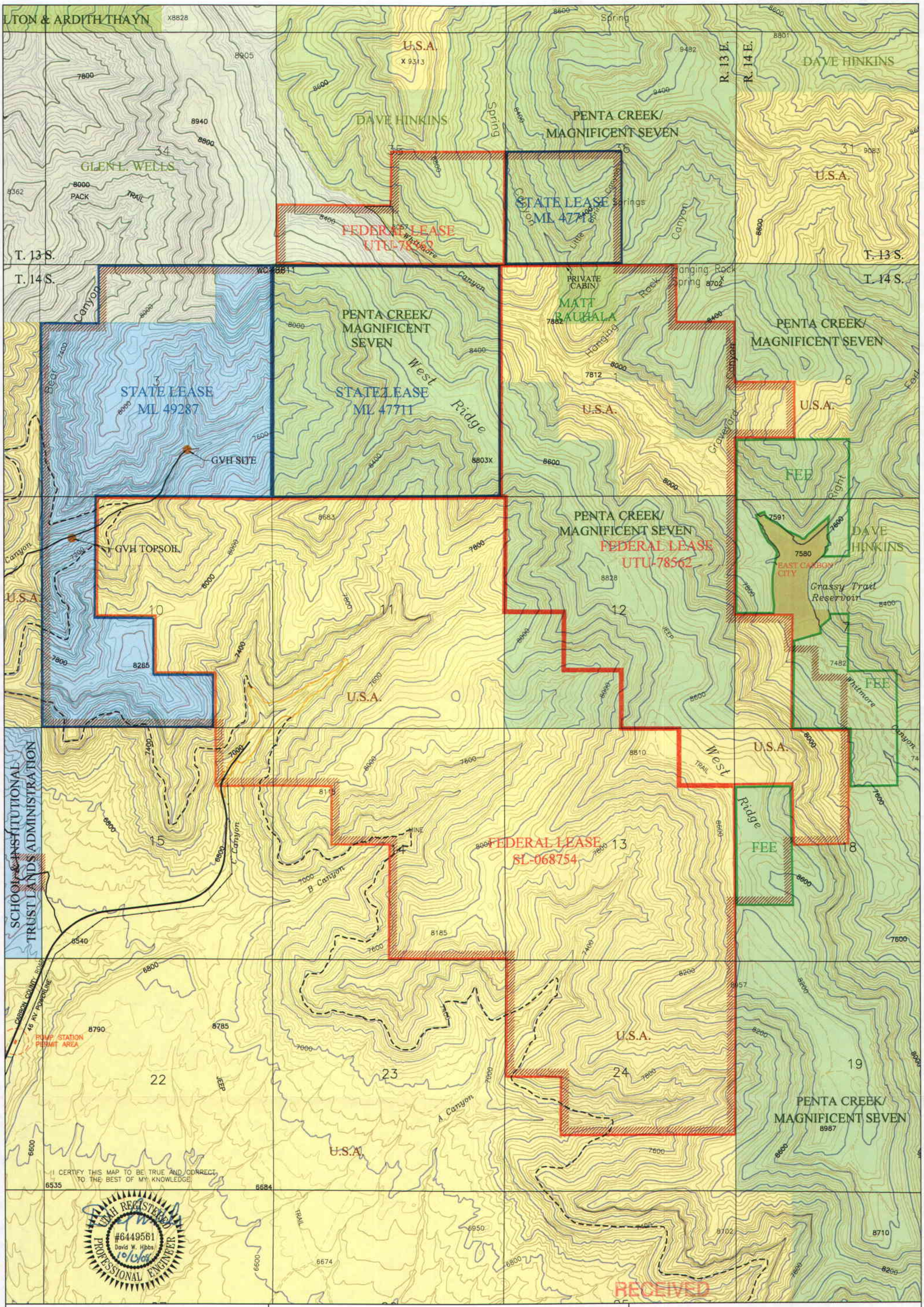
(See Confidential Binder)

MAP 4-2

ARCHEOLOGY MAP

MAP 5-2

SURFACE OWNERSHIP MAP



WEST RIDGE MINE

Map 5-2

Surface Ownership Map

DATE: 10-13-08 REV: 11 ACAD REF: MAP5-2 SURFOWN REV11

LEGEND:

Permit Boundary
Federal Lease
State Lease
Penta Creek Fee
Surface Facility Area
GVH Site
Outcrop

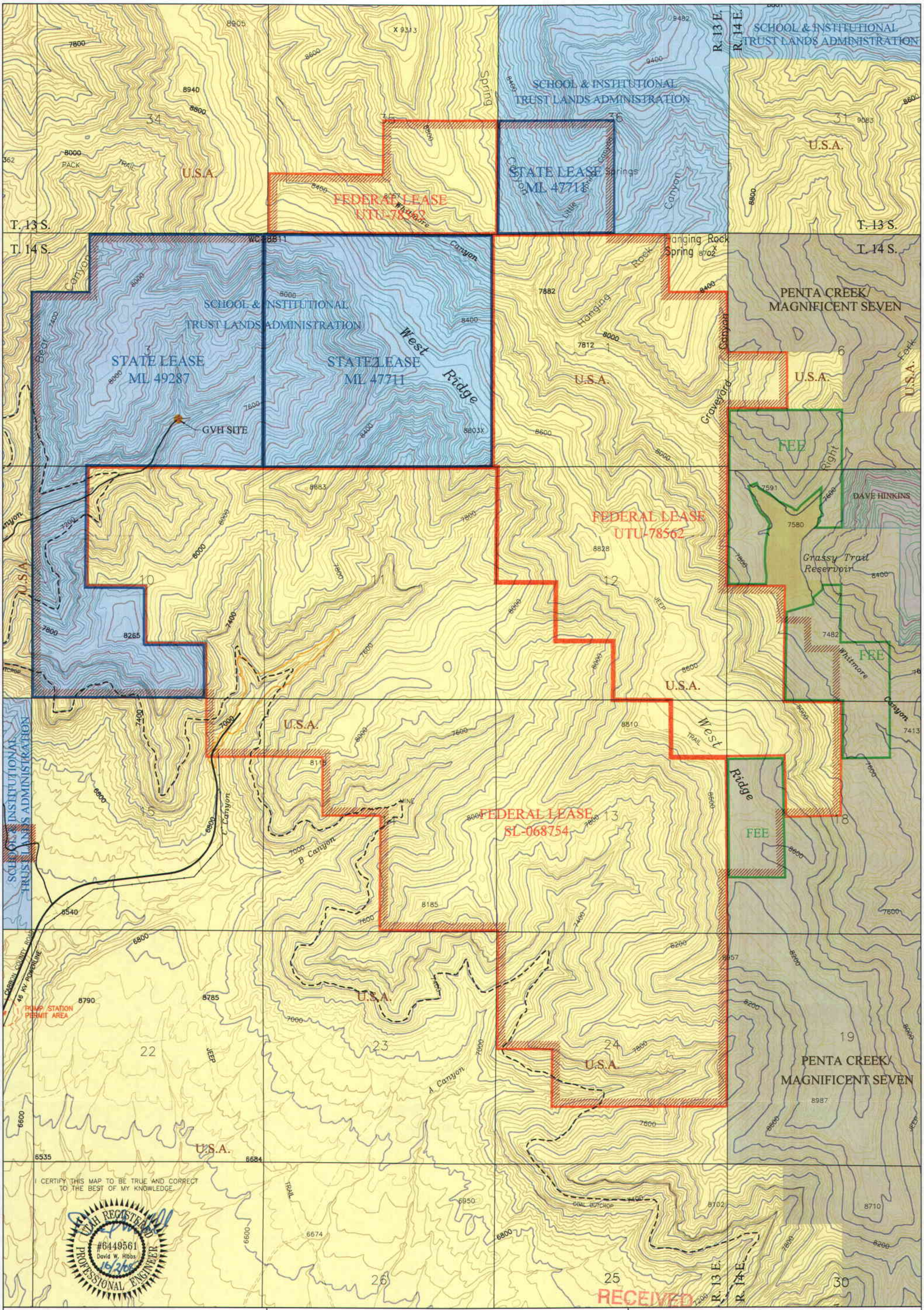
School Trust Land (SITLA)
Penta Creek/ Magnificent Seven
U.S.A. (BLM)
Dave Hinkins
Glen L. Wells
Matt Rauhala
Milton & Ardith Thayn
East Carbon City

WEST RIDGE RESOURCES, INC.

SCALE: 1"=2000'

MAP 5-3

SUB-SURFACE OWNERSHIP MAP



WEST RIDGE MINE

Map 5-3

Sub-surface Ownership Map

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LEGEND:

Permit Boundary	School Trust Lands (SITLA)
Federal Lease	Penta Creek/ Magnificent Seven
State Lease	U.S.A. (BLM)
Penta Creek Fee	Dave Hinkins
Surface Facility Area	East Carbon City
GVH Site	
Outcrop	

N

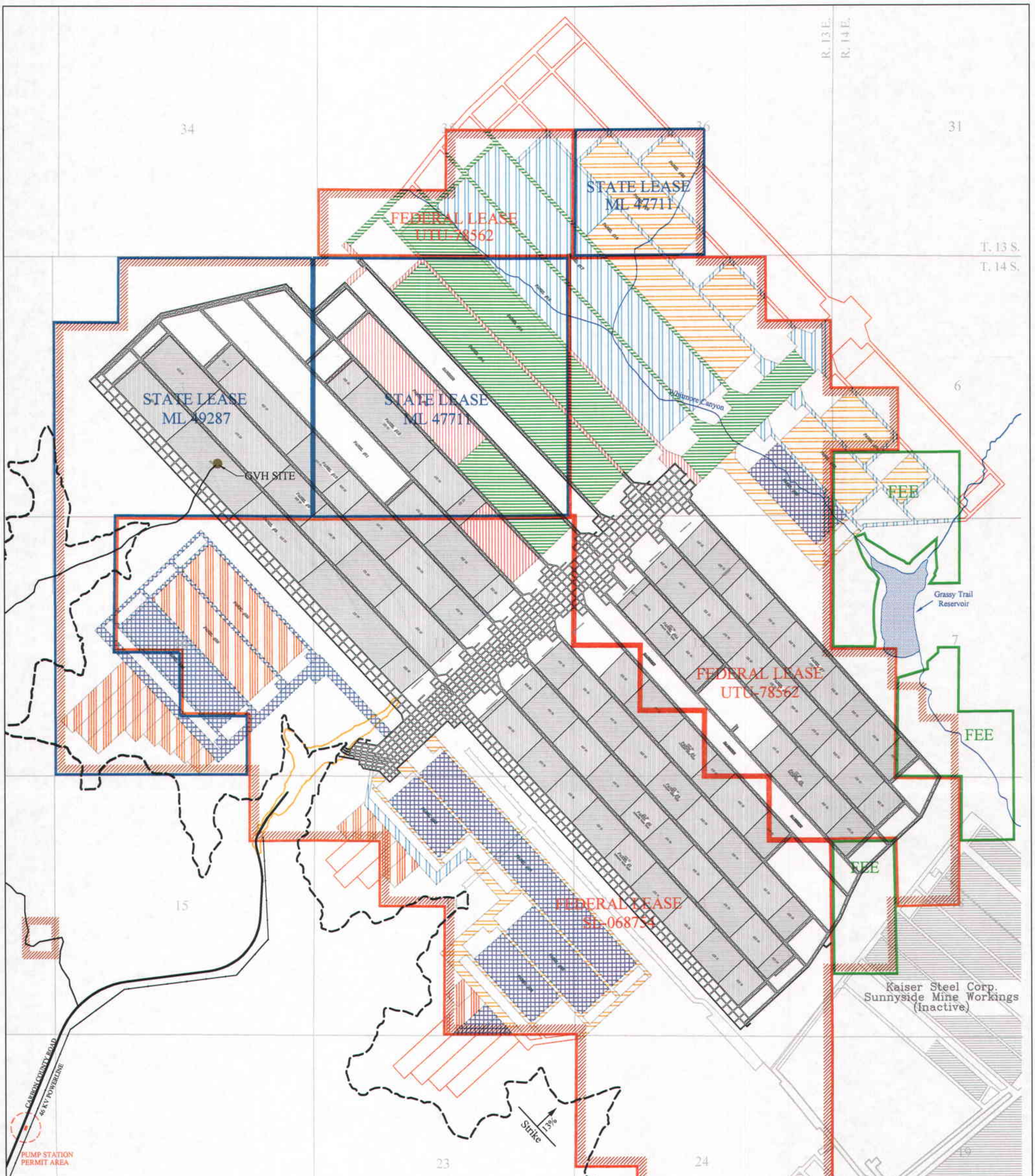
WEST RIDGE RESOURCES, INC.

SCALE: 1"=2000'

DATE: 10-02-08 REV: 11 ACAD REF: MAP5-3 SUBSURFOWNREV11

MAP 5-4A

MINING PROJECTIONS



NOTE:
Mine projections are subject to change depending on conditions encountered in the underground mine workings.
Actual mine works are shown as of October 1, 2008.
Mine projections depicted in the fringe areas beyond the existing permit area are speculative and based on future reserve acquisitions.
No mining will be conducted in these areas unless those reserves are acquired in the future and permitted according to federal, state, and local permitting requirements.
West Ridge Resources acknowledges that permission to mine within the permit boundary does not imply permission to mine beyond the permit boundary.

YEAR KEY:
- 2008
- 2009
- 2010
- 0211
- 2012
- 2013
- Mined Area

Kaiser Steel Corp.
Sunnyside Mine Workings
(Inactive)

26

27

30

I CERTIFY THIS MAP TO BE TRUE AND CORRECT
TO THE BEST OF MY KNOWLEDGE.

UTAH REGISTERED PROFESSIONAL ENGINEER
#6449561
David W. Hibbs
10/13/08

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WEST RIDGE MINE

Map 5-4A

Mining Projections

LEGEND:
- Permit Boundary
- Federal Lease
- State Lease
- Penta Creek Fee
- Surface Facility Area
- GVH Site
- Outcrop

N

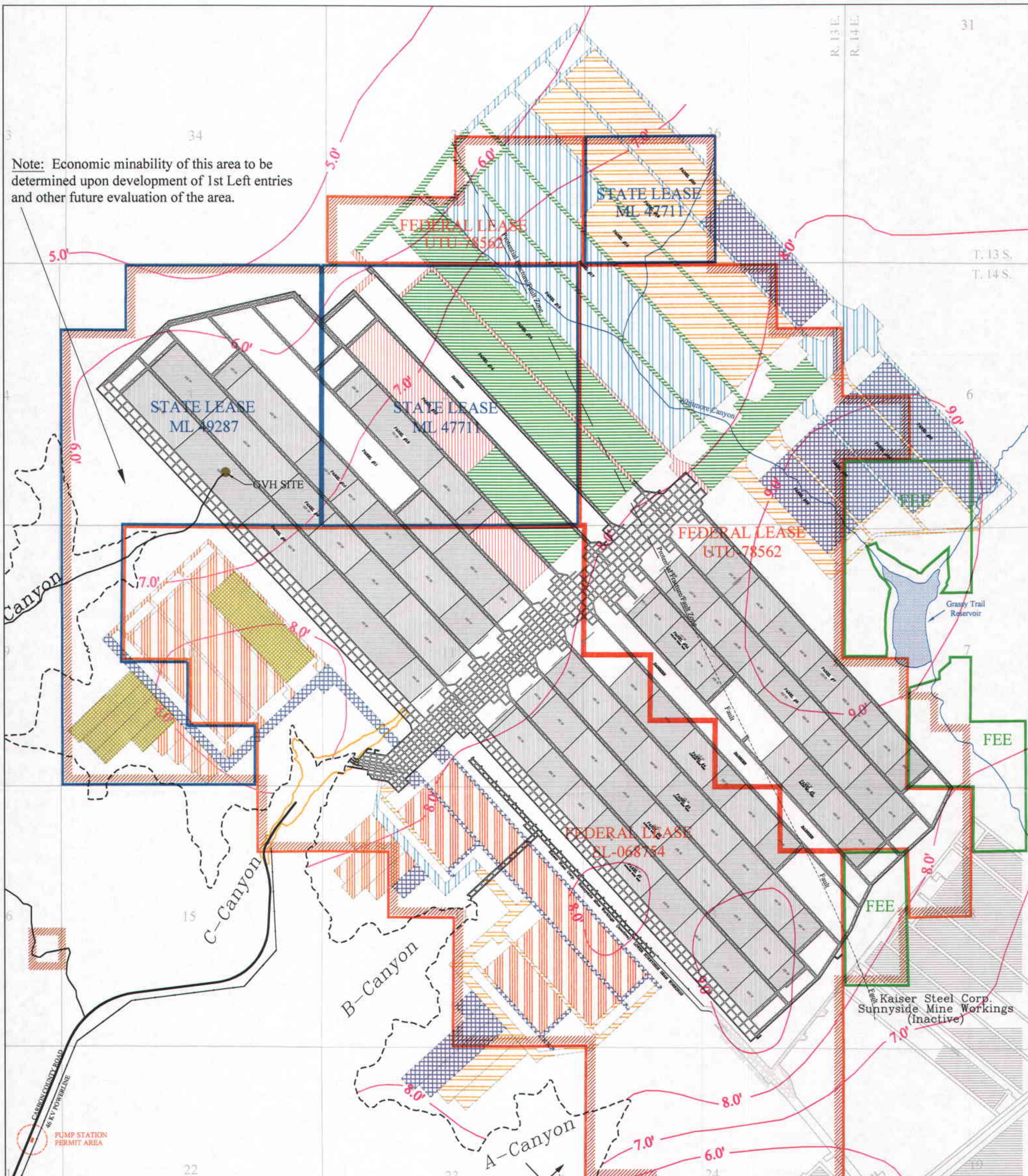
WEST RIDGE
RESOURCES, INC.

SCALE: 1"=2000'

DATE: 10-13-08 REV: 11 ACAD REF: WRTIMEA REV11

MAP 5-4B

MINING PROJECTIONS
(EXTENDED RESERVES)



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WEST RIDGE MINE
Map 5-4B
Mining Projections (Extended Reserves)

DATE: 10-13-08 REV: 11 ACAD REF: WRTIMEB REV11

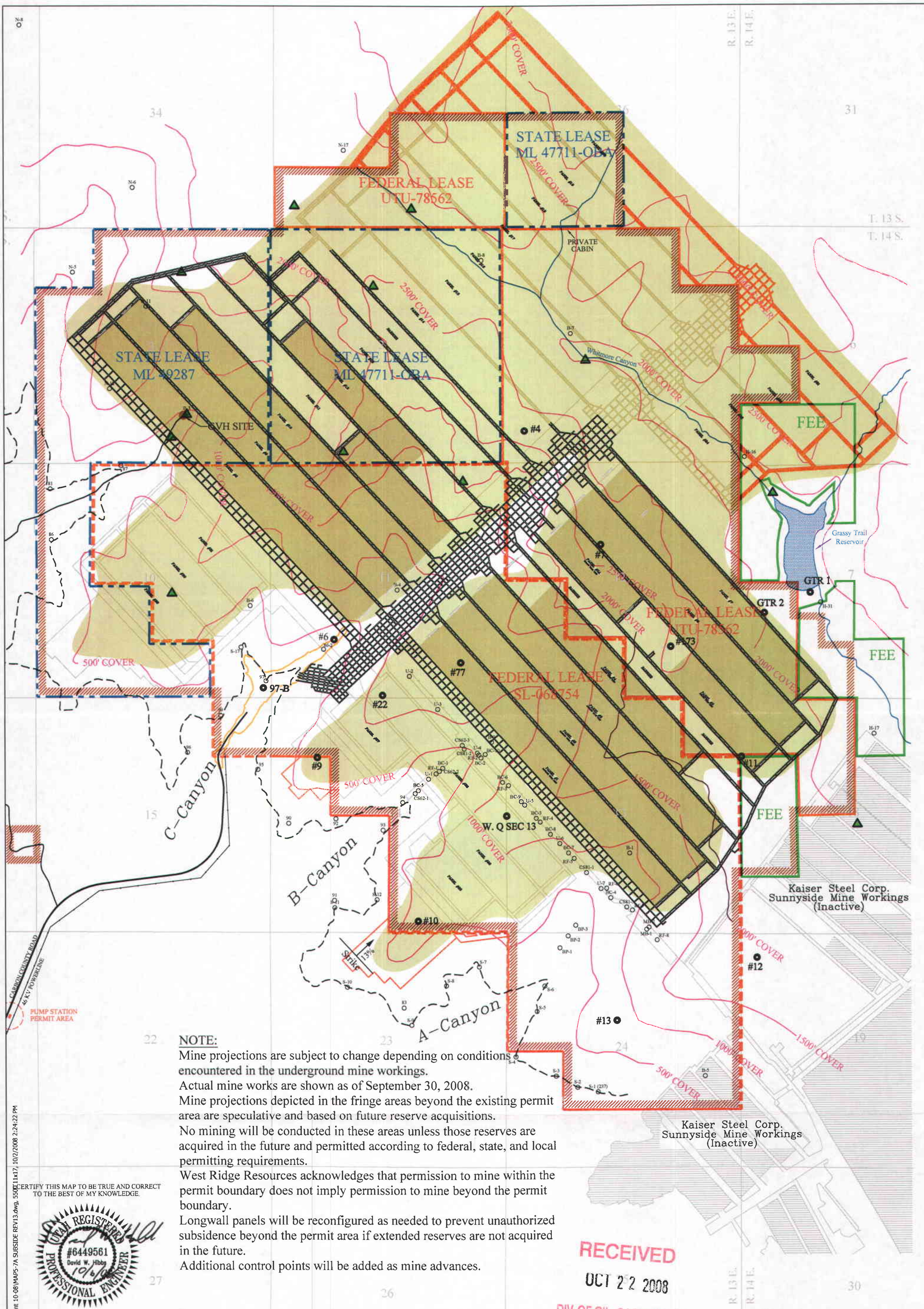
LEGEND:
- Permit Boundary
- Federal Lease
- State Lease (ML 49287)
- Penta Creek Fee
- Surface Facility Area
- GVH Site
- Outcrop

WEST RIDGE RESOURCES, INC.

SCALE: 1"=2000'

MAP 5-7

SUBSIDENCE MAP



NOTE:

Mine projections are subject to change depending on conditions encountered in the underground mine workings.

Actual mine works are shown as of September 30, 2008.

Mine projections depicted in the fringe areas beyond the existing permit area are speculative and based on future reserve acquisitions.

No mining will be conducted in these areas unless those reserves are acquired in the future and permitted according to federal, state, and local permitting requirements.

West Ridge Resources acknowledges that permission to mine within the permit boundary does not imply permission to mine beyond the permit boundary.

Longwall panels will be reconfigured as needed to prevent unauthorized subsidence beyond the permit area if extended reserves are not acquired in the future.

Additional control points will be added as mine advances.

I CERTIFY THIS MAP TO BE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.

UTAH REGISTERED PROFESSIONAL ENGINEER #6449561 David W. Hibbs 10/6/08

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WEST RIDGE MINE

Map 5-7

Subsidence Map

DATE: 10-02-08 REV: 13 ACAD REF: MAP5-7A SUBSIDE REV13

G:\Shared\Current Drawings\MRP Maps\West Ridge Mine\Current 10-08\MAP5-7A SUBSIDE REV13.dwg, 55G11x17, 10/2/2008 2:24:22 PM

LEGEND:
- Permit Boundary
- Federal Lease
- State Lease
- Penta Creek Fee
- Surface Facility Area
- Outcrop
- Cover
- Drill Hole
- Possible Subsidence Area
- Existing Photogammetric Control Points
- Future Photogammetric Control Points

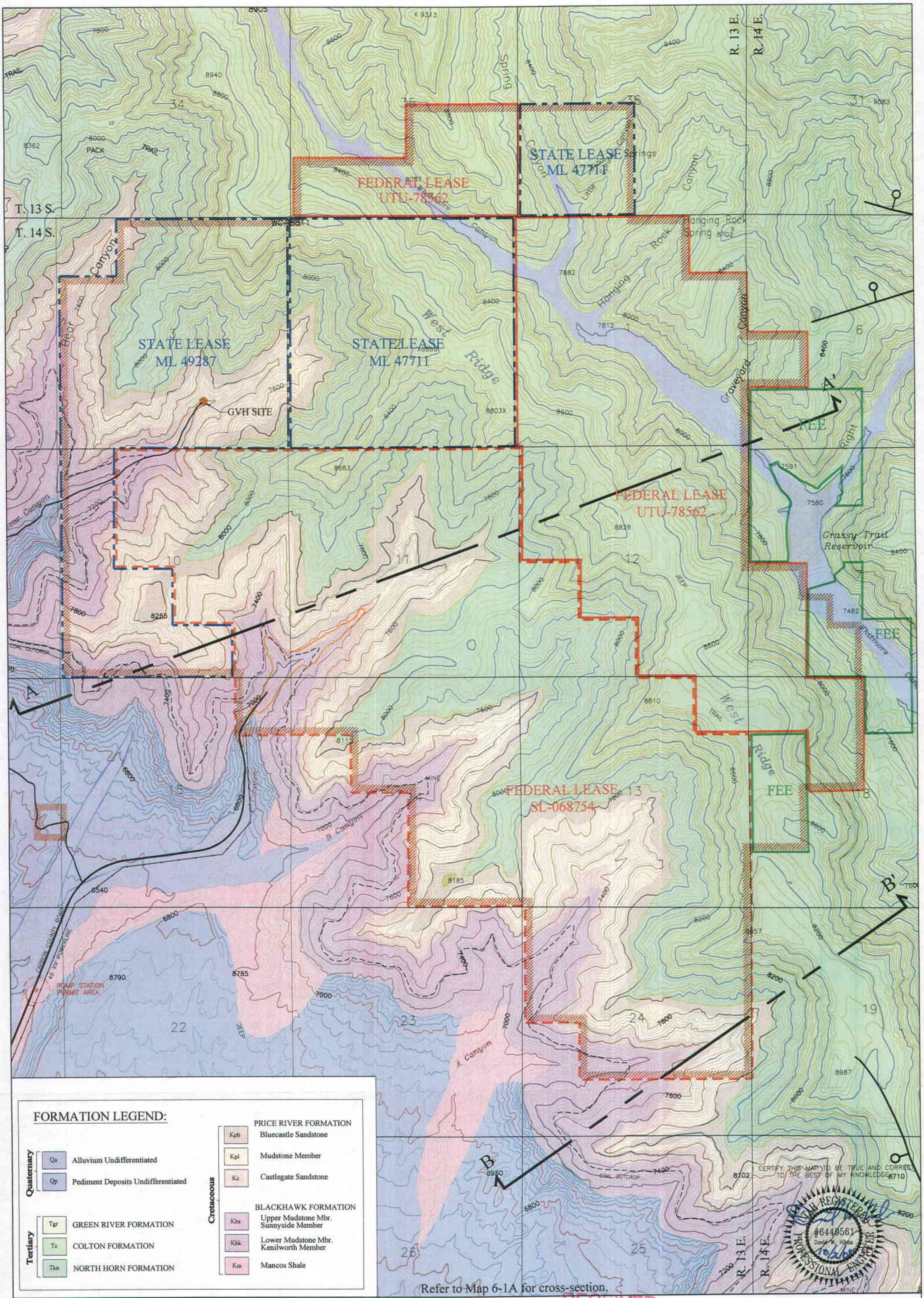
N

WEST RIDGE RESOURCES, INC.

SCALE: 1"=2000'

MAP 6-1

REGIONAL GEOLOGY MAP



Refer to Map 6-1A for cross-section.

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WEST RIDGE MINE
Map 6-1
Regional Geology Map

DATE: 10-02-08 REV: 9 ACAD REF: MAP6-1 GEOLOGY REV9

LEGEND:
- Permit Boundary
- Federal Lease
- State Lease
- Penta Creek Fee
- Surface Facility Area
- GVH Site
- Fault

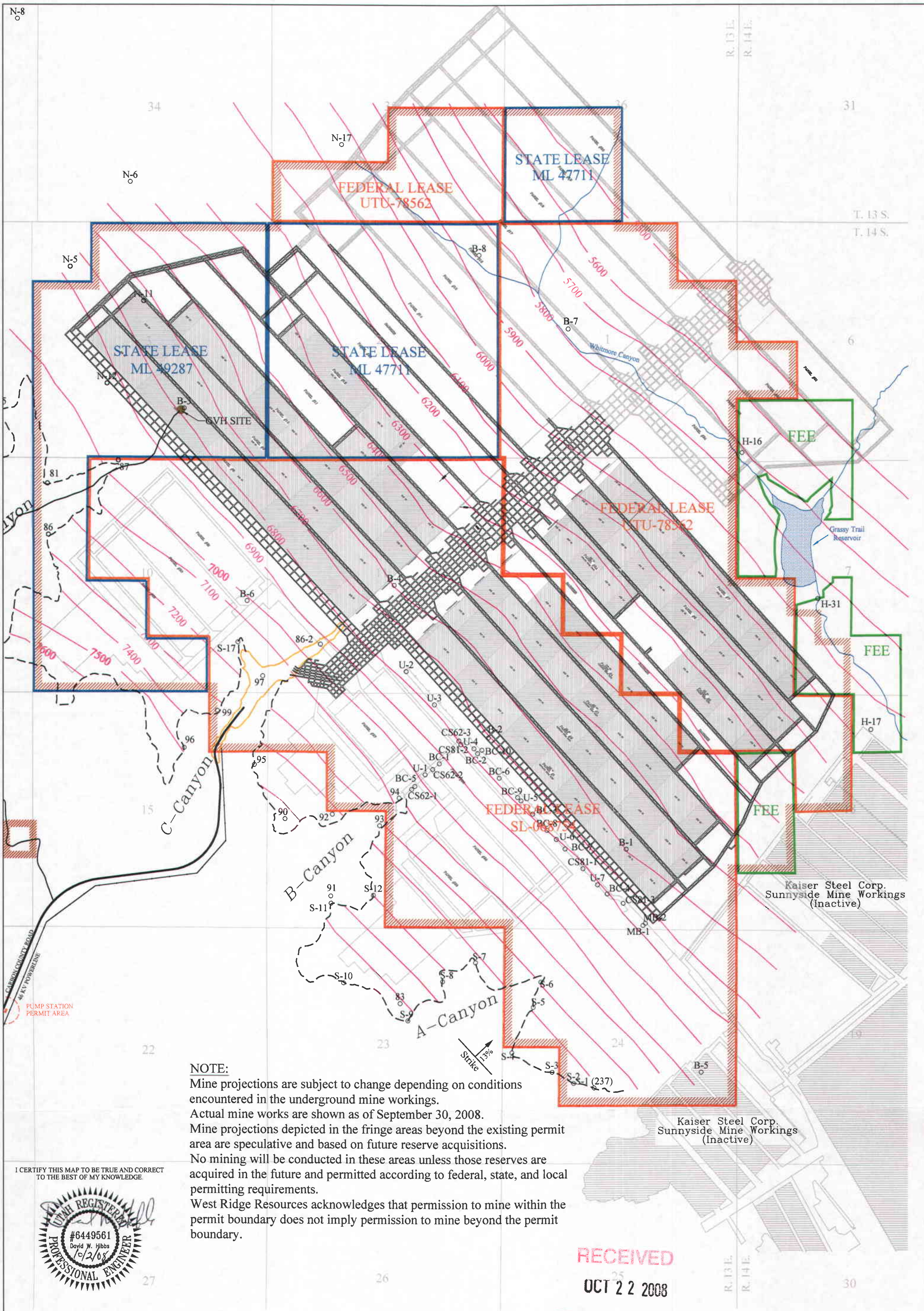
N

WEST RIDGE RESOURCES, INC.

SCALE: 1"=2000'

MAP 6-2

COAL SEAM STRUCTURE MAP



NOTE:
Mine projections are subject to change depending on conditions encountered in the underground mine workings.
Actual mine works are shown as of September 30, 2008.
Mine projections depicted in the fringe areas beyond the existing permit area are speculative and based on future reserve acquisitions.
No mining will be conducted in these areas unless those reserves are acquired in the future and permitted according to federal, state, and local permitting requirements.
West Ridge Resources acknowledges that permission to mine within the permit boundary does not imply permission to mine beyond the permit boundary.

I CERTIFY THIS MAP TO BE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.

UTAH REGISTERED PROFESSIONAL ENGINEER #6449561 David W. Hibbs 10/2/08

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WEST RIDGE MINE
Map 6-2
Coal Seam Structure Map

DATE: 10-02-08 REV. 12 ACAD REF: MAP6-2 STRUCTURE REV12

LEGEND:
- Permit Boundary
- Federal Lease
- State Lease
- Penta Creek Fee
- Surface Facility Area
- Outcrop
- Structure Contour (Base of Lower Sunnyside Seam)
- Drill Hole/Channel Samples S-7

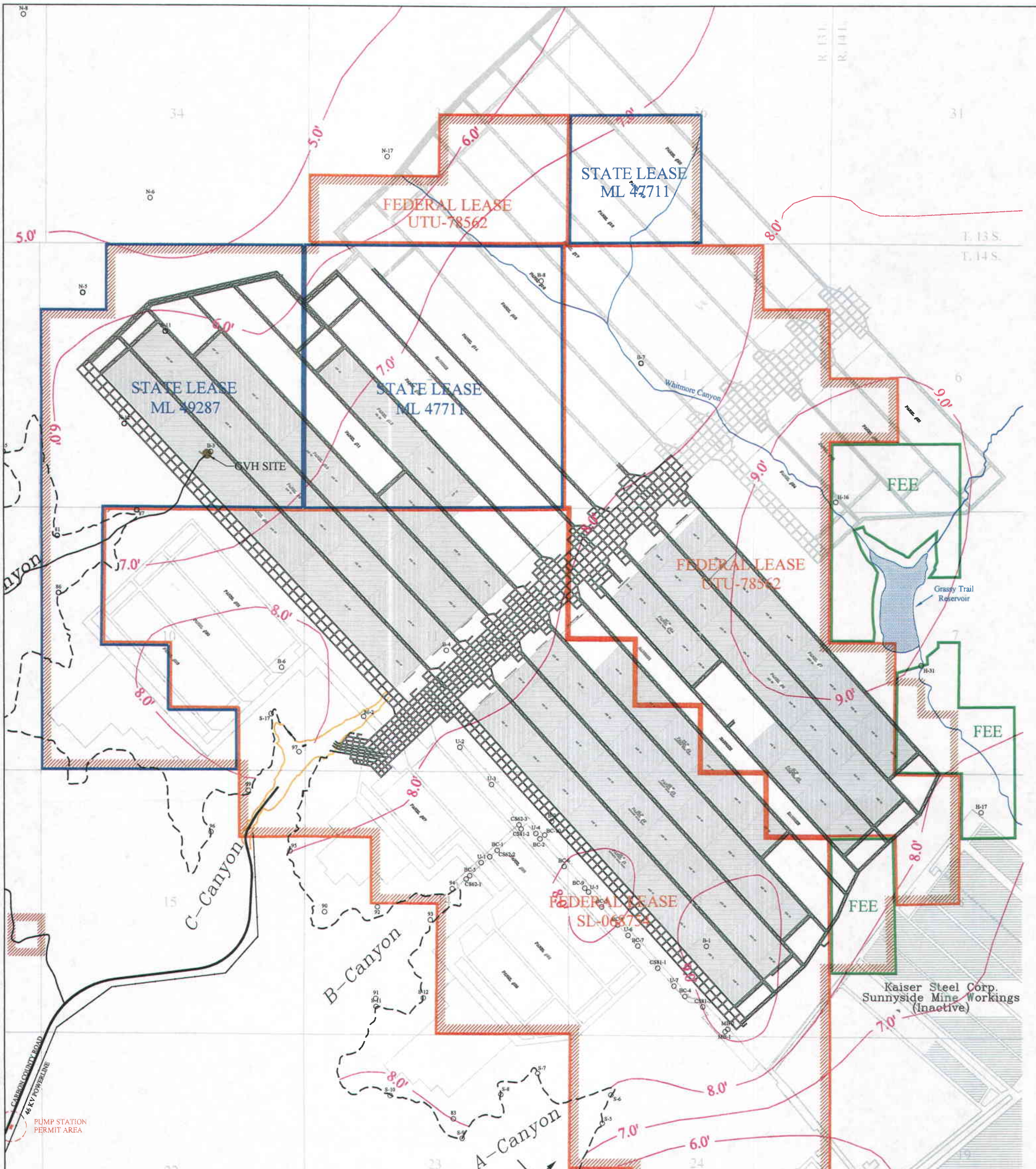
N

WEST RIDGE RESOURCES, INC.

SCALE: 1"=2000'

MAP 6-3

COAL SEAM ISOPACH MAP



NOTE:
Mine projections are subject to change depending on conditions encountered in the underground mine workings.
Actual mine works are shown as of September 30, 2008.
Mine projections depicted in the fringe areas beyond the existing permit area are speculative and based on future reserve acquisitions.
No mining will be conducted in these areas unless those reserves are acquired in the future and permitted according to federal, state, and local permitting requirements.
West Ridge Resources acknowledges that permission to mine within the permit boundary does not imply permission to mine beyond the permit boundary.

I CERTIFY THIS MAP TO BE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.

UTAH REGISTERED PROFESSIONAL ENGINEER
#6449561
David W. Hibbs
10/02/08

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WEST RIDGE MINE

Map 6-3

Lower Sunnyside Coal Seam Isopach Map

DATE: 10-02-08 REV: 12 ACAD REF: MAP6-3 ISOPACH REV12

LEGEND:
- Permit Boundary
- Federal Lease
- State Lease
- Penta Creek Fee
- Surface Facility Area
- GVH Site
- Outcrop
- Coal Isopachs
- Drill Hole/Channel Samples

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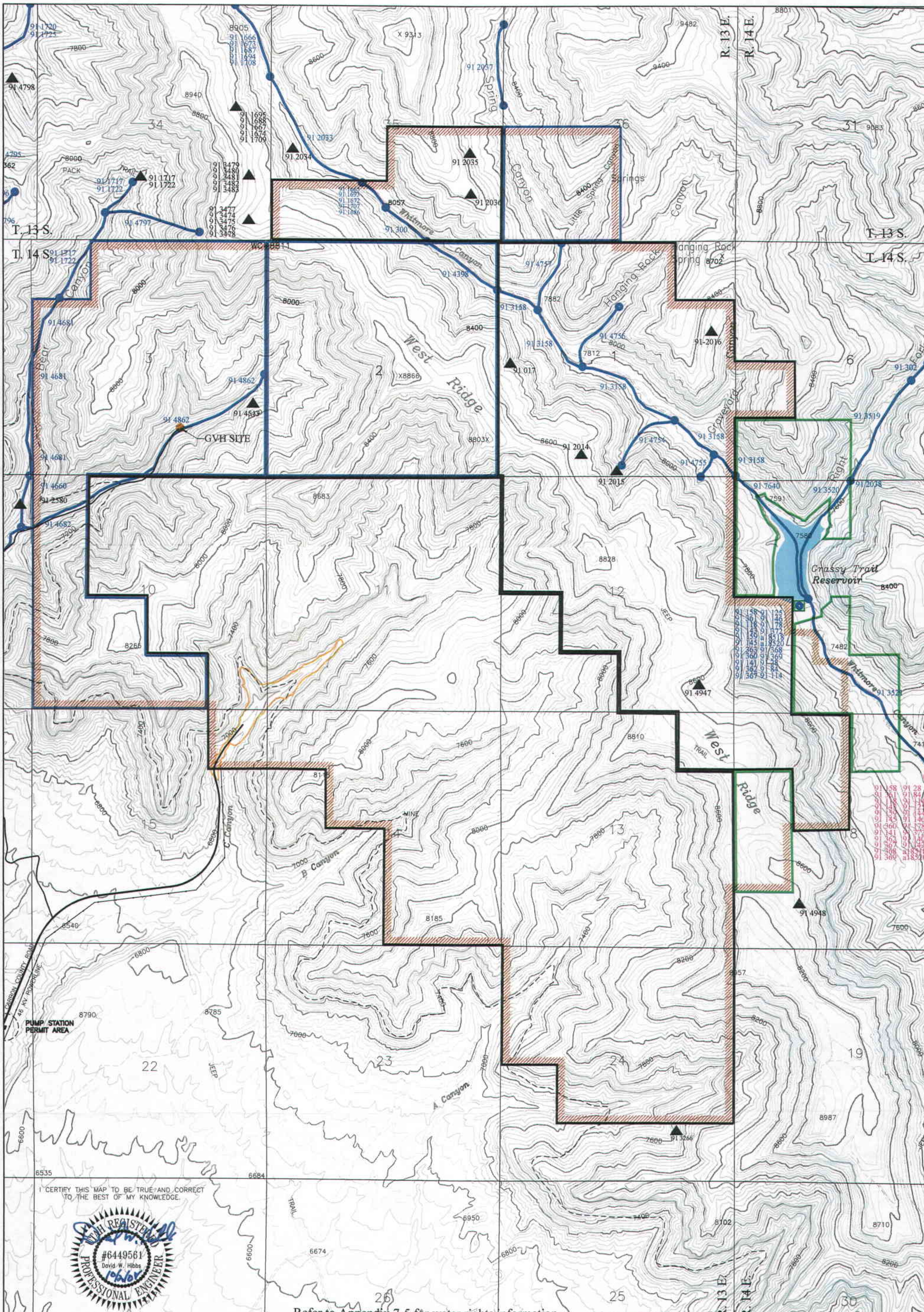
WEST RIDGE RESOURCES, INC.

SCALE: 1"=2000'

MAP 7-3

WATER RIGHTS MAP



Refer to Appendix 7-5 for water rights information.

WEST RIDGE MINE

Map 7-3

Water Rights

DATE: 10-02-08 REV: 11 ACAD REF: MAP7-3 WATERRIGHTS REV11

LEGEND:

- Permit Boundary
- Federal Lease
- State Lease
- Penta Creek Fee
- Surface Water Right:
  - Point to Point — 91 363
  - Spring — 91 363
- Ground Water Right — 91 363
- Municipal Water System Intake

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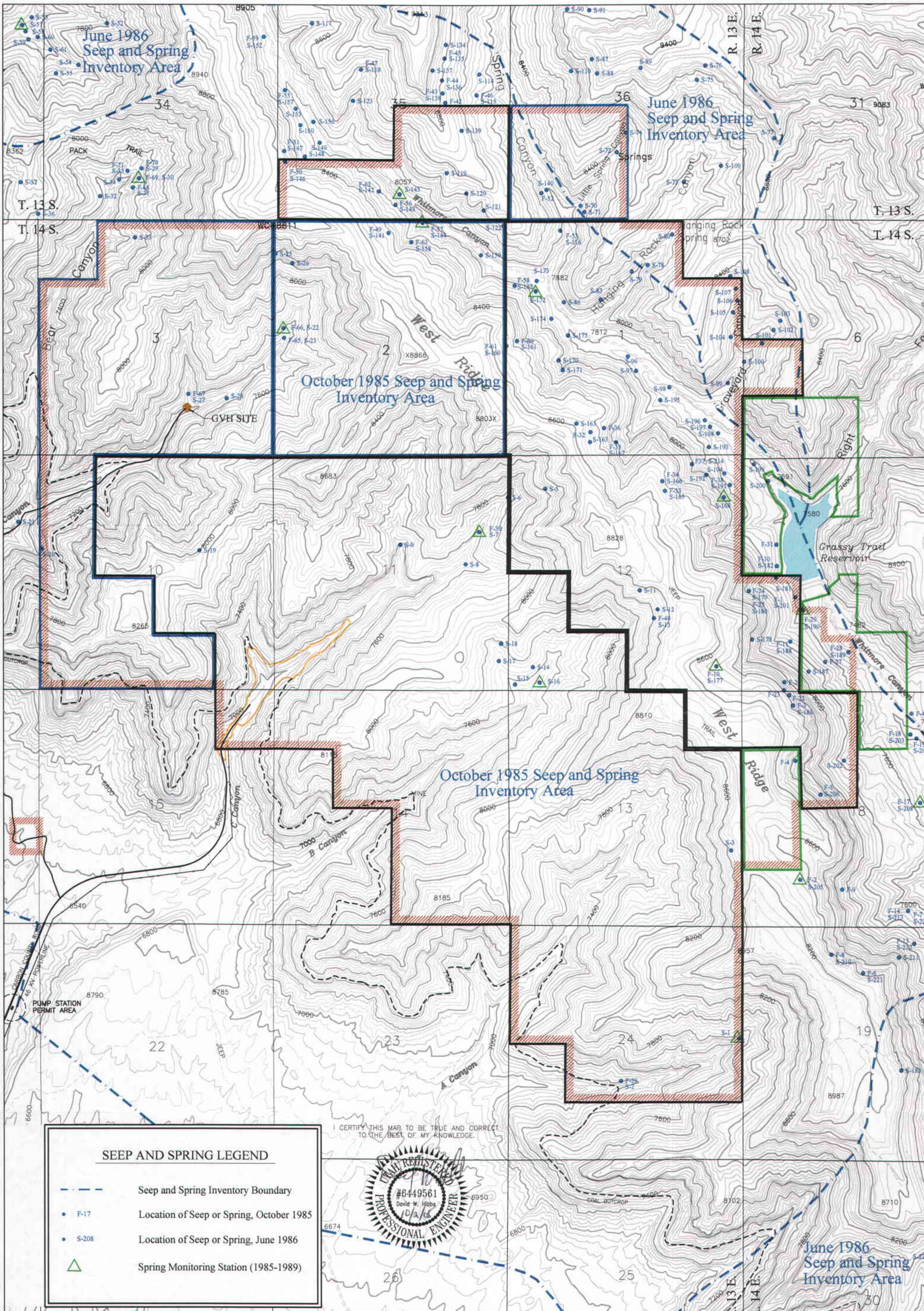
SCALE: 1"=2000'

MAP 7-5

SEEP/SPRING SURVEY MAP



WEST RIDGE MINE

Map 7-5

Seep/Spring Survey Map

DATE: 10-02-08 REV: 11 ACAD REF: MAP7-5 SEEP-SPRING REV11

LEGEND:

- Permit Boundary
- Federal Lease
- State Lease
- Penta Creek Fee
- Surface Facility Area
- GVH Site

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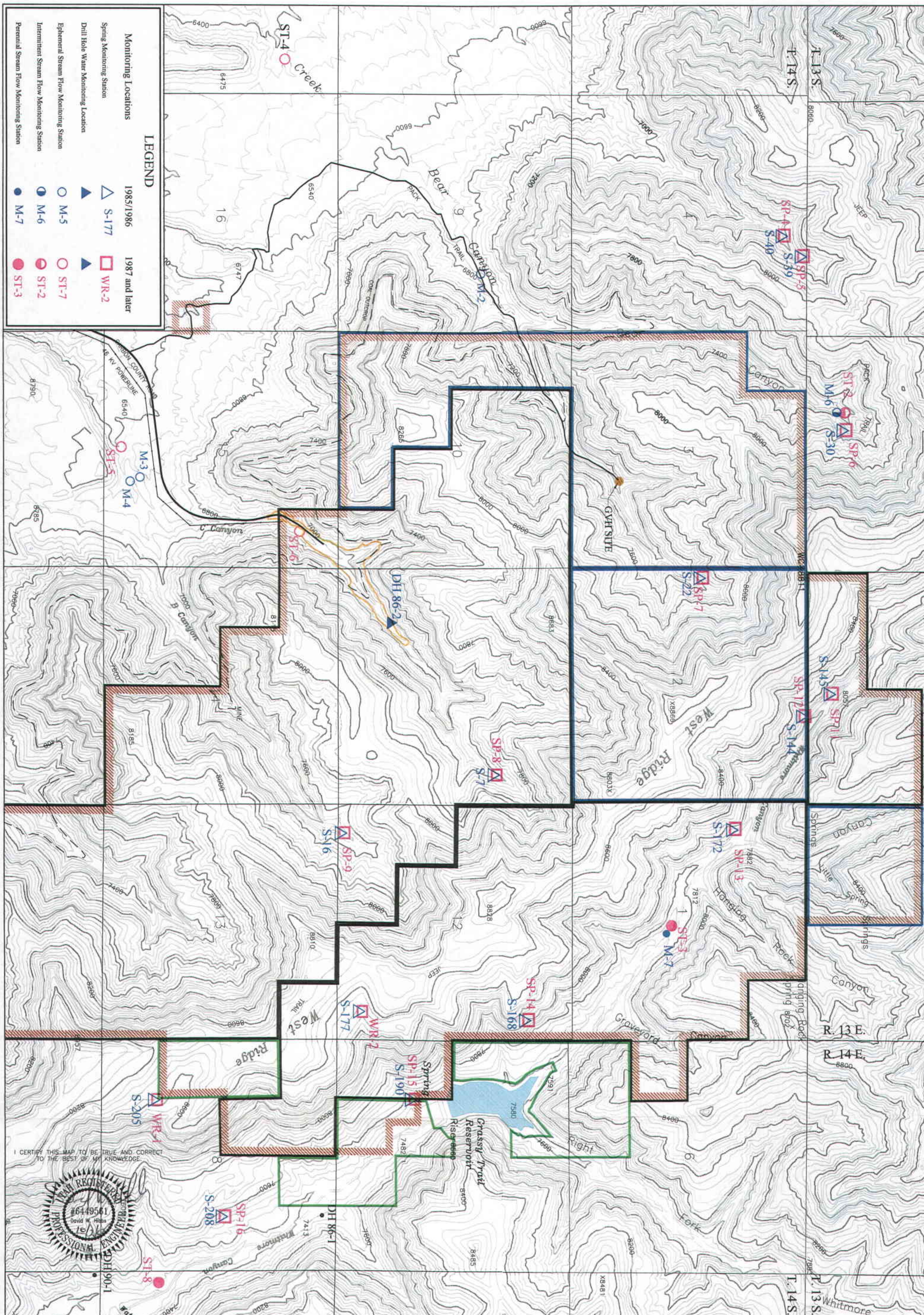
SCALE: 1"=2000'

MAP 7-6

HYDROLOGIC MONITORING MAP
(HISTORICAL MONITORING LOCATIONS)



WEST RIDGE MINE

Map 7-6

Hydrologic Monitoring Map
(Historical Monitoring Locations)

LEGEND:

- Permit Boundary
- Federal Lease
- State Lease
- Penta Creek Fee
- Surface Facility Area
- GVH Site

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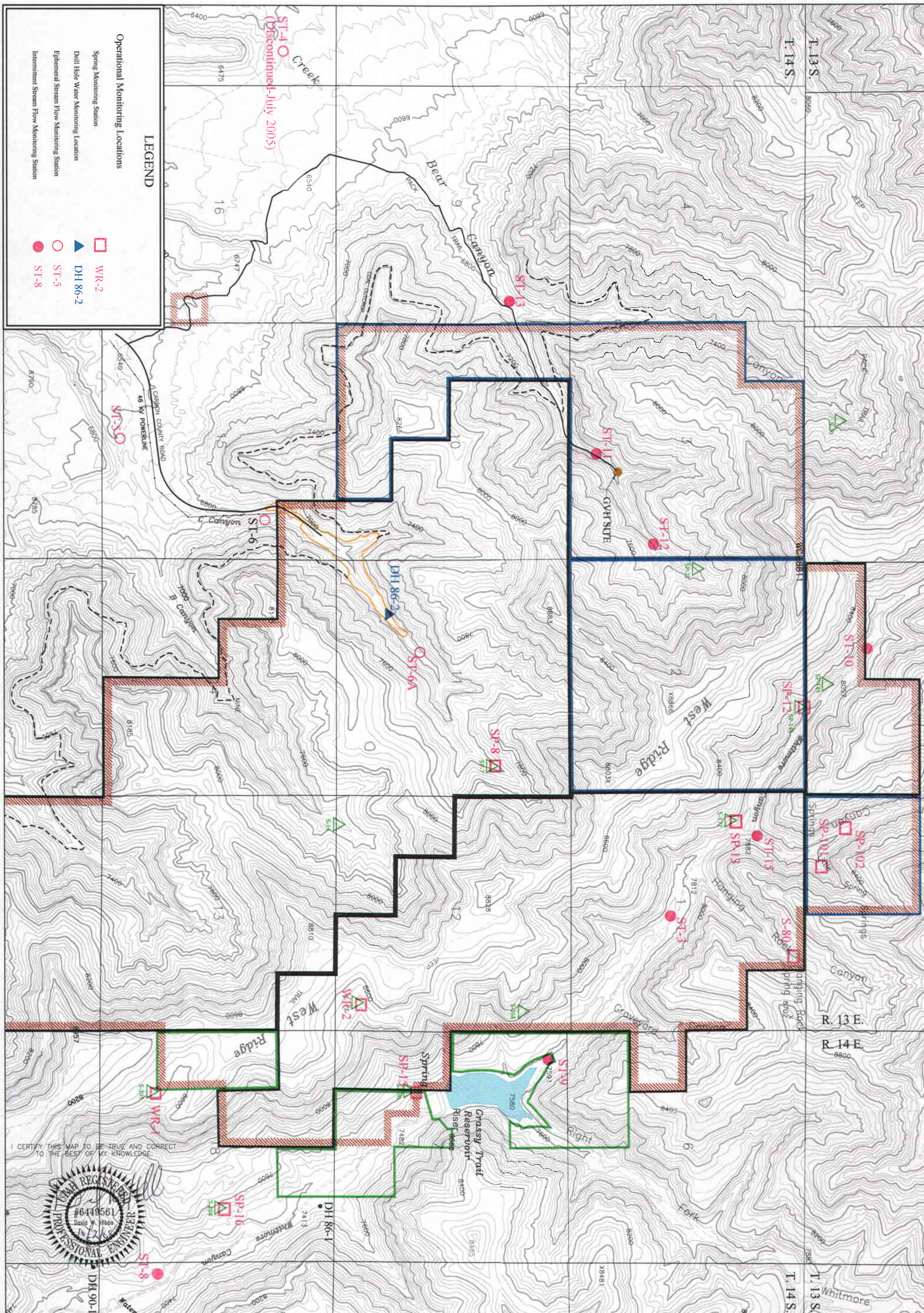
SCALE: 1"=2000'

DATE: 10-02-08 REV: 12 ACAD REF: MAP7-6 MONITOR-HIS REV12

MAP 7-7

HYDROLOGIC MONITORING MAP
OPERATIONAL MONITORING LOCATIONS



WEST RIDGE MINE
Map 7-7
Operational Monitoring Locations

LEGEND:
- Permit Boundary
- Federal Lease
- State Lease
- Penta Creek Fee
- Surface Facility Area
- GVH Site

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RESOURCES, INC.

SCALE: 1"=2000'

DATE: 10-02-08 REV: 10 ACAD REF: MAP7-7 MONITOR-OP REV10