



January 31, 2024

Mr. Clint Chisler Mining Environmental Compliance Section New Mexico Environment Department 1190 S. St Francis Dr. Santa Fe, New Mexico 87505

RE: 2024 Erosion Mitigation Implementation Plan for JJ No.1 Mine, Permit N. Cl007RE, Cibola County, New Mexico

Dear Mr. Chisler,

On behalf of SOHIO Western Mining Company (SWMC) and Rio Tinto Closure, INTERA Incorporated (INTERA) is submitting one electronic copy of the DRAFT 2024 Erosion Mitigation Implementation Plan (Plan) for the JJ No.1 Mine (Site) for your review, consisting of draft drawings, Sheets 1 through 21, which depict existing topography and proposed erosion mitigation features for the Site. In 2011, SWMC submitted a Closeout/ Mitigation As-Built Report (As-Built Report) for the former JJ No.1 Mine (Site), also known as the L-Bar Mine (See Sheet 3), as proof of final closure of an existing mining operation, pursuant to the New Mexico Mining and Minerals Division (MMD) original Director's Order dated March 30, 2006 and Amended Director's Order dates May 29, 2009. MMD reviewed and approved the As-Built Report (July 2011), which included the following condition(s):

SWMC will inspect reclaimed lands for signs of erosion and mitigate significant erosion features to prevent further degradation of the Site. As specified in the SWPPP, Site visits will be conducted monthly for erosion monitoring purposes and will coincide with the revegetation monitoring Site visits. Additional inspections will occur at reclaimed areas after storm events of one-half inch or greater in any one-day period to look for evidence of erosion and/ or BMP damage. Inspections will continue until specific units are released per a Director's Order or under the New Mexico Mining Act. The erosion monitoring program will continue for 12 years or as long as required by MMD.

In 2022, INTERA and MMD met and reached concurrence on erosion mitigation measures for several reclaimed features at the Site. The 2022 memo summarized the proposed erosion mitigation features for identified areas at the Site, which were based on Site inspections completed in 2021 and 2022. Existing erosion control and BMP features, along with topography from 2011, are depicted in Sheets 4 – 9. Erosion mitigation was recommended and presented to MMD for the following reclamation areas: VS-4, VS-5, VS-6, VS-10, VS-11, VS-12, and Borrow Area (See Sheets 10-15). This approach was revised following Site inspections that showed more intense erosion at VS-10 / Borrow Area, warranting a more aggressive mitigation plan. In May 2023, INTERA conducted a LiDar survey of the VS-10 / Borrow Area. This survey provided updated topographical data and aerial imagery for analysis.

The most significant erosion present at the Site was around VS-10 and the Borrow Area. Severe gully erosion and channeling were present throughout the reclaimed areas. Based on the erosion observed, INTERA recommends repairs to mitigate the erosion, while attempting to minimize disturbance. INTERA is proposing three levels of mitigation action, relative to how aggressive in disturbance each phase is. The phases are described below:

- Phase I: Erosion mitigation repairs shall follow similar methods to those used historically in other reclamation areas. Haybales and wattles will be installed in designated areas that have experienced channel formation and severe gully erosion. Existing rock check dams will be bolstered. Reseeding of specified areas will be conducted utilizing drill seeding methods with a rock mulch pavement to ensure successful and long-term germination. The rock mulch pavement shall be installed with 0.5" to 2.5" graded rock and will be semi-permanent.
- Phase II: In addition to the reseeding method and berm repairs outlined in Phase I, Phase II will include the installation of a concrete erosion control blanket, such as the Flexa-Mat[®] 10NW UV-T exposed aggregate product, on the slope of the berm where channel formation is present. The berm will be back sloped and re-graded for the installation of the concrete erosion control blanket. Designated channels will have rock armoring installed to prevent further erosion and slow down flow leaving the reclamation area.
- **Phase III:** In addition to the mitigation actions outlined in Phases I and II, Phase III shall include the design and construction of a detention basin outside of the reclamation boundary, where flow paths terminate. A designed spillway shall be installed to direct flow to the detention basin, minimizing the potential for further erosion inside the reclamation areas.

Phases II and III require hydrologic calculations to move forward with implementation. INTERA selected the USDA TR-55 methodology to calculate the peak discharges, runoff, and unit peak discharges. This method estimates peak discharge and runoff for small watersheds using physical property data, precipitation and climate information, standard curve numbers, and travel time for different runoff patterns. The design inputs for TR-55 hydrologic calculations include: flow paths, channel width, depth, and slope measurements. Three flow paths were selected based on the above criteria and analyzed using various inputs for the channel and slope dimensions.

Sources for the hydrologic calculations included the physical properties of the watershed areas, observations made in the field of existing flow paths, vegetation inspection reports, and aerial imagery obtained by INTERA of VS-10 / Borrow Area. The VS-10 / Borrow Area boundaries for the watershed areas were drawn based on field observations, topographical data, and aerial imagery (See Sheets 16 – 18). The fence line of the reclamation area served as a boundary, as the areas outside of the reclamation/reference areas were not included in the MMD Permitted areas.

There are typically three distinct runoff patterns observed in watersheds: sheet flow, shallow concentrated flow, and channel flow. The TR-55 method for calculating peak discharge and runoff utilizes these three flow types to calculate travel time of flow paths for the total time of concentration (USDA, 1986). As confirmed by LiDar data, the lack of vegetation and steep topography in the northern portion of the area indicates that runoff occurs as sheet flow. Following this sheet flow runoff, visible rilling is present in the centralized area north of the existing constructed berm (See Sheet 16). Aerial imagery and site observations show that vegetation is more present in this area, which was factored into the hydrology calculations. Channel flow is categorized by erosion that is greater than 0.5 ft in



2024 Erosion Mitigation Plan for JJ No.1 Mine, Permit N. Cl007RE, Cibola County, New Mexico January 31, 2024 Page 2

depth for a flow path. Channel flow was identified in several locations throughout VS-10 and the Borrow Area.

Flow path lengths and slope values were determined using Civil3D, a subset of AutoCAD. The watershed area was drawn along with the flow paths, and those quantities were then used to calculate peak discharge and runoff using the TR-55 method. Three identified flow paths (See Sheet 16) were selected to represent runoff in different areas of VS-10 and the Borrow Area. A flow path following along the western perimeter of the reclamation area (west) has localized erosion (rilling, gully erosion, channel formation) that travels from the top of the of the fence line (approximately 6,320 ft NAVD88), around the constructed berm, down to the bottom of the fence line (approximately 6,228 ft NAVD88). The area was originally designed to act as a natural spillway for runoff. The second flow path located in the middle of VS-10 / Borrow Area (central) was selected to calculate runoff and peak discharge at the top of the constructed berm. The last flow path is located along the eastern perimeter of the reclamation area (east). The flow path was selected to determine runoff and peak discharge that is leaving the reclamation area, as there are several erosion features observed just outside of the fence line that are a result of runoff occurring inside the reclamation area.

Standard, or literature values are included in the TR-55 manual for precipitation and curve numbers. Climate data for the Site for the past ten years was compared to the literature values available. Precipitation data was identified using the NOAA Atlas 14 Map (NOAA, 2011) for precipitation frequency estimates. The calculations were run using the 24-hr duration storm, for the 2-, 10-, 25-, 50-, 100-, and 200-year storms for a range of peak discharge and runoff. The curve number was selected using available soil and vegetation data. The TR-55 manual (USDA, 1986) has several methods of selecting the curve number. Using Table 2-2d in the TR-55 manual, the curve can be determined based on the amount and type of vegetation, as well as the hydrologic soil group.

A calculation set that includes the table of inputs for determining the peak discharge and runoff for VS-10 / Borrow Area will be included following approval of this phased approach by MMD. These input values and subsequent output ranges were reviewed by Principal Geotechnical Engineer, Larry M. Coons, PE, PHg, DGE, DEE, of Lawrence Earth Engineering and are within expected ranges for similar sites. Based on the calculations described above, the peak discharge ranges from 3.5 - 7.6 cubic feet per second (cfs). Runoff for all flow paths was 0.84 inches. Unit peak discharge, which provides the peak discharge as a function of surface area and runoff volume, ranged from 352 cfs/mi2-inch to 893 cfs/mi2inch. These values will be used to size runoff control features such as berm height, channel widths, and spillway dimensions.

References:

National Oceanic and Atmospheric Administration (NOAA). U.S. Department of Commerce. National Weather Service. NOAA Atlas 14 – Precipitation Frequency Atlas of the United States - Volume 1 Version 5.0: Semiarid Southwest (Arizona, Southeast California, Nevada, New Mexico. Revised 2011. https://hdsc.nws.noaa.gov/pfds/pfds_map_cont.html?bkmrk=nm Assessed November 1, 2023.

United States Department of Agriculture (USDA). Natural Resources Conservation Services. 1986. Urban Hydrology for Small Watersheds – Technical Release-55. June. https://www.hydrocad.net/pdf/TR-55%20Manual.pdf Accessed December 1, 2023.



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Sincerely, INTERA Incorporated

Ashley Arrossa, PE Project Manager/Engineer

Enclosure: Erosion Mitigation Sheet Set (1 – 21)

Copy: Jeff Lachowski, Rio Tinto Closure (Electronic)



EROSION MITIGATION JJ NO.1 / L-BAR MINE

PREPARED FOR NEW MEXICO MINING AND MINERALS DIVISION

JANUARY 2024

SHEET INDEX:

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| 2 | GENERAL NOTES |
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| 5 | VS-5 EXISTING SITE CONDITIONS AND TOPOGRAPHY |
| 6 | VS-6 EXISTING SITE CONDITIONS AND TOPOGRAPHY |
| 7 | VS-11 EXISTING SITE CONDITIONS AND TOPOGRAPHY |
| 8 | VS-12 EXISTING SITE CONDITIONS AND TOPOGRAPHY |
| 9 | STOCKPILE EXISTING SITE CONDITIONS AND TOPOGRAPHY |
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| 11 | VS-5 EROSION MITIGATION PLAN |
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| Date: 1/29/2024 | | |
|--|-----------------------|---------|
| Ref: KENCO.C005.LBAR | COVER SHEET AND INDEX | |
| File: L-Bar_PostRecTopo_EXISTING_DRAFT_1-29-24.dwg | | |
| | LI No. 1 / L-Bar Mine | SHEET 1 |

- SPATIAL DATA REFERENCING: EXISTING TOPOGRAPHY ON SHEETS 03 THROUGH 09 INCLUDES CONTOURS DEVELOPED BY BOHANNON HUSTON, INC. (BHI), FROM DATA COLLECTED ON NOVEMBER 10, 2010. FURTHER SPATIAL REFERENCE INFORMATION AVAILABLE UPON REQUEST. EXISTING TOPOGRAPHY ON SHEET 16 WAS DEVELOPED BY INTERA, INCORPORATED (INTERA) FROM DATA COLLECTED WITH AN UNMANNED AERIAL VEHICLE (UAV) ON MAY 25, 2023. LIDAR DATA WAS COMPILED AND PROCESSED WITHOUT GROUND CONTROL. BASE MAP IMAGERY ON SHEETS 10 THROUGH 15 AND 17 INCLUDE 2022 NAIP IMAGERY NAD83 NEW MEXICO WEST (FEET).
- 2. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL REQUIRED CONSTRUCTION PERMITS PRIOR TO START OF CONSTRUCTION.
- 3. ALL WORK ON THIS PROJECT SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE, AND LOCAL LAWS, RULES AND REGULATIONS CONCERNING CONSTRUCTION SAFETY AND HEALTH.
- 4. THE CONTRACTOR SHALL NOT PROCEED WITH CONSTRUCTION AS SHOWN ON THE PLANS WHEN IT IS OBVIOUS THAT FIELD CONDITIONS ARE DIFFERENT THAN SHOWN IN THE DESIGN. SUCH CONDITIONS SHOULD BE BROUGHT TO THE ATTENTION OF THE ENGINEER. IN THE EVENT THE CONTRACTOR DOES NOT NOTIFY THE ENGINEER, THE CONTRACTOR ASSUMES FULL RESPONSIBILITY AND EXPENSE FOR ANY NECESSARY REVISIONS.
- 5. ALL FEATURES SHALL BE CONSTRUCTED IN MATERIAL CONFORMANCE TO THE DRAWINGS - ANY VARIATION FROM THE APPROVED DESIGN SHALL BE MADE ONLY AFTER DOCUMENTED APPROVAL FROM THE ENGINEER.
- 6. AT THE END OF EACH WORK DAY, THE CONTRACTOR SHALL CLEAN AND PICK UP THE WORK AREA. AT NO TIME SHALL THE WORK BE LEFT IN A MANNER THAT COULD ENDANGER WORKERS, LIVESTOCK, WILDLIFE, OR THE PUBLIC.
- 7. ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO PROJECT PLANS, AS AMENDED AND REVISED BY THE ENGINEER. ALL DETAILS SHOULD BE CONSIDERED APPROXIMATE OF ACTUAL CONDITIONS, AND MAY BE CHANGED TO BETTER FIT THE ACTUAL CONDITIONS UPON THE DIRECTION BY THE ENGINEER.
- 8. EROSION MITIGATION HAS BEEN DESIGNED TO MINIMIZE DISTURBANCE TO EXISTING SITE. THE CONTRACTOR IS RESPONSIBLE FOR REPAIR OF EXCESSIVELY DISTURBED OR DESTROYED EXISTING AND ESTABLISHED VEGETATION. THE CONTRACTOR SHALL ALSO EMPLOY MEANS AND METHODS OF CONSTRUCTION SO THAT THE EXISTING SITE FEATURES ARE MINIMALLY DISTURBED AND THE SITE MAINTAINS THE MATURE LOOK OF THE EXISTING SITE FEATURES.

- 9. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE FOR SAFE WORKING CONDITIONS IN CONFORMANCE WITH OSHA REQUIREMENTS.
- 10. IN EXECUTION OF CONSTRUCTION, CONTRACTOR AND ANY SUBCONTRACTORS SHALL BE DILIGENT IN MAINTAINING ESTABLISHED VEGETATION AT THE SITE. AND SHALL NOT EXCAVATE, CLEAR, GRUB, OR OTHERWISE DISTURB AREAS THAT ARE NOT THE IMMEDIATE FOCUS OF THIS CONSTRUCTION PLAN. CONTRACTOR SHALL BE RESPONSIBLE FOR RECLAMATION (RE-SEEDING) OF ANY AREAS DEEMED BY OWNER AND/OR ENGINEER TO BE EXCESSIVELY BY THE CONTRACTOR DISTURBED DURING CONSTRUCTION.
- 11. THE CONTRACTOR SHALL IN NO WAY DISTURB OR ALTER ANY WATER COURSE ON OR ADJOINING THE JOB SITE EXCEPT AS NOTED IN THE DRAWINGS.
- 12. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING THE CONDITION OF ALL ACCESS ROADS DURING CONSTRUCTION AND ANY DAMAGE MUST BE REPAIRED WHEN CONSTRUCTION IS COMPLETED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE CLIENT.
- 13. THE CONTRACTOR SHALL NOT ALLOW ANY LITTER, CONSTRUCTION DEBRIS, OR POLLUTANTS TO ENTER ANY WATER COURSE ON THE JOB SITE.
- 14. MINE RECLAMATION AREAS ARE OPEN TO THE PUBLIC. THE CONTRACTOR IS RESPONSIBLE FOR THE SECURITY OF EQUIPMENT AND MATERIALS AND THE PROPERTY OWNER, INTERA INC., AND RIO TINTO SHALL NOT BE HELD LIABLE FOR THEFT OF VANDALISM.N5. NO POTABLE WATER IS AVAILABLE ON SITE. ANY WATER NEEDED FOR CONSTRUCTION PURPOSES SHALL ΒE PROVIDED/IMPORTED BY THE CONTRACTOR.Ñ6. THE PROVIDE CONTRACTOR SHALL AND MAINTAIN SANITATION FACILITIES FOR EMPLOYEES AND INTERA PERSONNEL FOR THE DURATION OF THE WORK IN ACCORDANCE WITH 29 CFR 1910.141(A).Ñ7. MITIGATION FEATURES SHOWN ON SITE PLANS ARE INDICATIVE OF LOCATION OF THE FEATURE(S) AND MAY NOT BE SHOWN TO SCALE.

DETAIL CALLOUTS



| SIARON RadCADIVS Bid Design/L Bar PostRecTopo E | | |
|--|-----------------------|---------|
| | JJ No. 1 / L-Bar Mine | SHEET 2 |
| File: L-Bar_PostRecTopo_EXISTING_DRAFT_1-29-24.dwg | | |
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| FENCE LINE / RECL | AMATION BOUNDARY | |
|---|-----------------------|----------|
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| | EROSION MITIGATION | |
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| | JJ No. 1 / L-Bar Mine | SHEET 13 |

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 SHEET:

 KENCO.C005.LBAR Task 4.a
 16

BORROW AREA & VS-10 DRAFT

LEGEND

| | LIDAR BOUNDARY |
|-----------|--------------------------------------|
| \approx | CONTOUR INTERVAL (2 FOOT) |
| | FENCE LINE / RECLAMATION BOUNDARY |
| | WATTLES |
| | ROAD |
| | BERM |
| \vdash | CHECK DAM |
| 0 | ROCK ARMOR/RIP RAP |
| | RECLAIMED VENT SHAFT |
| | FENCED / UNFENCED REFERENCE AREA |
| | SCALE |
| | |
| > | 0 125 250 FEET |
| REVISIONS | BY ENGINEER SEAL |
| | |
| | |
| | DATE: |



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 PROJECT NO:
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 KENCO.C005.LBAR Task 4.a
 17

LEGEND

| | LIDAR BOUNDARY |
|----------------|--|
| $\hat{\gamma}$ | CONTOUR INTERVAL (2 FOOT) |
| | FENCE LINE / RECLAMATION BOUNDARY |
| | WATERSHED AREA |
| | WATERSHED AREA - SHEET FLOW |
| | WATER SHED AREA - SHALLOW CONCENTRATED FLOW |
| | ROAD |
| | PRIMARY FLOW PATHS |
| | EXISTING RUNOFF CONTROL BERM |
| | EXISTING WATTLES |
| \vdash | EXISTING ROCK CHECK DAM |
| () | EXISTING ROCK ARMORING/RIPRAP |
| | PROPOSED CHANNEL LENGTH |
| | SCALE 0 125 250 FEET |
| | S BY ENGINEER SEAL |
| | |

DATE:



LEGEND

LIDAR BOUNDARY **FLOW PATHS** PROPOSED CONTOUR INTERVAL (2 FOOT) CHANNEL LENGTH FENCE LINE / RECLAMATION WATERSHED BOUNDARY AREA WATERSHED WATTLES **AREA -SHEET** ROAD FLOW BERM WATERSHED **AREA-SHALLOW RIP RAP** CONCENTRATED FLOW CHECK DAM **RECLAIMED VENT** SHAFT FENCED / UNFENCED **REFERENCE AREA** SEEDING CONCRETE EROSION CONTROL BLANKET SCALE 125 FEET 250 REVISIONS

DATE:

DESIGN

BMP - SEEDING MIXTURE

(1)

| <u>No.</u> | <u>Obs.</u> <u>On</u> <u>Site</u> | <u>Salt</u> <u>Tolerance</u> | <u>Common Name</u> | Scientific Nomenclature | <u>PLS/lb.**</u> | <u>Recomd.</u> PLS Ibs/ac | PLS / ft ² | <u>% of Seeds in Mix</u> |
|------------|---|---------------------------------|--------------------------|---------------------------|------------------|------------------------------|-----------------------|--------------------------|
| 1 | ХХ | Mod | Western wheatgrass | Agropyron smithii | 110,000 | 3.00 | 7.6 | 2.5% |
| 2 | ХХ | Low | Sideoats Grama | Bouteloua curtipendula | 191,000 | 0.50 | 2.2 | 0.7% |
| 3 | ХХ | Mod | Blue Grama | Bouteloua gracilis | 825,000 | 0.50 | 9.5 | 3.1% |
| 4 | ХХ | High | Galleta | Hiliaria jamesii | 159,000 | 5.00 | 18.3 | 5.9% |
| 5 | | Low | Indian Ricegrass | Oryzopsis hymenoides | 141,000 | 1.00 | 3.2 | 1.1% |
| 6 | | Mod | Bottlebrush Squirreltail | Sitanion hystrix | 192,000 | 1.00 | 4.4 | 1.4% |
| 7 | ХХ | High | Alkali Sacaton | Sporobolus airoides | 1,758,000 | 2.00 | 80.7 | 26.3% |
| 8 | ХХ | High | Sand Dropseed | Sporobolus cryptandrus | 5,298,000 | 1.00 | 121.6 | 39.6% |
| | | | | Grasses Subtotal | | 14.00 | 247.5 | 80.6% |
| 9 | | Low | Lewis Flax | Linum lewisii | 293,000 | 1.00 | 6.7 | 2.2% |
| 10 | | Mod | Mexican Poppy | Eschscholtzia californica | 850,000 | 0.05 | 1.0 | 0.3% |
| 11 | | Mod | Desert Globemallow | Sphaeralcea ambigua | 500,000 | 1.00 | 11.5 | 3.7% |
| | | | | Forbs Subtotal | | 2.05 | 19.2 | 6.2% |
| 12 | | Low | Wyoming Big Sagebrush | Artemisia tridentata wyo. | 2,500,000 | 0.25 | 14.3 | 4.7% |
| 13 | ХХ | High | Fourwing Saltbush | Atriplex canes cens | 52,000 | 3.00 | 3.6 | 1.2% |
| 14 | | High | Shadscale | Atriplex confertifolia | 64,900 | 1.00 | 1.5 | 0.5% |
| 15 | ХХ | Mod | Winterfat | Ceratoides lanata | 56,700 | 2.00 | 2.6 | 0.8% |
| 16 | XX | Mod | Rubber Rabbitbrush | Chrysothamnus naseousus | 400,000 | 2.00 | 18.4 | 6.0% |
| | | | | Shrubs Subtotal | | 8.25 | 40.4 | 13.2% |
| | | | | Total | | 24.30 | 307.0 | |

BMP - HAYBALE INSTALLATION

DEEP CHANNEL RILLING OBSERVED IN DESIGNATED AREAS. 10 HAYBALES WILL BE ADDED TO EACH CHANNEL. EACH BALE SHOULD BE AT LEAST 14" WIDE, 18" HIGH, AND 30 " LONG, WITH A MINIMUM MASS OF 30 LBS. THE STRAW BALE SHOULD CONSIST ENTIRELY OF VEGETATION EXCEPT FOR THE BINDING MATERIAL. STEEL WIRE, NYLON, OR POLYPROPYLENE STRING SHOULD BIND THE BALES.BAILING WIRE SHOULD BE AT LEAST 14 GAUGES IN DIAMETER, WHILE NYLON OR POLYPROPYLENE STRING SHOULD HAVE AN APPROXIMATELY 12-GAUGE DIAMETER WITH A BREAKING STRENGTH OF 80 LBS OF FORCE. INSTALLATION SHALL HAVE INTRENCHING OF HAYBALES APPROXIMATELY 4" TO 6" INTO A PERVIOUS GROUND SURFACE. WOOD STAKES SHALL BE USED TO SECURE HAYBALES IN PLACE. STAKE MATERIAL SHALL BE COMMERCIAL-QUALITY LUMBER THAT IS FREE OF DECAY, SPLITS, OR CRACKS LONGER THAN THE THICKNESS OF THE STAKE OR OTHER DEFECTS THAT WOULD RENDER IT STRUCTURALLY UNSUITABLE.

3 CONCRETE EROSION CONTROL MAT

GILL AND RILLING EROSION OBSERVED IN WATER PATHWAYS. *FLEXAMAT* CONCRETE EROSION CONTROL MAT SHALL BE INSTALLED IN DESIGNATED AREAS WHERE EXISTING RIPRAP IS LOCATED. ALL SUBGRADE SURFACES PREPARED FOR PLACEMENT OF MAT SHALL BE SMOOTH AND FREE OF ALL ROCKS, STICKS, ROOTS, AND OTHER PROTRUSIONS, OR DEBRIS, OF ANY KIND. INSTALLATION SHALL EXTEND THE MAT PAST THE CREST OF THE SLOPE AND INTO A 18" ANCHOR TRENCH. BACKFILL WITH COHESIVE SOILS. INSTALLATION OF ADJACENT BLANKET SHALL BE OVER THE GEOGRID GEOTEXTILE EXTENSIONS. ABUTMENT SEAMS SHALL BE SECURED IN 2' INCREMENTS USING STAINLESS STEEL ZIP TIES. ZIP TIES SHALL ENCOMPASS 3 CORDS OF GRID OF EACH MAT.

Date: 1/3/2024

(2)

Ref: KENCO.C005.LBAR

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EROSION MITIGATION DETAILS AND KEYED NOTES

JJ No. 1 / L-Bar Mine

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4) BMP - WATTLE INSTALLATION

RILLING AND GULLY CHANNEL FORMATION OBSERVED ALONG SLOPES. EACH WATTLE SHOULD BE AT LEAST 8" IN DIAMETER AND BOUND AT EACH END AND EVERY 4' ALONG THE LENGTH OF THE ROLL WITH JUTE-TYPE TWINE. INSTALLATION SHALL BE ALONG THE CONTOUR OF THE SLOPE, PERPINDICULAR TO THE DIRECTION OF FLOW. THE ENDS OF EACH ROLL SHALL BE TURNED UPSLOPE. INSTALLATION OF WATTLES SHALL BE PLACED IN TRENCHES AT LEAST 2" DEEP. ROLLS SHALL BE STAKED INTO THE GROUND USING WOOD STAKES (AT LEAST $\frac{3}{4}$ " THICK. STAKES SHALL BE DRIVEN THROUGH THE MIDDLE OF THE WATTLE AND DEEP ENOUGH INTO THE GROUND TO ANCHOR THE ROLL IN PLACE. STAKES SHOULD EXTEND AT LEAST 12" BELOW THE GROUND SURFACE.



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BMP - MATTING / ROCK MULCH INSTALLATION

SECTION DETAILING MATTING INFO OR ROCK MULCH SPECS. SEE BMP FOR LANGUAGE FOR INSTALLATION SPECIFICS.

BMP - ROCK CHECK DAM BOLSTERING

SEVERAL OBSERVED FLOW PATHS TRAVEL ACROSS EXISTING ROCK CHECK DAMS. EXISTING ROCK ON SITE WILL BE UTILIZED TO BOLSTER DESIGNATED CHECK DAM AREAS. THE CENTER OF THE CHECK DAM SHALL NOT BE MORE THAN 24 INCHES HIGH AND SHOULD BE AT LEAST 6 INCHES LOWER THAN THE CHECK DAM EDGES.

BMP - BERM REPAIRS

GILL AND RILLING EROSION OBSERVED IN WATER PATHWAYS AND THROUGHOUT EXISTING BERMS. BERMS WITH DISTINCT CHANNELS WILL BE HAND REPAIRED WITH SOIL SOURCED FROM [SOURCE].

MATERIAL QUANTITIES:

| 2023 | | | | | | | | |
|----------------|----------------|--------------|--------------|--------------|--------------|----------|------------|-------------|
| | | | Erosion | Mitigation F | eature/BMP I | tem | | |
| | | | Concrete | | | | | |
| | | | Erosion | | | Rock | Haybales | |
| | | | Control | Check | Berm Repair | Armoring | (Assume 10 | |
| Reclaimed Area | Reseeding (sf) | Matting (sf) | Blanket (sf) | Dam (sf) | (lf) | (sf) | each) | Wattle (ft) |
| VS-2 | - | - | r | - | - | - | - | - |
| VS-3 | - | - | - | - | - | - | - | - |
| VS-4 | 4575.63 | - | - | 283.5 | - | 1130.74 | Yes | 225 |
| VS-5 | 15130.45 | 15130.451 | - | - | - | - | - | 401 |
| VS-6 | 8382.26 | 1928 | - | 80.99 | - | 1874.55 | - | 664 |
| VS-7 | - | | - | | - | - | - | - |
| VS-9 | | | - | | - | - | - | - |
| VS-10 | 9791.11 | - | 5983.20 | 510 | 114 | 265 | Yes | 538 |
| VS-11 | - | - | - | - | - | - | - | 189 |
| VS-12 | 1100.86 | 5375.243 | - | 73.58 | 242.22 | 444.45 | Yes | 224 |
| Borrow Area | 35493.58 | - | - | - | - | | Yes | 377 |
| Stockpile | 22376.67 | 22376.672 | - | - | - | - | Yes | - |
| Totals | 96851 | 44810 | 5983 | 948 | 356 | 3715 | 50 | 2618 |

Date: 1/29/2024

Ref: KENCO.C005.LBAR

File: L-Bar_PostRecTopo_Fi_PROPOSED_DRAFT.dwg

EROSION MITIGATION DETAILS AND KEYED NOTES

JJ No. 1 / L-Bar Mine

SHEET 20

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SHEET TO CONTAIN DETAILS FOR EROSION MITIGATION FEATURES AND SPECS FOR VS-10 & BORROW AREA PENDING PLAN APPROVAL.

WILL CONTAIN FLOW PATH LENGTHS, PEAK DISCHARGE, RUNOFF, AND SLOPES FOR DESIGN SPECS.

| INTERA Inc. | |
|-------------------------|--|
| 2440 Louisiana Blv., NE | |
| Suite 700 | |
| Albuquerque, NM 87110 | |

KENCO.C005.LBAR Task 4.a

PROJECT NO

S\ABQ\I_Bar\CAD\VS-10 Borrow Area Bid Design\BA VS-10 Surface DRAFT 1-29 dwg



SHEET

21

VS-10 / BORROW AREA DETAILS

JJ No. 1 L-Bar Mine

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| | |

DESIGNED

DRAWN BY

CHECKED BY

LEGEND

LIDAR BOUNDARY CONTOUR INTERVAL 🗸 (2 FOOT) FENCE LINE / RECLAMATION BOUNDARY WATTLES ROAD BERM **RIP RAP** ++ CHECK DAM RECLAIMED VENT SHAFT FENCED / UNFENCED REFERENCE AREA SEEDING CONCRETE EROSION CONTROL BLANKET SCALE FEET

DATE:

DESIGN