June 25, 2024

Mr. Joel Renfro
Division of Reclamation, Mining and Safety
1313 Sherman Street, Room 215
Denver, CO 80203

Re: Thunderbird Sand and Gravel, File No. M-2023-032,
Response to Adequacy Review No. 2

Dear Mr. Renfro:

Martin Marietta Materials Inc., received a copy of the Division of Reclamation, Mining and Safety's ("DRMS") Adequacy Review No. 2 of the 112 construction materials reclamation permit application for Thunderbird Sand and Gravel, permit M-2023-032, dated May 28, 2024. Please see the following responses, and the referenced supporting documentation.

Rule 6.4 Specific Exhibit Requirements – 112c Reclamation Operation

Rule 6.4.3 Exhibit C – Pre-mining and Mining Plan Map(s) of Affected Lands

1. Exhibit C-1, C-2, and F-1 maps should clearly indicate the proposed permit boundary. The legend displays a thick dashed line to represent the permit boundary, but this line is not utilized on the maps.

   Response: In the attached revised Exhibits C-1, C-2 and F-1, the dashed line in the legend and on the maps indicating the proposed permit boundary are now consistent.

Exhibit C2 Map:

2. The map indicates screening berms as "Overburden or Topsoil," but stockpiles must be assigned as one or the other. Please designate separate overburden and topsoil stockpiles on the map.

   Response: Overburden and topsoil are now designated on the attached revised Exhibit C-2 Map.

3. Exhibit D under "Processing", describes pipelines that will move water from Thunderbird Lake to siltation ponds and back into Thunderbird Lake. The location of these pipelines need to be shown on the Mining Plan Map.

   Response: Approximate pipeline locations are shown on the revised Exhibit C-2. It is anticipated that the location of these pipelines will change as mining and siltation operations change during the life

of the mine. It should be noted the pipelines used are typically temporary HDPE pipe that is easily moved and will be removed upon completion of mining.

4. Please identify dewatering discharge points indicated in Exhibit G section (c) on to the Mining Plan Map.

   Response: Approximate discharge points are shown on the revised Exhibit C-2.

5. Product stockpiles are proposed near the plant area within the proposed Phase 3 area. Is this the only location where the product will be stored?

   Response: In addition to the Phase 3 area, product stockpiles may be stored in mined areas of Phase 2 and in the northwest area (north of the Excelsior Ditch), as shown on the revised Exhibit C-2

6. Please indicate on the map where processing fines will be stored.

   Response: The processing fines will be stored in the Phase 1a and 1b siltation ponds. At times it is anticipated that the siltation ponds will need to be cleared. Cleared silt from the siltation ponds will be placed with site overburden stockpiles. Such mixtures of silt and overburden will be used in reclamation as backfill or sold if there is an excess of overburden.

7. Please commit to providing the Division with a copy of the discharge permit once obtained from CDPHE, Water Quality Control Division.

   Response: Martin Marietta will provide the Division copies of all discharge permits obtained from the CDPHE.

8. Please indicate the approximate location(s) of the "series of siltation ponds" proposed to occur within the processing area per Exhibit D.

   Response: The siltation ponds are located in Phases 1a and 1b as shown on Exhibit C-2.

9. Please indicate the area(s) that will be used for material stockpiling (not including topsoil or overburden).

   Response: See response #5 above. These areas are shown on Exhibit C-2.

10. Please show any infrastructure (e.g., pipelines, ditches) proposed for conveying water from the wash plant to the siltation ponds.

    Response: See response to #3 above.

<u>Rule 6.4.4 Exhibit D – Mining Plan</u>

11. Please ensure that the proposed maximum disturbed area is clarified and consistent throughout the application. In the revised Exhibit D, the applicant initially states that the proposed maximum disturbed area is 131 acres. However, in response to item #10, they propose that the maximum disturbed area be set equal to the affected area, which is 543.5 acres. Additionally, in response to

item #27, the applicant states that the proposed maximum disturbed area is 223 acres. It's essential to have a clear and consistent proposal for the maximum disturbed area at any time, and it must correlate with the cost estimate.

Response: The maximum disturbed area is 237.6 acres, as shown in revised Exhibit C-2 and Exhibit D, and Exhibit F.

12. The applicant proposes setting the affected area equal to the permit area, 543.5 acres, even though the proposed mining and reclamation plans only call for disturbing the western half of the permit area. Please be advised, if the operation later decides to mine the eastern half of the permit area, an Amendment would most likely need to be submitted given this change would have a significant effect on the mining and reclamation plans proposed in this application.

    Response: Acknowledged.

13. Exhibit D, under "Processing," describes pipelines that will transport water from Thunderbird Lake to siltation ponds and back into Thunderbird Lake. The location of these pipelines needs to be shown on the Mining Plan Map.

    Response: See response to #3 above.

14. Please commit to submitting the as-built construction drawings for each slurry wall enclosure within 90 days of completion. Note that any significant deviation from the approved plans and/or maps would require a Technical Revision to update the permit accordingly.

    Response: Martin Marietta commits to providing as-built construction drawings for each slurry wall within 90 days as requested.

15. Please describe where fines will be stored and what will be done with them.

    Response: See response to #6 above.

16. The applicant commits to retaining 1.3 times more overburden than required for reclamation on site, and any overburden in excess of this amount may be sold. Please be advised, if at any time, the Division determines that the amount of overburden stored on site is not enough to complete reclamation as per the approved plan, the permit and the required financial warranty will need to be revised to address this issue. This may lead to a significant increase in the required financial warranty to acquire the additional backfill material needed.

    Response: Acknowledged.

17. The applicant is proposing to mine 200 feet from the river bank during the non-flood season of September 30 through April 1, then backfilling the pit to at least 400 feet from the river bank by the succeeding April 1st. Please be advised, this proposal is not consistent with the Division's Floodplain Protection Standards for Sand and Gravel Pits Adjacent to Rivers and Perennial Streams, issued in February 2024 (Floodplain Protection Standards). The applicant must commit to mining no more than 400 feet from the river at all times throughout the life of mine, or provide designs for appropriate bank stabilization measures and inlet/outlet structures for the reservoirs which would allow the operation to mine closer than 400 feet from the river (see Table 1 of the Division's Floodplain Protection Standards). Please commit to one of these options and revise the application

accordingly. If the applicant is unable to provide the required flood control structure designs in this application, the applicant can commit to submitting this information later in a Technical Revision. However, in this application, the applicant must commit to a minimum 400-foot mining setback from the river bank until such revision is approved.

Response: Martin Marietta will not mine to within 400-feet of the river bank prior to obtaining the Site Flood Plain Permit. The Hec Ras analyses recommended by Mr. Zuber may be performed as part of the Flood Plain Permit process, if required by Pueblo County. Since Martin Marietta commits to backfilling within the pit to at least 400 feet from the river bank by the succeeding April 1, there should be no need for additional bank stabilization or inlet/outlet structures. The backfill is the flood control structure design.

18. Please provide a detailed stormwater management plan for the site which ensures the river and the Excelsior Ditch will not be impacted by the operation (e.g, sedimentation). This plan should include an inspection and maintenance plan for all proposed sediment ponds and stormwater ditches. The Division understands that other agencies may also require a stormwater management plan for the proposed operation, but this does not preclude the need to submit one to our agency.

    Response: Martin Marietta commits to having Stormwater Management Plans available upon request during site inspections once these plans are developed along with the CDPS Discharge Permit that will be obtained. These plans are created once plans are made to open the operation, and are living documents that are updated regularly as site conditions change. Exhibit G includes information about how water from dewatering and runoff from disturbed areas will be managed to protect against pollution of surface and groundwater. Uncontrolled releases of stormwater from disturbed areas will not occur. Stormwater that may be collected in the active mine area will be managed through the dewatering system as needed. There are no proposed sediment ponds or stormwater ditches outside of the mine features shown on the Exhibits attached to this application.

19. Please provide more details on the proposed crossing of the Excelsior Ditch. The applicant must commit to a plan (e.g., culvert or bridge). If this plan changes in the future, it can be changed through a Technical Revision submittal. Additionally, a sketch showing a closer view of the proposed crossing would be helpful.

    Response: Current plans are to utilize a culvert for the crossing. A Technical Revision will be submitted if the plans change. The cost to remove the culvert is included in the attached revised Exhibit L.

20. Please clarify the planned use of the proposed stockpile area located north of the Excelsior Ditch. According to the Exhibit C-2 map, this area will only be used for "topsoil and overburden". Will this area also be used for product stockpiles? Please update the Exhibit C-2 map accordingly.

    Response: See response #5 above. The Exhibit C-2 map is updated.

<u>Rule 6.4.5 Exhibit E – Reclamation Plan</u>

21. The Division understands that stormwater management may change once a CDPS Discharge Permit is obtained, however, all stormwater management methods still need to be described in the application. Please describe in further detail how stormwater will be managed, including but not limited to diversions, methods, and general location of any diversion structures/features. This plan

can be provided in Exhibit D or Exhibit G. In this exhibit, please describe how any proposed stormwater structures/features will be reclaimed.

Response: Stormwater management is anticipated to evolve as mining at the site progresses to prevent uncontrolled runoff of stormwater. Exhibit G includes information about how water from dewatering and runoff from disturbed areas will be managed to protect against pollution of surface and groundwater. As mentioned in #18 above, Martin Marietta will provide SWMPs to the Division as they are created. The site will be graded and bermed (MSHA Berms) in a manner that the storm runoff will enter mined areas and discharged under the requirements of the CDPHE discharge permits. No special stormwater/structures requiring reclamation are anticipated at this time.

22. Will the culvert/bridge to cross Excelsior Ditch remain or be removed? If removed, what are the dimensions of this structure? Please provide a detailed reclamation plan for the proposed ditch crossing.

    Response: As discussed in item 19 above a culvert is anticipated at this time. Exhibit L reflects that removal of this culvert is anticipated at the end of mining. The box culvert dimension will be 16 feet long, 6 feet high and 10 feet wide.

23. The applicant states that noxious weeds will be controlled by any combination of cultural, mechanical, biological, or chemical measures. Given the location of the site adjacent to multiple water resources, if chemical measures are pursued for weed management, please commit to using only aquatic safe chemicals.

    Response: Martin Marietta will pursue the use of aquatic safe chemicals as part of the site weed management plan if chemical measures are needed.

<u>Rule 6.4.6 Exhibit F – Reclamation Plan Map</u>

24. What is the average depth of overburden to be replaced in flat areas for reclamation, if any?
    Response: No overburden is anticipated to be placed in flat areas.

25. Please identify any stormwater structures that will be reclaimed.
    Response: As mentioned in #21 above, stormwater structures are not anticipated at the site.

<u>Rule 6.4.7 Exhibit G – Water Information</u>

26. The Division understands the applicant will be applying for a permit to discharge water from the site to the river, and that the specific discharge point(s) will be determined at that time. Please acknowledge that any discharge points and related infrastructure associated with the operation must occur within the approved affected area.

    Response: Acknowledged.

27. Please provide a detailed description of all existing and proposed groundwater monitoring wells and a detailed reclamation plan for abandoning these wells. Additionally, please ensure the cost estimate includes costs for reclaiming these wells.

Response: All current and proposed wells are shown in Exhibit G. Well construction reports on file with the Division of Water Resources ("DWR") for the existing monitoring wells were previously provided to DRMS in the response to the 1st Adequacy Review. Additional monitoring wells will be constructed in like manner. They will be drilled to the top of bedrock using a hollow stem auger. Ten-feet of two-inch diameter, machine slotted (20 slot) PVC and the appropriate length of solid PVC casing will be lowered into the hollow stem auger. The auger will be pulled allowing for caving of the native material around the slotted interval. Grade 10-20 sand will be placed over the caved material until a depth of 5-feet. At this point bentonite pellets will be placed over the sand and the upper 2-feet of the boring annulus will be backfilled with concrete grouting into place an above grade lockable well riser. Well construction details and permit applications will be submitted to DWR. At the end of use, the wells will be abandoned per DWR requirements, which currently include backfilling with bentonite, cut off below grade, and capped with a glued 2-inch slip cap. Appropriate plugging and abandonment forms will be submitted to the DWR. The cost estimate to abandon these wells is included in Exhibit L.

28. The Division has the following items regarding the applicant's proposed groundwater monitoring plan:

    a. Please commit to collecting a minimum of quarterly baseline water level and water quality data from all proposed monitoring wells prior to commencing with the operation.

        Response: Exhibit G as previously submitted to DRMS contains a commitment to obtaining 5-quarters of water levels and water quality samples prior to exposing groundwater.

    b. Please commit to submitting a Technical Revision prior to mining which includes all baseline data, an evaluation of the results, comparing site water quality data with Water Quality Control Commission's Regulation No. 41 Interim Narrative Standards, proposed numeric protection levels for the compliance well(s), and any proposed changes to the monitoring plan (e.g., analytes sampled, sampling frequency). Note, the operation must continue monitoring groundwater no less than semi-annually throughout the life of mine.

        Response: Exhibit G contains a commitment to submit a TR following the collection of 5 quarters of data that will include a report of all groundwater level and water quality data collected. The report will include an analysis WQCC Regulation 41 Interim Narrative Standards based on the actual data obtained and propose numeric protection levels as appropriate. Proposed changes to the monitoring plan may also be included in a TR, including the frequency of monitoring.

    c. The applicant is proposing to install 3 additional monitoring wells at the site. Please commit to submitting the final well completion reports to the Division within 60 days of installation of these wells. Additionally, if the location of the installed wells changes from what is shown on the maps approved with this application, please commit to submitting a Technical Revision to update the maps accordingly.

        Response: Martin Marietta commits to submitting final well construction details within 60-days of constructing any additional monitoring wells.

Rule 6.4.8 Exhibit H – Wildlife Information

29. The applicant has agreed not to disturb any wetlands at the site until they have obtained a Jurisdictional Determination (JD) and/or the necessary permits from the U.S. Army Corps of Engineers (USACE). Please confirm this commitment to include not disturbing any wetlands at the site until the Division has received evidence that this activity is in compliance with USACE. This evidence may include a copy of the JD and/or any required permit approvals from USACE.

    Response: Martin Marietta commits to not disturbing mapped wetlands at the site until a JD or appropriate permits have been obtained from the USACE. A copy of the JD and/or permits will be submitted to the Division prior to such disturbance.

Rule 6.4.12 Exhibit L – Reclamation Costs

30. Please provide the approximate dimensions for all proposed structures that will require demolition and/or removal for reclamation (e.g., wash plant, shop, scale, scale house, culverts, roads). Only providing estimated volumes for these structures in the cost estimate is not sufficient. The Division must have sufficient information on these structures to confirm the estimated volumes.

    Response: The approximate dimensions of all such structures have been added to the spreadsheet in the attached revised Exhibit L.

31. The anticipated equipment used to accomplish these tasks should be included in the cost estimate for the Division to accurately assess the reclamation costs. Please include the equipment type as well (Dozer D8, D10, etc.)

    Response: Please see revised Exhibit L. Likely, D-8 dozers or similar will be used in the earthwork tasks.

32. If the applicant chooses to install bank stabilization and inlet/outlet structures on the reservoirs in order to mine closer than 400 feet to the river, please ensure costs for installing these structures are included in the cost estimate.

    Response: No such structures are planned due to the commitment to backfill areas mined closer than 400 feet to the river. The cost to backfill these areas was previously and is still reflected in Exhibit L.

33. The applicant is proposing to use two separate seed mixtures for revegetation, including an upland seed mixture and a wetland seed mixture. Please provide an estimated total acreage that will be seeded with each mixture.

    Response: Acreages for each seeding type are included in revised Exhibit L and shown on revised Exhibit F.

34. What is the type and rate of mulch to be used in the revegetation tasks (tons/acre)?

    Response: Mulch will be straw applied at a rate of 0.6 tons/acre as shown in revised Exhibit L.

35. Please provide sources for volume estimates (area x depth).

Response: The volume estimate dimensions are provided in revised Exhibit L.

<u>Rule 6.4.19 Exhibit S – Permanent Man-made Structures</u>

36. The applicant has provided copies of the Request for Structure Agreement letters, dated August 7, 2023, which were sent to the five structure owners identified in the application. The Division has the following items regarding the attempted structure agreements:

    a. The Notary for Permit Applicant section is not filled out and notarized by the applicant on any of the five structure agreement forms that were sent to the structure owners. This section must be fully executed by the applicant in order for the Division to consider the structure agreement as having been attempted. Please revise the structure agreement forms accordingly and submit copies of the revised forms sent to the structure owners.

    Response: There is no requirement in Rule 6.4.19 that the applicant must notarize the agreement prior to sending them to the structure owner. If or when agreements are reached, they will be fully signed and notarized by all parties as stated in the Rule. Martin Marietta has submitted evidence that structure agreements were attempted by providing a copy of the agreement and the return receipts. No agreements were returned by the structure owners, and no structure owner has contacted the applicant to discuss. Should any structure owner contact us in the future, we would be glad to finalize and fully execute (and notarize) a structure agreement.

    Further, Martin Marietta has fully met Rule 6.4.19. This rule states that the applicant shall provide an agreement with the structure owner, ***OR*** *"…****provide an appropriate engineering evaluation that demonstrates that such structure shall not be damaged by activities occurring at the mining operation****". Martin Marietta submitted an engineering evaluation demonstrating that the structures will not be damaged by activities at this mining operation. This demonstration alone meets the requirements of Rule 6.4.19. There is no basis in the rule to require revised structure agreement forms at this point in the process.*

    b. The structures listed in the structure agreement forms submitted to Meadowbrook MHP LLC, Pueblo County Public Works Department, and Premier Auto Body Repair LLC do not correlate with the structures listed on the Exhibit C-1 map. For example, the agreement form submitted to Meadowbrook MHP LLC lists "trailer homes, streets", while the Exhibit C-1 map lists "paved roads, fence, unknown structure, garage". Please revise the structure agreement forms accordingly and submit copies of the revised forms sent to the structure owners.

    Response: No structure agreements were reached with any structure owners per the response to item 36(a) above, and there is no basis to revise these agreements at this time. This application fully meets the requirements of Rule 6.4.19.

    c. Please provide proof of delivery for all (revised) attempted structure agreements, which may be in the form of return receipts of a Certified Mailing or proof of personal service.

    Response: Per the response to item 36(a) above, there is no basis to require revised attempted structure agreements. This application fully meets Rule 6.4.19.

d. To date, no fully executed structure agreements have been provided for any of the non-applicant owned structures located on or within 200 feet of the proposed affected lands. Please be advised, for any structures proposed to be relocated, removed, or otherwise impacted by the operation, the applicant must provide a fully executed agreement with the structure owner. This includes the Excelsior Ditch, for which the applicant is proposing to install a crossing for the mine operation. The agreement must include an acknowledgement by the structure owner of the proposed impacts to their structure(s).

   Response: Martin Marietta and the owner of the Excelsior Ditch have discussed the installation of a culvert crossing of the ditch. Once a formal agreement is reached, Martin Marietta will provide a copy of such agreement to DRMS. Should the agreement contain details that require a Technical Revision, this will be submitted at that time. Martin Marietta understands that no crossing can be constructed across the ditch prior to DRMS approval of this Technical Revision.

37. In order for the Division to approve this application, the applicant must provide a signed and notarized agreement with the owner of the Excelsior Ditch acknowledging their acceptance of the operation's proposed impacts to their structure (i.e., crossing) and acceptance of either the proposed reclamation plan or a proposal to leave the crossing in place for reclamation.

    Response: The appropriate reclamation bond can be calculated with the information provided in this application, therefore, it is not necessary for this agreement to be in place prior to permit approval. There is no requirement in the DRMS Rules and Regulations where this type of agreement must be in place prior to approval of this application. This type of agreement is a private matter between private parties. Martin Marietta and the owner of the Excelsior Ditch have discussed the installation of a culvert crossing of the ditch. Once a formal agreement is reached, Martin Marietta will provide a copy of such agreement to DRMS (redacted as necessary to protect any sensitive information). Should the final agreement contain details of the crossing that require a Technical Revision, this will be submitted along with a copy of the letter. No crossing will be constructed prior to an agreement between the parties. Should no agreement be reached between the parties, no crossing will be constructed.

38. Please be advised that structure agreements for the overhead electric structures, Excelsior Ditch, and Baxter Road must be filled out and notarized prior to permit approval.

    Response: There is no such requirement for this in Rule 6.4.19. See response to item 36(a) above.

Additional Items:

39. In the response for item 82, it's stated that the applicant does not plan to conduct a Class III Cultural survey, but the response here claims they will conduct a survey. Please clarify whether Martin Marietta will conduct a Class III Cultural survey, and if so, include it in Exhibit M.

    Response: Martin Marietta does not plan to conduct a Class III Cultural survey.

40. Per Rule 1.6.2(1)(e), the applicant shall mail or personally serve a copy of the newspaper publication required by Rule 1.6.2(1)(d) immediately after the first publication to all owners of record of the surface and mineral rights of the affected land, and the owners of record of all land surface within

200 feet of the boundary of the affected lands. The applicant has provided a copy of a letter dated October 6, 2023 that was sent to the owners of record, as well as Certified Mail receipts for the mailings. In comparing the Certified Mail receipts provided to the Exhibit C-1 map, the Division was unable to find Certified Mail receipts for the following adjacent surface owners of record: Loren Shepard, Andrew and Mell Smithour, or Wynona Sullivan. Please provide proof that these three landowners received the required notice.

Response: Certified mail receipts were not received from Loren Shepard or Wynona Sullivan. However, attached is the USPS tracking information from the USPS website. The tracking information demonstrates that the notice addressed to Loren Shepard (Tracking Number 70181130000159585293) was still moving within the USPS network as of 5/28/2024. The notice to Wynona Sullivan (Tracking Number 70181130000159585491) was picked up by an individual at the Post Office on October 16, 2023. The surface owner for parcel numbers 332001005 and 332001026 is listed on the Pueblo County property ownership map as Walter Smithour. A return receipt from Mr. Smithour was submitted to DRMS in the response to the first adequacy review. Additionally, Exhibit C-1 has been updated to correctly list the property owner for these parcels.

41. Please review and respond to the adequacy items provided by Rob Zuber, DRMS (see enclosed letter, dated March 29, 2024).

    Response: The Hec Ras studies suggested by Mr. Zuber will be performed during the Flood Plain Permit studies. Martin Marietta commits to not mining within 400 feet of the river bank until the Flood Plain Permit is obtained.

42. Please review and respond to the adequacy items provided by Eric Scott, DRMS (see enclosed letter, dated April 5, 2024).

    Item 4 Response: Martin Marietta commits to notifying the DRMS if measured groundwater levels are within 2-feet of the ground surface in any of the site wells for more than 2-consecutive months. Further evaluation into the cause of the elevated water levels will be immediately initiated by Martin Marietta.

    Item 8 Response: As discussed in the revised Exhibit G, Martin Marietta will sample the six (6) monitoring wells at the site for 5-quarters to evaluate groundwater quality in the area. After reviewing the data, Martin Marietta will submit a TR in which the number and location of compliance wells will be evaluated with the Division.

    Item 9 Response: The text has been removed. Please see revised Exhibit G.

    Item 10 Response: See attached revised Exhibit G detailing the sampling procedures.

43. Please review and respond to the adequacy items provided by Zach Trujillo, DRMS (see enclosed letter, dated April 16, 2024).

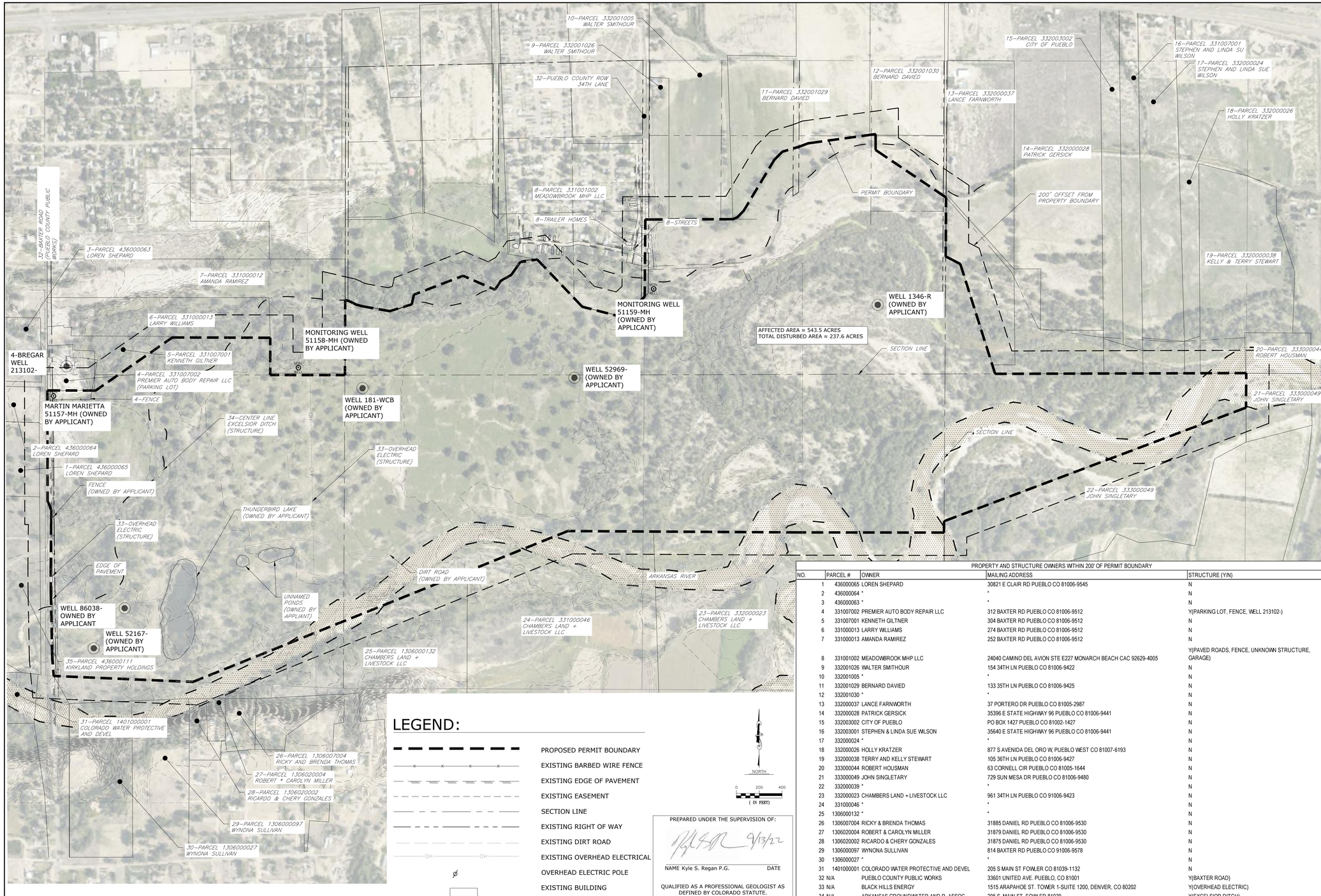
    Response: Mr. Trujillo indicated that all Stability Analyses were satisfied. He requested a confidential borelog map be provided, which is attached to this response.

Should you have additional questions please contact me at 720-612-6232 or phillip.courtney@martinmarietta.com.

Sincerely,

Phillip J. Courtney
Land Manager

Encl(s):



PREPARED UNDER THE SUPERVISION OF:

9/13/22

NAME Kyle S. Regan P.G. DATE

QUALIFIED AS A PROFESSIONAL GEOLOGIST AS DEFINED BY COLORADO STATUTE.

PROPERTY AND STRUCTURE OWNERS WITHIN 200' OF PERMIT BOUNDARY

NO.	PARCEL #	OWNER	MAILING ADDRESS	STRUCTURE (Y/N)
1	436000065	LOREN SHEPARD	30821 E CLAIR RD PUEBLO CO 81006-9545	N
2	436000064	"	"	N
3	436000063	"	"	N
4	331007002	PREMIER AUTO BODY REPAIR LLC	312 BAXTER RD PUEBLO CO 81006-9512	Y(PARKING LOT, FENCE, WELL 213102-)
5	331007001	KENNETH GILTNER	304 BAXTER RD PUEBLO CO 81006-9512	N
6	331000013	LARRY WILLIAMS	274 BAXTER RD PUEBLO CO 81006-9512	N
7	331000013	AMANDA RAMIREZ	252 BAXTER RD PUEBLO CO 81006-9512	N
8	331001002	MEADOWBROOK MHP LLC	24040 CAMINO DEL AVION STE E227 MONARCH BEACH CAC 92629-4005	Y(PAVED ROADS, FENCE, UNKNOWN STRUCTURE, GARAGE)
9	332001026	WALTER SMITHOUR	154 34TH LN PUEBLO CO 81006-9422	N
10	332001005	"	"	N
11	332001029	BERNARD DAVIED	133 35TH LN PUEBLO CO 81006-9425	N
12	332001030	"	"	N
13	332000037	LANCE FARNWORTH	37 PORTERO DR PUEBLO CO 81005-2987	N
14	332000028	PATRICK GERSICK	35396 E STATE HIGHWAY 96 PUEBLO CO 81006-9441	N
15	332003002	CITY OF PUEBLO	PO BOX 1427 PUEBLO CO 81002-1427	N
16	332003001	STEPHEN & LINDA SUE WILSON	35640 E STATE HIGHWAY 96 PUEBLO CO 81006-9441	N
17	332000024	"	"	N
18	332000026	HOLLY KRATZER	877 S AVENIDA DEL ORO W, PUEBLO WEST CO 81007-6193	N
19	332000038	TERRY AND KELLY STEWART	105 36TH LN PUEBLO CO 81006-9427	N
20	333000044	ROBERT HOUSMAN	63 CORNELL CIR PUEBLO CO 81005-1644	N
21	333000049	JOHN SINGLETARY	729 SUN MESA DR PUEBLO CO 81006-9480	N
22	332000039	"	"	N
23	332000023	CHAMBERS LAND + LIVESTOCK LLC	961 34TH LN PUEBLO CO 91006-9423	N
24	331000046	"	"	N
25	1306000132	"	"	N
26	1306007004	RICKY & BRENDA THOMAS	31885 DANIEL RD PUEBLO CO 81006-9530	N
27	1306020004	ROBERT & CAROLYN MILLER	31879 DANIEL RD PUEBLO CO 81006-9530	N
28	1306020002	RICARDO & CHERY GONZALES	31875 DANIEL RD PUEBLO CO 81006-9530	N
29	1306000097	WYNONA SULLIVAN	814 BAXTER RD PUEBLO CO 91006-9578	N
30	1306000027	"	"	N
31	1401000001	COLORADO WATER PROTECTIVE AND DEVEL	205 S MAIN ST FOWLER CO 81039-1132	N
32	N/A	PUEBLO COUNTY PUBLIC WORKS	33601 UNITED AVE. PUEBLO, CO 81001	Y(BAXTER ROAD)
33	N/A	BLACK HILLS ENERGY	1515 ARAPAHOE ST. TOWER 1-SUITE 1200, DENVER, CO 80202	Y(OVERHEAD ELECTRIC)
34	N/A	ARKANSAS GROUNDWATER AND R. ASSOC.	205 S. MAIN ST, FOWLER 81039	Y(EXCELSIOR DITCH)
35	436000111	KIRKLAND PROPERTY HOLDINGS	PO BOX 580 RYE CO 801069-0580	N

CIVIL RESOURCES

8308 COLORADO BLVD, SUITE 200
FIRESTONE, CO 80504
303.833.1416
WWW.CIVILRESOURCES.COM

Martin Marietta

MARTIN MARIETTA

1627 COLE BLVD. SUITE 200
LAKEWOOD, CO 80401

THUNDERBIRD SAND AND GRAVEL
DRMS 112C PERMIT APPLICATION
PUEBLO COUNTY, COLORADO

REVISIONS

NO.	DESCRIPTION	DATE
1	ADQ 1 COMMENTS	1/24/24

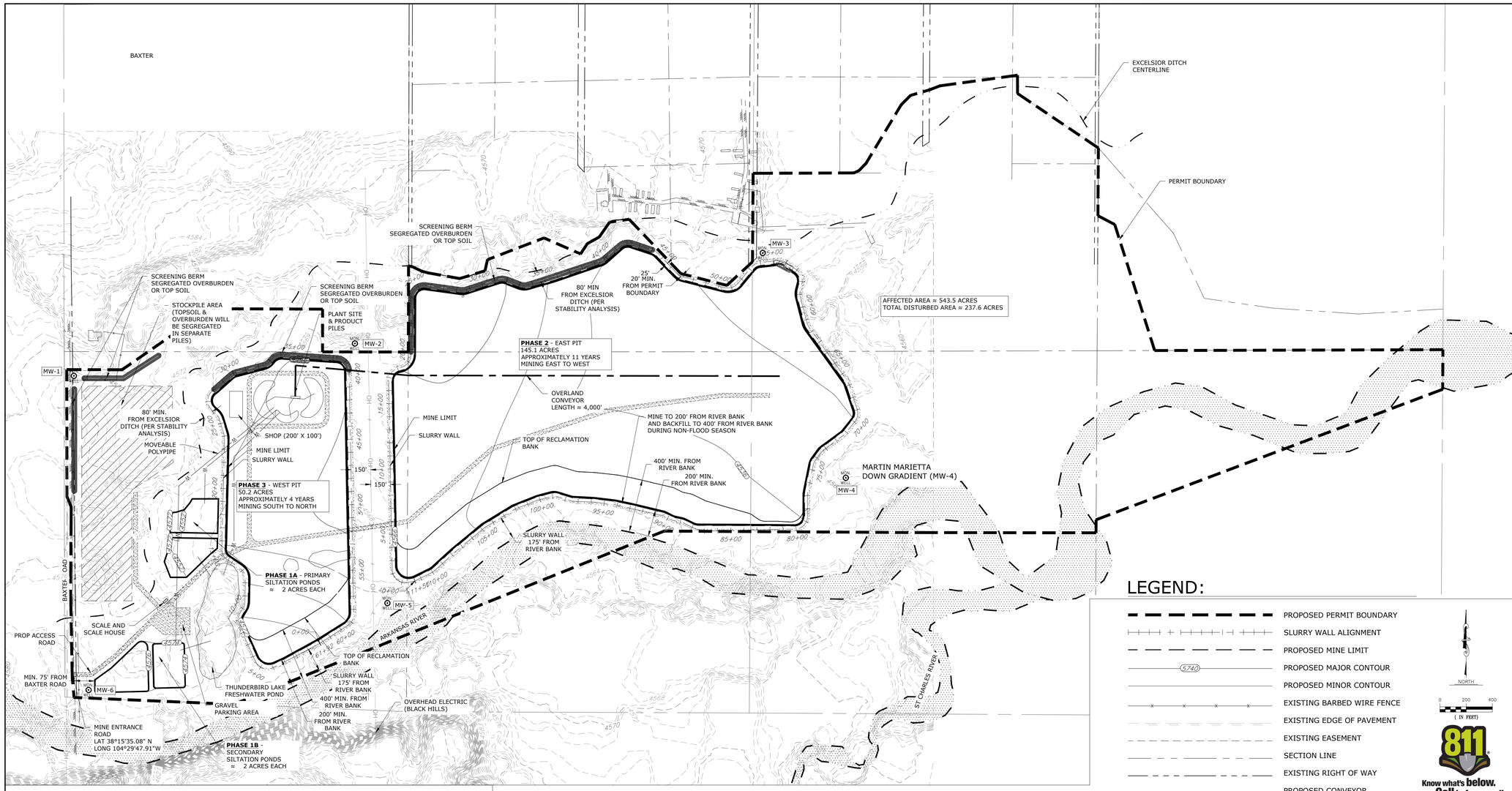
DESIGNED BY: GL DATE: 24/01/2024
DRAWN BY: KR SCALE AS NOTED
CHECKED BY: GL AS NOTED
JOB NO.: 296.001.04
DWG NAME: Mining Plan.dwg

EXISTING CONDITIONS/ PROPERTY OWNERS W/IN 200'

SHEET:

EXHIBIT-C1

J:\Martin Marietta 3101301\04 Thunderbird\Pueblo County\DRMS\Drawings_Sheets\Mining Plan.dwg, EX CONDITIONS, 5/24/2024 3:28:43 PM



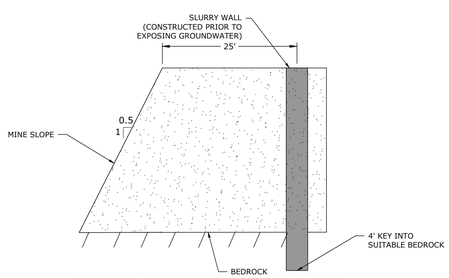
LEGEND:

- PROPOSED PERMIT BOUNDARY
- SLURRY WALL ALIGNMENT
- PROPOSED MINE LIMIT
- PROPOSED MAJOR CONTOUR (5740)
- PROPOSED MINOR CONTOUR
- EXISTING BARBED WIRE FENCE
- EXISTING EDGE OF PAVEMENT
- EXISTING EASEMENT
- SECTION LINE
- EXISTING RIGHT OF WAY
- PROPOSED CONVEYOR
- EXISTING GAS LINE (G)
- MOVEABLE POLYPIPE (W)
- PROPOSED ACCESS ROAD
- FLOOD PLANE
- EXISTING BURIED ELECTRICAL (E)
- EXISTING OVERHEAD ELECTRICAL (OH)
- EXISTING FIBER OPTIC (FO)
- WATERWAY
- MONITORING WELLS (MON. WELL)
- ELECTRICAL BOX (EB)
- OVERHEAD ELECTRIC POLE
- STOCKPILE AREA (SEGREGATED TOPSOIL & OVERBURDEN)
- SCREENING BERM WITH SEGREGATED TOPSOIL & OVERBURDEN

NORTH

0 200 400
(IN FEET)

Know what's below. Call before you dig.



TYPICAL SECTION - MINING SLOPE

NOT TO SCALE

NOTES:
1. RIVER BANK LOCATION WILL BE SURVEYED PRIOR TO MINING.
2. MINE LIMIT MAY ENCROACH TO A MINIMUM OF 200 FEET FROM THE RIVER BANK IN THE NON-FLOOD SEASON SEPTEMBER 30 THROUGH APRIL 1. THESE ENCROACHMENT AREAS WILL BE BACKFILLED TO A DISTANCE OF 400 FEET FROM TOP OF RIVER BANK BY THE FOLLOWING APRIL 1.

PHASE AREAS:

PHASE 1:
- A: SILT PONDS ≈ 4 ACRES
- B: ROADS & PARKING AREA ≈ 8 ACRES
- C: PLANT AREA ≈ 5 ACRES
- D: STOCKPILE AREA ≈ 20 ACRES
- E: BERMS ≈ 4.5 ACRES

PHASE 2:
- A: EAST PIT ≈ 145.1 ACRES

PHASE 3:
- A: WEST PIT ≈ 50.2 ACRES

PREPARED UNDER THE SUPERVISION OF:

9/13/22

NAME Kyle S. Regan P.G. DATE

QUALIFIED AS A PROFESSIONAL GEOLOGIST AS DEFINED BY COLORADO STATUTE.

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THUNDERBIRD SAND AND GRAVEL
DRMS 112C PERMIT APPLICATION
PUEBLO COUNTY, COLORADO

REVISIONS

NO.	DESCRIPTION	DATE
1	DRMS ADEQUACY 1	1/24/24

DESIGNED BY:	GL	DATE:	24/01/2024
DRAWN BY:	KR	SCALE	AS NOTED
CHECKED BY:	GL		AS NOTED
JOB NO.:	296.001.04		
DWG NAME:	Mining Plan.dwg		

MINING PLAN

SHEET:

EXHIBIT-C2

J:\Martin Marietta - 1/31/1/1/04 Thunderbird Pueblo County\DRAWS\Drawings_Sheets\Mining Plan.dwg, MINE PLAN, 6/20/2024 3:24:48 PM

EXHIBIT D – MINING PLAN

This information provided in this Exhibit is intended to satisfy the requirements outlined in Section 6.4.4 of the Colorado Mined Land Reclamation Board Construction Material Rules and Regulations:

(a) Description of the method(s) of mining to be employed in each stage of the operation as related to any surface disturbance on affected lands;

The proposed permit area includes a significant deposit of sand and gravel located in the alluvium of the Arkansas River in Pueblo County. The site is on the east side of Baxter Road, approximately ¾ of a mile south of U.S. Highway 50. It encompasses 543.5 acres +/- and will consist of one unlined cell and two slurry wall lined cells. The unlined cell, referred to herein as Phase 1, will serve as a siltation pond receiving wash water from the site wash plant. Phase 1 is subdivided into 1a and 1b, primary and secondary silt ponds. Initially, only the primary (1a) silt ponds will be constructed. If the primary silt pond (1a) fills with silt, it may be necessary to open the secondary silt pond (1b). The lined cells, referred to herein as Phases 2 and 3, will be encompassed by slurry walls keyed 4-feet into the bedrock. The slurry walls will be constructed prior to exposing groundwater. The freshwater source for the wash plant will be Thunderbird Lake.

Site Preparation:

Initial disturbance of the property will include: stripping overburden to establish the plant footprint. Concurrently with establishing the plant, the Phase 1a Siltation Pond will be stripped of overburden and mining will commence in these areas once the plant has been established.

After the initial preparation of the Plant, and Phase 1a Siltation Pond, customer roads will be established from the entrance to the plant areas. A parking area for employees will be constructed near the entrance road. All roads and parking areas will be graveled.

Mining:

Conventional heavy-duty equipment will be used to strip the topsoil and overburden material from a given phase. Stripped material will be placed in stockpiles either to visually screen the plant or in areas of the site that are not within the floodway. Separate stockpiles of topsoil and overburden will be maintained. Site material balances indicate there will be an excess of top soil and overburden required to reclaim the site. The operator will maintain 1.3 times the material required for reclamation. Excess material above this threshold may be sold or hauled off-site during the life of the mine. There will be no mining below the groundwater table until an approved Substitute Water Supply Plan (SWSP) has been obtained and/or slurry wall lining is complete.

The slurry wall lined phases (Phases 2 and 3) will be dewatered and dry-mined using scrapers, bulldozers, front-end loaders, excavators, or similar equipment. Siltation Ponds (Phases 1a and 1b) will be unlined and wet mined with excavators with no dewatering.

Mining at the site will progress in three (3) major stages. A map depicting the phases can be found in Exhibit C-2.

Phases 1a and 1b- Phase 1a is the site development phase during which the operator will establish the Aggregate Plant within the Phase 3 area, the Phase 1a Siltation Pond, develop Thunderbird Lake as the Freshwater Pond and place a culvert or bridge over the Excelsior

Ditch allowing access to stockpile areas on the northwest part of the site. Phase 1a is anticipated to last approximately 1 year, but will vary depending on market demands for aggregate. The secondary siltation pond (Phase 1b) will be established at a later date if the Phase 1a silt pond is filled to capacity.

Topsoil mined from phase 1a, and 1b (if necessary) will be segregated from overburden and utilized to establish visual screening- berms along Baxter Road (where not encumbered by the floodway) and on the north part of the site near the neighboring properties. Overburden may be used to complete construction of the visual berms if there is not enough topsoil available. After the berms have been established, any remaining top soil and/or overburden may be stockpiled in segregated piles north of or on the northern parts of phases 2 and/or 3. As discussed above, excess overburden may also be sold for use offsite. If the overburden is uneconomical to sell, it may be used in slope reclamation or backfill for phases 2 and 3.

Phase 2- Prior to mining of Phase 2, a survey will be performed to establish the top of the river bank immediately south of the Phase 2 area. Phase 2 will consist of mining out of the eastern cell located immediately east of the electric transmission lines. This cell will be slurry wall lined prior to mining below the water table and will be dry mined. Mining of the Phase 2 cell is anticipated to be completed in approximately eleven (11) years. The phase 2 mining will generally progress from east to west but the specific mining locations within the pit may vary depending on the variability of the deposit. Actual timing of mining will vary with aggregate market demands. Mining may encroach to 200 feet of the top of river bank in the non-flood period between September 30 and April 1. These encroachment areas will be backfilled with overburden to a distance 400 feet from the top of river bank before the subsequent April 1 date.

Topsoil and overburden from this stage will be segregated and stockpiled north of or on the northern portion of Phases 2 and/or 3 where not encumbered by the Floodway or may be placed in the slope for concurrent reclamation as the mine highwalls at the mine limits are exposed.

Phase 3 – Prior to mining of Phase 3, a survey will be performed to establish the top of the river bank immediately south of the Phase 3 area. Phase 3 will consist of mining out of the western cell located immediately west of the electric transmission lines. This cell will be slurry wall lined prior to mining below the water table and will be dry mined. Mining will be completed in an estimated four (4) years and the mining will generally progress from south to north, but the actual mining location within the cell may vary depending on the variability of the deposit. Actual timing of mining will vary with aggregate market demands. Mining may encroach to 200 feet of the top of river bank in the non-flood period between September 30 and April 1. These encroachment areas will be backfilled to a distance 400 feet from the top of river bank before the subsequent April 1 date.

Topsoil and overburden from this stage will be segregated and stockpiled north of or on the northern portion of Phases 2 and/or 3 where not encumbered by the Floodway or may be placed in the slope for concurrent reclamation as the mine highwalls at the mine limits are exposed.

Processing:

All material mined under this proposed application will be transported by conveyor or haul truck to the processing area. The processing area will be located on the north side of the Phase 3 mine-area.

Water for use in the processing wash plant will be pumped from Thunderbird Lake via pipeline. After use in the wash plant, the used water will be piped to the siltation ponds where solids will settle. The clarified water will then return to Thunderbird Lake via ditch or pipeline for reuse.

Modular buildings with footings will be used as the shop near the processing area and the scale house near the scale. In addition, the conveyor will be locally founded on footings. Dimensions of these footings are presented in Exhibit L – Reclamation Costs.

Import Material:

The operator may import material from and export material to other sites. The applicant is aware that in accordance with Rule 3.1.5(9) of the Construction Material Rules and Regulations, if any offsite material is used as backfill, a Technical Revision (TR) with all information required by Rule 3.1.5(9) will be submitted to the DRMS. This TR will include revised mining and reclamation plans and maps as well as a revised bond estimate, as appropriate.

(b) Earthmoving;

Topsoil and overburden will be stripped with conventional heavy earthmoving equipment and will be used concurrently to reclaim finished slopes, to backfill areas mined between 200-400 feet of the Arkansas River, or it will be stockpiled in segregated piles at the edge of the active mine phase where not encumbered by the Floodway. The equipment used to excavate onsite materials may include, but is not limited to scrapers, excavators, front-end loaders, and/or bulldozers. Conveyor belts or haul trucks will be utilized to transport the raw material from the active mine phase to the processing area. All phases will be mined at a 0.5 horizontal:1vertical (0.5h:1v) slope or flatter. The maximum length of highwall open at any one time is anticipated to be approximately 2,000 feet.

(c) All water diversions and impoundments; and

The perimeter of the mined areas will be dewatered by digging dewatering trenches extending deeper than the mining interval eventually reaching into the bedrock at the bottom of the mine. The water will be pumped into a settling pond and discharged in accordance with a CDPHE discharge permit. Wash water for the processing area will be recycled through a series of siltation ponds within the processing area. The water required to operate the facility will be supplied under the provisions of a substitute water supply plan (SWSP).

(d) The size of area(s) to be worked at any one time.

The mine phases will be mined in stages that range from approximately 2 to 237.6 acres. The Operator may mine multiple stages concurrently in order to obtain a range of material for production. In addition to mining, the Operator, will begin reclaiming slopes as mining is finished in each stage. Since multiple stages will be being worked at any one time, the approximate combined size of the areas being worked at any one time may range from 25 acres to 237.6 acres and will depend on market conditions.

(e) An approximate timetable to describe the mining operation. The timetable is for the purpose of establishing the relationship between mining and reclamation during the different phases of a mining operation.

The Operator anticipates that mining will commence as soon as all permits are in place. The Operator anticipates extracting approximately 500,000 tons of aggregate per year however, production rate may vary based on market demands.

Estimated Timetable for Mining and Reclamation[1]

Phase 1: Mining will begin with the silt storage area 1a in the first year as described above. Stripping of the plant area will also occur. Mining may take up to a year. This area will take approximately a year to reclaim and reclamation of the phase 1 area will happen at the end of the mine's life.

Phase 2: This phase will take approximately 11 years to mine and 2 years to reclaim.

Phase 3: This phase will take approximately 4 years to mine and 1 year to reclaim.

Final reclamation will occur after mining is complete in a given Phase. When possible, concurrent reclamation practices will be used to minimize site disturbance and to limit material handling to the extent deemed practical by the operator. Please refer to the Mining Plan Map in Exhibit C for the location of mine phases and areas where processing and other onsite activities will occur. The table below summarizes the approximate timing in the mining areas and will vary depending on the nature of the deposit and market demands.

YEAR	MINING	RECLAMATION
1	Phase 1	--
2	Phase 2	--
3	Phase 2	Phase 2 concurrent
4	Phase 2	Phase 2 concurrent
5	Phase 2	Phase 2 concurrent
6	Phase 2	Phase 2 concurrent
7	Phase 2	Phase 2 concurrent
8	Phase 2	Phase 2 concurrent
9	Phase 2	Phase 2 concurrent
10	Phase 2	Phase 2 concurrent
11	Phase 2	Phase 2 concurrent
12	Phase 2	Phase 2 concurrent
13	Phase 3	Phase 2
14	Phase 3	Phase 2/Phase 3 Concurrent
15	Phase 3	Phase 3 Concurrent
16	Phase 3	Phase 3 Concurrent
17	--	Phase 3
18	--	Phase 1

[1] As discussed above, the ultimate timing will depend on market demand. The estimated times presented herein assumed mining occurs uninterrupted at a consistent pace.

(f) Use Mining Plan Map in conjunction with narrative to present:

(i.) Nature, depth and thickness of the deposit and thickness and type of overburden to be removed

Exploratory borings drilled at the site primarily in the Phase 2 and Phase 3 mine areas are presented in Exhibit I. The logs indicate the maximum depth of mining will be approximately 29-feet. Review of the logs indicates the borings encountered approximately two (2) to twenty-two (22) (averaging nine (9)) feet of overburden. The overburden described in the boring logs grades from clayey silt to silty sand. The overburden overlies approximately five (5) to twenty-seven (27) averaging nineteen (19) feet of sand and gravel overlying shale bedrock. The overburden is thickest on the southwest part of the site in an area that will not be mined. The bedrock depths encountered in the borings ranged from twenty-six (26) to twenty-nine 29) below the ground surface.

(ii.) Nature of the stratum immediately beneath the material to be mined in sedimentary deposits

The Site is located approximately 35 miles east of the eastern flank of the Rocky Mountain Front Range. Younger sedimentary strata dip eastward off the Pre-Cambrian igneous and metamorphic rocks that form the core of the Front Range.

Bedrock does not crop out at the site, however regional geologic mapping of the area (Tweto, 1979) indicates the near surface bedrock beneath the site is most likely the Lower Member of the Pierre Shale. Tweto (1979) describes the Lower Member as organic rich shale with numerous bentonite beds.

(g) Identify the primary and secondary commodities to be mined/extracted and describe the intended use.

The primary commodities are sand and gravel; intended for construction materials. Secondary commodities may include overburden sold as fill and gold. Gold will be recovered in mats within the wash plant. No chemicals will be used.

(h) Name and describe the intended use of all expected incidental products to be mined/extracted by the proposed operation.

There are no expected incidental products to be mined.

(i) Specify if explosives will be used in conjunction with the mining (or reclamation)

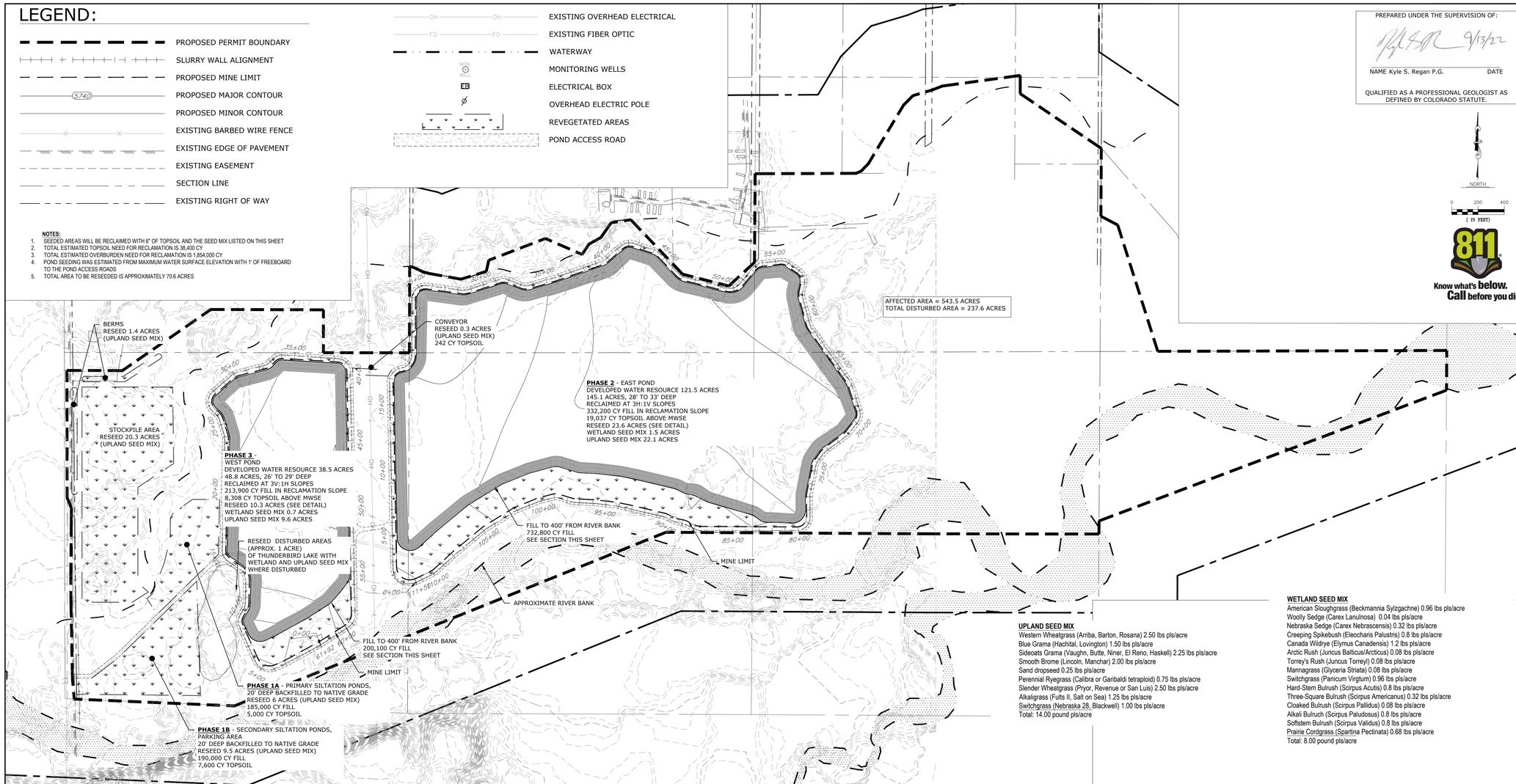
No explosive material will be used on-site.

LEGEND:

- PROPOSED PERMIT BOUNDARY
- SLURRY WALL ALIGNMENT
- PROPOSED MINE LIMIT
- 5740 PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- EXISTING BARBED WIRE FENCE
- EXISTING EDGE OF PAVEMENT
- EXISTING EASEMENT
- SECTION LINE
- EXISTING RIGHT OF WAY
- OH — OH EXISTING OVERHEAD ELECTRICAL
- FO — FO EXISTING FIBER OPTIC
- WATERWAY
- MON WELL MONITORING WELLS
- EB ELECTRICAL BOX
- OVERHEAD ELECTRIC POLE
- REVEGETATED AREAS
- POND ACCESS ROAD

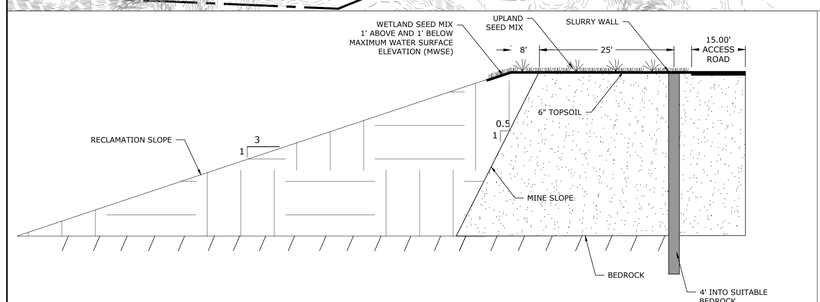
NOTES:

1. SEEDED AREAS WILL BE RECLAIMED WITH 6" OF TOPSOIL AND THE SEED MIX LISTED ON THIS SHEET
2. TOTAL ESTIMATED TOPSOIL NEED FOR RECLAMATION IS 38,400 CY
3. TOTAL ESTIMATED OVERBURDEN NEED FOR RECLAMATION IS 1,854,000 CY
4. POND SEEDING WAS ESTIMATED FROM MAXIMUM WATER SURFACE ELEVATION WITH 1' OF FREEBOARD TO THE POND ACCESS ROADS
5. TOTAL AREA TO BE RESEEDED IS APPROXIMATELY 70.6 ACRES

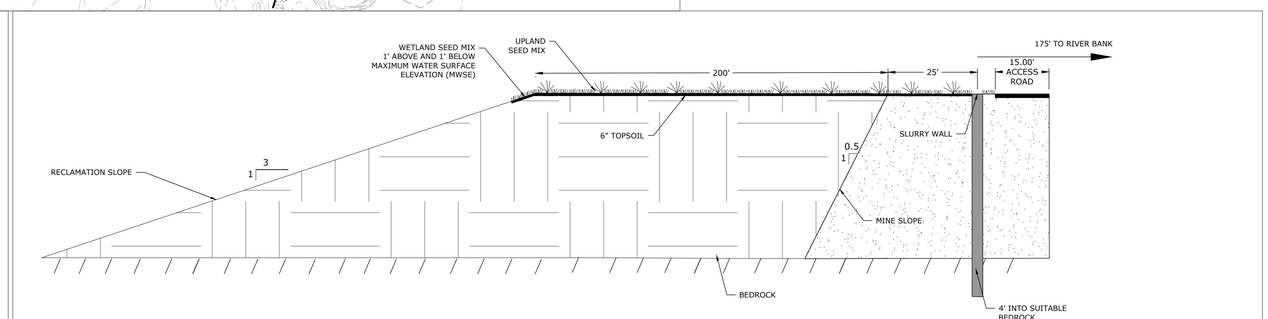


UPLAND SEED MIX
Western Wheatgrass (Arriba, Barton, Rosana) 2.50 lbs pls/acre
Blue Grama (Hachital, Lovington) 1.50 lbs pls/acre
Sideoats Grama (Vaughn, Butte, Niner, El Reno, Haskell) 2.25 lbs pls/acre
Smooth Brome (Lincoln, Manchar) 2.00 lbs pls/acre
Sand dropseed 0.25 lbs pls/acre
Perennial Ryegrass (Calibra or Garibaldi tetraploid) 0.75 lbs pls/acre
Slender Wheatgrass (Pryor, Revenue or San Luis) 2.50 lbs pls/acre
Alkaligrass (Fults II, Salt on Sea) 1.25 lbs pls/acre
Switchgrass (Nebraska 28, Blackwell) 1.00 lbs pls/acre
Total: 14.00 pound pls/acre

WETLAND SEED MIX
American Sloughgrass (Beckmannia Sylzgachne) 0.96 lbs pls/acre
Woolly Sedge (Carex Lanulnosa) 0.04 lbs pls/acre
Nebraska Sedge (Carex Nebrascensis) 0.32 lbs pls/acre
Creeping Spikebush (Eleocharis Palustris) 0.8 lbs pls/acre
Canada Wildrye (Elymus Canadensis) 1.2 lbs pls/acre
Arctic Rush (Juncus Balticus/Arcticus) 0.08 lbs pls/acre
Torrey's Rush (Juncus Torreyi) 0.08 lbs pls/acre
Mannagrass (Glyceria Striata) 0.08 lbs pls/acre
Switchgrass (Panicum Virgturn) 0.96 lbs pls/acre
Hard-Stem Bulrush (Scirpus Acutis) 0.8 lbs pls/acre
Three-Square Bulrush (Scirpus Americanus) 0.32 lbs pls/acre
Cloaked Bulrush (Scirpus Pallidus) 0.08 lbs pls/acre
Alkali Bulruch (Scirpus Paludosus) 0.8 lbs pls/acre
Softstem Bulrush (Scirpus Validus) 0.8 lbs pls/acre
Prairie Cordgrass (Spartina Pectinata) 0.68 lbs pls/acre
Total: 8.00 pound pls/acre



TYPICAL SECTION - RECLAMATION SLOPE WITH SLURRY WALL
NOT TO SCALE



TYPICAL SECTION - RECLAMATION SLOPE WITH BACKFILL ALONG RIVER WITH SLURRY WALL
NOT TO SCALE

PREPARED UNDER THE SUPERVISION OF:
9/13/22
NAME Kyle S. Regan P.G. DATE
QUALIFIED AS A PROFESSIONAL GEOLOGIST AS DEFINED BY COLORADO STATUTE.

NORTH
0 200 400
(IN FEET)

Know what's below. Call before you dig.

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THUNDERBIRD SAND AND GRAVEL
DRMS 112C PERMIT APPLICATION
PUEBLO COUNTY, COLORADO

REVISIONS

NO.	DESCRIPTION	DATE

DESIGNED BY:	GL	DATE:	24/01/2024
DRAWN BY:	KR	SCALE	AS NOTED
CHECKED BY:	GL		AS NOTED
JOB NO.:	296.001.04		
DWG NAME:	Mining Plan.dwg		

RECLAMATION PLAN MAP

SHEET:
EXHIBIT-F1

J:\Martin Marietta 3\3313\.04 Thunderbird Pueblo County\DRAWS\Drawings_Sheets\Mining Plan.dwg REC PLAN, 6/20/2023 2:27:51 PM

EXHIBIT G – WATER INFORMATION

This information provided in this Exhibit is intended to satisfy the requirements outlined in Section 6.4.7 of the Colorado Mined Land Reclamation Board Construction Material Rules and Regulations:

(a) Locate on the map (Exhibit C) tributary water courses, wells, springs, stock water ponds, reservoirs and ditches

The Arkansas River conveys water from west to east across the south part of the site. The headgate of the Excelsior Ditch is on the north side of the river approximately 500 feet west of the site. The Excelsior Ditch headgate receives flows from the Arkansas River west of the site and conveys water from west to east across the site. Other surface water features include Thunderbird Lake and two (2) unnamed ponds located on the southwest part of the site. Thunderbird Lake and the unnamed ponds appear to be unlined gravel lakes remaining after previous borrowing of gravel at the site. Thunderbird Lake will serve as the site fresh water source supplying water to the wash plant in the processing areas. After use in the wash plant, water will run through a series of siltation ponds developed during the Phase 1 and will be recirculated through Thunderbird Lake for reuse as the fresh water supply. The two (2) unnamed ponds will be removed by mining during Phase 3. Please refer to Exhibit C for locations of water courses in close proximity to the site, including wells, springs, stock water ponds, reservoirs and ditches.

(b) Identify all known aquifers

The site is underlain by a shallow alluvial aquifer of the Arkansas River. Water levels measured in three (3) site monitoring wells screened in the alluvial aquifer indicate groundwater ranges from approximately 5.0 to 5.9 feet below ground. Review of area water well logs indicate no bedrock aquifers underlie the site.

(c) Show how water from dewatering operations or runoff from disturbed areas, piled material and operating surfaces will be managed to protect against pollution of either surface or groundwater both during and after the operation.

Please refer to the Mining Plan Map in Exhibit C of this application. Disturbed mine areas will be graded to drain internally. Uncontrolled releases of surface water in disturbed areas will not occur. Stormwater from disturbed areas that is collected in the active mine area will be managed through the dewatering system as needed. For the stockpile area on north of the Excelsior Ditch, overburden and stockpile areas will be seeded to minimize erosion. In addition, MSHA berms will be placed at the edge of the disturbed areas which will prevent runoff to the ditch.

Dewatering will be accomplished by digging a sump, generally along the base of the mine slope, which will hold a floating pump. The pump will have an HDPE discharge line that will be routed to one of the comingled discharge points located at the site. The Operator will obtain a Colorado Discharge Permit System (CDPS) Discharges from Sand and Gravel Mining and Processing General COG500000 permit prior to discharging water off site.

(d) Estimate project water requirements including flow rates and annual volumes for the development, mining and reclamation phases of the project.

Water needs estimated below provide for sustained production as detailed in the Mining Plan. The Operator will adjust water supplies to account for actual demand, avoid waste, and continuously comply with laws and regulations of the Division of Water Resources and any other water agency having jurisdiction over the operation.

Projected Use and Consumption: Annual evaporative depletions will be the evaporation from up to 5,000 feet of 5-foot-wide de-watering trench, located inside of the mine limit. The total area of exposed water is 0.6 acres. The gross annual evaporation at the mine is approximately 50 inches according to NOAA Technical Report NWS 33, Evaporation Atlas for the Contiguous 48 United States. The nearest weather station is the National Weather Service (NWS) located in the Pueblo Airpark approximately 1.7 miles northwest of the site. The average annual precipitation is 12.02 inches. Effective precipitation, that part of historical precipitation which was consumed by native vegetation on land to be covered by water surface, is conservatively estimated to be 70 percent of the total precipitation. The annual average effective precipitation at the property is estimated to be 8.41 inches. When subtracting the effective precipitation from the gross evaporation yields, the net annual evaporation is 41.59 inches, or 3.47 acre-feet per acre. The Thunderbird Lake (fresh water supply) is approximately 4.8 acres and the Siltation Ponds will be approximately 4 acres as only the primary (Phase 1a) or secondary (Phase 1b) siltation ponds will be exposed at any one time. The approximate acreage of open water surface is 9.4 acres. The annual amount of evaporation from open water surfaces is approximately 32.62 acre-feet.

Mining Production & Operations: The Operator expects to extract approximately 500,000 tons annually of aggregate material from the site. All water retained in the recovered material will be replaced pursuant to the Substitute Water Supply Plan (SWSP). The total annual amount of water retained in the gravel product from mining activities totals approximately 6.8 acre-feet. The SWSP is renewed annually and will reflect analysis of production and depletion anticipated in each year of operation.

In addition, an estimated 3.3 acre-feet of water per year will be used for dust control based (approximately) on 5,000 gallons per day for 5 days a week for 10 months.

Annually the total evaporative and operational losses from mining activities (open water surface evaporation, water retained in the aggregate product, dust suppression) totals 42.62 acre-feet of depletion which must be augmented. All depletions will be lagged to the Arkansas River using the lagging factors approved by the State Engineer pursuant to future Substitute Water Supply (SWSP) approvals.

Reclamation Operations: Water will be necessary for compaction in the reclamation slopes and for compaction in backfilling to 400-feet from the river bank. A total of approximately 90 acre-feet of water will be necessary over the life of the project and will need to be accounted for in the annual SWSP approvals. In addition, approximately 26 acre-feet of water will be necessary to construct the two (2) slurry walls. This water use will be accounted for in the annual SWSP approvals for the individual years the work is performed.

(e) Indicate the projected amounts of the water sources to supply project water requirements

Replacement Water: The Miner will obtain an approved Substitute Water Supply Plan from the State Engineers office every year, providing annually or more frequently the opportunity to review the sufficiency of water supplies. The SWSP approvals require that the applicant provide a detailed explanation of the mining operations, a quantification of all mining activities and subsequent depletions and all legally available replacement sources. Sources of water are expected to be similar to those used at the applicant's Rich Pit and may include water leased from the following entities:

- Arkansas Groundwater and Reservoir Association
- Donala Water and Sanitation District
- Pueblo Board of Water Works
- Other water sources that may be obtained by the applicant

The full amount of replacement water required will be sourced from one or more of these potential sources.

(f) Affirmatively state that the Applicant has acquired or applied for a National Pollutant Discharge Elimination System permit from the Water Quality Control Division

The Operator will apply for a COG500000 permit from the Water Quality Control Division of the Colorado Department of Public Health and Environment prior to discharging water from the site.

Groundwater Sampling and Analysis Plan

This information provided in this subsection of Exhibit G is intended to satisfy the requirements outlined in the Groundwater Monitoring and Protection Technical Bulletin dated September, 2023:

Existing Groundwater Conditions

The near surface groundwater is part of the alluvial aquifer along the Arkansas River in which permeable sand and gravel alluvium overlies relatively impermeable bedrock of the Lower Member of the Pierre Shale (Tweto, 1979).

The majority of the mine site is located on the north side of the Arkansas River where the prevailing groundwater flow direction is anticipated to be south-southeasterly roughly reflecting the site topography with some influence from the bedrock topography. A small portion of the permit area is on the south side of the river where the prevailing groundwater flow direction will be north-northeasterly also reflecting site topography with some influence of the bedrock topography. Groundwater in the area is tributary to the Arkansas River located on the south part of the site. Local groundwater levels and flow directions are likely influenced by:

- The Arkansas River is located on the south part of the site. For the majority of the year, the river acts like a drainage way maintaining groundwater elevations higher than water elevations in the river. During periods of high runoff, usually in the spring, river water levels will locally recharge the alluvial aquifer.

- The Saint Charles River is south of and tributary to the Arkansas River and encroaches on the mine at its confluence with the Arkansas. The Saint Charles River will behave in a manner similar to the Arkansas River acting like a drainage way for the majority of the year and locally recharging groundwater levels during periods of high run off.

- The Excelsior Ditch traverses the western and northern parts of the site before leaving the north part of the site. The ditch will act like a drain during the non-irrigation season maintaining surrounding groundwater levels at or near water levels in the ditch. During the irrigation season, the ditch may serve as a source of recharge to the alluvial aquifer.

- Irrigation is practiced in the area. Applied irrigation that is not lost to evaporation and transpiration will likely recharge the alluvial aquifer.

- Minor losses to the groundwater regime will occur due to evaporation of Thunderbird Lake and the unnamed ponds on the west part of the site. Evapotranspiration will also result in minor losses to the groundwater regime.

- Alluvial Wells: Local alluvial wells are present in the area. When pumping, groundwater will be drawn to the well(s).

Mining Plan

All mining will occur north of the Arkansas River. The Arkansas River forms a hydraulic boundary. The mining and reclamation will not affect groundwater flows on the south side of the Arkansas River.

Three (3) mine cells are currently planned at the site. As described in Exhibit D and shown on Exhibit C-2, one cell (Phase 1 – siltation ponds) will not be dewatered and will be wet mined with an excavator. Two (2) of the cells (Phases 2 and 3) will be slurry wall lined prior to mining below the water table. Thunderbird Lake will serve as the water supply for the site wash plant. Used water from the plant will be recirculated to Thunderbird Lake after passing through a series of settlement ponds. An approved SWSP will be obtained prior to mining below the water table.

Potential Lining & Mining Impacts to Local Groundwater Levels

Properly constructed slurry walls will tend to isolate the surrounding alluvial aquifer allowing for dewatering from within the lined cells without major impacts to water levels exterior to the lined cells. The lined cells will likely cause "mounding" of groundwater (increase in groundwater elevation) on the upgradient side (north and northwest) of the proposed lined cells and a "shadow effect" (reduction in groundwater elevation) on the downgradient side (south and southeast) of the lined cells.

Any mounding effect on the upgradient side is anticipated to be relatively minor (on the order of a few feet or less) and will dissipate with distance from the mine. The shadowing affect will likely be minor on the order of less than a foot to a few feet and will also dissipate with distance from the lined cells. An underdrain will be designed to minimize the mounding and shadowing effects.

Due to the presence of the lined cells, limited to no affects are anticipated outside of the lined cell due to dewatering during mining. The mounding effect on the upgradient side of the lined cell may result in some increased flow in the Excelsior Ditch. Area wells, discussed below, should not be affected due to their distance from the unlined and lined cells, the lack of dewatering from the unlined cell(s), and dewatering from within slurry wall lined cells.

Area Wells Within Approximately 600 Feet of the Mine

A review of permitted wells on file at the State Engineer's Office (SEO), Division of Water Resources (DWR) indicates there are ten (10) permitted wells (not owned by Martin Marietta) within 600 feet of the permit boundary. All of these wells are screened in the alluvium. Six (6) of these wells are on the west, northwest, and north (upgradient) sides of the mine. Two (2) of the wells is north and cross-gradient of the mine. Two (2) of the wells are on the south side of the river. In addition, several wells are on the site itself and are owned by the Martin Marietta. A map showing the approximate well locations is included in Figure G-1.

A discussion of the wells not owned by Martin Marietta and located within 600 feet of the permit boundary are discussed below (note a domestic well is usually for household use but sometimes may also indicate use in yards and/or livestock watering):

- RBK Construction, Inc. (57014F, 80290F): This is a gravel well permit that is shown on the State well permit map as approximately 485 feet from the permit boundary, however the permit documents indicate the gravel pit extends to an area just west of Baxter Road. This is a distance of approximately 100 feet west of fresh water and siltation cells. Because this is a gravel mine permit, it is unlikely that RBK will complain about limited dewatering effects at the Thunderbird Mine.

- Bregar (213102): This well is located at 312 Baxter Road, approximately 185 feet north of and upgradient of the permit boundary and approximately 800 feet from and on the opposite side of the Ditch from the nearest lined cell. The use of this well is industrial. Water was first used in 1967 at a rate of 15 gpm. This well appears to no longer exist.

- Mihelich (269682): This well located at 304 Baxter Road, approximately 450 feet north of and upgradient of the permit boundary and approximately 880 feet from and on the opposite side of the

ditch from the nearest lined cell. The well is domestic. Water was first pumped in 1954 at a rate of 15 gpm. Due to the distance from the cell, it is unlikely that this well will be affected by mining and reclamation at the Thunderbird Mine.

- Sonnenfeld (281646): This well is located at 279 Baxter Road, approximately 550 feet northwest of and upgradient of the permit boundary and approximately 1,200 feet from and on the opposite side of the ditch from the nearest lined cell. The well is listed as domestic at a rate of 12 gpm. Due to the distance, it is unlikely that this well will be affected by mining and reclamation at the Thunderbird Mine.

- Vulgamore (9094356) : This well is approximately 390 feet from the permit boundary on the opposite (south) bank of the Arkansas River. The river forms a barrier to groundwater flow thus the well will not be affected by activities at the mine.

- Chavez (14754-R): This well appears to be approximately 300 feet from the permit boundary and approximately 700 feet, north of and upgradient of the nearest lined cell. This well was used for irrigation with the first use in 1940. Notes in the permit file indicate this well is no longer in use. Due to the distance (~700 feet) from the nearest lined cell, it is unlikely that this well will be affected by mining and reclamation at the Thunderbird Mine.

- Eaton (717 RN): This well appears to be approximately 600 feet north of and upgradient of the permit boundary and approximately 1,200 feet north of and upgradient of the nearest lined cell. This well has a capacity of 75 gpm for domestic use. Due to the great distance (~1,200 feet) from the nearest lined cell, it is unlikely that this well will be affected by mining and reclamation at the Thunderbird Mine.

- Transit Mix (MH-51160): This well appears to be 480 feet north of and upgradient of the permit boundary and approximately 1,700 feet north of and upgradient of the nearest lined cell. The use of this well is for monitoring groundwater levels. This well is owned by Martin Marietta. Martin Marietta was not able to locate the well.

- Smithour (36540): This well appears to be 480 feet north of and upgradient of the permit boundary and approximately 1,200 feet north of and upgradient of the nearest lined cell. The use of this well is domestic with a maximum discharge of 15 gpm. Due to the great distance (~1,200 feet) from the nearest lined cell, it is unlikely that this well will be affected by mining and reclamation at the Thunderbird Mine.

- Chambers (87330): This well appears to be approximately 120 feet south of the permit boundary on the south side of the Arkansas River. The river forms a hydraulic boundary, thus any mining on the north side of the river will not affect this well. This is a domestic well operating at a rate 7 gpm.

Area Wells Between Approximately 600 Feet and One-Half Mile of the Mine

A review of permitted wells on file at the DWR indicates there are approximately eighty (80) permitted wells between 600 feet and one-half mile of the permit boundary. Seventy-nine (79) of these wells are screened in the alluvium and one is screened in the bedrock. All of these wells are of great distance from the fresh water, siltation, and the lined cells and are unlikely to be affected by mining and reclamation at the Thunderbird Mine. A discussion of these wells and their relationship to permit boundary follows.

Upgradient and Cross-gradient Wells to the West and North

- West- A total of approximately twenty-one (21) wells are permitted upgradient of the site to the west. Eighteen (18) of these wells are domestic wells, two (2) of these wells are irrigation wells, and one (1) is a monitoring well.

- North- A total of approximately twenty-five (25) wells are permitted upgradient and cross-gradient of the site to the north. Fifteen (15) of these wells are domestic, nine (9) are monitoring, and one (1) is an irrigation well.

Downgradient Wells to the East and South

- East – A total of four (4) wells are permitted downgradient of the site to the east. Three (3) of these wells are domestic and one (1) is an irrigation well.

- South – A total of thirty (30) wells are located on the south side of the Arkansas River, beyond the hydraulic barrier the river forms. Twenty-six (26) of these wells are domestic, two (2) are irrigation, and two (2) are abandoned.

Mitigation Plan

The site mining and reclamation activities are unlikely to adversely affect area wells due to dewatering from slurry wall lined cells, coupled with the recirculatory nature of the pumping from Thunderbird Lake described above. All dewatering will be under an approved SWSP. Upgradient and cross-gradient wells are far from the mine and downgradient wells are far from the mine or on the opposite side of the river. However, if the miner receives a complaint, the following mitigation plan will be implemented.

Martin Marietta intends to utilize existing monitoring wells and install additional monitoring wells (6 in total) at the mine prior to exposing groundwater. The locations of the existing and proposed monitoring wells are shown on Exhibit G-1 and Exhibit C-2. The water levels in these monitoring wells will be measured monthly to identify potential changes in alluvial groundwater flow or elevation associated with mining and reclamation activities. Baseline data will be collected a minimum of five quarters prior to exposing groundwater to provide a range of relative water levels associated with premining groundwater conditions. It is anticipated that groundwater levels will tend to fluctuate being highest in the summer irrigation season and lowest in the winter and early spring.If, during mining or reclamation, the miner receives a complaint from any well owner , the miner will immediately notify the DRMS.

After the DRMS has been notified, the miner will review any data and available information as well as submit a report to the DRMS within 30 days of notification. The evaluation will include a review of available baseline data and evaluate whether changes may be due to seasonal variations, climate, mining, mine cell lining or other factors. The report will identify the extent of potential impacts associated with any evaluation findings. If the extent of groundwater changes due to mining or reclamation activities is determined to be a significant contributing factor that has or may create adverse impacts, the mining associated impacts will be addressed.

The miner will begin implementing one or more mitigation measures if mining and reclamation activity is determined to be a significant factor of groundwater changes.

Mitigation measures may include, but are not limited to:

- Placing water in a recharge pond to raise groundwater levels around the well.

- Cleaning the well to improve efficiency.

- Providing an alternative source of water to support historic well use in terms of water quantity and quality.

- Modifying a well to operate under lower groundwater conditions. This could include deepening the well or lowering pumps. All work would be done at the miner's expense with the exception of replacing equipment that was non-functional prior to mining.

- Providing a well with a sump. The sump would allow for sufficient storage of water to allow historic well capacities to be met.

- If existing wells cannot be retrofitted or repaired, replacing the impacted well.

Groundwater Quality Monitoring Plan

We do not anticipate that onsite operations will have a negative effect on groundwater quality. Operations at the site will take place inside of lined cells, except for establishing the Siltation Pond during Phase I. To evaluate pre-mining groundwater quality at the site, the permittee will sample the existing six (6) proposed monitoring wells at the site five quarters prior to exposing groundwater. The samples will be analyzed for the suite of analytes described in the following paragraphs. Some naturally occurring analytes may be detected in the analyses. The five quarterly samples will serve as the baseline to which all compliance samples will be compared. After reviewing the data, the applicant will submit a Technical Revision comparing the water quality with Water Quality Control Commission's Regulation Number 41 Interim Narrative Standards and propose numeric protection levels for the compliance well(s). The TR will also propose changes to the monitoring program if deemed necessary.

To establish that mining has not had a negative effect on water quality in the area, the Miner will sample the designated compliance well(s) annually once the groundwater is exposed until mining is completed. Martin Marietta will notify DRMS within 30 days of receiving the full, finalized report that indicates any of the results for any of the parameters listed in Table G-1 exceed the baseline results. Water quality lab results will be included in the DRMS annual report for the site.

Annual groundwater quality testing will be conducted for the life of the mine unless the requirement has been reduced or eliminated through the Technical Revision process with the DRMS.

If sufficient data is collected during the life of the mining operation, and a demonstration can be made that project impacts to the groundwater system have been minimized, Martin Marietta may request approval of a Technical Revision to revise the water level monitoring frequency or water quality sample collection frequency at a later date.

The DRMS recommends a set of groundwater quality parameters for analysis for aggregate mine permitting. These include a list of dissolved metals, radiological parameters, and miscellaneous parameters which include pH and Total Dissolved Solids (TDS). The nature of activities associated with sand and gravel mining involves the excavation of large volumes of aggregate materials using industrial machinery. These activities inherently do not result in the generation or release of coliform, bacteria, asbestos, chlorophenol, foaming agents, odor, or phenol compounds. They also do not result in a change in corrosivity of water or color change. As a result, these parameters which are otherwise a part of the DRMS requirements for water quality analyses are excluded from the list of water quality parameters. Likewise, sand and gravel mining

does not lead to the generation or release of gross alpha or beta and photon emitters as part of the operation. The complete list of water quality parameters proposed for analysis is presented on Table G-1.

In the event of a well owner complaint, Martin Marietta will commit to reporting any complaints received from well owners to the DRMS within 48 hours, to investigating the complaint as soon as practical, and to submitting the results to the DRMS for evaluation within 30 days.

Sampling Procedures

Prior to sampling, the depth to water in the well will be measured with an electronic water level indicator. The wet casing well volume will then be calculated using the following equation:

$$V=r^2h(0.163)$$

Where:
V = static volume of water in well (gallons)
r = inner radius of well casing (in inches)
h = length of water column (in feet) which is equal to the total well depth minus the depth to water
0.163 = a constant conversion factor that compensates for the conversion of the casing radius from inches to feet for 2-inch diameter wells and the conversion of cubic feet to gallons.

The initial sampling will purge ten (10) well volumes of water to remove residue left over from the drilling process. Subsequent sampling events will require purging of three (3) casing volumes of water in order to pull groundwater representative of the aquifer into the well. Purging may be accomplished by bailing or pumping. During purging, specific conductance, pH, and temperature (field parameters) will be measured with calibrated field instruments. After three (3) wet casing volumes, the well will be considered ready for sampling if the field parameters remain within 10-percent. Additional purging may be necessary until the field parameters reach the 10-percent threshold. All purging, sampling, and filtering will be performed with clean equipment or equipment dedicated to each well to avoid cross contamination.

Samples will be placed in laboratory supplied and preserved containers. Samples requiring filtering will be pumped through a 0.45-micron filter directly into laboratory container. Samples will be placed in a cooler maintained at a temperature of 4-degrees Celsius or less and delivered under Chain of Custody documentation to the laboratory. All laboratory analyses will be performed within the designated hold times for each analysis. A list of the analytes is provided in Table G-1 below.

Table G-1
Water Quality Sampling, Analyte List

Parameter	Applicable Water Quality Standard Concentration	Comments
Aluminium - Dissolved	5 mg/L	Filter in field (0.45 micron)
Antimony - Dissolved	0.006 mg/L	Filter in field (0.45 micron)
Arsenic - Dissolved	0.01 mg/L	Filter in field (0.45 micron)
Barium - Dissolved	2.0 mg/L	Filter in field (0.45 micron)
Beryllium - Dissolved	0.004 mg/L	Filter in field (0.45 micron)
Boron - Dissolved	0.75 mg/L	Filter in field (0.45 micron)
Cadmium - Dissolved	0.005 mg/L	Filter in field (0.45 micron)
Chromium - Dissolved (CrVI)	0.1 mg/L	Filter in field (0.45 micron)
Cobalt - Dissolved	0.05 mg/L	Filter in field (0.45 micron)
Copper - Dissolved	0.2 mg/L	Filter in field (0.45 micron)
Cyanide - Free	0.2 mg/L	
Fluoride - Total F	2.0 mg/L	
Iron - Dissolved	0.3 mg/L	Filter in field (0.45 micron)
Lead - Dissolved	0.05 mg/L	Filter in field (0.45 micron)
Lithium - Dissolved	2.5 mg/L	Filter in field (0.45 micron)
Manganese - Dissolved	0.05 mg/L	Filter in field (0.45 micron)
Mercury - Dissolved	0.002 mg/L	Filter in field (0.45 micron)
Molybdenum - Dissolved	0.21 mg/L	Filter in field (0.45 micron)
Nickel - Dissolved	0.1 mg/L	Filter in field (0.45 micron)
Nitrate (NO3)	10.0 mg/L as N	Filter in field (0.45 micron)
Nitrite (NO2)	1.0 mg/L as N	Filter in field (0.45 micron)
Nitrate+Nitrite (NO2+NO3), dissolved	10.0 mg/L as N	Filter in field (0.45 micron)
pH	6.5 - 8.5	Measure in field
Selenium - Dissolved	0.02 mg/L	Filter in field (0.45 micron)
Silver - Dissolved	0.05 mg/L	Filter in field (0.45 micron)
Sulfate - Total	250 mg/L	
Thallium - Dissolved	0.002 mg/L	Filter in field (0.45 micron)
TDS	400 mg/L	Filter in field (0.45 micron)
Uranium - Dissolved	0.0168 to 0.03 mg/L	Filter in field (0.45 micron)
Vanadium - Dissolved	0.1 mg/L	Filter in field (0.45 micron)
Zinc - Dissolved	2 mg/L	Filter in field (0.45 micron)
Chloride, dissolved	250 mg/L	Filter in field (0.45 micron)

Notes: Detection Limit / Reporting Limit must be equivalent to the water quality standard or lower.

EXHIBIT L – RECLAMATION COSTS

The information provided in this Exhibit is intended to satisfy the requirements outlined in Section 6.4.12 of the Colorado Mined Land Reclamation Board Construction Material Rules and Regulations:

Please refer to the attached table for estimates of quantities and associated costs.

EXHIBIT L - RECLAMATION COST

	Activity	Quantity	Units	Unit Costs	Cost
PHASE 1					
	Processing Area/Shop/Scale House/Scale/Backfill/Seeding				
1	Remove concrete pad for wash plant (40'x12'x1')	18	CY	$ 65.00	$ 1,170.00
2	Demolish and remove shop	1	LS	$ 2,000.00	$ 2,000.00
3	Remove concrete footings for shop (45'x6'x2.5')	25	CY	$ 65.00	$ 1,625.00
4	Remove scale trailer	1	LS	$ 2,000.00	$ 2,000.00
5	Remove concrete bases for scale (60'x35'x2.5')	195	CY	$ 65.00	$ 12,675.00
6	Remove Excelsior Culvert (16'x6'x10')	35	CY	$ 65.00	$ 2,275.00
7	Backfill Silt Ponds 4 acres, 20 feet deep, 60% recovery	111,000	CY	$ 3.05	$ 338,550.00
8	Scarify ground	38.2	Acres	$ 150.00	$ 5,730.00
9	Spread 6" topsoil	12,600	CY	$ 0.75	$ 9,450.00
10	Upland Seed and Mulch (mulch at 0.6 tons per acre)	37.8	Acres	$ 900.00	$ 34,020.00
11	Wetland Seed and mulch (Thunderbird Lake, mulch at 0.6 tons per acre)	0.4	Acres	$ 900.00	$ 360.00
				Subtotal	$ 409,855.00
Phase 2					
1	Phase 2 Slurry Wall @100% 11,150 Lineal Feet Avg Depth 34 FT	379,100	SF	$ 6.50	$ 2,464,150.00
2	Backfill to 400 Feet from Riverbank (D-8 dozer)	732,800	CY	$ 3.05	$ 2,235,040.00
3	Backfill Reclamation Slope (D-8 Dozer)	332,200	CY	$ 3.05	$ 1,013,210.00
4	Conveyor Footings (4 sections at 40'x10'x1.5' each)	89	CY	$ 65.00	$ 5,785.00
5	Scarify ground all areas (400' from bank, rec slope, conveyor area)	23.9	Acres	$ 150.00	$ 3,585.00
6	Spread 6" topsoil all areas (400' from bank, rec. slope, conveyor area)	19,279	CY	$ 0.75	$ 14,459.25
7	Upland Seed and Mulch all areas (400' from bank, rec slope, conveyor area, mulch 0.6 t/ac)	22.4	Acres	$ 900.00	$ 20,160.00
8	Wetland Seed and Mulch all areas (rec slope, mulch 0.6 tons/acre)	1.5	Acres	$ 900.00	$ 1,350.00
				Subtotal	$ 5,757,739.25
Phase 3					
1	Phase 3 Slurry Wall @100% 6,192 Lineal Feet Avg Depth 32 FT	198,144	SF	$ 6.50	$ 1,287,936.00
2	Backfill to 400 Feet from Riverbank (D-8 dozer)	200,100	CY	$ 3.05	$ 610,305.00
3	Backfill Reclamation Slope (D-8 Dozer)	213,900	CY	$ 3.05	$ 652,395.00
4	Scarify ground all areas (400' from bank, rec slope)	9.6	Acres	$ 150.00	$ 1,440.00
5	Spread 6" topsoil all areas (400' from bank, rec. slope)	8,308	CY	$ 0.75	$ 6,231.00
6	Upland Seed and Mulch all areas (400' from bank, rec slope, mulch at 0.6 tons/acre)	9.6	Acres	$ 900.00	$ 8,640.00
7	Wetland Seed and Mulch all areas (rec slope, mulch 0.6 tons/acre)	0.7	Acres	$ 900.00	$ 630.00
8	Plug and Abandon Monitoring Wells	6.0	EA	$ 600.00	$ 3,600.00
				Subtotal	$ 2,571,177.00
Total Disturbance Costs					**$ 8,738,771.25**
Indirect Costs					
Overhead & Profit					
Performance Bond (2.02%) - Based on DRMS estimate					$ 176,523.18
Performance Bond (3.07%) - Based on DRMS estimate					$ 268,280.28
Job Superintendent (240 hours @ $75/hr) - Based on DRMS estimate					$ 18,000.00
Contractor Mob and DeMob (3%) - Based on DRMS estimate					$ 262,163.14
Contractor Overhead and Profit (10%) - Based on DRMS estimate					$ 873,877.13
				Subtotal	$ 1,598,843.72
Contract Amount (direct + O & P)					**$ 10,337,614.97**
Legal, Engineering & Project Management					
Financial warranty processing (legal/related costs) ($500)					$ 500.00
Engineering Work and/or contract/bid preparation (4.25%)					$ 439,348.64
Reclamation management and/or administration (5%) - Based on DRMS estimate					$ 516,880.75
Contingency (3%)					$ 262,163.14
				Subtotal	$ 1,218,892.52
Total Indirect Costs					$ 2,817,736.24
Total Bond Amount					$ 11,556,507.49

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