

Freeport-McMoRan Cobre Mining Company
P.O. Box 10
Bayard, NM 88023

March 11, 2016

Certified Mail #70150640000636728937
Return Receipt Requested

Mr. James Hollen
Mining Act Reclamation Program
Mining and Minerals Division (MMD)
1220 South St. Francis Drive
Santa Fe, NM 87505

Dear Mr. Hollen:

Re: Freeport-McMoRan Cobre Mining Company -
Update to Closeout Plan for Permit No. GR002RE Revision 14-1 Cobre Haul Road

Freeport-McMoRan Cobre Mining Company (Cobre) submitted a permit application dated August 22, 2014 for the referenced mining permit to change the approved permit boundary in order to facilitate the construction of a haul road (CHR) between Cobre and Freeport-McMoRan Chino Mines Company. The application also included a Closeout Plan (CP) describing the proposed reclamation of the CHR.

In a letter dated November 2, 2015, MMD requested additional information from Cobre in order to make a technical determination that the CP is approvable, as required by 19.10.5.506(G) New Mexico Administrative Code. Cobre responded to MMD in a letter dated November 23, 2015 and in subsequent meetings between Cobre and MMD.

The updated CP, enclosed, is redlined where more detail was inserted to better describe the agreed-to reclamation design. The responses below describe specific details of the updated design. MMD's recommendations are in italics and Cobre's responses follow.

1. *Provide an estimate for removing culverts where practicable.*

Cobre's response:

Sixteen culverts have been designed for the Cobre portion of the CHR, fifteen for storm water conveyance and one for the forest access road near Hanover Creek. Cobre has determined it is practicable to remove the culverts at the forest access road and at Hanover Creek. The culvert at the forest access road is designed to facilitate continued public access to forest lands north of Cobre while the CHR is in use and does not need to be maintained after reclamation. Removal of the culvert at Hanover Creek is consistent with the requirements of the 404 Nationwide Permit for the road crossing at Hanover Creek. Cost estimates for removal of these culverts were included in the August 22, 2014 application.

South of the crossing at Hanover Creek, a two-track service road will be maintained within the footprint of the CHR after reclamation. The two-track service road is required in order to manage Cobre property in the vicinity of the reclaimed CHR.

Cobre will also remove an 880 foot culvert on the south end of the CHR because the fill material can be efficiently and practically used at other reclamation sites and removal of this culvert will not impair use of the remaining two-track service road. The cost to remove this culvert is included in the updated CP.

2. *The out slopes of the CHR should be reclaimed where it can be done to achieve, following closure, greater stability and better erosion control to meet vegetation standards.*

The updated CP reflects the recommendation of MMD that the CHR specifically be reclaimed at slopes other than angle of repose. Out slopes are pulled back or pushed down to the extent practicable based upon surrounding topography while preserving storm water management features such as sediment traps and culverts for the remaining ephemeral drainages. The updated design shows the remaining two-track service road relocated to the east in order to facilitate regrading of the out slopes. The CP includes additional tables detailing the volume estimates used to support the new reclamation cost estimate.

The revised cost estimate for reclamation of the CHR has been increased from \$302,000 in the original application to approximately \$740,000 as a result of changes to the CP as described above and modifications to perimeter fencing to install wildlife friendly measures.

Cobre appreciates your time and effort to bring our discussions to closure and finalize a permit modification for the Cobre Haul Road. Should you have any further questions, please do not hesitate to contact me at (575) 912-5773 or Kariann Sokulsky at (575) 912-5386.

Sincerely,



Thomas L. Shelley
Acting Manager, Cobre Mining Company

TLS:ks

20160311-200

Enclosures: "2014 Cobre Haul Road Closeout Plan, Updated February 2016"
CD with Updated Closeout Plan

2014 Cobre Haul Road Closeout Plan

Prepared for

**Freeport-McMoRan Cobre Mining Company
303 Fierro Road
Hanover, New Mexico 88041**

Prepared by

**Telesto Solutions Inc.
2950 East Harmony Rd. Suite 200
Fort Collins, Colorado 80528**

August 22, 2014

Updated February 2016



Signature Page

2014 Cobre Haul Road Closeout Plan

August 22, 2014

Updated February 2016



Report Authors and Contributors

Telesto Solutions, Inc.

~~April Tischer~~Walter L. Niccoli, PE – Primary Author

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1.0 INTRODUCTION

Freeport-McMoRan Cobre Mining Company (Cobre) is proposing a change to its existing permit, GR002RE, to enable construction of the Cobre Haul Road (CHR). The road will be used by haul trucks to transport ore from Cobre's facilities to Chino.

The proposed CHR includes current and new disturbances that will cover approximately 105 acres including approximately 91 acres of land controlled by Cobre, ~~8.79~~ acres of Bureau of Land Management (BLM) administered land and 5 acres of land controlled by Chino. The haul road will be approximately 3.5 miles long. In general the road follows current and historic roads used mostly for mining, monitor well access, and ranching activities.

The proposed CHR will be constructed using standard engineering practices that employ a balanced cut and fill design to minimize grade changes and to utilize locally available material. The proposed CHR includes spanning arch road crossings over ~~the~~ Hanover Creek and the forest service access road (forest access road) that extends off of Fierro Road. The CHR will join with the Chino North Haul Road just north of Highway 152

This document provides the Closeout Plan (CP) and reclamation cost estimate to support the permit change associated with the CHR located within Cobre's proposed new permit boundary.

This CP complies with all applicable regulations and requirements stipulated in the New Mexico Mining and Mineral Act (19.10.5 NMAC). In addition, this CP conforms with all applicable mine reclamation regulations set forth by the BLM (43 Code of Federal Regulations (CFR) 3809).

Cobre ~~is-has~~ prepareding an updated sitewide Closure/Closeout Plan (Plan) for its other mining activities. ~~That plan will be submitted in the near future. The sitewide Plan has been submitted under a separate application to the New Mexico Mining and Minerals Division (MMD) and will incorporate this CP once approved.~~

2.0 REGULATORY LAND STATUS/Framework

Pursuant to NMAC 19.10.5.506.B(2), this section list those regulatory permits relevant for pre- or final closeout activities.

2.1 State Permits

Discharges from Cobre's facilities are regulated under groundwater discharge permits (DPs) issued under the New Mexico Water Quality Control Commission Regulations (WQCC; 20.6.2.3101 *et seq.* NMAC). The proposed CHR is not a discharging unit; therefore the WQCC regulations governing closure requirements for copper mines do not apply to the CHR reclamation.

2.2 Federal Permits

The proposed CHR is expected to cross five isolated fragments of BLM land totaling approximately ~~8.79~~ acres. This Closeout Plan for the CHR meets the requirements of BLM Surface Management Regulations, 43 CFR 3809.

Compliance with the Environmental Protection Agency (EPA) National Pollutant Discharge Elimination System (NPDES) permitting program will be maintained through modification of Cobre's Stormwater Pollution Prevention Plan (SWPPP) to include the proposed CHR Closeout Plan as necessary.

The stormwater from ephemeral drainages will be conveyed under the haul road using culverts sized for the 100-year 24-hour storm event. Stormwater sediment traps and other best management practices (BMPs) useful for closeout purposes will be left in place or constructed as part of closeout. Stormwater runoff will be directed to the inside edge of the proposed CHR to run into the natural water channels and culverts that will remain in place during the post-closeout period and discharged through the BMPs.

An amendment to Cobre's SWPP for the closeout activities will ensure the proposed CHR will not contribute suspended solids or other stormwater and surface water pollutants to the hydrologic system. The MSGP will establish the monitoring and inspection requirements, in addition to control measures and BMPs used to minimize suspended solids and other pollutants.

3.0 EXISTING CONDITIONS

Pursuant to NMAC 19.10.5.506.A, the following sections describe site-specific characteristics of the proposed expanded permit area.

3.1 Climate

Meteorological data collected at the Fort Bayard, New Mexico, National Weather Service Station are used to describe the climate at Cobre. This station is located approximately five miles west of the Chino Mine and is considered to be representative of the site area. Cobre's Amended MPO provides a detailed description of climate information. The area is considered representative of a dry desert climate with an average annual rainfall of 15.7 inches with July and August being the wettest months, months having average rainfalls between 3.2 and 3.4 inches. Annual snowfall is 10.4 inches falling mostly between December and March. Average maximum temperature varies from 52 degrees Fahrenheit in December and January to 87 degrees Fahrenheit in June and July. Average minimum temperatures vary between 25 degrees Fahrenheit in January and 58 degrees Fahrenheit in July. Evaporative demand in this region is high and annual evaporation far exceeds annual precipitation.

3.2 Geology

The proposed CHR route would cross over several geologic units (Figures A-1R and A-2). As shown in Figure A-3R, the primary mineralized zones that the proposed CHR would encounter are skarn deposits, which generally have a low potential to generate acid. Based on the geology at the site, the haul road material will make suitable reclamation substrate for closeout activities.

3.3 Soils and Vegetation

The soils in Grant County were previously mapped by the Soil Conservation Service (Cobre, 2012). The area mainly consists of Santa Fe-Rock outcrop complex, which is typically made up of shallow, gravelly sandy loam or barren bedrock.

3.4 Hydrology

The proposed CHR is located within the Hanover Creek watershed of the larger Mimbres River Basin. There are no perennial waters in the Hanover Creek watershed. The proposed CHR will cross Hanover Creek and several ephemeral drainages. The ephemeral drainages flow to Hanover Creek, which flows to Whitewater Creek near Chino. The CHR Closeout Plan will not change any existing watershed boundaries. Stormwater runoff from the closed CHR will be managed under a NPDES MSGP permit, and thus, BMPs and other controls will limit the potential to impact surface waters.

Due to the geochemistry of the rocks in the area (Cobre, 2009), the meteoric water that comes into contact with the closed CHR is not anticipated to affect existing groundwater quality.

4.0 PROPOSED CHR CONFIGURATION

The 120-foot wide road surface will be flanked by single or dual berms, depending upon the berms' location on the haul road with respect to the cut and fill slopes. Each berm will measure approximately 24-feet wide and 8-feet tall to accommodate the largest haul trucks that will be using the road (Figure A4R). Blasted rock faces will comprise some of the cut slopes. The proposed CHR will be cleared of spilled ore as part of operations.

5.0 RECLAMATION PRACTICES

Reclamation will provide for the establishment of a self-sustaining ecosystem consistent with the designated post-mining land uses, which is wildlife habitat. The proposed CHR will be

reclaimed through ~~minor~~ regrading and revegetation, which includes ripping and seeding. ~~There will be no substantial change in topography.~~ A smaller road (approximately 12 to 14 feet in width) equaling roughly 5 acres will remain on the footprint of the original CHR for post-closure maintenance vehicles and activities. Cross sections shown in Figure A4R depict the various reclamation methods for the haul road outslope. Figures A5R-A11R illustrate the ~~conceptual~~ plans for reclamation along the haul road route (i.e., closeout). Closeout of the proposed CHR will comply with all applicable permits.

The travel surfaces of the proposed CHR will be ripped to a depth of 18 to 24 inches. ~~Minor~~ gGrading will consist of incorporating berm material into the road and regrading the outslopes. As a result, the road outslopes will change from angle of repose (approximately 1.5H:1V) as constructed for operations to 2.5H:1V upon reclamation in most locations as shown in Figures A5R-A11R. Surfaces will be seeded according to approved methods and seed mixes.

The road crossing over the forest access road and Hanover Creek will be removed and demolished along with two culverts. Culverts in ephemeral drainages will remain in place with the exception of the southern most culvert along the CHR (see Figure A11R). This southern most culvert, approximately 883 feet in length, will be removed. Fill over this southern most culvert will also be removed and hauled to Chino . The fill material will be used as cover material for the Chino West Stockpile, under the Chino approved Closure/Closeout Plan, in lieu of hauling material from Chino's South or Upper South Stockpiles. Thus, the excavation and haul costs for the fill are already accounted for in Chino's approved Closure/Closeout Plan." Road embankments will be monitored for erosion until vegetation is established.

6.0 POST CLOSEOUT MONITORING

Erosion, vegetation, and wildlife monitoring are required following completion of reclamation. Details can be found in the permits and the approved work plans for monitoring activities. The reclaimed proposed CHR will be visually inspected for signs of erosion (i.e. gullyng or extensive rilling), and any significant erosion features will be mitigated to prevent future degradation.

Inspections and repair will follow the practices currently in use by Cobre, which are outlined in existing permits. Revegetated slopes are designed to be stable by meeting all applicable standards.

Vegetation establishment monitoring of seeded areas will be conducted in accordance with Condition O and Appendix C of Revision 01-1 of the MMD Permit, GR002RE. The vegetation monitoring plan and results will be provided to MMD according to the permits.

Wildlife monitoring, as well as surface and groundwater quality monitoring, will be ~~detailed~~ conducted in accordance with the approved 2014 Cobre Closure/Closeout Plan ~~update~~ for the mine as a whole.

7.0 CLOSEOUT COST ESTIMATE (CAPITAL AND O&M)

This section provides a description of the capital and operation and maintenance reclamation cost estimates for the CHR ~~Cobre Section~~. The reclamation cost estimate is used in determining the required amount of financial assurance. Details of the reclamation cost estimate can be found in Appendices ~~ces~~ A and B of this CP. The reclamation cost estimate is summarized as follows:

- Demolish the forest access road and Hanover Creek crossing structures
- Minor gGrading to support proper drainage and to integrate berm material
- Regrade CHR out slopes to achieve long term stability: out slopes are pulled back or pushed down to the maximum extent practicle based on location, accessibility, equipment reach, and surrounding topography (see Figures A7R to A11R)
- Remove southern most culvert
- Modify fencing to incorporate wildlife friendly features
- Rip surface of proposed CHR to a depth of 18 to 24 inches and seed
- Erosion control and maintenance crew: 6 days a year for the first year and 1 day a year for 11 years, for a total of 12 years of maintenance
- Revegetation maintenance: 2% failure (2% of area is revegetated) every year for a total of 12 years, starting the year reclamation is completed

The reclamation cost estimate for the ~~8.79~~ acres of BLM land within the proposed CHR footprint totals \$~~53,93823,000~~. The reclamation cost estimate for the proposed CHR on Cobre property totals \$~~685,55279,000~~, for a combined total of \$~~740302,000~~ rounded for the CHR-Cobre Section (in current dollars; see Table 1).

8.0 REFERENCES

- Cobre, 2009. *Letter to NMED dated March 13, 2009 Re: Cobre Mining Company Shaft and Adit Program Completion Continental Mine-Conditions 29 and 63(c), of DP-1403 and 7J of GR002RE*, Hurley, New Mexico: Freeport-McMoRan Copper and Gold Cobre Mining Company.
- Cobre, 2012. *Freeport-McMoRan Cobre Mining Company Mine Plan of Operations Amendment No. 5*, Bayard, New Mexico: Freeport-McMoRan Cobre Mining Company.
- Jones, W., Hernon, R. & Moore, S., 1967. *General Geology of Santa Rita Quadrangle, Grant County, New Mexico*, s.l.: USGS Professional Paper 555.
- ~~Telesto, 2011. *Continental Mine Interim Stage 1 Ground Water Abatement Plan Report and Expanded Work Plan, Condition 32, DP 1403*, Fort Collins, Colorado: Telesto Solutions Inc.~~

2014 Cobre Haul Road Closeout Plan

Prepared for
Freeport-McMoRan Cobre Mining Company
303 Fierro Road
Hanover, New Mexico 88041

Prepared by
Telesto Solutions Inc.
2950 East Harmony Rd. Suite 200
Fort Collins, Colorado 80528

August 22, 2014
Updated February 2016



Signature Page

2014 Cobre Haul Road Closeout Plan

August 22, 2014
Updated February 2016



Report Authors and Contributors

Telesto Solutions, Inc.

A handwritten signature in blue ink that reads "Walter L. Niccoli".

Walter L. Niccoli, PE – Primary Author

Jennifer Davis – Report Review

Contributors:

Austin Snow

April Tischer

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1.0 INTRODUCTION

Freeport-McMoRan Cobre Mining Company (Cobre) is proposing a change to its existing permit, GR002RE, to enable construction of the Cobre Haul Road (CHR). The road will be used by haul trucks to transport ore from Cobre's facilities to Chino.

The proposed CHR includes current and new disturbances that will cover approximately 105 acres including approximately 91 acres of land controlled by Cobre, 9 acres of Bureau of Land Management (BLM) administered land and 5 acres of land controlled by Chino. The haul road will be approximately 3.5 miles long. In general the road follows current and historic roads used mostly for mining, monitor well access, and ranching activities.

The proposed CHR will be constructed using standard engineering practices that employ a balanced cut and fill design to minimize grade changes and to utilize locally available material. The proposed CHR includes spanning arch road crossings over Hanover Creek and the forest service access road (forest access road) that extends off of Fierro Road. The CHR will join with the Chino North Haul Road just north of Highway 152

This document provides the Closeout Plan (CP) and reclamation cost estimate to support the permit change associated with the CHR located within Cobre's proposed new permit boundary.

This CP complies with all applicable regulations and requirements stipulated in the New Mexico Mining and Mineral Act (19.10.5 NMAC). In addition, this CP conforms with all applicable mine reclamation regulations set forth by the BLM (43 Code of Federal Regulations (CFR) 3809).

Cobre has prepared an updated sitewide Closure/Closeout Plan (Plan) for its other mining activities. The sitewide Plan has been submitted under a separate application to the New Mexico Mining and Minerals Division (MMD) and will incorporate this CP once approved.

2.0 REGULATORY LAND STATUS/Framework

Pursuant to NMAC 19.10.5.506.B(2), this section list those regulatory permits relevant for pre- or final closeout activities.

2.1 State Permits

Discharges from Cobre's facilities are regulated under groundwater discharge permits (DPs) issued under the New Mexico Water Quality Control Commission Regulations (WQCC; 20.6.2.3101 *et seq.* NMAC). The proposed CHR is not a discharging unit; therefore the WQCC regulations governing closure requirements for copper mines do not apply to the CHR reclamation.

2.2 Federal Permits

The proposed CHR is expected to cross five isolated fragments of BLM land totaling approximately 9 acres. This Closeout Plan for the CHR meets the requirements of BLM Surface Management Regulations, 43 CFR 3809.

Compliance with the Environmental Protection Agency (EPA) National Pollutant Discharge Elimination System (NPDES) permitting program will be maintained through modification of Cobre's Stormwater Pollution Prevention Plan (SWPPP) to include the proposed CHR Closeout Plan as necessary.

The stormwater from ephemeral drainages will be conveyed under the haul road using culverts sized for the 100-year 24-hour storm event. Stormwater sediment traps and other best management practices (BMPs) useful for closeout purposes will be left in place or constructed as part of closeout. Stormwater runoff will be directed to the inside edge of the proposed CHR to run into the natural water channels and culverts that will remain in place during the post-closeout period and discharged through the BMPs.

An amendment to Cobre's SWPP for the closeout activities will ensure the proposed CHR will not contribute suspended solids or other stormwater and surface water pollutants to

the hydrologic system. The MSGP will establish the monitoring and inspection requirements, in addition to control measures and BMPs used to minimize suspended solids and other pollutants.

3.0 EXISTING CONDITIONS

Pursuant to NMAC 19.10.5.506.A, the following sections describe site-specific characteristics of the proposed expanded permit area.

3.1 Climate

Meteorological data collected at the Fort Bayard, New Mexico, National Weather Service Station are used to describe the climate at Cobre. This station is located approximately five miles west of the Chino Mine and is considered to be representative of the site area. Cobre's Amended MPO provides a detailed description of climate information. The area is considered representative of a dry desert climate with an average annual rainfall of 15.7 inches with July and August being the wettest months, months having average rainfalls between 3.2 and 3.4 inches. Annual snowfall is 10.4 inches falling mostly between December and March. Average maximum temperature varies from 52 degrees Fahrenheit in December and January to 87 degrees Fahrenheit in June and July. Average minimum temperatures vary between 25 degrees Fahrenheit in January and 58 degrees Fahrenheit in July. Evaporative demand in this region is high and annual evaporation far exceeds annual precipitation.

3.2 Geology

The proposed CHR route would cross over several geologic units (Figures A-1R and A-2). As shown in Figure A-3R, the primary mineralized zones that the proposed CHR would encounter are skarn deposits, which generally have a low potential to generate acid. Based on the geology at the site, the haul road material will make suitable reclamation substrate for closeout activities.

3.3 Soils and Vegetation

The soils in Grant County were previously mapped by the Soil Conservation Service (Cobre, 2012). The area mainly consists of Santa Fe-Rock outcrop complex, which is typically made up of shallow, gravelly sandy loam or barren bedrock.

3.4 Hydrology

The proposed CHR is located within the Hanover Creek watershed of the larger Mimbres River Basin. There are no perennial waters in the Hanover Creek watershed. The proposed CHR will cross Hanover Creek and several ephemeral drainages. The ephemeral drainages flow to Hanover Creek, which flows to Whitewater Creek near Chino. The CHR Closeout Plan will not change any existing watershed boundaries. Stormwater runoff from the closed CHR will be managed under a NPDES MSGP permit, and thus, BMPs and other controls will limit the potential to impact surface waters.

Due to the geochemistry of the rocks in the area (Cobre, 2009), the meteoric water that comes into contact with the closed CHR is not anticipated to affect existing groundwater quality.

4.0 PROPOSED CHR CONFIGURATION

The 120-foot wide road surface will be flanked by single or dual berms, depending upon the berms' location on the haul road with respect to the cut and fill slopes. Each berm will measure approximately 24-feet wide and 8-feet tall to accommodate the largest haul trucks that will be using the road (Figure A4R). Blasted rock faces will comprise some of the cut slopes. The proposed CHR will be cleared of spilled ore as part of operations.

5.0 RECLAMATION PRACTICES

Reclamation will provide for the establishment of a self-sustaining ecosystem consistent with the designated post-mining land uses, which is wildlife habitat. The proposed CHR will be reclaimed through regrading and revegetation, which includes ripping and seeding.

A smaller road (approximately 12 to 14 feet in width) equaling roughly 5 acres will remain on the footprint of the original CHR for post-closure maintenance vehicles and activities. Cross sections shown in Figure A4R depict the various reclamation methods for the haul road outslope. Figures A5R-A11R illustrate the plans for reclamation along the haul road route (i.e., closeout). Closeout of the proposed CHR will comply with all applicable permits.

The travel surfaces of the proposed CHR will be ripped to a depth of 18 to 24 inches. Grading will consist of incorporating berm material into the road and regrading the outslopes. As a result, the road outslopes will change from angle of repose (approximately 1.5H:1V) as constructed for operations to 2.5H:1V upon reclamation in most locations as shown in Figures A5R-A11R. Surfaces will be seeded according to approved methods and seed mixes.

The road crossing over the forest access road and Hanover Creek will be removed and demolished along with two culverts. Culverts in ephemeral drainages will remain in place with the exception of the southern most culvert along the CHR (see Figure A11R). This southern most culvert, approximately 883 feet in length, will be removed. Fill over this southern most culvert will also be removed and hauled to Chino. The fill material will be used as cover material for the Chino West Stockpile, under the Chino approved Closure/Closeout Plan, in lieu of hauling material from Chino's South or Upper South Stockpiles. Thus, the excavation and haul costs for the fill are already accounted for in Chino's approved Closure/Closeout Plan." Road embankments will be monitored for erosion until vegetation is established.

6.0 POST CLOSEOUT MONITORING

Erosion, vegetation, and wildlife monitoring are required following completion of reclamation. Details can be found in the permits and the approved work plans for monitoring activities. The reclaimed proposed CHR will be visually inspected for signs of erosion (i.e. gullyng or extensive rilling), and any significant erosion features will be mitigated to prevent future degradation. Inspections and repair will follow the practices

currently in use by Cobre, which are outlined in existing permits. Revegetated slopes are designed to be stable by meeting all applicable standards.

Vegetation establishment monitoring of seeded areas will be conducted in accordance with Condition O and Appendix C of Revision 01-1 of the MMD Permit, GR002RE. The vegetation monitoring plan and results will be provided to MMD according to the permits.

Wildlife monitoring, as well as surface and groundwater quality monitoring, will be conducted in accordance with the approved Cobre Closure/Closeout Plan for the mine as a whole.

7.0 CLOSEOUT COST ESTIMATE (CAPITAL AND O&M)

This section provides a description of the capital and operation and maintenance reclamation cost estimates for the CHR. The reclamation cost estimate is used in determining the required amount of financial assurance. Details of the reclamation cost estimate can be found in Appendices A and B of this CP. The reclamation cost estimate is summarized as follows:

- Demolish the forest access road and Hanover Creek crossing structures
- Grading to support proper drainage and to integrate berm material
- Regrade CHR outslopes to achieve long term stability: outslopes are pulled back or pushed down to the maximum extent practicable based on location, accessibility, equipment reach, and surrounding topography (see Figures A7R to A11R)
- Remove southern most culvert
- Modify fencing to incorporate wildlife friendly features
- Rip surface of proposed CHR to a depth of 18 to 24 inches and seed
- Erosion control and maintenance crew: 6 days a year for the first year and 1 day a year for 11 years, for a total of 12 years of maintenance
- Revegetation maintenance: 2% failure (2% of area is revegetated) every year for a total of 12 years, starting the year reclamation is completed

The reclamation cost estimate for the 9 acres of BLM land within the proposed CHR footprint totals \$53,938. The reclamation cost estimate for the proposed CHR on Cobre property totals \$685,550, for a combined total of \$740,000 rounded (in current dollars; see Table 1).

8.0 REFERENCES

Cobre, 2009. *Letter to NMED dated March 13, 2009 Re: Cobre Mining Company Shaft and Adit Program Completion Continental Mine-Conditions 29 and 63(c), of DP-1403 and 7J of GR002RE*, Hurley, New Mexico: Freeport-McMoRan Copper and Gold Cobre Mining Company.

Cobre, 2012. *Freeport-McMoRan Cobre Mining Company Mine Plan of Operations Amendment No. 5*, Bayard, New Mexico: Freeport-McMoRan Cobre Mining Company.

Jones, W., Hernon, R. & Moore, S., 1967. *General Geology of Santa Rita Quadrangle, Grant County, New Mexico*, s.l.: USGS Professional Paper555.

TABLES

**Table 1 Cobre Haul Road - Updated Reclamation Cost Estimate
Summary. Application # GR002RE Revision 14-1
February 17, 2016**

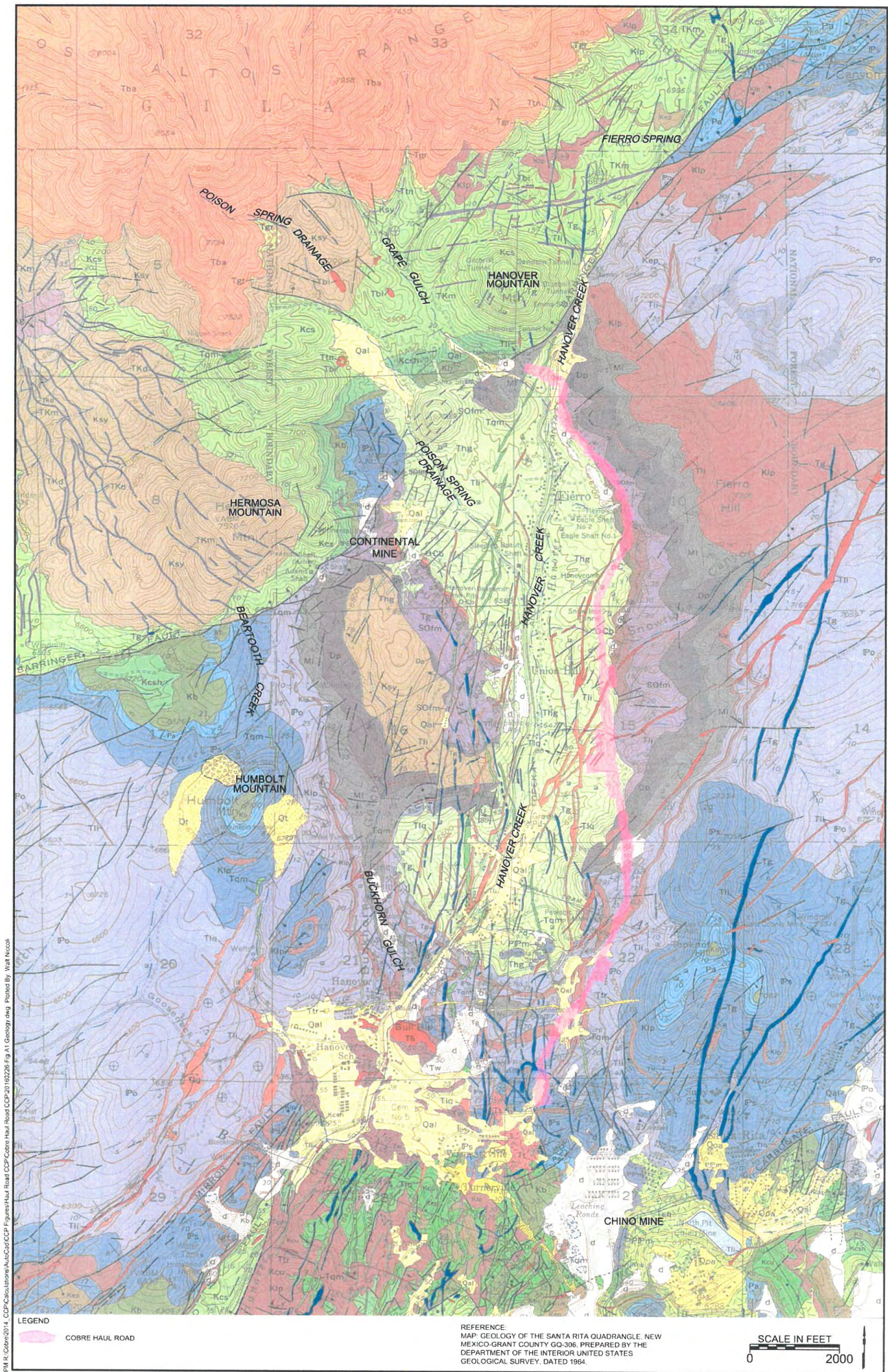
Item	Subtotal, Direct Costs	Subtotal, Indirect Costs 28.3%	Total Cost
Capital			
Hanover Creek and Forest Service Road Crossing Spanning Arch Demolition	\$27,600	\$7,811	\$35,411
Regrade Out slopes	\$291,088	\$82,378	\$373,466
Regrade Out slopes BLM Managed Land	\$22,338	\$6,322	\$28,660
Grade Surface CHR	\$16,997	\$4,810	\$21,807
Grade Surface CHR BLM Managed Land	\$1,681	\$476	\$2,157
Water Truck	\$7,760	\$2,196	\$9,956
Water Truck BLM Managed Land	\$1,203	\$340	\$1,543
Revegetation CHR	\$81,779	\$23,144	\$104,923
Revegetation BLM Managed Land	\$8,088	\$2,289	\$10,377
CMP Culvert Removal	\$11,129	\$3,149	\$14,278
Wildlife Friendly Fence Perimeter Modification ²	\$9,351	\$2,646	\$11,997
Total Capital Cost	\$479,015	\$135,561	\$614,576
Operations and Maintenance			
		23.3%	
Veg Maintenance CHR	\$20,423	\$4,759	\$25,182
Veg Maintenance CHR BLM Land	\$2,020	\$471	\$2,490
Erosion Control CHR ¹	\$71,800	\$16,729	\$88,529
Erosion Control BLM Land ¹	\$7,101	\$1,655	\$8,756
Total Operations and Maintenance	\$101,344	\$23,613	\$124,957
CHR	\$537,927	\$147,622	\$685,550
CHR BLM Land³	\$42,431	\$11,552	\$53,983
Total Current Dollar Cost	\$580,358	\$159,174	\$739,533

¹Erosion Control was calculated for the CHR, the costs for BLM land were broken out based on percentage of BLM Land. Note that the total on Sheet #19 includes indirect costs and is equal to the total erosion control cost listed in this table.

² \$0.30/foot 38,700 feet of fence; Replace half staples/clips, add flagging or other markers or other wildlife friendly modifications, and replace or crimp 2 of the 4 to 5 strands of barb wire. Labor rate of \$25.34/ hr at 1 hour/100 feet of fence; remaining cost is materials.

³ The estimated reclamation cost for BLM managed lands is broken out for no other purpose except to show the relative costs between private and public land. Financial assurance posted by Cobre will be based upon regulation and terms negotiated with MMD and BLM.

FIGURES



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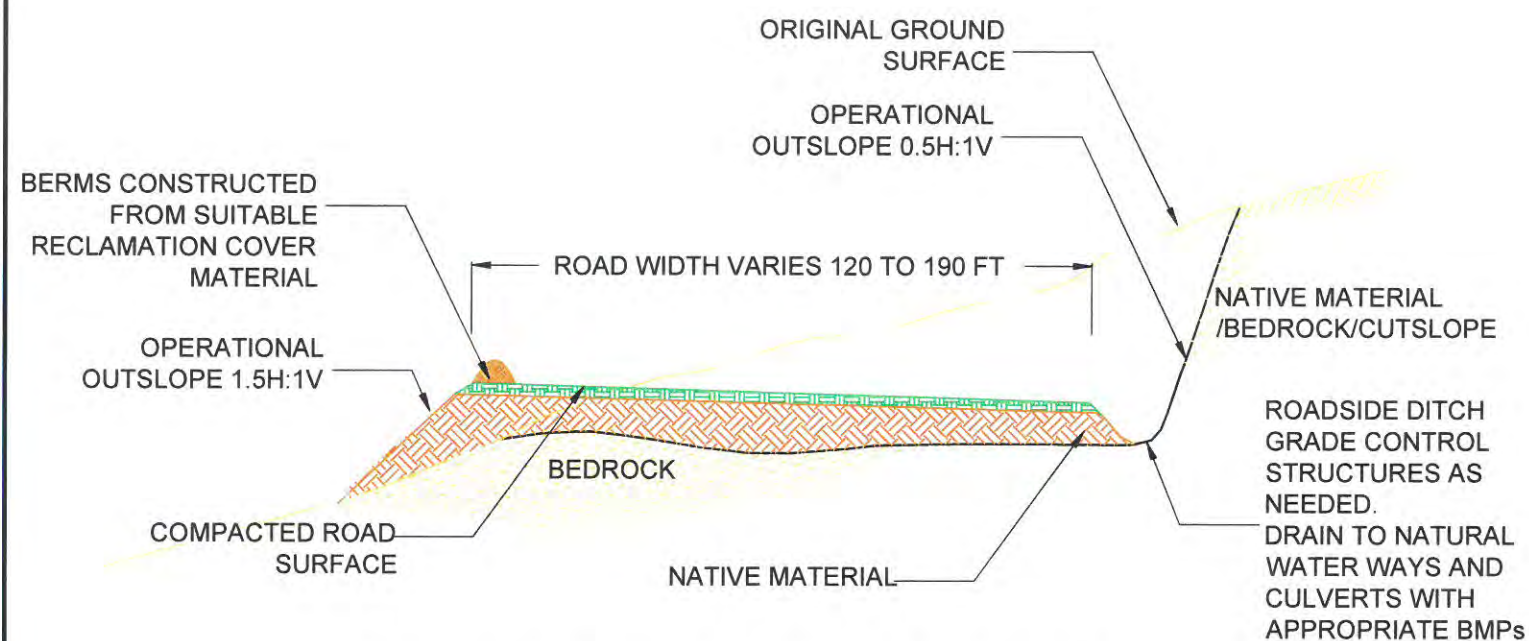
FIGURE A1R - FEBRUARY 17, 2016
GENERALIZED GEOLOGY

Prepared For

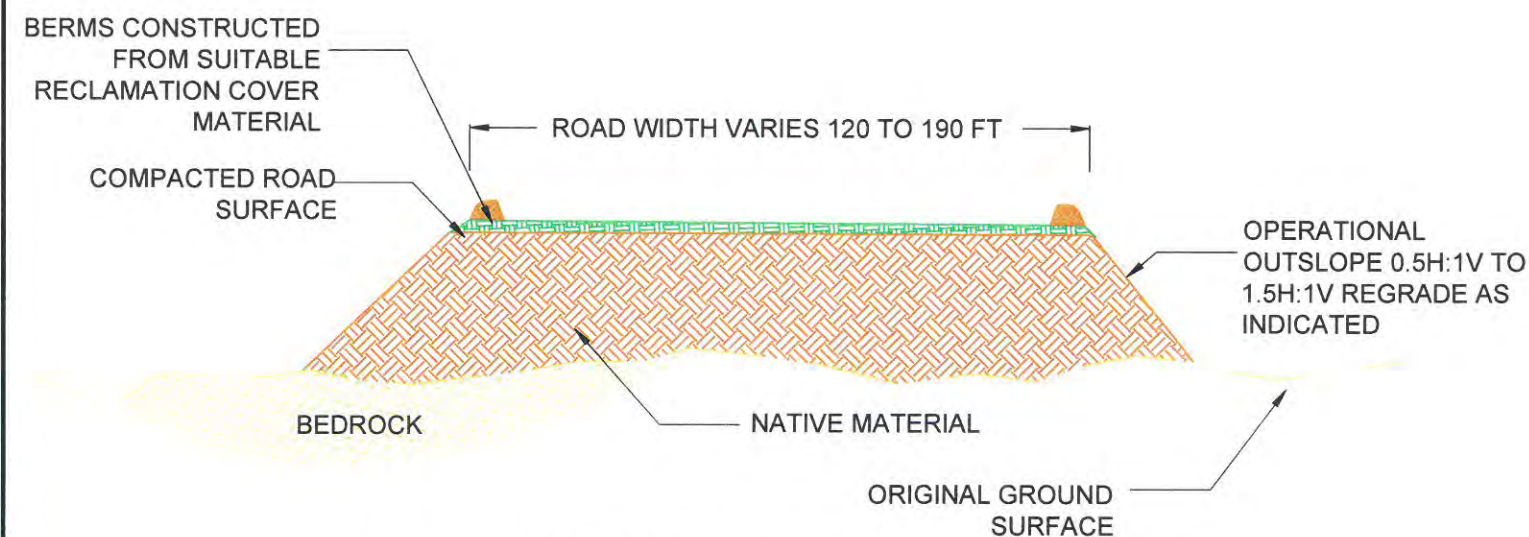
FREEPORT-McMoRAN
COBRE MINING COMPANY

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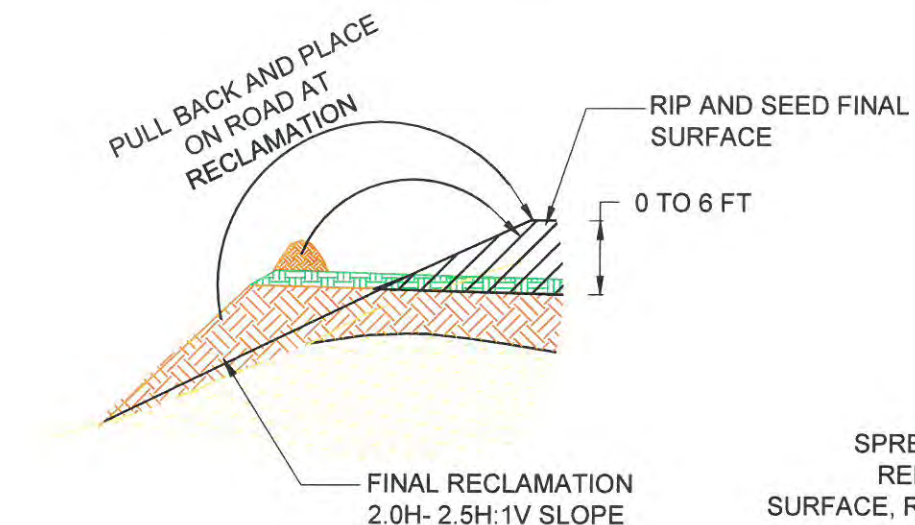
**GENERAL CHR CROSS SECTION 1
(OPERATIONS)**



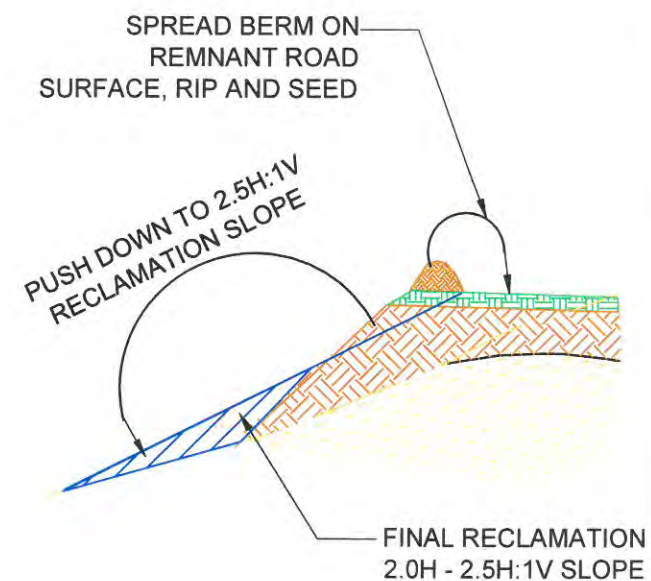
**GENERAL CHR CROSS SECTION 2
(OPERATIONS)**

NOTES:

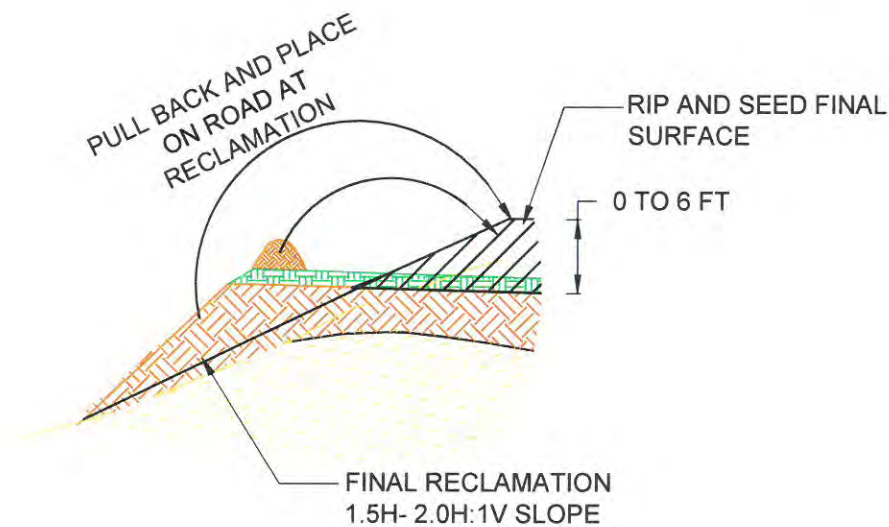
- GENERALIZED CROSS SECTIONS OF THE PROPOSED COBRE HAUL ROAD. THE THREE GENERALIZED RECLAMATION DESCRIPTIONS CORRESPOND TO THE THREE TYPES OF RECLAMATION ACTIVITIES ASSOCIATED WITH THE HAUL ROAD SURFACE AND OUTSLOPES. THE GENERAL RECLAMATION ACTIVITIES CORRESPOND TO LOCATIONS SHOWN IN FIGURES A7R THROUGH A11R.
- CUTSLOPES LEFT IN PLACE



FILL SLOPE PULL BACK



**FILL SLOPE
PUSH DOWN**



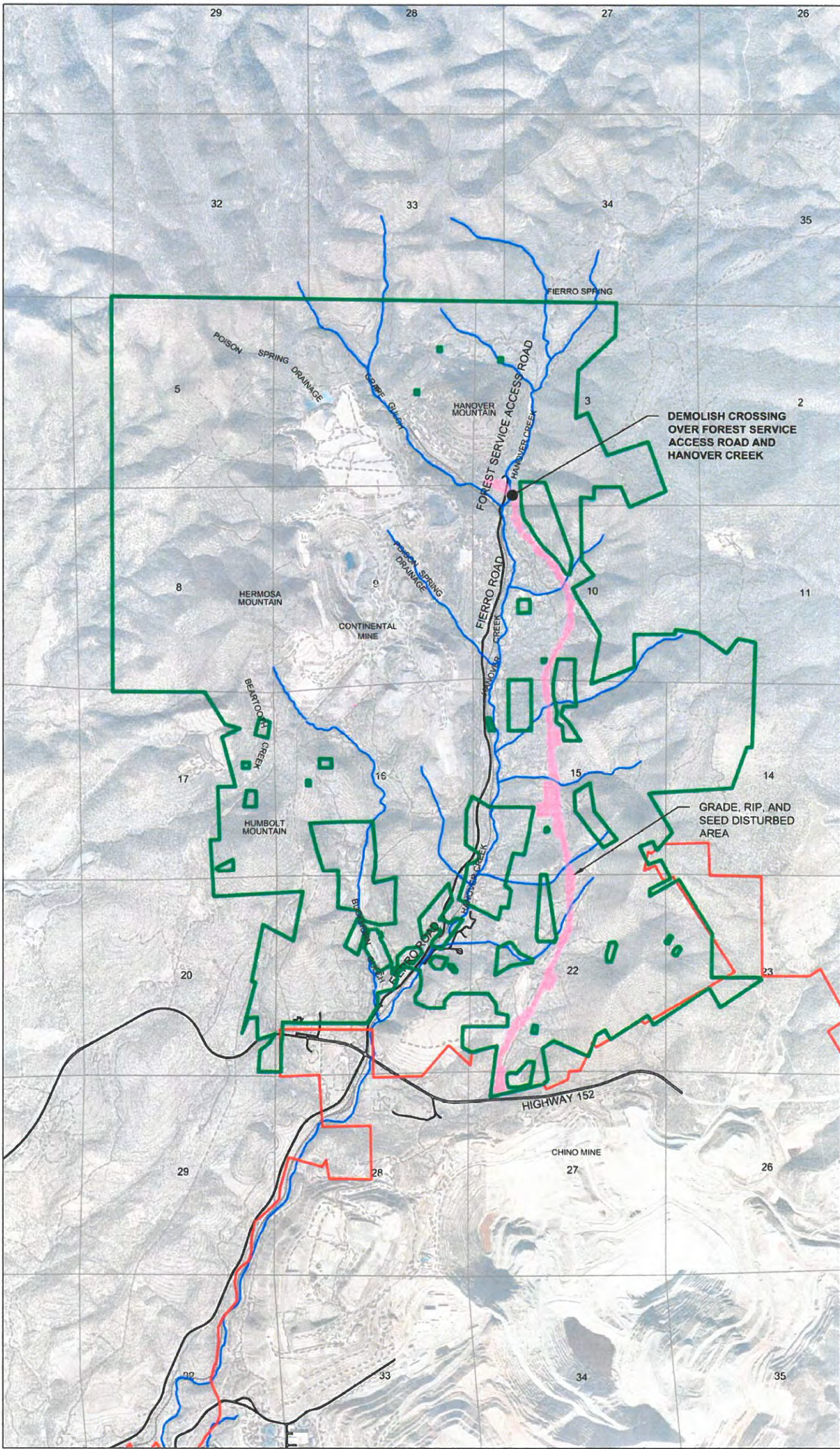
**STEEP FILL SLOPE
PULL BACK**

NOT TO SCALE

**FIGURE AR4 - FEBRUARY 17, 2016
GENERAL SECTIONS AND RECLAMATION
SLOPE DESCRIPTIONS - PROPOSED CHR**

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www.telesto-inc.com

PREPARED FOR:
FREEPORT-McMoRAN
COBRE MINING COMPANY



LEGEND

- | | | | |
|-----------------|------------------------------------|---------------------------|-----------|
| COBRE HAUL ROAD | UNPAVED ROADS | PAVED ROADS | DRAINAGES |
| RAILROAD | PROPOSED COBRE MMD PERMIT BOUNDARY | CHINO MMD PERMIT BOUNDARY | |

REFERENCES
1. AERIAL PHOTOGRAPH BY COOPER AERIAL SURVEYS CO., TUCSON ARIZONA, DATE: DECEMBER 15, 2013.



PROJECT: 200189

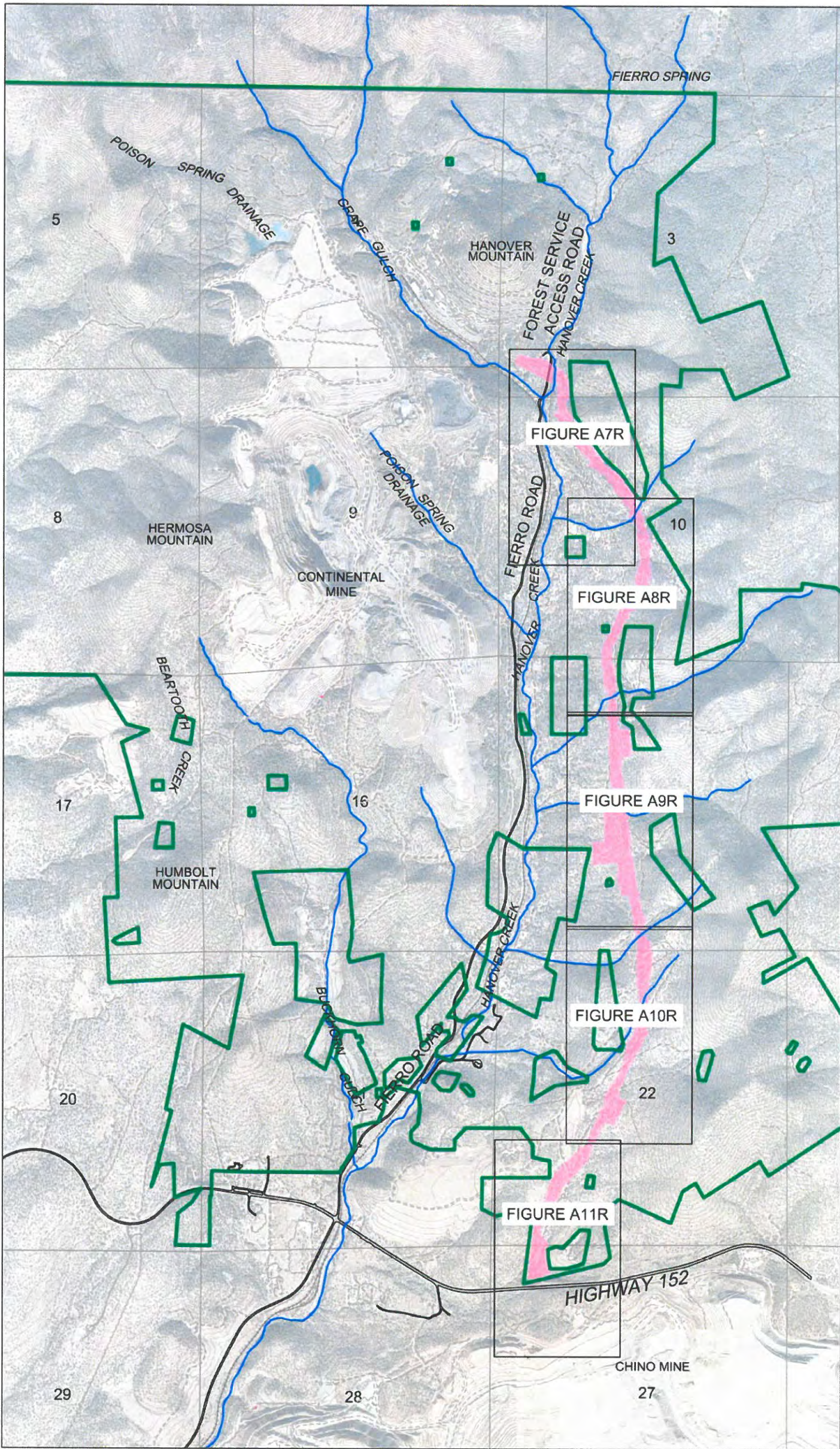
TASK: 001

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FIGURE A5R - FEBRUARY 17, 2016
RECLAIMED PROPOSED COBRE HAUL ROAD

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LEGEND

- | | | | |
|---|--|---|---|
|  COBRE HAUL ROAD |  UNPAVED ROADS |  PAVED ROADS |  DRAINAGES |
|  RAILROAD |  PROPOSED COBRE MMD PERMIT BOUNDARY | | |

REFERENCES:
1. AERIAL PHOTOGRAPH AND TOPOGRAPHY BY COOPER AERIAL SURVEYS CO., TUCSON ARIZONA, DATE: DECEMBER 15, 2013.

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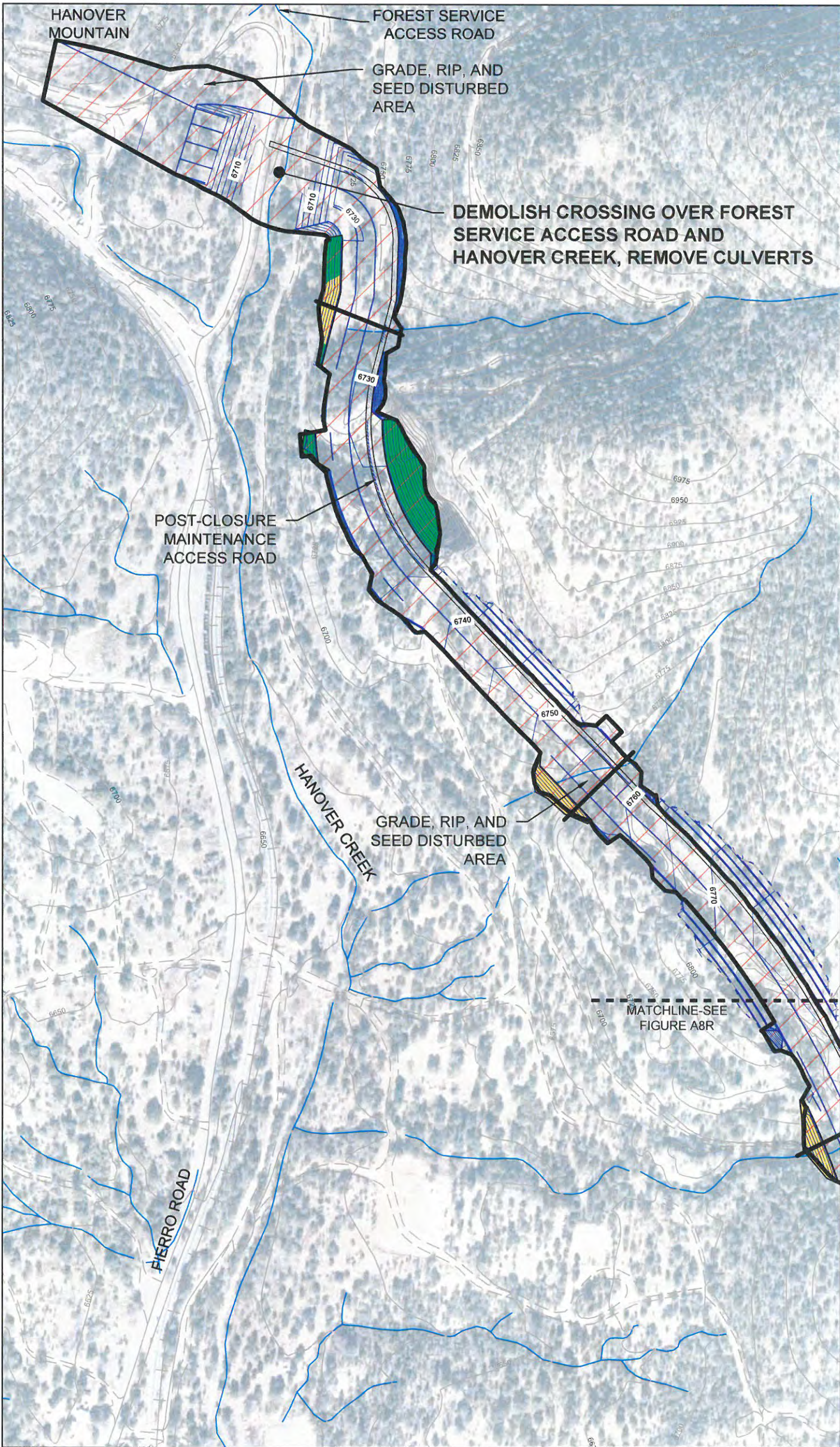
PROJECT: 200189 TASK: 001

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FIGURE A6R - FEBRUARY 17, 2016
RECLAIMED PROPOSED COBRE HAUL ROAD OVERVIEW

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LEGEND

- | | | | |
|--|---|--|---|
| | GRADE TO DRAIN RIP AND SEED | | FILL SLOPE PUSHDOWN 2.5:1 |
| | FILL SLOPE PULLBACK 2:1 TO 2.5:1 AND PRESERVE CULVERT (PULLBACK MATERIAL WILL BE SPREAD ON ROAD SURFACE, PRESERVING DRAINAGE PATTERNS AND STRUCTURES) | | RAILROAD |
| | COBRE HAUL ROAD OUTLINE | | UNPAVED ROADS |
| | DRAINAGES | | PAVED ROADS |
| | CULVERT | | EXISTING TOPOGRAPHIC CONTOURS (25' INT. AMSL) |
| | | | PROPOSED HAUL ROAD CONTOURS (5' INT. AMSL) |



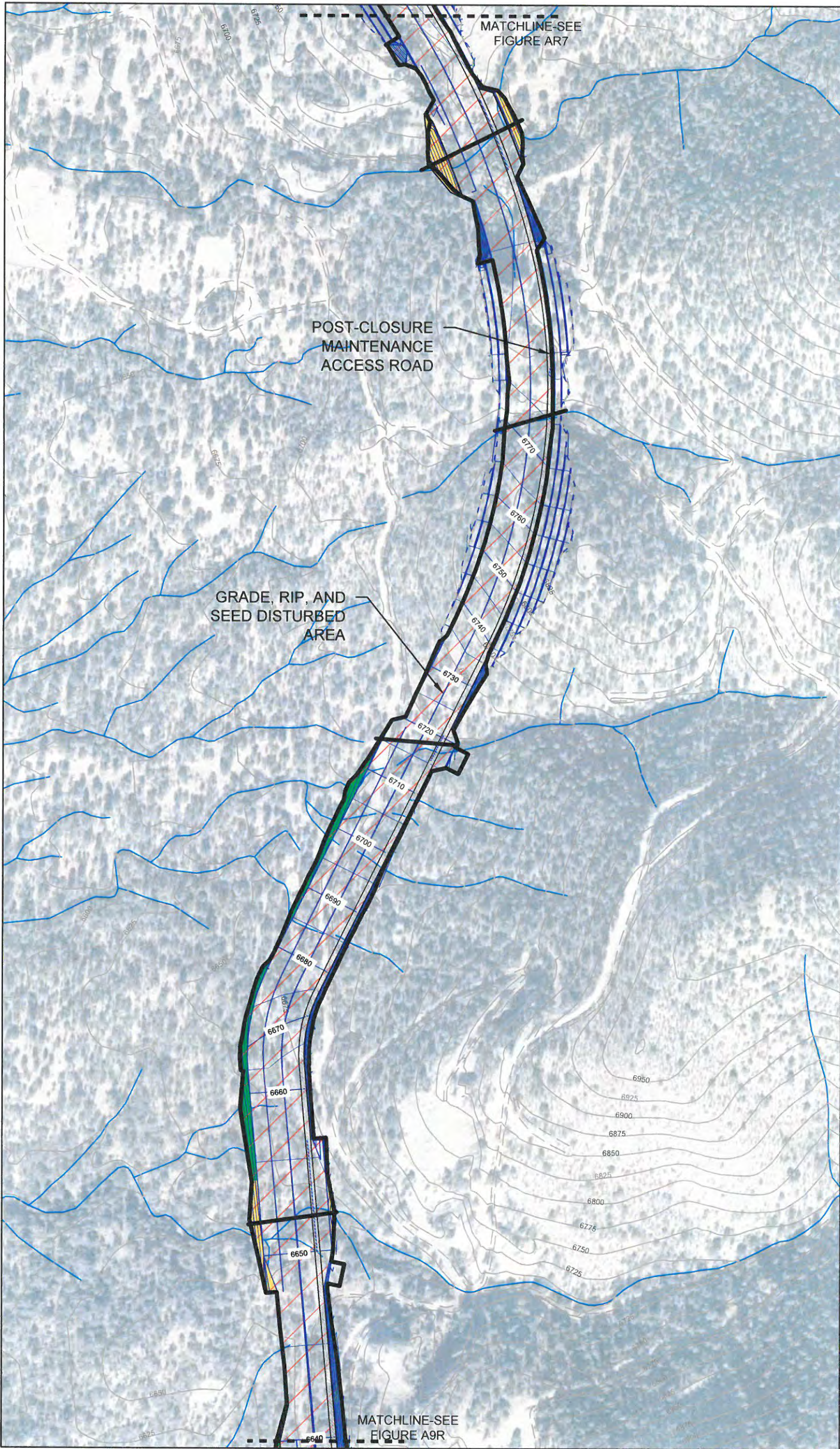
REFERENCES:
1. AERIAL PHOTOGRAPH, TOPOGRAPHY AND DRAINAGES BY COOPER AERIAL SURVEYS CO., TUCSON ARIZONA, DATE: DECEMBER 15, 2013.

PROJECT: 200189 TASK: 001

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FIGURE A7R - FEBRUARY 17, 2016
RECLAIMED PROPOSED COBRE HAUL ROAD CONTOURS, SHEET 1

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LEGEND

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|--|--|--|---|
| | GRADE TO DRAIN RIP AND SEED | | FILL SLOPE PUSHDOWN 2.5:1 |
| | FILL SLOPE PULLBACK 2:1 TO 2.5:1 AND PRESERVE CULVERT
*PULLBACK MATERIAL WILL BE SPREAD ON ROAD SURFACE,
PRESERVING DRAINAGE PATTERNS AND STRUCTURES | | DRAINAGES |
| | COBRE HAUL ROAD OUTLINE | | UNPAVED ROADS |
| | CULVERT | | EXISTING TOPOGRAPHIC CONTOURS (25' INT. AMSL) |
| | PAVED ROADS | | PROPOSED HAUL ROAD CONTOURS (5' INT. AMSL) |

SCALE IN FEET
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REFERENCES:
1. AERIAL PHOTOGRAPH, TOPOGRAPHY
AND DRAINAGES BY COOPER AERIAL
SURVEYS CO., TUCSON ARIZONA, DATE:
DECEMBER 15, 2013.

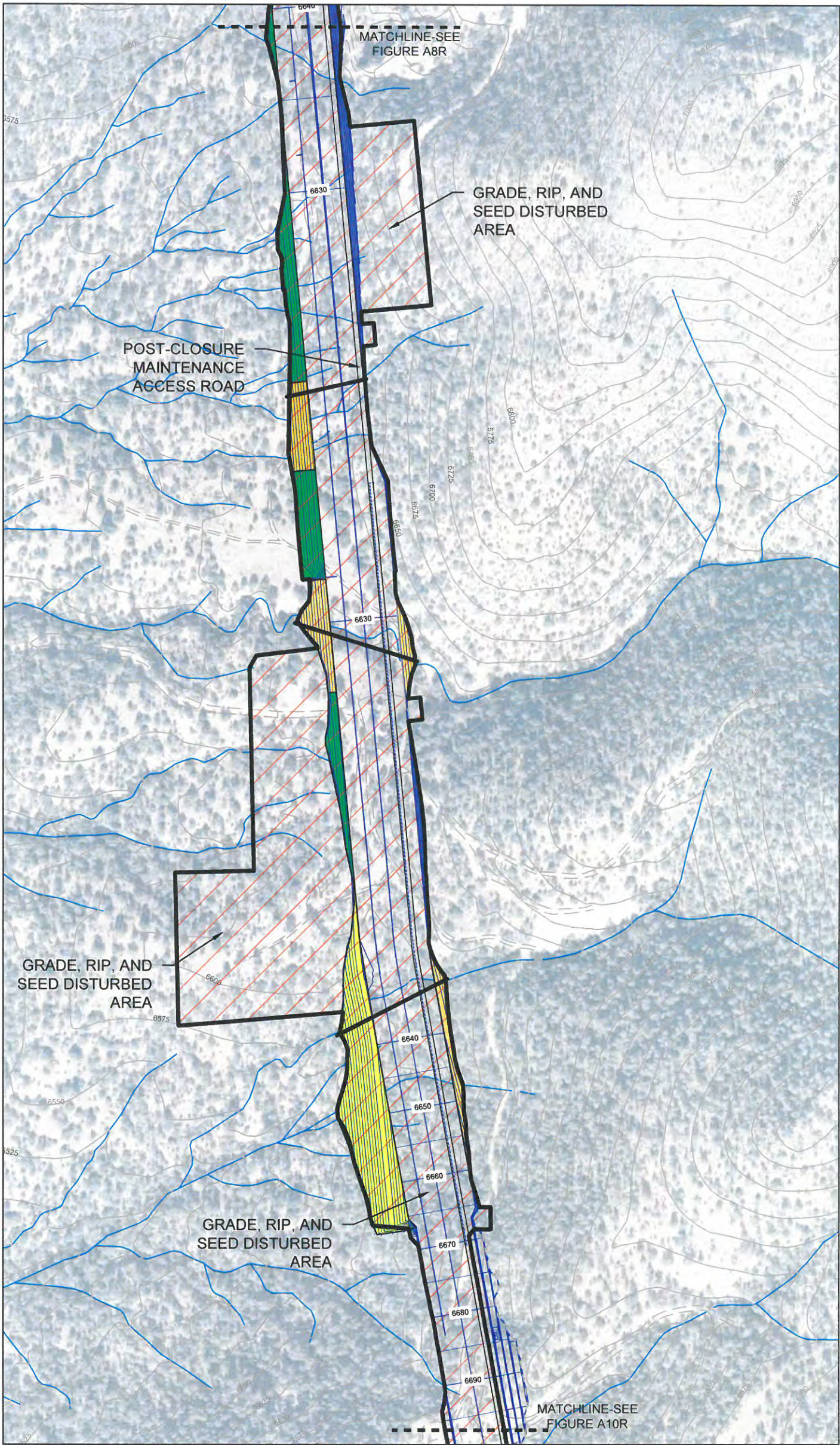
PROJECT: 200189 TASK: 001

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FIGURE A8R - FEBRUARY 17, 2016
RECLAIMED PROPOSED COBRE HAUL ROAD CONTOURS, SHEET 2

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Date: 2/9/2016 5:27:22 PM R:\Cobre\2014_CCP\Calculations\AutoCad\CCP Figures\Haul Road CCP\Cobre Haul Road CCP\20160226-Fig.7.Thru.11_Reclaimed Haul Road.dwg Plotted By: Walt Nicolli

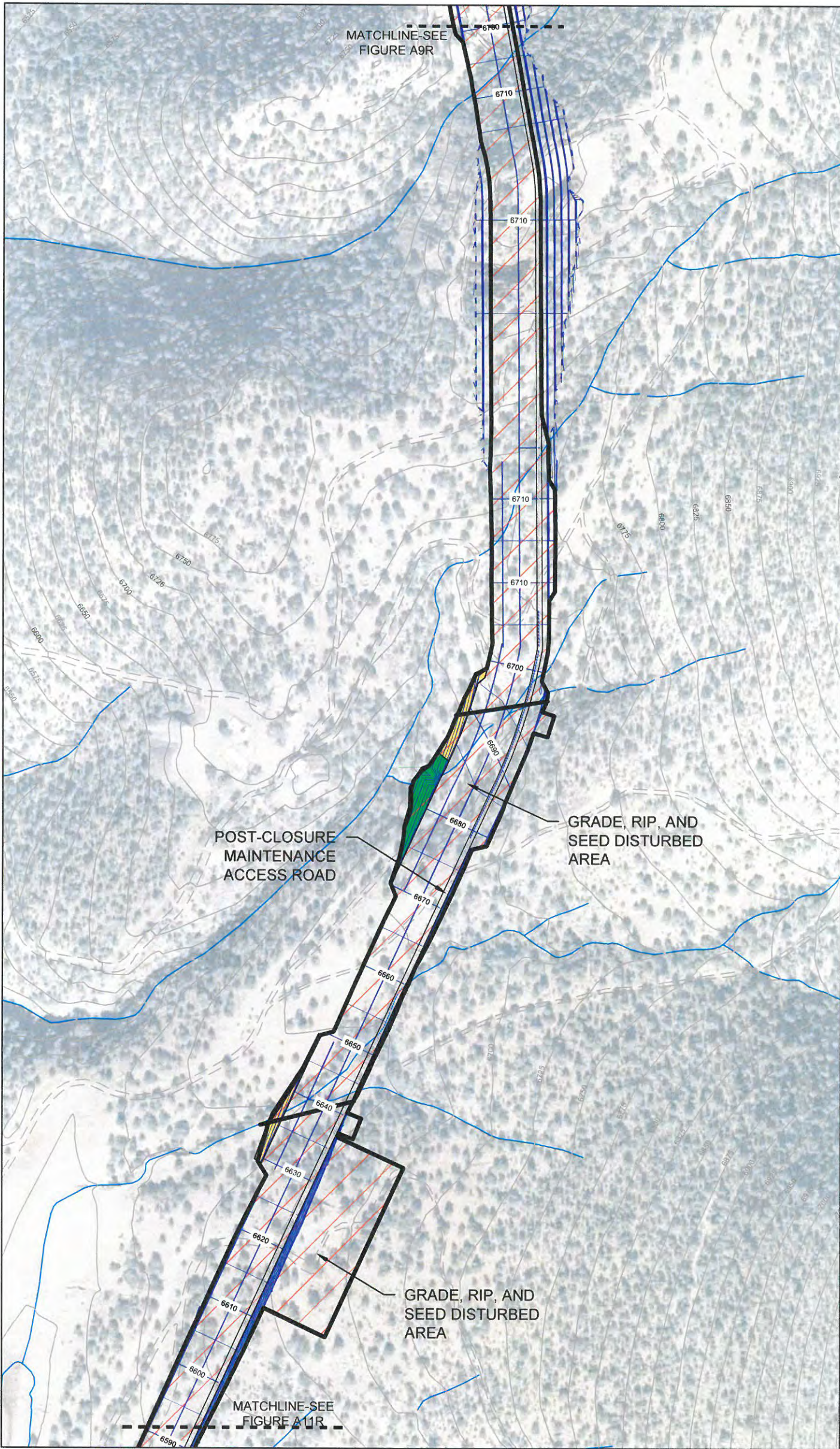


LEGEND

- | | | | |
|---|--|---|---|
|  | GRADE TO DRAIN RIP AND SEED |  | FILL SLOPE PUSHDOWN 2.5:1 |
|  | FILL SLOPE PULLBACK 2:1 TO 2.5:1 AND PRESERVE CULVERT
*PULLBACK MATERIAL WILL BE SPREAD ON ROAD SURFACE,
PRESERVING DRAINAGE PATTERNS AND STRUCTURES |  | FILL SLOPE PULLBACK 1.5:1 TO 2:1 AND PRESERVE CULVERT |
|  | COBRE HAUL ROAD OUTLINE |  | UNPAVED ROADS |
|  | PAVED ROADS |  | DRAINAGES |
|  | CULVERT |  | EXISTING TOPOGRAPHIC CONTOURS (25' INT. AMSL) |
| | |  | PROPOSED HAUL ROAD CONTOURS (5' INT. AMSL) |

SCALE IN FEET
0 300

REFERENCES:
1. AERIAL PHOTOGRAPH, TOPOGRAPHY
AND DRAINAGES BY COOPER AERIAL
SURVEYS CO., TUCSON ARIZONA, DATE:
DECEMBER 15, 2013.



LEGEND

- | | | | |
|---|--|---|---|
|  | GRADE TO DRAIN RIP AND SEED |  | FILL SLOPE PUSHDOWN 2.5:1 |
|  | FILL SLOPE PULLBACK 2:1 TO 2.5:1 AND PRESERVE CULVERT
*PULLBACK MATERIAL WILL BE SPREAD ON ROAD SURFACE,
PRESERVING DRAINAGE PATTERNS AND STRUCTURES |  | DRAINAGES |
|  | COBRE HAUL ROAD OUTLINE |  | UNPAVED ROADS |
|  | PAVED ROADS |  | CULVERT |
| | |  | EXISTING TOPOGRAPHIC CONTOURS (25' INT. AMSL) |
| | |  | PROPOSED HAUL ROAD CONTOURS (5' INT. AMSL) |

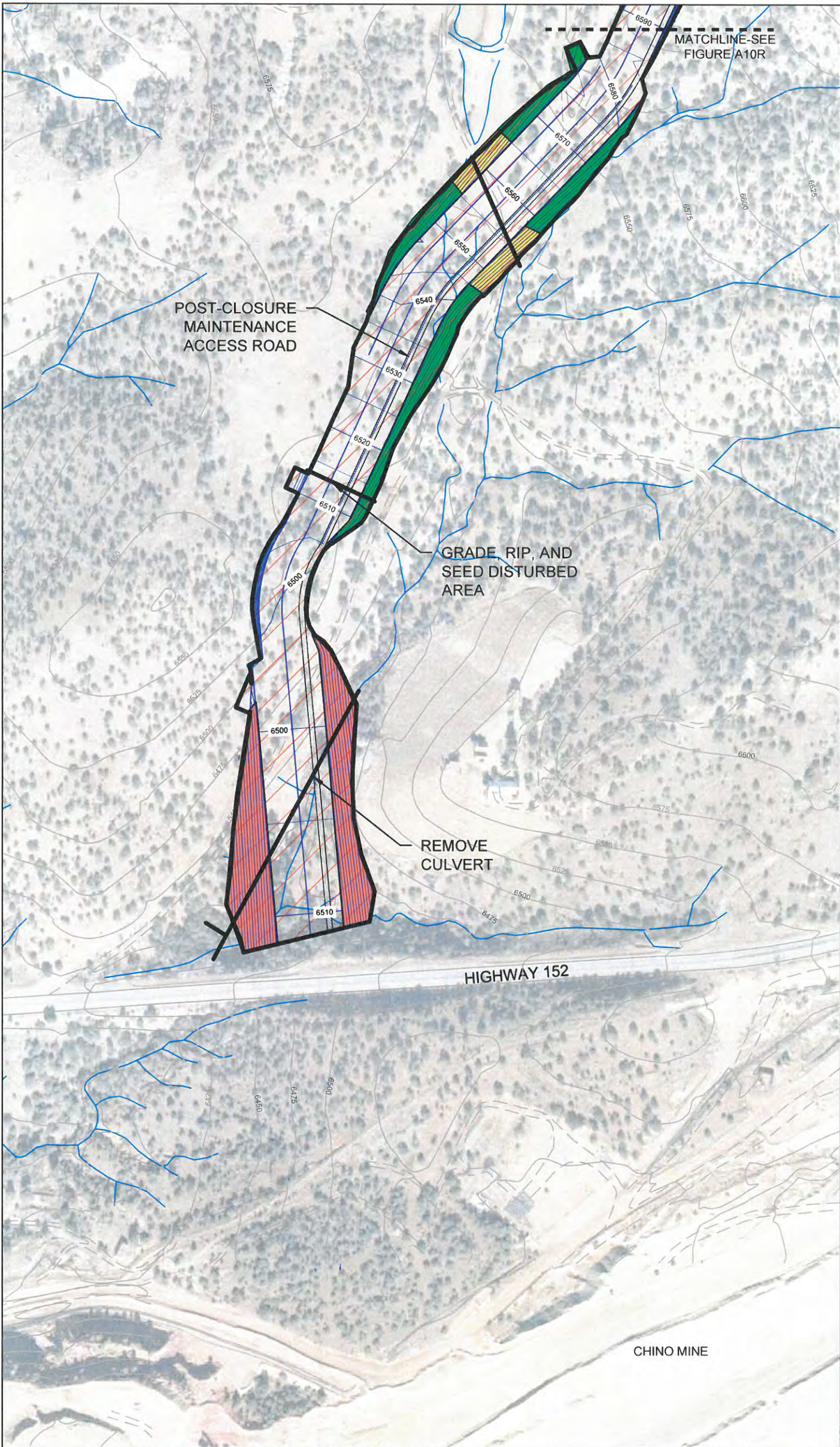
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AND DRAINAGES BY COOPER AERIAL
SURVEYS CO., TUCSON ARIZONA, DATE:
DECEMBER 15, 2013.

PROJECT: 200189 TASK: 001

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FIGURE A10R - FEBRUARY 17, 2016
RECLAIMED PROPOSED COBRE HAUL ROAD CONTOURS, SHEET 4

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LEGEND

- | | | | |
|--|---|--|--|
| | GRADE TO DRAIN RIP AND SEED | | FILL SLOPE PUSHDOWN 2.5:1 |
| | FILL SLOPE PULLBACK 2:1 TO 2.5:1 AND PRESERVE CULVERT (PULLBACK MATERIAL WILL BE SPREAD ON ROAD SURFACE, PRESERVING DRAINAGE PATTERNS AND STRUCTURES) | | REMOVE CULVERT (FILL IS ALSO REMOVED AND HAULED TO CHINO AS COVER) |
| | COBRE HAUL ROAD OUTLINE | | UNPAVED ROADS |
| | COBRE HAUL ROAD | | DRAINAGES |
| | PAVED ROADS | | CULVERT |
| | | | EXISTING TOPOGRAPHIC CONTOURS (25' INT. AMSL) |
| | | | PROPOSED HAUL ROAD CONTOURS (5' INT. AMSL) |



REFERENCES:
1. AERIAL PHOTOGRAPH, TOPOGRAPHY AND DRAINAGES BY COOPER AERIAL SURVEYS CO., TUCSON ARIZONA, DATE: DECEMBER 15, 2013.

PROJECT:

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FIGURE A11R - FEBRUARY 17, 2016
RECLAIMED PROPOSED COBRE HAUL ROAD CONTOURS, SHEET 5

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APPENDIX A
Basis for Cost Estimates and Volume Calculations

The reclamation cost estimate is developed based on a template originally created by MMD (1996)¹. Reclamation quantities used in the cost estimate are provided in Table A1 and Table A2. Cost calculations are located in the Cobre_CHR_RCE_2016.xlsx spreadsheet. PDF's of the cost spreadsheets are included in Appendix B (Worksheets #1 through #19). The following list describes the basis and assumptions used in the cost estimate. Specific unit cost documentation is available upon request.

- **Labor Rates:** All labor rates were developed based on the New Mexico Department of Labor (DOL) Type H (Heavy Engineering) labor rates effective January 1, 2014. These rates include the base, fringe benefit, and apprenticeship contribution rates. The following were added to the labor rates to obtain the total per hour labor rate: FICA (6.2%), Medicare (1.45%), Federal un-employment (0.6% on first \$7,000), State un-employment (2% on first \$23,400), and Workman's Compensation Insurance.
- **Equipment Rates:** The earth-moving equipment used in the estimate would commonly be available to a contractor. The equipment unit operating costs were taken from EquipmentWatch Custom Cost Evaluator (Penton Media, Inc., 2014).
- **Fuel Costs:** The off-road diesel fuel cost of \$3.22/gal is based on a quote obtained on June 18, 2014 from Western Refining for delivery of dyed ultra-low sulfur diesel to Hurley, NM.
- **Capital Indirect Costs:** Total indirect costs of 28.3% were applied to the capital direct costs per MMD (1996) and OSM (2000) guidance. The indirect costs are comprised of: Mobilization and Demobilization (3.8%), Contingencies (4.0%), Engineering Redesign Fee (2.5%), Contractor Profit and Overhead (15.0%), and Project Management Fee (3.0%). Indirect cost percentages are identical to the percentages presented to MMD and the New Mexico Environment Department (NMED) in meetings with Tyrone on September 20, 2012, and on November 2, 2012.
- **Operations and Maintenance Indirect Costs:** Total indirect costs of 23.3% were applied for longer term operations and maintenance per MMD (1996) and OSM (2000) guidance and comprise the same values and factors as the capital indirect costs with exception of Contractor Profit and Overhead. Contractor Profit and Overhead for long term operations and maintenance is 10.0%, to account for the long term contract and repetitive annual work. Indirect cost percentages are identical to the percentages

¹ MMD. 1996. Closeout Plan Guidelines for Existing Mines, Mining Act Reclamation Bureau Mining and Minerals Division, New Mexico Energy, Minerals and Natural Resources Department. April 30, 1996. n

presented to MMD and the NMED in meetings with Tyrone on September 20, 2012, and on November 2, 2012.

- **Equipment Production Factors:** Productivity factors are consistent with factors used in past closure cost estimates and with Caterpillar Performance Handbook.
- **Outslope Regrading:** Pushdowns require a dozer, pullbacks on slopes that are 50 feet long or less require an excavator and dozer, pullbacks on slopes greater than 50-feet long require two dozers, a truck and a loader. Material from regrading is spread within ½-mile of the regrading operation.
- **Dozer Push Distances:** Dozer push distances represent the distance from the centroid of the cut block to the centroid of the fill block for haul road outslope regrading.
- **Material Swell:** A 15% swell was added to all outslope regrading quantities consistent with a compacted road fill. Value is subject to change based on CHR construction methods. A 60 % swell was utilized for removing concrete associated with the Hanover Creek and Forest Service Road Crossing Spanning Arches.
- **Dust Suppression and Site Maintenance:** Assume there is a water truck running 1 hour twice a day when the dozers are running over an 8 hour work day.
- **Revegetation Unit Costs:** The revegetation unit cost was based on a quote obtained on June 18, 2014 from Rocky Mountain Reclamation of Laramie, WY, and includes: scarifying, discing, rangeland drill seeding, mulching, crimping, and daily per diem.
- **Miscellaneous Demolition Costs:** Miscellaneous unit costs were taken from R.S. Means Heavy Construction Cost Data Edition 26 (R.S. Means, 2014). All costs taken from R.S. Means were adjusted using the location factor for Las Cruces (84.7%).

Table A1 Takeoff Quantities

Item	Detail	Quantity	Units	Source	Comments
Disturbed Areas	CHR	91	acres	Figure A7R-A11R	Rip 18" depth and revegetate: 5 acres (3.2 miles X 12 ft wide, roughly) is left for post-closure monitoring access road
	CHR BLM Land	9	acres	Figure A7R-A11R	Rip 18" depth and revegetate
Grading	Pushdown outslopes	21,419	cy	Quantity Table A2	Fill outslope pushdown 2.5:1 with dozer Average pushdown distance, 47 feet
	Pullback outslopes with excavator and spread	28,322	cy	Quantity Table A2	Fill outslope pullback 2:1 to 2.5:1 with excavator and dozer, preserve culvert
	Pullback outslopes load, haul, and spread	27,862		Quantity Table A2	Fill outslope pullback 2:1 to 2.5:1 with loader, truck, and dozers, preserve culvert
	Pullback outslopes load, haul, and spread	67,453	cy	Quantity Table A2	Fill outslope pullback 1.5:1 to 2:1 with loader, truck, and dozers, preserve culvert
	Pushdown outslopes BLM Land	2,806	cy	Quantity Table A2	BLM Managed Land Fill outslope pushdown 2.5:1 with dozer Average pushdown distance, 47 feet
	Pullback outslopes load, haul, and spread BLM Land	8,125	cy	Quantity Table A2	BLM Managed Land Fill outslope pullback 2:1 to 2.5:1 with loader, truck, and dozers, preserve culvert
	Average Pullback Haul Path	2,640; 7%	feet; %	-	Assumes material is spread within a half mile of each pullback
	Grading CHR	91	acres	Figure A7R-A11R	Minor grading of CHR footprint
Fencing	Grading CHR BLM Land	9	acres	Figure A7R-A11R	Minor grading of CHR footprint
	Wildlife Friendly Livestock Fence	38,700	ft	-	Existing fence: replace half staples/clips, add flagging or other markers or other wildlife friendly modifications, and replace or crimp 2 of the 4 to 5 strands of barb wire.
Culvert Demolition	Culvert north of highway 152 crossing	883	ft	Figure A11R and Note I	42-inch corrugated metal pipe (includes a 63-foot long tee culvert as well). Salvage/recycle. Material surrounding the culvert is removed as part of Highway 152 crossing demolition and hauled to Chino as cover.
Hanover Creek and Forest Service Road Crossing Spanning Arch Demolition	Earth Fill Removal (dozer excavate, haul, spread)	5731	cy	Note I	Earth fill is about 60feet long and 30 feet deep over a 120 foot length of road minus a 30 foot diameter arch and a 10 foot diameter arch. Earth fill is hauled an average of 300 feet and spread over the haul road or other nearby area.
	Concrete Foundation and Arches	672	cy	Note 1	Concrete is excavated and hauled away on a truck. There are 4 footings, each with a cross sectional area of 22 ft2, 120' long span consisting of two arches side by side spanning USFS Road and Hanover Creek. The arches are 30 foot diameter and a 20 foot diameter, assuming 20" thick concete panels.
Other	Revegetation Maintenance	91	acres	-	The annual vegetation failure is conservatively estimated to be 2% failure every year for a total of 12 years, starting the year reclamation is completed.
	Revegetation Maintenance BLM Land	9	acres	-	The annual vegetation failure is conservatively estimated to be 2% failure every year for a total of 12 years, starting the year reclamation is completed.
	Erosion Control and Monitoring	-	-	-	6 days per year for the first year. 1 day per year for next 9 years.
	Water Truck During Reclamation	-	-	-	Assume there is a water truck running 1 hour twice a day when the dozers are running over an 8 hour work day.

¹ Engineers Inc., Chino/Cobre Hwy 152 and the USFS Road Crossing Grant County New Mexico revised 11/14/2014, Freeport-McMoRan Tyrone Inc.

Table A2 Outslope Regrading Quantity Development

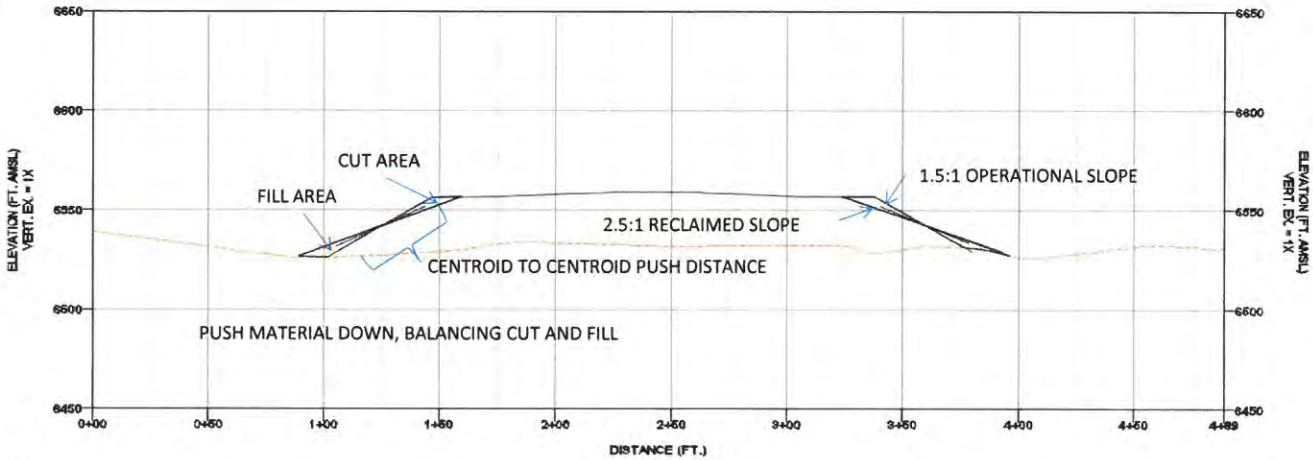
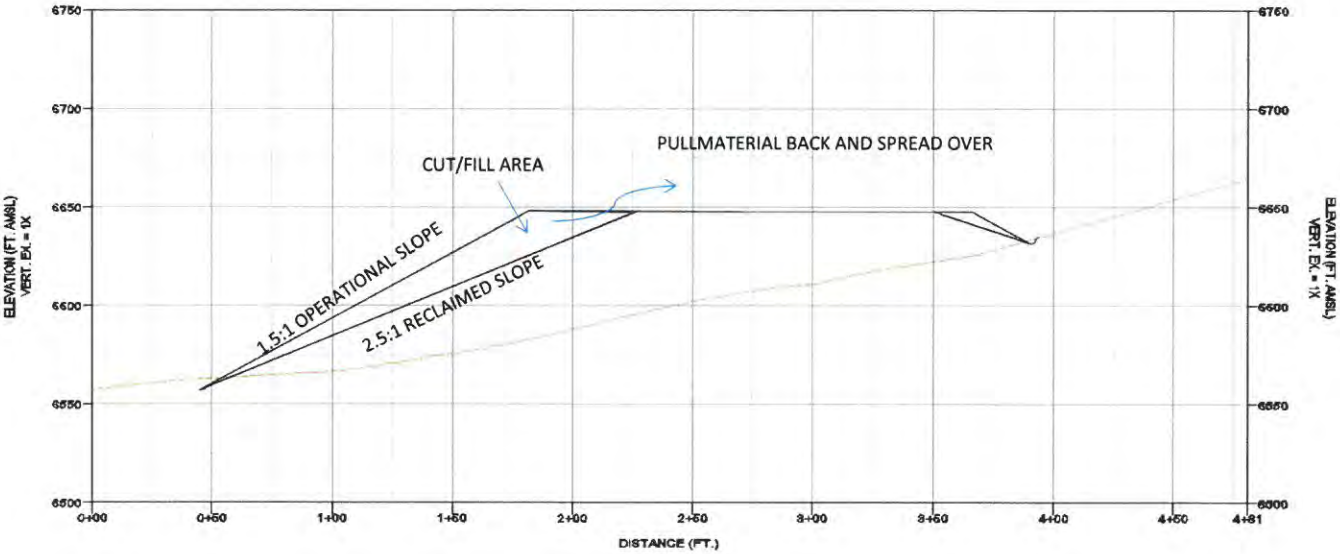
Source (moving from north to south along CHR)	Legend Description	Approximate Fill Slope Longitudinal Length (feet)	Operational Slope (H:V)	Assumed Reclaimed Slope (H:V) ¹	Near Culvert?	Average Cut/Fill Area (ft2/ft)	Swell (compacted road fill; %)	Approximate Total (cy)	Centroid to Centroid Pushdown Distance (feet)	Max Pre-Reclamation Slope Length (feet)	Can an Excavator reach? ²	Required Equipment
Figure A7R	Fill outslope pushdown 2.5:1	500	1.5:1	2.5:1	no	237	15	5,047	65	93	-	Dozer
Figure A7R	Fill outslope pullback 2:1 to 2.5:1 and preserve culvert	270	1.5:1	2.5:1	yes	320	15	3,680	-	47	yes	Excavator and Dozer
Figure A8R	Fill outslope pullback 2:1 to 2.5:1 and preserve culvert	450	1.5:1	2.5:1	yes	220	15	4,217	-	45	yes	Excavator and Dozer
Figure A8R	Fill outslope pushdown 2.5:1	1,265	1.5:1	2.5:1	no	34	15	1,832	25	30	-	Dozer
Figure A8R	Fill outslope pullback 2:1 to 2.5:1 and preserve culvert	440	1.5:1	2.5:1	yes	140	15	2,624	-	30	yes	Excavator and Dozer
Figure A9R	Fill outslope pushdown 2.5:1	1,110	1.5:1	2.5:1	no	122	15	5,768	50	54	-	Dozer
Figure A9R	Fill outslope pullback 2:1 to 2.5:1 and preserve culvert	599	1.5:1	2.5:1	yes	760	15	19,390	-	54	no	Loader, Truck, 2 Dozers
Figure A9R	BLM Managed Land Fill outslope pushdown 2.5:1	540	1.5:1	2.5:1	no	122	15	2,806	50	54	-	Dozer
Figure A9R	BLM Managed Land Fill outslope pullback 2:1 to 2.5:1 and preserve culvert	251	1.5:1	2.5:1	yes	760	15	8,125	-	54	no	Loader, Truck, 2 Dozers
Figure A9R	Fill outslope pullback 2:1 to 2.5:1 and preserve culvert	591	1.5:1	2.5:1	yes	120	15	3,021	-	30	yes	Excavator and Dozer
Figure A9R	Fill outslope pullback 1.5:1 to 2:1 and preserve culvert	784	1.5:1	2:1	yes	2020	15	67,453	-	164	no	Loader, Truck, 2 Dozers
Figure A10R	Fill outslope pushdown 2.5:1	390	1.5:1	2.5:1	no	165	15	2,741	55	66	-	Dozer
Figure A10R	Fill outslope pullback 2:1 to 2.5:1 and preserve culvert	480	1.5:1	2.5:1	yes	723	15	14,781	-	66	yes, most of fill slope is significantly less	Excavator and Dozer
Figure A11R ³	Fill outslope pushdown 2.5:1	1,770	1.5:1	2.5:1	no	80	15	6,031	42	75	-	Dozer
Figure A11R ³	Fill outslope pullback 2:1 to 2.5:1 and preserve culvert	510	1.5:1	2.5:1	yes	390	15	8,472	-	75	no	Loader, Truck, 2 Dozers

¹Assumed for cost estimate purposes. Reclaimed slope may be less depending on location and access as shown on the Figures.

²320DL max vertical reach about 20 ft, max horizontal reach about 30 feet depending on configuration (appx. average pg 4-51 Edition 41 cat handbook). Longer distances are still possible using construction benching and other techniques, assume an excavator can be used on slopes 50-feet or less.

³ A 774 ft2 area of this outslope is located on BLM Managed Lands, cost insignificant to BLM portion of the reclamation cost estimate.

Operation	Totals (cy)	Average Pushdown Distance (feet)
Fill outslope pushdown 2.5:1 with dozer	21,419	47
Fill outslope pullback 2:1 to 2.5:1 with excavator and dozer, preserve culvert	28322	
Fill outslope pullback 2:1 to 2.5:1 with loader, truck, and dozers, preserve culvert	27862	
Fill outslope pullback 1.5:1 to 2:1 with loader, truck, and dozers, preserve culvert	67453	
BLM Managed Land Fill outslope pushdown 2.5:1 with dozer	2806	
BLM Managed Land Fill outslope pullback 2:1 to 2.5:1 with loader, truck, and dozers, preserve culvert	8125	



Appendix B
Cost Estimate Worksheets, 1-19

General Information

Applicant	Cobre Mining Company Hanover, New Mexico 88401	
Disturbed Surface Area (acres)	100	
Type of Operation	Existing/Surface/Copper	
Current value	\$614,576	
		Cobre Haul Road

Facility and Structure Modification

Item	Activity	Quantity	Unit	Unit Cost (\$/unit)	Item Cost (\$)	Reference	Means Line Item	Means Page	Description
Corrugated Metal Culverts Removal	Culvert north of highway 152 crossing	883	ft	\$12.60	\$11,129	R.S. Means	024113.40-0190	30	Excludes excavation, CMP steel 48" to 60"
	Wildlife Friendly Livestock Fence Perimeter Modification	38,700	ft	\$0.24	\$9,351	Engineering Judgment	-	-	Replace half staples/clips, add flagging or other markers or other wildlife friendly modifications, and replace or crimp 2 of the 4 to 5 strands of barb wire. This updated estimate relies on quotes available from Albuquerque 2013 Barb wire fence average installation based on ProMatcher cost reports and University of Iowa Study on fencing costs, and no longer calculates separate overhead and profit (estimated at 28.3%), individual labor rate (\$25.34/ hr at 1 hour/100 feet of fence) or materials.

CHR

Facility and Structure Modification Total Direct Cost: \$20,480

Data Sources:

RS Means Heavy Construction Cost Data (28th Annual Edition 2014)

Location adjustment:

New Mexico Las Cruces

84.7%

Material Handling Plan Summary Sheet

Item	Description	Location 1	Location 2	Total Haul/Push Distance (ft)	Grade (%)	Equipment
1100	Pushdown Outslope	CHR Outsoles Pushdown 2.5:1	-	47	see dozer	D11T CD
1101	Pushdown Outslope	CHR Outsoles Pushdown 2.5:1 BLM Managed Land	-	47	see dozer	D11T CD
1102	Dozer Assist	CHR Outsoles Pullback with Excavator to 2.5:1	CHR Road Surface	-	see dozer	D11T CD
1103	Dozer Assist	CHR Outsoles Pullback to 2.5:1	1 dozer CHR Road Surface, 1 dozer CHR slope	-	see dozer	D11T CD
1104	Dozer Assist	CHR Outsoles Pullback to 2:1	1 dozer CHR Road Surface, 1 dozer CHR slope	-	see dozer	D11T CD
1105	Dozer Assist	CHR Outsoles Pullback to 2.5:1 BLM Managed Land	1 dozer CHR Road Surface, 1 dozer CHR slope	-	see dozer	D11T CD
1106	Dozer Assist	Hanover Creek and Forest Service Road Crossing Spanning Arch	1 dozer CHR Road Surface, 1 dozer CHR slope	-	see dozer	D11T CD
1200	Excavate/Pullback Material	CHR Outsoles Pullback with Excavator to 2.5:1	-	-	see dozer	D11T CD
1201	Excavate Fill	Hanover Creek and Forest Service Road Crossing Spanning Arch	-	-		320 DL
1202	Excavate Concrete	Hanover Creek and Forest Service Road Crossing Spanning Arch	-	-		320 DL
1300	Load pullback material	CHR Outsoles Pullback to 2.5:1	-	-		992K
1301	Load pullback material	CHR Outsoles Pullback to 2:1	-	-		992K
1302	Load pullback material	CHR Outsoles Pullback to 2.5:1 BLM Managed Land	-	-		992K
1400	Haul excavated soil	Hanover Creek and Forest Service Road Crossing Spanning Arch	CHR Road Surface	5,280	see Trucks	777F
1401	Haul concrete	Hanover Creek and Forest Service Road Crossing Spanning Arch	CHR Road Surface	5,280	see Trucks	777F
1402	Haul pullback material	CHR Outsoles Pullback to 2.5:1	CHR Road Surface	2,640	see Trucks	777F
1403	Haul pullback material	CHR Outsoles Pullback to 2:1	CHR Road Surface	2,640	see Trucks	777F
1404	Haul pullback material	CHR Outsoles Pullback to 2.5:1 BLM Managed Land	CHR Road Surface	2,640	see Trucks	777F
1500	Grade surface	CHR footprint	-	-		16M
1501	Grade surface	CHR footprint BLM Managed Land	-	-		16M
1600	Off-Hwy Water Tanker Truck					10,000 gal

Earthwork Quantity Worksheet

Cobre Haul Road
Worksheet #4
02/17/16

Item	Description	Location 1	Location 2	Area (ac)	Bank/stockpile Volume (bcy)	Swell Factor (%)	Loose/stockpile Volume (lcy)
1100 Pushdown Outslope	CHR Out slopes Pushdown 2.5:1	-	-		21,419	15%	24,632
1101 Pushdown Outslope	CHR Out slopes Pushdown 2.5:1 BLM Managed Land	-	-		2,806	15%	3,227
1102 Dozer Assist	CHR Out slopes Pullback with Excavator to 2.5:1	-	CHR Road Surface		28,322	15%	32,571
1103 Dozer Assist	CHR Out slopes Pullback to 2.5:1	-	1 dozer CHR Road Surface, 1 dozer CHR slope		27,862	15%	32,041
1104 Dozer Assist	CHR Out slopes Pullback to 2:1	-	1 dozer CHR Road Surface, 1 dozer CHR slope		67,453	15%	77,571
1105 Dozer Assist	CHR Out slopes Pullback to 2.5:1 BLM Managed Land	-	1 dozer CHR Road Surface, 1 dozer CHR slope		8,125	15%	9,344
1106 Dozer Assist	Hanover Creek and Forest Service Road Crossing Spanning Arch	-	1 dozer CHR Road Surface, 1 dozer CHR slope		5,731	15%	6,591
1200 Excavate/Pullback Material	CHR Out slopes Pullback with Excavator to 2.5:1	-	-		28,322	15%	32,571
1201 Excavate Fill	Hanover Creek and Forest Service Road Crossing Spanning Arch	-	-		5,731	15%	6,591
1202 Excavate Concrete	Hanover Creek and Forest Service Road Crossing Spanning Arch	-	-		672	60%	1,076
1300 Load pullback material	CHR Out slopes Pullback to 2.5:1	-	-		27,862	15%	32,041
1301 Load pullback material	CHR Out slopes Pullback to 2:1	-	-		67,453	15%	77,571
1302 Load pullback material	CHR Out slopes Pullback to 2.5:1 BLM Managed Land	-	-		8,125	15%	9,344
1400 Haul excavated soil	Hanover Creek and Forest Service Road Crossing Spanning Arch	-	CHR Road Surface		5,731	15%	6,591
1401 Haul concrete	Hanover Creek and Forest Service Road Crossing Spanning Arch	-	CHR Road Surface		672	60%	1,076
1402 Haul pullback material	CHR Out slopes Pullback to 2.5:1	-	CHR Road Surface		27,862	15%	32,041
1403 Haul pullback material	CHR Out slopes Pullback to 2:1	-	CHR Road Surface		67,453	15%	77,571
1404 Haul pullback material	CHR Out slopes Pullback to 2.5:1 BLM Managed Land	-	CHR Road Surface		8,125	15%	9,344
1500 Grade surface	CHR footprint	-	-	91			
1501 Grade surface	CHR footprint BLM Managed Land	-	-	9			
1600 Off-Hwy Water Tanker Truck							

Productivity and Hours Required for Dozer Use—Earthmoving

Task Description	Location 1	Location 2	Equipment	Loose Volume (cy)	Productivity (cy/hr)	Total Task Time* (hours)	PERFORMANCE FACTORS										Direct Drive Trans. Factor	Grade (%)
							Material Factor	Grade Factor	Soil Weight (lb/cy)	Production Method/ Blade Factor	Maximum Push Distance (feet)	Normal Production (cy/hr)	Operator Factor	Work Hour (min/hr)	Visibility Factor	Elevation Factor		
Pushdown Outslope	CHR Out slopes Pushdown 2.5:1	-	D11T CD	24.632	6.501	4	1.2	1.80	3,300	1.20	47	5758	0.75	50	1.00	1.00	1.00	-40.0
Pushdown Outslope	CHR Out slopes Pushdown 2.5:1 BLM Managed Land	-	D11T CD	3,227	6.501	0	1.2	1.80	3,300	1.20	47	5758	0.75	50	1.00	1.00	1.00	-40.0
Dozer Assist	CHR Out slopes Pullback with Excavator to 2.5:1	CHR Road Surface	D11T CD	32.571	1,846	18	1.2	0.98	3,300	1.20	100	3002	0.75	50	1.00	1.00	1.00	1.0
Dozer Assist	CHR Out slopes Pullback to 2.5:1	1 dozer CHR Road Surface, 1 dozer CHR slope	D11T CD	N/A	N/A	30	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer Assist	CHR Out slopes Pullback to 2:1	1 dozer CHR Road Surface, 1 dozer CHR slope	D11T CD	N/A	N/A	72	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer Assist	CHR Out slopes Pullback to 2.5:1 BLM Managed Land	1 dozer CHR Road Surface, 1 dozer CHR slope	D11T CD	N/A	N/A	9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer Assist	Hanover Creek and Forest Service Road Crossing Spanning Arch	1 dozer CHR Road Surface, 1 dozer CHR slope	D11T CD	6.591	1,846	4	1.2	0.98	3,300	1.20	100	3002	0.75	50	1.00	1.00	1.00	1.0

Productivity and Hours Required for Dozer Use—Grading

		PERFORMANCE FACTORS																				
Task Description	Location 1	Location 2	Equipment	Volume (cy)	Area (acres)	Productivity (acres/hr)	Productivity (cy/hr)	Task Time (hours)	Material	Grade Factor	Soil Weight (lb/cy)	Production Method/ Blade	Effective Blade Width (feet)	Speed (miles/hr)	Work Hour (min/hr)	Visibility	Elevation	Direct Drive Trans.	Grade (%)	Operator	Maximum Push Distance (feet)	Normal Production (cy/hr)
Grade surface	CHR footprint	-	16M	-	91	3.0		31	1.2	1.0	3,300	1.2	16	2.50	50	1	1	1	1.0	0.75	-	
Grade surface	CHR footprint BLM Managed Land	-	16M	-	9	3.0		3	1.2	1.0	3,300	1.2	16	2.50	50	1	1	1	1.0	0.75	-	

*Push distances: Assumed 100 feet.

***Productivity and Hours Required for
Ripper-Equipped Dozer Use***

**Note: Scarifying/Ripping Covered Areas Currently Included in Revegetation Costs
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Productivity and Hours Required for Hydraulic Excavator

Task Description	Location 1	Equipment	Volume (cy)	Net Bucket Capacity (cy)	Cycle Time* (min)	Productivity (cy/hr)	Task Time (hours)	PERFORMANCE FACTORS								Work Hour (min/hr)
								Heaped Bucket Capacity (cy)	Bucket Fill Factor	Soil Weight (lb/cy)	Load Bucket (min)	Swing Loaded (min)	Dump Bucket (min)	Swing Empty (min)	Efficiency Factor	
Excavate/Pullback Material	CHR Outcrops Pullback with Excavator to 2.5:1	320 DL	32.571	1.00	0.23	196	166	1.18	0.85	3,300	0.09	0.06	0.03	0.05	0.9	50
Excavate Fill	Hanover Creek and Forest Service Road Crossing Spanning Arch	320 DL	6.591	1.00	0.23	196	34	1.18	0.85	3,300	0.09	0.06	0.03	0.05	0.9	50
Excavate Concrete	Hanover Creek and Forest Service Road Crossing Spanning Arch	320 DL	1.076	1.00	0.25	181	6	1.18	0.85	4,050	0.11	0.06	0.03	0.05	0.9	50

*Sum of Load, Swing, Dump, Swing of Bucket

Productivity and Hours Required for Truck Use

Truck-Loader Matching
Truck Loading Height (empty), Cat 777F - 14'7"
Loader Dump Clearance, Cat 992G - 15'3"

					PERFORMANCE FACTORS																	
Task Description	Location 1*	Location 2	Equipment	Volume (cy)	Truck Cycle Time (min)	Optimum No. of Trucks	Productivity (cy/hr)	Task Time (hrs)	Struck Capacity (cy)	Heaped Capacity (cy)	Loader or Excavator Cycles per Truck	Total Haul Distance (feet)	Haul Distance Segment 1 (feet)	Haul Distance Segment 2 (feet)	Haul Distance Segment 3 (feet)	Haul Grade Segment 1 (%)	Haul Grade Segment 2 (%)	Haul Grade Segment 3 (%)	Rolling Resistance (%)	Haul Distance Segment 1 (meters)	Haul Distance Segment 2 (meters)	Haul Distance Segment 3 (meters)
Haul excavated soil	Hanover Creek and Forest Service Road Crossing Spanning Arch	CHR Road Surface	777F	6,591	28.2	1	139	48	54.6	78.6	78	5,280	5,280	-	-	7.0%	-	-	2.5%	1,609	0	0
Haul concrete	Hanover Creek and Forest Service Road Crossing Spanning Arch	CHR Road Surface	777F	1,076	29.8	1	131	8	54.6	78.6	78	5,280	5,280	-	-	7.0%	-	-	2.5%	1,609	0	0
Haul pullback material	CHR Out slopes Pullback to 2.5:1	CHR Road Surface	777F	32,041	9.3	3	1,132	30	54.6	78.6	5	2,640	2,640	-	-	7.0%	-	-	2.5%	805	0	0
Haul pullback material	CHR Out slopes Pullback to 2:1	CHR Road Surface	777F	77,571	9.3	3	1,132	72	54.6	78.6	5	2,640	2,640	-	-	7.0%	-	-	2.5%	805	0	0
Haul pullback material	CHR Out slopes Pullback to 2.5:1 BLM Managed Land	CHR Road Surface	777F	9,344	9.3	3	1,132	9	54.6	78.6	5	2,640	2,640	-	-	7.0%	-	-	2.5%	805	0	0

Productivity and Hours Required for Truck Use

Truck-Loader Matching
Truck Loading Height (empty), Cat 777F - 14'7"
Loader Dump Clearance, Cat 992G - 15'3"

Task Description	Location 1*	Location 2	Haul Effective Grade Segment 1 (%)	Haul Effective Grade Segment 2 (%)	Haul Effective Grade Segment 3 (%)	Return Effective Grade Segment 1 (%)	Return Effective Grade Segment 2 (%)	Return Effective Grade Segment 3 (%)	Haul Time (min)	Return Time (min)	Loading Time (min)	Load/ Maneuver Time (min)	Dump/ Maneuver Time (min)	Work Hour (min/hr)	Travel Time Loaded Segment 1 (min/m)	Travel Time Loaded Segment 2 (min/m)	Travel Time Loaded Segment 3 (min/m)	Travel Time Empty Segment 1 (min/m)	Travel Time Empty Segment 2 (min/m)	Travel Time Empty Segment 3 (min/m)
Haul excavated soil	Hanover Creek and Forest Service Road Crossing Spanning Arch	CHR Road Surface	10%	0%	0%	0%	0%	0%	7.0	1.4	17.9	0.7	1.1	50	0.00435	0.00090	0.00090	0.00090	0.00090	0.00090
Haul concrete	Hanover Creek and Forest Service Road Crossing Spanning Arch	CHR Road Surface	10%	0%	0%	0%	0%	0%	7.0	1.4	19.5	0.7	1.1	50	0.00435	0.00090	0.00090	0.00090	0.00090	0.00090
Haul pullback material	CHR Out slopes Pullback to 2.5:1	CHR Road Surface	10%	0%	0%	0%	0%	0%	3.5	0.7	3.3	0.7	1.1	50	0.00435	0.00090	0.00090	0.00090	0.00090	0.00090
Haul pullback material	CHR Out slopes Pullback to 2:1	CHR Road Surface	10%	0%	0%	0%	0%	0%	3.5	0.7	3.3	0.7	1.1	50	0.00435	0.00090	0.00090	0.00090	0.00090	0.00090
Haul pullback material	CHR Out slopes Pullback to 2.5:1 BLM Managed Land	CHR Road Surface	10%	0%	0%	0%	0%	0%	3.5	0.7	3.3	0.7	1.1	50	0.00435	0.00090	0.00090	0.00090	0.00090	0.00090

Productivity for Front End Loader

Task Description	Location 1	Location 2	Equipment	Volume (cy)	Net Bucket Capacity (cy)	Loader Cycle Time (min)	Productivity (cy/hr)	Task Time (hours)	PERFORMANCE FACTORS		
									Rated Bucket Capacity (cy)	Bucket Fill Factor	Work Hour (min/hr)
Load pullback material	CHR Out slopes Pullback to 2.5:1	-	992K	32,041	14	0.65	1,077	30	16	0.875	50
Load pullback material	CHR Out slopes Pullback to 2:1	-	992K	77,571	14	0.65	1,077	72	16	0.875	50
Load pullback material	CHR Out slopes Pullback to 2.5:1 BLM Managec-	-	992K	9,344	14	0.65	1,077	9	16	0.875	50

Productivity and Hours Required for Scraper Use

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Cobre Haul Road
Worksheet #11
02/17/16

Productivity and Hours Required for Motor grader Use---Grading

Cobre Haul Road
Worksheet #12
2/17/2016

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Summary Calculation of Earthmoving Costs

Equipment Type	Task	Location 1	Location 2	Owning and Operating Cost (\$/hr)	Labor Cost (\$/hr)	Number of Units (Equipment)	Time Req'd (hrs)	Direct Cost (\$)	Total Production	Prod. Unit	Unit Cost (\$/unit)
Dozers-Earthmoving											
D11T CD	Pushdown Outslope	CHR Outsoles Pushdown 2.5:1	-	\$509.12	\$47.58	1	4	\$2,109	24,632	cy	0.09
D11T CD	Pushdown Outslope	CHR Outsoles Pushdown 2.5:1 BLM Managed Land	-	\$509.12	\$47.58	1	0	\$276	3,227	cy	0.09
D11T CD	Dozer Assist	CHR Outsoles Pullback with Excavator to 2.5:1	CHR Road Surface	\$509.12	\$47.58	1	18	\$9,825	32,571	cy	0.30
D11T CD	Dozer Assist	CHR Outsoles Pullback to 2.5:1	1 dozer CHR Road Surafce, 1 dozer CHR slope	\$509.12	\$47.58	2	30	\$33,126	32,041	cy	1.03
D11T CD	Dozer Assist	CHR Outsoles Pullback to 2:1	1 dozer CHR Road Surafce, 1 dozer CHR slope	\$509.12	\$47.58	2	72	\$80,198	77,571	cy	1.03
D11T CD	Dozer Assist	CHR Outsoles Pullback to 2.5:1 BLM Managed Land	1 dozer CHR Road Surafce, 1 dozer CHR slope	\$509.12	\$47.58	2	9	\$9,660	9,344	cy	1.03
D11T CD	Dozer Assist	Hanover Creek and Forest Service Road Crossing Spanning Arch	1 dozer CHR Road Surafce, 1 dozer CHR slope	\$509.12	\$47.58	2	4	\$3,976	6,591	cy	0.60
Dozers-Grading											
16M	Grade surface	CHR footprint	-	\$509.12	\$47.58	1	30.5	\$16,997	Remove Earth Fill Hanover Creek		
16M	Grade surface	CHR footprint BLM Managed Land	-	\$509.12	\$47.58	1	3.0	\$1,681	91.0	ac	186.78
									9.0	ac	186.78
Excavators											
320 DL	Excavate/Pullback Material	CHR Outsoles Pullback with Excavator to 2.5:1	-	\$74.61	\$47.96	1	166	\$20,344	32,571	cy	0.62
320 DL	Excavate Fill	Hanover Creek and Forest Service Road Crossing Spanning Arch	-	\$74.61	\$47.96	1	34	\$4,117	6,591	cy	0.62
320 DL	Excavate Concrete	Hanover Creek and Forest Service Road Crossing Spanning Arch	-	\$74.61	\$47.96	1	6	\$730	1,076	cy	0.68
Loaders											
992K	Load pullback material	CHR Outsoles Pullback to 2.5:1	-	\$369.97	\$47.75	1	30	\$12,428	32,041	cy	0.39
992K	Load pullback material	CHR Outsoles Pullback to 2:1	-	\$369.97	\$47.75	1	72	\$30,088	77,571	cy	0.39
992K	Load pullback material	CHR Outsoles Pullback to 2.5:1 BLM Managed Land	-	\$369.97	\$47.75	1	9	\$3,624	9,344	cy	0.39
Trucks											
777F	Haul excavated soil	Hanover Creek and Forest Service Road Crossing Spanning Arch	CHR Road Surface	\$294.40	\$42.82	1	48	\$16,018	6,591	cy	2.43
777F	Haul concrete	Hanover Creek and Forest Service Road Crossing Spanning Arch	CHR Road Surface	\$294.40	\$42.82	1	8	\$2,759	1,076	cy	2.56
777F	Haul pullback material	CHR Outsoles Pullback to 2.5:1	CHR Road Surface	\$294.40	\$42.82	3	30	\$30,099	32,041	cy	0.94
777F	Haul pullback material	CHR Outsoles Pullback to 2:1	CHR Road Surface	\$294.40	\$42.82	3	72	\$72,870	77,571	cy	0.94
777F	Haul pullback material	CHR Outsoles Pullback to 2.5:1 BLM Managed Land	CHR Road Surface	\$294.40	\$42.82	3	9	\$8,777	9,344	cy	0.94
Water Truck and Grader											
Off-Hwy Wate Pushing down outsoles and grading surface				\$171.97	\$25.34	1	39	\$7,760			
Pushing down outsoles and grading surface BLM Managed Land				\$171.97	\$25.34	2	3	\$1,203			
*Assume there is a water truck running 1 hour twice a day when the dozers are running over an 8 hour work day.											
Hanover Creek and Forest Service Road Crossing Spanning Arch Demolition								\$27,600			
Regrade Outsoles								\$291,088			
Regrade Outsoles BLM Managed Land								\$22,338			
Grade Surface CHR								\$16,997			
Grade Surface CHR BLM Managed Land								\$1,681			
Water Truck								\$7,760			
Water Truck BLM Managed Land								\$1,203			
Earthwork Direct Cost								\$368,668			

EQUIPMENT	Equipment Description	Fuel	Fuel	Owning and	Fuel-	Reference
		Consumption	Cost	Operating Cost	Adjusted	
		(gal/hr)	(\$/hr)	(w/out fuel)	Own/Op	
				(\$/hr)	Cost	
					(\$/hr)	
	Cat D11T CD Bulldozer	29.8	\$95.65	\$413.47	\$509.12	1
	Cat 320DL Crawler Mounted Hydraulic Excavator	6.2	\$19.98	\$54.63	\$74.61	4
	Cat 777F Truck	18.8	\$60.31	\$234.09	\$294.40	1
	Cat 992K Loader	25.6	\$82.41	\$287.56	\$369.97	1
	Off-Hwy Water Tanker Truck, 10,000-gal.	15.3	\$49.33	\$122.64	\$171.97	1
FUEL						
	Oil Broker Quote			\$3.2150 per gallon		2
LABOR						
	Labor Description	NMDOL Type A	NMDOL Type A	Total		
		Operator Group	Operator Classification	Rate		
				(\$/hr)		
	Cat D11T CD Bulldozer	Equipment Operator IV	Bulldozer (mult. Units)	\$47.58		3
	Cat 320DL Crawler Mounted Hydraulic Excavator	Equipment Operator VIII	Bulldozer (mult. Units)	\$47.96		3
	Cat 777F Truck	Truck Driver III	Haul Truck	\$42.82		3
	Cat 992K Loader	Equipment Operator VI	Loader (over 10 cy)	\$47.75		3
	Off-Hwy Water Tanker Truck, 10,000-gal.	N/A	N/A	\$25.34		3

References

1. Equipment unit rates from EquipmentWatch Custom Cost Evaluator Version 6.15.0B (<http://www.equipmentwatch.com>). See attachments for rate development.

2. Western Refining Quote, Lordsburg NM (June 18, 2014).

3. Labor rates based on NM Department of Labor Type H (Heavy Engineering) labor rates. See attachments for rate development.

4. EquipmentWatch Version Version 6.9.3B. Penton Media, Inc (<http://www.equipmentwatch.com>). Revised Date: 2nd Half 2013 See attachments for rate development.

Revegetation Costs

Description:

Chiseling or ripping, scarifying, disking, rangeland drill seeding, mulching, crimping, mobilization.

Unit or Disturbance	(acres)	Unit Cost (\$/acre)	Direct Cost (\$)
CHR footprint	91	\$899	\$81,779
CHR footprint BLM Managed Land	9	\$899	\$8,088
Revegetation Direct Cost			\$89,867

*Rocky Mountain Reclamation Quote June, 18 2014, \$1153/acre minus 28.3% indirect costs. Quote includes cost for scarifying (ripping) surface.

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Reclamation Summary

Cobre Mining Company

Cobre Haul Road

			Current Value
DIRECT COSTS	Facility and Structure Modification		\$20,480
	Earthmoving		\$368,668
	Revegetation		\$89,867
	Other		\$0
	Subtotal, Direct Costs		\$479,015
INDIRECT COSTS¹	Mobilization and Demobilization	3.8%	\$18,202.56
	Contingencies	4.0%	\$19,161
	Engineering Redesign Fee	2.5%	\$11,975
	Contractor Profit and Overhead	15.0%	\$71,852
	Project Management Fee	3.0%	\$14,370
	State Procurement Cost	0.0%	\$0
	Indirect Percentage Sum =	28.3%	
	Subtotal, Indirect Costs		\$135,561

TOTAL COST **\$614,576**

Data Sources:

MMD. 1996. Closeout Plan Guidelines for Existing Mines, Mining Act Reclamation Bureau Mining and Minerals Division
New Mexico Energy, Minerals and Natural Resources Department. April 30, 1996.

OSM. 2000. U.S. Department of the Interior, Office of Surface Mining Reclamation and Enforcement
Handbook for Calculation of Reclamation Bond Amounts. April 5, 2000.

Notes:

1) Indirect costs are based on the guidance available from MMD (1996) and OSM (2000)

Vegetation Maintenance Costs

Cobre Haul Road
O&M Worksheet #17
2/17/2016

Activity	Total Area (acres)	# yrs veg Maint.	% loss per year	Quantity	Unit	Unit Cost* (\$/unit)	Item Cost (\$)
CHR footprint	91	12	2%	1.8	acres	\$935	\$20,423
CHR footprint BLM Managed Land	9.0	12	2%	0.2	acres	\$935	\$2,020

Veg Maintenance Total Direct Cost: \$22,443

*Rocky Mountain Reclamation Quote June, 18 2014, \$1153/acre minus 23.3% indirect costs.
Quote includes cost for scarifying (ripping) surface. \$ 935 (\$/acre)

Operations & Maintenance

EROSION CONTROL [1]

	Year 1	Years 2-11
Base:	\$5,723	\$5,723 \$/day
Time:	6	1 day/yr
Annual:	\$34,336	\$5,723 \$/yr

Year	Annual Current Cost (\$)
0	\$34,336
1	\$5,723
2	\$5,723
3	\$5,723
4	\$5,723
5	\$5,723
6	\$5,723
7	\$5,723
8	\$5,723
9	\$5,723
10	\$5,723
11	\$5,723
Total	\$97,285

[1] Erosion Control

Modified Crew B-13A (1 Labor Foreman, 2 laborers, 2 equip. operators (med.),
2 truck drivers (heavy), 1 crawler loader (4 cy), 2 dump trucks (8 cy, 220 HP)
RS Means Heavy Construction Cost Data (28th Annual Edition, 2014)

	#	\$/hour	\$/day
Labor Foreman (outside)	1	\$ 38.65	\$ 309.20
Laborers	2	\$ 36.65	\$ 586.40
Equipment Operators med.	2	\$ 48.90	\$ 782.40
Truck Drivers (heavy)	2	\$ 37.55	\$ 600.80
		\$/day	\$/day
Crawler Loader, 4 C.Y.	1	\$ 1,532.00	\$ 1,532.00
Dump Trucks, 8 C.Y., 220 H.P.	2	\$ 834.40	\$ 1,668.80

Subtotal	\$5,480 \$/day
	84.70% Location Adjustment
Total Direct Cost	\$4,641 \$/day
Indirect Cost Percentage	23.30%
Total Cost	\$5,723 \$/day

Operations and Maintenance Summary

Cobre Haul Road
O&M Summary Worksheet #19
2/17/2016

Cobre Mining Company

		Current
Cobre Haul Road		Value
DIRECT COSTS	Facility and Structure Removal	\$0
	Earthmoving	\$0
	Vegetation	\$0
	Other	\$101,344
	Subtotal, Direct Costs	\$101,000
INDIRECT COSTS¹	Mobilization and Demobilization	3.8% \$3,838
	Contingencies	4.0% \$4,040
	Engineering Redesign Fee	2.5% \$2,525
	Contractor Profit and Overhead	10.0% \$10,100
	Project Management Fee	3.0% \$3,030
	State Procurement Cost	0.0% \$0
	Indirect Percentage Sum =	23.3%
	Subtotal, Indirect Costs	\$24,000
TOTAL COST		\$125,000

Data Sources:

MMD. 1996. Closeout Plan Guidelines for Existing Mines, Mining Act Reclamation Bureau Mining and Minerals Division
New Mexico Energy, Minerals and Natural Resources Department. April 30, 1996.

OSM. 2000. U.S. Department of the Interior, Office of Surface Mining Reclamation and Enforcement
Handbook for Calculation of Reclamation Bond Amounts. April 5, 2000.

Notes:

- 1) Indirect costs are based on the guidance available from MMD (1996) and OSM (2000).