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C/007/0020
Received 5/29/15
Task ID #4902

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TUCSON

May 29, 2015

Daron Haddock
Coal Program Manager
Utah Division of Oil, Gas & Mining
1594 West North Temple, Suite 1210
Salt Lake City, Utah 84116

Re: Significant Permit Revision, Hidden Splendor Resources, Inc.
Horizon Mine, Permit No. C/007/020, Carbon County, Utah

Dear Mr. Haddock:

On behalf of Hidden Splendor Resources, Inc. and pursuant to Utah Admin. Code R645-303-22, we hereby submit a Significant Permit Revision Application for the Horizon Mine, Permit No. C/007/020. Enclosed please find executed and notarized change application forms (C1 and C2), two redline strike-out copies and two clean copies of the revised Horizon Mine MRP attached for review and consideration by the Utah Division of Oil, Gas, and Mining ("Division").

As per the Division's recommendation, Hidden Splendor's application proposes to change the post mining use for the Horizon Mine from "undeveloped" to recreational use. To facilitate recreation on site, Hidden Splendor will retain the facility pad as a parking, camping, and staging area for recreational activity such as hiking, hunting, ATV, and horseback riding. Portions of the facility pad that will not be used for recreational use will be scarified, topsoiled and revegetated per specifications in Chapters 3, 8, and 9. See Appendix 8-1 Plate B, included in application.

Existing diversionary structures will be necessary to maintain the facility pad. Flows from portal canyon are currently diverted through a culvert (UC-3) under the facility pad and into Jewkes Creek. The culvert ensures that water from portal canyon is not polluted from runoff from previously disturbed areas, as well as from Horizon Mine's runoff. The culvert runs under the entire length of the facility pad. In order to keep the facility pad in place, the existing culvert constructed underneath the pad will need to be maintained. Runoff from the disturbed area is currently diverted into the sediment pond in a separate culvert, UC-2. To preserve water quality downstream and leave the culvert structure in place, the sediment pond will be retained for sediment control. Revised Chapters 4 and 7 describe in more detail how existing hydrology will

Daron Haddock
May 29, 2015
Page 2

be left in place. Reseeding and topsoil will be completed as described in the approved MRP: Chapter 3, Tables 3-2 and 3-3; Chapter 8, and Chapter 9.

As described in the revised MRP, Chapter 3, with the exception of the infrastructure described above, remaining structures, equipment, and foundations will be removed from site. See Plate 3-1a, included in application. All mine portals, including vertical openings, will be sealed as required under law. Division Staff previously identified an unsealed ventilation shaft during a recent site inspection. This opening was one of two portals that existed from previous mining operations and is identified in the Approved MRP. All portals, including the ventilation shaft will be sealed as described in Sections 3.3.5.5, and 3.5.3.1 of the approved MRP.

Hidden Splendor is in the process of remediating the Notice of Violation issued by the Division for sediment pond and culvert maintenance. The sediment pond will be dredged and restored to its original dimensions. Dredged material may be used for topsoil or fill material as described in Approved MRP Section 3.2.3.6. Otherwise, waste and other material will be disposed of as described in the Approved MRP, Sections 3.2.3.5 through 3.2.3.8. Culverts will also be cleared out and restored to working order. Any subsequent owner is legally required to maintain diversionary structures and the sediment pond under Utah Code §73-1-8, and will be subject to the enforcement jurisdiction of the Utah Division of Water Quality.

Thank you for your consideration in this matter. Please contact me with any questions.

Very truly yours,

Snell & Wilmer



Denise A. Drago

DAD:mkm

Enclosures

APPLICATION FOR COAL PERMIT PROCESSING

Permit Change New Permit Renewal Exploration Bond Release Transfer

Permittee: Hidden Splendor Resources, Inc.

Mine: Horizon Mine

Permit Number: C0070020

Title: Significant Permit Revision

Description, Include reason for application and timing required to implement:
Change in post-mining land use, MRP Revisions

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

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

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

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

Alexander Walker, President Hilary Mills, President, 5/29/15
 Print Name Sign Name, Position, Date

Subscribed and sworn to before me this 29 day of May, 2015
Hilary Mills
 Notary Public 2015

My commission Expires: 1-25, 2018 }
 Attest: State of UT } ss:
 County of Salt Lake



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

Legal Notice

Hidden Splendor Resources, Inc. has filed a complete application with the Utah Department of Natural Resources, Division of Oil, Gas & Mining for revision of the Mining and Reclamation Plan, Horizon Mine, C/007/020. Operations at the Horizon Mine have ceased. Hidden Splendor Resources, Inc. owns the Horizon Mine site located on private land in Carbon County. The revision changes the post-mining land use from “undeveloped” to recreational use, and maintains certain infrastructure to support post-mining recreational use.

The following describes the permit area located in Carbon County, State of Utah:

Township 13 South, Range 8 East, SLM

Section 6: NW1/4SE1/4, SE1/4SW1/4, SW1/4SE1/4, SE1/4SE1/4.

Section 7: NW1/4, NE1/4, SE1/4, E1/2SW1/4, NW1/4SW1/4.

Section 8: S1/2NW1/4, NW1/4NW1/4, SW1/4NE1/4, SW1/4, W1/2SE1/4.

Section 17: NW1/4, W1/2NE1/4, NE1/4SW1/4, N1/2SE1/4SW1/4, N1/2NW1/4SW1/4, NW1/4SE1/4, N1/2SW1/4SE1/4.

Section 18: NE1/4NE1/4

Containing 1,577 acres more or less consisting of 305 acres more or less of Fee coal and 1,272 acres more or less of Federal leased coal.

The address of the applicant is: Hidden Splendor Resources, Inc.
American Plaza II
57 West 200 South, Suite 400
Salt Lake City, Utah 84101

After filing, copies of this permit revision will be available for inspection at the Carbon County Court House, and at the Utah Division of Oil, Gas & Mining website under Coal Permit files.

Written comments or requests regarding this permit revision must be made within thirty (30) days of the last publication of this notice, and may be addressed to the Utah Division of Oil, Gas & Mining, 1594 West North Temple, Suite 1210, Salt Lake City, Utah 84114-5801.



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

12/03/2014

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an **ADDITIONAL INSURED**, the policy(ies) must be endorsed. If **SUBROGATION IS WAIVED**, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Banasky Insurance 6 West Main Street Price, UT 84501	CONTACT NAME: Ann Erramouspe PHONE (A/C. No. Ext): (435)637-7803 E-MAIL ADDRESS: Ann@banasky.com	FAX (A/C. No): (435)637-7811
	INSURER(S) AFFORDING COVERAGE	
INSURED Hidden Splendor Resources Inc, Horizon Mine 57 W 200 S Ste. 400 Salt Lake City, UT 84101	INSURER A : Great Midwest Insurance Company	
	INSURER B :	
	INSURER C :	
	INSURER D :	
	INSURER E :	
	INSURER F :	

COVERAGES

CERTIFICATE NUMBER: 00075216-0

REVISION NUMBER: 1

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	GENERAL LIABILITY			GL00040912-01	12/03/2014	12/03/2015	EACH OCCURRENCE \$ 1,000,000
	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: <input checked="" type="checkbox"/> POLICY <input type="checkbox"/> PROJECT <input type="checkbox"/> LOC						DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 100,000
	AUTOMOBILE LIABILITY						MED EXP (Any one person) \$ 5,000
	<input type="checkbox"/> ANY AUTO <input type="checkbox"/> ALL OWNED AUTOS <input type="checkbox"/> HIRED AUTOS <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> NON-OWNED AUTOS						PERSONAL & ADV INJURY \$ 1,000,000
	UMBRELLA LIAB						GENERAL AGGREGATE \$ 2,000,000
	EXCESS LIAB						PRODUCTS - COMP/OP AGG \$ 2,000,000
	DED <input type="checkbox"/> RETENTION \$						
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY						COMBINED SINGLE LIMIT (Ea accident) \$
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below		Y/N <input type="checkbox"/> N/A				BODILY INJURY (Per person) \$
							BODILY INJURY (Per accident) \$
							PROPERTY DAMAGE (Per accident) \$
							EACH OCCURRENCE \$
							AGGREGATE \$
							WC STATUTORY LIMITS
							OTHER
							E.L. EACH ACCIDENT \$
							E.L. DISEASE - EA EMPLOYEE \$
							E.L. DISEASE - POLICY LIMIT \$

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

CERTIFICATE HOLDER**CANCELLATION**

Utah Division of Oil, Gas and Mining 1594 W North Temple Suite 1210 Salt Lake City, UT 84114	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS. AUTHORIZED REPRESENTATIVE  (PAE)
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BOND SUMMARY

Subtotal Demolition and Removal		\$77,418
Subtotal Backfilling and Grading		\$57,633
Subtotal Revegetation		\$97,987
Direct Costs		\$233,038

Indirect Costs		
Mob/Demo	10.0%	\$23,304
Contingency	5.0%	\$11,652
Engineering Redesign	2.5%	\$5,826
Main Office Expense	6.8%	\$15,847
Project Management Fee	2.5%	\$5,826
Subtotal Indirect Costs		\$62,454

Total Cost 2014		\$295,492.18
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Escalation	0.019	\$5,614.35
Number of Years	1	\$301,107

Bond Amount (Rounded to nearest \$1,000)		\$301,000.00
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15% Collateral Adjustment **\$346,000.00**

Bond Amount/
Appraised Collateral Value **\$515,000.00**

LIST OF FIGURES

FIGURE 3-3	MINE IDENTIFICATION SIGN.....	3-20
FIGURE 3-4	IDENTIFICATION SIGNS.....	3-21
FIGURE 3-5	SUBSIDENCE/SEAM THICKNESS RATIOS (FROM DUNRUD, 1980)...	3-3030
FIGURE 3-6	TYPICAL PORTAL SEALING.....	3-3737
FIGURE 3-7	TYPICAL PORTAL BLOCK SEAL.....	3-3838

LIST OF PLATES

PLATE 3-1	SURFACE FACILITIES
PLATE 3-1A	SURFACE AREA
PLATE 3-2	PREMINING AND OPERATIONAL CROSS SECTIONS
PLATE 3-3	FIVE YEAR MINE PLAN
PLATE 3-4	ACCESS AND HAULAGE ROAD DESIGN
PLATE 3-4A	ANCILLARY ROAD TYPICAL SECTION
PLATE 3-5	SUBSIDENCE MONITORING PLAN
PLATE 3-6	PREMINING TOPOGRAPHY
PLATE 3-7	RECLAMATION TOPOGRAPHY
PLATE 3-7A	POST MINING AND OPERATIONAL CROSS SECTIONS
PLATE 3-7B	TOPSOIL STORAGE AREA CROSS-SECTIONAL VOLUME
PLATE 3-8	SWEETS CANYON POND UTILITIES
PLATE 3-9	OLD WORKINGS CASTLEGATE A SEAM
PLATE 3-10	OLD WORKINGS HIAWATHA SEAM

LIST OF APPENDICES

APPENDIX 3-1	ROAD AND HAULAGE LETTERS
APPENDIX 3-2	PILLAR EXTRACTION
APPENDIX 3-3	STATIC SAFETY FACTOR CALCULATIONS
APPENDIX 3-4	ROCK STRENGTH ANALYSES
APPENDIX 3-5	WATER RIGHTS
APPENDIX 3-6	UPDES PERMIT
APPENDIX 3-7	RECLAMATION BOND ESTIMATE
APPENDIX 3-8	LOCATIONS OF BURIED COAL WASTE
APPENDIX 3-9	UC-3 CULVERT EXTENSION
APPENDIX 3-10	ASTM COAL CLASSIFICATIONS
APPENDIX 3-11	BLM APPROVAL OF R2P2

Support Facilities. Support facilities at the Horizon Mine will be operated in accordance with the permit issued for the mine. Support facilities will be located, maintained, and used in a manner that:

- Prevents or controls erosion and siltation, water pollution, and damage to public or private property;
- To the extent possible, using the best technology currently available, minimizes damage to fish, wildlife, and related environmental values; and
- Minimizes additional contributions of suspended solids to stream flow or runoff outside the permit area.

All support facilities will be removed following mining in accordance with the reclamation plan discussed in Section 3.5 of this M&RP.

Water Pollution Control Facilities. Water pollution control facilities at the Horizon Mine consist of the sedimentation pond and the appurtenant structures associated with the sedimentation pond. . All water pollution control facilities will be ~~removed~~ maintained following mining in accordance with the reclamation plan discussed in Section 3.5 of this M&RP. The sedimentation pond and appurtenant structures were constructed as discussed in Chapter 7.

3.2.3.3 Road Classification

Primary roads within the disturbed area include the lower haul road loop and the upper pad road. No ancillary roads exist within the disturbed area. The locations of these roads are shown on Plates 3-1 and 3-4. Typical cross sections representing these roads are shown on Plate 3-4.

The unimproved dirt roads outside of the disturbed area but within the permit area will not be classified. They may be used by Horizon for access to the lease area surfaces for the collection of monitoring data (environmental and subsidence data) as well as other uses deemed appropriate by Horizon and as allowed by the associated landowner.

3.2.3.4 Description of Transportation Facilities

No surface conveyors (other than those in the mine yard immediately adjacent to the portals) or rail systems will be constructed, used, or maintained within the permit area. A description of the conveyor systems that will be used in the mine yard is provided in this M&RP.

Road Specifications. Cross sections of roads that will be used or maintained by Horizon are provided on Plate 3-4. This plate provides information regarding road widths, gradients, surfaces, etc. Information regarding road drainage structures is presented in Chapter 7.

The road which will access the mine is the Beaver Creek county road that extends from Consumers Road to the town of Clear Creek. Letters from Carbon County regarding the use of both Beaver Creek Road and Consumers Road are provided in Appendix 3-1. As indicated in this appendix.

3.5 Reclamation Plan

3.5.1 Contemporaneous and Interim Reclamation

Disturbed areas when no longer needed, will be backfilled, graded, retopsoiled, and revegetated. Seeding, fertilizing, and mulching will be performed as soon as practical following redistribution of topsoil. Seed Mix #2 presented in Table 3-3 will be planted, and erosion-control matting will be installed in specific areas as described in Section 3.5.5.3. Reclamation techniques are described below. Areas that will not be redisturbed will be classified as contemporaneously reclaimed. Seed Mix #1 will be used in areas requiring soil stabilization during the operational period of mining. These areas will likely be redisturbed either during the operation or reclamation of the mine site. The areas that will be redisturbed during operation or final reclamation contouring will be classified as interim reclamation. Areas where interim reclamation contacts a steep bank dropping to a diversion ditch will be protected by attempting to control the loss of topsoil by installing a mulch mat a minimum of one foot above and below the grade break.

During October 1997, the areas designated on Plate A within Appendix 8-1 are scheduled for stabilization seeding using Seed Mix No. 1. Refer to Section 8.8 for additional information.

Underground Coal Mining and Reclamation Activities. All surface equipment, structures, or other facilities not required for continued underground mining activities and monitoring, unless approved by the Division as suitable for the post-mining land use or environmental monitoring, will be removed and the affected lands reclaimed following permanent cessation of mining operations.

Reclamation Timetable. A timetable for the completion of each major step in the reclamation plan is presented in Table 3-4.

Plan for Backfilling, Soil Stabilization, Compacting, and Grading. The regrading plan for the Horizon Mine was designed to meet the objectives of balancing cut and fill quantities and maintaining a geotechnically and erosionally stable base. The primary features of this plan are:

- Reclamation of the pad upon which surface activities will be constructed at the mine, thereby creating a slope which will adequately drain while minimizing long-term erosion concerns;
- Backfilling to remove portal entrances (highwalls) within the objectives noted above (cut and fill balance, site stability, and erosion control),
- ~~Construction of stable channels across regraded areas;~~
- Placement of topsoil;
- Revegetation and mulching of the topsoiled site; and
- ~~Removal~~ Retention of the sedimentation pond (together with required maintenance accompanying and necessary regrading, topsoiling, revegetation, and mulching of the sedimentation pond area embankment) and implementation of interim sediment-control measures.

The estimated cut quantity for the Horizon facility is approximately ~~11,752,914,916~~ 11,752,914,916 cubic yards with an estimated fill of ~~10,238,744,275~~ 10,238,744,275 cubic yards (see Table 3-1). Regrading activities will continue until the final surface configuration defined by Plates 3-7 and 3-7A is approximated. Details regarding topsoil placement and revegetation following regrading are provided in Chapters 3 and 8, respectively.3-3

TABLE 3-4

Reclamation Timetable

Task	Months from Start of Reclamation					
	1	2	3	4	5	6
PHASE I						
Seed/Plant Ordering*	----- -					
Portal Sealing	----- -					
Demolition - Structure Removal	----- -	----- -				
Rough and Final Grading		----- -	----- -	----- -		
Construction of Reclamation Channels and Installation of Sediment Controls			----- -	----- -		
Soil Testing/Order Amendments				----- -		
Topsoil Distribution				----- -	----- -	
Seeding & Mulching						-----
Vegetation/Water Monitoring	10 years after seeding or until bond release					
PHASE II - To Follow Phase I Bond Release						
Seed/Plant/Amendment Ordering*	-----					
Grading (Disturbed Area Access Road)					-----	
Topsoil Distribution					-----	
Seeding & Mulching						-----
Reclamation Monitoring	Until bonding requirements are satisfied					

* Seed and plants will be ordered one year prior to their proposed planting time.

TABLE 3-1

RECLAMATION CUT AND FILL CALCULATIONS

Using Present surface contours from Plate 3-7 in conjunction with revised reclamation contours through AutoCad 2000 and Survcadd 2000

Area in Cut: ~~186,023.6~~18,295 sq ft, ~~4.27~~10.420 acres
Area in Fill: ~~189,050.1~~17,997 sq ft, ~~4.34~~0.413 acres
Total inclusion area: ~~8.61~~10.833 acres
Cut to Fill ratio: 1.15
Average Cut Depth: ~~1.77~~.261 ft
Average Fill Depth: ~~1.46~~.41 ft
Cut volume: ~~11,752.91~~4,916 cubic yards
Fill volume: ~~10,238.744~~4,275 cubic yards

Backfilling and Compaction. As indicated previously in this M&RP, the surface at the Horizon Mine was originally disturbed between the 1920s and the 1950s by previous mining operations. These prior operators made no effort to salvage any topsoil or other soil material for subsequent site reclamation. Therefore, restoration to a contour that approximates pre-mining conditions is neither practical nor required by the regulations. However, it is the intent of Horizon to restore the area to a topography that is compatible with the post-mining land use, using materials that are available at the site.

All vegetation, organic matter, and debris will be cleared from areas to receive fill. The cut material from site regrading will be placed as fill and graded to facilitate drainage from the mine site and contributing side areas. All fill placed during recontouring of the site will be compacted to at least 85 percent of maximum Proctor density (ASTM D698). Compaction will be accomplished using repeated passes of rubber-tired equipment, rollers, and other appropriate equipment.

Side hill embankments, where the width is too narrow to allow access by compaction equipment, will be initially constructed by spreading the soil with a dozer, but only to a width necessary to allow compaction equipment access. After this is achieved, the fill will be placed in lifts and compacted to at least 85 percent of maximum Proctor density.

Care will be taken to ensure that fill materials are not frozen during placement or compaction. Any areas that are damaged by freezing will be reconditioned, reshaped, and recompacted to at least 85 percent of maximum Proctor density. All fill placement and compaction activities will be overseen by an experienced engineer.

In general, grading and backfilling operations will proceed from the upstream end of the surface facilities to the downstream end, thus allowing the sedimentation pond to remain effective for as long as possible.

~~Construction of Reclamation Channels~~ **Post-mining Use of Diversion Channels.** ~~Reclamation Existing diversionary channels will be constructed at the locations shown on Plate 3-7. These channels will be constructed used~~ to capture runoff from undisturbed areas and convey this runoff to and through Portal Canyon and Jewkes Creek. Details regarding the design and construction of these channels are provided in Chapter 7 of this M&RP.

As noted on Plate 3-7, slopes adjacent to the reclaimed streams are generally much shallower than the natural slopes upstream from the disturbed area (where natural slopes on the hillsides adjacent to the streams are typically 1.5H:1V or steeper). Hence, access to the streams by wildlife and livestock under post-mining conditions should not be hindered within the reclaimed area.

~~Sedimentation Pond Removal and~~ **Retention and Interim Sediment Control.** Prior to the start of reclamation activities, temporary silt fences will be ~~emplaced within the disturbed area in Jewkes Creek perpendicular to the flow direction. A minimum of four such silt fences will be installed in the creek downstream from the by-pass culvert (UC 1) outlet but within the disturbed area prior to removal of the culvert.~~ The silt fences will be located in an area convenient for maintenance and cleanout. The silt fences will be removed when reclamation construction activities are completed. During reclamation, the silt fences will be periodically inspected and accumulated sediment will be removed from behind the silt fences when required to minimize downstream impacts. Chapter 7, pages 7-68 and 7-69 contain a detailed description of sediment control during reclamation.

~~The sedimentation pond will be retained for as long as practical during reclamation. Once backfilling and grading operations proceed to the location of the pond, it will be removed. Because the pond is designed primarily as an excavated structure, removal of the pond will consist primarily of backfilling. This removal will be accomplished using backhoes, loaders, dozers, and other appropriate earthmoving equipment. As soon as regrading of an area no longer allows that area to drain to the sedimentation pond, silt fences will be installed along the base of the slopes adjacent to the associated stream to control erosion on an interim basis prior to revegetation success. These silt fences will be installed using a supportive backing and burying the toe of the filter fabric.~~

On a temporary basis, straw-bale dikes may also be installed as necessary to control localized erosion prior to the establishment of revegetation efforts. If installed, locations of the straw-bale dikes will be selected to reduce sediment contributions to runoff based on field observations. Straw-bale dikes will be installed by keying the bales into the ground.

The sediment pond will be retained as a permanent improvement post-reclamation.

Roads. All roads within the disturbed area will be reclaimed immediately after they are no longer needed for mining and reclamation operations. These roads will be graded and/or backfilled as indicated above. Topsoil will be applied to the regraded surfaces and the area will be revegetated as discussed in Chapters 3 and 8, respectively. The private landowner has requested that a driveway off the county road to the disturbed area be maintained. This driveway will facilitate access for post-revegetation monitoring and maintenance and provide the landowner with access to his property.

3.5.2 Soil Removal and Storage

Soil surveys conducted at the mine site have distinguished disturbed lands from undisturbed soil mapping units (see Chapter 8, Plate 8-1). Areas mapped as disturbed land are areas where the soils, vegetation, or both were affected by previous mining operations. Disturbance of the roads and pads occurred prior to regulatory requirements to salvage topsoil from those areas.

All topsoil/growth medium to be generated during future disturbances will be stockpiled. The stockpiles will be contoured, fertilized, vegetated with Seed Mix #1 outlined in Section 3.5.5.2, and mulched as outlined in Section 3.5.5.3. Markers will be placed indicating that the piles contain topsoil. Berms and/or strawbales will be placed around the stockpile to minimize off-pile transport of sediment.

Areas of interim reclamation that will be redisturbed for final reclamation contouring will have the depth topsoil that was placed on those areas removed and placed back on the topsoil stockpile for redistribution onto the newly recontoured area. A qualified person will be present during the removal of the topsoil in these areas. See Plate 3-7 for areas where interim reclamation will be re-disturbed and areas where re-contouring is complete an interim vegetation has been established.

Refer to Section 8.8 for the methods being used in the removal and redistribution of soils.

3.5.3 Final Abandonment

Upon permanent cessation of operations, permanent reclamation will be performed. All surface equipment, structures and facilities (other than sedimentation control) associated with the operation will be removed during reclamation of the affected area.

3.5.3.1 Sealing of Mine Openings

Abandonment of Openings. When no longer needed for mining operations, all portals will be sealed and backfilled by collapsing the concrete canopies over each portal. Prior to the sealing of the mine openings, all combustible materials will be removed from the portal area. All structures that would interfere with sealing of the mine openings will also be removed. The permanent closures will be constructed to prevent access to mine workings by people, livestock, and wildlife. Potential surface drainage will also be kept from entering the sealed entries.

All mine openings will be sealed at least 20 feet inside the mine opening. Prior to installation of the seal, all loose material will be removed from the roof, floor, and rib of the mine within the seal area. The seal will then be constructed using solid concrete blocks with nominal dimensions of 8 inches high, 8 inches wide, and 16 inches long. Mortar will consist of one part cement, three parts sand, and no more than 7 gallons of water per sack of cement.

In the bottom course, each block will be laid with its long axis parallel to the rib. The long axis in succeeding higher courses will be perpendicular to the long axis of the blocks in the preceding course. The seal will be recessed at least 8 inches deep into each rib and 8 inches deep into the floor. No recess will be made into the roof.

The seals will have a thickness of approximately 16 inches. Following seal construction, the entries will be backfilled from the seal to the outside surface with soil that is sloped at the surface to match the final slope at the entry.

Casing and Sealing of Underground Openings. Each underground opening to the mine will be sealed and backfilled when no longer needed for monitoring or other use approved by the Division upon a finding of no adverse environmental or health and safety effects. This closure method has been designed to prevent access to the mine workings by people, livestock, fish and wildlife, and machinery. The closures have also been designed to keep water from flowing from the mine workings to prevent acid or other toxic drainage from entering ground and surface waters.

Monitoring wells associated located on federal property with the Horizon Mine will be sealed when no longer needed for monitoring groundwater during reclamation. Sealing of these wells will occur in accordance with the requirements of the Utah Division of Water Rights (R655-4-12). Monitoring wells locate on private property will be converted to water wells as per private property owner's requests pursuant to R645-301-731.

3.5.3.2 Removal of Surface Structures

Following sealing of the portals, all surface structures and facilities associated with the mining operation will be removed. The schedule and cost of removal is detailed in Section 3.5.6 and 3.5.7, respectively.

Building Demolition. Prior to significant regrading activities at the Horizon facility, existing buildings, retaining walls, utilities, coal-handling facilities, and other above-ground structures will be removed from the area. To the extent possible, these structures and facilities will be salvaged. Nonhazardous and nonflammable materials, such as concrete and steel, may be used as backfill in areas such as the sediment pond, portal entrances (slopes), and cut slopes. If thus disposed of, these materials will be incorporated into the backfill under at least 4 feet of

soil cover in a manner that will not create voids within the backfill or reduce the effective compaction necessary for backfilling. If foundations will not interfere with regrading activities, they will be left in place for on-site burial under at least 4 feet of soil cover.

During the site regrading, if any of the toxic coal waste that is buried in the mine pad fill is uncovered, the material will be properly placed in the fill areas of the recontouring outside drainage flows so it can be covered beneath four feet of non-toxic fill material and erosion of the drainage over time will not contact these areas. The locations will be mapped at the time of placement and submitted to the Division.

Non-coal wastes found during reclamation, such as garbage, lumber, and other combustible materials generated during previous mining activities, will be segregated and stored in a controlled manner in a temporary storage area in appropriate containers.

Final disposal of all such waste will be in the backfill (as indicated above) or at a State-approved solid waste disposal facility, as appropriate. Notwithstanding any other provision of the R645 Rules, any non-coal mine waste defined as “hazardous” will be handled in accordance with the requirements of Subtitle C of RCRA and any implementing agency.

Mining equipment too large for a container will be placed in a designated temporary storage area as determined at the time of reclamation activities. Final decisions regarding salvage or disposal of structures and equipment will be made just prior to reclamation following an assessment of the salvageability of the structures and equipment.

3.5.3.3 Disposition of Dams, Ponds, and Diversions

Diversions that are not planned for permanent use following reclamation will be removed during the backfilling and regrading operations. ~~The area will be recontoured to drain to the final reclamation channel (Section 7.2.3.2, Reclamation Hydrology Design).~~

~~Sediment control following removal of the sedimentation pond will be provided as outlined in Sections 3.5.4.3 and 7.2.3.2.~~

3.5.4 Backfilling and Grading Plans

Approximate Original Contour. The area of the Horizon surface facilities was disturbed by previous mining activities. No pre-mining topographic maps of the area are known to exist. The reclamation plan has been designed to backfill and grade the site to achieve the assumed approximate original contour (i.e., to blend into the surrounding topography) post-mining land use and eliminate highwalls associated with the Horizon Mine.

Elimination of Highwalls, Spoil Piles, and Depressions. The backfilling and grading plan has been designed to eliminate highwalls at the site that were associated with the Horizon Mine. The access to the coal seam is by three slopes from the surface to the coal seam some 46 feet below the ground elevation of the top of the slopes. The return slope uses the old Blue Blaze No. 1 Mine slope.

Temporary Seed Mix

On those sites where revegetation is needed during the operating years, a temporary seed mix will be used. This mix (Table 3-2) is composed primarily of native species and is designed for quick establishment and erosion control. Only one introduced grass species (pubescent wheatgrass - *Agropyron trichophorum*), is included in the mix. It has been included since it is known to do well on dry sites, and will assist in controlling soil erosion. Cicer milkvetch (*Astragalus ciscer*) has been included because of its ability to fix nitrogen. No shrubs or forbs are included in the temporary mix, since these areas will be re-disturbed prior to final reclamation. At the actual time of planting, the mix may be altered depending on availability of the listed species and under the approval of the Division prior to substitution.

Permanent Seed Mix

The permanent revegetation mix is composed of a mixture of native grasses, forbs, shrubs and trees (Table 3-3). The grasses, forbs, and some of the shrubs will be planted as seeds. The remaining shrubs and trees will be planted as containerized stock. A variety of species are included in the mix in order to obtain a higher level of diversity on the revegetated surfaces. This will increase habitat diversity as variations in the microenvironments of the reclaimed surface will enhance or inhibit the germination and development of the various species.

The permanent seed mix reflects the composition of the original communities which occurred on the site. It is included because of its ability to fix nitrogen. Approval will be obtained from the Division prior to using any substitution in seed mixtures and on the number of containerized shrubs needed per acre.

The riparian seeding mix is included in Table 3-3.

Seeding Methods

Revegetation areas will be seeded by broadcasting. Seeds when broadcast will be raked to ensure proper seed/soil contact. See Tables 3-2 and 3-3 for the seeding rates. If the first seeding does not establish, the area will be reseeded. Reclaimed areas will be seeded in the fall. Since the majority of the species in the mix are cool season grasses, fall is a better time to plant. The containerized stock will be planted in late fall or early spring, attempting to avoid undesirable conditions such as overly wet, overly dry, or frozen soils. Should the planting window close prior to completion of seeding, a sterile, quick growing ground cover will be planted to control erosion during the winter months. The final reclamation seed mixture will be planted during the following year. Small depressions will be left in areas where containerized stock is planted to accumulate water during wet periods.

~~In the riparian disturbed area (see Section 9.4.1.2) the containerized or cuttings of willow stock will be planted in clumps along the banks of Jewkes Creek. Other containerized shrubs and sedges will be planted in clumps within the riparian area. The seed mix (Table 3-3, Riparian Reclamation Seeding Mix) will be planted using the methods described above.~~

3.5.5.3 Mulching

During reclamation mulch will be applied to all newly reseeded areas in order to provide a more equitable environment for seed germination and initial growth. A mulch will be applied at a rate of 2000 pounds per acre. Once applied, the mulch will be incorporated while the surface is being roughened before seeding. Erosion control matting will be placed on all slopes 2 1/2H:1V or steeper.

At the time of reclamation the most beneficial type of mulch to be used will be determined by Horizon and UDOGM, for bonding purposes the price will be assumed to be that for alfalfa.

3.5.5.4 Reclamation Management

The reclaimed and revegetated areas will be closely monitored to determine if any maintenance is necessary (refer to Sections 3.5 and 9.8 for a description of the monitoring program). Problems which may require management include severe erosion, excessive weeds, bare patches of failed planting, and damage by wildlife. Rills and gullies which form in areas that have been regraded and topsoiled and which either disrupt the approved post-mining land use or the reestablishment of the vegetative cover, or, cause or contribute to a violation of water quality standards for receiving streams, shall be filled, regraded, or otherwise stabilized; topsoil replaced; and the areas shall be reseeded or replanted. If weeds occur, a weed control plan will be proposed to UDOGM and implemented upon approval. No weed control will be attempted during the first growing season. It is likely that weed species will form a conspicuous part of the vegetation on the reclaimed areas during the first year but will be replaced by revegetative species thereafter.

3.5.5.5 Revegetation Monitoring

Revegetated areas will be monitored in accordance with Section 9.8 of this permit application.

3.5.5.6 Establishment of Wildlife Habitat

Reclamation is particularly important as a means of controlling erosion and restoring disturbed areas to a productive state. To assist in meeting these desirable ends, the following aspects have been incorporated into the reclamation plan: (1) planting a diverse mixture of native grasses, forbs, and (where appropriate) woody species, (2) using seedling stock rather than relying solely on seeds for trees or shrubs, and (3) planting vegetation to create an edge effect by clumping selected shrub or tree species.

Section 10.5 provides a detailed discussion of the reclamation, mitigation and management plans for terrestrial habitats and wildlife.

~~Enhancement of the area for wildlife will be accomplished by the installation of rock piles for smaller mammals, the improved revegetation of the area, and planting of Salix cuttings per acre along the creek banks within the disturbed area. Rock piles will be scattered along the perimeter of Jewkes Creek, and through Portal Canyon. Containerized shrub stock will be planted near the rock piles to provide additional cover and as a food source. The appropriate regulatory agencies (i.e., UDOGM, DWR) will be consulted as to the frequency and placement of the rock piles during reclamation.~~

3.5.6 Reclamation Monitoring

The standards for success in the previously disturbed areas of the site are outlined in section R645-301-356.250 of the regulations. The applicant intends to return the previously disturbed areas to stable plant communities capable of withstanding the intended post-mining land use and controlling erosion (see Section 9.8).

3.5.7 Schedule of Reclamation for Horizon Mine

3.5.7.1 Timetable for Completion of Major Reclamation Processes

The approximate schedule of reclamation activities is outlined in Table 3-4. The graphical schedule has been extended by approximately 10 percent beyond the numerical estimates presented below to account for unanticipated delays. Reclamation is proposed to be initiated within 90 days (weather permitting) of final abandonment of the mining operation. Each listing is for an 8-hour work day.

The Phase I reclamation tasks are therefore proposed to be completed within 24 weeks following the start of reclamation activities, assuming adequate weather conditions. Eight weeks are planned for the completion of Phase II reclamation tasks.

~~Due to the size and topography of the mine site, the concept of completing reclamation activities in Portal Canyon prior to starting reclamation activities in Jewkes Canyon is not feasible. Potential problems include having to move topsoil twice and not having the fill in Jewkes Canyon to reclaim slopes in Portal Canyon. Horizon commits to begin reclamation activities in Portal Canyon and to leave the sediment pond and UC-1 located in Jewkes Canyon in place as long as possible. Prior to the removal of the sediment pond during reclamation, UDOGM hydrologist will be notified and given the opportunity to inspect and endorse the removal. The timetable and sequence for removal of sediment control structures will depend upon the season of the year and precipitation.~~

3.5.8 Cost Estimate for Final Reclamation

The estimated cost to reclaim the Horizon Mine surface facilities is provided in Appendix 3-7.

The reclamation costs were evaluated to determine if the 100-foot culvert extension planned for 1997 (Appendix 3-9) would be covered by the estimated amount.

3.6 References

Dunrud, C. Richard, 1998, Engineering Geology Applied to the Design and Operation of Underground Coal mines, U.S. Geological Survey, Information Services.

Guy, Dan, Personal Statement, 1985

LIST OF FIGURES

FIGURE 3-3	MINE IDENTIFICATION SIGN.....	3-20
FIGURE 3-4	IDENTIFICATION SIGNS.....	3-21
FIGURE 3-5	SUBSIDENCE/SEAM THICKNESS RATIOS (FROM DUNRUD, 1980)...	3-3030
FIGURE 3-6	TYPICAL PORTAL SEALING.....	3-3737
FIGURE 3-7	TYPICAL PORTAL BLOCK SEAL.....	3-3838

LIST OF PLATES

PLATE 3-1	SURFACE FACILITIES
PLATE 3-1A	<u>SURFACE AREA</u>
PLATE 3-2	PREMINING AND OPERATIONAL CROSS SECTIONS
PLATE 3-3	FIVE YEAR MINE PLAN
PLATE 3-4	ACCESS AND HAULAGE ROAD DESIGN
PLATE 3-4A	ANCILLARY ROAD TYPICAL SECTION
PLATE 3-5	SUBSIDENCE MONITORING PLAN
PLATE 3-6	PREMINING TOPOGRAPHY
PLATE 3-7	RECLAMATION TOPOGRAPHY
PLATE 3-7A	POST MINING AND OPERATIONAL CROSS SECTIONS
PLATE 3-7B	TOPSOIL STORAGE AREA CROSS-SECTIONAL VOLUME
PLATE 3-8	SWEETS CANYON POND UTILITIES
PLATE 3-9	OLD WORKINGS CASTLEGATE A SEAM
PLATE 3-10	OLD WORKINGS HIAWATHA SEAM

LIST OF APPENDICES

APPENDIX 3-1	ROAD AND HAULAGE LETTERS
APPENDIX 3-2	PILLAR EXTRACTION
APPENDIX 3-3	STATIC SAFETY FACTOR CALCULATIONS
APPENDIX 3-4	ROCK STRENGTH ANALYSES
APPENDIX 3-5	WATER RIGHTS
APPENDIX 3-6	UPDES PERMIT
APPENDIX 3-7	RECLAMATION BOND ESTIMATE
APPENDIX 3-8	LOCATIONS OF BURIED COAL WASTE
APPENDIX 3-9	UC-3 CULVERT EXTENSION
APPENDIX 3-10	ASTM COAL CLASSIFICATIONS
APPENDIX 3-11	BLM APPROVAL OF R2P2

Support Facilities. Support facilities at the Horizon Mine will be operated in accordance with the permit issued for the mine. Support facilities will be located, maintained, and used in a manner that:

- Prevents or controls erosion and siltation, water pollution, and damage to public or private property;
- To the extent possible, using the best technology currently available, minimizes damage to fish, wildlife, and related environmental values; and
- Minimizes additional contributions of suspended solids to stream flow or runoff outside the permit area.

All support facilities will be removed following mining in accordance with the reclamation plan discussed in Section 3.5 of this M&RP.

Water Pollution Control Facilities. Water pollution control facilities at the Horizon Mine consist of the sedimentation pond and the appurtenant structures associated with the sedimentation pond. All water pollution control facilities will be maintained following mining in accordance with the reclamation plan discussed in Section 3.5 of this M&RP. The sedimentation pond and appurtenant structures were constructed as discussed in Chapter 7.

3.2.3.3 Road Classification

Primary roads within the disturbed area include the lower haul road loop and the upper pad road. No ancillary roads exist within the disturbed area. The locations of these roads are shown on Plates 3-1 and 3-4. Typical cross sections representing these roads are shown on Plate 3-4.

The unimproved dirt roads outside of the disturbed area but within the permit area will not be classified. They may be used by Horizon for access to the lease area surfaces for the collection of monitoring data (environmental and subsidence data) as well as other uses deemed appropriate by Horizon and as allowed by the associated landowner.

3.2.3.4 Description of Transportation Facilities

No surface conveyors (other than those in the mine yard immediately adjacent to the portals) or rail systems will be constructed, used, or maintained within the permit area. A description of the conveyor systems that will be used in the mine yard is provided in this M&RP.

Road Specifications. Cross sections of roads that will be used or maintained by Horizon are provided on Plate 3-4. This plate provides information regarding road widths, gradients, surfaces, etc. Information regarding road drainage structures is presented in Chapter 7.

The road which will access the mine is the Beaver Creek county road that extends from Consumers Road to the town of Clear Creek. Letters from Carbon County regarding the use of both Beaver Creek Road and Consumers Road are provided in Appendix 3-1. As indicated in this appendix.

3.5 Reclamation Plan

3.5.1 Contemporaneous and Interim Reclamation

Disturbed areas when no longer needed, will be backfilled, graded, retopsoiled, and revegetated. Seeding, fertilizing, and mulching will be performed as soon as practical following redistribution of topsoil. Seed Mix #2 presented in Table 3-3 will be planted, and erosion-control matting will be installed in specific areas as described in Section 3.5.5.3. Reclamation techniques are described below. Areas that will not be redisturbed will be classified as contemporaneously reclaimed. Seed Mix #1 will be used in areas requiring soil stabilization during the operational period of mining. These areas will likely be redisturbed either during the operation or reclamation of the mine site. The areas that will be redisturbed during operation or final reclamation contouring will be classified as interim reclamation. Areas where interim reclamation contacts a steep bank dropping to a diversion ditch will be protected by attempting to control the loss of topsoil by installing a mulch mat a minimum of one foot above and below the grade break.

During October 1997, the areas designated on Plate A within Appendix 8-1 are scheduled for stabilization seeding using Seed Mix No. 1. Refer to Section 8.8 for additional information.

Underground Coal Mining and Reclamation Activities. All surface equipment, structures, or other facilities not required for continued underground mining activities and monitoring, unless approved by the Division as suitable for the post-mining land use or environmental monitoring, will be removed and the affected lands reclaimed following permanent cessation of mining operations.

Reclamation Timetable. A timetable for the completion of each major step in the reclamation plan is presented in Table 3-4.

Plan for Backfilling, Soil Stabilization, Compacting, and Grading. The regrading plan for the Horizon Mine was designed to meet the objectives of balancing cut and fill quantities and maintaining a geotechnically and erosionally stable base. The primary features of this plan are

- Reclamation of the pad upon which surface activities will be constructed at the mine, thereby creating a slope which will adequately drain while minimizing long-term erosion concerns;
- Backfilling to remove portal entrances (highwalls) within the objectives noted above (cut and fill balance, site stability, and erosion control),
- Placement of topsoil;
- Revegetation and mulching of the topsoiled site; and
- Retention of the sedimentation pond (together with required maintenance and necessary regrading, revegetation, and mulching of the sedimentation pond embankment) and implementation of interim sediment-control measures.

The estimated cut quantity for the Horizon facility is approximately 4,916 cubic yards with an estimated fill of 4,275 cubic yards (see Table 3-1). Regrading activities will continue until the final surface configuration defined by Plates 3-7 and 3-7A is approximated. Details regarding topsoil placement and revegetation following regrading are provided in Chapters 3 and 8, respectively.3-3

TABLE 3-4
 Reclamation Timetable

Task	Months from Start of Reclamation					
	1	2	3	4	5	6
PHASE I						
Seed/Plant Ordering*	----- -					
Portal Sealing	----- -					
Demolition - Structure Removal	----- -	----- -				
Rough and Final Grading		----- -	----- -	----- -		
Soil Testing/Order Amendments				----- -		
Topsoil Distribution				----- -	----- -	
Seeding & Mulching						-----
Vegetation/Water Monitoring	10 years after seeding or until bond release					
PHASE II - To Follow Phase I Bond Release						
Seed/Plant/Amendment Ordering*	-----					
Grading (Disturbed Area Access Road)					-----	
Topsoil Distribution					-----	
Seeding & Mulching						-----
Reclamation Monitoring	Until bonding requirements are satisfied					

* Seed and plants will be ordered one year prior to their proposed planting time.

TABLE 3-1

RECLAMATION CUT AND FILL CALCULATIONS

Using Present surface contours from Plate 3-7 in conjunction with revised reclamation contours through AutoCad 2000 and Survcadd 2000

Area in Cut: 18,295 sq ft, 0.420 acres
Area in Fill: 17,997 sq ft, 0.413 acres
Total inclusion area: 0.833 acres
Cut to Fill ratio: 1.15
Average Cut Depth: 7.261 ft
Average Fill Depth: 6.41 ft
Cut volume: 4,916 cubic yards
Fill volume: 4,275 cubic yards

Backfilling and Compaction. As indicated previously in this M&RP, the surface at the Horizon Mine was originally disturbed between the 1920s and the 1950s by previous mining operations. These prior operators made no effort to salvage any topsoil or other soil material for subsequent site reclamation. Therefore, restoration to a contour that approximates pre-mining conditions is neither practical nor required by the regulations. However, it is the intent of Horizon to restore the area to a topography that is compatible with the post-mining land use, using materials that are available at the site.

All vegetation, organic matter, and debris will be cleared from areas to receive fill. The cut material from site regrading will be placed as fill and graded to facilitate drainage from the mine site and contributing side areas. All fill placed during recontouring of the site will be compacted to at least 85 percent of maximum Proctor density (ASTM D698). Compaction will be accomplished using repeated passes of rubber-tired equipment, rollers, and other appropriate equipment.

Side hill embankments, where the width is too narrow to allow access by compaction equipment, will be initially constructed by spreading the soil with a dozer, but only to a width necessary to allow compaction equipment access. After this is achieved, the fill will be placed in lifts and compacted to at least 85 percent of maximum Proctor density.

Care will be taken to ensure that fill materials are not frozen during placement or compaction. Any areas that are damaged by freezing will be reconditioned, reshaped, and recompacted to at least 85 percent of maximum Proctor density. All fill placement and compaction activities will be overseen by an experienced engineer.

In general, grading and backfilling operations will proceed from the upstream end of the surface facilities to the downstream end, thus allowing the sedimentation pond to remain effective for as long as possible.

Post-mining Use of Diversion Channels. Existing diversionary channels will be used to capture runoff from undisturbed areas and convey this runoff to and through Portal Canyon and Jewkes Creek. Details regarding the design and construction of these channels are provided in Chapter 7 of this M&RP.

As noted on Plate 3-7, slopes adjacent to the reclaimed streams are generally much shallower than the natural slopes upstream from the disturbed area (where natural slopes on the hillsides adjacent to the streams are typically 1.5H:1V or steeper). Hence, access to the streams by wildlife and livestock under post-mining conditions should not be hindered within the reclaimed area.

Sedimentation Pond Retention and Interim Sediment Control. Prior to the start of reclamation activities, temporary silt fences will be placed within the disturbed area. . The silt fences will be located in an area convenient for maintenance and cleanout. The silt fences will be removed when reclamation construction activities are completed. During reclamation, the silt fences will be periodically inspected and accumulated sediment will be removed from behind the silt fences when required to minimize downstream impacts. Chapter 7, pages 7-68 and 7-69 contain a detailed description of sediment control during reclamation.

On a temporary basis, straw-bale dikes may also be installed as necessary to control localized erosion prior to the establishment of revegetation efforts. If installed, locations of the straw-bale dikes will be selected to reduce sediment contributions to runoff based on field observations. Straw-bale dikes will be installed by keying the bales into the ground.

The sediment pond will be retained as a permanent improvement post-reclamation.

Roads. All roads within the disturbed area will be reclaimed immediately after they are no longer needed for mining and reclamation operations. These roads will be graded and/or backfilled as indicated above. Topsoil will be applied to the regraded surfaces and the area will be revegetated as discussed in Chapters 3 and 8, respectively. The private landowner has requested that a driveway off the county road to the disturbed area be maintained. This driveway will facilitate access for post-revegetation monitoring and maintenance and provide the landowner with access to his property.

3.5.2 Soil Removal and Storage

Soil surveys conducted at the mine site have distinguished disturbed lands from undisturbed soil mapping units (see Chapter 8, Plate 8-1). Areas mapped as disturbed land are areas where the soils, vegetation, or both were affected by previous mining operations. Disturbance of the roads and pads occurred prior to regulatory requirements to salvage topsoil from those areas.

All topsoil/growth medium to be generated during future disturbances will be stockpiled. The stockpiles will be contoured, fertilized, vegetated with Seed Mix #1 outlined in Section 3.5.5.2, and mulched as outlined in Section 3.5.5.3. Markers will be placed indicating that the piles contain topsoil. Berms and/or strawbales will be placed around the stockpile to minimize off-pile transport of sediment.

Areas of interim reclamation that will be redisturbed for final reclamation contouring will have the depth topsoil that was placed on those areas removed and placed back on the topsoil stockpile for redistribution onto the newly recontoured area. A qualified person will be present during the removal of the topsoil in these areas. See Plate 3-7 for areas where interim reclamation will be re-disturbed and areas where re-contouring is complete an interim vegetation has been established.

Refer to Section 8.8 for the methods being used in the removal and redistribution of soils.

3.5.3 Final Abandonment

Upon permanent cessation of operations, permanent reclamation will be performed. All surface equipment, structures and facilities (other than sedimentation control) associated with the operation will be removed during reclamation of the affected area.

3.5.3.1 Sealing of Mine Openings

Abandonment of Openings. When no longer needed for mining operations, all portals will be sealed and backfilled by collapsing the concrete canopies over each portal. Prior to the sealing of the mine openings, all combustible materials will be removed from the portal area. All structures that would interfere with sealing of the mine openings will also be removed. The permanent closures will be constructed to prevent access to mine workings by people, livestock, and wildlife. Potential surface drainage will also be kept from entering the sealed entries.

All mine openings will be sealed at least 20 feet inside the mine opening. Prior to installation of the seal, all loose material will be removed from the roof, floor, and rib of the mine within the seal area. The seal will then be constructed using solid concrete blocks with nominal dimensions of 8 inches high, 8 inches wide, and 16 inches long. Mortar will consist of one part cement, three parts sand, and no more than 7 gallons of water per sack of cement.

In the bottom course, each block will be laid with its long axis parallel to the rib. The long axis in succeeding higher courses will be perpendicular to the long axis of the blocks in the preceding course. The seal will be recessed at least 8 inches deep into each rib and 8 inches deep into the floor. No recess will be made into the roof.

The seals will have a thickness of approximately 16 inches. Following seal construction, the entries will be backfilled from the seal to the outside surface with soil that is sloped at the surface to match the final slope at the entry.

Casing and Sealing of Underground Openings. Each underground opening to the mine will be sealed and backfilled when no longer needed for monitoring or other use approved by the Details of the seals are shown on Figures 3-6 and 3-7. Division upon a finding of no adverse environmental or health and safety effects. This closure method has been designed to prevent access to the mine workings by people, livestock, fish and wildlife, and machinery. The closures have also been designed to keep water from flowing from the mine workings to prevent acid or other toxic drainage from entering ground and surface waters.

Monitoring wells located on federal property will be sealed during reclamation. Sealing of these wells will occur in accordance with the requirements of the Utah Division of Water Rights (R655-4-12). Monitoring wells locate on private property will be converted to water wells as per private property owner's requests pursuant to R645-301-731.

3.5.3.2 Removal of Surface Structures

Following sealing of the portals, all surface structures and facilities associated with the mining operation will be removed. The schedule and cost of removal is detailed in Section 3.5.6 and 3.5.7, respectively.

Building Demolition. Prior to significant regrading activities at the Horizon facility, existing buildings, retaining walls, utilities, coal-handling facilities, and other above-ground structures will be removed from the area. To the extent possible, these structures and facilities will be salvaged. Nonhazardous and nonflammable materials, such as concrete and steel, may be used as backfill in areas such as the portal entrances (slopes) and cut slopes. If thus disposed of, these materials will be incorporated into the backfill under at least 4 feet of

soil cover in a manner that will not create voids within the backfill or reduce the effective compaction necessary for backfilling. If foundations will not interfere with regrading activities, they will be left in place for on-site burial under at least 4 feet of soil cover.

During the site regrading, if any of the toxic coal waste that is buried in the mine pad fill is uncovered, the material will be properly placed in the fill areas of the recontouring outside drainage flows so it can be covered beneath four feet of non-toxic fill material and erosion of the drainage over time will not contact these areas. The locations will be mapped at the time of placement and submitted to the Division.

Non-coal wastes found during reclamation, such as garbage, lumber, and other combustible materials generated during previous mining activities, will be segregated and stored in a controlled manner in a temporary storage area in appropriate containers.

Final disposal of all such waste will be in the backfill (as indicated above) or at a State-approved solid waste disposal facility, as appropriate. Notwithstanding any other provision of the R645 Rules, any non-coal mine waste defined as “hazardous” will be handled in accordance with the requirements of Subtitle C of RCRA and any implementing agency.

Mining equipment too large for a container will be placed in a designated temporary storage area as determined at the time of reclamation activities. Final decisions regarding salvage or disposal of structures and equipment will be made just prior to reclamation following an assessment of the salvageability of the structures and equipment.

3.5.3.3 Disposition of Dams, Ponds, and Diversions

Diversions that are not planned for permanent use following reclamation will be removed during the backfilling and regrading operations. Sediment control will be provided as outlined in Sections 3.5.4.3 and 7.2.3.2.

3.5.4 Backfilling and Grading Plans

Approximate Original Contour. The area of the Horizon surface facilities was disturbed by previous mining activities. No pre-mining topographic maps of the area are known to exist. The reclamation plan has been designed achieve post-mining land use and eliminate highwalls associated with the Horizon Mine.

Elimination of Highwalls, Spoil Piles, and Depressions. The backfilling and grading plan has been designed to eliminate highwalls at the site that were associated with the Horizon Mine. The access to the coal seam is by three slopes from the surface to the coal seam some 46 feet below the ground elevation of the top of the slopes. The return slope uses the old Blue Blaze No. 1 Mine slope.

Temporary Seed Mix

On those sites where revegetation is needed during the operating years, a temporary seed mix will be used. This mix (Table 3-2) is composed primarily of native species and is designed for quick establishment and erosion control. Only one introduced grass species (pubescent wheatgrass - *Agropyron trichophorum*), is included in the mix. It has been included since it is known to do well on dry sites, and will assist in controlling soil erosion. Cicer milkvetch (*Astragalus ciscer*) has been included because of its ability to fix nitrogen. No shrubs or forbs are included in the temporary mix, since these areas will be re-disturbed prior to final reclamation. At the actual time of planting, the mix may be altered depending on availability of the listed species and under the approval of the Division prior to substitution.

Permanent Seed Mix

The permanent revegetation mix is composed of a mixture of native grasses, forbs, shrubs and trees (Table 3-3). The grasses, forbs, and some of the shrubs will be planted as seeds. The remaining shrubs and trees will be planted as containerized stock. A variety of species are included in the mix in order to obtain a higher level of diversity on the revegetated surfaces. This will increase habitat diversity as variations in the microenvironments of the reclaimed surface will enhance or inhibit the germination and development of the various species.

The permanent seed mix reflects the composition of the original communities which occurred on the site. It is included because of its ability to fix nitrogen. Approval will be obtained from the Division prior to using any substitution in seed mixtures and on the number of containerized shrubs needed per acre.

The riparian seeding mix is included in Table 3-3.

Seeding Methods

Revegetation areas will be seeded by broadcasting. Seeds when broadcast will be raked to ensure proper seed/soil contact. See Tables 3-2 and 3-3 for the seeding rates. If the first seeding does not establish, the area will be reseeded. Reclaimed areas will be seeded in the fall. Since the majority of the species in the mix are cool season grasses, fall is a better time to plant. The containerized stock will be planted in late fall or early spring, attempting to avoid undesirable conditions such as overly wet, overly dry, or frozen soils. Should the planting window close prior to completion of seeding, a sterile, quick growing ground cover will be planted to control erosion during the winter months. The final reclamation seed mixture will be planted during the following year. Small depressions will be left in areas where containerized stock is planted to accumulate water during wet periods.

3.5.5.3 Mulching

During reclamation mulch will be applied to all newly reseeded areas in order to provide a more equitable environment for seed germination and initial growth. A mulch will be applied at a rate of 2000 pounds per acre. Once applied, the mulch will be incorporated while the surface is being roughened before seeding. Erosion control matting will be placed on all slopes 2 1/2H:1V or steeper.

At the time of reclamation the most beneficial type of mulch to be used will be determined by Horizon and UDOGM, for bonding purposes the price will be assumed to be that for alfalfa.

3.5.5.4 Reclamation Management

The reclaimed and revegetated areas will be closely monitored to determine if any maintenance is necessary (refer to Sections 3.5 and 9.8 for a description of the monitoring program). Problems which may require management include severe erosion, excessive weeds, bare patches of failed planting, and damage by wildlife. Rills and gullies which form in areas that have been regraded and topsoiled and which either disrupt the approved post-mining land use or the reestablishment of the vegetative cover, or, cause or contribute to a violation of water quality standards for receiving streams, shall be filled, regraded, or otherwise stabilized; topsoil replaced; and the areas shall be reseeded or replanted. If weeds occur, a weed control plan will be proposed to UDOGM and implemented upon approval. No weed control will be attempted during the first growing season. It is likely that weed species will form a conspicuous part of the vegetation on the reclaimed areas during the first year but will be replaced by revegetative species thereafter.

3.5.5.5 Revegetation Monitoring

Revegetated areas will be monitored in accordance with Section 9.8 of this permit application.

3.5.5.6 Establishment of Wildlife Habitat

Reclamation is particularly important as a means of controlling erosion and restoring disturbed areas to a productive state. To assist in meeting these desirable ends, the following aspects have been incorporated into the reclamation plan: (1) planting a diverse mixture of native grasses, forbs, and (where appropriate) woody species, (2) using seedling stock rather than relying solely on seeds for trees or shrubs, and (3) planting vegetation to create an edge effect by clumping selected shrub or tree species.

Section 10.5 provides a detailed discussion of the reclamation, mitigation and management plans for terrestrial habitats and wildlife.

3.5.6 Reclamation Monitoring

The standards for success in the previously disturbed areas of the site are outlined in section R645-301-356.250 of the regulations. The applicant intends to return the previously disturbed areas to stable plant communities capable of withstanding the intended post-mining land use and controlling erosion (see Section 9.8).

3.5.7 Schedule of Reclamation for Horizon Mine

3.5.7.1 Timetable for Completion of Major Reclamation Processes

The approximate schedule of reclamation activities is outlined in Table 3-4. The graphical schedule has been extended by approximately 10 percent beyond the numerical estimates presented below to account for unanticipated delays. Reclamation is proposed to be initiated within 90 days (weather permitting) of final abandonment of the mining operation. Each listing is for an 8-hour work day.

The Phase I reclamation tasks are therefore proposed to be completed within 24 weeks following the start of reclamation activities, assuming adequate weather conditions. Eight weeks are planned for the completion of Phase II reclamation tasks.

3.5.8 Cost Estimate for Final Reclamation

The estimated cost to reclaim the Horizon Mine surface facilities is provided in Appendix 3-7.

The reclamation costs were evaluated to determine if the 100-foot culvert extension planned for 1997 (Appendix 3-9) would be covered by the estimated amount.

3.6 References

Dunrud, C. Richard, 1998, Engineering Geology Applied to the Design and Operation of Underground Coal mines, U.S. Geological Survey, Information Services.

Guy, Dan, Personal Statement, 1985

LIST OF FIGURES

FIGURE 3-3	MINE IDENTIFICATION SIGN.....	3-20
FIGURE 3-4	IDENTIFICATION SIGNS.....	3-21
FIGURE 3-5	SUBSIDENCE/SEAM THICKNESS RATIOS (FROM DUNRUD, 1980)...	3-3030
FIGURE 3-6	TYPICAL PORTAL SEALING.....	3-3737
FIGURE 3-7	TYPICAL PORTAL BLOCK SEAL.....	3-3838

LIST OF PLATES

PLATE 3-1	SURFACE FACILITIES
PLATE 3-1A	SURFACE AREA
PLATE 3-2	PREMINING AND OPERATIONAL CROSS SECTIONS
PLATE 3-3	FIVE YEAR MINE PLAN
PLATE 3-4	ACCESS AND HAULAGE ROAD DESIGN
PLATE 3-4A	ANCILLARY ROAD TYPICAL SECTION
PLATE 3-5	SUBSIDENCE MONITORING PLAN
PLATE 3-6	PREMINING TOPOGRAPHY
PLATE 3-7	RECLAMATION TOPOGRAPHY
PLATE 3-7A	POST MINING AND OPERATIONAL CROSS SECTIONS
PLATE 3-7B	TOPSOIL STORAGE AREA CROSS-SECTIONAL VOLUME
PLATE 3-8	SWEETS CANYON POND UTILITIES
PLATE 3-9	OLD WORKINGS CASTLEGATE A SEAM
PLATE 3-10	OLD WORKINGS HIAWATHA SEAM

LIST OF APPENDICES

APPENDIX 3-1	ROAD AND HAULAGE LETTERS
APPENDIX 3-2	PILLAR EXTRACTION
APPENDIX 3-3	STATIC SAFETY FACTOR CALCULATIONS
APPENDIX 3-4	ROCK STRENGTH ANALYSES
APPENDIX 3-5	WATER RIGHTS
APPENDIX 3-6	UPDES PERMIT
APPENDIX 3-7	RECLAMATION BOND ESTIMATE
APPENDIX 3-8	LOCATIONS OF BURIED COAL WASTE
APPENDIX 3-9	UC-3 CULVERT EXTENSION
APPENDIX 3-10	ASTM COAL CLASSIFICATIONS
APPENDIX 3-11	BLM APPROVAL OF R2P2

APPRAISAL OF REAL PROPERTY

LOCATED AT:

48 W Broadway
UNIT R-2404-N, AMERICAN TOWERS CONDM
Salt Lake City, UT 84101

FOR:

Alexander H. Walker III
57 W. 200 S., Suite 400
Salt Lake City, UT 84101

AS OF:

12/17/2014

BY:

Raymond K. Knudson
Knudson Appraising, PC
4991 Fairbrook Lane
P.O. Box 17787
Salt Lake City, UT 84117
801-273-1211 Fax 801-277-0702

Individual Condominium Unit Appraisal Report

File # 061124

The purpose of this summary appraisal report is to provide the lender/client with an accurate, and adequately supported, opinion of the market value of the subject property.

SUBJECT
 Property Address 48 W Broadway Unit # 2404N City Salt Lake City State UT Zip Code 84101
 Borrower NA Owner of Public Record Alexander H Jr & Cecil A Walker County Salt Lake
 Legal Description UNIT R-2404-N, AMERICAN TOWERS CONDM
 Assessor's Parcel # 1501283325 Tax Year 2014 R.E. Taxes \$ 4,343
 Project Name American Towers Phase # 1 Map Reference 7160'00Cen Census Tract 1022.00
 Occupant Owner Tenant Vacant Special Assessments \$.00 HOA \$ 725.00 per year per month
 Property Rights Appraised Fee Simple Leasehold Other (describe)
 Assignment Type Purchase Transaction Refinance Transaction Other (describe) For the private use of the client.
 Lender/Client Alexander H. Walker III Address 57 W. 200 S., Suite 400, Salt Lake City, UT 84101
 Is the subject property currently offered for sale or has it been offered for sale in the twelve months prior to the effective date of this appraisal? Yes No
 Report data source(s) used, offering price(s), and date(s). Wasatch Front MLS/Owner

CONTRACT
 I did did not analyze the contract for sale for the subject purchase transaction. Explain the results of the analysis of the contract for sale or why the analysis was not performed. NA
 Contract Price \$ NA Date of Contract NA Is the property seller the owner of public record? Yes No Data Source(s) NA
 Is there any financial assistance (loan charges, sale concessions, gift or downpayment assistance, etc.) to be paid by any party on behalf of the borrower? YES NO
 If Yes, report the total dollar amount and describe the items to be paid. NA

NEIGHBORHOOD
 Note: Race and the racial composition of the neighborhood are not appraisal factors.

Neighborhood Characteristics		Condominium Unit Housing Trends			Condominium Housing		Present Land Use %	
Location <input checked="" type="checkbox"/> Urban <input type="checkbox"/> Suburban <input type="checkbox"/> Rural	Property Values	Increasing <input type="checkbox"/> Stable <input checked="" type="checkbox"/> Declining	PRICE	AGE	One-Unit	20 %		
Built-Up <input checked="" type="checkbox"/> Over 75% <input type="checkbox"/> 25-75% <input type="checkbox"/> Under 25%	Demand/Supply	Shortage <input type="checkbox"/> In Balance <input checked="" type="checkbox"/> Over Supply	\$ (000)	(yrs)	2-4 Unit	5 %		
Growth <input type="checkbox"/> Rapid <input checked="" type="checkbox"/> Stable <input type="checkbox"/> Slow	Marketing Time	Under 3 mths <input type="checkbox"/> 3-6 mths <input checked="" type="checkbox"/> Over 6 mths	90	Low	Multi-Family	25 %		
Neighborhood Boundaries are 300 West to the west, 500 South to the south, 500 East to the east, and 200 North to the north.			4,000	High	Commercial	45 %		
			225	Pred.	Other	5 %		

 Neighborhood Description The subject is located in the American Towers, a highrise condominium development located in the downtown business district. The area is desired for its central location in the city and for those who enjoy the downtown amenities and atmosphere of the city as well as its proximity to the Salt Lake City International Airport with nearby freeway access.
 Market Conditions (including support for the above conclusions) The national and local economies appear to be stabilizing and real estate prices are stable for units similar to the subject. Current interest rates are near 4% for a thirty year fixed rate mortgage. Current marketing time is three to six months. There is some new condominium development competition in the downtown area.

PROJECT SITE
 Topography Level Size Large/Highrise Density High View City
 Specific Zoning Classification Residential/Commercial Zoning Description Multi-Housing
 Zoning Compliance Legal Legal Nonconforming - Do the zoning regulations permit rebuilding to current density? Yes No
 No Zoning Illegal (describe)
 Is the highest and best use of subject property as improved (or as proposed per plans and specifications) the present use? Yes No If No, describe

Utilities	Public	Other (describe)	Public	Other (describe)	Off-site Improvements - Type	Public	Private
Electricity	<input checked="" type="checkbox"/>		Water	<input checked="" type="checkbox"/>	Street Asphalt	<input checked="" type="checkbox"/>	
Gas	<input checked="" type="checkbox"/>		Sanitary Sewer	<input checked="" type="checkbox"/>	Alley None		

 FEMA Special Flood Hazard Area Yes No FEMA Flood Zone X FEMA Map # 49035C0144E FEMA Map Date 9/21/2001
 Are the utilities and off-site improvements typical for the market area? Yes No If No, describe
 Are there any adverse site conditions or external factors (easements, encroachments, environmental conditions, land uses, etc.)? Yes No If Yes, describe

PROJECT INFORMATION
 Data source(s) for project information The Assistant Manager, Diane Woolsey, of the on-site management. 801-532-6259.
 Project Description Detached Row or Townhouse Garden Mid-Rise High-Rise Other (describe)

General Description		General Description		Subject Phase		If Project Completed		If Project Incomplete	
# of Stories	26	Exterior Walls	ConGlas	# of Units	357	# of Phases	1	# of Planned Phases	NA
# of Elevators	6	Roof Surface	Membrn	# of Units Completed	357	# of Units	357	# of Planned Units	NA
<input checked="" type="checkbox"/> Existing <input type="checkbox"/> Proposed	Total # Parking	700	# of Units For Sale	10	# of Units for Sale	10	# of Units for Sale	NA	
<input type="checkbox"/> Under Construction	Ratio (spaces/units)	2/1	# of Units Sold	357	# of Units Sold	357	# of Units Sold	NA	
Year Built	1984	Type	Garage	# of Units Rented	89	# of Units Rented	89	# of Units Rented	NA
Effective Age	10	Guest Parking	Street	# of Owner Occupied Units	270	# of Owner Occupied Units	270	# of Owner Occupied Units	NA

 Project Primary Occupancy Principal Residence Second Home or Recreational Tenant
 Is the developer/builder in control of the Homeowners' Association (HOA)? Yes No
 Management Group - Homeowners' Association Developer Management Agent - Provide name of management company. On site manager

Does any single entity (the same individual, investor group, corporation, etc.) own more than 10% of the total units in the project? Yes No If Yes, Describe

Was the project created by the conversion of existing building(s) into a condominium? Yes No If Yes, describe the original use and date of conversion.

Are the units, common elements, and recreation facilities complete (including any planned rehabilitation for a condominium conversion)? Yes No If No, describe

Is there any commercial space in the project? Yes No If Yes, describe and indicate the overall percentage of the commercial space.
 There is approximately 9% of the project that is commercial and is located on the main floor.

Individual Condominium Unit Appraisal Report

File # 061124

PROJECT INFORMATION	Describe the condition of the project and quality of construction. Construction quality is considered very good and would be considered superior to most units in the area. Unit mix is 1, 2 and 3 bedroom. The project is secure and well maintained.																																														
	Describe the common elements and recreational facilities. The include a pool, racquet ball, fitness room, clubhouse and meeting room and six elevators.																																														
	Are any common elements leased to or by the Homeowners' Association? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If Yes, describe the rental terms and options.																																														
	Is the project subject to a ground rent? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes, \$ _____ per year (describe terms and conditions)																																														
PROJECT ANALYSIS	Are the parking facilities adequate for the project size and type? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If No, describe and comment on the effect on value and marketability.																																														
	I <input checked="" type="checkbox"/> did <input type="checkbox"/> did not analyze the condominium project budget for the current year. Explain the results of the analysis of the budget (adequacy of fees, reserves, etc.), or why the analysis was not performed. The budget appears to have adequate reserves of \$1,200,000 along with monthly HOA dues for the general operating expenses for the development for the foreseeable future.																																														
	Are there any other fees (other than regular HOA charges) for the use of the project facilities? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes, report the charges and describe.																																														
	Compared to other competitive projects of similar quality and design, the subject unit charge appears <input checked="" type="checkbox"/> High <input type="checkbox"/> Average <input type="checkbox"/> Low If High or Low, describe However it includes heat, central air and 24 hour security that is not a typical part of a HOA charge, without these charges it is average. Are there any special or unusual characteristics of the project (based on the condominium documents, HOA meetings, or other information) known to the appraiser? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes, describe and explain the effect on value and marketability There no special or unusual rules that would affect the marketability of the project.																																														
UNIT DESCRIPTION	Unit Charge \$ 725.00 per month X 12 = \$ 8,700.00 per year Annual assessment charge per year per square feet of gross living area = \$ 2.92																																														
	Utilities included in the unit monthly assessment <input type="checkbox"/> None <input checked="" type="checkbox"/> Heat <input checked="" type="checkbox"/> Air Conditioning <input type="checkbox"/> Electricity <input checked="" type="checkbox"/> Gas <input checked="" type="checkbox"/> Water <input checked="" type="checkbox"/> Sewer <input checked="" type="checkbox"/> Cable <input checked="" type="checkbox"/> Other (describe) Security																																														
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 20%;">General Description</th> <th style="width: 20%;">Interior</th> <th style="width: 20%;">materials/condition</th> <th style="width: 20%;">Amenities</th> <th style="width: 20%;">Appliances</th> <th style="width: 20%;">Car Storage</th> </tr> </thead> <tbody> <tr> <td>Floor # 24</td> <td>Floors</td> <td>Carpet/Hdwd/Good</td> <td>Fireplace(s) # 0</td> <td><input checked="" type="checkbox"/> Refrigerator</td> <td><input type="checkbox"/> None</td> </tr> <tr> <td># of Levels 1</td> <td>Walls</td> <td>Drywall/Good</td> <td>WoodStove(s) #0</td> <td><input checked="" type="checkbox"/> Range/Oven</td> <td><input checked="" type="checkbox"/> Garage <input type="checkbox"/> Covered <input type="checkbox"/> Open</td> </tr> <tr> <td>Heating Type FWA Fuel Gas</td> <td>Trim/Finish</td> <td>Colonial/Good</td> <td>Deck/Patio 0</td> <td><input checked="" type="checkbox"/> Disp <input checked="" type="checkbox"/> Microwave</td> <td># of Cars 1 Car Undergrnd</td> </tr> <tr> <td><input checked="" type="checkbox"/> Central AC <input type="checkbox"/> Individual AC</td> <td>Bath Wainscot</td> <td>Ceramic/Good</td> <td>Porch/Balcony 0</td> <td><input checked="" type="checkbox"/> Dishwasher</td> <td><input type="checkbox"/> Assigned <input checked="" type="checkbox"/> Owned</td> </tr> <tr> <td><input type="checkbox"/> Other (describe)</td> <td>Doors</td> <td>SolidWood/Good</td> <td>Other 0</td> <td><input checked="" type="checkbox"/> Washer/Dryer</td> <td>Parking Space #</td> </tr> <tr> <td colspan="6">Finished area above grade contains: 6 Rooms 2 Bedrooms 2.5 Bath(s) 2,975 Square Feet of Gross Living Area Above Grade</td> </tr> </tbody> </table>					General Description	Interior	materials/condition	Amenities	Appliances	Car Storage	Floor # 24	Floors	Carpet/Hdwd/Good	Fireplace(s) # 0	<input checked="" type="checkbox"/> Refrigerator	<input type="checkbox"/> None	# of Levels 1	Walls	Drywall/Good	WoodStove(s) #0	<input checked="" type="checkbox"/> Range/Oven	<input checked="" type="checkbox"/> Garage <input type="checkbox"/> Covered <input type="checkbox"/> Open	Heating Type FWA Fuel Gas	Trim/Finish	Colonial/Good	Deck/Patio 0	<input checked="" type="checkbox"/> Disp <input checked="" type="checkbox"/> Microwave	# of Cars 1 Car Undergrnd	<input checked="" type="checkbox"/> Central AC <input type="checkbox"/> Individual AC	Bath Wainscot	Ceramic/Good	Porch/Balcony 0	<input checked="" type="checkbox"/> Dishwasher	<input type="checkbox"/> Assigned <input checked="" type="checkbox"/> Owned	<input type="checkbox"/> Other (describe)	Doors	SolidWood/Good	Other 0	<input checked="" type="checkbox"/> Washer/Dryer	Parking Space #	Finished area above grade contains: 6 Rooms 2 Bedrooms 2.5 Bath(s) 2,975 Square Feet of Gross Living Area Above Grade					
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Are the heating and cooling for the individual units separately metered? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If No, describe and comment on compatibility to other projects in the market area. This is not unusual for large high rise units similar to the subject.																																															
Additional features (special energy efficient items, etc.) See addendum.																																															
Describe the condition of the property (including needed repairs, deterioration, renovations, remodeling, etc.). See addendum.																																															
Are there any physical deficiencies or adverse conditions that affect the livability, soundness, or structural integrity of the property? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes, describe																																															
Does the property generally conform to the neighborhood (functional utility, style, condition, use, construction, etc.)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If No, describe																																															
PRIOR SALE HISTORY	I <input checked="" type="checkbox"/> did <input type="checkbox"/> did not research the sale or transfer history of the subject property and comparable sales. If not, explain																																														
	My research <input type="checkbox"/> did <input checked="" type="checkbox"/> did not reveal any prior sales or transfers of the subject property for the three years prior to the effective date of this appraisal.																																														
	Data source(s) Wasatch Front MLS/Owner																																														
	My research <input type="checkbox"/> did <input checked="" type="checkbox"/> did not reveal any prior sales or transfers of the comparable sales for the year prior to the date of sale of the comparable sale.																																														
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	Report the results of the research and analysis of the prior sale or transfer history of the subject property and comparable sales (report additional prior sales on page 3).																																														
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Individual Condominium Unit Appraisal Report

File # 061124

This report form is designed to report an appraisal of a unit in a condominium project or a condominium unit in a planned unit development (PUD). This report form is not designed to report an appraisal of a manufactured home or a unit in a cooperative project.

This appraisal report is subject to the following scope of work, intended use, intended user, definition of market value, statement of assumptions and limiting conditions, and certifications. Modifications, additions, or deletions to the intended use, intended user, definition of market value, or assumptions and limiting conditions are not permitted. The appraiser may expand the scope of work to include any additional research or analysis necessary based on the complexity of this appraisal assignment. Modifications or deletions to the certifications are also not permitted. However, additional certifications that do not constitute material alterations to this appraisal report, such as those required by law or those related to the appraiser's continuing education or membership in an appraisal organization, are permitted.

SCOPE OF WORK: The scope of work for this appraisal is defined by the complexity of this appraisal assignment and the reporting requirements of this appraisal report form, including the following definition of market value, statement of assumptions and limiting conditions, and certifications. The appraiser must, at a minimum: (1) perform a complete visual inspection of the interior and exterior areas of the subject unit, (2) inspect and analyze the condominium project, (3) inspect the neighborhood, (4) inspect each of the comparable sales from at least the street, (5) research, verify, and analyze data from reliable public and/or private sources, and (6) report his or her analysis, opinions, and conclusions in this appraisal report.

INTENDED USE: The intended use of this appraisal report is for the lender/client to evaluate the property that is the subject of this appraisal for a mortgage finance transaction.

INTENDED USER: The intended user of this appraisal report is the lender/client.

MARKET VALUE: The most probable price which a property should bring in a competitive and open market under all conditions requisite to a fair sale, the buyer and seller, each acting prudently, knowledgeably and assuming the price is not affected by undue stimulus. Implicit in this definition is the consummation of a sale as of a specified date and the passing of title from seller to buyer under conditions whereby: (1) buyer and seller are typically motivated; (2) both parties are well informed or well advised, and each acting in what he or she considers his or her own best interest; (3) a reasonable time is allowed for exposure in the open market; (4) payment is made in terms of cash in U. S. dollars or in terms of financial arrangements comparable thereto; and (5) the price represents the normal consideration for the property sold unaffected by special or creative financing or sales concessions* granted by anyone associated with the sale.

*Adjustments to the comparables must be made for special or creative financing or sales concessions. No adjustments are necessary for those costs which are normally paid by sellers as a result of tradition or law in a market area; these costs are readily identifiable since the seller pays these costs in virtually all sales transactions. Special or creative financing adjustments can be made to the comparable property by comparisons to financing terms offered by a third party institutional lender that is not already involved in the property or transaction. Any adjustment should not be calculated on a mechanical dollar for dollar cost of the financing or concession but the dollar amount of any adjustment should approximate the market's reaction to the financing or concessions based on the appraiser's judgment.

STATEMENT OF ASSUMPTIONS AND LIMITING CONDITIONS: The appraiser's certification in this report is subject to the following assumptions and limiting conditions:

1. The appraiser will not be responsible for matters of a legal nature that affect either the property being appraised or the title to it, except for information that he or she became aware of during the research involved in performing this appraisal. The appraiser assumes that the title is good and marketable and will not render any opinions about the title.
2. The appraiser has provided a sketch in this appraisal report to show the approximate dimensions of the improvements. The sketch is included only to assist the reader in visualizing the property and understanding the appraiser's determination of its size.
3. The appraiser has examined the available flood maps that are provided by the Federal Emergency Management Agency (or other data sources) and has noted in this appraisal report whether any portion of the subject site is located in an identified Special Flood Hazard Area. Because the appraiser is not a surveyor, he or she makes no guarantees, express or implied, regarding this determination.
4. The appraiser will not give testimony or appear in court because he or she made an appraisal of the property in question, unless specific arrangements to do so have been made beforehand, or as otherwise required by law.
5. The appraiser has noted in this appraisal report any adverse conditions (such as needed repairs, deterioration, the presence of hazardous wastes, toxic substances, etc.) observed during the inspection of the subject property or that he or she became aware of during the research involved in performing this appraisal. Unless otherwise stated in this appraisal report, the appraiser has no knowledge of any hidden or unapparent physical deficiencies or adverse conditions of the property (such as, but not limited to, needed repairs, deterioration, the presence of hazardous wastes, toxic substances, adverse environmental conditions, etc.) that would make the property less valuable, and has assumed that there are no such conditions and makes no guarantees or warranties, express or implied. The appraiser will not be responsible for any such conditions that do exist or for any engineering or testing that might be required to discover whether such conditions exist. Because the appraiser is not an expert in the field of environmental hazards, this appraisal report must not be considered as an environmental assessment of the property.
6. The appraiser has based his or her appraisal report and valuation conclusion for an appraisal that is subject to satisfactory completion, repairs, or alterations on the assumption that the completion, repairs, or alterations of the subject property will be performed in a professional manner.

Individual Condominium Unit Appraisal Report

File # 061124

APPRAISER'S CERTIFICATION: The Appraiser certifies and agrees that:

1. I have, at a minimum, developed and reported this appraisal in accordance with the scope of work requirements stated in this appraisal report.
2. I performed a complete visual inspection of the interior and exterior areas of the subject property. I reported the condition of the improvements in factual, specific terms. I identified and reported the physical deficiencies that could affect the livability, soundness, or structural integrity of the property.
3. I performed this appraisal in accordance with the requirements of the Uniform Standards of Professional Appraisal Practice that were adopted and promulgated by the Appraisal Standards Board of The Appraisal Foundation and that were in place at the time this appraisal report was prepared.
4. I developed my opinion of the market value of the real property that is the subject of this report based on the sales comparison approach to value. I have adequate comparable market data to develop a reliable sales comparison approach for this appraisal assignment. I further certify that I considered the cost and income approaches to value but did not develop them, unless otherwise indicated in this report.
5. I researched, verified, analyzed, and reported on any current agreement for sale for the subject property, any offering for sale of the subject property in the twelve months prior to the effective date of this appraisal, and the prior sales of the subject property for a minimum of three years prior to the effective date of this appraisal, unless otherwise indicated in this report.
6. I researched, verified, analyzed, and reported on the prior sales of the comparable sales for a minimum of one year prior to the date of sale of the comparable sale, unless otherwise indicated in this report.
7. I selected and used comparable sales that are locationally, physically, and functionally the most similar to the subject property.
8. I have not used comparable sales that were the result of combining a land sale with the contract purchase price of a home that has been built or will be built on the land.
9. I have reported adjustments to the comparable sales that reflect the market's reaction to the differences between the subject property and the comparable sales.
10. I verified, from a disinterested source, all information in this report that was provided by parties who have a financial interest in the sale or financing of the subject property.
11. I have knowledge and experience in appraising this type of property in this market area.
12. I am aware of, and have access to, the necessary and appropriate public and private data sources, such as multiple listing services, tax assessment records, public land records and other such data sources for the area in which the property is located.
13. I obtained the information, estimates, and opinions furnished by other parties and expressed in this appraisal report from reliable sources that I believe to be true and correct.
14. I have taken into consideration the factors that have an impact on value with respect to the subject neighborhood, subject property, and the proximity of the subject property to adverse influences in the development of my opinion of market value. I have noted in this appraisal report any adverse conditions (such as, but not limited to, needed repairs, deterioration, the presence of hazardous wastes, toxic substances, adverse environmental conditions, etc.) observed during the inspection of the subject property or that I became aware of during the research involved in performing this appraisal. I have considered these adverse conditions in my analysis of the property value, and have reported on the effect of the conditions on the value and marketability of the subject property.
15. I have not knowingly withheld any significant information from this appraisal report and, to the best of my knowledge, all statements and information in this appraisal report are true and correct.
16. I stated in this appraisal report my own personal, unbiased, and professional analysis, opinions, and conclusions, which are subject only to the assumptions and limiting conditions in this appraisal report.
17. I have no present or prospective interest in the property that is the subject of this report, and I have no present or prospective personal interest or bias with respect to the participants in the transaction. I did not base, either partially or completely, my analysis and/or opinion of market value in this appraisal report on the race, color, religion, sex, age, marital status, handicap, familial status, or national origin of either the prospective owners or occupants of the subject property or of the present owners or occupants of the properties in the vicinity of the subject property or on any other basis prohibited by law.
18. My employment and/or compensation for performing this appraisal or any future or anticipated appraisals was not conditioned on any agreement or understanding, written or otherwise, that I would report (or present analysis supporting) a predetermined specific value, a predetermined minimum value, a range or direction in value, a value that favors the cause of any party, or the attainment of a specific result or occurrence of a specific subsequent event (such as approval of a pending mortgage loan application).
19. I personally prepared all conclusions and opinions about the real estate that were set forth in this appraisal report. If I relied on significant real property appraisal assistance from any individual or individuals in the performance of this appraisal or the preparation of this appraisal report, I have named such individual(s) and disclosed the specific tasks performed in this appraisal report. I certify that any individual so named is qualified to perform the tasks. I have not authorized anyone to make a change to any item in this appraisal report; therefore, any change made to this appraisal is unauthorized and I will take no responsibility for it.
20. I identified the lender/client in this appraisal report who is the individual, organization, or agent for the organization that ordered and will receive this appraisal report.

Individual Condominium Unit Appraisal Report

File # 061124

21. The lender/client may disclose or distribute this appraisal report to: the borrower; another lender at the request of the borrower; the mortgagee or its successors and assigns; mortgage insurers; government sponsored enterprises; other secondary market participants; data collection or reporting services; professional appraisal organizations; any department, agency, or instrumentality of the United States; and any state, the District of Columbia, or other jurisdictions; without having to obtain the appraiser's or supervisory appraiser's (if applicable) consent. Such consent must be obtained before this appraisal report may be disclosed or distributed to any other party (including, but not limited to, the public through advertising, public relations, news, sales, or other media).

22. I am aware that any disclosure or distribution of this appraisal report by me or the lender/client may be subject to certain laws and regulations. Further, I am also subject to the provisions of the Uniform Standards of Professional Appraisal Practice that pertain to disclosure or distribution by me.

23. The borrower, another lender at the request of the borrower, the mortgagee or its successors and assigns, mortgage insurers, government sponsored enterprises, and other secondary market participants may rely on this appraisal report as part of any mortgage finance transaction that involves any one or more of these parties.

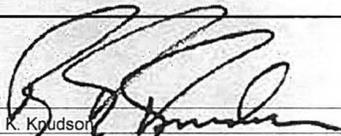
24. If this appraisal report was transmitted as an "electronic record" containing my "electronic signature," as those terms are defined in applicable federal and/or state laws (excluding audio and video recordings), or a facsimile transmission of this appraisal report containing a copy or representation of my signature, the appraisal report shall be as effective, enforceable and valid as if a paper version of this appraisal report were delivered containing my original hand written signature.

25. Any intentional or negligent misrepresentation(s) contained in this appraisal report may result in civil liability and/or criminal penalties including, but not limited to, fine or imprisonment or both under the provisions of Title 18, United States Code, Section 1001, et seq., or similar state laws.

SUPERVISORY APPRAISER'S CERTIFICATION: The Supervisory Appraiser certifies and agrees that:

1. I directly supervised the appraiser for this appraisal assignment, have read the appraisal report, and agree with the appraiser's analysis, opinions, statements, conclusions, and the appraiser's certification.
2. I accept full responsibility for the contents of this appraisal report including, but not limited to, the appraiser's analysis, opinions, statements, conclusions, and the appraiser's certification.
3. The appraiser identified in this appraisal report is either a sub-contractor or an employee of the supervisory appraiser (or the appraisal firm), is qualified to perform this appraisal, and is acceptable to perform this appraisal under the applicable state law.
4. This appraisal report complies with the Uniform Standards of Professional Appraisal Practice that were adopted and promulgated by the Appraisal Standards Board of The Appraisal Foundation and that were in place at the time this appraisal report was prepared.
5. If this appraisal report was transmitted as an "electronic record" containing my "electronic signature," as those terms are defined in applicable federal and/or state laws (excluding audio and video recordings), or a facsimile transmission of this appraisal report containing a copy or representation of my signature, the appraisal report shall be as effective, enforceable and valid as if a paper version of this appraisal report were delivered containing my original hand written signature.

APPRAISER

Signature 
 Name Raymond K. Knudson
 Company Name Knudson Appraising, P.C.
 Company Address 4991 Fairbrook Lane, P.O. Box 17767, Salt Lake City, UT 84117
 Telephone Number 801-273-1211
 Email Address knudson@xmission.com
 Date of Signature and Report 12/22/2014
 Effective Date of Appraisal 12/17/2014
 State Certification # 5494280-CR00
 or State License # _____
 or Other _____ State # _____
 State UT
 Expiration Date of Certification or License 10/31/2015

ADDRESS OF PROPERTY APPRAISED

48 W Broadway, # 2404N
Salt Lake City, UT 84101
 APPRAISED VALUE OF SUBJECT PROPERTY \$ 515,000

LENDER/CLIENT

Name Alexander H. Walker III
 Company Name Alexander H. Walker III
 Company Address 57 W. 200 S., Suite 400, Salt Lake City, UT 84101
 Email Address _____

SUPERVISORY APPRAISER (ONLY IF REQUIRED)

Signature _____
 Name _____
 Company Name _____
 Company Address _____
 Telephone Number _____
 Email Address _____
 Date of Signature _____
 State Certification # _____
 or State License # _____
 State _____
 Expiration Date of Certification or License _____

SUBJECT PROPERTY

- Did not inspect subject property
 Did inspect exterior of subject property from street
 Date of Inspection _____
 Did inspect interior and exterior of subject property
 Date of Inspection _____

COMPARABLE SALES

- Did not inspect exterior of comparable sales from street
 Did inspect exterior of comparable sales from street
 Date of Inspection _____

Individual Condominium Unit Appraisal Report

File # 061124

FEATURE	SUBJECT	COMPARABLE SALE # 4	COMPARABLE SALE # 5	COMPARABLE SALE # 6
Address and Unit #	48 W Broadway Salt Lake City, UT 84101	48 W Broadway Apt 2401N Salt Lake City, UT 84101	44 W Broadway Apt 2502S Salt Lake City, UT 84101	44 W Broadway Apt 1105 Salt Lake City, UT 84101
Project Name and Phase	American Towers Condos 1	American Towers Condos 1	American Towers Condos 1	American Towers Condos 1
Proximity to Subject		0.01 miles S	0.02 miles E	0.02 miles S
Sale Price	\$ NA	\$ 437,500	\$ 569,000	\$ 550,000
Sale Price/Gross Liv. Area	\$ sq. ft.	\$ 149.62 sq. ft.	\$ 191.58 sq. ft.	\$ 241.33 sq. ft.
Data Source(s)		Wasatch Front MLS#1252479	Wasatch Front MLS#1172428	Wasatch Front MLS#1243159
Verification Source(s)		Exterior Inspection	Exterior Inspection	Exterior Inspection
VALUE ADJUSTMENTS	DESCRIPTION	DESCRIPTION + (-) \$ Adjustment	DESCRIPTION + (-) \$ Adjustment	DESCRIPTION + (-) \$ Adjustment
Sales or Financing		Conventional	Active Listing -10%	Active Listing
Concessions		None	-57,000	-55,000
Date of Sale/Time		09/30/2014	Listed 07/02/13	Listed 07/08/14
Location	Good	Good	Good	Good
Leasehold/Fee Simple	Fee Simple	Fee Simple	Fee Simple	Fee Simple
HOA Mo. Assessment	725.00	725.00	725.00	675.00
Common Elements and Rec. Facilities	Pool, Clubhouse, ExRm, Elevator	Pool, Clubhouse, ExRm, Elevator	Pool, Clubhouse, ExRm, Elevator	Pool, Clubhouse, ExRm, Elevator
Floor Location	24th Floor	24th Floor	25th Floor	11th Floor
View	MtnValley/Good	MtnValley/Good	MtnValley/Good	MtnValley/Good
Design (Style)	Rambler/Good	Rambler/Good	Rambler/Good	Rambler/Good
Quality of Construction	ConcGlass/Gd	ConcStucco/Gd	ConcGlass/Gd	ConcGlass/Gd
Actual Age	30 years	30 years	30 years	30 years
Condition	Good	Good	Good	Good
Above Grade Room Count	Total Bdrms. Baths 6 2 2.5	Total Bdrms. Baths 7 3 2.5	Total Bdrms. Baths 6 2 2.5	Total Bdrms. Baths 5 2 2.5
Gross Living Area	2,975 sq. ft.	2,924 sq. ft.	2,970 sq. ft.	2,279 sq. ft.
Basement & Finished Rooms Below Grade	NA	NA	NA	NA
Functional Utility	Average	Average	Average	Average
Heating/Cooling	FWA/Central	FWA/Central	FWA/Central	FWA/Central
Energy Efficient Items	Double Pane	Double Pane	Double Pane	Double Pane
Garage/Carport	1 Car Undergrnd	2 Car Garage	1 Car Garage	1 Car Garage
Porch/Patio/Deck	None	None	None	None
Other	None	See Addendum +50,000	None	None
Days on Market	DOM=NA	DOM=2	DOM=529	DOM=148
Net Adjustment (Total)		⊗ + ⊗ - \$ 45,000	⊗ + ⊗ - \$ -57,000	⊗ + ⊗ - \$ -34,120
Adjusted Sale Price of Comparables		Net Adj. 10.3 % Gross Adj. 12.6 % \$ 482,500	Net Adj. 10.0 % Gross Adj. 10.0 % \$ 512,000	Net Adj. 6.2 % Gross Adj. 13.8 % \$ 515,880
Report the results of the research and analysis of the prior sale or transfer history of the subject property and comparable sales (report additional prior sales on page 3).				
ITEM	SUBJECT	COMPARABLE SALE # 4	COMPARABLE SALE # 5	COMPARABLE SALE # 6
Date of Prior Sale/Transfer	None	None	None	None
Price of Prior Sale/Transfer				
Data Source(s)	Wasatch Front MLS	Wasatch Front MLS	Wasatch Front MLS	Wasatch Front MLS
Effective Date of Data Source(s)	12/17/2014	12/17/2014	12/17/2014	12/17/2014
Analysis of prior sale or transfer history of the subject property and comparable sales Included in prior history on page 2.				
Analysis/Comments Included in sales summary on page three and also in addendum.				

SALES COMPARISON APPROACH

SALE HISTORY

ANALYSIS/COMMENTS

commSupplemental Addendum

File No. 061124

Borrower/Client	NA				
Property Address	48 W Broadway				
City	Salt Lake City	County	Salt Lake	State	UT Zip Code 84101
Lender	Alexander H. Walker III				

COMMENTS ON SUBJECT PROPERTY:

The subject is a "Jackson Unit" and is one of the largest units in the project. It is located on the 24th floor and has 180 degree view of the city and valley.

The unit is in good condition with hardwood entry and dining area, full length mirrored walls in the dining room, the master bath has a jetted garden tub with separate shower and plantation shutter window coverings. The unit is in good condition with no apparent repairs needed.

COMMENTS ON PREDOMINANT VALUE IN NEIGHBORHOOD:

The subject is superior in value to the predominant value of the neighborhood and this is because it is a much larger unit than the typical condominium in the area. However, it is by no means atypical or overbuilt for the neighborhood as there are units both larger and of more value in the area.

COMMENTS ON MOST CURRENT SALE AND CURRENT LISTINGS WITHIN THE SUBJECT'S DEVELOPMENT

Comparable #4 in this appraisal is the most current sale of a unit similar to the subject. It was listed for \$449,900 on 08/20/2014 and was under contract on 08/22/2014 and the sale was completed on 09/30/2014 for \$437,500. It would appear that it sold for less than market value. It was noted on the MLS listing that the agent was related to the seller and it was only on the market for two days before going under contract. The listings of a similar and smaller unit as reported in this appraisal as active listings were also active at the time this unit was listed. It would appear that this unit was at least 10% underpriced, however this may have been necessary as an urgent sale was needed. For this reason a 10% positive adjustment was made to this comparable in the grid.

The next most current sale for a unit similar to the subject was Unit 2602 that was listed for \$559,000 on 02/19/2013 and sold for \$559,000 on 03/28/2013.

Comparable #5 is an active listing of a similar unit to the subject. It was listed on for \$595,000 on 07/02/2013 on MLS#1172428. It was recently reduced to \$569,000.

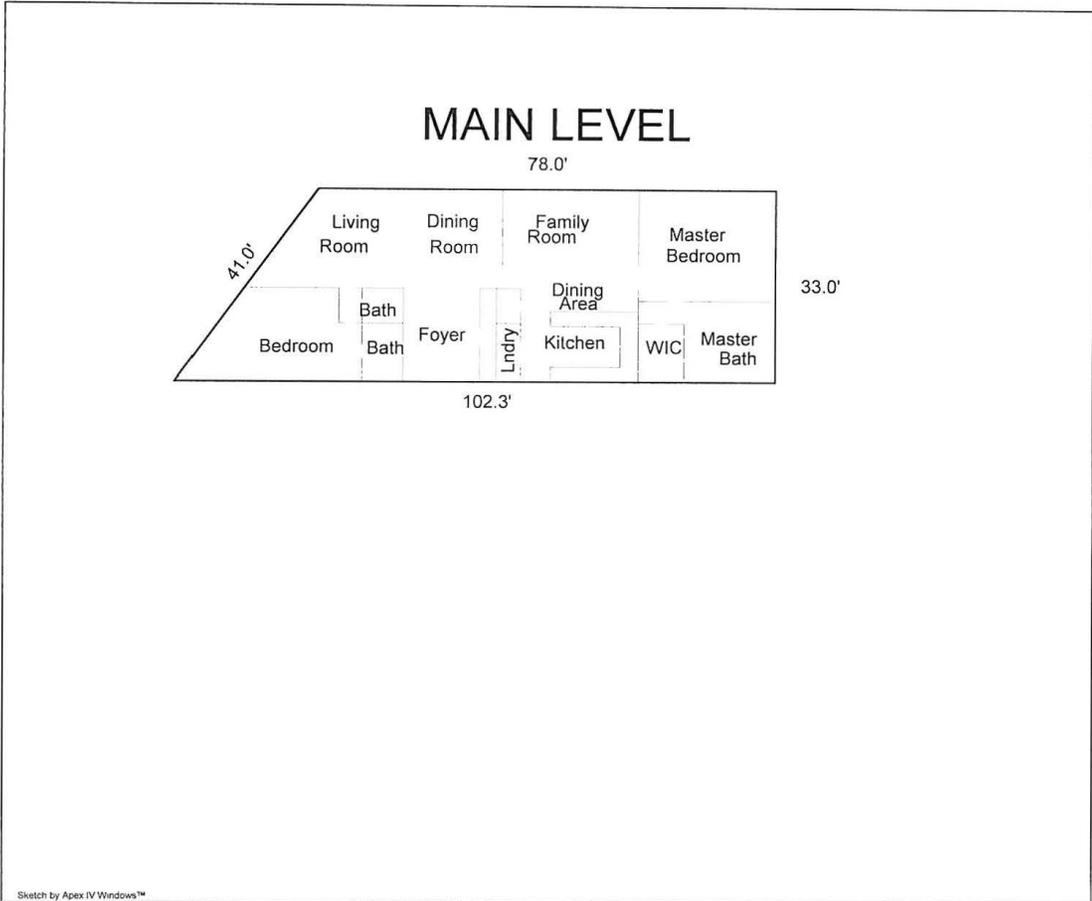
Comparable #6 is also an active listing of a unit that is smaller than the subject (2,279 sf). It was listed on 07/08/2014 for \$550,000.

MARKETING TIME:

The marketing time required for a similar unit based upon past sales would be three to six months.

Building Sketch (Page - 1)

Borrower/Client	NA				
Property Address	48 W Broadway				
City	Salt Lake City	County	Salt Lake	State	UT
Lender	Alexander H. Walker III		Zip Code	84101	



Sketch by Apex IV Windows™

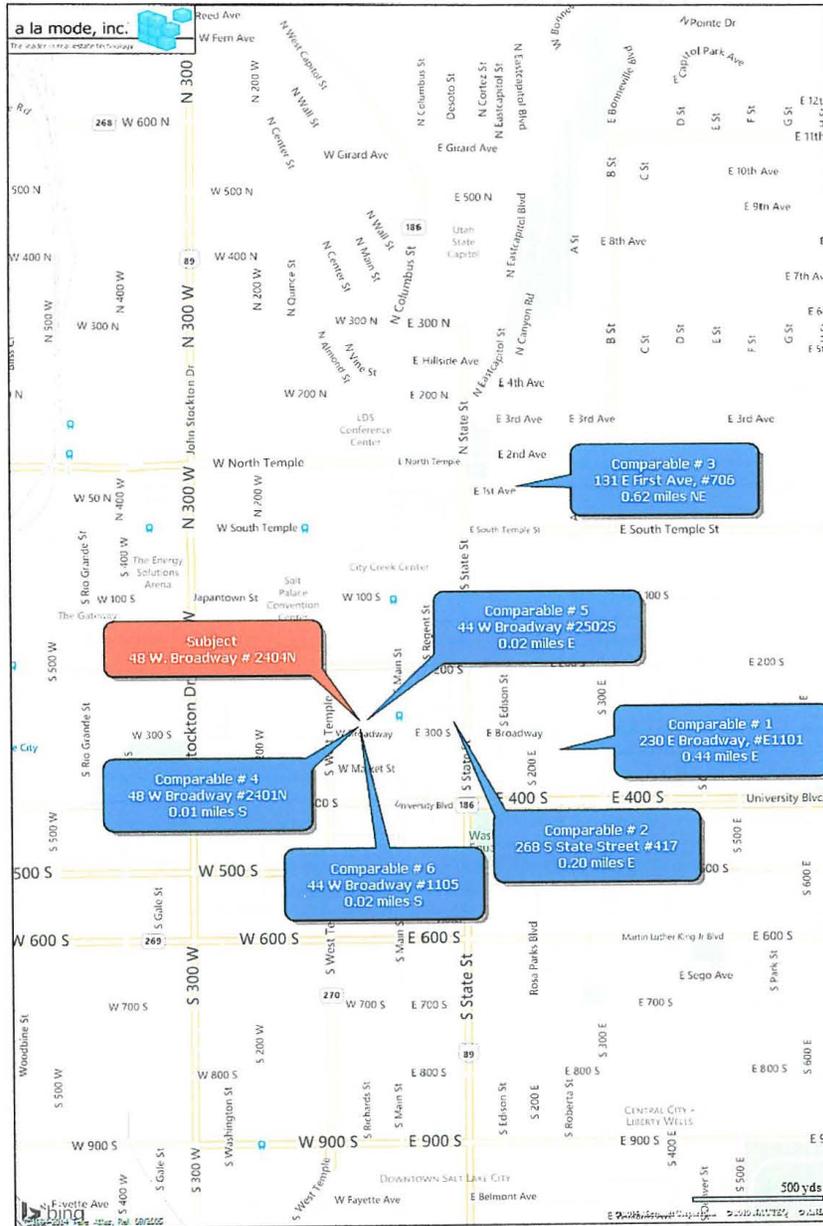
Comments:

AREA CALCULATIONS SUMMARY			
Code	Description	Size	Net Totals
GLA1	First Floor	2974.95	2974.95
TOTAL LIVABLE		(rounded)	2975

LIVING AREA BREAKDOWN			
Breakdown			Subtotals
First Floor			
0.5 x	24.3 x	33.0	400.95
	33.0 x	78.0	2574.00
2 Calculations Total (rounded)			2975

+ Location Map

Borrower/Client	NA				
Property Address	48 W Broadway				
City	Salt Lake City	County	Salt Lake	State	UT
Lender	Alexander H. Walker III				
				Zip Code	84101



Subject Photo Page

Borrower/Client	NA				
Property Address	48 W Broadway				
City	Salt Lake City	County	Salt Lake	State	UT
Lender	Alexander H. Walker III				
				Zip Code	84101

**Subject Front**

48 W Broadway
Sales Price NA
Gross Living Area 2,975
Total Rooms 6
Total Bedrooms 2
Total Bathrooms 2.5
Location Good
View MtnValley/Good
Site Large/Highrise
Quality ConcGlass/Gd
Age 30 years

**Subject Rear****Subject Street**

Subject Photo Page

Borrower/Client	NA				
Property Address	48 W Broadway				
City	Salt Lake City	County	Salt Lake	State	UT Zip Code 84101
Lender	Alexander H. Walker III				

**Subject Lobby**

48 W Broadway
 Sales Price NA
 Gross Living Area 2,975
 Total Rooms 6
 Total Bedrooms 2
 Total Bathrooms 2.5
 Location Good
 View MtnValley/Good
 Site Large/Highrise
 Quality ConcGlass/Gd
 Age 30 years

**Subject Pool****Subject Gym**

Subject Interior Photo Page

Borrower/Client	NA				
Property Address	48 W Broadway				
City	Salt Lake City	County	Salt Lake	State	UT
Lender	Alexander H. Walker III				
				Zip Code	84101



Subject Interior

48 W Broadway
Sales Price NA
Gross Living Area 2,975
Total Rooms 6
Total Bedrooms 2
Total Bathrooms 2.5
Location Good
View MtnValley/Good
Site Large/Highrise
Quality ConcGlass/Gd
Age 30 years

Living Room\



Subject Interior

Dining Room



Subject Interior

Kitchen

Subject Interior Photo Page

Borrower/Client	NA				
Property Address	48 W Broadway				
City	Salt Lake City	County	Salt Lake	State	UT
Lender	Alexander H. Walker III				
				Zip Code	84101



Subject Interior

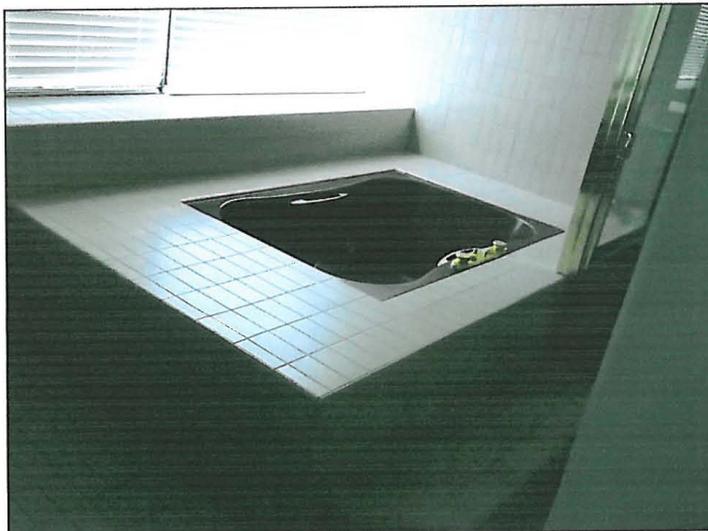
48 W Broadway
 Sales Price NA
 Gross Living Area 2,975
 Total Rooms 6
 Total Bedrooms 2
 Total Bathrooms 2.5
 Location Good
 View MtnValley/Good
 Site Large/Highrise
 Quality ConcGlass/Gd
 Age 30 years

Bedroom



Subject Interior

Family Room

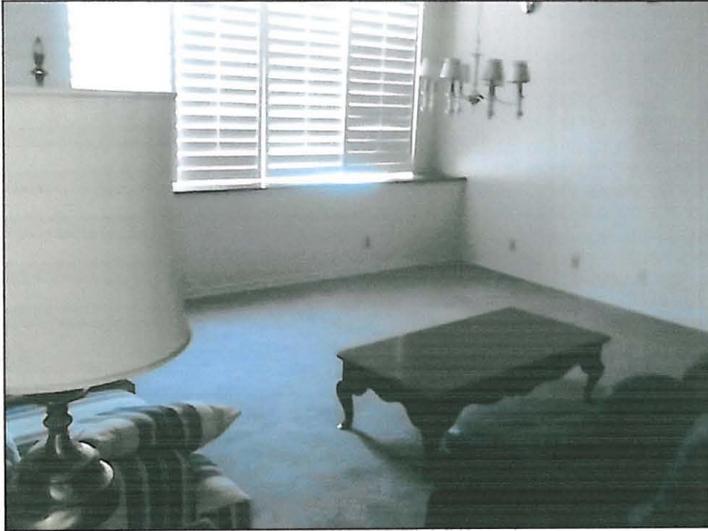


Subject Interior

Master BATH

Subject Interior Photo Page

Borrower/Client	NA				
Property Address	48 W Broadway				
City	Salt Lake City	County	Salt Lake	State	UT
Lender	Alexander H. Walker III				
				Zip Code	84101



Subject Interior

48 W Broadway
Sales Price NA
Gross Living Area 2,975
Total Rooms 6
Total Bedrooms 2
Total Bathrooms 2.5
Location Good
View MtnValley/Good
Site Large/Highrise
Quality ConcGlass/Gd
Age 30 years

Master Bedroom



Subject Interior

Bathroom



Subject Interior

Half Bath

Comparable Photo Page

Borrower/Client	NA				
Property Address	48 W Broadway				
City	Salt Lake City	County	Salt Lake	State	UT
Zip Code	84101				
Lender	Alexander H. Walker III				



Comparable 1

230 E Broadway # E1101
 Prox. to Subject 0.44 miles E
 Sale Price 596,783
 Gross Living Area 1,834
 Total Rooms 6
 Total Bedrooms 3
 Total Bathrooms 3
 Location Good
 View MtnValley/Good
 Site
 Quality BrkConc/Gd
 Age 30 years



Comparable 2

268 S State St Apt 417
 Prox. to Subject 0.20 miles E
 Sale Price 620,000
 Gross Living Area 2,086
 Total Rooms 3
 Total Bedrooms 1
 Total Bathrooms 2.5
 Location Good
 View MtnValley/Good
 Site Large/Highrise
 Quality Stone/Good
 Age 12 years



Comparable 3

131 E 1st Ave Apt 706
 Prox. to Subject 0.62 miles NE
 Sale Price 485,000
 Gross Living Area 2,163
 Total Rooms 6
 Total Bedrooms 3
 Total Bathrooms 2.5
 Location Good
 View MtnValley/Good
 Site
 Quality BrkConc/Good
 Age 35 years

Comparable Photo Page

Borrower/Client	NA				
Property Address	48 W Broadway				
City	Salt Lake City	County	Salt Lake	State	UT
Lender	Alexander H. Walker III		Zip Code	84101	



Comparable 4

48 W Broadway Apt 2401N
 Prox. to Subject 0.01 miles S
 Sale Price 437,500
 Gross Living Area 2,924
 Total Rooms 7
 Total Bedrooms 3
 Total Bathrooms 2.5
 Location Good
 View MtnValley/Good
 Site
 Quality ConcStucco/Gd
 Age 30 years



Comparable 5

44 W Broadway Apt 2502S
 Prox. to Subject 0.02 miles E
 Sale Price 569,000
 Gross Living Area 2,970
 Total Rooms 6
 Total Bedrooms 2
 Total Bathrooms 2.5
 Location Good
 View MtnValley/Good
 Site
 Quality ConcGlass/Gd
 Age 30 years



Comparable 6

44 W Broadway Apt 1105
 Prox. to Subject 0.02 miles S
 Sale Price 550,000
 Gross Living Area 2,279
 Total Rooms 5
 Total Bedrooms 2
 Total Bathrooms 2.5
 Location Good
 View MtnValley/Good
 Site
 Quality ConcGlass/Gd
 Age 30 years



DECLARATIONS
for
**REAL ESTATE PROFESSIONAL
LIABILITY INSURANCE POLICY**

THIS IS A CLAIMS MADE INSURANCE POLICY.

THIS POLICY APPLIES ONLY TO THOSE CLAIMS THAT ARE FIRST MADE AGAINST AN INSURED DURING THE POLICY PERIOD. ALL CLAIMS MUST BE REPORTED IN WRITING TO THE COMPANY DURING THE POLICY PERIOD OR WITHIN SIXTY (60) DAYS AFTER THE END OF THE POLICY PERIOD.

Insurance is afforded by the company indicated below: (A capital stock corporation)

Great American Assurance Company

Note: The Insurance Company selected above shall herein be referred to as the Company.

Policy Number: **RAB3874343-14**

Renewal of:

Program Administrator: **Herbert H. Landy Insurance Agency Inc.**
75 Second Ave Suite 410
Needham, MA 02494-2876

Item 1. Named Insured: **Knudson Appraising PC**

Item 2. Address: **PO Box 17787**

City, State, Zip Code: **Salt Lake City, UT 84117**

Attn:

Item 3. Policy Period: From 11/01/2014 To 11/01/2015
(Month, Day, Year) (Month, Day, Year)

(Both dates at 12:01 a.m. Standard Time at the address of the Named Insured as stated in Item 2.)

Item 4. Limits of Liability: (inclusive of claim expenses):

- A. \$ 1,000,000 Limit of Liability - Each Claim
- B. \$ 2,000,000 Limit of Liability - Policy Aggregate
- C. \$ 250,000 Limit of Liability - Fair Housing Claims
- D. \$ 100,000 Limit of Liability - Fungi Claims

Item 5. Deductible (inclusive of claim expense): **\$ 2,500 Each Claim**

Item 6. Premium: \$ **813.00**

Item 7. Retroactive Date (if applicable): **11/01/2005**

Item 8. Forms, Notices and Endorsements attached:
D43100 (05/13) D43300 UT (05 13)
D43427 (05/13) D43421 (05/13) D43425 (05/13)
D43432 (05/13) D43408 (05/13)

Betsy A. Magowan

Authorized Representative

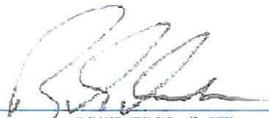
D43101 (05/13)

Page 1 of 1

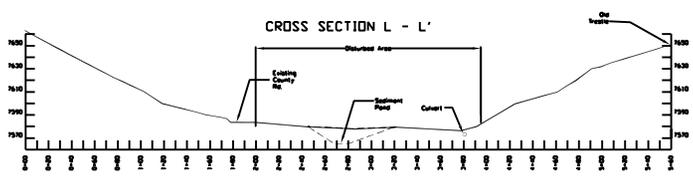
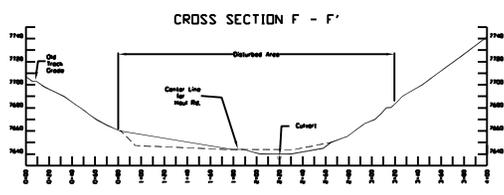
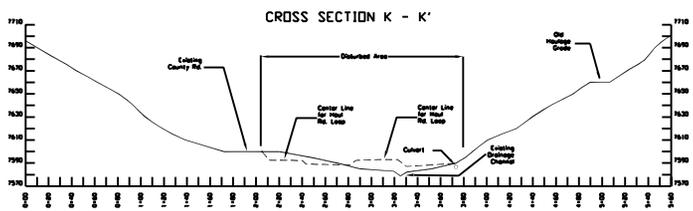
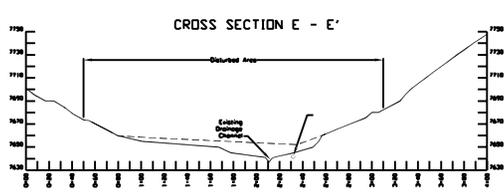
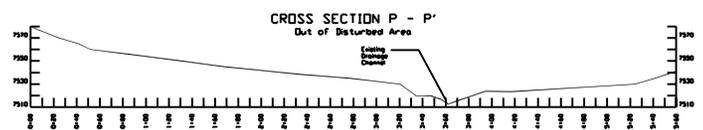
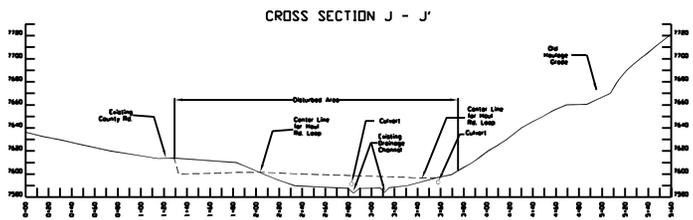
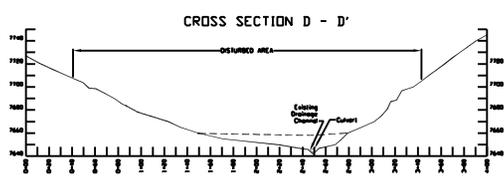
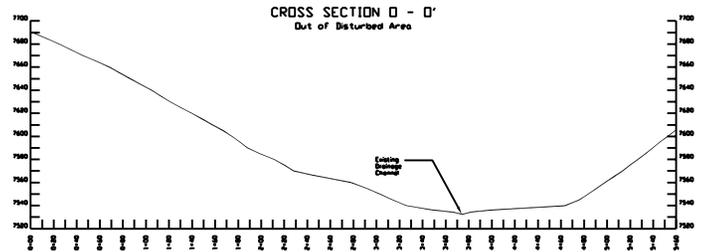
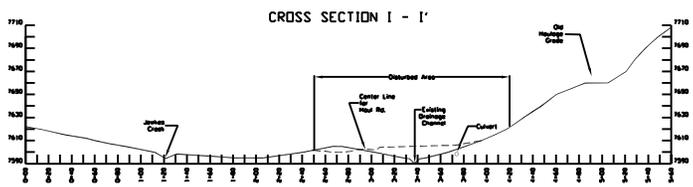
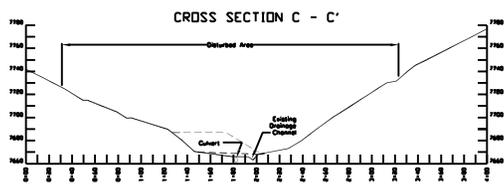
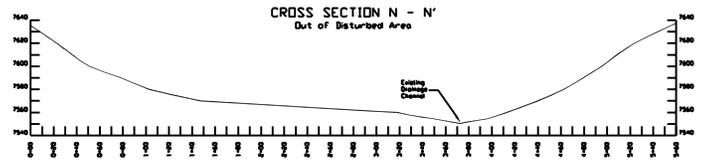
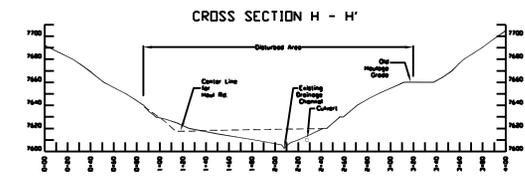
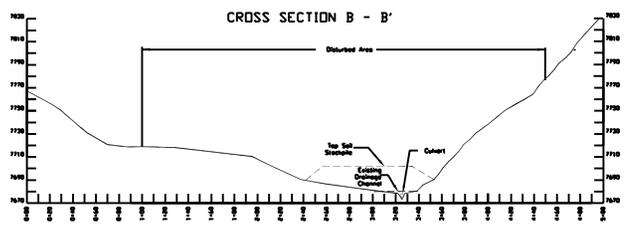
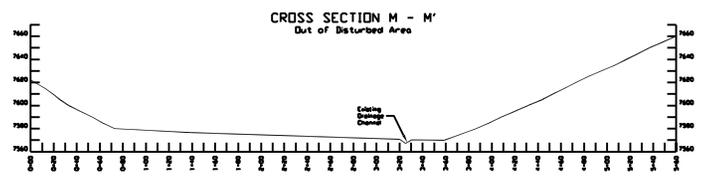
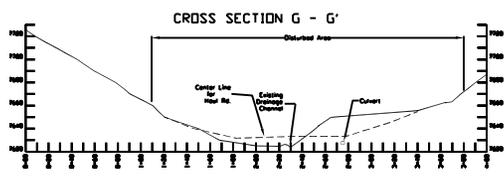
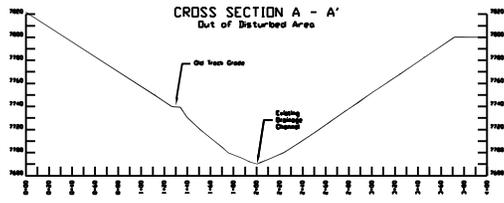
STATE OF UTAH
DEPARTMENT OF COMMERCE
DIVISION OF REAL ESTATE
ACTIVE LICENSE

DATE ISSUED: 09/13/2013
EXPIRATION DATE: 10/31/2015
LICENSE NUMBER: 5494280-CR00
LICENSE TYPE: Certified Residential Appraiser
ISSUED TO:
RAYMOND KNUDSON
4991 FAIRBROOK LN
SALT LAKE CITY UT 84117




SIGNATURE OF HOLDER


REAL ESTATE DIVISION DIRECTOR



Vert. Scale
1" = 50'
Hori. Scale
1" = 50'



REVISION		HIDDEN SPLENDOR RESOURCES, INC. HORIZON MINE 57 WEST 200 SOUTH - SUITE 400 SALT LAKE CITY, UTAH 84119
NO.	DESCRIPTION	
		PLATE 3-7a POSTMINING CROSS SECTIONS

TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
4.1 Scope.....	4-1
4.2 Methodology.....	4-1
4.3 Land Status.....	4-1
4.3.1 Surface Land Status	4-1
4.3.2 Mineral Status	4-1
4.3.3 Legal Right to Enter.....	4-1
4.3.3.1 Surface Land Status	4-1
4.3.4 Associated Surface Mining	4-4
4.4 Existing Land Use.....	4-4
4.4.1 Regional Land Use.....	4-4
4.4.2 Mine Plan Area Land Use – Past and Present.....	4-5
4.4.3 Affect of Operations on Lane Use and Mitigation Measures	4-5
4.5 Post-Mining Land Use	4-6
4.6 Socioeconomic Consideration	4-6

LIST OF TABLES

TABLE 4-1 NAMES AND ADDRESSES – RECORD HOLDERS OF LEGAL INTEREST	4-2
------------------------------------------------------------------	-----

LIST OF PLATES

PLATE 4-1 LAND USE
PLATE 4-2 SURFACE OWNERSHIP
PLATE 4-3 COAL OWNERSHIP

LIST OF APPENDICES

APPENDIX 4-1	LAND USE CLASSIFICATION
APPENDIX 4-1a	LANDOWNER LETTERS
APPENDIX 4-2	2009 CARBON COUNTY DEVELOPMENT CODE
APPENDIX 4-3	PURCHASER LETTER

4.5 Post Mining Land Use

Hidden Splendor will reclaim the Horizon Mine site for recreation use. Recreation land use is consistent with local zoning ordinances and is a “higher and better use” as defined under Utah Admin. Code R645-301-413.300.

Hidden Splendor will reclaim the site for private recreational use. The facility pad, diversion structures, sediment pond, and the driveway providing access off the county road to the facility pad will be maintained. As described in Chapter 8, a portion of the facility pad will be topsoiled and revegetated as per specifications in Chapter 8 and Plate 8-1 B (submitted with Permit Application). The facility pad will be used to accommodate camping areas, equipment storage and maintenance. Existing diversionary structures will be necessary to maintain the facility pad. Flows from portal canyon are currently diverted through a culvert (UC-3) under the facility pad and into Jewkes Creek. The culvert ensures that water from portal canyon is not polluted from runoff from previously disturbed areas, as well as from Horizon Mine’s runoff. The culvert runs under the entire length of the facility pad. In order to keep the facility pad in place, the existing culvert constructed underneath the pad will need to be maintained. Runoff from the disturbed area is currently diverted into the sediment pond in a separate culvert, UC-2. To preserve water quality downstream and leave the culvert structure in place, the sediment pond will be retained for sediment control.

Recreational land use is consistent with local zoning ordinances. When originally approved, the post mining land use at the Horizon Mine was categorized as “undeveloped land.” Since that time, local zoning codes and land use policies have been revised to encourage a diverse economic base within Carbon County. To that end, in 2009 Carbon County amended ordinances governing development in “Mining and Grazing Zones” to accommodate recreational infrastructure. Under the revised ordinance, projects within Mining and Grazing zones may now include: “dude ranches, hunting and fishing retreats, minor outdoor recreational facilities, including but not limited to equestrian facilities, shooting ranges, camps and day use facilities.” Carbon County Code §4.2.15(C)(10) (2009). See Appendix 4-2. Given the change in local Carbon County Ordinance, Hidden Splendor proposes to maintain infrastructure to support minor recreational facilities.

A change in post-mining use from undeveloped land to recreational use is a “higher and better use.” See Utah Admin. Code R645-301-413.300. Recreation is consistent with the Carbon County land use goals and development objectives.

The Division may approve higher or better land uses that meet the following criteria:

- There is a reasonable likelihood for achievement of the use;
- The use does not present any actual or probable hazard to public health or safety, or threat of water diminution or pollution; and
- The use will not:
 - Be impractical or unreasonable
 - Be inconsistent with applicable land-use policies or plans
 - Involve unreasonable delay in implementation or

- Cause or contribute to violation of federal, Utah, or local law.

Utah Admin. Code R645-301-413.300-334.

4.5.1 There is a reasonable likelihood for achievement of recreation land.

There is a reasonable likelihood for achievement of recreational use as per Utah Admin Code R645-301-413.310. The area is currently zoned by the county to for recreational use including, but not limited to, day use facilities, camping, and hunting retreats. See Carbon County Code, Appendix 4-2. The facility pad will accommodate day use facilities such as parking, camping, ATV and equipment storage. The existing driveway between the County Road and facility pad provides access to the site and surrounding area for recreational use.

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The surrounding area, including the property adjacent to the Horizon Mine site is currently used for private recreation including hunting and camping. Hidden Splendor is in negotiations to lease or sell the property for recreational use. See Appendix 4-3, Carlson Letter. Mr. Carlson has requested that all infrastructure including ditches, culverts, the sediment pond, access road, and facility pad be left in place to accommodate his use. Existing infrastructure onsite facilitates minor recreation support facilities. Mr. Carlson already owns property adjacent to the Horizon Mine site that is used for private recreation including hunting and camping.

4.5.2 Recreation use does not present any actual or probable hazard to public health or safety, or threat of water diminution or pollution.

Recreation use is consistent with county ordinances and does not present any actual or probable hazard to public health or safety or present a threat of water diminution or pollution. Retention of existing diversionary structures and the sediment pond will maintain water quality. Flows from portal canyon are currently diverted through a culvert (UC-3) under the facility pad and into Jewkes Creek. The culvert ensures that water from portal canyon is not polluted from runoff from previously disturbed areas, as well as from Horizon Mine's runoff. The culvert runs under the entire length of the facility pad. Areas around the sediment pond and ditching have already been revegetated and provide effective runoff control. A separate culvert (UC-1) and ditching diverts runoff water from the disturbed area, access road, and facility pad into the sediment pond. This existing drainage system will preserve water quality downstream and ensure that Jewkes Creek remains free from site runoff and additional sedimentation caused by recreational use.

4.5.3. Recreation use is consistent with governing laws and policies.

Recreational land use is defined as "land used for public or private leisure time activities including developed recreation facilities such as parks, camps and amusement areas, as well as areas for less intensive uses such as hiking canoeing and other undeveloped recreational uses." Utah Admin. Code R645-100.

As described above Carbon County code has been revised to accommodate recreation activity within Grazing and Mining zones. The structures to be left in place are permitted under the

revised code. More specifically county ordinance identifies water diversion structures, manmade ponds under 10 acre-feet in capacity as permitted uses within Mining and Grazing zones. Campsites, lodges and other recreation support structures are also permitted.

4.5.3.1 Recreation use will not be impractical or unreasonable

Recreational use will not be impractical or unreasonable. Consistent with local land use policy, the area is already used for recreational activity including hunting, hiking, camping, biking, and horseback riding. With existing infrastructure in place, the Horizon Mine site is well suited to proposed recreational activities and minor recreation structures.

4.5.3.2 Recreation use will not be inconsistent with applicable land use policies or plans

As previously stated, recreational land use is consistent with Carbon County Ordinances and land use plans. Carbon County Code §4.2.15(C)(10) (2009). See Appendix 4-1.

4.5.3.3 Recreation use will not involve unreasonable delay in implementation

Maintenance of the facility pad, diversion structures, driveway, and sediment pond prevents onsite disturbance. Once revegetation is completed, the site will be ready to support recreational use without additional construction or delays.

4.5.3.4 Recreation use will not cause or contribute to violation of federal, Utah, or local law.

Recreation onsite is not prohibited under local law. Carbon County Code §4.2.15(C)(10) (2009). Recreation will not cause or contribute to a violation of federal, state or local law.

4.5 Post Mining Land Use

Hidden Splendor will reclaim the Horizon Mine site for recreation use. Recreation land use is consistent with local zoning ordinances and is a “higher and better use” as defined under Utah Admin. Code R645-301-413.300.

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A change in post-mining use from undeveloped land to recreational use is a “higher and better use.” See Utah Admin. Code R645-301-413.300. Recreation is consistent with the Carbon County land use goals and development objectives.

The Division may approve higher or better land uses that meet the following criteria:

- There is a reasonable likelihood for achievement of the use;
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4.5.2 Recreation use does not present any actual or probable hazard to public health or safety, or threat of water diminution or pollution.

Recreation use is consistent with county ordinances and does not present any actual or probable hazard to public health or safety or present a threat of water diminution or pollution. Retention of existing diversionary structures and the sediment pond will maintain water quality. Flows from portal canyon are currently diverted through a culvert (UC-3) under the facility pad and into Jewkes Creek. The culvert ensures that water from portal canyon is not polluted from runoff from previously disturbed areas, as well as from Horizon Mine's runoff. The culvert runs under the entire length of the facility pad. Areas around the sediment pond and ditching have already been revegetated and provide effective runoff control. A separate culvert (UC-1) and ditching diverts runoff water from the disturbed area, access road, and facility pad into the sediment pond. This existing drainage system will preserve water quality downstream and ensure that Jewkes Creek remains free from site runoff and additional sedimentation caused by recreational use.

4.5.3. Recreation use is consistent with governing laws and policies.

Recreational land use is defined as "land used for public or private leisure time activities including developed recreation facilities such as parks, camps and amusement areas, as well as areas for less intensive uses such as hiking canoeing and other undeveloped recreational uses." Utah Admin. Code R645-100.

As described above Carbon County code has been revised to accommodate recreation activity within Grazing and Mining zones. The structures to be left in place are permitted under the

revised code. More specifically county ordinance identifies water diversion structures, manmade ponds under 10 acre-feet in capacity as permitted uses within Mining and Grazing zones. Campsites, lodges and other recreation support structures are also permitted.

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Recreational use will not be impractical or unreasonable. Consistent with local land use policy, the area is already used for recreational activity including hunting, hiking, camping, biking, and horseback riding. With existing infrastructure in place, the Horizon Mine site is well suited to proposed recreational activities and minor recreation structures.

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As previously stated, recreational land use is consistent with Carbon County Ordinances and land use plans. Carbon County Code §4.2.15(C)(10) (2009). See Appendix 4-1.

4.5.3.3 Recreation use will not involve unreasonable delay in implementation

Maintenance of the facility pad, diversion structures, driveway, and sediment pond prevents onsite disturbance. Once revegetation is completed, the site will be ready to support recreational use without additional construction or delays.

4.5.3.4 Recreation use will not cause or contribute to violation of federal, Utah, or local law.

Recreation onsite is not prohibited under local law. Carbon County Code §4.2.15(C)(10) (2009). Recreation will not cause or contribute to a violation of federal, state or local law.

J. Landscaping

All industrial developments shall be fully landscaped as per a plan submitted to and approved by the Planning Commission.

4.2.15 **M&G Mining and Grazing Zone**

A. Legislative Intent

The M&G Mining and Grazing Zone generally covers the rangeland areas of Carbon County to an elevation of 7,000 feet. Because of the limitations imposed by climate, topography, soil capability, water supply and the presence of economically significant mineral deposits, this area has historically been utilized as a place for the grazing of livestock on the open range and as the location of numerous mining and mineral exploration sites. The particular characteristics and conditions present in this area make the land more appropriately suited for a continuation of these uses to promote the economic well-being of the people within the County, and to broaden the tax base.

It is hereby declared that the specific purposes and intent of the County Commission in establishing the M&G Mining and Grazing Zone are:

1. To take advantage of the powers and more fully implement the basic purposes for planning as set forth in Utah code 17-27-101, County Land Use Development and Management Act, and Section 1.2 of this Code.
2. To promote the conservation of water, land, mineral and other resources.
3. To prevent the degradation of the natural and social environment.
4. To foster agriculture, grazing, mining and industry within Carbon County.
5. To protect private property rights.

In order to accomplish the above-stated purposes, those uses that are reasonably necessary to the use of the land for agricultural, mining and certain types of industrial operations shall be encouraged, provided that adequate guarantees for the protection of the area have been incorporated. Concentrated, residential, commercial and similar urban-type uses that are inconsistent with the area for the above-stated purposes are not permitted in this zone.

The specific regulations necessary for the accomplishment of the purposes as outlined above are hereinafter set forth.

B. Permitted Uses

The following buildings, structures and uses of land shall be permitted upon compliance with the standards and requirements as set forth in this Code:

1. Grazing of livestock on open and fenced rangeland.
2. Production of fruit and crops in the field.
3. Buildings, silos and structures for the storage and keeping of agricultural products and machinery.
4. Care and keeping of domestic livestock in confined spaces, provided that all barns, stables, corrals, pens, coops, and other facilities used to contain said livestock shall be located not less than seventy-five (75) feet from an existing dwelling, and not less than one hundred (100) feet from any drainage channels.
5. Facilities for the raising of mink, beaver, nutria and similar fur-bearing animals.
6. Minor utility transmission projects.
7. Manmade lakes, reservoirs, ponds and dams when under the (10) acre-feet in capacity.
8. Exploratory and production wells.
9. Water diversions, water distribution systems, facilities and structures for water.

10. Burials: interment of a person, when made by a Utah licensed funeral director or person with a burial-transit permit, provided that each such burial site shall be located by Global Positioning Satellite System (GPS) data and be mapped by Carbon County.
11. Pet cemeteries for interment of family pets or domestic livestock.
12. Sales of agricultural products.
13. Timber harvesting, with appurtenant roadways and facilities, in compliance with County Ordinance.
14. Lodging houses and Bed & Breakfasts.

C. Permitted Conditional Uses

The following buildings, structures and uses of land shall be permitted upon compliance with the requirements set forth in this Code and after approval has been given by the designated reviewing agencies. Approval of other agencies or levels of government may be required.

1. Major underground and surface mine developments, when approved by the County Commission and in accordance with the applicable provisions of Section 5.4.
2. Major utility transmission and railroad projects, when approved by the County Commission in accordance with the applicable provisions of Section 5.5.
3. Automobile and motorcycle racetracks and racecourses, subject to approval of a site plan by the County Commission.
4. Fairgrounds, rodeo arenas, racetracks and racecourses, schools, training and correctional facilities when operated by a public agency and subject to the prior approval of a site plan by the County Commission.
5. The following industrial uses and activities when approved as a large-scale industrial project in accordance with the provisions of Section 5.3.
 - a. The storage, processing and loading of earth products and facilities relating thereto.
 - b. Electric generating plants.
 - c. Natural gas production facilities.
6. Manmade lakes, reservoirs, ponds and dams over ten (10) acre-feet in capacity when approved by the County Commission.
7. Public and private airports, flying fields, helicopter pads, including terminal and aircraft storage facilities, subject to approval of a site plan by the County Commission, following a recommendation of the Planning Commission.
8. Shooting ranges subject to the approval of the County Commission, following recommendation of the Planning Commission.
9. Water treatment plants, culinary water storage tanks, and sewage treatment plants when approved by the County Commission.
10. Dude ranches, hunting and fishing retreats, minor outdoor recreational facilities, including but not limited to equestrian facilities, shooting ranges, camps and day use facilities.
11. Communication towers.
12. Residential treatment facilities and programs as licensed by the State of Utah.
13. Residential support facilities and programs as licensed by the State of Utah.
14. Intermediate security for minors' facilities and programs as licensed by the State of Utah.
15. Minor mines and pits, subject to the prior approval of a site plan as provided under Section 3.3.31.
16. Caretaker dwellings subject to the provisions of Section 3.3.26.

D. Area Requirements

There shall be no minimum area requirements except as may be required under other provisions of Code.

E. Width Requirements

There shall be no minimum width requirements except as may be required under other provisions of this Code.

- F. Access
Per Table 4.1, page 4-59.
- G. Location Requirements
Buildings shall be set back from the lot lines as per Tables 4.2, 4.3 or 4.4, pages 4-60, 4-61 or 4-62.
- H. Size and Height Requirements
Each dwelling shall have a main floor living area of not less than six hundred (600) square feet, and a total width and length dimension of not less than twenty (20) feet.
- I. Utility Requirements
Per Table 4.5, page 4-63.
- J. Special Requirements
Reserved
- K. Trash Requirements
The yards around buildings shall be kept free of debris, refuse, weeds and other flammable material that may constitute a fire hazard.



Corporate Office: 140 North Cedar Hill Drive Price, Utah 84501 Phone: (435) 637-9300 Fax: (435) 637-1606

October 7, 2014

Hidden Splendor Resources, Inc.
c/o Alexander Walker
57 West 200 South, Suite 400
Salt Lake City, Utah 84101

Re: Hidden Splendor Resources Property in Carbon County

Mr. Walker:

The attached purchase agreement represent the general form of agreement we would like to use in connection with our acquisition of the property owned by Hidden Splendor as referenced in the agreement. As we have discussed, we would like to acquire the property in its current configuration with the road, water wells, culverts, any septic system, electrical systems, the pond and current topography in place, but with the surface structures associated with the mining operations removed and the portals sealed.

Once the Division of Oil, Gas and Mining has confirmed the impact this transaction could have on the reclamation work required, we can proceed.

Sincerely,


Jerry Carlson

Delta, Co.
695 Ind. Blvd.
(970) 872-3214

Craig, Co.
1665 hwy 40
(970) 824-4300

Cortez, Co.
220 West Main
(970) 874-5256

Rock Springs, Wy.
2631 Foothill Blvd.
(307) 362-3325

$$Q = A * V$$

where V = Velocity (feet per second)

$$V = \frac{1.486}{n} * R^{2/3} * S^{1/2}$$

- R = Hydraulic radius (feet)
- S = Hydraulic slope (feet per foot)
- n = Manning's roughness coefficient
- Q = Discharge (cubic feet per second)
- A = Flow area (square feet)

Channel parameters required for the solution of Equations (11) and (12) were obtained from design cross sections and the proposed longitudinal profile of the various channels. Values of the roughness coefficient were obtained by comparing proposed conditions with tabulated values provided by Chow (1959) and the U.S. Soil Conservation Service (1956).

For the design of the undisturbed area diversions and the reclaimed channels, a maximum permissible velocity of 5 feet per second was determined to be non-erosive. This was determined from Barfield, et. al. (1981) based on a graded loam soil with gravel for sediment laden flows.

Undisturbed Area Runoff Control

General. Runoff from the undisturbed area upstream of the surface facilities in Portal Canyon and Jewkes Creek will be diverted beneath the mine facilities via three culverts. The culverts meet the design standards for permanent diversions, and will be retained following reclamation. ~~The culverts are designed as temporary structures for the life of the facility and will be removed following the operations.~~—The undisturbed-area culverts are sized to pass the peak flow resulting from the 100-year, 6-hour precipitation event. Calculations supporting these designs are presented in Appendix 7-4. A copy of the stream alteration permit from the Utah Division of Water Rights required for installation of the undisturbed-area culverts is included in Appendix 7-12. The Division of Water Rights has since advised Hidden Splendor that the permit for stream alterations expired in 2002, and it will no longer enforce the condition of the permit calling for restoration of riparian vegetation. See Appendix 7-1a, DWR Permit Status.

Diversions. The bypass culverts are sized to safely pass the peak flow resulting from the 100-year, 6-hour precipitation event. Plate 7-5 shows the location of the culverts and the drainage area to each structure, respectively.

Undisturbed area culvert UC-1 will bypass drainage runoff from culverts UC-2 and UC-3 (i.e., Portal Canyon and Jewkes Creek, respectively). The combined 100-year, 6-hour peak flow from these drainages is 27.9 cfs. The culvert to be installed in this section of the drainage will have a diameter of 36 inches, based on the minimum slope section and open-channel flow conditions for the culvert.

Culvert UC-2 will receive runoff from Portal Canyon. The 100-year, 6-hour peak flow for this culvert is 8.3 cfs. A 24-inch diameter culvert is planned to be installed at this location. This size is based on inlet control and a headwater to depth ratio of one or less. A trash rack will be installed on the inlet to this culvert, as indicated in Figure 7-8.

Culvert UC-3 will receive runoff from Jewkes Creek. The 100-year, 6-hour peak flow to this culvert is 19.6 cfs. This flow can adequately be handled by a 30-inch diameter culvert, based on inlet control and a headwater to depth ration of one or less. An extension of UC-3 is discussed in Appendix 3-9.

Discharge at the outlet of culvert UC-1 will have an exit velocity of approximately 10.4 fps (see Appendix 7-4). This will be controlled by installing an outlet channel and impact pool. The outlet channel will have graded riprap on the bottom and along the sides of the channel for an approximate distance of 30 feet downstream from the culvert outlet to a transition to a compound channel with a riprapped low flow channel and vegetated flood plain, as proposed for the final reclamation channel (see Plates 7-4 & 7-6). The riprap in the outlet channel and the low flow channel will have a median diameter of 0.5 foot and will be placed at a thickness of 12 inches. The gradation of the riprap is presented in Table 7-6. A geotextile material will be installed beneath the outlet channel riprap as a filter blanket. A sand filter will be installed beneath the low flow channel riprap.

The outlet channel will act as an impact pool for flows from the culvert or emergency spillway. The impact pool will be created by the transition to the compound channel, due to the shallower depth of the low flow channel versus outlet channel. Under flow conditions, the water will fill the outlet channel and spill to the low flow channel until its capacity is exceeded and then spread out into the flood plain. This will ensure that low flows can be conveyed through the area, while high flows will spread over the flood plain. Additionally, the shallow depth of the low flow channel will ensure the capability of sub-irrigation and seepage into the surrounding flood plain.

By constructing these channels during operations, the area will not need to be disturbed again during reclamation. The riparian area will already be established around the channels and the area will be stabilized. If these channels are not included in the initial disturbance, then the area will be redisturbed upon reclamation.

Calculations contained in Appendix 7-4 indicate that the flow capacity of the unaltered Jewkes Creek upstream from culvert UC-3 is 27.7 cfs. The flow capacity of the unaltered Jewkes Creek downstream from culvert UC-1 is 38.7 cfs. Culverts UC-1 and UC-3 have design capacities of 59 cfs and 40 cfs, respectively. Hence, the capacities of these culverts exceed the capacity of Jewkes Creek in its unaltered state.

As indicated in Appendix 7-4, the capacity of the unaltered Portal Canyon Creek upstream from culvert UC-2 is 13.1 cfs. All of the downstream portion of this creek will be subject to the culverted diversion. Culvert UC-2 has a capacity of 22 cfs. Hence, the capacity of this culvert exceeds that of Portal Canyon Creek in its unaltered state.

Disturbed Area Runoff and Sediment Control

General. The runoff from the majority of the disturbed areas will be collected in a sedimentation pond and treated prior to discharge (see Plate 7-6). Areas being treated by alternative sediment controls and not reporting to the sediment pond are discussed below. The sedimentation pond has been designed to contain runoff from the 10-year, 24-hour storm event. The pond also has the capacity to safely handle the 25-year, 6-hour storm event required by the rules for permanent impoundments. Calculations supporting the design of the sedimentation pond are presented in Appendix 7-4.

Two areas within the disturbed area boundary do not flow to the sediment pond and are, therefore, treated by alternative sediment controls. The first such area is at the upstream end of the Topsoil Stockpile in Portal Canyon, adjacent to the inlet of culvert UC-2. This area slopes towards the culvert and is treated with straw bales and berms directing any flow through the straw bales prior to leaving the disturbed area and reporting to the undisturbed drainage culvert. During November 1996, the area was revegetated with Seed Mix #1 in accordance with the procedures outlined in Section 3.5.5. The straw bales and berms will be maintained at least until the vegetative cover is sufficient to control erosion.

The second area requiring alternative sediment control includes the exterior embankment slopes of the sedimentation pond. This area is treated with a combination of straw bales and a silt fence. During November 1996, this area was revegetated with Seed Mix #1 in accordance with the procedures outlined in Section 3.5.5. The straw bales and silt fence will be maintained at least until the vegetative cover is sufficient to control erosion.

Disturbed Area Diversions. The major portion of the disturbed area will be collected by disturbed-area diversion ditch DD-1 (see Plate 7-4). This diversion will consist of two segments. The upper segment will consist of a small ditch on each side of the canyon. Both ditch segments will drain to the lower portion of DD-1 which will flow directly to the sedimentation pond. To be triangular in shape, this diversion will be constructed with 2H:1V sideslopes and a channel slope ranging from 0.033 to 0.143 foot/foot. The channel will be constructed in pad fill materials. The 25-year, 6-hour peak flow for the drainage is 1.28 cfs (see Appendix 7-4). To handle this event, the upper channel will have a maximum flow depth of 0.45 foot and a maximum velocity of 4.8 fps. The channel depth is planned to be 1 foot deep, resulting in a free board of 0.55 foot (see Plate 7-4). For diversion slopes less than 11.7 percent, the peak design velocity is less than 5.0 fps. Hence, no riprap protection is required for these reaches. For the diversion reaches greater than 11.7 percent, riprap is required. Based on the maximum channel slope with a 0.5 foot D_{50} , the peak design velocity is 4.8 fps.

The lower reach of DD-1 will have a peak flow of 1.32 cfs. The design is based on the same channel configuration as the upper section. The channel will have a maximum flow depth of 0.46 foot and a maximum velocity of 4.83 fps. The channel depth is planned to be 1 foot deep, resulting in a free board of 0.54 foot (see Plate 7-4). For diversion slopes less than 11.5 percent, the peak design velocity is less than 5.0 fps. Hence, no riprap protection is required for these reaches. For the diversion reaches greater than 11.5 percent, riprap is required. Based on the maximum channel slope with a 0.5 foot D_{50} , the peak design velocity is 4.83 fps.

Disturbed-area culverts will be installed to convey runoff beneath roadways on the facility pad. Culvert DC-1 will be installed to carry runoff from the fan-portal access road beneath the main pad

roadway into diversion DD-1. The peak discharge to this culvert from the 25-year, 6-hour precipitation event will be 0.60 cfs. An 18-inch diameter culvert is planned to be installed at this location, based on inlet control conditions with a headwater to depth ratio of one or less. This culvert will be extended to facilitate the installation of a transformer adjacent to the conveyor. The culvert is shown on Plate 7-4.

Culvert DC-2 was installed to convey runoff from the coal loadout area beneath the main facility roadway and into the sediment pond. The peak discharge to this culvert from the 25-year, 6-hour precipitation event will be 0.59 cfs. Culvert DC-2 will consist of an 18-inch diameter culvert, based on inlet control conditions for the culvert with a headwater to depth ratio of one or less.

Culvert DC-3 was installed to convey runoff from the hillside on the north side of Portal Canyon and below culvert DC-1. Waters discharging to DC-3 will run beneath the roadway and into diversion DD-1. The peak discharge to this culvert from the 25-year, 6-hour precipitation event will be 0.04 cfs. Culvert DC-3 consists of an 18-inch diameter culvert, based on inlet control conditions for the culvert with a headwater to depth ratio of one or less.

Drainage from the ancillary roads will be controlled by the use of water bars and berms. Plate 7-4 shows the location of the water bars on the ancillary roads to the fan portal and the monitoring well. Plate 3-4a shows the details of the water bars. Each of the water bars has been sized to handle the drainage from the 10 year - 6 hour event for the largest area reporting to a water bar. The worst case peak flow is estimated to be 0.24 cfs (maximum discharge). Based on the water bar details, the anticipated flow depth for this peak flow is 0.2 foot with a flow velocity of 1.48 feet per second. Appendix 7-4 presents the design calculations and a diagram outlining the largest drainage area reporting to a water bar on either ancillary road. The design depth of the water bar is 1 foot, thence the freeboard is 0.8 foot. The velocity is not erosive as it is less than 5 feet per second. Therefore, the proposed design for water bars on the ancillary roads, as indicated on Plate 3-4a, is adequate. The road is now asphalt and is a temporary road.

The water diverted by the water bars will be collected in a half-round culvert and conveyed over the downslope into a gravel lined basin. The water will then travel overland into the diversion channel and into the sediment pond.

In two places the ancillary road will need to cross the DD-1 ditch. In both locations, the cross-section of ditch DD-1 will transition to a 1 foot deep, 5H:1V sideslope, triangular shaped ditch. The channel slope through the transition section will be limited to 0.05 foot per foot. Based on the calculations presented in Appendix 7-4, the flow depth through these transition section will be 0.29 foot deep and the design velocity will be 3.02 fps.

Sedimentation Pond Design. Runoff from the disturbed area and adjacent undisturbed areas will be directed to the sedimentation pond as indicated above. The areas around all surface facilities, including buildings, trash containers, coal storage, and the topsoil stockpile, will be sloped so that the drainage from these facilities will be directed to the sedimentation pond. Upon reclamation of those portions of the disturbed area not required for a driveway (Appendix 8-1, Plate B) the driveway will be contoured to direct its runoff to the sediment pond.

A direct discharge of in-mine water has been applied for however while approval is pending mine water discharge will be routed to the sediment pond and decanted through the currently approved UPDES discharge point. Waters decanting through the point will be monitored in accordance with the parameter\ s of the UPDES permit.

During the period of discharge three monitoring points will be sampled: upstream of Culvert UC-3, at the discharge of the decant pipe from the sediment pond, and in the mixing zone below the UC-1 Culvert. The three samples points will be monitored for TDS, sulfate, and selenium by the laboratory. Field parameters will include pH, conductivity and flow. Sampling will begin when the first discharge occurs from the decant and a sample will be collected within each two week period thereafter. Sampling will be discontinued once the additional UPDES discharge point (Outfall 002) has been approved or when UDOGM otherwise approved the discontinuance of these monitoring points.

The sedimentation pond will be constructed at the location presented on Plate 7-4 as soon as possible following construction of the downstream sections of the undisturbed-area bypass culvert. All runoff from disturbed areas will be directed to the sedimentation pond.

The required storage volume for runoff from a 10-year, 24-hour precipitation event for all areas draining to the sedimentation pond is 0.56 acre-foot (see Appendix 7-4). Based on a disturbed area of 9.2 acres draining to the pond and a sediment storage volume of 0.1 acre-foot per acre of disturbed area, a total sediment storage volume of 0.92 acre-foot has been designed into the pond, resulting in a minimum pond storage requirement of 1.48 acre-feet.

To account for possible future changes in pad design and to provide a safety factor in the sedimentation capacity of the pond, the sedimentation pond has been designed with a total capacity of 2.6 acre-feet (see Appendix 7-4). At this total capacity, the quantity of runoff storage is 0.7 acre-foot and the quantity of sediment storage is 1.9 acre-feet. Based on the stage-capacity curve presented in Appendix 7-4, the pond will have a spillway crest elevation of 7585.0 feet, with a maximum sediment storage elevation of 7582.0 feet, and a sediment cleanout elevation (at 60% of maximum sediment storage) of 7580.6 feet). Plate 7-6 presents the plan view and cross-sections of the pond.

The sediment pond and surrounding diversions are capable of handling a 25-year, 6-hour event (Appendix 7-4) as required for permanent impoundments. As indicated in Appendix 7-4, the peak inflow to the sedimentation pond resulting from the 25-year, 6-hour storm is 1.40 cfs. The spillway on the pond has been designed as an armored, open channel over the southeast corner of the embankment, as presented in Plate 7-6. A cross section drawing of the spillway is provided in Plate 7-6. The spillway will have a depth of 1.5 feet and a crest width of 10 feet, with a slope of 5 percent for the crest section through the embankment. The flow depth above the crest of the spillway at the design flow will be 0.08 foot (assuming no routing of the hydrograph through the pond). This will provide 1.42 feet of freeboard between the water surface in the spillway at the design flow and the top of the pond embankment at 7586.5 feet. The flow down the steep section of the spillway will have a maximum velocity of 3.5 fps (see Appendix 7-4).

The spillway crest and outlet will be riprapped (see Plate 7-6). The riprap will have a median diameter of 6 inches with a gradation as presented in Table 7-6. The riprap will be placed in a layer with a minimum thickness of 12 inches and will be underlain by a geotextile filter fabric. The riprap will consist of angular riprap placed to the point where it intersects the UC-1 outlet channel. The angle of entrance of the spillway channel into the UC-1 outlet channel will be no greater than 45° from the alignment of the outlet channel.

Riprap will also be placed on the slope of the inlet channel (DD-1) to the pond (see Appendix 7-4 and Plate 7-6). This will consist of 15-inch riprap with a minimum thickness of 30 inches. This will minimize erosion and potential structure stability problems to the impoundment.

The runoff storage volume will be maintained by the use of a 2-inch diameter dewatering/decant line. As indicated on Plate 7-6, the inlet of the decant will be located at the top of the sediment storage pool. The discharge from this decant will be controlled by a locking valve located on the outslope of the sediment pond embankment at the pipe outlet. This valve will be used to drain the excess water from the sedimentation pond after allowing for settling of the sediment in the pond. Samples of the pond water will be collected as appropriate prior to decanting the pond to ensure that the requirements of R645-301-751 will be met. The decant invert will be 2.5 feet above the 60% sediment clean out level (see decant/dewatering design on Plate 7-6).

The decant/dewatering system acts as a baffle to oils and scum that may collect on the surface of the sediment pond. During operation the intake end of the baffle remains below the water's surface, therefore it is also below the oil/scum layer. The inlet will only draw water from below the water's surface, therefore having limited contact with the layer of oil/scum.

A sediment marker will be placed at the edge of the pond to indicate the depth and volume of sediment in the pond. The marker will have designations which will indicate when cleaning of the pond is necessary.

A percolation test was performed in the area of the proposed sedimentation pond. Results of this test are provided in Figure 7-11. The site is situated in seismic zone 2B which, under the Utah Building Code, indicates that the area is safe for the construction of the sedimentation pond. The Static Safety Factor calculations are located in Appendix 3-1. A report of construction and inspection on the sediment pond, by a registered professional engineer, will be provided to the Division at the end of construction.

Runoff Control Maintenance and Monitoring. The sedimentation pond will be inspected after each major storm to determine if water needs to be discharged and to check the sediment level. The pond will be cleaned when sediment builds to 60 percent of the maximum sediment storage level. Sediment removed from the pond will be handled in a manner consistent with the waste rock. The sedimentation pond will also be inspected quarterly by a registered professional engineer. Any weakness or defect in the structure which is noted during this inspection will be corrected as quickly as possible. The pond discharge will be monitored in accordance with the requirements of the UPDES Permit until bond release or until the pond is removed. An application for an additional UPDES discharge point at the mine portal was denied (August 14, 1996) until the water within the mine could be sampled and submitted for analysis. Horizon commits to obtaining a UPDES discharge permit for the mine water prior to discharge of water from the mine portal.

Ditches, culverts, and other drainage controls will be inspected after each major storm, and repaired as necessary. The pond embankments will be revegetated with the temporary seed mix described in Section 3.5.5.2 following construction of the pond. Any areas where revegetation is not successful or where rills and gullies develop will be repaired and revegetated accordingly.

Following reclamation and bond release, the landowner is responsible for maintaining the sediment pond and culverts. Utah Law requires all landowners to maintain all water courses in good repair to prevent waste, property damage, and obstructions. Utah Code § 73-1-8.

Reclamation Hydrology Design

General. Following the completion of mining operations, the mine site area will be reclaimed as discussed in Chapter 3 of this application. ~~As part of the reclamation activities, Horizon will reestablish the natural drainage patterns and reconstruct the drainage channels.~~ Horizon will not re-establish the natural drainage channels of Jewkes and Portal Canyon Creeks. Leaving the earthen-fill operations pad in place, runoff from these two streams will be accommodated through culverts UC-1, UC-2, and UC-3. Data in Appendix 7-4 show that these diversions are capable of safely conveying a 100-year, 6-hour storm event, as required for permanent diversions.

The channels to be reestablished are Portal Canyon Creek and Jewkes Creek. These channels will need to be reestablished within the canyon bottom. Due to the proposed reclamation site configuration and the location of the sedimentation pond embankment, it is not practical to retain the operations sedimentation pond through the entire reclamation period. Prior to the removal of the sedimentation pond during reclamation, a UDOGM hydrologist will be notified and given the opportunity to inspect and endorse the removal. Several options are available to handle the reclamation drainage. For one pond to handle the total runoff from the entire 551 acres, a pond larger than the disturbed area would be needed. If the undisturbed runoff were past through the site using open channels, a minimum of three ponds, one at the bottom of the wedge formed by the junction of Portal Canyon Creek and Jewkes Creek and two ponds, one on each side of Jewkes Creek, at the lower end of the disturbed area boundary, would be required to contain the runoff, due to the presents of the open channels.

Leaving the sediment pond and diversions in place obviates the need to establish alternative sediment control measures during reclamation operations. While the disturbed area is prepared for revegetation, drainage from this area will report to the sediment pond. The sediment pond will be cleaned out upon completion reclamation, and again immediately prior to final bond release.

Also, each of these ponds would require a series of disturbed and undisturbed diversion ditches to bypass the undisturbed water above the reclaimed areas and to collect the reclaimed area drainage and convey it to the ponds. Additionally, once the portions of the site draining to the ponds were revegetated and the ponds and disturbed and undisturbed diversion ditches were ready to be removed, almost half of the revegetated area draining to the ponds would need to be disturbed again, due to the limited area between the open channel and the disturbed area boundary. As a result, the use of sedimentation ponds during the entire reclamation period would lengthen the time necessary to establish permanent vegetation throughout the permit area. Therefore, Horizon proposes to retain the sedimentation pond, for as long as practical during regrading of the site area and removal of the bypass culverts. Once it is no longer practical to retain the sedimentation pond, it will be removed and the area will be reclaimed. Based on calculations presented in Appendix 7-4, the use of alternative sediment control measures (such as mulching, deep gouging, and reseeding) will produce less sediment than undisturbed watersheds at the same site.

If feasible, efforts will be made to minimize reclamation activities during periods of wet weather. During short periods when reclamation construction activities will be suspended (i.e., evenings and weekends), the construction site will be left in a condition which would minimize the impact on the hydrologic system if a precipitation event were to occur. Since conditions will vary between each area to be protected and each event, various siltation structures will be used. Horizon commits to establish and maintain sediment control using the best technology available at the time of reclamation. Refer to Section 7.2.3.2, Sediment Control for various possible structures.

Reclamation Channel Design. Reclamation channels have been designed to convey the peak flow from the 100-year, 6-hour precipitation event. Plate 7-7 presents the drainage areas of the proposed drainages following reclamation activities. Appendix 7-4 presents the calculations for the peak flows for these drainages. As indicated in Appendix 7-4, the design capacities of the reclamation channels exceed the capacities of the natural stream channels up and downstream from the proposed reclamation channels. Specifically, as indicated in Appendix 7-4, the natural and reclaimed capacities of Portal Canyon Creek and Jewkes Creek are as follows:

<u>Creek</u>	<u>Upstream- Capacity (cfs)</u>	<u>Downstream- Capacity (cfs)</u>	<u>Reclamation</u>
Portal Canyon (RD-1)	13.4	-	56.7
Jewkes (RD-2)	27.6	38.7	143.5
Jewkes (RD-3)	27.6	38.7	150.6

Drainage from the 181.2-acre Portal Canyon watershed will flow through the reclaimed stream channel RD-1. As indicated in Appendix 7-4, the peak flow for the 100-year, 6-hour event for this drainage is 9.95 cfs. The reclaimed channel will be trapezoidal in shape and will be constructed with an 8-foot bottom width, 2H:1V sideslopes, and a channel slope ranging from 0.038 to 0.167 foot/foot (see Figure 7-12 and Plate 3-7). The channel will be constructed in regraded materials and will be riprapped to provide a stable stream section. To handle this event, the channel will have a maximum flow depth of 0.36 feet and a maximum velocity of 5.79 fps. The channel depth is planned to be a minimum of 1 foot, resulting in a freeboard of 0.68 feet. Riprap with a median diameter of 0.5 foot will be installed to enhance long-term erosion protection. Material gradation for this riprap is presented in Table 7-6. A sand filter blanket will be installed beneath the riprap as indicated in Appendix 7-4 and Figure 7-12.

Reclamation channel RD-2 will receive flow from the 358.2-acre Upper Jewkes Creek drainage. The reclaimed channel will be a compound channel to provide channel stability and assist in establishment of the riparian/wet meadow vegetative community which currently exists along portions of Jewkes Creek. The base channel will be trapezoidal in shape and will be constructed with an 8-foot bottom width, 2H:1V sideslopes, and a channel slope of 0.013 to 0.087 foot/foot (see Figure 7-12 and Plate 3-7). Peak flow for this low flow channel, based on the 100-year, 6-hour event, is 19.75 cfs. The channel will be constructed in regraded materials and will be riprapped to provide a stable stream section. To handle this event, the channel will have a maximum flow depth of 0.65 foot and a maximum velocity of 6.06 fps. The channel depth is planned to be 2.0 feet deep, resulting in a freeboard of 1.35 feet. According to Appendix 7-4, the channel will be lined with riprap which will have a median diameter of 0.5 foot, with a material gradation as presented in Table 7-6. A sand filter blanket will be installed beneath the riprap as indicated in Appendix 7-4 and Figure 7-12.

Two procedures will be implemented during reclamation to assist in the re-establishment of riparian/wet meadow vegetation along Jewkes Creek. First, following installation of the filter blanket and the riprap, soil will be worked into the voids of the riprap using the bucket of a backhoe. The purpose of this soil will be to provide a growth medium for the seeds and seedlings that are planted in the channel during revegetation.

Chapter 7, Hydrology
| Hidden Splendor Resources, Inc.
figure 7-12
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Second, loose rock check dams will be installed at the locations indicated on Plate 3-7 in accordance with Figure 7-12a. These check dams have been designed in accordance with the procedures outlined by Heede (1976) as indicated in Appendix 7-4 and will cause naturally occurring sediment in the stream to be deposited in the reclaimed channel. As noted in Appendix 7-4, the rock used in the check dams will have a median diameter of 9 inches, which size has been found by Heede (1976) to be stable under conditions similar to those at the Horizon site. This deposited sediment will provide an additional soil base for re-establishment of the riparian/wet meadow vegetation and will also provide a cross section which is more typical of that which currently exists. Nonetheless, should a major storm event occur, the underlying base channel will provide long-term protection against excessive erosion.

The check dams have been designed with a spillway that is capable of passing the peak flow resulting from the 10-year, 6-hour precipitation event. Discharge in excess of that event will flow onto the adjacent flood plain. By spreading this flow, moisture will be provided to the riparian/wet meadow vegetation to assist in its re-establishment. Data included in Appendix 7-4 indicate that the soil in the flood plain will be erosionally stable during runoff resulting from the 100-year, 6-hour rainfall event.

The width of the reclaimed flood plain will be at least equal to that of the current riparian/wet meadow vegetation community, as defined on Figure 2 of Appendix 9-2. The planned width of the reclamation flood plain is indicated on Plate 3-7. Check dams will be installed within the flood plain sections as indicated on Plate 3-7. Even though the calculations provided in Appendix 7-4 indicate that the flood plain soils will be erosionally stable, a temporary jute matting will be installed in these flood plain areas to provide additional protection for the seeds until vegetation is established.

The flood plain of channel RD-2 will also be trapezoidal in shape and will be constructed with a typical bottom width of 30 feet, 2H:1V sideslopes, and a channel slope ranging from approximately 0.013 to 0.087 foot/foot (see Figure 7-12 and Plate 3-7). Peak flow for this flood plain channel, based on the 100-year, 6-hour event, is 19.75 cfs. Allowing for the capacity of the low flow channel, the flood plain will only be required to handle 10.29 cfs. The channel will be constructed in regraded materials and will be stabilized using a temporary jute mesh erosion control blanket. This blanket will be in place only until the vegetation planting for the flood plain mature and provide natural protection. To handle this event, the flood plain channel will have a maximum flow depth of 0.19 foot and a maximum velocity of 3.24 fps. The velocity is less than the 5.5 fps allowed for jute mesh.

Reclamation channel RD-3 will receive flow from the 551.0 acre Lower Jewkes Creek drainage, below the confluence of Jewkes Creek and Portal Canyon. The reclaimed channel will also be a compound channel. It will consist of a base channel and a flood plain, with loose rock check dams. The base channel will be trapezoidal in shape and will be constructed with an 8-foot bottom width, 2H:1V sideslopes, and a channel slope ranging from approximately 0.022 to 0.100 foot/foot (see Figure 7-12 and Plate 3-7). Peak flow for this base channel, based on the 100-year, 6-hour event, is 30.21 cfs. The channel will be constructed in regraded materials and will be riprapped to provide a stable stream section. To handle this event, the base channel will have a maximum flow depth of 0.71 foot and a maximum velocity of 7.38 fps. The channel depth is planned to be 2.0 feet, resulting in a

figure 7-12a

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freeboard of 1.29 feet. The velocity is greater than 5 fps, requiring riprap protection. According to Appendix 7-4, this riprap will have a median diameter of 0.5 foot, with a material gradation as presented in Table 7-6. A sand filter blanket will be installed beneath the riprap as indicated in Appendix 7-4 and Figure 7-12.

Soil will be worked into the channel riprap and loose rock check dams will be installed in channel RD-3 as indicated above. The flood plain will also be trapezoidal in shape and will be constructed with a typical bottom width of 30 feet (but at least equal to the extent of the pre-mining riparian/wet meadow vegetation community as defined on Figure 2 of Appendix 9-2), 2H:1V sideslopes, and a channel slope ranging from approximately 0.022 to 0.100 foot/foot (see Figure 7-12 and Plate 3-7). Peak flow for this flood plain channel, based on the 100-year, 6-hour event, is 30.21 cfs. Allowing for the capacity of the low flow channel, the flood plain will only be required to handle 15.66 cfs. The channel will be constructed in regraded materials and will be stabilized using a temporary jute mesh erosion control blanket. This blanket will be in place only until the vegetation planting for the flood plain mature and provide natural protection. To handle this event, the flood plain channel will have a maximum flow depth of 0.20 foot and a maximum velocity of 3.99 fps. The velocity is less than the 5.5 fps allowed for jute mesh.

As indicated on Plate 3-7, no check dams will be installed in the middle portion of the channel RD-3. This section is currently narrow and the reclamation plan seeks to re-establish the riparian/wet meadow vegetation in this area at a width which is indicative of current conditions. Only the base channel will exist in this section, wherein the establishment of riparian/wet meadow vegetation will be enhanced by working soil into the riprap as indicated above.

Sediment Control. To minimize the hydrologic impacts of the reclamation work, Horizon commits to construct the reclaimed stream channels commencing at the upstream end of each channel. Horizon Coal Corporation proposes to employ the following alternative methods, where required, during reclamation to control sediment:

1. Silt fences
2. Surface ripping, pocking, and deep gouging
3. Mulching
4. Straw-bale dikes
5. Seeding
6. Reseeding areas that do not exhibit successful germination

The approximate locations of silt fences to be installed if needed during the reclamation period are indicated on Plate 7-7a. The fences will be installed parallel to the contours with the ends of the fences turned up perpendicular to the contours to contain the sediment. Silt fences will be installed in accordance with Figure 7-5. The filter fabric will be installed against a supportive backing. To prevent sediment runoff from passing under the fence, the fabric will be secured by burying the bottom edge in a small trench along the length of the fence. In addition silt fences or straw-bale dikes will be installed in roadside ditches immediately downstream from the disturbed area.

Upon completion of the redistribution of the soil (Section 8.8), the reclaimed area will be seeded as outlined in Chapter 3.

Erosion control during and following reclamation will be assisted by the addition of a vegetative mulch and erosion-control matting, as indicated in Section 3.5.5 of this permit application. Erosion-control matting will be installed on all slope steeper than 2 1/2H:1V (see Plate 7-7a). The mulch or matting significantly reduces the amount of sediment yield from an area (Simons, et. al., 1983) The mulch or matting also helps retain moisture to allow for seed germination.

Prior to commencing with reclamation, specifications regarding the specific erosion control matting which is proposed for installation will be submitted to UDOGM for approval as one of the Best Technologies Currently Available. Horizon will install all erosion control matting in accordance with manufacturer's instructions.

An evaluation of the effectiveness of the reclamation sediment-control measures outlined above is provided in Appendix 7-4. This evaluation compared the sediment production from the reclaimed surface assuming:

- o Bare Surface
- o Bare, Ripped Surface
- o Ripped and Mulched Surface
- o Ripped and Mulched Surface with Silt Fences

~~The sediment production from these surfaces was compared to the sediment production expected from the reclaimed surface with an established vegetative cover required for bond release. The Universal Soil Loss Equation was used to make these comparisons. According to this comparison, the proposed alternative sediment control measures will actually provide better erosion control than the control planned for the Phase II reclaimed/revegetated surface. This level of protection justifies removal of the sediment pond. Once the sediment pond is removed and the low flow channel constructed, the riparian habitat/vegetation can be established. Therefore, the alternative measures are considered to an be adequate replacement for the sedimentation pond.~~

Sediment Control Monitoring and Maintenance. ~~The~~ Any alternative sediment controls constructed during reclamation will be inspected monthly and after every major storm event. Required repairs will be implemented immediately to prevent future sediment contributions to the main stream channel.

Corrective action will consist of repairing, replacing, or adding silt fences as necessary, replacing straw bales, localized regrading of the ground surface as necessary to fill in gullies caused by erosion, and reseeding and mulching to reestablish vegetation. Soil material trapped by sediment control measures that is not used in repairing the site will be removed and disposed of in an approved area.

LIST OF TABLES

	<u>Page</u>
TABLE 7-1	WATER-LEVEL DATA OBTAINED FROM LOCAL MONITORING WELLS7-8
TABLE 7-1A	RESULTS OF BEAVER CREEK SEEPAGE EVALUATION.....7-24
TABLE 7-1B	SUMMARY OF BEAVER CREEK GAIN/LOSS MEASUREMENTS7-25
TABLE 7-2	OPERATIONAL AND RECLAMATION PERIOD GROUNDWATER MONITORING PARAMETERS7-33
TABLE 7-3	NUMERIC CRITERIA FOR AQUATIC WILDLIFE7-39
TABLE 7-4	NUMERIC CRITERIA FOR DOMESTIC, RECREATION, AND AGRICULTURAL USES.....7-41
TABLE 7-5	OPERATIONAL AND RECLAMATION PERIOD SURFACE WATER MONITORING PARAMETERS7-44
TABLE 7-6	RIPRAP GRADATIONS.....7-56

LIST OF FIGURES

FIGURE 7-1	GENERAL HYDROSTRATIGRAPHIC CROSS SECTION7-5
FIGURE 7-2	POTENTIOMETRIC SURFACE MAP7-13
FIGURE 7-2A	SEPTEMBER 1996 POTENTIOMETRIC SURFACE IN SPRING CANYON SANDSTONE7-14
FIGURE 7-3	PROBABLE EXTENT OF SATURATED COAL.....7-16
FIGURE 7-4	POTENTIAL RECHARGE AREAS.....7-22
FIGURE 7-4A	LOCATIONS OF SEEPAGE MEASUREMENTS.....7-26
FIGURE 7-4B	SUMMARY OF SEEPAGE MEASUREMENTS.....7-27
FIGURE 7-5	SILT FENCE7-45
FIGURE 7-6	DIMENSIONLESS UNIT HYDROGRAPH AND MASS CURVE7-51
FIGURE 7-7	DELETED 7/22/96
FIGURE 7-8	TRASH RACK DESIGN7-55
FIGURE 7-9	DELETED 7/22/96
FIGURE 7-10	DELETED 7/22/96
FIGURE 7-11	PERCOLATION TEST CERTIFICATE7-61
FIGURE 7-12	TYPICAL CROSS-SECTION FOR RECLAIMED CHANNEL SDELETED 4/10/20157-64
FIGURE 7-12A	TYPICAL CROSS-SECTION FOR RECLAIMED CHANNELS -CHECK DAMS DELETED 4/10/20157-66
FIGURE 7-13	PREDICTED MINE-WATER INFLOW AS A FUNCTION OF MINE LENGTH.....7-72
FIGURE 7-14	STEADY-STATE MINE INFLOW AS A FUNCTION OF HYDRAULIC GRADIENT7-73

LIST OF PLATES

PLATE 7-1	WATER MONITORING LOCATIONS
PLATE 7-2	AREA TOPOGRAPHY
PLATE 7-3	WATER RIGHTS
PLATE 7-4	DRAINAGE DIVERSIONS
PLATE 7-5	DRAINAGE AREAS
PLATE 7-6	SEDIMENTATION POND DETAIL MAP
PLATE 7-6A	WEIR/OIL SKIMMER AND CROSS SECTION
PLATE 7-7	RECLAMATION DRAINAGE
PLATE 7-7A	RECLAMATION EROSION CONTROL MEASURES

APPENDICES

APPENDIX 7-1	JOSEPH A. HARVEY LETTER
<u>APPENDIX 7-1a</u>	<u>UDWR PERMIT STATUS</u>
APPENDIX 7-2	GROUNDWATER BASELINE DATA Attachment A - In-Mine Water Data
APPENDIX 7-3	SURFACE WATER BASELINE DATA
APPENDIX 7-4	DESIGN CALCULATIONS
APPENDIX 7-5	LOGS OF HZ MONITORING WELLS
APPENDIX 7-6	LETTER REGARDING ALLUVIAL VALLEY FLOORS
APPENDIX 7-7	DATA FROM USGS STREAM-GAGING STATION ON BEAVER CREEK
APPENDIX 7-8	SLUG TEST RESULTS
APPENDIX 7-9	ESTIMATED WATER USE REQUIREMENTS
APPENDIX 7-10	SPILL PREVENTION, CONTROL, AND COUNTERMEASURES PLAN
APPENDIX 7-11	ADDITIONAL AQUIFER DATA
APPENDIX 7-12	STREAM ALTERATION PERMIT

APPENDIX 7-1a
UDWR PERMIT STATUS

$$Q = A * V$$

where V = Velocity (feet per second)

$$V = \frac{1.486}{n} * R^{2/3} * S^{1/2}$$

- R = Hydraulic radius (feet)
- S = Hydraulic slope (feet per foot)
- n = Manning's roughness coefficient
- Q = Discharge (cubic feet per second)
- A = Flow area (square feet)

Channel parameters required for the solution of Equations (11) and (12) were obtained from design cross sections and the proposed longitudinal profile of the various channels. Values of the roughness coefficient were obtained by comparing proposed conditions with tabulated values provided by Chow (1959) and the U.S. Soil Conservation Service (1956).

For the design of the undisturbed area diversions and the reclaimed channels, a maximum permissible velocity of 5 feet per second was determined to be non-erosive. This was determined from Barfield, et. al. (1981) based on a graded loam soil with gravel for sediment laden flows.

Undisturbed Area Runoff Control

General. Runoff from the undisturbed area upstream of the surface facilities in Portal Canyon and Jewkes Creek will be diverted beneath the mine facilities via three culverts. The culverts meet the design standards for permanent diversions, and will be retained following reclamation. The undisturbed-area culverts are sized to pass the peak flow resulting from the 100-year, 6-hour precipitation event. Calculations supporting these designs are presented in Appendix 7-4. A copy of the stream alteration permit from the Utah Division of Water Rights required for installation of the undisturbed-area culverts is included in Appendix 7-12. The Division of Water Rights has since advised Hidden Splendor that the permit for stream alterations expired in 2002, and it will no longer enforce the condition of the permit calling for restoration of riparian vegetation. See Appendix 7-1a, DWR Permit Status.

Diversions. The bypass culverts are sized to safely pass the peak flow resulting from the 100-year, 6-hour precipitation event. Plate 7-5 shows the location of the culverts and the drainage area to each structure, respectively.

Undisturbed area culvert UC-1 will bypass drainage runoff from culverts UC-2 and UC-3 (i.e., Portal Canyon and Jewkes Creek, respectively). The combined 100-year, 6-hour peak flow from these drainages is 27.9 cfs. The culvert to be installed in this section of the drainage will have a diameter of 36 inches, based on the minimum slope section and open-channel flow conditions for the culvert.

Culvert UC-2 will receive runoff from Portal Canyon. The 100-year, 6-hour peak flow for this culvert is 8.3 cfs. A 24-inch diameter culvert is planned to be installed at this location. This size is based on inlet control and a headwater to depth ratio of one or less. A trash rack will be installed on the inlet to this culvert, as indicated in Figure 7-8.

Culvert UC-3 will receive runoff from Jewkes Creek. The 100-year, 6-hour peak flow to this culvert is 19.6 cfs. This flow can adequately be handled by a 30-inch diameter culvert, based on inlet control and a headwater to depth ration of one or less. An extension of UC-3 is discussed in Appendix 3-9.

Discharge at the outlet of culvert UC-1 will have an exit velocity of approximately 10.4 fps (see Appendix 7-4). This will be controlled by installing an outlet channel and impact pool. The outlet channel will have graded riprap on the bottom and along the sides of the channel for an approximate distance of 30 feet downstream from the culvert outlet to a transition to a compound channel with a riprapped low flow channel and vegetated flood plain, as proposed for the final reclamation channel (see Plates 7-4 & 7-6). The riprap in the outlet channel and the low flow channel will have a median diameter of 0.5 foot and will be placed at a thickness of 12 inches. The gradation of the riprap is presented in Table 7-6. A geotextile material will be installed beneath the outlet channel riprap as a filter blanket. A sand filter will be installed beneath the low flow channel riprap.

The outlet channel will act as an impact pool for flows from the culvert or emergency spillway. The impact pool will be created by the transition to the compound channel, due to the shallower depth of the low flow channel versus outlet channel. Under flow conditions, the water will fill the outlet channel and spill to the low flow channel until its capacity is exceeded and then spread out into the flood plain. This will ensure that low flows can be conveyed through the area, while high flows will spread over the flood plain. Additionally, the shallow depth of the low flow channel will ensure the capability of sub-irrigation and seepage into the surrounding flood plain.

By constructing these channels during operations, the area will not need to be disturbed again during reclamation. The riparian area will already be established around the channels and the area will be stabilized. If these channels are not included in the initial disturbance, then the area will be redisturbed upon reclamation.

Calculations contained in Appendix 7-4 indicate that the flow capacity of the unaltered Jewkes Creek upstream from culvert UC-3 is 27.7 cfs. The flow capacity of the unaltered Jewkes Creek downstream from culvert UC-1 is 38.7 cfs. Culverts UC-1 and UC-3 have design capacities of 59 cfs and 40 cfs, respectively. Hence, the capacities of these culverts exceed the capacity of Jewkes Creek in its unaltered state.

As indicated in Appendix 7-4, the capacity of the unaltered Portal Canyon Creek upstream from culvert UC-2 is 13.1 cfs. All of the downstream portion of this creek will be subject to the culverted diversion. Culvert UC-2 has a capacity of 22 cfs. Hence, the capacity of this culvert exceeds that of Portal Canyon Creek in its unaltered state.

Disturbed Area Runoff and Sediment Control

General. The runoff from the majority of the disturbed areas will be collected in a sedimentation pond and treated prior to discharge (see Plate 7-6). Areas being treated by alternative sediment controls and not reporting to the sediment pond are discussed below. The sedimentation pond has been designed to contain runoff from the 10-year, 24-hour storm event. The pond also has the capacity to safely handle the 25-year, 6-hour storm event required by the rules for permanent impoundments. Calculations supporting the design of the sedimentation pond are presented in Appendix 7-4.

Two areas within the disturbed area boundary do not flow to the sediment pond and are, therefore, treated by alternative sediment controls. The first such area is at the upstream end of the Topsoil Stockpile in Portal Canyon, adjacent to the inlet of culvert UC-2. This area slopes towards the culvert and is treated with straw bales and berms directing any flow through the straw bales prior to leaving the disturbed area and reporting to the undisturbed drainage culvert. During November 1996, the area was revegetated with Seed Mix #1 in accordance with the procedures outlined in Section 3.5.5. The straw bales and berms will be maintained at least until the vegetative cover is sufficient to control erosion.

The second area requiring alternative sediment control includes the exterior embankment slopes of the sedimentation pond. This area is treated with a combination of straw bales and a silt fence. During November 1996, this area was revegetated with Seed Mix #1 in accordance with the procedures outlined in Section 3.5.5. The straw bales and silt fence will be maintained at least until the vegetative cover is sufficient to control erosion.

Disturbed Area Diversions. The major portion of the disturbed area will be collected by disturbed-area diversion ditch DD-1 (see Plate 7-4). This diversion will consist of two segments. The upper segment will consist of a small ditch on each side of the canyon. Both ditch segments will drain to the lower portion of DD-1 which will flow directly to the sedimentation pond. To be triangular in shape, this diversion will be constructed with 2H:1V sideslopes and a channel slope ranging from 0.033 to 0.143 foot/foot. The channel will be constructed in pad fill materials. The 25-year, 6-hour peak flow for the drainage is 1.28 cfs (see Appendix 7-4). To handle this event, the upper channel will have a maximum flow depth of 0.45 foot and a maximum velocity of 4.8 fps. The channel depth is planned to be 1 foot deep, resulting in a free board of 0.55 foot (see Plate 7-4). For diversion slopes less than 11.7 percent, the peak design velocity is less than 5.0 fps. Hence, no riprap protection is required for these reaches. For the diversion reaches greater than 11.7 percent, riprap is required. Based on the maximum channel slope with a 0.5 foot D_{50} , the peak design velocity is 4.8 fps.

The lower reach of DD-1 will have a peak flow of 1.32 cfs. The design is based on the same channel configuration as the upper section. The channel will have a maximum flow depth of 0.46 foot and a maximum velocity of 4.83 fps. The channel depth is planned to be 1 foot deep, resulting in a free board of 0.54 foot (see Plate 7-4). For diversion slopes less than 11.5 percent, the peak design velocity is less than 5.0 fps. Hence, no riprap protection is required for these reaches. For the diversion reaches greater than 11.5 percent, riprap is required. Based on the maximum channel slope with a 0.5 foot D_{50} , the peak design velocity is 4.83 fps.

Disturbed-area culverts will be installed to convey runoff beneath roadways on the facility pad. Culvert DC-1 will be installed to carry runoff from the fan-portal access road beneath the main pad roadway into diversion DD-1. The peak discharge to this culvert from the 25-year, 6-hour precipitation event will be 0.60 cfs. An 18-inch diameter culvert is planned to be installed at this location, based on inlet control conditions with a headwater to depth ratio of one or less. This culvert will be extended to facilitate the installation of a transformer adjacent to the conveyor. The culvert is shown on Plate 7-4.

Culvert DC-2 was installed to convey runoff from the coal loadout area beneath the main facility roadway and into the sediment pond. The peak discharge to this culvert from the 25-year, 6-hour precipitation event will be 0.59 cfs. Culvert DC-2 will consist of an 18-inch diameter culvert, based on inlet control conditions for the culvert with a headwater to depth ratio of one or less.

Culvert DC-3 was installed to convey runoff from the hillside on the north side of Portal Canyon and below culvert DC-1. Waters discharging to DC-3 will run beneath the roadway and into diversion DD-1. The peak discharge to this culvert from the 25-year, 6-hour precipitation event will be 0.04 cfs. Culvert DC-3 consists of an 18-inch diameter culvert, based on inlet control conditions for the culvert with a headwater to depth ratio of one or less.

Drainage from the ancillary roads will be controlled by the use of water bars and berms. Plate 7-4 shows the location of the water bars on the ancillary roads to the fan portal and the monitoring well. Plate 3-4a shows the details of the water bars. Each of the water bars has been sized to handle the drainage from the 10 year - 6 hour event for the largest area reporting to a water bar. The worst case peak flow is estimated to be 0.24 cfs (maximum discharge). Based on the water bar details, the anticipated flow depth for this peak flow is 0.2 foot with a flow velocity of 1.48 feet per second. Appendix 7-4 presents the design calculations and a diagram outlining the largest drainage area reporting to a water bar on either ancillary road. The design depth of the water bar is 1 foot, thence the freeboard is 0.8 foot. The velocity is not erosive as it is less than 5 feet per second. Therefore, the proposed design for water bars on the ancillary roads, as indicated on Plate 3-4a, is adequate. The road is now asphalt and is a temporary road.

The water diverted by the water bars will be collected in a half-round culvert and conveyed over the downslope into a gravel lined basin. The water will then travel overland into the diversion channel and into the sediment pond.

In two places the ancillary road will need to cross the DD-1 ditch. In both locations, the cross-section of ditch DD-1 will transition to a 1 foot deep, 5H:1V sideslope, triangular shaped ditch. The channel slope through the transition section will be limited to 0.05 foot per foot. Based on the calculations presented in Appendix 7-4, the flow depth through these transition section will be 0.29 foot deep and the design velocity will be 3.02 fps.

Sedimentation Pond Design. Runoff from the disturbed area and adjacent undisturbed areas will be directed to the sedimentation pond as indicated above. The areas around all surface facilities, including buildings, trash containers, coal storage, and the topsoil stockpile, will be sloped so that the drainage from these facilities will be directed to the sedimentation pond. Upon reclamation of those portions of the disturbed area not required for a driveway (Appendix 8-1, Plate B) the driveway will be contoured to direct its runoff to the sediment pond.

A direct discharge of in-mine water has been applied for however while approval is pending mine water discharge will be routed to the sediment pond and decanted through the currently approved UPDES discharge point. Waters decanting through the point will be monitored in accordance with the parameter\’s of the UPDES permit.

During the period of discharge three monitoring points will be sampled: upstream of Culvert UC-3, at the discharge of the decant pipe from the sediment pond, and in the mixing zone below the UC-1 Culvert. The three samples points will be monitored for TDS, sulfate, and selenium by the laboratory. Field parameters will include pH, conductivity and flow. Sampling will begin when the first discharge occurs from the decant and a sample will be collected within each two week period thereafter. Sampling will be discontinued once the additional UPDES discharge point (Outfall 002) has been approved or when UDOGM otherwise approved the discontinuance of these monitoring points.

The sedimentation pond will be constructed at the location presented on Plate 7-4 as soon as possible following construction of the downstream sections of the undisturbed-area bypass culvert. All runoff from disturbed areas will be directed to the sedimentation pond.

The required storage volume for runoff from a 10-year, 24-hour precipitation event for all areas draining to the sedimentation pond is 0.56 acre-foot (see Appendix 7-4). Based on a disturbed area of 9.2 acres draining to the pond and a sediment storage volume of 0.1 acre-foot per acre of disturbed area, a total sediment storage volume of 0.92 acre-foot has been designed into the pond, resulting in a minimum pond storage requirement of 1.48 acre-feet.

To account for possible future changes in pad design and to provide a safety factor in the sedimentation capacity of the pond, the sedimentation pond has been designed with a total capacity of 2.6 acre-feet (see Appendix 7-4). At this total capacity, the quantity of runoff storage is 0.7 acre-foot and the quantity of sediment storage is 1.9 acre-feet. Based on the stage-capacity curve presented in Appendix 7-4, the pond will have a spillway crest elevation of 7585.0 feet, with a maximum sediment storage elevation of 7582.0 feet, and a sediment cleanout elevation (at 60% of maximum sediment storage) of 7580.6 feet). Plate 7-6 presents the plan view and cross-sections of the pond.

The sediment pond and surrounding diversions are capable of handling a 25-year, 6-hour event (Appendix 7-4) as required for permanent impoundments. As indicated in Appendix 7-4, the peak inflow to the sedimentation pond resulting from the 25-year, 6-hour storm is 1.40 cfs. The spillway on the pond has been designed as an armored, open channel over the southeast corner of the embankment, as presented in Plate 7-6. A cross section drawing of the spillway is provided in Plate 7-6. The spillway will have a depth of 1.5 feet and a crest width of 10 feet, with a slope of 5 percent for the crest section through the embankment. The flow depth above the crest of the spillway at the design flow will be 0.08 foot (assuming no routing of the hydrograph through the pond). This will provide 1.42 feet of freeboard between the water surface in the spillway at the design flow and the top of the pond embankment at 7586.5 feet. The flow down the steep section of the spillway will have a maximum velocity of 3.5 fps (see Appendix 7-4).

The spillway crest and outlet will be riprapped (see Plate 7-6). The riprap will have a median diameter of 6 inches with a gradation as presented in Table 7-6. The riprap will be placed in a layer with a minimum thickness of 12 inches and will be underlain by a geotextile filter fabric. The riprap will consist of angular riprap placed to the point where it intersects the UC-1 outlet channel. The angle of entrance of the spillway channel into the UC-1 outlet channel will be no greater than 45° from the alignment of the outlet channel.

Riprap will also be placed on the slope of the inlet channel (DD-1) to the pond (see Appendix 7-4 and Plate 7-6). This will consist of 15-inch riprap with a minimum thickness of 30 inches. This will minimize erosion and potential structure stability problems to the impoundment.

The runoff storage volume will be maintained by the use of a 2-inch diameter dewatering/decant line. As indicated on Plate 7-6, the inlet of the decant will be located at the top of the sediment storage pool. The discharge from this decant will be controlled by a locking valve located on the outslope of the sediment pond embankment at the pipe outlet. This valve will be used to drain the excess water from the sedimentation pond after allowing for settling of the sediment in the pond. Samples of the pond water will be collected as appropriate prior to decanting the pond to ensure that the requirements of R645-301-751 will be met. The decant invert will be 2.5 feet above the 60% sediment clean out level (see decant/dewatering design on Plate 7-6).

The decant/dewatering system acts as a baffle to oils and scum that may collect on the surface of the sediment pond. During operation the intake end of the baffle remains below the water's surface, therefore it is also below the oil/scum layer. The inlet will only draw water from below the water's surface, therefore having limited contact with the layer of oil/scum.

A sediment marker will be placed at the edge of the pond to indicate the depth and volume of sediment in the pond. The marker will have designations which will indicate when cleaning of the pond is necessary.

A percolation test was performed in the area of the proposed sedimentation pond. Results of this test are provided in Figure 7-11. The site is situated in seismic zone 2B which, under the Utah Building Code, indicates that the area is safe for the construction of the sedimentation pond. The Static Safety Factor calculations are located in Appendix 3-1. A report of construction and inspection on the sediment pond, by a registered professional engineer, will be provided to the Division at the end of construction.

Runoff Control Maintenance and Monitoring. The sedimentation pond will be inspected after each major storm to determine if water needs to be discharged and to check the sediment level. The pond will be cleaned when sediment builds to 60 percent of the maximum sediment storage level. Sediment removed from the pond will be handled in a manner consistent with the waste rock. The sedimentation pond will also be inspected quarterly by a registered professional engineer. Any weakness or defect in the structure which is noted during this inspection will be corrected as quickly as possible. The pond discharge will be monitored in accordance with the requirements of the UPDES Permit until bond release or until the pond is removed. An application for an additional UPDES discharge point at the mine portal was denied (August 14, 1996) until the water within the mine could be sampled and submitted for analysis. Horizon commits to obtaining a UPDES discharge permit for the mine water prior to discharge of water from the mine portal.

Ditches, culverts, and other drainage controls will be inspected after each major storm, and repaired as necessary. The pond embankments will be revegetated with the temporary seed mix described in Section 3.5.5.2 following construction of the pond. Any areas where revegetation is not successful or where rills and gullies develop will be repaired and revegetated accordingly.

Following reclamation and bond release, the landowner is responsible for maintaining the sediment pond and culverts. Utah Law requires all landowners to maintain all water courses in good repair to prevent waste, property damage, and obstructions. Utah Code § 73-1-8.

General. Following the completion of mining operations, the mine site area will be reclaimed as discussed in Chapter 3 of this application. Horizon will not re-establish the natural drainage channels of Jewkes and Portal Canyon Creeks. Leaving the earthen-fill operations pad in place, runoff from these two streams will be accommodated through culverts UC-1, UC-2, and UC-3. Data in Appendix 7-4 show that these diversions are capable of safely conveying a 100-year, 6-hour storm event, as required for permanent diversions..

Leaving the sediment pond and diversions in place obviates the need to establish alternative sediment control measures during reclamation operations. While the disturbed area is prepared for revegetation, drainage from this area will report to the sediment pond. The sediment pond will be cleaned out upon completion of re-seeding, and again immediately prior to final bond release.

If feasible, efforts will be made to minimize reclamation activities during periods of wet weather. During short periods when reclamation construction activities will be suspended (i.e., evenings and weekends), the construction site will be left in a condition which would minimize the impact on the hydrologic system if a precipitation event were to occur. Since conditions will vary between each area to be protected and each event, various siltation structures will be used. Horizon commits to establish and maintain sediment control using the best technology available at the time of reclamation. Refer to Section 7.2.3.2, Sediment Control for various possible structures.

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Sediment Control. To minimize the hydrologic impacts of the reclamation work, Horizon 7-63 Appendix 7-4: pages 72 -110 (Pages 111-118 will be renumbered as 72 through 80) proposes to employ the following alternative methods, where required, during reclamation to control sediment:

1. Silt fences
2. Surface ripping, pocking, and deep gouging
3. Mulching
4. Straw-bale dikes
5. Seeding
6. Reseeding areas that do not exhibit successful germination

The approximate locations of silt fences to be installed if needed during the reclamation period are indicated on Plate 7-7a. The fences will be installed parallel to the contours with the ends of the fences turned up perpendicular to the contours to contain the sediment. Silt fences will be installed in accordance with Figure 7-5. The filter fabric will be installed against a supportive backing. To prevent sediment runoff from passing under the fence, the fabric will be secured by burying the bottom edge in a small trench along the length of the fence. In addition silt fences or straw-bale dikes will be installed in roadside ditches immediately downstream from the disturbed area.

Upon completion of the redistribution of the soil (Section 8.8), the reclaimed area will be seeded as outlined in Chapter 3.

Erosion control during and following reclamation will be assisted by the addition of a vegetative mulch and erosion-control matting, as indicated in Section 3.5.5 of this permit application. Erosion-control matting will be installed on all slope steeper than 2 1/2H:1V (see Plate 7-7a). The mulch or matting significantly reduces the amount of sediment yield from an area (Simons, et. al., 1983) The mulch or matting also helps retain moisture to allow for seed germination.

Prior to commencing with reclamation, specifications regarding the specific erosion control matting which is proposed for installation will be submitted to UDOGM for approval as one of the Best Technologies Currently Available. Horizon will install all erosion control matting in accordance with manufacturer's instructions.

An evaluation of the effectiveness of the reclamation sediment-control measures outlined above is provided in Appendix 7-4. This evaluation compared the sediment production from the reclaimed surface assuming:

- o Bare Surface
- o Bare, Ripped Surface
- o Ripped and Mulched Surface
- o Ripped and Mulched Surface with Silt Fences

Sediment Control Monitoring and Maintenance. Any alternative sediment controls constructed during reclamation will be inspected monthly and after every major storm event. Required

repairs will be implemented immediately to prevent future sediment contributions to the main stream channel.

Corrective action will consist of repairing, replacing, or adding silt fences as necessary, replacing straw bales, localized regrading of the ground surface as necessary to fill in gullies caused by erosion, and reseeding and mulching to reestablish vegetation. Soil material trapped by sediment control measures that is not used in repairing the site will be removed and disposed of in an approved area.

LIST OF TABLES

	<u>Page</u>
TABLE 7-1	WATER-LEVEL DATA OBTAINED FROM LOCAL MONITORING WELLS7-8
TABLE 7-1A	RESULTS OF BEAVER CREEK SEEPAGE EVALUATION.....7-24
TABLE 7-1B	SUMMARY OF BEAVER CREEK GAIN/LOSS MEASUREMENTS7-25
TABLE 7-2	OPERATIONAL AND RECLAMATION PERIOD GROUNDWATER MONITORING PARAMETERS7-33
TABLE 7-3	NUMERIC CRITERIA FOR AQUATIC WILDLIFE7-39
TABLE 7-4	NUMERIC CRITERIA FOR DOMESTIC, RECREATION, AND AGRICULTURAL USES.....7-41
TABLE 7-5	OPERATIONAL AND RECLAMATION PERIOD SURFACE WATER MONITORING PARAMETERS7-44
TABLE 7-6	RIPRAP GRADATIONS.....7-56

LIST OF FIGURES

FIGURE 7-1	GENERAL HYDROSTRATIGRAPHIC CROSS SECTION7-5
FIGURE 7-2	POTENTIOMETRIC SURFACE MAP7-13
FIGURE 7-2A	SEPTEMBER 1996 POTENTIOMETRIC SURFACE IN SPRING CANYON SANDSTONE7-14
FIGURE 7-3	PROBABLE EXTENT OF SATURATED COAL.....7-16
FIGURE 7-4	POTENTIAL RECHARGE AREAS.....7-22
FIGURE 7-4A	LOCATIONS OF SEEPAGE MEASUREMENTS.....7-26
FIGURE 7-4B	SUMMARY OF SEEPAGE MEASUREMENTS.....7-27
FIGURE 7-5	SILT FENCE7-45
FIGURE 7-6	DIMENSIONLESS UNIT HYDROGRAPH AND MASS CURVE7-51
FIGURE 7-7	<i>DELETED 7/22/96</i>
FIGURE 7-8	TRASH RACK DESIGN7-55
FIGURE 7-9	<i>DELETED 7/22/96</i>
FIGURE 7-10	<i>DELETED 7/22/96</i>
FIGURE 7-11	PERCOLATION TEST CERTIFICATE7-61
FIGURE 7-12	<i>DELETED 4/10/2015</i>7-64
FIGURE 7-12A	<i>DELETED 4/10/2015</i>7-66
FIGURE 7-13	PREDICTED MINE-WATER INFLOW AS A FUNCTION OF MINE LENGTH.....7-72
FIGURE 7-14	STEADY-STATE MINE INFLOW AS A FUNCTION OF HYDRAULIC GRADIENT7-73

LIST OF PLATES

PLATE 7-1	WATER MONITORING LOCATIONS
PLATE 7-2	AREA TOPOGRAPHY
PLATE 7-3	WATER RIGHTS
PLATE 7-4	DRAINAGE DIVERSIONS
PLATE 7-5	DRAINAGE AREAS
PLATE 7-6	SEDIMENTATION POND DETAIL MAP
PLATE 7-6A	WEIR/OIL SKIMMER AND CROSS SECTION
PLATE 7-7	RECLAMATION DRAINAGE
PLATE 7-7A	RECLAMATION EROSION CONTROL MEASURES

APPENDICES

APPENDIX 7-1	JOSEPH A. HARVEY LETTER
APPENDIX 7-1a	UDWR PERMIT STATUS
APPENDIX 7-2	GROUNDWATER BASELINE DATA Attachment A - In-Mine Water Data
APPENDIX 7-3	SURFACE WATER BASELINE DATA
APPENDIX 7-4	DESIGN CALCULATIONS
APPENDIX 7-5	LOGS OF HZ MONITORING WELLS
APPENDIX 7-6	LETTER REGARDING ALLUVIAL VALLEY FLOORS
APPENDIX 7-7	DATA FROM USGS STREAM-GAGING STATION ON BEAVER CREEK
APPENDIX 7-8	SLUG TEST RESULTS
APPENDIX 7-9	ESTIMATED WATER USE REQUIREMENTS
APPENDIX 7-10	SPILL PREVENTION, CONTROL, AND COUNTERMEASURES PLAN
APPENDIX 7-11	ADDITIONAL AQUIFER DATA
APPENDIX 7-12	STREAM ALTERATION PERMIT

APPENDIX 7-1a
UDWR PERMIT STATUS

From: Daren Rasmussen <darenrasmussen@utah.gov>
Sent: Monday, April 06, 2015 1:57 PM
To: Dragoo, Denise; Daren Rasmussen
Subject: Re: Condition #5: Horizon Mine Stream Alteration Permit No. 97-91-08SA

Denise,

In regards to Stream Alteration 97-91-08sa on Jewkes Creek in Carbon County initiated by Horizon Coal Corporation, this office will no longer enforce the conditions of this permit as it has expired. However, reclamation/restoration/rehabilitation of a site after many years may still be recommended if warranted and would need a new Stream Alteration Permit Application submitted to undertake such a project. This office will rely on the decision of Oil Gas & Mining in determining the need for any stream reclamation for this project. If at a future time a collapsed, or otherwise ineffective culvert, makes it become necessary to rehabilitate the channel, a Stream Alteration Permit Application would need to be submitted.

-Daren

-Daren Rasmussen, State Engineer's Office
www.waterrights.utah.gov 801-538-7377 darenrasmussen@utah.gov

On Mon, Apr 6, 2015 at 1:16 PM, Dragoo, Denise <ddragoo@swlaw.com> wrote:

Daren, attached is the closed permit we discussed. Paragraph # 5 references reclamation following mining to remove the piped section of the creek. The current owners of the mine are planning to leave the piped section of the creek in place. They are working with the Division of Oil, Gas and Mining on a permit amendment to leave the creek in its current state rather than causing new disturbance. I understand from our discussion that the State Engineer's office will no long enforce this reclamation condition now that the Stream Alteration permit term has expired. Can you confirm this for us? Thanks, Denise

Denise A. Dragoo

Snell & Wilmer L.L.P.

15 West South Temple

Suite 1200

SLC, UT 84101

Phone: [801-257-1998](tel:801-257-1998)

Fax: [801-257-1800](tel:801-257-1800)

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8.8.1 Resoiled Areas

During 1997 and 1998, various areas and slopes within the disturbed area received topsoil as outlined on Appendix 8-1, Plate B. The soil was distributed, seeded, fertilized, and stabilized as described in Section 3.5.1. The resoiled areas were seeded with Seed Mix No. 1, mulched with a wood fiber, fertilizer, and tackifier. The seeding mixture was intended to protect and enhance the soil during the winter (1997- 1998). As currently planned, the resoiled areas will be retained and not redisturbed except as noted on Plate 3-7.

Within portions of Section 17, Township 13 South, Range 8 East are location which were previously disturbed by mining operations in the early to mid 1900's. Due to the preferences of the landowner (Hidden Splendor Resources, Figure 4-1) many of these disturbances/areas have been cleared of debris including concrete, metal, mine waste, masonry, and coal refuse. Hidden Splendor Resources requested of Carbon County that the topsoil/growth medium be salvaged during realignment of the Consumers/Clear Creek county road in Jewkes Canyon. Once the areas were cleared the landowner contracted with a construction company to grade selected areas and cover the areas with topsoil for eventual reseeding. Hidden Splendor Resources requested a recommendation for the depth of topsoil/growth medium to be placed from an environmental consulting firm. The firm suggested the depth of 11 inches as committed to by Horizon Mine in their 1996 approved permit. The Hidden Splendor Resources contractor spread between 10-12 inches of soil on the resoiled areas. The locations within the disturbed area which were resoiled by the landowner are designated on Plate A within Appendix 8-1.

During the 1998 the old fan portal and corresponding access road was resoiled and seeded by employees of White Oak Mining and Construction. The person or persons who performed the work no longer reside in the western United States and have no affiliation with Hidden Splendor Resources, Inc. Hidden Splendor Resources, Inc. is unaware of where the soils came from, their characteristics or the depth of the soil placed. Assumptions have been made that the soil was taken from the topsoil storage pile.

It is important to note that at several locations within the area (Section 17) currently owned by Hidden Splendor Resources, coal waste was buried as part of at least one UDOGM Abandoned Mining Lands (AML) project. These projects were completed prior to the work performed by the landowner in 1997.

With permission from the UDOGM Price office, a portion of the stockpiled topsoil/growth medium salvaged during mine construction has been subsequently placed on the hillside designated as Area D on Plate A of Appendix 8-1 to protect the soil from contamination and compaction. This material was removed from above and around a crushed culvert which runs through the topsoil stockpile.

~~During reclamation, salvaged riparian soil (i.e., the 100-foot extension of Culvert UC-3) will be placed in the floodplain area of Jewkes Creek beginning at the upstream end. The riparian soil will be placed at a depth of 20 inches. The soil will be used in the floodplain areas until the stockpile has been depleted. The locations of the flood plains are shown on Plate 3-7.~~

8.8.1 Resoiled Areas

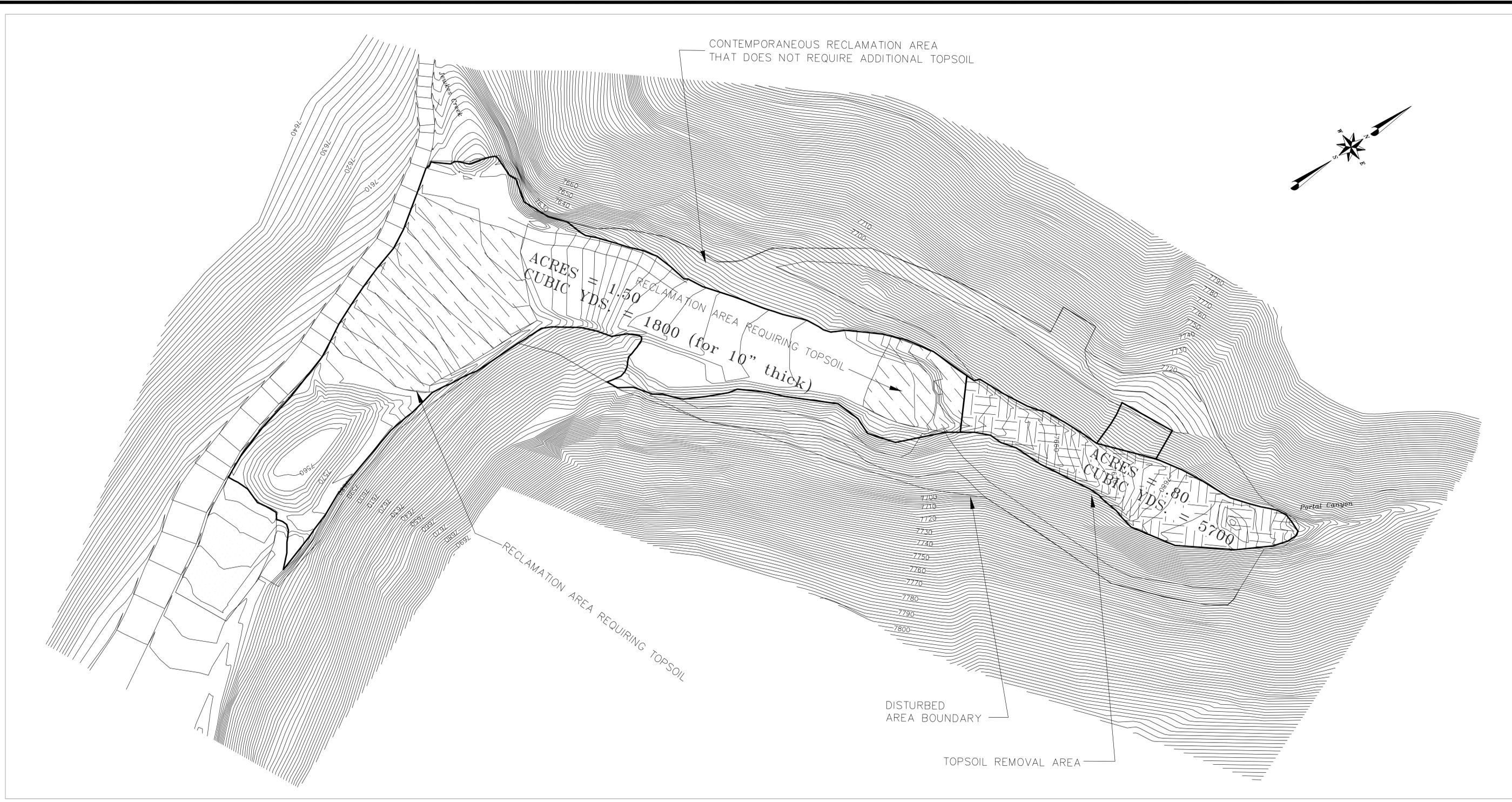
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LEGEND:

-  AREAS REQUIRING TOPSOIL
-  TOPSOIL REMOVAL AREA
-  CONTEMPORANEOUS RECLAMATION AREA (NEEDS NO ADDITIONAL TOPSOIL)



Hidden Splendor Resources, Inc.
 Horizon Mine
 57 West 200 South - Suite 400
 Salt Lake City, Utah 84101

Drawn By: JASON BENNETT	Date: Jan. 9, 2001	Scale: 1" = 60'
Revised By: KP	Revised: 2-11-2015	

APPENDIX 8-1 PLATE B

RECLAMATION AREAS REQUIRING TOPSOIL

existed prior to mining disturbance. However, presently riparian vegetation has established in the area.

The slopes that surround the valley bottoms are dominated by two major community types in its present natural condition: 1) big sagebrush/grass/rabbit brush (valley bottoms) and 2) oak brush/salina wildrye (side slopes). The Soil Conservation Service (George S. Cook, 1991) estimates that premining forage for the area were 950 lbs per acre for the big sagebrush/grass/rabbit brush community, 900 lbs per acre for the oak brush/salina wildrye communities and 1,500 lbs per acre for the semi-wet meadow range (1980).

9.6 Reference Areas

If needed and justified, reference areas will be established.

9.7 Vegetation Map

Plate 9-1 is the vegetation map of the permit area.

9.8 Success Monitoring and Bond Release

Transect areas were chosen and approved by the UDOGM to simulated the previously disturbed areas in their natural, undisturbed condition. The transects were sampled during the 1991 growing season by Mt. Nebo Scientific. Sampling methods followed UDOGM sampling guidelines (see Appendix 9-1). For bond release the sampling methods will be identical to those used in the baseline vegetation sampling, i.e. the UDOGM sampling guidelines contained in Appendix 9-1.

During 1995 Mt. Nebo Scientific sampled the Horizon disturbed area, transects were chosen and sampled. The transects are outlined on Plate 9-1. The riparian area along Jewkes Creek was sampled by Mt. Nebo Scientific in July of 1996. The total living cover of the surveyed riparian area was estimated by Mt. Nebo to be 71%, therefore postmining land use revegetation standards for the riparian zone within the disturbed area boundary, displaced by mine construction (Plate A. Appendix 9-2) will be met when the vegetation total living cover is 71%, corresponding with the 1996 sampling survey. This living cover will include grasses, forbs and shrubs. The 1996 survey listed the living cover to be comprised of 3.05% shrubs, with 66.19% grasses and the additional 30.76% of the cover being made up of forbs. Sampling and monitoring will be as outlined in this section.

~~Horizon commits to provide a reclamation channel design which will allow a reasonable likelihood of reestablishing the riparian vegetation along Jewkes Creek which existed prior to the construction of the Horizon Mine.~~

The reclamation ground cover success will be monitored qualitatively every year of the 10 full years required. The ground cover will be monitored quantitatively in year 2, 3, 5, 9, and 10 during the 10 years of extended responsibility (see Table 9-3). The data collected will be submitted to UDOGM in an annual report.

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