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December 22, 2020

Mr. Elliot Russell
Environmental Protection Specialist
Colorado Department of Natural Resources
Division of Reclamation, Mining and Safety
Office of Mined Land Reclamation
1313 Sherman Street, Room 215
Denver, CO 80203

Re: Project, Permit No. M-1980-244;

Third Adequacy Review, Amendment Application (AM-13) Response to Comments

Mr. Russell,

Cripple Creek and Victor Gold Mining Company (CC&V) received notice of the Division of Reclamation, Mining, and Safety (DRMS) third adequacy review of the CC&V Amendment 13 (A-13) Permit application and the associated comments. CC&V has reviewed the comments issued in the 16 December 2020 letter from DRMS, prepared responses for each comment that requires an additional response and updated (A-13) permit documents as necessary and where indicated in this letter. The remainder of this letter presents those DRMS adequacy review comments that require additional response and CC&V's response. Some comments and responses reference comments and responses made during previous adequacy review and response periods. Those comments and responses are not included in this letter but should be referenced as necessary for context. Attachments to this letter present relevant permit documents that are referenced throughout the letter as a result of DRMS comments and CC&V's subsequent responses.

Four hard copies and one electronic copy are being provided to DRMS. A copy of this response has been placed with Teller County Clerk and Recorder and the public libraries in Cripple Creek, Victor, Florissant and Woodland Park.

Regards,

Katie Blake
Sustainability Manager
Cripple Creek and Victor Mining Company

EC: E. Russell - DRMS
M. Cunningham – DRMS
T. Cazier – DRMS
P. Lennberg - DRMS
B. Bowles – DRMS
L. Morgan – Teller County Planning Department
K. Blake – CC&V
P. Staub – Geosyntec
J. Gillen - Geosyntec

Enc. (8)

THIRD ADEQUACY REVIEW COMMENTS AND RESPONSES

RULE 3.1 - RECLAMATION PERFORMANCE STANDARDS

Water - General Requirements (3.1.6):

DRMS Comment (italics):

7. *The response is adequate.*

Newmont Response:

Comment acknowledged.

DRMS Comment (italics):

8. *It is unfortunate that CC&V stated there were specific sampling protocols for Division review when in the end no protocols exist. The time spent discovering this could have been focused on more critical items in AM-13 or preparing actual formal protocols. The Division does not feel that the assurance given by CC&V to maintain sump levels below the inlet is sufficient and is too vague. The Division will require details regarding the monitoring procedures and events requiring reporting for the Leak Detection System to be submitted as a part of the TR associated item #67 below.*

Newmont Response:

CC&V does have a protocol to monitor and maintain sump levels below the inlet, just as we maintain protocols for other multitudes of sampling and monitoring activities, which contain various standards of practice and site-specific considerations. These protocols are part of and support our overall environmental management system. These protocols and systems support in maintaining and managing certified third-party conformance with the International Cyanide Management Institute (ICMI) and ISO 14001 standards. CC&V is happy to share these protocols with Division staff during on-site inspections.

DRMS Comment (italics):

9. *The response is adequate.*

Newmont Response:

Comment acknowledged.

DRMS Comment (italics):

12. *The response is adequate.*

Newmont Response:

Comment acknowledged.

DRMS Comment (italics):

16. *The response is adequate.*

Newmont Response:

Comment acknowledged.

RULE 6.4 - SPECIFIC EXHIBIT REQUIREMENTS - 112 RECLAMATION OPERATION

EXHIBIT C - Pre-mining & Mining Plan Map(s) of Affected Lands (Rule 6.4.3):

DRMS Comment (italics):

19. The response is adequate.

Newmont Response:

Comment acknowledged.

DRMS Comment (italics):

20. The response is adequate.

Newmont Response:

Comment acknowledged.

DRMS Comment (italics):

22. The response is adequate.

Newmont Response:

Comment acknowledged.

DRMS Comment (italics):

23. The response is adequate.

Newmont Response:

Comment acknowledged.

EXHIBIT D - Mining Plan (Rule 6.4.4):

DRMS Comment (italics):

26. The response is adequate.

Newmont Response:

Comment acknowledged.

DRMS Comment (italics):

27. CC&V was asked to describe the planned layback in the Main Cresson. The amendment application fails to discuss the planned layback entails. Please address the following:

a. Please plainly explain what the layback is.

b. Please provide a figure which shows where within the Main Cresson the layback will occur.

c. Did CC&V identify a geotechnical stability issue of the Main Cresson which warrants the layback?

Newmont Response:

As discussed during a December 15, 2020 conference call between Newmont, the Division, and Geosyntec, the planned layback is purposed for the extraction of additional ore and production, not because of stability concerns as the Division suggested. Please see Figure 1, enclosed as Attachment 1, detailing the location where the layback will occur. Additional details regarding slope angle for mining laybacks is presented in Exhibit D – Mining Plan (previously submitted on August 3, 2020 as part of the response to the Division's Preliminary Adequacy Review comments).

DRMS Comment (italics):

28. In the first adequacy response CC&V stated approximately 4,460 acres needing growth media replacement. CC&V also provided a revised Table D-4 which shows there is currently 2,997,000 CY of growth medium stockpiled the at the site. Additionally, CC&V provided Exhibit D Mine Plan - Figure 2 which shows there is a projected 81 acres where growth media will be salvaged from in the future. If 4,460 acres need at least 6 inches of growth medium replaced, there would need to be 3,597,733 CY available, however, the Applicant has provided information which indicates there is only 3,062,340 CY currently stockpiled or yet to be stripped, leaving a deficit of 535,393 CY. Please address the following:

a. Provide sufficient documentation to demonstrate the volume of each growth media stockpile on-site similar to how CC&V demonstrated the volume of Stockpile 34.

b. Provide an explanation on the site-wide growth medium volume shortage.

c. Provide a plan to import or create the necessary amount of growth medium.

d. Update the Exhibit L Cost Estimate to provide the costs associated with importing or creating the 535,393 CY of additional growth medium needed to complete reclamation

Newmont Response:

CC&V believes there is adequate growth medium volume to complete Life of Mine reclamation. CC&V's records and Exhibit L, submitted to the Division in the last adequacy review response, indicate 3,491,894 CY of growth medium will be placed and spread at closure. CC&V has excluded some affected areas from requiring growth medium because growth medium was already placed or growth medium was never stripped. For example, in Exhibit L there are 118 acres of affected lands underneath and around the growth medium stockpiles that will need varying degrees of reclamation once the growth medium stockpiles are removed; however, these areas will not need growth medium because it was never stripped prior to placing the stockpile.

CC&V in subsequent submissions provided a volume of 2,997,400 cubic yards of growth medium. The majority of this growth medium was stockpiled in lifts using large mining equipment, and many of the stockpiles have archetypal thickness ranging between 16 and 83 feet with an average thickness of approximately 41ft. Thus, the loose cubic yards (LCY) of growth medium stripped in advance of mining has become compacted cubic yards (CCY) after being placed into growth medium stockpiles. CC&V used the method provided in the CAT handbook, enclosed as Attachment 2, to estimate swell from a CCY stockpile to the material's original or loose volume; which represents what is available for use at closure. CC&V estimates that the 2,997,400 CCY of stockpiled growth medium will swell to a minimum of 3,596,880 LCY after being removed from the stockpiles; thus making 3,596,880 LCY available for spreading at closure. CC&V used a swell factor of 20% in this calculation; which is below the swell factor used in examples provided in the CAT handbook for similar materials. As discussed with DRMS

representatives on December 16 and 17, CC&V acknowledges that an acceptable swell factors for growth medium materials may be in the range of 15 to 20%.

Additionally CC&V has approximately 81 acres of land that will need to be stripped in advance of mining in the Globe Hill and Schist Island pit. This stripping should yield approximately 65,000 cubic yards of topsoil.

DRMS Comment (italics):

30. *The response requires additional clarification and possibly additional design work. This proposed VLF expansion extends process solution (both barren and pregnant) well beyond the current piping system. There appears to be several thousand feet of proposed process water pipeline not on liner. For these reasons, it is necessary to differentiate fresh water pipelines from process water pipelines on Drawing C-3 (or other drawings if appropriate) and show edge of liner for all existing and proposed VLFs. Pursuant to the redundancy requirement of Rule 6.4.21(7)(e), CC&V must provide a secondary containment design (such as a dual pipe) for all process water pipe not within the liner system. Segments longer than 500 feet and low sections must have means of determining if process solution has leaked from the primary pipe (such as sampling ports) and is then solely controlled by the secondary containment. Please note the secondary containment intent of this comment was originally stated in our 4/4/2020 letter. Please submit the following:*
    a. *An Exhibit C drawing differentiating freshwater pipelines from process water pipelines and showing the extent of VLF liner (both existing and proposed) in such a manner as to demonstrate which process water pipelines require secondary containment.*
    b. *Secondary containment designs for any process water pipelines proposed outside the existing or proposed VLF liner system.*

Newmont Response:

Drawing C-3 has been updated and is enclosed as Attachment 3. As discussed with DRMS representatives on December 16, the previous Drawing C-3 showed an outdated pipeline associated with the original design. The location of this pipeline has been revised and is shown on the updated drawing. The updated pipeline location is within the lined area.

DRMS Comment (italics):

31. *The response is adequate.*

Newmont Response:

Comment acknowledged.

DRMS Comment (italics):

32. *The response is adequate.*

Newmont Response:

Comment acknowledged.

<u>EXHIBIT E – Reclamation Plan (Rule 6.4.5):</u>

DRMS Comment (italics):

33. *CC&V has committed to working with DRMS to determine appropriate tree planting methods and has requested to address it in a future revision to the permit. Please see Adequacy Review Item #34.*

Newmont Response:

Comment acknowledged.

DRMS Comment (italics):

34. *CC&V has committed to working with DRMS to determine appropriate tree planting success criteria and has requested to address it in a future revision to the permit. Given the scope and nature of Amendment 13, the Division is amenable to accepting the following permit condition:*

CC&V shall submit a modification to the permit addressing tree planting methods and success criteria within 180 days of the approval of Amendment 13, with all materials in approvable form within 240 days of the approval of Amendment 13. This permit modification shall address, at a minimum, all information contained within the Amendment 13 adequacy review items of #33 and #34 generated by the Division during the review period.

Please affirmatively state in writing, CC&V agrees with the permit condition identified above.

Newmont Response:

As agreed during the September 16, 2020 discussion, CC&V will continue to work with the Division to determine appropriate tree planting success criteria into the future. CC&V agrees to the permit condition identified above.

DRMS Comment (italics):

36. *The response is adequate.*

Newmont Response:

Comment acknowledged.

EXHIBIT F – Reclamation Plan Map (Rule 6.4.6):

DRMS Comment (italics):

44. *The response is adequate.*

Newmont Response:

Comment acknowledged.

EXHIBIT J – Vegetation Information (Rule 6.4.10):

DRMS Comment (italics):

47. *The response is adequate.*

Newmont Response:

Comment acknowledged.

EXHIBIT L - Reclamation Costs (Rule 6.4.12):

DRMS Comment (italics):

49. The response is adequate.

Newmont Response:

Comment acknowledged.

EXHIBIT U – DMO Environmental Protection Plan (Rule 6.4.21):

DRMS Comment (italics):

56. The response is adequate.

Newmont Response:

Comment acknowledged.

DRMS Comment (italics):

57. The response is adequate.

Newmont Response:

Comment acknowledged.

DRMS Comment (italics):

62. The response is adequate.

Newmont Response:

Comment acknowledged.

DRMS Comment (italics):

66. CC&V has committed to providing a Technical Revision to refine HVSCS monitoring procedures and clearly define what a "sustained manner" and a "reasonable timeframe" means with respect to these procedures. Please see Adequacy Review Item #67.

Newmont Response:

Agreed. Comment acknowledged.

DRMS Comment (italics):

66. c. CC&V has committed to providing a Technical Revision to refine HVSCS monitoring procedures and clearly define what a "sustained manner" and a "reasonable timeframe" means with respect to these procedures. Please see Adequacy Review Item #67.

Newmont Response:

Agreed. Comment acknowledged.

DRMS Comment (italics):

67. *CC&V has committed to providing a Technical Revision to refine LVSCS monitoring procedures. Given the scope and nature of Amendment 13, the Division is amenable to accepting the following permit condition:*

    CC&V shall submit a modification to the permit addressing the monitoring procedures and events requiring reporting for the High and Low Volume Solution Collection Systems (HVSCS and LVSCS) and Leak Detection System (LDS) within 120 days of the approval of Amendment 13, with all materials in approvable form within 180 days of the approval of Amendment 13. This permit modification shall include, at a minimum: All information contained within the Amendment 13 adequacy review items of #8, #66, and #67 generated by the Division during the review period.

    Please affirmatively state in writing, CC&V agrees with the permit condition identified above.

Newmont Response:

As discussed with the Division in the 16 November 2020 workshop, Newmont commits to providing a Technical Revision to refine the monitoring procedures discussed above. CC&V agrees to the permit condition identified above.

APPENDIX 1

DRMS Comment (italics):

71. *The response is adequate.*

Newmont Response:

Comment acknowledged.

DRMS Comment (italics):

73. *The response requires refinement and additional commitments. During the November 16, 2020 AM-13 Workshop, it was conveyed to the DRMS that the five-foot minus pit backfill specification was selected to allow the occasional large rock, but that such large rocks would not be expected to be the norm. Furthermore, the expectation is that the pit backfill material would be a fairly well graded material. The proposed specification does not reflect this expectation. The DRMS notes that the entire pit backfill could consist of four to five foot size rock and still meet the proposed specification. Based on Dr. Lupo's presentation, this is not the intent for the low compaction zone backfill. CC&V has committed to training operator personnel to observe the "coarse" backfill "to reduce the potential of loading multiple ~5' rocks within the same truck and placing these large particles adjacent to each other". This would require a more subjective size/gradation specification which the DRMS is open to in concept. However, a mutually agreeable subjective gradation specification (perhaps something reflective of the run-of-mine gradation pie charts Justin Bills presented during the November 16th workshop) must be proposed to ensure the DRMS the intent as described by Dr. Lupo is achieved rather than the easily achievable, but not necessarily intended current pit backfill specification. CC&V has also proposed conducting "monthly photographic analyses of loaded material to be used during the bulk backfill operations." and having designated CC&V employees observe, record, and photograph bulk backfill placement under the EoR's direction. The designee would record photographs of dumping operations and complete an inspection template developed by the EoR on a weekly basis. The EoR would perform spot checks on site and review placement records with the CC&V designee on a quarterly basis. Again, the DRMS is open to this approach in concept. However, the proposed frequency of submittals is potentially problematic. As this pit backfill is subject the approval by the DRMS (pursuant to Rule 7.3.1) prior to*

designated chemicals (process solution) being applied to the lined VLF proposed for above the pit backfill, the frequency of verification documentation needs to sufficient that CC&V is willing to repair, correct, or replace material the DRMS deems does not meet final approved drawings and specifications. During the mill platform construction, CC&V informally submitted weekly construction reports to the DRMS for review. Such an approach would be acceptable to the DRMS to help ensure the pit backfill consists of acceptable material and is placed in accordance with the intent expressed by Dr. Lupo. Please provide a revised gradation specification and commit to providing the DRMS with weekly construction reports for the pit backfill.

Newmont Response:

As discussed with the Division in a December 16, 2020 meeting, CC&V has updated the gradation specification to include additional particle size requirement information. The updated gradation specification is enclosed in Attachment 4a. This attachment also addresses Comment G, below. As discussed with DRMS on December 22, 2020 CC&V's intent is to work with DRMS through the reporting process during backfilling construction activities to submit weekly reports in a timely manner.

Please note that Section 02200.0 Earthworks of the Technical Specifications has also been updated and is enclosed in Attachment 4b. This attachment has been included to address Comment K, below.

DRMS Comment (italics):

75. References comments C, G and K, below.

Newmont Response:

Please see responses to comments C, G and K, below.

DRMS Comment (italics):

77. <u>Section 4.6 – Leak Detection System.</u> The response requires additional clarification. Please confirm the proposed leak detection system pipe slopes will be no flatter than 0.5% after the predicted settlement has occurred. If this is not the case, LDS pipe segments expected to be less than 0.5% will need to be installed at slopes sufficient to be no less than 0.5% after expected settlement.

Newmont Response:

The constructed slope of the Leak Detection System was updated to be a minimum of 2%, increased from 1%. Based upon cursory analysis, the slope of the LDS trench is expected to be greater the 0.5%, sloping towards the edge of the pad. CC&V will commit to re-analyzing the alignment and proposed slope during the development of Issued for Construction Drawings and, if needed, increase the minimum LDS trench constructed trench slope.

DRMS Comment (italics):

81. The response is adequate.

Newmont Response:

Comment acknowledged.

DRMS Comment (italics):

82. The response is adequate.

Newmont Response:

Comment acknowledged.

DRMS Comment (italics):

84. The response is adequate.

Newmont Response:

Comment acknowledged.

DRMS Comment (italics):

85. The response is adequate.

Newmont Response:

Comment acknowledged.

DRMS Comment (italics):

86. a. See comments C below.

Newmont Response:

Please see response to Comment C, below.

APPENDIX 3

DRMS Comment (italics):

88. The response is adequate.

Newmont Response:

Comment acknowledged.

DRMS Comment (italics):

89. The response is adequate.

Newmont Response:

Comment acknowledged.

APPENDIX 8

DRMS Comment (italics):

90. Wildlife Protection Plan. CC&V has reverted to a prior Wildlife Protection Plan. Please revise Section 6 or Appendix A of the WPP to reflect the prior commitment that a copy of all Wildlife Incident Reports will be routed to the Division should they occur whereby mining related activity is found to be a

contributing cause.

Newmont Response:

As discussed with the Division in a December 16, 2020 meeting, CC&V has updated the Wildlife Protection Plan to include reporting requirements specific to cyanide incidents and incident reporting requirements. Please see the revised Wildlife Protection Plan in enclosed in Attachment 5. CC&V will commit to sending a copy of the incident report to the Division at the end of the quarter in which the event occurred.

APPENDIX 12

DRMS Comment (italics):

92. The response is adequate.

Newmont Response:

Comment acknowledged.

ADDITIONAL COMMENTS

DRMS Comment (italics):

A. The response is adequate.

Newmont Response:

Comment acknowledged.

DRMS Comment (italics):

B. The response is adequate.

Newmont Response:

Comment acknowledged.

DRMS Comment (italics):

C. The response requires additional clarification or a revision. The response cites a sensitivity analysis for Section 1 indicating the FoS remains at ~2.015 for all angles of friction analyzed. However, the slope stability analyzed for the north end of Section 1 in the April Preliminary Adequacy Review (PAR) response shows the FoS = 1.4 (see Attachment 1 for Comment C). In addition, all failure surfaces for the north end of Section 1 are in the pit backfill material (see Attachment 1). The same is true for Section 4 in the PAR response. It is impausible that varying the friction angle in Sections 1 or 4 has no effect on the stability. (Note: The DRMS acknowledges the analysis for Sections 2 and 3 support the argument made in the Second Adequacy Review response, as the failure surfaces do not intersect the pit backfill material.) Please explain why varying the friction angle in material for which your analyses demonstrates failure surfaces does not affect the FoS; or revise the designs for Sections 1 and 4 to meet the required FoS (for static conditions ≥ 1.5 and for seismic conditions ≥ 1.3).

Newmont Response:

Please refer to CC&V's response to Comment C provided in the previous response to comments. The following is a background summary of A-13 stability evaluations presented:

1) Original design report (NewFields, December 2019): Evaluated stability for Section 1, but Section 4 was not evaluated at that time.

   a) The Section 1 stability evaluation presented indicated that a veneer type failure underneath the VLF along the backfilled slope was most critical. The shear strength of the pit backfill (referred to as "Foundation (Fill)" at that time) was modeled as a purely frictional material with a friction angle of 35 degrees.

      i. In regards to the pit backfill, the following statement was presented: "The common fill consists of material from construction and grading of the VLF2 Phase 3 pad. The material parameters are based on our experience with similar materials."

      ii. The calculated factor of safety was presented as 1.4 and 1.2 for static and pseudostatic conditions, respectively.

2) The revised design report (NewFields, July 2020, Rev. 1): Presented a stability analysis for Section 1 and adding in an evaluation of Section 4, enclosed as Attachment 6.

   a) The stability evaluation for Section 1 was essentially identical as the original submittal. The only change was nomenclature; "Foundation (Fill)" was changed to "Pit Backfill".

   b) The stability of Section 4 was added to assess the overall stability of the SGOSA slopes above the Phase 3 VLF.

      i. Material properties for SGOSA fill were described as: "The fill associated with the SGOSA and the backfill of Schist Island consists of overburden material from general site and pit development. In addition, some earthen materials from the construction and grading of the VLF2 Phase 3 pad could be used. The material parameters are based on our experience with similar materials as well as review of previous design work associated with the SGOSA (AMEC, 2011b)."

      ii. The SGOSA fill was modeled with a frictional strength of 35 degrees.

      iii. The calculated factor of safety was presented as 1.4 and 1.2 for static and pseudostatic conditions, respectively.

3) The responses provided to DRMS in the November 2020 PAR included additional stability evaluations.

   a) Section 1 stability evaluation was modified to force the failure surface through the VLF and not along the underlying Schist Island Pit backfill. The SLIDE model output results for Section 1 and the new critical failure surface are provided in Attachment 6.

      i. This modification to the stability evaluation was completed because we believe that the

failure surface presented in the Design Report (Rev. 0 and Rev. 1) were not significant enough to compromise the integrity of the VLF liner system or overall stability. In general, the presented failure surface along the backfill slopes are veneer failures that are: (1) a function of how the shear strength is modeled using the Mohr-Coulomb failure envelope, and (2) generally veneer failures are operational concerns and not indicative of global instability. The revised Phase 1 stability evaluation is considered more appropriate to assess true global slope stability, and indicates that this section of the facility is quite safe. The calculated factor of safety was presented as 2.0 and 1.7 for static and pseudostatic conditions, respectively.

b) The new critical failure surface identified for Section 1 was then evaluated using a sensitivity analysis, which was provided in the text of the response to Adequacy review Comment C in the November 2020 submittal. The results of that sensitivity analysis, a plot of Factor of Safety v. Friction Angle, is also provided in Attachment 6.

c) Section 4 stability evaluation is identical to the Revision 1 submittal (NewFields, July 2020).

4) In conclusion:

a) Global stability of Section 1 is acceptable because the global stability analyses performed have been updated to (i) screen out results that reflect how the model uses the failure envelope (as mentioned above, and discussed in detail below) and (ii) screen out results associated with general veneer failures that are not indicative of global stability. The calculated factors of safety for the stability analyses are 2.0 and 1.7 for static and pseudostatic conditions, respectively.

b) Veneer style failures of the Schist Island Pit Backfill (e.g. below VLF2 Phase 3 in Section 1) or the regraded SGOSA slopes (e.g. above VLF3 Phase 3 in Section 4) are primarily a function of how we model shear strength of these materials with Mohr-Coulomb failure criteria ($\tau = \sigma_n * \tan\phi + c$). If we model these materials as purely friction (i.e. cohesion is zero), then the shear strength (τ) is only a function of the normal stress (σ_n) along the potential failure plane. Very thin failure planes, such as the veneer failures, have very little normal stress along the potential failure plane and thus the modeled shear strength is very low. This tends to drive the factor of safety down and geotechnical software will calculate this as the lowest factor of safety. This phenomena is generally controlled by the evaluating engineer using judgement on what constitutes significant slope movement that can compromise containment or global stability.

i. As discussed with DRMS, we completed a sensitivity analysis of the Section 4 stability model to assess what strength is necessary for the SGOSA fill to develop static factors of safety of 1.0, 1.3, and 1.5. Graphics are presented in Attachment 6.

1. If no model controls are provided for the failure surface, very shallow failure surfaces (i.e,. veneer failures) develop. The necessary friction angle of the SGOSA fill to generate various factors of safety follow:

Factor of Safety	1.5	1.3	1.0
Required Friction Angle (deg)	38	34	27

2. If the failure surface is constrained to extend at least 40 feet into the subsurface (i.e., an example of a global failure surface), the necessary friction angle of the SGOSA fill to generate various factors of safety follow:

Factor of Safety	1.5	1.3	1.0
Required Friction Angle (deg)	36	32	26

3. If the failure surface is constrained to extend at least 80 feet into the subsurface, the necessary friction angle of the SGOSA fill to generate various factors of safety follow:

Factor of Safety	1.5	1.3	1.0
Required Friction Angle (deg)	33	29	23

4. If the failure surface is constrained to extend at least 120 feet into the subsurface, the necessary friction angle of the SGOSA fill to generate various factors of safety follow:

Factor of Safety	1.5	1.3	1.0
Required Friction Angle (deg)	29	26	20

ii. It is our professional opinion that significant slope movement can be related to the 40-foot failure surface model. The results of this sensitivity analysis indicate that to prevent significant failures in the SGOSA fill, or the Pit Backfill, the frictional strength of the material would need to be 36 degrees for a factor of safety greater than 1.5 or 32 degrees for a factor of safety greater than 1.3.

iii. In terms of the SGOSA material, historic documentation indicates:

1. Amendment 7 – SGOSA Stability Evaluation (Golder, 1998): Friction angle of 39 degrees for waste materials. Shear strength based on a previous evaluation for the Phase I Pad Haul road near Truck Loadout Bin (Golder, 1995).

2. Amendment 9 - SGOSA and MPOSA Stability Evaluations (AMEC, 2011): Friction angle of 39 degrees; based on previous evaluations and Amendments.

3. Index properties of SGOSA material measured in 2016 as part of construction of the VLF 2 facility detailed the particle size distribution as 61% greater than 3", 30% gravel; 6.4% sand; 2.4% fines. The minor amount of fine sand and fines exhibited low plasticity.

DRMS Comment (italics):

D. The response is adequate.

Newmont Response:

Comment acknowledged.

DRMS Comment (italics):

E. The response is adequate.

Newmont Response:

Comment acknowledged.

DRMS Comment (italics):

F. The response is adequate.

Newmont Response:

Comment acknowledged.

DRMS Comment (italics):

G. Similarly to Comment 73 above, there appears to be a disconnect between the intent and expectation of the placed material when compared to the gradation specification. Statements such as "Materials shall be considered suitable for use as fill provided they are reasonably graded such that large void spaces do not result" are inconsistent with the specifications. During the mill platform construction the D100 of 24 inches was less of a potential issue as the lifts were two feet thick and equipment was less of a potential issue as the lifts were two feet thick and equipment was designated for breaking up larger rock. It is more practical to construct five-foot lifts with a D100 of 24 inches, but as stated in the Materials Properties paragraph of the response, this is not was intended. Furthermore the question was not answered: if there is no material smaller than ¾ inch, which would be allowed per the specification: how would the optimum moisture be determined using the standard protector test? As in Comment 73, the DRMS requires an updated gradation specification to ensure the expectations and intent is followed.

Newmont Response:

As explained in CC&V's response to Comment 73, the updated gradation specification is enclosed in Attachment 4a.

DRMS Comment (italics):

H. The response is adequate.

Newmont Response:

Comment acknowledged.

DRMS Comment (italics):

I. The response is adequate.

Newmont Response:

Comment acknowledged.

DRMS Comment (italics):

J. The response is adequate.

Newmont Response:

Comment acknowledged.

DRMS Comment (italics):

K. The response requires additional clarification or a revision. There is a discrepancy between the Technical Specification 0200 Section 3.6 and adequacy review response regarding the construction of a test pad. Within the adequacy review response narrative and per the December 16, 2020 discussion with CC&V, a test bad will not be created for the low compaction effort zone. Please explain why the test pad will not be created and revise the Technical Specification 0200 appropriately. Additionally, as discussed, Technical Specification 0200 should also be revised to reflect a timeframe commitment for the acceptance of non-conforming materials as referenced in Section 2.1.

Newmont Response:

As explained in CC&V's response to Comment 73, the updated technical specification is enclosed in Attachment 4b. The specification has been updated to include additional information and clarification on the test pad construction, as discussed during the December 16, 2020 meeting between CC&V, Geosyntec, NewFields, and the Division.

DRMS Comment (italics):

L. The response is adequate.

Newmont Response:

Comment acknowledged.

DRMS Comment (italics):

M. The response is adequate.

Newmont Response:

Comment acknowledged.

DRMS Comment (italics):

N. The response is adequate.

Newmont Response:

Comment acknowledged.

DRMS Comment (italics):

O. The response is adequate.

Newmont Response:

Comment acknowledged.

DRMS Comment (italics):

VLF2 Phase III Design Drawings A-13, A-14, A-19 and A-20. No formal comment issued. As discussed during a 21 December conference call with CC&V. Please update Drawings A13, A14, A19, and A20 to include additional detail specifying ore, structural fill, and overburden fill material.

Newmont Response:

During a 21 December teleconference call with Division representatives, the Division indicated to CC&V that design Drawings A13, A14, A19, and A20 should be updated to reflect the different materials that would be used for pit backfill per the specifications and intent of the design. CC&V has updated those design drawings to show overburden backfill and structural fill materials that will be used to construct the pit backfill. The updated drawings are enclosed in Attachment 7.

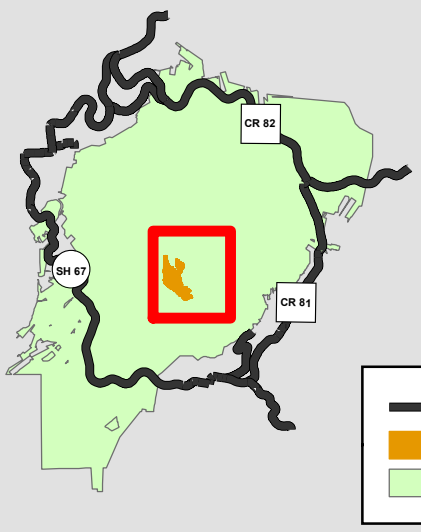
List of Attachments

Attachment Number	Description
1	Figure 1 – Layback to Cresson Pit (Comment 27)
2	CAT Handbook Excerpt (Comment 28)
3	Drawing C-3 (Comment 30)
4a	Technical Specifications – Earthworks Construction Quality Assurance Plan (Comments 73 & G)
4b	Technical Specifications – Section 02200.0 Earthworks (Comment K)
5	Wildlife Protection Plan (Comment 90)
6	Stability Analysis (Comment C)
7	VLF2 Phase III Design Drawings A-13, A-14, A-19 and A-20 (Additional Comment)

ATTACHMENT 1
RESPONSE TO COMMENT 27

West Cresson Layback

Main Cresson Pit



1 inch = 11,000 Ft

2 Miles

Newmont
CRIPPLE CREEK & VICTOR

Newmont Corporation

Cripple Creek and Victor Gold Mining Company

Figure 1

Layback sequence West Cresson

N

0 1,000 2,000 Feet

Author: J. Darby	Date: 12/2020 Photo: 9/2019
Scheduled 2022-2025	1 inch = 660 feet

ATTACHMENT 2
RESPONSE TO COMMENT 28

Volume Measure — Material volume is defined according to its state in the earthmoving process. The three measures of volume are:

BCM (BCY) — one cubic meter (yard) of material as it lies in the natural bank state.

LCM (LCY) — one cubic meter (yard) of material which has been disturbed and has swelled as a result of movement.

CCM (CCY) — one cubic meter (yard) of material which has been compacted and has become more dense as a result of compaction.

In order to estimate production, the relationships between bank measure, loose measure, and compacted measure must be known.

Swell — Swell is the percentage of original volume (cubic meters or cubic yards) that a material increases when it is removed from the natural state. When excavated, the material breaks up into different size particles that do not fit together, causing air pockets or voids to reduce the weight per volume. For example to hold the same weight of one cubic unit of bank material it takes 30% more volume (1.3 times) after excavation. (Swell is 30%.)

$$1 + \text{Swell} = \frac{\text{Loose cubic volume for a given weight}}{\text{Bank cubic volume for the same given weight}}$$

$$\text{Bank} = \frac{\text{Loose}}{(1 + \text{Swell})}$$

$$\text{Loose} = \text{Bank} \times (1 + \text{Swell})$$

Example Problem:

If a material swells 20%, how many loose cubic meters (loose cubic yards) will it take to move 1000 bank cubic meters (1308 bank cubic yards)?

Loose = Bank × (1 + Swell) =
1000 BCM × (1 + 0.2) = 1200 LCM
1308 BCY × (1 + 0.2) = 1570 LCY

How many bank cubic meters (yards) were moved if a total of 1000 loose cubic meters (1308 yards) have been moved? Swell is 25%.

Bank = Loose ÷ (1 + Swell) =
1000 LCM ÷ (1 + 0.25) = 800 BCM
1308 LCY ÷ (1 + 0.25) = 1046 BCY

Load Factor — Assume one bank cubic yard of material weighs 3000 lb. Because of material characteristics, this bank cubic yard swells 30% to 1.3 loose cubic yards when loaded, with no change in weight. If this 1.0 bank cubic yard or 1.3 loose cubic yards is compacted, its volume may be reduced to 0.8 compacted cubic yard, and the weight is still 3000 lb.

Instead of dividing by 1 + Swell to determine bank volume, the loose volume can be multiplied by the load factor.

If the percent of material swell is known, the load factor (L.F.) may be obtained by using the following relationship:

$$\text{L.F.} = \frac{100\%}{100\% + \%\ \text{swell}}$$

Load factors for various materials are listed in the Tables Section of this handbook.

To estimate the machine payload in bank cubic yards, the volume in loose cubic yards is multiplied by the load factor:

$$\text{Load (BCY)} = \text{Load (LCY)} \times \text{L.F.}$$

The ratio between compacted measure and bank measure is called shrinkage factor (S.F.):

$$\text{S.F.} = \frac{\text{Compacted cubic yards (CCY)}}{\text{Bank cubic yards (BCY)}}$$

Shrinkage factor is either estimated or obtained from job plans or specifications which show the conversion from compacted measure to bank measure. Shrinkage factor should not be confused with percentage compaction (used for specifying embankment density, such as Modified Proctor or California Bearing Ratio [CBR]).

Material Density — Density is the weight per unit volume of a material. Materials have various densities depending on particle size, moisture content and variations in the material. The denser the material the more weight there is per unit of equal volume. Density estimates are provided in the Tables Section of this handbook.

$$\text{Density} = \frac{\text{Weight}}{\text{Volume}} = \frac{\text{kg (lb)}}{\text{m}^3\,(\text{yd}^3)}$$

$$\text{Weight} = \text{Volume} \times \text{Density}$$

ATTACHMENT 3
RESPONSE TO COMMENT 30

City Limits of Cripple Creek
HWY 67
CCMOD Boundary
CR 821
CR 82
Historic Recreation Buffer
Mollie Kathleen
Poverty Gulch
Cripple Creek
Chicago Portal
Shop
Existing Engineering Building
Aux. Employee Parking Lot
Office Annex
Contractor's Offices & Parking
Warehouse
Bulk Emulsion Facility
Small Vehicle Shop
Large Vehicle Shop
Fuel Island
Tire Pad
Explosives Storage Area
Cameron
Crosby Creek
Pump Station
VLF2 Phase 3 PSSA (Approx. Location, See Note 4)
VLF2 Liner Area
Existing Water Tank
Cripple Creek
Offices & Warehouse
Lime/Cement Silo
Backup Generators
Office
CCMOD Boundary
Mill Building
Existing Water Tank
ADR
Squaw Gulch
High Grade Mill Feed
Existing LOB
Barren Line Tie-In
Water Tank
Primary Crusher
Belt Sampler
Lime Silo
Secondary Crushers
Crusher Ore Stockpile
Security Office
Underdrain Ponds
Existing Power
Shelf Road
Squaw Gulch
HWY 67
CR 831
CR 81
CR 84
Victor Buffer Area Boundary
Goldfield
Arequa Gulch
Existing Water Tank
Pumpback
Projects Office
PSE
Lab
External Storage Pond
Security Office
Parking Lot
Existing Water Tank
City of Victor Emergency Services Radio Tower at Little Grouse Mountain
Substation not owned by CC&V
CCMOD Boundary
Victor
Batemen Gulch

N

660 0 330 660 1320
1 inch = 660 ft.

Legend

- Affected Lands Boundary
- CCMOD Boundary
- Cripple Creek City Limits
- Victor Buffer Area Boundary
- Direction of Surface Water Flow
- Proposed Building (See Note 4)
- Existing Building
- VLF2 Liner Area
- PSL — Proposed Pregnant Solution Line (Owned By CC&V/Newmont)
- Existing Power Line (Owned By Black Hills Energy)
- Existing Buried Gas Line (Owned By Colorado Natural Gas)
- Existing Water Line (Owned By City of Victor)
- Existing Water Line (Owned By CC&V/Newmont)
- Existing Phone Line (Owned By CenturyLink)
- Existing Fiber Optic Line (Owned By CC&V/Newmont)
- Existing Power Line

Notes:
1. Topography shown represents anticipated final build-out of facilities prior to reclamation.
2. For existing buildings and utilities see Drawings C-2 and C-2b.
3. No new buildings or utilities are proposed for construction.
4. Exact location and footprint of VLF2 Phase 3 PSSA Tanks(s) to be presented in future documentation.

Certification

Rev #	Description	Date	BY	CHK	APP
1	AMENDMENT 13	12/13/19	JG	JB	JR
2	AMENDMENT 13 ADEQUACY REVIEW RESPONSES	11/02/20	JG	JB	JR
3	AMENDMENT 13 ADEQUACY REVIEW RESPONSES RND 3	12/21/20	JG	KB	KB

NEWMONT GOLDCORP.

Cripple Creek & Victor Gold Mining Company

Drawing C-3: Proposed Facilities - Buildings and Utilities
Cresson Project - Amendment 13

Date: 12-21-20 | Scale: 1" = 660' | A13 C3 Proposed Utilities.dwg | REV: 3

ATTACHMENT 4A
RESPONSE TO COMMENTS 73 & G

NewFields	CLIENT Newmont Cripple Creek & Victor Gold Mine	PROJECT NO 475.0106.033
PROJECT: VLF2 Phase 3		
TITLE: TECHNICAL SPECIFICATIONS – Earthworks Construction Quality Assurance (CQA) Plan		**SPECIFICATION NO.** **01400 EARTHWORK CQA REV1 REV!**

REV	DATE	PAGES	APPROVALS			REMARKS
			AUTHOR	REVIEW	CLIENT	
0	12/5/2019	10	JNM	KCW		Issued for Permitting
1	12/17/2020	10	JNM	KCW		Re-Issued for Permitting

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LIST OF TABLES

SECTION 01400.1 EARTHWORKS CONSTRUCTION QUALITY ASSURANCE (CQA) PLAN

1. PART 1: INTRODUCTION

This plan addresses the construction quality assurance (CQA) procedures for the installation of the earthworks (soils) components of the valley leach facility at the Cresson Project, Teller County, Colorado. This program has been developed to assure that the construction of the soil components are in compliance with the project SPECIFICATIONS and to demonstrate that the regulatory requirements for the construction are achieved.

The objective of this plan is to assure that proper materials, construction techniques, and procedures are followed by the **CONTRACTOR** and that the intent of the design is met. This plan also provides the means for resolution of problems that may occur during construction.

This plan addresses quality assurance, not quality control. This CQA Plan is independent of the quality control (QC) programs conducted by **CONTRACTOR**. The intent of the CQA Plan is to provide independent third party verification and testing, to demonstrate that the **CONTRACTOR** has met its obligations in the supply and installation of earthwork (soils) materials according to the design, project SPECIFICATIONS, contractual, and regulatory requirements. Quality control is provided by **CONTRACTOR** and refers to those actions taken by the **CONTRACTOR** to ensure that materials and workmanship meet the requirements of the DRAWINGS and SPECIFICATIONS.

2. PART 2: DESCRIPTION OF PARTIES TO CONSTRUCTION QUALITY ASSURANCE

The following section provides descriptions of the parties to this CQA Plan including their responsibilities and qualifications.

2.1. CC&V

In this CQA Plan, **CC&V** refers specifically to Cripple Creek & Victor Gold Mining Company. **CC&V** owns and operates the valley leach facility.

2.2. Manager

In this CQA Plan, **MANAGER** refers to the individual appointed by the Cripple Creek & Victor Gold Mining Company. **MANAGER** is the official representative of **CC&V** and is responsible for all construction activities including oversight and direction during construction. **MANAGER** is also responsible for coordinating construction and CQA activities for the project.

MANAGER shall serve as communications coordinator for the project, initiating preconstruction and resolution meetings. As communications coordinator, **MANAGER** will serve as a liaison between all parties involved in the project to ensure that ongoing communications are

maintained. **MANAGER** and **CERTIFYING ENGINEER** shall be responsible for the resolution of all CQA issues.

Duties for this position include the following:

- review and approval of DRAWINGS and SPECIFICATIONS for all soil components of the valley leach facility;
- preconstruction coordination with the **CQA MONITOR** to ensure that the **CQA MONITOR** has performed similar reviews of the DRAWINGS and SPECIFICATIONS to ensure that the CQA Plan can be implemented;
- coordination of all construction activities associated with **CONTRACTOR**;
- scheduling and coordinating construction activities with required CQA testing and activities;
- overseeing the construction quality control operations performed by **CONTRACTOR**;
- approve specific corrective measures to be implemented during construction when deviations from the SPECIFICATIONS occur;
- ensure that required quality assurance testing has been performed in accordance with the CQA Plan and to the satisfaction of the **CQA MONITOR**; and
- ensure that the CQA personnel are provided with all documentation required in the CQA Plan and project SPECIFICATIONS.

2.3. Design Engineer

In this CQA Plan the **DESIGN ENGINEER and Engineer of Record (EOR)** refers specifically to NewFields who has assumed the role of **DESIGN ENGINEER** after a thorough review of design documents to include, but not limited to, the DRAWINGS and SPECIFICATIONS. The **DESIGN ENGINEER** or the **CERTIFYING ENGINEER** identified in section 2.4 below, is responsible for approving all DRAWING and SPECIFICATION changes, modifications, or clarifications encountered during construction.

2.4. Certifying Engineer

In this plan, **CERTIFYING ENGINEER** refers specifically to NewFields. **CERTIFYING ENGINEER** is the individual or firm responsible for certifying the construction was performed in compliance with the DRAWINGS and SPECIFICATIONS. **MANAGER** and **CERTIFYING ENGINEER** shall be responsible for the resolution of all quality assurance issues.

2.5. Construction Quality Assurance Monitor

The **CQA MONITOR** is the firm or individual responsible for performing the CQA tasks outlined in this CQA Plan. The **CQA MONITOR** is the official CQA representative of **CC&V** and has the

responsibility of overseeing the CQA aspects of the Work. In this CQA Plan the **CQA MONITOR** is associated with the **CERTIFYING ENGINEER,** and refers specifically to (To Be Determined). The **CQA MONITOR** has the authority to stop any aspect of the Work that is not in compliance with the CQA Plan. Work would then be resumed once corrective action has been approved by **MANAGER**. The specific responsibilities of the **CQA MONITOR** include:

- review the DRAWINGS, SPECIFICATIONS, and related guidance documents;
- review all **CONTRACTOR** QC submittals and make appropriate recommendations;
- obtain preconstruction and construction samples and perform material evaluation testing as required;
- monitor foundation preparation activities as discussed in Section 6.2.1 and material placement as discussed in Section 6.2.2;
- assure that testing equipment used and tests performed are conducted according to SPECIFICATIONS and industry standards;
- document and report test results to **MANAGER**;
- report any deficiencies to **MANAGER** that are not corrected to the satisfaction of the **CQA MONITOR**, including design or SPECIFICATION changes;
- prepare a Construction Certification Report describing the construction, any deviations from SPECIFICATIONS or DRAWINGS and details, details of all field and laboratory test data, tests results (both laboratory and field), professional certification that construction was completed in accordance with the DRAWINGS and SPECIFICATIONS. The Construction Certification Report will be signed and sealed by the **CERTIFYING ENGINEER** registered in the State of Colorado;
- monitor the ambient air temperature and fill temperature, as outlined in Section 2200 of the SPECIFICATIONS; and
- maintain an on-site soils laboratory and perform regular calibration of equipment.

2.6. Earthworks Contractor

The Earthworks Contractor, also referred to as "**CONTRACTOR**", is responsible for proper processing, delivery and placement of all components as outlined in the SPECIFICATIONS.

3. PART 3: LINES OF COMMUNICATION

The **CQA MONITOR** shall be capable of direct communication with **MANAGER**, **DESIGN ENGINEER** and **CERTIFYING ENGINEER** at all times. Deficiencies that can be easily remedied, such as unsatisfactory test results, will be dealt with directly between the **CQA MONITOR**, and **CONTRACTOR**. The **CQA MONITOR** will also discuss any deficiencies with the **CERTIFYING ENGINEER**.

If there is a disagreement among the **DESIGN ENGINEER, CERTIFYING ENGINEER,** and/or **MANAGER** that cannot be resolved among themselves, **MANAGER** shall present the matter to **CC&V** with **MANAGER** related recommendations and **CC&V** shall decide the matter with such decision being final.

4. PART 4: DEFICIENCIES

When deficiencies (items that do not meet SPECIFICATIONS or DRAWINGS) are discovered, the **CQA MONITOR** will immediately determine the nature and extent of the problem and notify the **CONTRACTOR**. If unsatisfactory test results identify a deficiency, additional tests will be performed to define the extent of the deficient area.

CONTRACTOR shall correct the deficiency to the satisfaction of the **CQA MONITOR**. If **CONTRACTOR** is unable to correct the problem, the **CQA MONITOR** will notify **MANAGER** and **CERTIFYING ENGINEER** which will assist in problem resolution. If the solution involves a design revision, the **DESIGN ENGINEER** shall also be contacted.

The **CQA MONITOR** shall retest and the **MANAGER** and **CERTIFYING ENGINEER** shall approve the corrected deficiencies before any additional related work is performed by **CONTRACTOR**. All retests and related documentation shall be recorded by the **CQA MONITOR** and included in the Construction Certification Report.

5. PART 5: MEETINGS

This section identifies and describes the meetings to be held during the course of the construction. Meetings shall be held in order to clearly define construction activities and goals in order to facilitate construction.

5.1. Preconstruction Meeting

MANAGER will hold a preconstruction meeting at the site prior to the start of construction. **MANAGER**, **DESIGN ENGINEER, CERTIFYING ENGINEER**, **CQA MONITOR**, **CONTRACTOR**, and others designated by **MANAGER** shall attend this meeting. The purpose of this meeting will be to:

- review the construction DRAWINGS, CQA Plan, and SPECIFICATIONS;
- define the responsibilities of each party;
- define lines of communication and authority;
- review method of documentation, testing procedures, and reporting inspection data;
- establish testing protocols and procedures for correcting and documenting construction deficiencies;

- discuss any changes that may be needed to ensure that construction will be completed in compliance with the design; and
- This meeting will be documented by **MANAGER** and copies will be distributed to all parties.

5.2. Progress Meetings

MANAGER will hold a daily progress meeting, either before the start of work or at the completion of work. At a minimum, this meeting will be attended by the **CQA MONITOR** and **CONTRACTOR**. The purpose of this meeting will be to:

- review all the previous day's accomplishments and activities;
- review scheduled work location and activities for the day;
- discuss any problems or potential construction problems; and,
- review test data.

5.3. Deficiency Meetings

Special meetings will be held, as needed, to discuss potential problems or deficiencies. At a minimum, these meetings will be attended by the **CQA MONITOR** and **CONTRACTOR**. If the problem relates to a design issue, **MANAGER**, **DESIGN ENGINEER** and **CERTIFYING ENGINEER** should also be present. The meeting will be documented by the **CQA MONITOR**.

6. PART 6: EARTHWORKS CONSTRUCTION QUALITY ASSURANCE

Construction of the valley leach facility or specified earthworks shall be in accordance with the DRAWINGS and SPECIFICATIONS. A CQA monitoring and testing program shall be implemented by **CC&V** to ensure construction compliance by the **CONTRACTOR**. The CQA testing program shall consist of construction testing of materials used in the valley leach facility construction. The types of materials are defined in the SPECIFICATIONS. During construction, the **CQA MONITOR** shall sample and test these soil types to determine if they meet SPECIFICATIONS. The **CQA MONITOR** shall obtain and test soil samples in accordance with American Society for Testing and Material standards ASTM D75 and ASTM D420. All tests shall be performed by the **CQA MONITOR** on-site or in a geotechnical laboratory approved by the **CERTIFYING ENGINEER.**

6.1. Overburden Fill Placement

Construction of the Overburden Fill will be completed by the **CONTRACTOR** prior to the arrival of the **CQA MONITOR**. During this period, the **MANAGER** will provide the **CERTIFYING ENGINEER** and Division of Reclamation, Mining and Safety with weekly progress reports. These reports will include photographic evidence the material being placed meets the specification requirements, progress being made, and placement methods utilizing a template developed by the **CERTIFYING**

ENGINEER. In addition, "Photographic Analysis" of the gradation of the material will be completed by the **MANAGER** on a monthly basis. Additionally, on a quarterly basis the **CERTIFYING ENGINEER** will perform on-site visual inspections and meet with the **MANAGER** to review the progress of the Overburden Fill placement.

6.2. Construction Testing

During construction, the **CQA MONITOR** shall test all earthwork components to verify that the construction is in accordance with the SPECIFICATIONS. Testing shall be performed on all soil used in the construction to confirm the materials meet SPECIFICATIONS. The **CQA MONITOR** shall conduct testing after final placement of the materials. The tests to be performed, and the testing frequency, for each material type are listed in Tables 1 and 2. The testing frequencies specified in Tables 1 and 2 shall be increased when the **CQA MONITOR** determines that construction conditions (such as adverse weather, equipment breakdown, improperly ballasted compactor, excessive lift thickness, improper soil type, improper moisture conditioning and compaction) warrant additional tests. Additional tests will be approved by **MANAGER** and directed by the **CQA MONITOR**.

6.3. Construction Monitoring

The **CQA MONITOR** will monitor and test all earthwork quality assurance components of the construction to verify that the construction is in accordance with the SPECIFICATIONS. The **CQA MONITOR** shall identify inadequate construction methodologies or materials that may adversely impact the performance of the facility being constructed and existing structures. The **CQA MONITOR** will record visual observations throughout the construction process to ensure that the materials are placed to the minimum dimensions as shown on the DRAWINGS. Quality control testing will be performed by the **CONTRACTOR**.

6.3.1. Foundation Preparation

The **CQA MONITOR** shall observe and document the foundation preparation including:

- stripping and excavation activities to ensure that **CONTRACTOR** places the material in the appropriate stockpile (Structural Fill, Select Structural Fill, Leak Detection Fill, Low Volume Solution Collection Fill, Bedding Fill, Soil Liner Fill, Drain Cover Fill, Fine Shaft Backfill, Pipe Bedding Material and Granular Filter Material), if stockpiling is necessary;
- stockpiling activities to verify location of stockpile, material type, and dressing;
- excavations for moisture seeps, unsuitable foundation soil, elevation, and proper drainage;
- subgrade preparation to confirm that the surface of the subgrade is free of soft, organic, and otherwise deleterious materials (such as debris, branches, vegetation, mud, ice, or frozen materials); and that soil and rock surfaces that contain joints or fractures are adequately filled

in accordance with the SPECIFICATIONS; and

- construction of access roads, drainage control features and erosion control features to verify compliance with the DRAWINGS and SPECIFICATIONS.

6.3.2. Placement Of Materials

During placement of Structural Fill, Select Structural Fill, Coarse Shaft Backfill, Cemented Rockfill, Low Volume Solution Collection Fill, Bedding Fill, Leak Detection Fill, Soil Liner Fill, Drain Cover Fill, Fine Shaft Backfill, Pipe Bedding Material and Granular Filter Material, the **CQA MONITOR** shall:

- verify the use of appropriate fills;
- monitor and document material placement, including soil type, particle size, loose lift thickness, moisture conditioning process, compaction equipment and methods used to attain compaction, including number of passes, uniformity of compaction coverage, compacted lift thickness, bonding of lifts and in-place moisture content and dry density is in compliance with the SPECIFICATIONS;
- monitor Soil Liner Fill surface preparation to verify that the surface has been proof-rolled, compacted, or hand worked so as to be in a condition suitable for geomembrane installation as discussed in Section 02200 of the SPECIFICATIONS;
- monitor Bedding Fill placement and surface preparation to verify that the surface is suitable for geomembrane installation as discussed in Section 02200 of the SPECIFICATIONS;
- monitor the placement of fill to ensure that **CONTRACTOR** exercises care in the vicinity of pipes and that the underlying geosynthetics are not damaged;
- monitor and document **CONTRACTOR** verification of in-place Soil Liner Fill, Bedding Fill, Low Volume Solution Collection Fill and Drain Cover Fill thickness;
- monitor equipment being used to place Low Volume Solution Collection Fill and Drain Cover Fill to verify that the **CONTRACTOR** places the material in accordance with the SPECIFICATIONS;
- monitor that Low Volume Solution Collection Fill and Drain Cover Fill is pushed uphill for areas in which the slope exceeds 4H:1V and that the dozer does not perform unacceptable pivot turns; and
- monitor the fill temperature as identified in Section 02200 of the SPECIFICATIONS.

7. PART 7: DOCUMENTATION

Documentation kept by the **CQA MONITOR** shall consist of daily record-keeping, construction problem resolutions, design and SPECIFICATION changes, photographic records of construction,

weekly progress reports, chain of custody forms for test sample tracking, and a Construction Certification Report.

7.1. Daily Record Keeping

Daily records kept by the **CQA MONITOR** shall consist of field notes, observation and testing data sheets, summary of the daily meeting with **CONTRACTOR**, and reporting of construction problems and resolutions. The **CQA MONITOR** shall submit this information on a regular basis to **MANAGER** for review.

7.2. Soils Observation and Testing Forms

The **CQA MONITOR** will document soils observations on forms that generally include the following information:

- date, project name, location, and weather data, including high and low daily temperatures;
- a site plan showing work areas and test locations;
- descriptions of ongoing construction detailing work areas and equipment utilized by **CONTRACTOR;**
- summary of test results and samples obtained, with locations and elevations;
- resolutions of deficient test results;
- test equipment calibrations, if necessary;
- summary of meetings held; and
- signature or initials of the **CQA MONITOR**.

7.3. Photo Documentation

The **CQA MONITOR** shall photograph all phases of construction. Photographs shall be identified by location, time, date, and name of the **CQA MONITOR** taking the photograph.

7.4. Design and Specification Changes

During construction, the need to address DESIGN and SPECIFICATION changes, modifications, or clarifications may arise. In such cases the **CQA MONITOR** shall notify **MANAGER**, which shall notify the **DESIGN ENGINEER** and the **CERTIFYING ENGINEER**. DESIGN and SPECIFICATION changes shall only be made with written agreement from **MANAGER** and **DESIGN ENGINEER**.

7.5. Weekly Progress Reports

The **CQA MONITOR** shall prepare weekly progress reports summarizing all construction and quality assurance activities. This report shall be submitted to **MANAGER** and shall include the following information:

- date, project name, and location;
- summary of construction related activities;
- summary of samples taken and test results;
- summary of deficiencies and/or defects and resolutions; and,
- signature of the **CQA MONITOR**.

7.6. Construction Certification Report

At the completion of the project, the **CQA MONITOR** shall submit to **MANAGER** a Construction Certification Report. This report shall certify that the work has been performed in compliance with the DRAWINGS and SPECIFICATIONS and will contain the following information:

- summary of all construction activities;
- photographic documentation;
- test data sheets;
- copies of weekly reports;
- CQA test results, including date, test locations and resolutions of deficient test results;
- copies of surveyors certificate;
- fill temperature monitoring results;
- staff schedule summary;
- a description of significant construction problems and the resolution of these problems;
- changes to the DRAWINGS or SPECIFICATIONS and the justification for these changes;
- record drawings, and
- a statement certifying that construction was completed in compliance with the DRAWINGS and SPECIFICATIONS, signed, and sealed by the **CERTIFYING ENGINEER** registered in the State of Colorado.

TABLE 1: SOIL CONSTRUCTION TESTING FREQUENCY[1] VOLUME PER TEST

Test and ASTM Designation	Subgrade (cy)	Structural Fill (cy)	Select Structural Fill (cy)
Compaction (ASTM D698)	50,000	50,000	50,000
Particle Size[2] (ASTM C117, C136, D1140, D6913)	50,000	50,000	50,000
Atterberg Limit (ASTM D4318)	--	50,000	--
Moisture Content[3] (ASTM D2216)	2,000	2,000	2,000
Nuclear Density/Moisture (ASTM D6938)	2,000	2,000	2,000

[1] Tests shall be performed at the specified frequency or one per material type, whichever is greater.
[2] Use the USCS for description and identification (ASTM D2488).
[3] In-place moisture content.

TABLE 2: SOIL CONSTRUCTION TESTING FREQUENCY[1] VOLUME PER TEST

Test and ASTM Designation	Low Volume Solution Collection Fill, Bedding Fill, Leak Detection Fill, and Pipe Bedding Fill (cy)	Soil Liner Fill (cy)	Drain Cover Fill (cy)
Compaction (ASTM D698)	--	4,000	--
Particle Size[2] (ASTM C117, C136, D1140) D6913	10,000	4,000	20,000
Atterberg Limit (ASTM D4318)	10,000	4,000	20,000
Moisture Content[3] (ASTM D2216)	10,000	500	20,000
Permeability[4] (ASTM D5084)	--	4,000	--
Nuclear Density/Moisture (ASTM D6938)	--	500	--

[1] Tests shall be performed at the specified frequency or one per material type, whichever is greater.
[2] Use the USCS for description and identification (ASTM D2488).
[3] In-place Moisture Content.
[4] Permeability testing will be performed during the processing of the Soil Liner Fill material, certifying the processed stockpile.

ATTACHMENT 4B
RESPONSE TO COMMENT K

NewFields	CLIENT Newmont Cripple Creek & Victor Gold Mine	PROJECT NO 475.0106.033
PROJECT: VLF2 Phase 3		
TITLE: TECHNICAL SPECIFICATIONS –EARTHWORKS		**SPECIFICATION NO.** **02200 EARTHWORKS REV33**

REV	DATE	PAGES	APPROVALS			REMARKS
			AUTHOR	REVIEW	CLIENT	
0	12/05/2019	21	JNM	KCW		Issued for Permitting
1	7/24/2020	21	JNM	KCW		Re-Issued for Permitting
2	12/01/2020	19	JNM	KCW		Re-Issued for Permitting
3	12/17/2020	19	JNM	KCW		Re-Issued for Permitting

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SECTION 02200.0 EARTHWORKS

1. PART 1: GENERAL

1.1. Summary

This specification describes site preparation, excavation, stockpiling of soils for earthwork if necessary, and placement of Structural Fill, Select Structural Fill, Coarse Shaft Backfill, Low Volume Solution Collection Fill, Bedding Fill, Leak Detection Fill, Soil Liner Fill, Drain Cover Fill, Fine Shaft Backfill, Pipe Bedding Material, and Granular Filter Material for the valley leach facility.

1.2. Related Sections

Refer to the following Sections for related work:

- Section 01050.0 - Staking and Construction Certification Documentation
- Section 02776.0 - Geomembrane
- Section 02777.0 - Geotextile

1.3. Tolerances

A. Limits of excavation, Structural Fill, Select Structural Fill, Coarse Shaft Backfill, Low Volume Solution Collection Fill, Bedding Fill, Leak Detection Fill, Soil Liner Fill, Drain Cover Fill, Fine Shaft Backfill, Pipe Bedding Material, and Granular Filter Material for the valley leach facility are defined by the lines and elevations shown on the DRAWINGS. All fill shall be placed to the minimum thicknesses shown on the DRAWINGS.

B. Finished grades shown on the DRAWINGS are given in feet and shall slope uniformly between given spot and contour elevations, without sag or humps. All grades shall provide for natural runoff.

C. The Soil Liner Fill and Bedding Fill shall have a minimum thickness of 1.0 foot.

D. The Low Volume Solution Collection Fill will have a minimum thickness of 3.0 feet at all times, and the Drain Cover fill will have a minimum thickness of 2.0 feet at all times.

E. Clearance of pipes with respect to regulated boundaries will be checked by **MANAGER**. If clearances are inadequate, **CONTRACTOR** shall backfill trenches to compaction SPECIFICATIONS and relocate trenches at **CONTRACTOR**'s expense.

F. Correction of over-excavation and backfilling shall be to **CONTRACTOR**'s account.

1.4. Quality Assurance

A. All work shall be monitored and tested in compliance with the requirements of the CQA Plan.

B. **CONTRACTOR** shall be aware of all testing activities outlined in the CQA Plan, and shall account for these activities in the construction schedule.

C. All CQA soils testing (both field and laboratory testing) will be the responsibility of **CERTIFYING ENGINEER**, as identified in the Earthworks CQA plan. **CONTRACTOR** shall be responsible for cooperating with **CQA MONITOR** during all testing activities. **CONTRACTOR** shall provide equipment and labor to assist **CQA MONITOR** in sampling, if requested, and shall also provide access to all areas requiring testing activities. Quality Control testing shall be the responsibility of the **CONTRACTOR**.

D. All excavation, backfill, and grading operations shall be carried out under the observation of **MANAGER** and **CERTIFYING ENGINEER**.

E. Any work found unsatisfactory or any work disturbed by subsequent operations before acceptance is granted shall be corrected by **CONTRACTOR**, at its sole cost.

2. PART 2: PRODUCTS

2.1. Materials

A. Fill materials will be soils, gravels, or rock fill approved by **MANAGER** and **CERTIFYING ENGINEER**. The materials shall be free of organic matter, debris, frozen material, and other deleterious materials, and shall be excavated, as required, as follows:

1. Overburden Fill – material as approved by the Manager and Certifying Engineer conforming to the following specifications:

U.S. Standard Sieve Size	Percent Passing by Dry Weight
60– inch	100
36-inch	80-100
3-inch	40 -100
Plasticity Index: 30 maximum	

2. Structural Fill - material as approved by **MANAGER** and **CERTIFYING ENGINEER** conforming to the following specification:

U.S. Standard Sieve Size	Percent Passing by Dry Weight
24 – inch	100
8-inch	40-100
No. 200	0 – 25
Plasticity Index: 30 maximum	

2. Select Structural Fill - well graded granular soil or sound, hard, durable, rockfill excavated on-site or supplied from off-site mine waste rock with a maximum particle size of 3 inches as approved by **MANAGER** and **CERTIFYING ENGINEER**.

3. Leak Detection Fill - material approved by **MANAGER** and **CERTIFYING ENGINEER** conforming to the following specification:

U.S. Standard Sieve Size	Percent Passing by Dry Weight
1-inch	100
⅜-inch	40 – 70
No. 4	5 – 50
No. 40	0 – 20
No. 200	0 – 10
Plasticity Index: NP	

4. Low Volume Solution Collection Fill - material approved by **MANAGER** and **CERTIFYING ENGINEER** conforming to the following specification:

U.S. Standard Sieve Size	Percent Passing by Dry Weight
1-inch	100
⅜-inch	40 – 70
No. 4	5 – 55
No. 200	0 – 10
Plasticity Index: NP	

5. Soil Liner Fill - processed materials as approved by **MANAGER** and **CERTIFYING ENGINEER**, conforming to the following specification:

U.S. Standard Sieve Size	**Percent Passing by Dry Weight**
2-inch	100
No. 200	15 – 65
Point load tensile strength:	> 300 psi
Plasticity Index: 10 Minimum Hydraulic Conductivity 1×10-6 cm/s maximum	

6. Drain Cover Fill - material approved by **MANAGER** and **CERTIFYING ENGINEER** conforming to the following specification:

U.S. Standard Sieve Size	**Percent Passing by Dry Weight**
1½-inch	100
¾-inch	70 – 100
No. 4	5 – 55
No. 200	0 – 10
Plasticity Index: NP	

Upon approval by the **CERTYIFYING ENGINEER**, spent ore (within the above SPECIFICATIONS) from Phase IV of VLF1 may be used as Drain Cover Fill.

or

The **MANAGER** substitute crushed ore as Drain Cover Fill. The crushed ore material shall conform to the following SPECIFICATIONS:

U.S. Standard Sieve Size	**Percent Passing by Dry Weight**
3-inch	100
2-inch	97 - 100
¾-inch	40 – 100
No. 4	5 – 35
No. 200	0 – 8
Plasticity Index: Non Plastic	

Acceptance of non-conforming materials: In cases where non-conformance to these material specifications occur the Design Engineer in tandem with the Manager can approve the material for use, if in their opinion, the specification deviation does not diminish functionality of a given design element and/or compromise the design intent. If non-conforming materials are accepted by the Design Engineer and Manager for use during construction, the DRMS will be contacted, within a week of discovery, to alert them to the acceptance and rationale behind acceptance of non-conforming materials.

3. PART 3: EXECUTION

3.1. Clearing and Grubbing

A. Clearing and grubbing shall be done within the footprint of the limits of the construction area, as delineated on the DRAWINGS. Clearing shall extend a maximum of 15 feet and a minimum of 10 feet outside of the construction limits or as directed by **MANAGER**. Areas for clearing shall be released to **CONTRACTOR** by **MANAGER**. No pioneering of roads across undisturbed areas shall be allowed without prior approval of **MANAGER**

B. No clearing shall be performed until written permission is given by **MANAGER** and until the **CONTRACTOR** has provided construction staking for the proposed work. Clearing shall consist of cutting brush to the ground level, removing such material, along with wood, rubbish, tree stumps, and any other vegetation with roots in excess of 1-inch diameter, and other deleterious materials, and disposing of all such material in the accepted manner described below.

C. In areas designated to be stripped of unsuitable or objectionable material, said materials shall be stripped to the full depth of organic or other unsuitable material as determined by **MANAGER** and **CERTIFYING ENGINEER**, whichever is greater.

D. Stripped and grubbed vegetation shall be removed and disposed in stockpiles or other approved methods in an area designated by **MANAGER**.

3.2. Topsoil Removal

Topsoil is defined as an acceptable growth medium as approved by **MANAGER** and **CERTIFYING ENGINEER** that has no chemical or physical characteristics, which will exclude its use as such.

A. Stripping of the topsoil shall be done within the entire area of the stripping limits.

B. **CONTRACTOR** shall excavate and remove topsoil in a manner that will minimize contamination with other soil horizons, and will take such measures as are necessary to ensure that the removal of topsoil does not result in erosion or excessive sedimentation.

C. **CONTRACTOR** shall stockpile topsoil at locations designated by **MANAGER**. Stored topsoil shall not be disturbed by mining, leaching operations, or construction activities, and shall be protected from wind and water erosion, compaction, and contamination.

D. **CONTRACTOR** shall grade topsoil stockpiles to prevent erosion and ponding of precipitation in the stockpile areas. The maximum topsoil stockpile height will be approved by **MANAGER**. The **CONTRACTOR** shall protect stockpiled topsoil by an effective cover of non-noxious, quick- growing, annual, and perennial plants, approved by **MANAGER**, which shall be seeded or planted during the first appropriate growing season after removal.

3.3. Waste Removal

Waste material is defined as material too wet, too dry, frozen or containing ice or snow, containing organic or other deleterious matter, having poor characteristics of grading or compaction, having other characteristics that may result in undesirable settlement or other movement of the fill, or within the fill, or otherwise not meeting the requirements of the SPECIFICATIONS, provided that this definition permits drying, water, and any other processing or reprocessing to make the material stable and suitable prior to incorporating it into the fill as permitted in the SPECIFICATIONS or by the **MANAGER** and **CERTIFYING ENGINEER**.

A. **CONTRACTOR** shall excavate and remove waste in a manner that will minimize contamination with other soil horizons.

B. **CONTRACTOR** shall stockpile removed waste at locations designated by **MANAGER**

3.4. Excavation

A. **CONTRACTOR** shall perform excavation to the lines and grades shown on the DRAWINGS or as directed by **MANAGER**. No excavation shall begin until the **CONTRACTOR** has provided construction staking for the proposed work.

B. **CONTRACTOR** shall prevent the disturbance of surrounding areas during excavation. Where selective excavations are required to obtain materials for Structural Fill and Select Structural Fill, the material removed from the excavations shall be taken directly to the fill areas or, if required, stockpiled by material types. The stockpiles shall be approved by **MANAGER**.

C. **CONTRACTOR** shall grade all excavations to ensure grades are maintained to provide adequate drainage at all times. Work shall be suspended by **CONTRACTOR** when, in the opinion of **MANAGER** and **CERTIFYING ENGINEER**, the site is overly wet, muddy, or otherwise unsuitable for proper maintenance, until directed otherwise by **MANAGER**, at no cost to **CC&V**.

D. In excavations where Structural Fill or Select Structural Fill is to be placed on slopes steeper than 3H:1V, horizontal benches shall be excavated into the slope to allow fill to be placed in horizontal lifts. The **CONTRACTOR** shall continuously bench and key embankment material into the existing material a minimum of 2 feet.

E. The **CONTRACTOR** will be responsible for the safety of temporary construction slopes. **CONTRACTOR** shall inspect all temporary and permanent open-cut excavations on a regular basis for signs of instability. Should signs of instability be noted, **CONTRACTOR** shall immediately undertake remedial measures and shall notify **MANAGER** immediately. Permanent cut slopes shall be left in smooth, safe, and stable condition at the end of the workday.

F. **CONTRACTOR** shall final grade excavations within the valley leach facility to establish positive drainage to the Pregnant Solution Storage Area. In no case will depressions or bowls be permitted in the valley leach facility area.

G. **CONTRACTOR** shall conduct all excavation and shoring operations in compliance with applicable MSHA, Colorado State and Federal government laws and regulations.

3.5. Subgrade

A. The **MANAGER** and **CERTIFYING ENGINEER** will inspect and approve the exposed subgrade prior to any fill or Soil Liner being placed. **CQA MONITOR** will confirm that the surface of the subgrade is smooth and free of debris, grade stakes, angular rocks, roots, branches, vegetation, mud, ice, or frozen material. If the subgrade is determined to be frozen, using the criteria identified in section 3.6.10 of Section 2200, the **CONTRACTOR** may either remove and replace the frozen subgrade or wait until subsequent temperature monitoring indicates the fill is unfrozen, at no cost to **CC&V**. The subgrade shall have no sudden sharp or abrupt changes in grade.

B. **CONTRACTOR** is responsible for maintaining subgrades in a condition satisfactory to **CERTIFYING ENGINEER**. **CONTRACTOR** shall protect prepared subgrades, including previously approved subgrade, from weather, construction equipment, or other factors as outlined in Part 3.06 of the SPECIFICATIONS. Subgrade surfaces, including previously approved subgrade, that become softened or otherwise unsuitable for placement of fill, shall be repaired to **CERTIFYING ENGINEER's** and **MANAGER's** satisfaction, at no cost to **CC&V**.

C. Prior to placement of fill materials, **CONTRACTOR** shall scarify all in-situ materials to a depth of 6-inches, moisture condition, and recompact the subgrade. Compactive effort shall be adequate to obtain a minimum of 95 percent of maximum dry density as determined by the standard Proctor test (ASTM D698) for the particular fill material. Moisture conditioning shall be adequate to achieve a uniform moisture and density. In rock areas, the **CONTRACTOR** shall prepare the subgrade by removing loose rock fragments until competent foundation material is encountered as approved by **CERTIFYING ENGINEER**.

D. If the underlying material is unsuitable to permit proper compaction of the subgrade, **CONTRACTOR** shall loosen, aerate (or excavate and remove), and recompact the subgrade until the top layer can be compacted as required. The recompacted surface

shall then be scarified, as needed, to provide a good bond between the foundation and fill materials.

3.6. Fill Placement

A. The following general guidelines shall be followed except as noted elsewhere in this Section.

1. No fill materials shall be placed until the foundation and subgrade preparations have been completed as specified herein, in section 3.5 of this SPECIFICATION. The procedures for fill placement shall be approved by **MANAGER** and **CERTIFYING ENGINEER** prior to start of fill placement.

2. No brush, roots, sod, frozen material, or other deleterious or unsuitable materials shall be incorporated in the fills. The suitability of all materials intended for use in the fill shall be subject to approval by **MANAGER** and **CERTIFYING ENGINEER**. Fill placement shall be temporarily stopped by **CONTRACTOR** due to weather conditions, if materials and installation do not meet the SPECIFICATIONS, at no cost to **CC&V**. Fill shall not be placed upon frozen material, such as snow or ice.

3. If the surface of the prepared foundation or the surface of any layer of the fill is too dry or too smooth to bond properly with the layer of material to be placed thereon, it shall be moisture-conditioned and/or worked with harrow, scarifier teeth, disc, or other suitable equipment to provide a satisfactory bonding surface before fill material is placed thereon. If the surface of the prepared foundation or the rolled surface of any layer is excessively wet for fill materials to be placed thereon, it shall be removed and allowed to dry or worked with a harrow, scarifier teeth, disc, or other suitable equipment to reduce the moisture content to an acceptable level or meet project SPECIFICATIONS as determined by **MANAGER** and **CERTIFYING ENGINEER**. It shall then be compacted before the next layer of fill material is placed. Determination of such dry or wet conditions shall be made by **CERTIFYING ENGINEER**.

4. The distribution of materials shall be such that the fill is free from voids, lenses, pockets, streaks, or layers of material differing substantially in texture or gradation from the surrounding material. The material of a fill shall be as described in Section 2.1 of this specification.

5. Unless otherwise approved by **MANAGER** and **CERTIFYING ENGINEER**, the entire fill surface shall be at or near the same elevation at all times during construction. At all times during construction, the surface of the fill shall be graded and maintained by the **CONTRACTOR** to prevent ponding of water and to allow for storm water drainage.

6. Except as otherwise specified or approved by **MANAGER** and **CERTIFYING ENGINEER**, the **CONTRACTOR** shall dump and spread fill in such a manner so that no excessive

gaps are left between successively dumped loads of materials. The fill shall be leveled prior to compaction by means of a dozer or grader, or other suitable approved equipment, to obtain a surface free from depressions.

7. Except in areas approved by **MANAGER** and **CERTIFYING ENGINEER** where space is limited or otherwise specified, **CONTRACTOR** shall place fill by routing the hauling and spreading units approximately parallel to the axis of the fill. As far as practical, hauling units shall be so routed that they do not follow in the same paths, but split their tracks evenly across the surface of the fill to enhance compaction.

8. **CONTRACTOR** shall apply water required for moisture conditioning on the fill or in the borrow areas.

   CONTRACTOR shall maintain fill materials within the moisture content range required to permit proper compaction to the specified density with the equipment being used. The moisture content of the fill materials, prior to and during compaction, shall be uniform throughout each layer of the material.

   Prior to mixing of wet and dry material on the fill to obtain the proper moisture content, approval shall be obtained from **CERTIFYING ENGINEER**. Mixed material shall have a uniform distribution of the moisture content prior to placement on the subsequent lift.

   When materials spread on the fill are too dry for proper compaction, **CONTRACTOR** shall spray water on each layer of the fill and shall work the moisture into the fill by harrowing or other approved means, until a uniform distribution of moisture is obtained. Material that is too wet for proper compaction, as determined by **CERTIFYING ENGINEER**, shall be removed from the fill and/or spread out and permitted to dry, assisted by disking and harrowing or mixing in dry material when permitted by **CERTIFYING ENGINEER**, if necessary, until the moisture content is reduced to an amount suitable for obtaining the specified degree of compaction, at no cost to **CC&V.**

9. After each layer of fill material has been placed, spread, and moisture-conditioned, the layer shall be compacted by passing compaction equipment over the entire surface of the layer a sufficient number of times to obtain the required density, as specified herein. Compaction shall be accomplished with equipment and by methods approved by **CERTIFYING ENGINEER**. If such equipment or methods are found unsatisfactory for the intended use, **CONTRACTOR** shall replace the unsatisfactory equipment with other types or adjust methods until proper compaction is achieved. Prior to placement of a subsequent lift, the previous lift shall be thoroughly scarified to a nominal depth of 2-inches to provide good bonding between lifts. Scarification shall be accomplished by disking, raking with a grader, or an alternative method approved by **CERTIFYING ENGINEER**.

10. The **CQA MONITOR** will measure the ambient air temperature on an hourly basis. If the ambient air temperature is less than thirty-two degrees Fahrenheit for more than one hour over the preceding twenty-four (24) hours, the **CQA MONITOR** will measure the temperature of the fill to determine if the fill is frozen. "Frozen" is defined as a mean temperature of thirty-two degrees Fahrenheit (32°F) or less. The **CQA MONITOR** will measure the temperature at a depth of three (3) inches and six (6) inches, recording the lower of the two. Six (6) measurements will be taken per acre, and if the average is below thirty-two degrees Fahrenheit (32°F), the fill will be considered frozen. If the fill is determined to be frozen the **CONTRACTOR** may either remove and replace the frozen fill or wait until subsequent temperature monitoring indicates the fill is unfrozen at no cost to **CC&V**.
11. Overburden slopes shall be compacted using a method specification and graded to meet the grades and dimensions shown on the DRAWINGS. The Bedding Fill subgrade surface will be prepared as identified in Section 2200 of the SPECIFICATIONS.

B. Overburden Fill

1. Areas to receive Overburden Fill will include, but are not limited to, backfilling existing pits to within 35 feet of the proposed geomembrane surface.
2. Overburden Fill material shall be overburden waste placed with in maximum 25-foot thick lifts, and compacted utilizing loaded haulage equipment.
3. Maximum rock size for overburden fill shall be 5 feet.
4. Prior to commencement of Overburden Fill, the **CONTRACTOR** shall complete task training to ensure that material meeting the specification is borrowed and placed. This training will include visually identifying oversized material and visually verifying that the material being loaded and placed is reasonably graded to avoid placement of gap graded material with excessive voids.

C. Structural Fill

1. Areas to receive Structural Fill will include, but are not limited to, slope reductions, and miscellaneous site grading.
2. **CONTRACTOR** shall condition Structural Fill to a moisture content that allows compaction to the required density and that results in a firm, unyielding surface capable of allowing the movement of vehicles and equipment over the surface without causing rutting or other deleterious effects.
3. **CONTRACTOR** shall place Structural Fill materials with less than 30 percent rock materials above 3/4-inch size in maximum 12-inch loose lifts, and compact to 95 percent of maximum dry density (ASTM D698). The moisture content shall be within +3% to -3% of the optimum moisture content.
4. **CONTRACTOR** shall condition, place and compact Structural Fill containing more than 30 percent rock materials above 3/4-inch size(rock fill) by a method compaction

technique. The compaction equipment shall consist of a minimum 10-ton (static drum weight) vibratory smooth-drum compactor. The number of passes and loose lift thickness shall be subject to **CERTIFYING ENGINEER's** approval, at no additional cost to **CC&V**. The method specifications may be changed at any time, at the discretion of **CERTIFYING ENGINEER**, based upon changes in material characteristics, field conditions, and/or compaction equipment.

5. Maximum rock size for rock fill shall be two-thirds of the compacted lift thickness, unless otherwise approved by **MANAGER**, **DESIGN ENGINEER,** and **CERTIFYING ENGINEER**. **CONTRACTOR** shall remove oversize materials from fills at no additional cost to **CC&V**.

D. Select Structural Fill

1. Select Structural Fill shall be placed for miscellaneous site grading as required by the **MANAGER** and **CERTIFYING ENGINEER**.
2. **CONTRACTOR** shall condition Select Structural Fill to a moisture content that allows compaction to the required density and that results in a firm, unyielding surface capable of allowing the movement of vehicles and equipment over the surface without causing rutting or other deleterious effects.
3. **CONTRACTOR** shall place Select Structural Fill materials with less than 30 percent rock materials above 3/4-inch size in maximum 12-inch loose lifts, and compacted to 95 percent of maximum dry density (ASTM D698). The moisture content shall be within +3% to -3% of the optimum moisture content.
4. **CONTRACTOR** shall condition and place Select Structural Fill containing more than 30 percent rock materials above 3/4-inch size (rock fill) in maximum 12-inch loose lifts and compact by a method compaction technique. The compaction equipment shall consist of a minimum ten 10-ton (static drum weight) vibratory smooth-drum compactor. The number of passes shall be subject to **CERTIFYING ENGINEER's** approval, at no additional cost to **CC&V**. The method SPECIFICATIONS may be changed at any time, at the discretion of **CERTIFYING ENGINEER**, based upon changes in material characteristics, field conditions, and/or compaction equipment.

E. Leak Detection Fill

5. Leak Detection Fill shall be placed in the Leak Detection Trenches as shown on the DRAWINGS.
6. **CONTRACTOR** shall condition Leak Detection Fill to allow a surface that does not cause rutting or other deleterious effects.

F. Low Volume Solution Collection Fill

1. Low Volume Solution Collection Fill shall be placed over the geomembrane in the locations shown on the DRAWINGS.

2. **CONTRACTOR** shall condition Low Volume Solution Collection Fill to allow a surface that does not cause rutting or other deleterious effects.
3. **CONTRACTOR** shall place Low Volume Solution Collection Fill around the Low Volume Solution Collection Vertical Riser Pipes in maximum 12-inch loose lifts and compact using a hand operated vibratory plate compactor to the satisfaction of the **MANAGER** and **CERTIFYING ENGINEER**. Low Volume Solution Collection Fill shall be worked under the Low Volume Solution Collection Rise pipe haunches by hand to provide uniform support of the pipe.
4. Prior to placing the Low Volume Solution Collection Fill, **CONTRACTOR** shall verify by visual inspection that the underlying geosynthetics are free of holes, tears, wrinkles, or foreign objects. **MANAGER** and **CERTIFYING ENGINEER** will inspect the geosynthetic for wrinkles prior to placement of Low Volume Solution Collection Fill. As instructed by **MANAGER**, **CONTRACTOR** shall "work out" wrinkles to the satisfaction of **MANAGER** and **CERTIFYING ENGINEER** prior to placement of the Low Volume Solution Collection Fill. In all cases, wrinkles shall not be of a size that they could fold back on themselves. Wrinkles greater than one foot shall be removed and repaired by the **INSTALLER**.
5. **CONTRACTOR** shall place Low Volume Solution Collection Fill in a single 36-inch loose lift. The tracked equipment shall operate only over previously placed Low Volume Solution Collection Fill. **CONTRACTOR** shall not operate equipment directly on geosynthetics. Only a dozer with a ground pressure not exceeding 14.7 psi can be used to place Low Volume Solution Collection Fill. Equipment used for placement will not be allowed to pivot on one track (i.e., no abrupt or sharp turns). There shall be no downhill placement on slopes steeper than 4H:1V. Material can be placed along contours if buttressed from below.
6. Rubber tired construction equipment shall not be allowed to travel over the geomembrane or on top of Solution Collection piping unless a thickness of at least 45 inches of Low Volume Solution Collection Fill has been placed over the geomembrane and on top of Solution Collection piping. The **CONTRACTOR** will be required to demonstrate to the **MANAGER, DESIGN ENGINEER** and **CERTIFYING ENGINEER** that the equipment and procedures used are not detrimental to the geomembrane and piping, at no cost to **CC&V**. Off road haul truck traffic shall require a minimum of 60 inches for Cat 773 (or equivalent) of Low Volume Solution Collection Fill placed over the geomembrane and solution collection piping, and a minimum of 120 inches for CAT 777 (or equivalent) of Low Volume Solution Collection Fill placed over the geomembrane and solution collection piping.
7. When placing Low Volume Solution Collection Fill the maximum acceptable drop height is 3 feet.
8. **CONTRACTOR** shall operate equipment in a manner that is protective of underlying geosynthetics. If **MANAGER** or **CERTIFYING ENGINEER** suspects the occurrence of

any damage to the underlying geosynthetics, **MANAGER** will instruct **CONTRACTOR** to remove Low Volume Solution Collection Fill to expose the geosynthetics. **CONTRACTOR** shall uncover, repair any observed damage of the underlying geosynthetics, in accordance with the repair requirements of Sections 02776.0 and 02777.0 of these SPECIFICATIONS, and recover, at no cost to **CC&V**.

9. **CONTRACTOR** shall place Low Volume Solution Collection Fill at a rate such that no single area of 350,000 square feet of geomembrane liner is exposed to ultraviolet light for more than 180 days.
10. **CONTRACTOR** shall provide close continuous monitoring at the point of placement during the placement of the Low Volume Solution Collection Fill over geosynthetics.
11. **CONTRACTOR** shall verify the final thickness of Low Volume Solution Collection Fill to determine compliance with this SPECIFICATION. **CONTRACTOR** shall record verification location, elevation, and thickness. **CQA MONITOR** shall witness all verification measurements. **CONTRACTOR** will submit a method of verifying Low Volume Solution Collection Fill depth to **MANAGER** for approval. Grade markers shall be placed on a 50- by-50-foot grid with additional points required for breaks in grade. **CONTRACTOR** shall remove all grade markers under supervision of **CQA MONITOR** after verification measurements have been approved by **MANAGER** and **CERTIFYING ENGINEER** and will backfill holes with Low Volume Solution Collection Fill. Areas with deficient thickness shall be reworked by **CONTRACTOR**, until acceptable measurements are obtained. If **MANAGER** or **CERTIFYING ENGINEER** suspects the occurrence of any damage to the underlying geosynthetics, **MANAGER** will instruct **CONTRACTOR** to remove Low Volume Solution Collection Fill to expose the geosynthetics. **CONTRACTOR** shall uncover, repair any observed damage of the underlying geosynthetics, in accordance with the repair requirements of Sections 02776.0 and 02777.0 of these SPECIFICATIONS and recover, at no cost to **CC&V**.
12. **CONTRACTOR** will provide adequate illumination as approved by **MANAGER**, if Low Volume Solution Collection Fill placement is carried out at night. A minimum of 2-foot candles measured at the synthetic liner, shall be used when Low Volume Solution Collection Fill placement is carried out at night.

G. Soil Liner Fill

1. Soil Liner Fill shall be placed within the limits of the valley leach facility as shown on the DRAWINGS and shall begin only after completion of all, or **MANAGER** and **CERTIFYING ENGINEER** approved portion of, excavation and Structural Fill placement in the valley leach facility.
2. **CONTRACTOR** shall process, place and compact the Soil Liner Fill to achieve a coefficient of permeability of less than $1x10^{-6}$ cm/sec, measured according to ASTM Method D5084, Method D. Any Soil Liner Fill not meeting the permeability

specification shall be removed and replaced with material meeting the permeability specification, at no additional cost to **CC&V**.

3. **CONTRACTOR** shall place and compact the Soil Liner Fill in loose lifts such that the compacted lift thickness is a minimum of 12 inches.
4. **CONTRACTOR** shall compact the Soil Liner Fill to at least 95 percent of the maximum dry density as determined by the Standard Proctor density test (ASTM D698). The moisture content shall be within +3% to -2% of the optimum moisture content. Both moisture and density shall be uniform throughout the lift. If the Soil Liner Fill cannot be conditioned to meet the placement SPECIFICATIONS, the material shall be removed and replaced with new Soil Liner Fill at the **CONTRACTOR's** expense. The **CONTRACTOR** shall reduce the clod size of the soil liner fill to a size that is acceptable to the **CERTIFYING ENGINEER**, the method by which will be approved by **CERTIFYING ENGINEER** and **MANAGER** prior to implementation.
5. The moisture content of the Soil Liner Fill shall be uniform throughout prior to and during compaction of the material. **CONTRACTOR** shall be responsible for meeting moisture content and compaction SPECIFICATIONS. If the Soil Liner Fill cannot be conditioned to meet the placement SPECIFICATIONS, the material shall be removed and replaced with new Soil Liner Fill at no additional cost to **CC&V**. **MANAGER** may require **CONTRACTOR** to moisture condition Soil Liner Fill at stockpile at least 24 hours prior to the Soil Liner Fill being placed.
6. **CONTRACTOR** shall place Soil Liner Fill to form a continuous monolithic material. If a lift of compacted Soil Liner Fill dries out during placement operations, **CONTRACTOR** shall scarify, moisture condition the dry soil and recompact the lift. If a lift of compacted Soil Liner Fill becomes overly wet due to precipitation or over watering, **CONTRACTOR** shall allow the wet soil to dry to the specified moisture content range before recompaction of fill and placement of geosynthetic materials.
7. **CONTRACTOR** shall assist **CQA MONITOR** in obtaining soil samples for CQA testing. Soil Liner Fill sampling shall be scheduled by **CQA MONITOR** with **CONTRACTOR** to facilitate CQA field testing.
8. **CONTRACTOR** shall maintain Soil Liner Fill stockpile areas in a free-draining condition. The **CONTRACTOR** will maintain Soil Liner Fill stockpiles and Soil Liner Fill placed within the limits of the valley leach facility to prevent the drying out of the surface.
9. **CONTRACTOR** shall compact corners and other areas inaccessible to driven compaction equipment using hand-operated 500-pound vibratory plate or vibratory smooth-drum compaction equipment approved by **MANAGER** and **CERTIFYING ENGINEER**.
10. **CONTRACTOR** shall trim the surface of the Soil Liner Fill to the design grades shown on the DRAWINGS.

11. **CONTRACTOR** shall roll the surface of the Soil Liner Fill with a smooth drum roller to remove ridges and surface irregularities greater than 0.5 inches in height. **CERTIFYING ENGINEER** shall determine if surface preparation is sufficient to place geomembrane. On areas with slopes steeper than 3H:1V, **CONTRACTOR** shall adopt methods as necessary to obtain the same final surface preparations that would be obtained by the passage of a smooth-drum roller on flat or level ground. Pushing of compaction equipment by tracked equipment shall not be performed. Wheel ruts on the surface of the Soil Liner Fill from grading equipment shall be repaired by **CONTRACTOR** prior to placement of the geomembrane by rolling the surface as approved by **CQA MONITOR**.
12. **CONTRACTOR** will remove angular protruding rocks greater than 3/4 inches in diameter from the compacted Soil Liner Fill surface. Indentations left in the Soil Liner Fill Surface after removal of the rocks shall be filled with Soil Liner Fill or other suitable fill approved by **CQA MONITOR**, and compacted to achieve final grade. Areas of the Soil Liner Fill surface with concentrated gravelly areas will have suitable fill approved by **CQA MONITOR** placed on top and compacted to achieve final grade. A maximum thickness of 0.5 inches of suitable fill will be placed on the Soil Liner Fill.
13. **MANAGER** and **CERTIFYING ENGINEER** will identify any areas of significant desiccation, crusting, or erosion of a lift surface. Soil Liner Fill surfaces found to have desiccation cracks greater than 0.25-inches in width or depth, or which exhibit swelling, heaving or other similar conditions shall be replaced or reworked by **CONTRACTOR** to remove such defects. Desiccation cracks on the Soil Liner Fill surface less than 0.25-inches in width or depth shall be compacted with a smooth drum roller. **CONTRACTOR** shall take whatever steps necessary to prepare Soil Liner Fill surface to the satisfaction of **MANAGER** and **CERTIFYING ENGINEER**, at no additional cost to **CC&V**.
14. **CONTRACTOR** shall maintain the Soil Liner Fill surface in a condition suitable for geomembrane installation as specified in these SPECIFICATIONS and in the CQA Plan until the surface is covered. **CONTRACTOR** shall repair all weather related damage to Soil Liner Fill surfaces or other portions of the Work that have or have not been covered by geomembrane, at no additional cost to **CC&V.** If any moisture is allowed to collect under the geomembrane prior to or after final seaming and softens the Soil Liner Fill, the geomembrane shall be removed and **CONTRACTOR** shall recondition and recompact the Soil Liner Fill to meet all placement and trimming SPECIFICATIONS, at no additional cost to **CC&V**.
15. **CONTRACTOR** shall remove all hubs and survey stakes in the Soil Liner Fill and backfill all holes with **MANAGER** and **CERTIFYING ENGINEER** approved moisture-conditioned Soil Liner Fill or bentonite. Compact with a Proctor hammer or other suitable device that will achieve a kneading type of compaction and will achieve the required density.

16. **CONTRACTOR** shall verify the final thickness of Soil Liner Fill to determine compliance with this SPECIFICATION. Thickness verification shall be performed at a minimum frequency of two measurements per acre using a soil-coring device, unless directed otherwise by **MANAGER**. **CONTRACTOR** shall record as part of the as-built documentation the location, elevation, and thickness of each Soil Liner Fill verification test. **CQA MONITOR** will witness all verification measurements. **CONTRACTOR** shall backfill all holes with **MANAGER** and **CERTIFYING ENGINEER** approved moisture- conditioned Soil Liner Fill compacted with a Proctor hammer or other suitable device that will achieve a kneading type of compaction and will achieve the required density, or bentonite. Areas with deficiencies shall be reworked by **CONTRACTOR**, until acceptable measurements are obtained at no additional cost to **CC&V**.
17. If tests indicate the Work does not meet the requirements of the SPECIFICATIONS, **MANAGER** and **CERTIFYING ENGINEER** will establish the extent of the nonconforming area. The nonconforming area shall be reworked by **CONTRACTOR** until acceptable test results are obtained at no additional cost to **CC&V**
18. Prior to any geosynthetics being placed on Soil Liner Fill, the area will be tested by **CQA MONITOR**. No geosynthetics will be allowed to be placed on frozen material, as defined in Section 3.6, without the area in question being retested by the **CQA MONITOR**.

H. Drain Cover Fill

1. Drain Cover Fill shall be placed over the geomembrane in the locations shown on the DRAWINGS.
2. Prior to placing the Drain Cover Fill, **CONTRACTOR** shall verify by visual inspection that the underlying geosynthetics are free of holes, tears, wrinkles, or foreign objects. **MANAGER** and **CERTIFYING ENGINEER** will inspect the geosynthetic for wrinkles prior to placement of Drain Cover Fill. As instructed by **MANAGER**, **CONTRACTOR** shall "work out" wrinkles to the satisfaction of **MANAGER** and **CERTIFYING ENGINEER** prior to placement of the Drain Cover Fill. In all cases, wrinkles shall not be of a size that they could fold back on themselves. Wrinkles greater than one foot shall be removed and repaired by the **INSTALLER**.
3. **CONTRACTOR** shall place Drain Cover Fill in a single 24-inch loose lift. The tracked equipment shall operate only over previously placed Drain Cover Fill. **CONTRACTOR** shall not operate equipment directly on geosynthetics. Only a dozer with a ground pressure not exceeding 8.7 psi can be used to place Drain Cover Fill. A CAT 12G motor grader, or equivalent approved by **CERTIFYING ENGINEER,** can be used for Drain Cover Fill final grading. Equipment used for placement will not be allowed to pivot on one track (i.e. no abrupt or sharp turns). There shall be no downhill placement on slopes steeper than 4H:1V. Material can be placed along contours if buttressed from

below. Motor graders shall not be allowed to make abrupt turns, brake suddenly, or dig blade in which results in the tires spinning on the Drain Cover Fill surface.

4. Highway compatible Rubber tired construction equipment shall not be allowed to travel over the geomembrane or on top of Solution Collection piping unless a thickness of at least 45 inches of Drain Cover Fill has been placed over the geomembrane and on top of Solution Collection piping. The **CONTRACTOR** will be required to demonstrate to the **MANAGER, DESIGN ENGINEER** and **CERTIFYING ENGINEER** that the equipment and procedures used are not detrimental to the geomembrane and piping, at no cost to **CC&V**. Off road haul truck traffic shall require a minimum of 42 inches for Cat 740 (or equivalent), a minimum of 60 inches for Cat 773 (or equivalent), and a minimum of 120 inches for CAT 777 (or equivalent) of Drain Cover Fill placed over the geomembrane and solution collection piping.
5. When placing Drain Cover Fill the maximum acceptable drop height is 3 feet.
6. **CONTRACTOR** shall operate equipment in a manner that is protective of underlying geosynthetics. If **MANAGER** or **CERTIFYING ENGINEER** suspects the occurrence of any damage to the underlying geosynthetics, **MANAGER** will instruct **CONTRACTOR** to remove Drain Cover Fill to expose the geosynthetics. **CONTRACTOR** shall uncover, repair any observed damage of the underlying geosynthetics, in accordance with the repair requirements of Sections 02776.0 and 02777.0 of these SPECIFICATIONS, and recover, at no cost to **CC&V**.
7. **CONTRACTOR** shall place Drain Cover Fill at a rate such that the geomembrane liner is not exposed to ultraviolet light for more than 180 days.
8. **CONTRACTOR** shall provide close continuous monitoring at the point of placement during the placement of the Drain Cover Fill over geosynthetics.
9. **CONTRACTOR** shall verify the final thickness of Drain Cover Fill to determine compliance with this SPECIFICATION. **CONTRACTOR** shall record verification location, elevation, and thickness. **CQA MONITOR** shall witness all verification measurements. **CONTRACTOR** will submit a method of verifying Drain Cover Fill depth to **MANAGER** for approval. Areas with deficient thickness shall be reworked by **CONTRACTOR**, until acceptable measurements are obtained. If **MANAGER** or **CERTIFYING ENGINEER** suspects the occurrence of any damage to the underlying geosynthetics, **MANAGER** will instruct **CONTRACTOR** to remove Drain Cover Fill to expose the geosynthetics. **CONTRACTOR** shall uncover, repair any observed damage of the underlying geosynthetics, in accordance with the repair requirements of Sections 02776.0 and 02777.0 of these SPECIFICATIONS and recover, at no cost to **CC&V**.
10. **CONTRACTOR** will provide adequate illumination as approved by **MANAGER**, if Drain Cover Fill placement is carried out at night. A minimum of 2-foot candles measured at the synthetic liner shall be used when Drain Cover Fill placement is carried out at night

I. Pipe Bedding Material

1. Pipe bedding material shall be placed around the CSP as shown on the drawings.
2. For piping external to the valley leach facility, **CONTRACTOR** shall compact the Pipe Bedding Material requiring compaction to at least 95 percent of the maximum dry density as determined by the Standard Proctor density test (ASTM D698), and a moisture content 3 percent below and 3 percent over the optimum moisture content.
3. **CONTRACTOR** shall place Pipe Bedding Material in maximum 12-inch loose lifts. Pipe Bedding Material will be worked under pipe haunches by hand to provide uniform support of the CSP.
4. Native material used for backfilling CSP excavation shall be placed in 12-inch to 18-inch loose lifts, and compacted by wheel rolling with light, rubber tired or other light compaction equipment, as approved by **CERTIFYING ENGINEER.**

J. Granular Filter Material

1. Granular Filter Material shall be placed beneath the Riprap as shown on the drawings.

K. Bedding Fill

1. Bedding Fill shall be placed within the limits of the valley leach facility as shown on the DRAWINGS.
2. **CONTRACTOR** shall place and compact the Bedding Fill in loose lifts such that the compacted lift thickness is a minimum of 12 inches. **CONTRACTOR** shall condition the Bedding Fill to allow a surface that does not cause rutting or other deleterious effects. The moisture content and density shall be uniform throughout the lift. If a lift of compacted Bedding Fill dries out during placement operations, **CONTRACTOR** shall scarify, moisture condition the dry soil and recompact the lift. If a lift of compacted Bedding Fill becomes overly wet due to precipitation or over watering, **CONTRACTOR** shall allow the wet soil to dry to the specified moisture content range before recompaction of fill and placement of geosynthetic materials.
3. **CONTRACTOR** shall assist **CQA MONITOR** in obtaining soil samples for CQA testing. Bedding Fill sampling shall be scheduled by **CQA MONITOR** with **CONTRACTOR** to facilitate CQA field testing.
4. **CONTRACTOR** shall trim the surface of the Bedding Fill to the design grades shown on the DRAWINGS.
5. **CONTRACTOR** shall roll the surface of the Bedding Fill with a smooth drum roller to remove ridges and surface irregularities greater than 0.5 inches in height. **CERTIFYING ENGINEER** shall determine if surface preparation is sufficient to place geomembrane. On areas with slopes steeper than 3H:1V, **CONTRACTOR** shall adopt

methods as necessary to obtain the same final surface preparations that would be obtained by the passage of a smooth-drum roller on flat or level ground. Pushing of compaction equipment by tracked equipment shall not be performed. Wheel ruts on the surface of the Bedding Fill from grading equipment shall be repaired by **CONTRACTOR** prior to placement of the geomembrane by rolling the surface as approved by **CQA MONITOR**. **CONTRACTOR** shall take whatever steps necessary to prepare Soil Liner Fill surface to the satisfaction of **MANAGER** and **CERTIFYING ENGINEER**, at no additional cost to **CC&V**.

6. **CONTRACTOR** shall maintain the Bedding Fill surface in a condition suitable for geomembrane installation as specified in these SPECIFICATIONS and in the CQA Plan until the surface is covered. **CONTRACTOR** shall repair all weather related damage to Bedding Fill surfaces or other portions of the Work that have or have not been covered by geomembrane, at no additional cost to **CC&V**.

   If any moisture is allowed to collect under the geomembrane prior to or after final seaming and softens the Bedding Fill, the geomembrane shall be removed and **CONTRACTOR** shall recondition and recompact the Soil Liner Fill to meet all placement and trimming SPECIFICATIONS, at no additional cost to **CC&V**.

7. **CONTRACTOR** shall remove all hubs and survey stakes in the Bedding Fill and backfill all holes with **MANAGER** and **CERTIFYING ENGINEER** approved material.

8. **CONTRACTOR** shall verify the final thickness of Bedding Fill to determine compliance with this SPECIFICATION. **CONTRACTOR** shall record as part of the as-built documentation the location, elevation, and thickness of each Bedding Fill verification test. **CQA MONITOR** will witness all verification measurements. Areas with deficiencies shall be reworked by **CONTRACTOR**, until acceptable measurements are obtained at no additional cost to **CC&V**. If tests indicate the Work does not meet the requirements of the SPECIFICATIONS, **MANAGER** and **CERTIFYING ENGINEER** will establish the extent of the nonconforming area. The nonconforming area shall be reworked by **CONTRACTOR** until acceptable test results are obtained at no additional cost to **CC&V**

9. Prior to any geosynthetics being placed on Bedding Fill, the area will be tested by **CQA MONITOR**. No geosynthetics will be allowed to be placed on frozen material, as defined in Section 3.6, without the area in question being retested by the **CQA MONITOR**

3.7. Equipment

CONTRACTOR may use any type of earthmoving or excavating equipment unless otherwise noted in the SPECIFICATIONS, provided the equipment is in a satisfactory condition, complies with applicable rules and regulations, is of such capacity that the construction schedule can be maintained as planned by **CONTRACTOR**, and is approved by **MANAGER.**

ATTACHMENT 5
RESPONSE TO COMMENT 90

Wildlife Protection Plan

Cripple Creek & Victor Gold Mining Co. Cresson Project

Table of Contents

1 Introduction

All aspects of the Cripple Creek and Victor Mine (CC&V) operations shall take into account the safety and protection of wildlife on the mine site, at processing sites, and along all access roads to the mine site, with attention given to periods in the life cycle of those species which may require special consideration (e.g., elk calving, migration routes, and peregrine falcon nesting).

The following Wildlife Protection Plan provides the procedures that CC&V uses to ensure wildlife safety and compliance with Colorado Mineral Rule 6.4.21(18) and 3.1.8(1). As defined in CC&V's Operating and Reclamation Cresson Project Permit M-1980-244, the post mining land use for CC&V has been established and approved for wildlife habitat and livestock grazing (rangeland). The purpose of this plan is to ensure wildlife safety during current mining practices, and to prepare the site to meet post mining goals.

2 Preventive Measures within Respective Areas of Activity

2.1 Lined Ponds

- Lined ponds must be fenced to exclude wildlife. Fences will be a minimum of eight feet high, and with openings no larger than three inches in diameter in the bottom three feet, unless sufficient justification exists to consider an alternate design. The bottom of the fence is to be buried a minimum of six inches. Lined ponds will also have textured lining to aid in egress should wildlife become entrapped.

- Gates in fenced areas are to be designed to achieve the same protection as detailed above. For example, when the gates are closed; gaps, such as those below and between the gates, should be modified to be less than three inches in diameter.

- Gates on fenced areas must remain closed and be posted with signs indicating the same.

- Bird deterrence methods will be deployed if a lined pond contains process solution. These methods may include, but are not limited to, bird balls, netting, and/or sonic devices.

2.2 Active Leaching or Process Facilities – (>20 ppm cyanide concentration)

Exclusionary measures should be taken as needed to deter wildlife from inhabiting the area. Such measures include:

- Areas of standing process solution with a surface area larger than three feet by three feet must be corrected as soon as reasonably possible. Wildlife deterrence methods such as bird balls and netting shall be used on these areas until they are corrected. In order to promote increased infiltration, CC&V will level and rip any areas with standing solution as soon as possible. The use of bird-balls or netting may be necessary if immediate mitigation is not attainable.

- Prior to drip line placement, the top lift is leveled and subsequently double ripped after

placement of ore. In general, drip lines will be placed in the furrows created by ripping to minimize ponding. The majority of the drip lines will not be bared, with the exception of those located on the side slopes and upper surfaces of the pad.

- Routine evaluations of the process solution distribution network within the leaching facility to minimize standing solution as result of malfunctioning valves, flanges or connections.

- In areas where standing process solution cannot be avoided, measures such as fencing, bird balls, and/or netting must be deployed.

2.3 Mine Area and Other Excavations or Disturbances

If obvious habits and/or young, such as nests, eggs, calving areas, pups, or dens, are found when entering new areas for development, the findings should be reported to the S&ER department to ensure appropriate procedures for removal, avoidance, and/or relocation are followed.

Large ungulate access to the tops of high-walls, adjacent to significant wildlife habitat, should be restricted by fencing or berms. In areas where fencing is determined necessary, the fence will be an eight foot tall wildlife fence with wildlife escape ramps as necessary. Planned fencing locations and wildlife escape ramps are defined in Technical Revision 91 and located in the S&ER directory.

Mine portals, shafts, and other underground voids should be identified, prior to any disturbance, for the presence of bats or bat habitat. Pre-activity reviews should be performed before commencing activity in historic mine openings. A copy of the Site Evaluation Datasheet for Bats used by Colorado Parks and Wildlife (CPW) is included at Appendix B and may be used as a guide for conducting pre-activity reviews.

Stormwater control sumps, drilling exploration sumps, and any other excavations should be adequately bermed to discourage entry, and graded with slopes no steeper that 1:1 to easily facilitate wildlife egress.

2.4 Haul Roads and Access Roads

Care should be taken to avoid contact with any wildlife on or near roads, if safely possible, including the use of signage and speed restrictions in areas known to be frequented by wildlife.

For the safety of both wildlife and personnel, mine site employees should be notified when working in an area whereby the presence of wildlife has been noted.

2.5 Buildings and Administrative Areas

Care should be taken to properly dispose of food waste in order to reduce wildlife attraction.

Rodent control methods should be employed to minimize hygiene hazards and reduce predator (such as fox) attractions.

2.6 Property-Wide Considerations

All spills and releases shall be cleaned up immediately to ensure wildlife do not come in direct or indirect (mobilized through storm-water runoff) contact with the product. Please refer to CC&V's Spill Prevention and Countermeasure Plans for further guidance (controlled document NA-CCV-SER-Plan-1926, 2223.1930).

Bow hunting on CC&V property is permitted within specified periods, following required approvals and permission from CC&V. This practice is not guaranteed and is reviewed periodically. Hunting with firearms is strictly prohibited on CC&V property.

Herding or intentionally chasing or harassing wildlife is prohibited.

Feeding wildlife is prohibited by Colorado state law. Under state law violators face a $50 fine. As needed, communication will be undertaken to educate personnel on the requirements for the management and interaction with wildlife.

3 Maintenance and Inspections of Preventive Measures

3.1 Inspections

All process and mine operation areas should be inspected on a weekly basis for wildlife activity and sightings. These inspections shall be reported to S&ER and recorded in a Wildlife Database managed by S&ER personnel. Each department on site should conduct inspections as it applies to their work area. For example:

- Process is responsible for inspecting process areas such as, lined process ponds and the Valley Leach Facilities
- Mine Operations is responsible for inspecting excavated and disturbed areas, stormwater sumps and ponds, the Ames and Crusher ponds, and highwalls that pertain to operational areas.
- Departments that have the potential to spill potentially harmful products are responsible for inspecting their areas and managing the cleanup of spills that occur.
- Exploration is responsible for excavations (sumps) and other exploration related projects that could potentially adversely affect wildlife.
- The Projects Department is responsible for sites that are under construction and related activities that are coordinated through this department.
- Inspections should ensure that preventive measures are in place that meet the criteria detailed under Section 2 of this plan.

All personnel responsible for wildlife inspections in their areas shall be trained by the S&ER Department on what to look for, how to document it, and how to report the information on to the S&ER Department.

If repairs are determined to be necessary, they should be completed within a timeframe appropriate to the risk's score on the Newmont Risk Matrix.

3.2 Maintenance

Preventive measures should be maintained to meet the criteria detailed under Section 2 of this plan, until the reclamation bond for a given area has been released or reclaimed to the extent that wildlife are no longer exposed to potential risks outlined herein.

4 Legacy Considerations

4.1 Reclamation

Habitat management and creation, as part of CC&V's Reclamation Plan, should be directed toward encouraging the diversity of both game and non-game species, and shall provide protection, rehabilitation or improvement of wildlife habitat.

Operators are encouraged to contact the S&ER department if they have suggestions for enhancing sites that promotes biodiversity and habitat.

S&ER personnel will contact CPW and/or federal agencies with regulatory authority to determine available opportunities to enhance habitat and/or benefit wildlife and accomplished within the framework of the approved final Reclamation Plan.

Creativity within reclamation (within the current reclamation permit) is encouraged to incorporate features that promote wildlife habitat diversity and mimic natural, un-disturbed conditions through methods and goals such as:

- Variability in slope direction and severity to increase differential snow drifting and subsequent micro-climate diversity.
- Dozer pockets
- Boulder piles
- Motte or clump woody vegetation re-establishment
- Woody vegetation travel, cover, and browse corridors.

4.2 Biodiversity

Every reasonable effort should be made to increase bio-diversity in the post-mining environment including, variability in soil conditions, slope aspect, and slope severity.

4.3 Sustainability

Post-mining land use planning should incorporate features that will not require maintenance for biotic and functional sustenance. Examples include:

- Vegetation seed mix including native species
- Storm-water control features that are permanent in nature.

5 Wildlife Monitoring Plan

A Wildlife Monitoring Plan, attached as Appendix C, will be implemented in January 2018. This

Plan will be followed for the duration of 2018, with a year-end review in consultation with CPW. Following the year-end review, the Plan will be revised for further monitoring or deemed complete. Appendix D contains the Wildlife Sightings Log to be completed monthly as discussed in the Plan. Appendix E is a visual guide to identifying wildlife commonly sighted on mine property.

6 Reporting Wildlife Findings

6.1 Wildlife Injured or Sick

When wildlife is found injured or sick on or near CC&V property, the following procedure must be followed immediately.

- Ensure that your safety is not compromised at the scene while analyzing the situation.
- Report the event to S&ER Department,
- Document the following information as is pertinent and provide to S&ER:
    - Time found
    - Location found or last seen
    - Species involved (e.g., elk, deer, fox, etc)
    - Number of animals involved
    - Cause of injury or sickness, if known.
    - Symptoms observed
    - Action taken to help the animal, if applicable
- Identify needed measures to prevent reoccurrence of the incident
- Assist S&ER personnel, as necessary, to care for the animal appropriately, and,
- Incorporate needed measures to prevent reoccurrence of the incident

Wildlife incidents, including near misses, are to be reported in Cintellate, CC&V's electronic incident reporting system within 24 hours of the event.

6.2 Wildlife Mortalities

When wildlife mortalities occur on CC&V property, the following procedure must be followed as soon as reasonably possible:

- Ensure that your safety is not compromised at the scene while analyzing the situation.
- Report to the S&ER Department,
- Document as much of the following information as is pertinent and provide to S&ER:
    - Time incident occurred or time wildlife was found
    - Location found
    - Species (elk, deer, fox, etc)
    - Number of animals involved
    - Cause of death, if known
    - Other applicable observations
- Identify needed measures to prevent reoccurrence of the incident,

- Assist, as necessary, to dispose of the animal appropriately per direction of the S&ER Department, and,
- Incorporate needed measures to prevent reoccurrence of the incident.

Wildlife mortalities, including near misses, are to be reported in Cintellate, CC&V's electronic incident reporting system within 24 hours of the event.

Revision History

Revision No	Revision Date	By Whom	Description
01	April 4, 2007	G. Goodrich	Initial release of document
02	October 29, 2008	PMR	Update revision history per CAR-CCV-2008-002
03	July 28, 2010	MAV	Plan Update w/ CN Code Audit improvements
04	November 22, 2011	MAV	Update State Agency Contact Info.
05	August 12, 2013	TCC	Review and Update
06	October 2015	GH	General review and update and added reference to bats in underground workings
07	March 2017	TVO	General review and updated sections discussing buried drip lines
08	December 2017	GH, EM	Includes reference to and addition of Wildlife Monitoring Plan and items identified in CPW visit

Appendix A

Procedures for Handling and Reporting Wildlife Incidents to the Colorado Division of Parks and Wildlife

When wildlife is found or reported dead or injured on CC&V property, the following procedures should be followed by S&ER Team Members within a 24 hour period:

1. Call the Environmental On-Call Phone or appropriate area representative if during regular business hours
2. If the wildlife is injured, contact CPW immediately so they can advise on and assist with the situation
3. If the wildlife is found dead, the incident must be reported to CPW within 24 hours of the finding. The current CPW wildlife officer for Teller County and current contact information can be found at www.cpw.state.co.us
4. Make a note of the finding in preparation for reporting to CPW. Include the following:
    a. Location
    b. Time found and/or time reported to ER
    c. Species, approximate age (if obvious) and sex
    d. Number of wildlife involved
    e. Cause of death or injury
    f. Action taken to avoid recurrence
    g. Any other details pertinent to the incident
5. If applicable, take a water and/or soil sample at the scene
6. In the event of a small animal or bird mortality, S&ER personnel, in conference with CPW, will evaluate the potential that the animal or bird may have been exposed to chemical processes. If it is determined that there is a high probability the animal or bird was exposed to harmful chemicals or other processes, the animal will be sent to Colorado State University for necropsy.
7. Photo-document the finding including:

    In the event of an ungulate mortality, S&ER personnel will contact CPW and make arrangements for the transport of the animal to a location recommended by CPW. Photo-document the finding including:

    a. Site and animal as found
    b. Animal close up for identification purposes
    c. Injuries to the animal
    d. Burial site and procedures
8. Report the incident and findings to CPW, via telephone, within 24 hours of the finding. The current officer for the CC&V area is Tim Kroening – Office (719) 227-5200, Cell (719)439-9635
9. Document conversations with CPW using the phone memo format.
10. Complete a written report on the incident. The report should include
    a. Items listed in #4

b. Location of burial site

c. Telephone memo documenting conversation with CDOW

d. Pictures taken

11. If the cause of death is determined to be mining related activities, a copy of the incident report will be sent to the Division of Reclamation, Mining and Safety at the end of the quarter in which the event occurred.

Appendix B

CPW Site Evaluation Datasheet for Bats

SITE EVALUATION DATA

Survey By: _____ ID# _____

New Site? Yes No

Mine/Cave site: _____ Date: Mine Type: Comx Adit Decline stope Shaft W/Highwall

County:

Utm-E z | Utm-N | Elevation | Portal Aspect:

Portal (H) _____ Ft or In (W) _____ Ft or In | Portal temp _____ Ambient _____ | Connected to: _____ Large Rooms? _____ Unsafe Passages? _____

AIR FLOW: ITOB OUT IN IBOT PULSE UNK NONE N/A
AIR SPEED: Weak Trace Moderate Strong Unk

Water? Dry Unk Pooled Flowing Damp Dripping
Historic flooding Depth of Pools _____

Portal Stability: Stable – Fair - Unstable: rock timber , Bad Collar - Hazard!
Internal Stability: Stable / Fair / Unstable: spots / Debris falling / Timbers Pillars Hazard! Unk

Human Disturbance?
Trace Mod High None
Trash Tracks Graffiti Claim

Guano? Yes No Unk (Lots Moderate Trace)
Guano pattern: Pieces Scattered Clusters Walls
Roost Stains? Possible None Assoc. w/guano? ____

Insect parts? Yes No (Lots Moderate Trace)
Sign obscure? No Wet Soil Pkrat Human Unk
Bat carcasses? Yes No #_____

Est. mine depth: _____ <50 <100 100-300 >300

Soil samples taken? Yes No | Bat samples? Yes No | Number _____

Gamma Max Dump _____ Portal _____ Internal _____

Other resources documented: _____

BATS? YES NO UNK SURVEY COMPLETE ? YES ☐ PARTIAL ☐ External Only ☐

Species / # / Temps	Species / # / Temps	Species / # / Temps	Species / # / Temps
Loggers Deployed			

Revised 9/2013

Multi-portal? YES NO

Multi-levels? YES NO UNK POSS

Portal Obstructed? NO YES

Door Grated Rock Veg Timber

Plugged? YES NO

Type: Vegetation Timber

Rock Trash

BERM? NO YES est H _____

Drifts? NO YES # _____

Domes? NO YES # _____

Fissures? NO YES # _____

Winze? NO YES # _____

Raises? NO YES # _____

Air Vents? NO YES # _____

Micro- Climate:
Ceiling Temps (portal to face)

P_____ _____ _____ _____

_____ _____ _____ F_____

RH% (portal to face)

_____ _____ _____ _____

Photo? _____

COMMENTS & SKETCH FROM SURVEY:

(safety hazards, human visitation, access issues, possible gate issues, reasons for incomplete surveys, etc.)

Sketch layout & locations: B-bats S – soil samples T – temps R – RH% G – sign of use

Sketch layout & locations: B-bats S – soil samples T – temps R – rh% G – sign of use

MINE EVALUATION NOTES

Revised 9/2013

Survey By: Date:

Mine site:	Portal Area Temp	Human Disturbance? Trace Low Mod High None Trash Tracks
DOMES? No Yes #: _____ (Fissures? No Yes : Many Few Large) Boreholes? No, Few Many WINZE? No Yes: # _____ DRIFTS? No Yes: # _____ RAISES? No Yes : # _____ Gamma Readings: _____ Multi-Levels? Yes No Unk Likely Connects to: _____		
Internal Stability: stable / fair / unstable-spots / Debris falling / timber falling / covered winze / Hazardous!!	Water? Dry / Shallow – Deep Pooled / Flowing Damp / Dripping / Historic Flooding	
Ceiling temps: Portal to Face: _____ _____ _____ _____ _____ _____ _____ _____ F_____ Junct Temps: _____ _____ _____ _____ Face / dome temps: _____ _____ _____ _____		
Guano? No Yes : Lots Trace Moderate Guano pattern: Pieces Scattered Clusters Walls Roost Stains? Possible None Assoc. w/guano? _____	Insect parts? No Yes: Lots Trace Moderate Sign obscure? No wet soil pkrat human	
Est. mine depth: _____ <50 <100 100-300 >300	Hazards:	

BATS

Species / # / Temps	Species / # / Temps	Species / # / Temps	Species / # / Temps

Appendix C
Wildlife Monitoring Plan

Overview:

CC&V recognizes that there is potential for risk to local wildlife associated with current mining operations at the CC&V site. In order to better understand this risk, and to mitigate any potential loss, CC&V proposes the following outline for a Wildlife Monitoring Plan as an appendix to the approved Wildlife Management Plan. Common species known to be at potential risk and have been observed on the property include:

- Black bear
- Elk
- Mule Deer
- Little brown bat and Townshend Big eared bat
- Numerous small birds and raptors (red tailed and Cooper's hawk, Golden eagle)
- Mountain lion
- Bobcat
- Red fox
- Coyote
- Moose

Purpose:

This plan is intended to identify species and locations of existing wildlife populations. Additionally, this plan will determine the potential wildlife risks and exposures associated with high walls, chemical storage, and processing areas.

Obligations of the Plan:

- **Monthly S&ER Inspection**: Personnel from the S&ER Department will conduct monthly inspections per Figure 1 in Appendix F of the permit boundary, identifying areas traveled frequently by wildlife and will complete the following:
  - **Record locations of sightings or tracks**: A monthly log will be kept of all sightings and interactions and recorded in a database. In addition, each area in Process, Mining Operations, and Mine Maintenance will record each sighting and location to S&ER on shift area inspections. This is further discussed in Section 3.1 of the Wildlife Protection Plan.
  - **In terrain particularly steep or difficult to access in adverse conditions:** CC&V will use game cameras. Areas of difficult access are primarily the interface of the Valley Leach Facilities and the natural environment.
  - **Conduct necropsies on all wildlife mortalities onsite:** CC&V will continue to notify CPW of any wildlife mortalities onsite, as is required by the Wildlife Management Plan. Additionally, small animals or birds that are found deceased on property, or adjacent to the permit boundary, will be sent for autopsy. CC&V will notify CPW immediately in the event any large ungulate is found deceased and arrangements will be made for CPW to perform an autopsy.
  - **CC&V will work with Industrial Hygienists** and other professionals to better understand toxic exposure limits to animals seen onsite. Thresholds will be

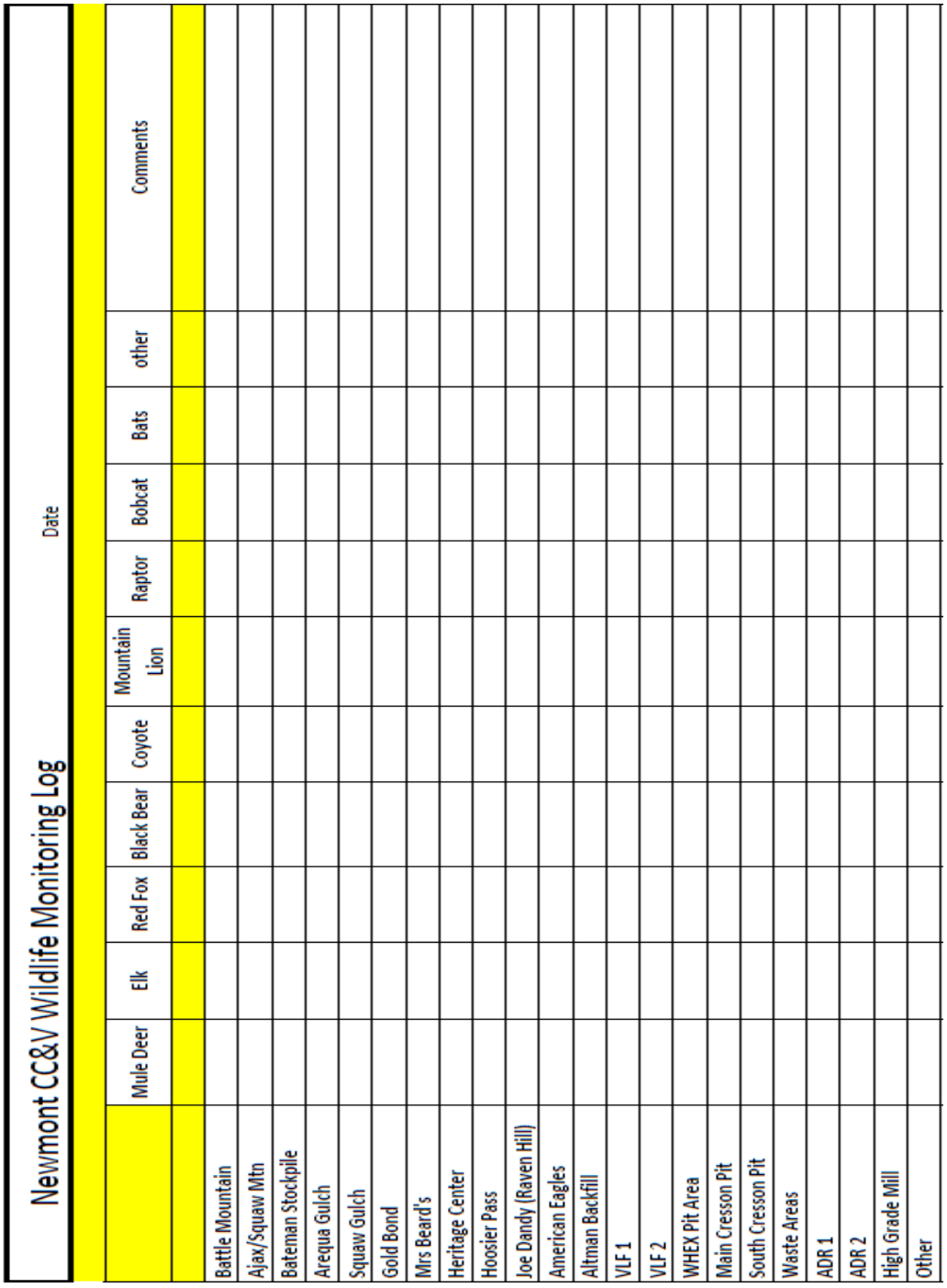
established for each species.

- **Bat monitoring:** In the summer months, bat monitoring around the Process Areas where open tanks are located will be monitored both visually and ultra-sonically.Bat activity is generally constrained to the period of late May to September.
- **Habitat Loss and Alteration:** CC&V will monitor and map major habitat alterations during this period and note any movement of wildlife concurrent with these operations.
- **Waste Management:** Any wildlife interactions with solid waste will be noted. Employee waste management training programs and waste management strategies will be reviewed and updated to prevent further negative wildlife interactions.

Schedule - One year Monitoring Term

The monitoring period will begin in January 2018 and continue for a full year. After one year of data collection, CC&V will review findings in conjunction with CPW and identify areas of high risk and determine where mitigation is required and what actions should be taken moving forward.

Appendix D



Newmont CC&V Wildlife Monitoring Log

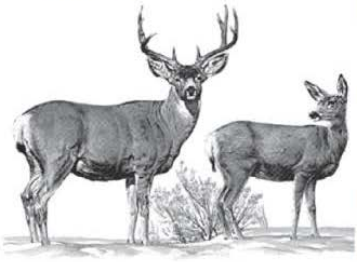
Date

	Mule Deer	Elk	Red Fox	Black Bear	Coyote	Mountain Lion	Raptor	Bobcat	Bats	other	Comments
Battle Mountain											
Ajax/Squaw Mtn											
Bateman Stockpile											
Arequa Gulch											
Squaw Gulch											
Gold Bond											
Mrs Beard's											
Heritage Center											
Hoosier Pass											
Joe Dandy (Raven Hill)											
American Eagles											
Altman Backfill											
VLF 1											
VLF 2											
WHEX Pit Area											
Main Cresson Pit											
South Cresson Pit											
Waste Areas											
ADR 1											
ADR 2											
High Grade Mill											
Other											

Appendix E
Wildlife Identification Chart

ATTENTION! *It is quite common to find both mule deer and white-tailed deer in the same areas, especially on the Eastern Plains. Since both types of deer have the same general body shape and size, hunters can look for a few key differences to make a positive identification.* ***The primary telltale characteristic a hunter should look for is the tail.***

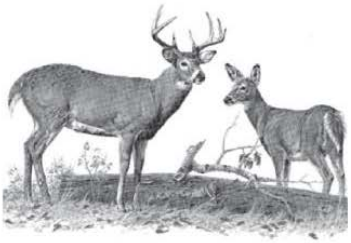
MULE DEER



TRAITS

» **TAIL:** rope-like tail with black tip
» **ANTLERS:** fork and then fork again, usually very evenly, on older males
» **EARS:** large in proportion to head on both bucks and does
» **GAIT:** stiff-legged bounce, tail held down
» **RANGE:** statewide; in mountain shrubs, foothills, communities

WHITE-TAILED DEER

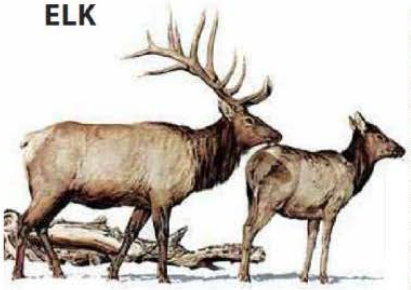


TRAITS

» **TAIL:** broad and brown with white fringe; all white when tail is up
» **ANTLERS:** consist of one main beam with three to five tines pointing upward
» **EARS:** smaller in proportion to head
» **GAIT:** move with a graceful lope, flag-like tail often held up
» **RANGE:** common on Eastern Plains; in streamside woodland areas; cropland along rivers

ATTENTION! *Moose can be found in the same habitat as elk in Colorado. Elk hunters must know the difference between the two species to avoid accidentally killing a moose.*

ELK



TRAITS

» **BODY:** reddish, lighter brown, darker legs
» **NECK:** chestnut brown
» **SNOUT:** slender
» **RUMP:** pale yellow
» **BULLS:** antlers aren't palmated and have obvious brow tines coming off main beam

MOOSE

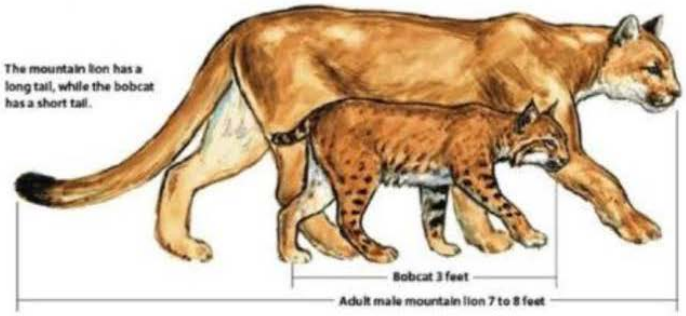
TRAITS

» **BODY:** dark, black-brown with white-gray legs
» **NECK:** large bell (beard) on throat
» **SNOUT:** overhanging, bulbous nose
» **RUMP:** pale yellow
» **BULLS:** palmated antlers with tines

BLACK BEAR

TRAITS

» **COAT:** Adults have long, thick hair; yearlings may have thin, bleached-looking hair
» **EARS:** Small ears and a large head usually indicates a large bear
» **FACE:** Narrow face and long noses are a trait of young bears that are not yet adults



Coyotes (middle) are larger than red foxes (front) and smaller than wolves (back).

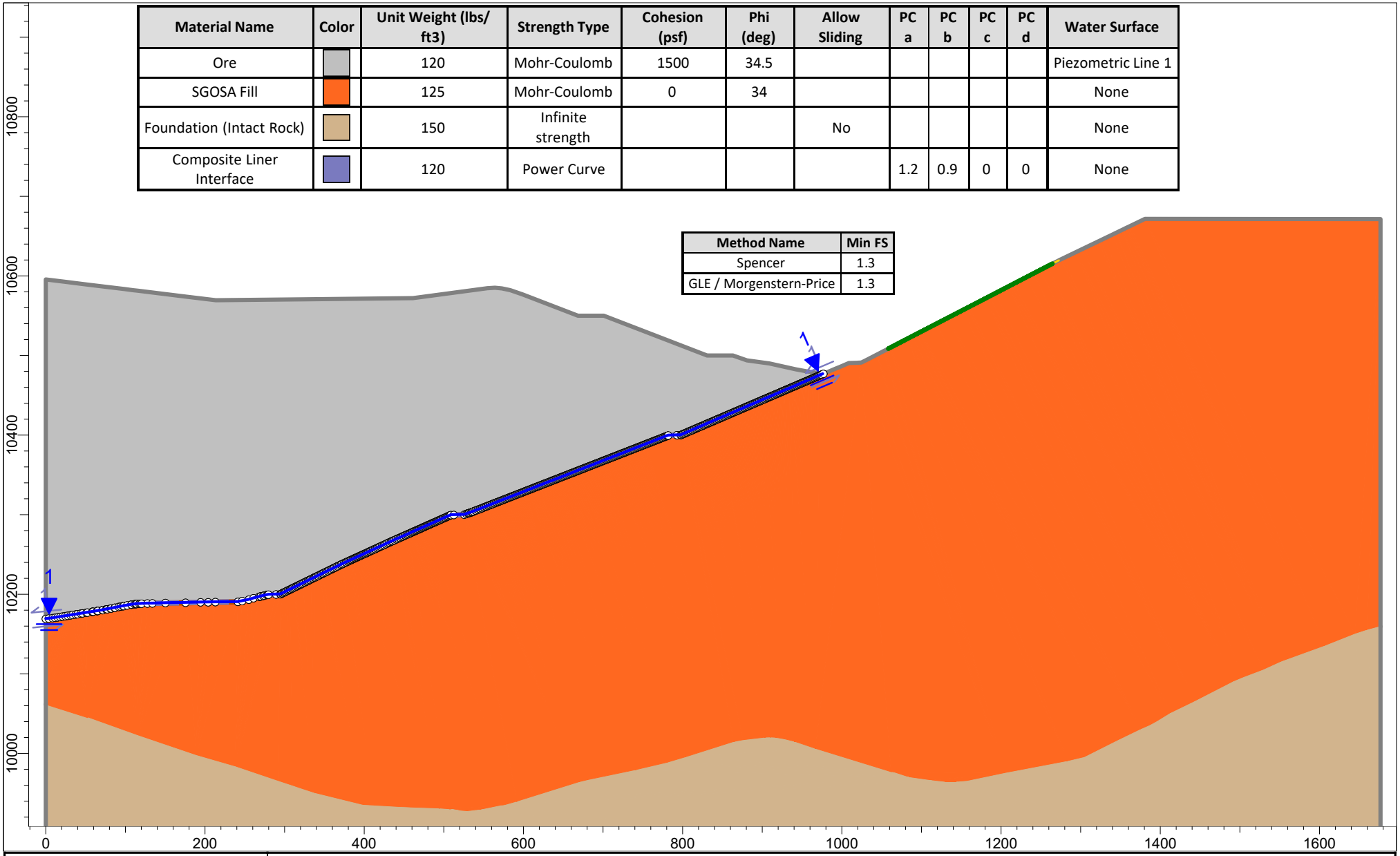
Appendix F


NEWMONT
NEWMONT MINING CORP
Cripple Creek and Victor Gold Mining Company
Figure 1. Wildlife Monitoring Locations
N
Author: C. Steward
Date: 11/2017
1 inch = 500 feet
File: CCV_2017 Fence TR91 Dec Submittal
Observation Point
Game Camera
Wildlife Monitoring

ATTACHMENT 6
RESPONSE TO COMMENT C

Material Name	Color	Unit Weight (lbs/ ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Allow Sliding	PC a	PC b	PC c	PC d	Water Surface
Ore		120	Mohr-Coulomb	1500	34.5						Piezometric Line 1
SGOSA Fill		125	Mohr-Coulomb	0	34						None
Foundation (Intact Rock)		150	Infinite strength			No					None
Composite Liner Interface		120	Power Curve				1.2	0.9	0	0	None

Method Name	Min FS
Spencer	1.3
GLE / Morgenstern-Price	1.3



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SLIDEINTERPRET 9.012

SGOSA Stability Analysis

Analysis Description	Section 4 - With Ore - Static - Local Failure		
Drawn By	JJS	Scale 1:2000	Company Cripple Creek and Victor Mine
Date Printed	12/17/2020		File Name SECTION 5 STABILITY.slmd

Material Name	Color	Unit Weight (lbs/ ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Allow Sliding	PC a	PC b	PC c	PC d	Water Surface
Ore		120	Mohr-Coulomb	1500	34.5						Piezometric Line 1
SGOSA Fill		125	Mohr-Coulomb	0	37.8						None
Foundation (Intact Rock)		150	Infinite strength			No					None
Composite Liner Interface		120	Power Curve				1.2	0.9	0	0	None

Method Name	Min FS
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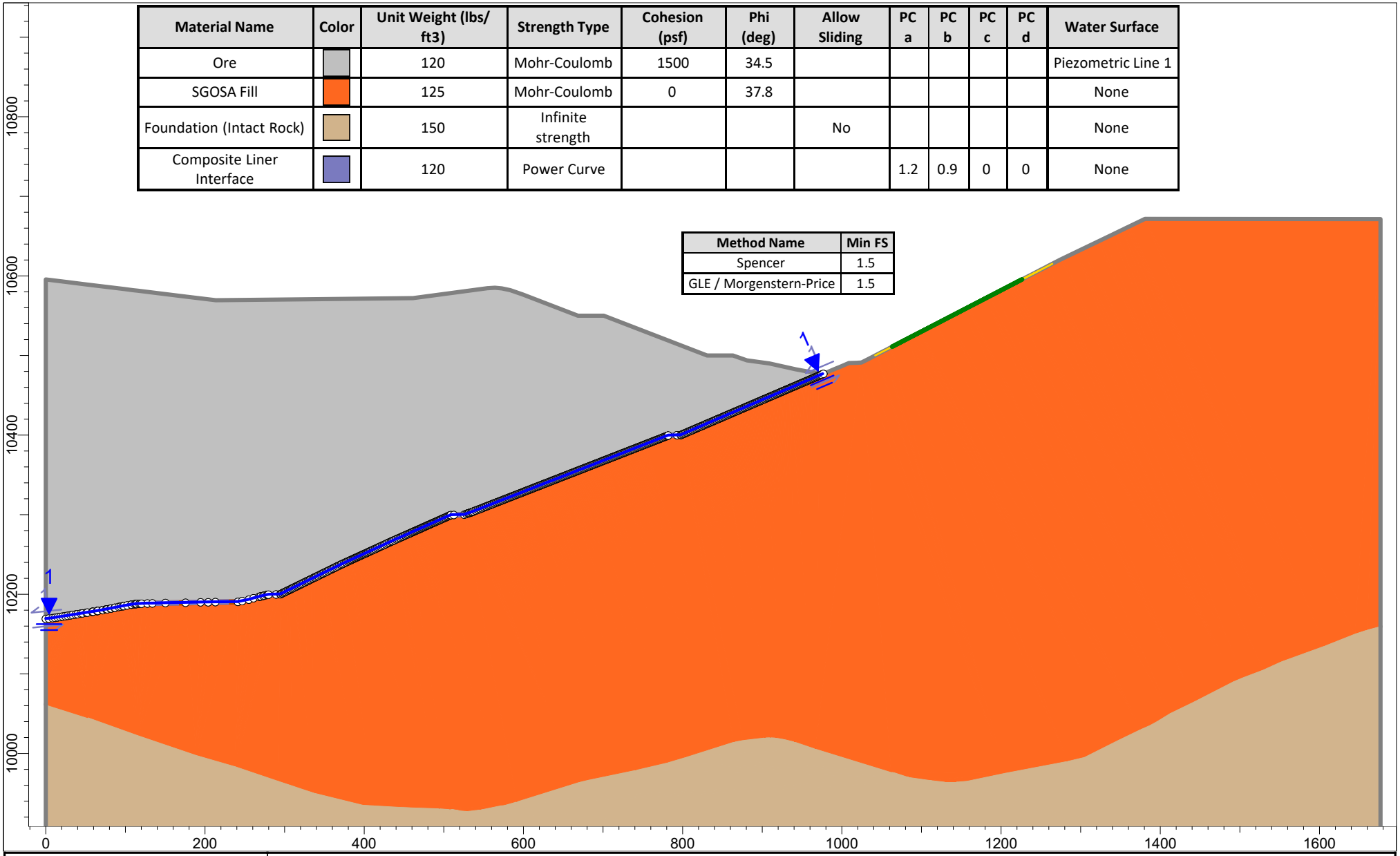
GLE / Morgenstern-Price	1.5



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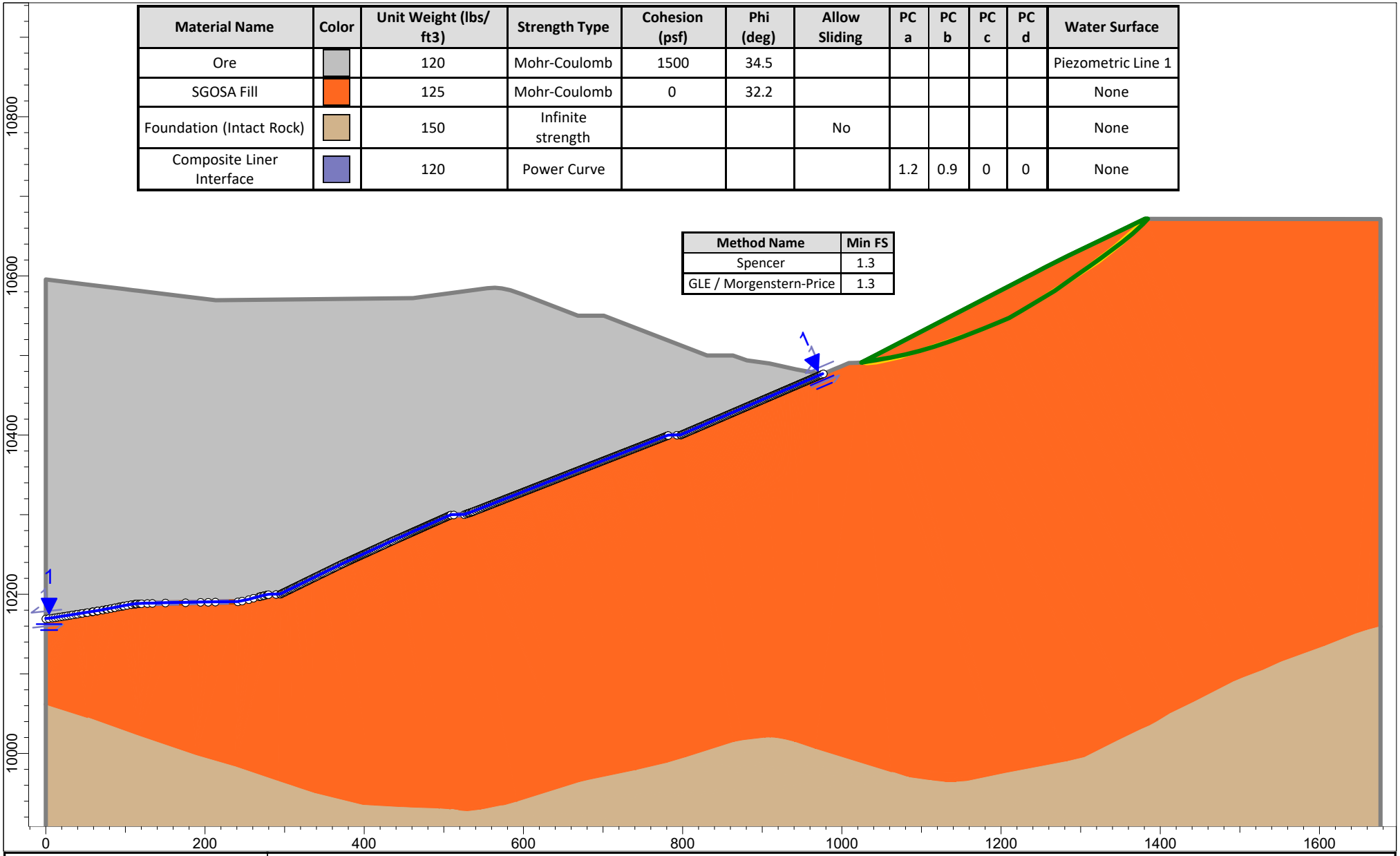
SGOSA Stability Analysis

Analysis Description	Section 4 - With Ore - Static - Local Failure		
Drawn By	JJS	Scale 1:2000	Company Cripple Creek and Victor Mine
Date Printed	12/17/2020		File Name SECTION 5 STABILITY.slmd

Material Name	Color	Unit Weight (lbs/ ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Allow Sliding	PC a	PC b	PC c	PC d	Water Surface
Ore		120	Mohr-Coulomb	1500	34.5						Piezometric Line 1
SGOSA Fill		125	Mohr-Coulomb	0	32.2						None
Foundation (Intact Rock)		150	Infinite strength			No					None
Composite Liner Interface		120	Power Curve				1.2	0.9	0	0	None

Method Name	Min FS
Spencer	1.3
GLE / Morgenstern-Price	1.3



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SGOSA Stability Analysis

Analysis Description	Section 4 - With Ore - Static - Local Failure		
Drawn By	JJS	Scale 1:2000	Company Cripple Creek and Victor Mine
Date Printed	12/17/2020		File Name SECTION 5 STABILITY.slmd

Material Name	Color	Unit Weight (lbs/ ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Allow Sliding	PC a	PC b	PC c	PC d	Water Surface
Ore		120	Mohr-Coulomb	1500	34.5						Piezometric Line 1
SGOSA Fill		125	Mohr-Coulomb	0	36						None
Foundation (Intact Rock)		150	Infinite strength			No					None
Composite Liner Interface		120	Power Curve				1.2	0.9	0	0	None

Method Name	Min FS
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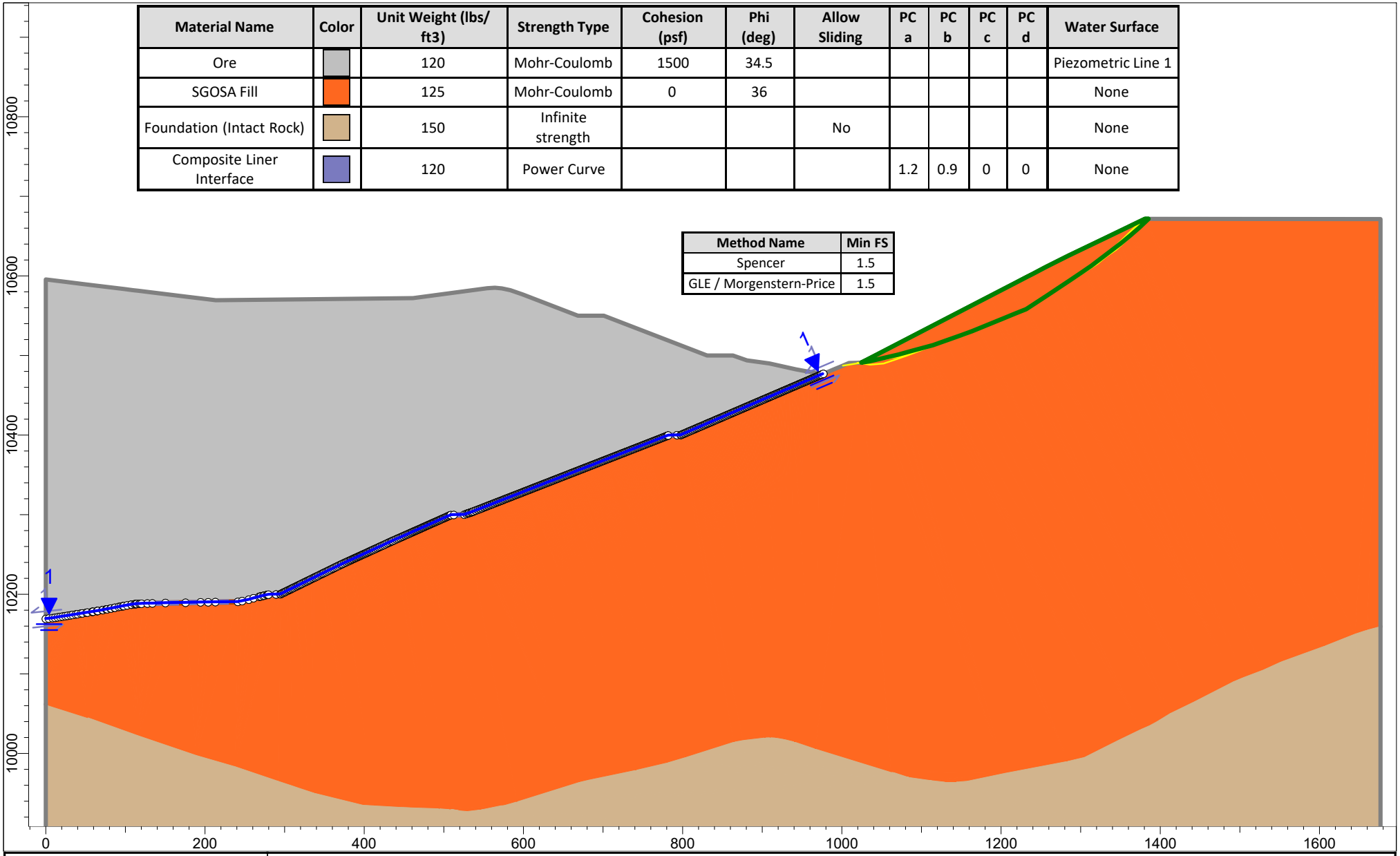
GLE / Morgenstern-Price	1.5



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SGOSA Stability Analysis

Analysis Description	Section 4 - With Ore - Static - Local Failure		
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Date Printed	12/17/2020		*File Name* SECTION 5 STABILITY.slmd

Material Name	Color	Unit Weight (lbs/ ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Allow Sliding	PC a	PC b	PC c	PC d	Water Surface
Ore		120	Mohr-Coulomb	1500	34.5						Piezometric Line 1
SGOSA Fill		125	Mohr-Coulomb	0	28.9						None
Foundation (Intact Rock)		150	Infinite strength			No					None
Composite Liner Interface		120	Power Curve				1.2	0.9	0	0	None

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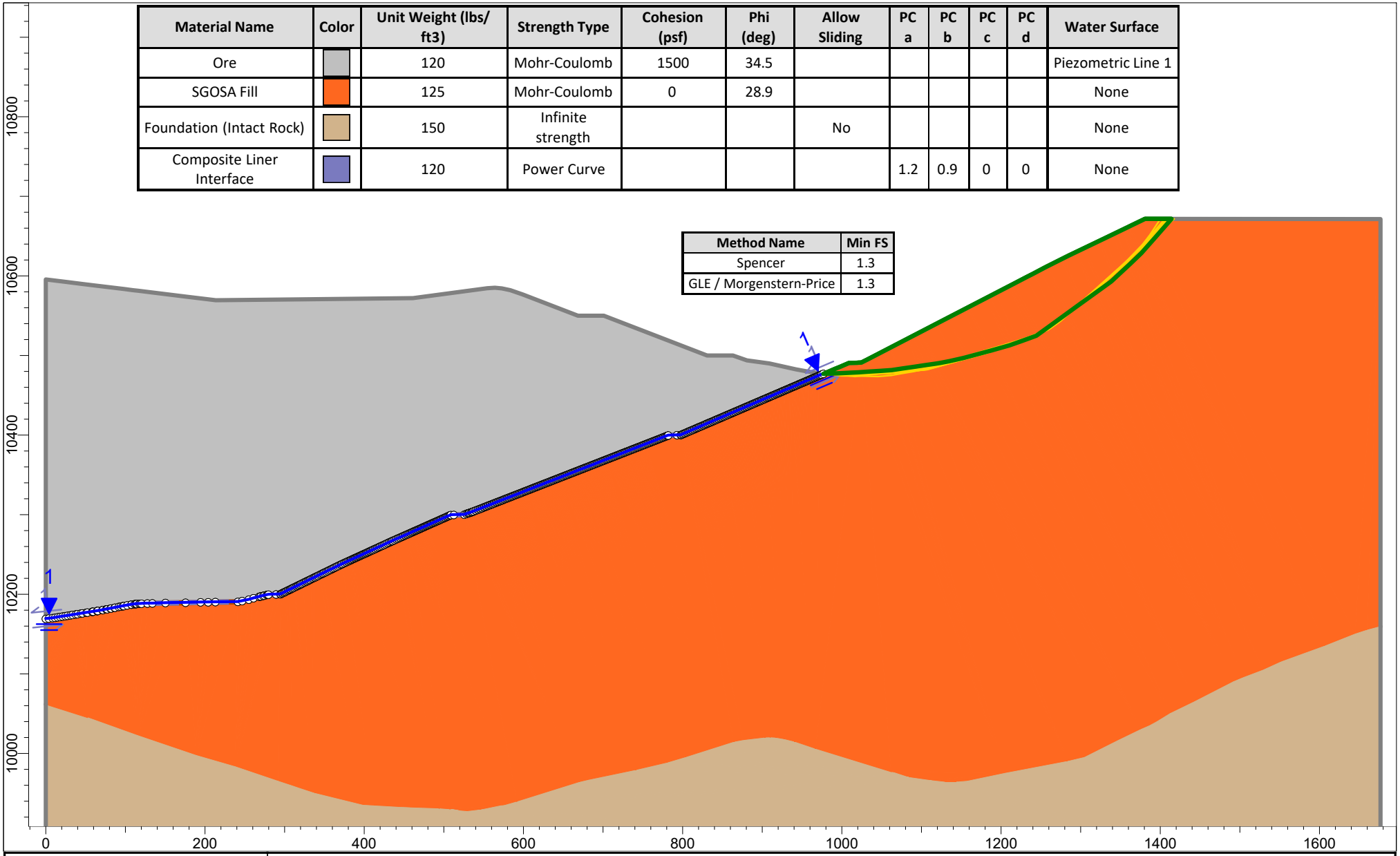
GLE / Morgenstern-Price	1.3



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SGOSA Stability Analysis

Analysis Description	Section 4 - With Ore - Static - Local Failure		
Drawn By	JJS	Scale	1:2000
Company	Cripple Creek and Victor Mine		
Date Printed	12/17/2020	File Name	SECTION 5 STABILITY.slmd

Material Name	Color	Unit Weight (lbs/ ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Allow Sliding	PC a	PC b	PC c	PC d	Water Surface
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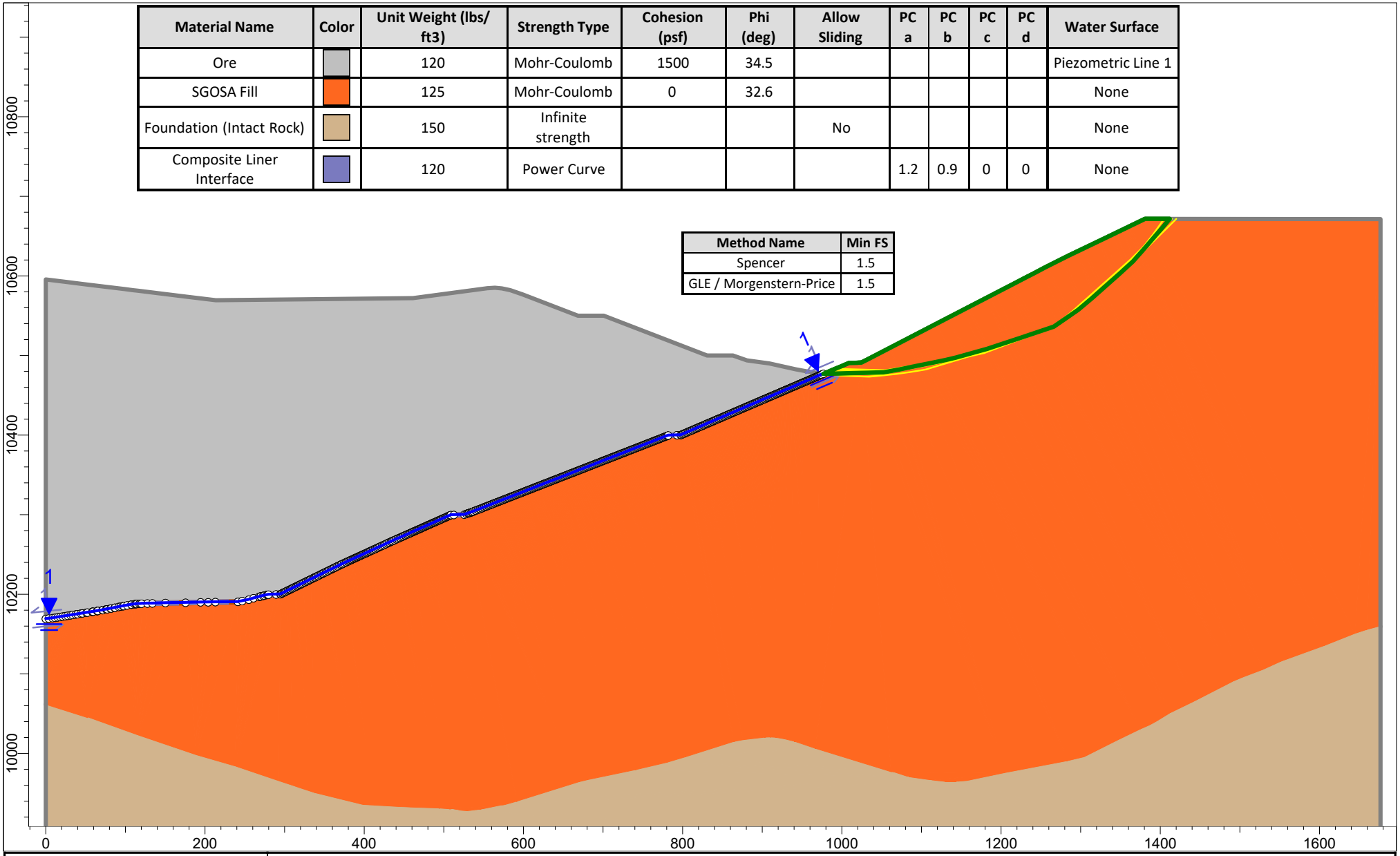
SGOSA Fill		125	Mohr-Coulomb	0	32.6						None
Foundation (Intact Rock)		150	Infinite strength			No					None
Composite Liner Interface		120	Power Curve				1.2	0.9	0	0	None

Method Name	Min FS
Spencer	1.5
GLE / Morgenstern-Price	1.5



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SGOSA Stability Analysis

Analysis Description	Section 4 - With Ore - Static - Local Failure		
Drawn By	JJS	Scale	1:2000
Company	Cripple Creek and Victor Mine		
Date Printed	12/17/2020	File Name	SECTION 5 STABILITY.slmd

Material Name	Color	Unit Weight (lbs/ ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Allow Sliding	PC a	PC b	PC c	PC d	Water Surface
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SGOSA Fill		125	Mohr-Coulomb	0	25.4						None
Foundation (Intact Rock)		150	Infinite strength			No					None
Composite Liner Interface		120	Power Curve				1.2	0.9	0	0	None

Method Name	Min FS
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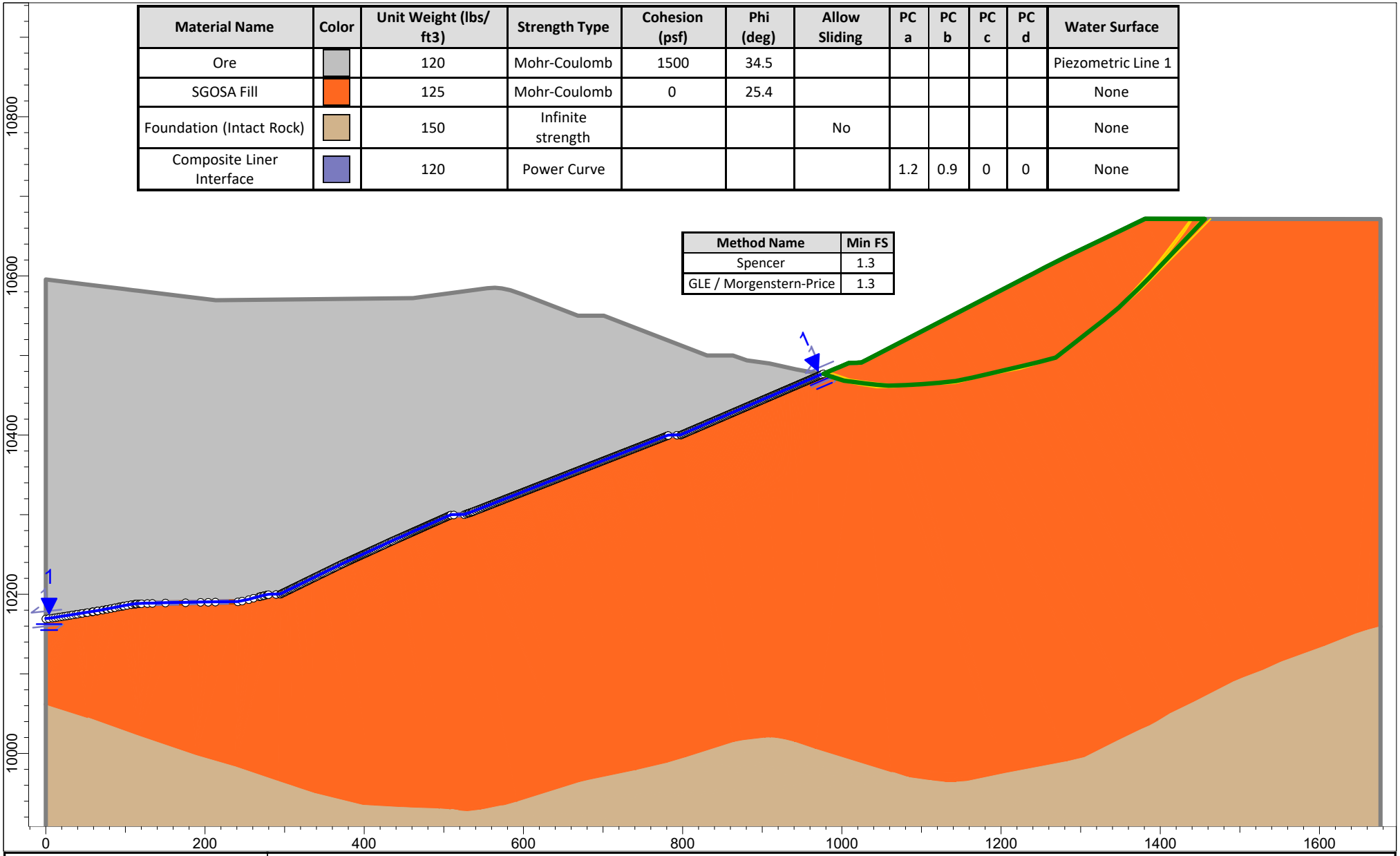
GLE / Morgenstern-Price	1.3



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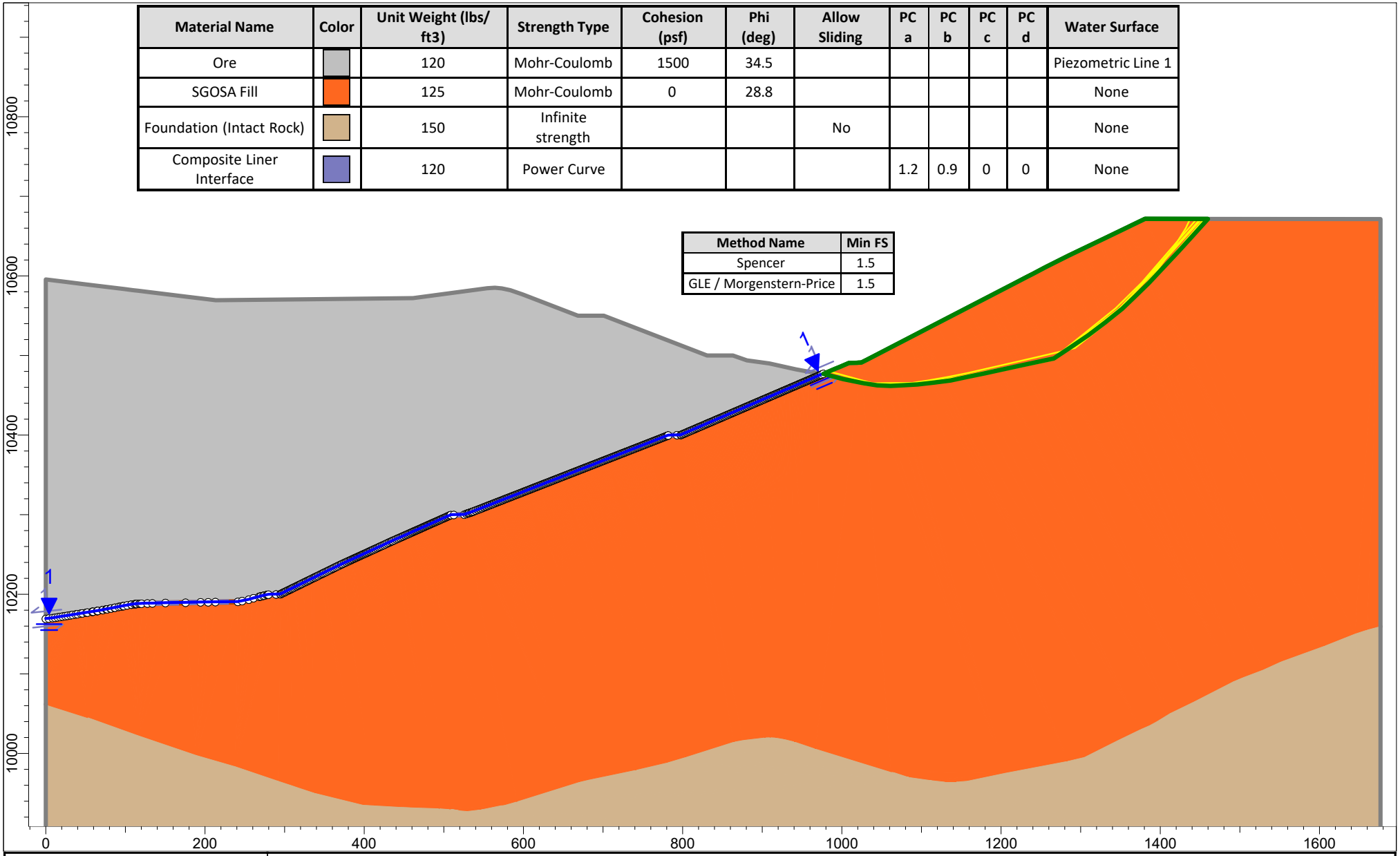
SGOSA Stability Analysis

Analysis Description	Section 4 - With Ore - Static - Local Failure		
Drawn By	JJS	*Scale* 1:2000	*Company* Cripple Creek and Victor Mine
Date Printed	12/17/2020		*File Name* SECTION 5 STABILITY.slmd

Material Name	Color	Unit Weight (lbs/ ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Allow Sliding	PC a	PC b	PC c	PC d	Water Surface
Ore		120	Mohr-Coulomb	1500	34.5						Piezometric Line 1
SGOSA Fill		125	Mohr-Coulomb	0	28.8						None
Foundation (Intact Rock)		150	Infinite strength			No					None
Composite Liner Interface		120	Power Curve				1.2	0.9	0	0	None

Method Name	Min FS
Spencer	1.5
GLE / Morgenstern-Price	1.5



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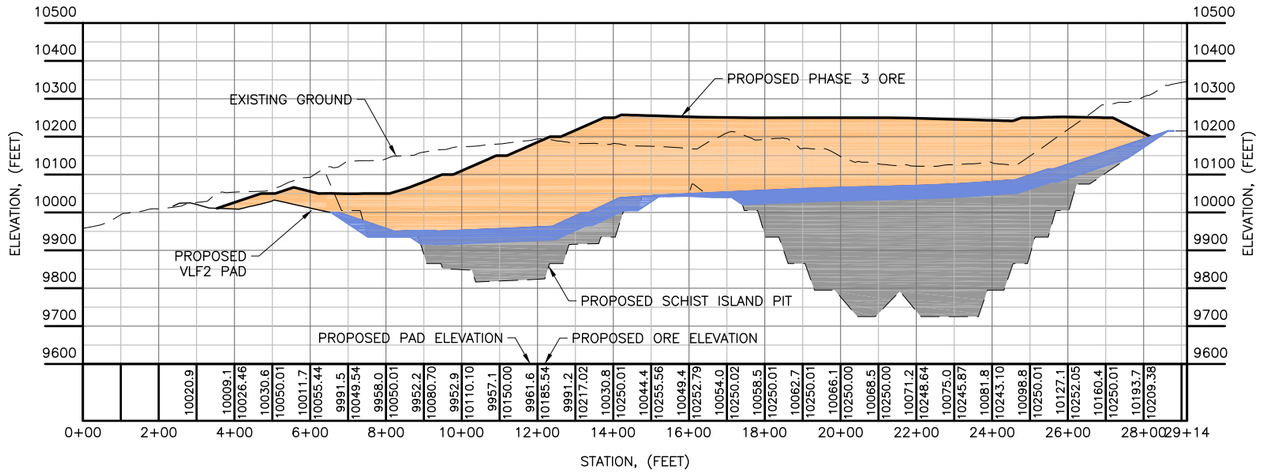
SGOSA Stability Analysis

Analysis Description	Section 4 - With Ore - Static - Local Failure		
Drawn By	JJS	Scale	1:2000
Company	Cripple Creek and Victor Mine		
Date Printed	12/17/2020	File Name	SECTION 5 STABILITY.slmd

ATTACHMENT 7
RESPONSE TO COMMENT --



AA / A12 VLF SECTION AA

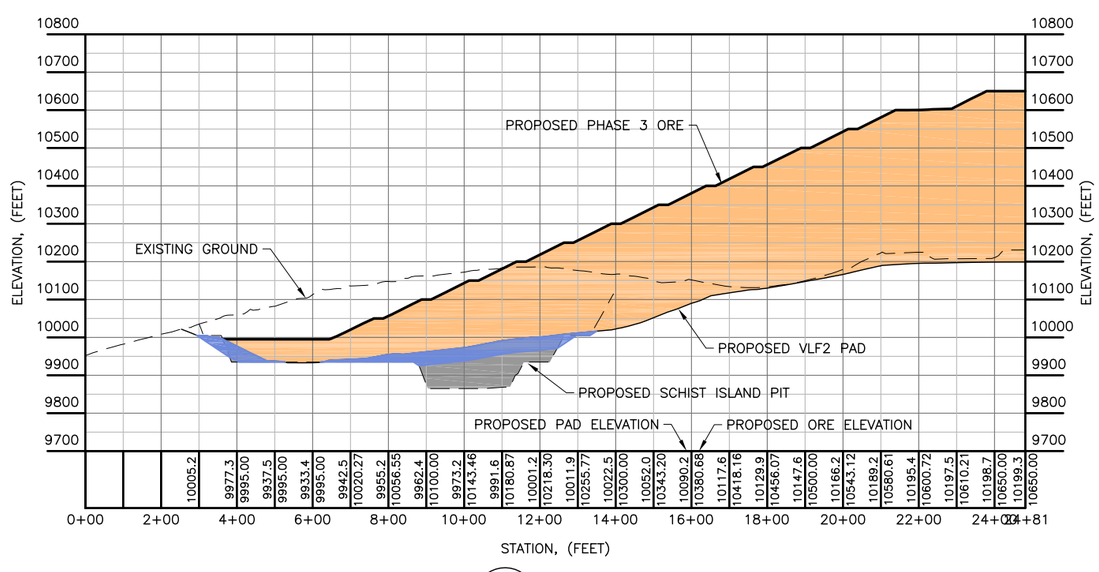
0 200 400 FEET — HORIZONTAL

0 200 400 FEET — VERTICAL

NO EXAGGERATION

LEGEND:

- ORE
- STRUCTURAL FILL
- OVERBURDEN FILL



BB / A12 VLF SECTION BB

0 200 400 FEET — HORIZONTAL

0 200 400 FEET — VERTICAL

NO EXAGGERATION

REV	DATE	DESCRIPTION	TECH	ENG
2	12/22/20	RE-ISSUED FOR PERMITTING	JNM	JNM
1	07/24/20	RE-ISSUED FOR PERMITTING	MPB	JNM
0	12/5/2019	ISSUED FOR PERMITTING	JEP	JNM

APPROVED BY: JNM
CHECKED BY: JNM
DESIGNED BY: JEP
DRAWN BY: JEP

DISCLAIMER

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COLORADO REGISTERED — JAY N. JANNEY-MOORE — 37571 — 12-22-2020 — PROFESSIONAL ENGINEER

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CLIENT: CRIPPLE CREEK & VICTOR GOLD MINING COMPANY

PROJECT: VLF2 PHASE 3

TITLE: VLF CROSS SECTIONS (SHEET 1 OF 2)

FILENAME: 0106.033.039P

DRAWING NO.: A13

REVISION: 2

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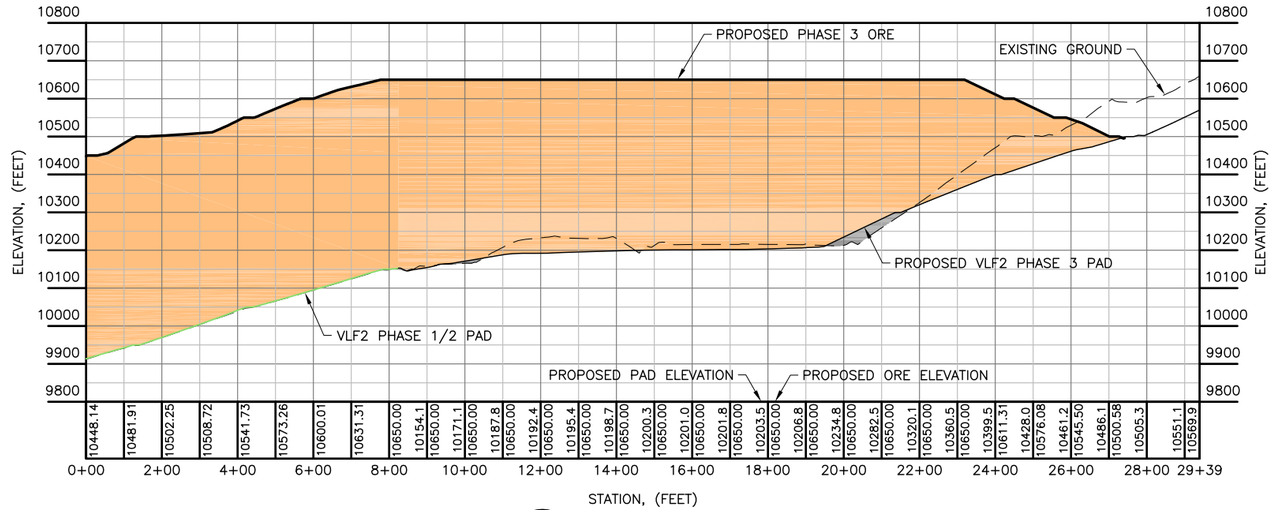
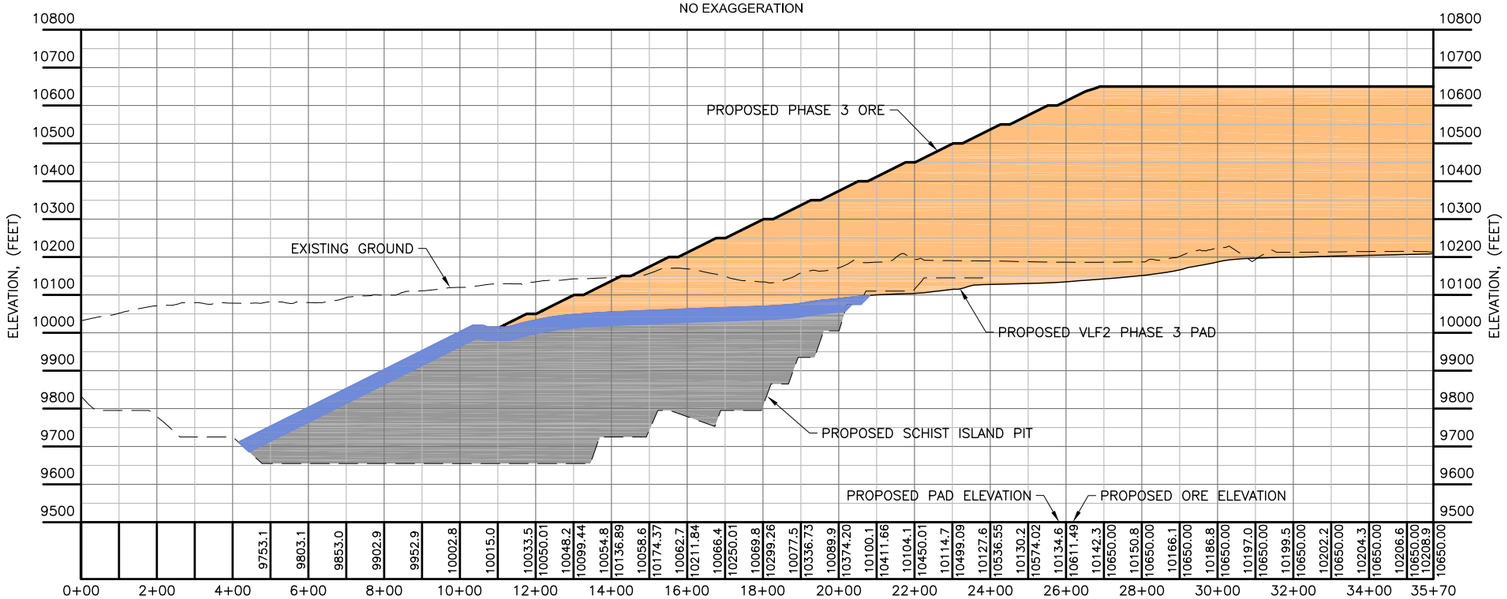


CC / A12 VLF SECTION CC

0 200 400 FEET HORIZONTAL

0 200 400 FEET VERTICAL

NO EXAGGERATION



DD / A12 VLF SECTION DD

0 200 400 FEET HORIZONTAL

0 200 400 FEET VERTICAL

NO EXAGGERATION

LEGEND:

- ORE
- STRUCTURAL FILL
- OVERBURDEN FILL

COLORADO REGISTERED N. JANNEY-MOORE 37571 PROFESSIONAL ENGINEER 12-22-2020

REV	DATE	DESCRIPTION	TECH	ENG
2	12/22/20	RE-ISSUED FOR PERMITTING	JNM	JNM
1	07/24/20	RE-ISSUED FOR PERMITTING	MPB	JNM
0	12/5/2019	ISSUED FOR PERMITTING	JEP	JNM

APPROVED BY: JNM
CHECKED BY: JNM
DESIGNED BY: JEP
DRAWN BY: JEP

DISCLAIMER
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CLIENT: CRIPPLE CREEK & VICTOR GOLD MINING COMPANY

PROJECT: VLF2 PHASE 3

TITLE: VLF CROSS SECTIONS (SHEET 2 OF 2)

FILENAME: 0106.033.039P

DRAWING NO.: A14

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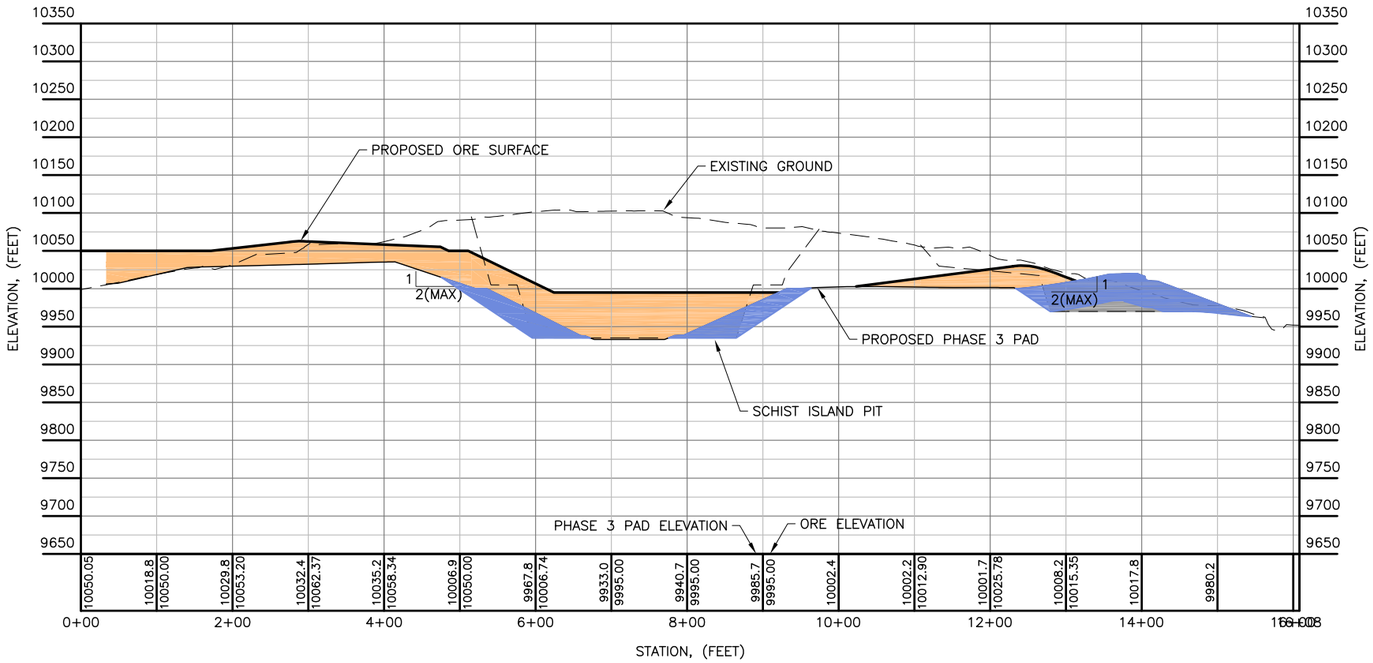
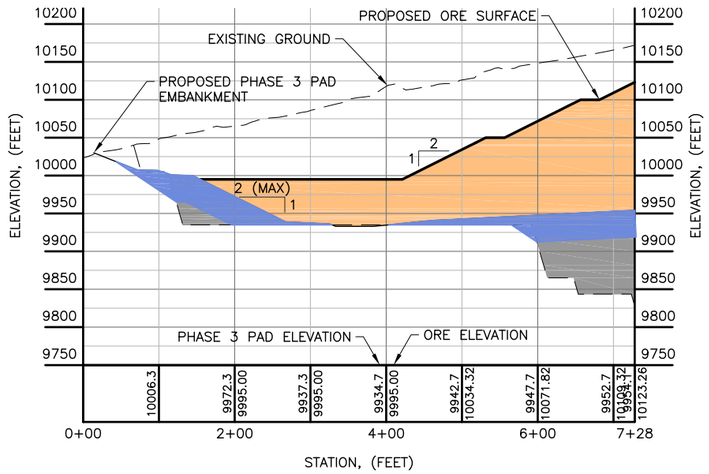


EE A08 PSSA SECTION IN SCHIST ISLAND PIT



FF A08 PSSA EMBANKMENT

LEGEND:

- ORE
- STRUCTURAL FILL
- OVERBURDEN FILL

0 100 200 FEET HORIZONTAL

0 100 200 FEET VERTICAL

NO EXAGGERATION

REV	DATE	DESCRIPTION	TECH	ENG
2	12/22/20	RE-ISSUED FOR PERMITTING	JNM	JNM
1	07/24/20	RE-ISSUED FOR PERMITTING	MPB	JNM
0	12/5/2019	ISSUED FOR PERMITTING	JEP	JNM

APPROVED BY: JNM
CHECKED BY: JNM
DESIGNED BY: JEP
DRAWN BY: JEP

DISCLAIMER

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NewFields

CLIENT: CRIPPLE CREEK & VICTOR GOLD MINING COMPANY

PROJECT: VLF2 PHASE 3

TITLE: PSSA SECTION AND DETAILS (SHEET 2 OF 3)

FILENAME: 0106.033.010D

DRAWING NO.: A19

REVISION: 2

COLORADO REGISTERED PROFESSIONAL ENGINEER
N. JANNEY-MOORE
37571
12-22-2020

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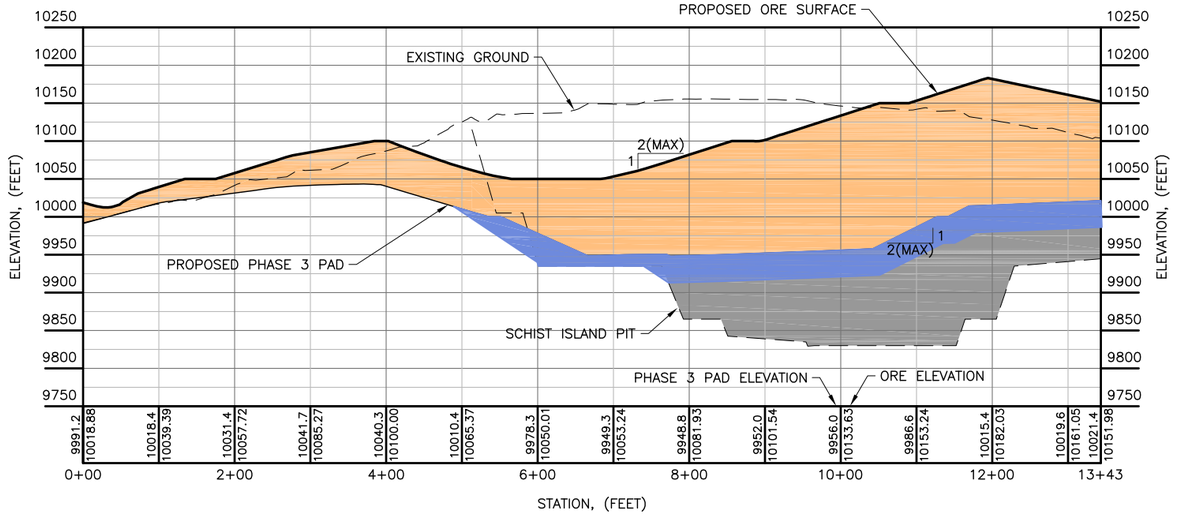
LEGEND:

- ORE
- STRUCTURAL FILL
- OVERBURDEN FILL



GG / A08 PSSA SECTION

0 100 200 FEET HORIZONTAL

0 100 200 FEET VERTICAL

NO EXAGGERATION

COLORADO REGISTERED
JANNEY-MOORE
37571
PROFESSIONAL ENGINEER
12-22-2020

REV	DATE	DESCRIPTION	TECH	ENG
2	12/22/20	RE-ISSUED FOR PERMITTING	JNM	JNM
1	07/24/20	RE-ISSUED FOR PERMITTING	MPB	JNM
0	12/5/2019	ISSUED FOR PERMITTING	JEP	JNM

APPROVED BY: JNM
CHECKED BY: JNM
DESIGNED BY: JEP
DRAWN BY: JEP

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CLIENT: CRIPPLE CREEK & VICTOR GOLD MINING COMPANY

PROJECT: VLF2 PHASE 3

TITLE: PSSA SECTION AND DETAILS (SHEET 3 OF 3)

FILENAME: 0106.033.024D

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