COLORADO
Division of Reclamation, Mining and Safety
Department of Natural Resources
1313 Sherman Street, Room 215
Denver, Colorado 80203

May 27, 2016

Andre LaRoche
Transit Mix Concrete Co.
444 E. Costilla St.
Colorado Springs, CO 80903

Re: Preliminary Review of a 112 Construction Materials Reclamation Permit Application Hitch Rack Ranch Quarry, DRMS File No. M-2016-010

Dear Mr. LaRoche:

The Division of Reclamation, Mining, and Safety (Division) has completed its preliminary adequacy review of the above referenced application. Per Rule 1.4.1(7), the Division has determined the application to be "complex", thereby extending the decision/recommendation date to August 5, 2016. Please be advised that on August 5, 2016, the application may be deemed inadequate and may be denied unless the following adequacy items are addressed to the Division's satisfaction. Subsequent to receipt and review of the Applicant's response to these items, the Division may identify additional items.

APPLICATION FORM:

1) On page 1 of the application form the applicant is identified as "Transit Mix Concrete Company". However, the company name is registered with the Colorado Secretary of State as "Transit Mix Concrete Co." This is also how the applicant wrote the company name on the revised page 8 – Certification. Please revise page one to write your company name exactly how it is registered with the State.

2) A zip code was not included with the three contact addresses provided on page three of the application form. Please submit a revised page 3 with the appropriate zip code included for each address given.

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

Figures C-1 and C-2:

3) The proposed permit boundary (red dashed line) continues outside of the eastern boundary of the RMBC Group LLC property, and into a parcel of land which appears to be owned by State of Colorado. If this is correct the applicant should include the State of Colorado as an owner of the surface of affected land on page two of the application form, and in Exhibit O. Additionally, the applicant will need to obtain legal right of entry from the State of Colorado and include the documents in a revised Exhibit N.

4) The figures submitted with this exhibit show the names of two existing roads located inside or within 200 feet of the affected land (Hitch Rack Ranch Road and Little Turkey Creek Road). However, the existing road which partially follows Deadman Creek is not labeled. Is this road named? If so, please include the name of the road on all figures submitted with this exhibit on which the road is illustrated.

5) As required under Rule 6.4.3(b), on the pre-mining map and/or mine plan map, please show the name and location of any buildings, oil and gas wells and lines, power lines, and communication lines on the area of the affected land and within 200 feet of the affected land. This should include the utility lines along Hwy 115.

6) Pursuant to Rule 6.4.3(e), please submit a map with this exhibit which shows the type(s) of vegetative cover currently established on the affected lands. Or, if this information is provided elsewhere in the application, please specify the location by Exhibit and page number.

7) Pursuant to Rule 6.4.3(g), on one of the figures submitted with this exhibit, please show the owner's name, type of structures, and locations of all permanent or man-made structures contained on the area of affected land and within 200 feet of the affected land. For example, this should include all existing roads (e.g., Hitch Rack Ranch Road, Little Turkey Creek Road, unlabeled road that follows Deadman Creek, Hwy 115), utility lines, buildings, and fences.

Figure C-4:

8) The F1 Fines/Overburden stockpile approaches Little Turkey Creek to within 50 feet. Please clarify how the stockpile will be stabilized against erosion, as necessary to minimize adverse impact to the creek and to Little Turkey Creek Road.

9) Please clarify the haul road crossing of Little Turkey Creek and Little Turkey Creek Road at the North Pit area. Please describe any/all embankments and culverts for the crossing. Please provide additional details and cross-sections depicting the crossing.

10) Please clarify how the haul road crossing of Little Turkey Creek and Little Turkey Creek Road has been designed, and will be maintained throughout the life of mine, to minimize impacts to the hydrologic balance of Little Turkey Creek and to ensure the safety of the public traveling on the portions of Little Turkey Creek Road located within the boundary of affected lands.

11) Please delineate and label on all mine plan figures, all setbacks from the creeks and roads located within the boundary of affected lands.

12) Please clarify the construction schedule for the plant facility depicted on Figure C-4. Please provide additional details of the plant facility, including the general layout, and specifying the locations and designs of fuel storage structures.

Figure C-5:

13) Please clarify how the F1 Fines/Overburden stockpile and TS1 Topsoil stockpile will be stabilized against erosion throughout the life of mine.

14) This figure shows the northwestern portion of the North Pit highwall to be in reclamation during this mining phase. Please explain in detail what reclamation is anticipated during this mine phase.

15) The crest of the North Pit highwall approaches the western boundary of affected lands to within approximately 50 feet. Given the proximity of the highwall to the affected land boundary, the potential for off-site impact appears significant. Please demonstrate how the proposed mining and reclamation activities will be conducted to ensure the protection of areas located outside the affected land boundary from damage, as required under Rule 3.1.5(3).

16) The proposed boundary of affected lands is complex and will prove challenging to delineate on the ground. Please clarify how the affected land boundary will be delineated, as necessary to satisfy the requirements of Rule 3.1.12(2)(b).

Figure C-6:

17) The crest of the North Pit highwall approaches Deadman Creek and the adjacent road to within approximately 50 feet. Please demonstrate how the proposed mining and reclamation activities will be conducted to minimize impact to this creek and road..

18) According to the elevations indicated on Figure C-6, the maximum mining depth of the North Pit is approximately 360 feet. Please verify the maximum extraction depth for the North Pit.

Figure C-7:

19) According to Figure C-7, during mining phase IV the F1 Fines/Overburden stockpile encroaches the western boundary of affected lands. Please demonstrate how the proposed mining and reclamation activities will be conducted to ensure the protection of areas located outside the affected land boundary from damage, as required under Rule 3.1.5(3).

20) According to the figure, the construction of the F1 Fines/Overburden stockpile will result in four benches, with each bench ranging from 80 to 100 feet in height. Please clarify how the stockpile will be constructed, including details of preparation of the substrate prior to placement of the fines and/or overburden, to ensure stability. Please provide typical cross-sections oriented parallel and perpendicular to the length of the stockpile which adequately depict the topography beneath the stockpile during all mining phases. Please be sure at least one of these cross-sections show the estimated maximum height of this stockpile and proposed slope gradients.

21) Does the applicant intend to stockpile material at any other location besides the F1 stockpile, the TS1 stockpile, or the Plant site? If so, please show any additional stockpiling areas on the mining plan figures.

22) The crest of the North Pit Extension highwall approaches the eastern boundary of affected lands to within approximately 50 feet. Please demonstrate how the proposed mining and reclamation activities will be conducted to ensure the protection of areas located outside the affected land boundary from damage, as required under Rule 3.1.5(3).

23) Please clarify the haul road crossing of Deadman Creek and the adjacent road at the North Pit Extension area. Please describe any/all embankments and culverts for the crossing. Please provide additional details and cross-sections depicting the crossing

24) Please clarify the stockpile location for topsoil salvaged from the North Pit Extension area. Please delineate and label the stockpile location on Figure C-7.

25) Looking at the elevations shown in this figure, it appears that the maximum mining depth of the North Pit Extension will be approximately 360 feet. Please verify the maximum extraction depth of this pit.

26) The pit floor elevations at the North Pit and the North Pit Extension will extend below the elevation of the adjacent Deadman Creek. As such, the potential for adverse impact to the hydrologic balance of Deadman Creek, including the diversion of creek flow through pit wall seeps, appears significant. Please demonstrate how the proposed mining and reclamation activities will be conducted to ensure impacts to the hydrologic balance are minimized, as required under Rule 3.1.6.

27) It appears that the operation will be mining through the northeast-trending West Fault (labeled on Figure C-3). What will be the nature of this fault as it daylights along the eastern pit wall of the North Pit and across the North Pit Extension? Please provide an additional figure or cross-section if needed to adequately depict this relationship.

28) The crests of the North Pit highwall and the North Pit Extension highwall appear to be approximately 200 feet apart, separated by Deadman Creek and the adjacent road. Please demonstrate how the proposed mining slopes will remain stable throughout the life of mine and after reclamation has been completed.

Figure C-8:

29) According to this figure, during mining phase V, portions of the North Pit Extension will be backfilled to an elevation of 7,240 feet. In this figure, the pit floor elevation is at 7,110 feet. Please clarify the final backfilled elevations of this pit.

30) It appears that the F1 Fines/Overburden stockpile will be reclaimed during this phase. Please clarify and detail the reclamation activities to occur during this mining phase. Also, please

provide typical cross-sections oriented parallel and perpendicular to the length of this reclaimed stockpile area. Please ensure at least one of these cross-sections shows the final maximum height and slope gradients of the reclaimed stockpile.

31) If the F1 Fines/Overburden stockpile is reclaimed during this phase, where will the topsoil and overburden salvaged from the South Pit be stored? Additionally, where will the plant fines from the South Pit operation be stored? Please show any anticipated stockpiling areas on this figure.

32) It appears that the operation will begin to mine through the plant facility during this mining phase. Will the operation begin to demolish the permanent plant at this time and begin setting up a temporary plant on the South Pit floor? Please explain.

33) The crest of the South Pit highwall approaches the southern boundary of affected lands to within approximately 50 feet. Please demonstrate how the proposed mining and reclamation activities will be conducted to ensure the protection of areas located outside the affected land boundary from damage, as required under Rule 3.1.5(3).

Figure C-9:

34) It appears that the permanent plant facility will have been completely demolished and a new plant will be constructed on the South Pit floor. Please clarify. Please describe the structures and layout of the new plant facility.

35) Looking at the elevations shown in this figure, it appears that the maximum mining depth of the South Pit will be approximately 520 feet in the western portion of the pit, and approximately 360 feet in the eastern portion of the pit. Please verify the maximum mining depth of this pit.

36) It appears that the North Pit Extension will be reclaimed during this mining phase. Please describe what reclamation will occur at this pit. This figure suggests that the entire pit will be backfilled; however, it is difficult to determine the final post-mining topography with the green pattern covering the contours. Please provide typical cross-sections that depict the post-mining topography of the North Pit Extension.

37) It appears that the western portion of the North Pit floor will be reclaimed during this mining phase. It also appears that the northeastern portion of this pit will be backfilled. Please describe exactly what reclamation will occur at this pit during this mining phase.

38) It is difficult to determine the final post-mining topography of the North Pit with the green pattern covering the contours. Please provide typical cross-sections that depict the final post-mining topography of the North Pit.

39) It appears that the western portion of the South Pit will be reclaimed during this mining phase. Please describe exactly what reclamation will occur in this pit during this mining phase.

40) It is difficult to determine the final post-mining topography of the South Pit with the green pattern covering the contours. Please provide typical cross-sections that depict the final post-mining topography of the South Pit.

41) Where will the topsoil and backfill material come from for reclamation of the North Pit, North Pit Extension, and South Pit during this mining phase? Figure C-8 shows the TS1 topsoil stockpile removed and the F1 Fines/Overburden stockpile area reclaimed during this mining phase. Please explain.

42) Where will any salvaged topsoil and/or overburden from expansion of the South Pit be stored during this mining phase? Please show any anticipated stockpiling areas on this figure.

43) Where will plant fines be stored during this mining phase? Please show any anticipated stockpiling areas on this figure.

EXHIBIT D - Mining Plan (Rule 6.4.4):

Overview:

44) The text states that final development elevations will remain 10 feet above the level of Little Turkey Creek and a buffer of 100 feet on either side of the creek will be maintained throughout the operation. However, Figures C-8 and C-9 appear to show the crest of the South Pit within 50 feet of Little Turkey Creek. Please explain this discrepancy. In addition, any setbacks or buffer zones that the operation will maintain from creeks, roads, etc. should be shown on the mining plan figures.

Mining Methods:

45) The text states that initial overburden material and fines (from mining and plant losses) will be stored adjacent to the South Pit in stockpile F1. Will overburden be stockpiled separately from fines? Or will these two types of materials be mixed and stockpiled together? If the materials will be separated, please describe here and indicate on the mining plan maps submitted with Exhibit C how these materials will be stored.

46) The text states that the mining pits and storage areas for fines and topsoil are designed in such a way that Little Turkey Creek and Deadman Creek drainages are not disturbed. Please explain this in more detail.

47) The text states that the existing private access roads adjacent to Little Turkey Creek and Deadman Creek will remain intact and available for use. Does the applicant intend on improving these roads in any way for use by the operation? How will the applicant work to minimize impact to these roads? How will the operation work to prevent haul truck fines from entering the creek in the crossing areas?

48) Will access to Little Turkey Creek Road be limited by the operation? If so, please explain in detail. How will the applicant work with the county and the local community to maintain sufficient access?

49) Is there any potential for rock slides to occur in the areas of Little Turkey Creek Road or the road adjacent to Deadman Creek in relation to the mining operation? If so, how will the applicant work to prevent rock slides from occurring in these areas?

50) The text states that the access road will be constructed entirely on property owned by the Hitch Rack Ranch. However, Figure C-2 shows the far eastern portion of the access road being located outside of the Hitch Rack Ranch property and into property owned by the State of Colorado. If this is correct, please revise the statement accordingly.

51) Table D-1 shows the expected salvageable topsoil by mining phase. For Mining Phases V-VI, the table shows values for salvageable topsoil (49,371 bcy and 76,270 bcy respectively). However, Figures C-8 and C-9 indicate the TS1 topsoil stockpile area will be mined out as the South Pit is opened up starting in mining phase V. Therefore, where will salvaged topsoil be stored during mining phases V-VI? Please show the anticipated topsoil stockpiling area(s) on the associated mining phase maps submitted in Exhibit C.

52) The text states that water will be diverted past the topsoil stockpile, as shown in Exhibit G. Please specify exactly what exhibit figure(s) you are referring to here. Figures G-6 thru G-9 do show a proposed culvert under the TS1 topsoil stockpile (TS1-CC-1). However, there appears to be no proposed diversion ditches associated with this stockpile (besides the clean water ditches adjacent to the haul road).

53) How does the applicant intend to protect and maintain stability of the TS1 topsoil stockpile? Please provide typical cross-sections oriented parallel and perpendicular to the length of this stockpile. Please be sure that at least one of these cross-sections shows the estimated maximum height and slope gradients of the stockpile.

54) The text states that the TS1 stockpile will also be surrounded by a berm to prevent topsoil loss. However, none of the proposed berms are shown on the mining plan maps submitted with Exhibit C or in Exhibit G. Please illustrate and label all proposed berms on figures submitted with either Exhibit C or G.

55) The text states that as sufficient pit floor area in the South Pit becomes available, the overburden and fines will be placed on the floor of the South Pit to augment reclamation efforts. Please show on the associated mining plan maps submitted with Exhibit C the anticipated location(s) of any topsoil, overburden, and/or fines stockpiling areas other than TS1 or F1 areas. Please also include all associated stormwater management structures on the figures submitted in Exhibit G.

56) The text states that the proposed F2 and F3 backfill areas will establish positive drainage from mined portions of the Deadman Creek watershed into Deadman Creek. However, Figures C-9 and C-10 do not adequately depict this. What will be the final backfilled elevations of F2 and

F3? Please explain in detail how positive drainage to Deadman Creek will be established for reclamation, including the relationship of final backfilled elevations to adjacent Deadman Creek elevations.

57) Please commit to submitting a revised facilities map once more details are known, as proposed in this exhibit. This can be done through the revision process subsequent to issuance of the original permit.

58) The text states that after approximately four years into the operation, a permanent processing plant will be completed within the South Pit as shown on Figure C-4. This equipment will be electric powered with power generated by the local electric utility. Please commit to providing the Division with updated structure agreements for any utility lines, etc. that are constructed inside of or within 200 feet of the affected land.

Size of area(s) to be worked on at any time:

59) Please submit the proposed maximum disturbed acreage at any time, including areas of active mining, processing, stockpiling, and haul roads, and any areas in reclamation. The required financial warranty must include costs for reclaiming all land disturbed by the operation, until such land is fully released by the Division.

60) Looking at Table D-4 – Disturbed Area Associated with Mining Phases submitted with this exhibit, it appears that the applicant is proposing a maximum disturbance of 238.12 acres (during mining phase V); however, this value does not appear to include acreage undergoing reclamation at that time. Please provide more detail in this table, including estimated disturbed acreages during each phase attributed to active mining, stockpiling, processing, etc., and to areas in reclamation.

61) The applicant will be required to maintain a financial warranty that is sufficient to reclaim all disturbed land at any time. Therefore, the Division recommends the applicant state here the maximum amount of disturbed acreage the applicant wishes to be bonded for at this time (including mining and reclamation acreages). Please commit to notifying the Division before additional acreage is disturbed beyond this amount so that the required financial warranty can be re-evaluated.

62) There appears to be a few discrepancies between Table D-4 – Disturbed Area Associated with Mining Phases and Table D-1 – Expected Salvageable Topsoil by Phase, both submitted with this exhibit. First of all, the area listed for Phase II in Table D-4 is an addition of 28.24 acres (152.56 - 124.32 acres). However, the area of salvageable topsoil listed for Phase II in Table D-1 is 35.38 acres. Please explain or correct this discrepancy. Secondly, the area listed for Phase V in Table D-4 is an addition of 8.26 acres (238.12 - 229.86 acres). However, the area of salvageable topsoil listed for Phase V in Table D-1 is 61.20 acres. Please explain or correct this discrepancy. Thirdly, the area listed for Phase VI in Table D-4 is a subtraction of 69.26 acres (238.12 – 168.86 acres). However, the area of salvageable topsoil listed for Phase VI in Table D-1 is 94.55 acres. Please explain or correct this discrepancy. Lastly, the total disturbed area listed in Table

D-4 is 392.75 acres, which is the proposed permit acreage and total affected area. However, the maximum disturbed acreage at any time appears to be 238.12 acres, as listed for Phase V in the same table. This would suggest that approximately 154.63 acres inside the permit area will not be disturbed by the operation. Is this correct? If not, please explain, including the total disturbed acreage anticipated by the operation (mining + reclamation areas).

Timetables for Mining and Reclamation Operations:

63) Table D-5 – Mining and Reclamation Schedule shows an estimated minimum and maximum number of years required for reclamation of each mining phase. There appears to be 1-2 years of reclamation to be achieved during Phase III and also during Phase IV. However, on Figures C-6 and C-7 submitted in Exhibit C, there appears to be no new reclamation proposed for Phases III-IV. Please explain or correct this discrepancy.

Description and Thickness of Overburden, Deposit, and Underlying Stratum:

South Ridge Zone:

64) The text states that there are several diabase sills located in this area (South Pit), and that the diabase is considered good quality rock for aggregate stone. However, on Page 1 of the Application Form, the only commodity to be mined is granite. Because diabase are considered mafic rocks and not granite, please include it as a mined commodity on Page 1 of the Application form.

Mica Quarry Zone:

65) The text states that there is a small abandoned mica quarry in this area. Looking at Figure C-1 and C-3, it is difficult to determine whether the proposed North Pit Extension will include the existing quarry area. Is the existing quarry located inside the proposed affected land? If so, will the existing quarry be redisturbed by this operation?

Surface Weathering:

66) The text states that the ridges have surface weathering that varies in depth from 0-3 feet from surface. Does this include estimated salvageable topsoil? Please describe the type of overburden to be removed for mining.

Geotechnical Testing:

67) The text states that one of the conclusions of the Rock Mass Rating (RMR) evaluation completed by Norwest is that the pegmatite is classified as Poor Quality Rock due to its low compressive strength, RQD value, and high discontinuity frequency relative to other major rock types and is therefore not desirable as a pit wall material. However, in the geologic descriptions submitted in this exhibit, pegmatites appear to be present in the North Ridge Zone, more abundant nearby the west fault (location of proposed North Pit), and in the Mica Quarry Zone (location of proposed

North Pit Extension). According to Figure C-1, the highwalls of both the North Pit and the North Pit Extension will intercept the west fault (and associated pegmatitic intrusions). If pegmatite is not desirable as a pit wall material, how will the operation maintain highwall stability in these areas?

Mineralization:

68) The text states that no sulfides or any other water degradation minerals were identified on the property. Did the applicant evaluate the complete mineralogy of the rocks to be mined? If so, please describe any sulfide minerals found in mineable rocks, and include the total sulfur content of the rocks evaluated.

Primary and Secondary Commodities:

69) The text states that granite will be the primary commodity, with no secondary or incidental commodities listed. However, (as mentioned previously) if diabase will also be mined for aggregate use, it should be included as a separate commodity since it has a different mineralogical composition than granite.

Additional Comments:

70) Per Rule 6.4.4(c), this exhibit shall describe all water diversions and impoundments correlated with the affected lands, maps, and timetables. Although not required for this exhibit, the applicant included minimal groundwater information and referred to Exhibit G for additional groundwater information. However, no information was provided in this exhibit on surface water diversions and impoundments. If information on water diversions and impoundments is submitted elsewhere in this application, please indicate in this exhibit where exactly this information can be found.

71) Please provide the anticipated location(s) on site of proposed storage and filling areas for petroleum products, including diesel fuel and oils. Please provide a spill prevention, control and countermeasures plan (SPCC plan) to describe measures implemented by the operation to prevent oil spills or discharges from occurring, and to prepare site personnel to respond in a safe, effective, and timely manner to mitigate the impacts of spills or discharges. Please be sure the plan includes a description of the secondary containment structures that will be constructed for fuel storage.

Blasting Plan:

72) Under Emergency and Company Contact Information, the text mentions a Site Security Office. Please show the anticipated location of this facility on at least one of the figures submitted in Exhibit C. Will this be a permanent facility that will require demolition for reclamation? If so, please be sure to include costs for its demolition and reclamation in Exhibit L.

73) Please review and respond to the comments provided by Peter Hays, which are enclosed with this document.

EXHIBIT E - Reclamation Plan (Rule 6.4.5):

Overview of Reclamation Plan:

74) The text states that fines will be used as a subgrade material placed between the overburden and topsoil to aid in revegetation. If this is the case, will fines need to be separated from overburden during the operation? Please explain. The applicant shows a F1 Fines/Overburden stockpile area on maps submitted in Exhibit C, which implies these materials will be stored together. If fines and overburden will be separated, this should be indicated on the mining plan maps submitted in Exhibit C, and discussed in Exhibit D text.

75) The text states that it may be more aesthetically pleasing for portions of the slope to be left as bare blasted materials to represent natural talus slopes. This statement is not consistent with the final grading plan submitted in this exhibit and may not comply with Rule 3.1.5(3) which requires all highwalls, if not eliminated, to be stabilized. Please be aware that the Division is not approving the procedure of leaving bare blasted pit walls unreclaimed. The applicant will be required to implement the approved reclamation plan for all pit walls. Any changes to the approved reclamation plan would need to be reviewed through the revision process.

Topsoil Preservation:

76) The text states that the location and configuration of the TS1 topsoil stockpile is designed to minimize erosion and disturbance. Please explain in more detail.

77) The text states that topsoil removed from the access road corridor will be stockpiled in windrows adjacent to the access road. Please show all proposed topsoil storage locations on the mining plan maps submitted in Exhibit C. (Currently, only TS1 topsoil stockpile is shown.) Also, please be sure to show these locations on the associated figures submitted in Exhibit G.

78) How will the operation work to protect topsoil stockpiles along the access road from erosion or contamination per Rule 3.1.9(1)?

79) The text states that the topsoil stockpile will be surrounded by a berm and runoff will be routed past the stockpile to prevent topsoil loss, as shown in Exhibit G. However, there are no figures in Exhibit G that show these features. Exhibits G-6 – G-9 show a culvert associated with the TS1 topsoil stockpile; however, no berms are indicated on these figures. Please revise this text accordingly. Additionally, please be sure to show all proposed stormwater management structures on figures submitted with Exhibit G.

80) The text states that stockpiled topsoil will be seeded, following initial removal, with a seed mixture that will establish quickly and prevent topsoil loss due to wind and water erosion. Please submit the anticipated seed mixture (and rate of application) to be used for topsoil stabilization.

You should consider contacting the Natural Resources Conservation Service for their recommendation.

Final Grading, Slopes, and Drainage:

81) The text states that maximum final slopes including highwalls have been designed to be compatible with the configuration of surrounding conditions and the final land use per Rule 3.1.5. The surrounding land use and proposed post-mining land use is wildlife habitat. Please explain in detail how the proposed final highwall slopes (0.5H:1V between benches; 1H:1V overall slope) are compatible with wildlife habitat.

82) The text states that to reclaim each bench, loaders and haul trucks will place subsoil and topsoil on each highwall bench, and dozers will spread the materials prior to mining the next lower bench. How will the operation work to protect reclaimed slopes as the pit is lowered?

83) The text states that the excess fines stockpile F1 will be graded to approximately 3H:1V slopes and topsoiled for reclamation. Please provide typical cross-sections oriented both parallel and perpendicular to the length of the F1 stockpile, depicting final reclaimed slopes and relation to surrounding topography.

84) How will the operation work to reclaim the F1 stockpile in a manner that is consistent with Rule 3.1.5 (e.g., create a final topography appropriate to final land use, ensure adequate compaction for stability, control erosion and siltation, control unsightliness, protect drainage system from pollution)?

85) The text states that topsoil removed from the South Pit will be used for concurrent reclamation of the North Pit and finished areas of the South Pit. However, on Figures C-8 and C-9 (mining phases V-VI), there are no proposed locations for temporary storage of topsoil as it is removed from the South Pit area. Please show any topsoil storage areas on the mining plan maps associated with the South Pit mining phases. Additionally, please show these areas and their associated stormwater management structures on the figures submitted in Exhibit G.

86) The text states that when the mining facilities are no longer required, all the structures will be broken up and removed and/or demolished, and the areas will be regraded, topsoiled, and revegetated. Please provide an estimated total acreage (footprint) for each of the proposed facilities. These values are required in order for the Division to properly calculate the required financial warranty.

87) Will portions of the disturbed land require ripping for reclamation (e.g., stockpiling areas, facility areas, pit floors, roads)? If so, please provide a list of these areas, including estimated acreages accorded to each and ripping depth.

Subsoil:

88) The text states that fines from mining and plant losses will be used as a plant growth medium between the pit benches and floor and the topsoil. Please explain how the fines/subsoil will work as a sufficient plant growth medium under the site specific conditions. The Division has observed varied results with the use of crusher fines as a growth medium in pit reclamation. While the Division is not opposed to this practice, please be aware that, regardless of its success in this particular setting, the applicant will ultimately be held responsible for satisfying the requirements of Rule 3.1.10(1). Once the revegetation plan is approved, any changes to the plan will require Division approval through the revision process.

89) What measures will the operation take to protect and stabilize growth medium placed on mined benches during the revegetation period?

90) Does the applicant intend to place subsoil in all areas requiring revegetation, including disturbed areas outside of the pits? Or will this practice only be implemented on pit floors and mined benches? Please specify.

Topsoil Application:

91) The text states that all available topsoil will be salvaged prior to disturbing an area. However, as mentioned previously, it is not clear where topsoil salvaged from the South Pit area will be temporarily stored. Please show any topsoil storage areas on the mining plan maps submitted with Exhibit C.

92) Please provide an estimate of total surface area of all mined benches for each of the three proposed pits. Please distinguish these acreages from pit floor acreages. These values are required in order for the Division to properly calculate the required financial warranty.

93) Tables D-1 and D-2 include estimates of total acreage proposed to be disturbed (topsoil salvaged) per mining phase. However, these values are not broken down by area (e.g., North Pit mined benches, North Pit floor, North Pit Extension mined benches, North Pit Extension floor, South Pit mined benches, South Pit floor, plant facility, creek crossings, F1 stockpile area, access road, scale house/office facility). These values are required in order for the Division to calculate a sufficient financial warranty. Please include these values either in Exhibit D or here in Exhibit E. Please also specify whether or not subsoil will be placed with the topsoil in each area.

94) Per Rule 6.4.5(2)(e), please provide a description of the size and location of each area to be reclaimed during each phase. Please be sure to distinguish acreages attributed to each reclamation area (e.g., North Pit mined benches, North Pit floor, F1 fines/overburden stockpile area, plant facility, access road) rather than giving a total acreage amount for each phase.

95) The text states that the applicant will perform noxious weed management, as discussed in the attached Noxious Weed Management Plan. However, no such attachment was found with the application submitted. Please submit a Noxious Weed Management Plan.

Revegetation:

96) The text states that slopes of 3H:1V or less will be drill seeded and slopes steeper than 3H:1V will be hydroseeded. Does this mean that mined benches will be hydroseeded for reclamation and all other disturbed areas (e.g., pit floors, facilities, roads) will be drill seeded? Please specify which disturbed areas (besides pit walls), if any, the applicant proposes leaving final slopes steeper than 3H:1V for reclamation.

97) The text states that steeper slopes may also require crimping to secure mulch-seed mixtures. Will all disturbed areas be mulched for reclamation? Will all mulched areas be crimped? Please specify which areas will receive mulch for reclamation, including mulch type and rate of application.

98) Please specify the rate of application for areas to be hydroseeded for reclamation.

99) Will non-hydroseeded areas be fertilized? Please specify which areas will be fertilized, and include fertilizer types, mixtures, quantities, and time of application.

100) Per Rule 6.4.5(2)(d), please provide the estimated availability of viable seeds in sufficient quantities of the species proposed to be used.

101) The text states that the reclamation of quarry areas includes a re-establishment of a Douglas Fir-Lodgepole pine forest. Will only the mined benches receive tree plantings? Please specify which portions of the quarry areas will receive tree plantings and which will only receive grass seeding.

102) The applicant proposes planting 43 trees per acre in the areas to be reclaimed to Douglas Fir-Lodgepole pine forest. Please specify what proportion of the 43 trees/acre will consist of Douglas Fir and what proportion will consist of Lodgepole pine. Additionally, please provide an estimate of the total acreage to be reclaimed to Douglas Fir-Lodgepole pine forest by mining/reclamation phase.

103) Will fertilizer pellets be added with the tree plantings?

104) Please provide a typical cross-section of a reclaimed pit highwall, showing representative mined benches that have been reclaimed in accordance with the proposed plan. Please be sure to include final slope gradients, approximate depths of subsoil and topsoil, proposed revegetation, and any berms or ditches to remain along the benches.

105) The applicant proposes planting 336 plugs per acre of oak or mahogany in the areas to be reclaimed to Gambel's Oak-Mountain Mahogany shrub community. Please specify which proportion of the 336 plugs/acre will consist of Gambel's Oak, and which proportion will consist of Mountain Mahogany. Additionally, please provide an estimate of the total acreage to be reclaimed to Gambel's Oak-Mountain Mahogany shrub community by mining/reclamation phase.

106) The applicant proposes to supplement the Gambel's Oak-Mountain Mahogany shrub community with other woody species including soapweed yucca, Wood's rose, and Cliff spirea at a rate of 200 stems per acre. Please specify what proportion of the 200 stems/acre will consist of each species listed.

107) The text states that plantings along waterways will be supplemented with deciduous species, including cottonless cottonwood, native willow species, wild plum, snowberry, and chokecherry. Please describe the revegetation plan proposed for waterway/riparian areas, including all plant species to be seeded/planted, rate of application per species, and mulch type and rate of application (if used). Please provide an estimate of the total acreage to be reclaimed to riparian habitat by mining/reclamation phase.

108) The text states that native grasses will be seeded prior to tree planting, likely in early fall, and that tree planting will occur in the spring. How does the applicant intend to implement this revegetation schedule for reclamation of pit benches during the operation? For example, as benches are ready for reclamation, will subsoil and topsoil be placed during early fall, grasses seeded shortly after, then trees planted that following spring? How will the operation maintain access to mined benches for reclamation activities? Will any ramps remain? The Division requires this information in order to calculate a financial warranty that is practical.

109) Again, the applicant refers to a Noxious Weed Management Plan attached to this exhibit. However, the Division was unable to find such an attachment with the application submitted. Please be sure to include the Noxious Weed Management Plan with this exhibit.

110) The applicant proposes three separate revegetation plans for reclamation of the site, including a Douglas Fir-Lodgepole pine forest, a Gambel's Oak-Mountain Mahogany shrub community, and a waterway/riparian habitat. Per Rule 6.4.5(2)(a), please explain why each type of reclamation was chosen. The applicant states that the grass seed mixture shown in Table E-1 was provided by the USDA NRCS for the project area. Did the NRCS also provide recommendations for the three revegetation plans? If not, how did the applicant determine what species to include in the proposed revegetation communities?

Buildings and Structures:

111) The text states that all buildings and structures will be removed for reclamation. Please provide a list of all buildings and structures anticipated to be constructed on the proposed affected land in support of the operation. For information not known at this time, please commit to submitting a technical revision later to revise the mining plan map(s) to show any buildings and/or structures not shown on maps provided with this application. Please also commit to submitting specifications for any structures that will require demolition for reclamation as soon as this information is available. This information will be required in order for the Division to properly calculate the required financial warranty.

112) The text states that foundations will be broken up and buried on site during final reclamation, and that metal and other debris will be hauled offsite and properly disposed of. Please indicate on

the reclamation plan map the approximate location(s) where the applicant anticipates burying broken up foundation material. Additionally, please be sure to include costs in Exhibit L for all anticipated demolition activities, backfilling with demolished materials, and hauling material off site. This information will be required in order for the Division to properly calculate the required financial warranty.

EXHIBIT F - Reclamation Plan Map (Rule 6.4.6):

113) Figure F-1 shows three separate revegetation community areas proposed for reclamation of disturbed land (Douglas Fir-Lodgepole Pine, Gambel's Oak-Mountain Mahogany, and riparian habitat). The patterns used to indicate these communities make it difficult to determine the proposed expected physical appearance of the area and contour lines. Please either use an outline for these areas instead of a pattern, reduce the pattern opacity enough that the contour lines underneath are more visible, or provide a separate figure without the patterns.

114) There are labeled areas on Figure F-1 (F1, F2, and F3) that are not included in the legend. Please include these labels in the legend, including a brief description of each.

115) There is a black line cutting across the F1 area that is not represented in the legend on Figure F-1. If this symbol is relevant, please include its description in the legend. If this a relict symbol that was left on this figure by accident, please remove it to reduce any confusion it may cause.

116) There is also a light blue line running parallel to the access road at the first crossing of Little Turkey Creek that is not represented in the legend on Figure F-1. Does this line represent a final reclamation feature? If so, please include its symbol and a brief description in the legend. Otherwise, please remove it from the figure to reduce any confusion it may cause.

117) It is difficult to determine final elevations of backfilled and or graded areas on Figure F-1. Please include some elevations in reclaimed areas that adequately portray the proposed final topography. Additionally, please be sure the contour lines are of sufficient detail to portray the direction and rate of slope of all reclaimed lands and proposed final land use of each portion of the affected lands. Alternatively, the applicant may include arrows and slope gradients (i.e., 3H:1V) on the figure to show proposed final topography.

EXHIBIT G - Water Information (Rule 6.4.7):

Introduction:

118) The text lists out the primary project areas discussed in this exhibit, including three mining areas, an excess fines stockpile, and an access road. Then, the text states that the plant, topsoil stockpile, and additional excess fines stockpiles will be located inside pit disturbance areas. The mining plan maps submitted in Exhibit C do not show locations of topsoil or fines stockpiles other than the TS1 and F1 areas; and these areas are not included inside the pits. Please be sure to show any anticipated stockpiling areas on the mining plan maps submitted in Exhibit C. If

these areas are not known at this time, they may be added to the mining plan maps at a later date through the revision process.

Surface Water - Little Turkey Creek:

119) The text states that no mining will occur within 100 feet of the stream, and that mining will remain at least 10 feet above the stream at all times. However, as mentioned previously, Figure C-8 appears to show the northern crest of the South Pit to be within 50 feet of Little Turkey Creek in some areas. Please explain. Additionally, any setbacks the applicant proposes to maintain should be included on the mining plan maps submitted in Exhibit C.

120) The text states there will be two crossings of Little Turkey Creek for the operation, one along the access road near the main entrance, and the other to provide access to the North Pit from the south side of the creek. How will the applicant work to minimize impact to the creek at each crossing?

121) The text states that the creek crossing designs are discussed in Section 4e. However, Section 4e discusses water usage, not the creek crossings. The Division was unable to find additional information about the design of the creek crossings in any other section in this exhibit. Please provide information about the creek crossing designs. Please also provide cross-sections that run perpendicular to the crossings, showing the embankment and culvert (if proposed), and the relationship of the crossings to the creek and to Little Turkey Creek Road.

122) The applicant discusses a surface water monitoring station (LTC-1) that was established on Little Turkey Creek, located downstream from the proposed mining area. Table G-1 shows the location of this station in relation to Hwy 115. However, it is difficult to determine its location in relation to the proposed permit area. The Division could not find any figures submitted with the application that show the location of the LTC-1 station in relation to the permit area. Please submit a figure that provides this information, or add the location to a figure that was already submitted (possibly C-1 or G-5).

123) The text states that station LTC-1 collects stream depth data every 15 minutes via a Solinst Level Logger, and that flow measurements and water quality samples are collected quarterly. A total of 3 quarters of data have been collected, including for June 2015, August 2015, and November 2015. Has the applicant collected additional data since November 2015? Does the applicant intend to continue monitoring Little Turkey Creek at this location?

124) Table G-1 shows results of the sample analysis and field measurements for station LTC-1 compared to the Upper Arkansas River Basin Stream Segment 14d water quality standards. The text states that each water quality sample was analyzed for 31 constituents by two labs. However, it is unclear whether all sample result data shown in Table G-1 come from one or both of the labs. Did the applicant choose to report the sample data closest in value to its associated standard? Were there any other exceedances (besides E. Coli) that are not shown on Table G-1?

125) There appears to be an error in the Segment 14d standards listed for Nitrate and Nitrite in Table G-1. The Segment 14d Standard listed for Nitrate as N is 10 mg/L, and the standard listed for Nitrite as N is 100 mg/L. However, according to the CDPHE WQCC Regulation No. 32, the values given for these standards are switched, 10 mg/L for Nitrite, and 100 mg/L for Nitrate. Please correct these standards in Table G-1.

126) Given the potential for impact to surface water and groundwater (shallow/alluvial) from the proposed operation, the Division will require the applicant to submit a surface water and groundwater monitoring program for this permit. Surface water monitoring locations should be established hydrologically up-gradient and down-gradient from the proposed limits of disturbance, on both Little Turkey Creek and Deadman Creek. If it is not practical to establish these monitoring stations inside the proposed permit area, they can be established on the property. The applicant should wait until the new stations have been established before abandoning the current surface water monitoring station (LTC-1). Please review Rule 3.1.7 when considering locations of groundwater monitoring wells, numeric protection levels, permit conditions, water quality standards, points of compliance, and monitoring requirements. The Division recommends that groundwater monitoring wells be installed hydrologically up-gradient and down-gradient from the proposed limits of disturbance, in both the Little Turkey Creek aquifer system and the Deadman Creek aquifer system. The Division recommends these monitoring programs be developed and submitted as soon as possible, so the applicant may begin monthly monitoring to characterize hydrologic conditions at the site.

Surface Water - Deadman Creek:

127) The text states that no mining will occur within 100 feet of the stream. However, as mentioned previously, Figure C-8 appears to show the northern crest of the North Pit to be within 50 feet of Deadman Creek in some areas. Please explain. Additionally, any setbacks the applicant proposes to maintain should be included on the mining plan maps submitted in Exhibit C.

128) The text states there will be one crossing of Deadman Creek for the operation, to provide access to the North Pit Extension from the North Pit. How will the applicant work to minimize impact to the creek at this crossing?

129) The text states that the creek crossing designs are discussed in Section 4e. However, as mentioned previously, Section 4e discusses water usage, not the creek crossings. Please provide information about the creek crossing design. Please also provide a cross-section that runs perpendicular to the crossing, showing the embankment and culvert (if proposed), and the relationship of the crossing to the creek and to the unnamed road that runs adjacent to the creek.

130) Please refer to item no. 126 under the previous header regarding the required surface water and groundwater monitoring programs for this site.

Surface Water - Drainage Discussion:

131) The text states that a berm will be constructed and maintained along the existing watershed divide, which will divert waters to separate ditch and sediment pond systems. If this berm is the one shown in the North Pit in Figures G-8 – G-11, labeled as "Drainage Divide Berm", how does the applicant intend to maintain this berm across the pit walls? Does the applicant not anticipate the need for a berm in the North Pit Extension? Please explain.

132) The text states that Little Turkey Creek water will flow through sediment ponds before being discharged into Little Turkey Creek, and the Deadman Creek water will flow through sediment ponds before being pumped to Deadman Creek for discharge. Please indicate the anticipated discharge points for both creeks on at least one of the figures submitted in this exhibit.

133) The applicant commits to backfilling disturbed areas in the Deadman Creek drainage to establish positive drainage into Deadman Creek for reclamation. Please explain further, including proposed final grades.

Surface Water - Surface Water Design:

134) The text states that as quarrying progresses, the stormwater management plan will be periodically reviewed and adjustments made as needed. Please commit to notifying the Division if any substantial changes to the plan are anticipated, so the Division may determine whether the changes require review under the revision process.

Sediment Control Structures – Sediment Ponds:

135) The text states that inside the pit areas, where the ponds will be constructed into bedrock, the sediment pond walls will be sloped at 1H:2V. Did the applicant intend to say 2H:1V? If so, please correct this slope gradient to reduce any confusion it may cause.

136) The text states that sediment ponds that capture water from Deadman Creek drainage will be pumped down within 72 hours using a floating barge. What will be the pump rate capacity of this barge?

Sediment Control Structures – Water Usage:

137) The text states that the water usage plan prevents impacts to downstream water rights holders. Does the proposed operation require the applicant to obtain a Substitute Water Supply Plan for replacing out-of-priority depletions? Please explain.

138) The text states that Transit Mix may in the future install groundwater wells on the property to provide a supplemental water supply. Please commit to notifying the Division before any groundwater wells are installed within the permit area, as this activity may require review through the revision process.

Groundwater:

139) The text briefly describes the hydrogeological setting of the proposed mine area, which includes two primary groundwater systems, one on either side of the high-angle thrust fault system located east of the proposed mine. In order for the Division to better understand the relationship of these units to the fault system, and thus, to local wells that could potentially be impacted by the operation, please provide a diagrammatical cross-section(s) oriented roughly perpendicular to the fault zone. Please be sure this cross-section depicts any potential aquifers within the proposed mining area, as well as any aquifers located immediately east of the fault zone.

140) Please also submit at least one cross-section oriented roughly perpendicular to Little Turkey Creek and Deadman Creek, including the lowest proposed elevations of all three pit floors . This cross-section should show the relationship between the alluvial aquifers of the creeks and the proposed pits.

141) The text states that the operation will be developed within a deposit of inert granitic rock and no acid-forming or toxic producing materials were identified during the exploratory drilling and sampling program; therefore, no release of pollutants to groundwater is expected. Please commit to notifying the Division immediately if any acid-forming or toxic producing materials are encountered during the operation, as a permit revision may be required.

142) The Division has determined that a groundwater monitoring program will be required for the proposed operation. Please refer to item no. 126 of Surface Water – Little Turkey Creek above for additional information.

Additional Comments:

143) Please review and respond to the comments provided by Tim Cazier, which are enclosed with this document.

Figure G-5 – Water Management Plan – Access Road:

144) It appears that a few of the proposed structures are partially located outside of the proposed permit boundary (RD-SP-1, LTC-CC-3, LTC-CC-4, RD-SP-2, and LTC-CC-5), and others are very close to the boundary. Is this correct? Please be aware that any disturbance created in support of the operation, including stormwater management structures, should be located inside the permit boundary. Any mine-related disturbances created outside of the permit boundary will be considered offsite impact, which will require enforcement action. Please keep this in mind as the stormwater management structures are constructed.

145) Please describe the nature of the proposed crossing over Little Turkey Creek near the main entrance. This figure shows two proposed culverts in this area, a small one under the newly constructed access road connecting to sediment pond RD-SP-4, and a larger one further west under the access road. How will the crossing be constructed so that natural creek flow is maintained?

Figure G-9 – Water Management Plan – Mining Phase IV:

146) The legend symbols shown for Clean Water Diversion Ditch and Road Ditch are different than those shown on the other figures in this exhibit – they are shown as dashed lines rather than solid lines. If these are in error, please correct these symbols in the legend to reduce any confusion they may cause.

147) The text DM-CC-1 is shown near the Deadman Creek crossing area; however, no culvert symbol is present (as shown on Figure G-10). If a culvert is planned for the crossing during this phase, please add it to this figure. Otherwise, please remove the text DM-CC-1 from this figure in order to prevent any confusion it may cause.

Figure G-11 – Water Management Plan – Mining Phase VI:

148) As with Figure G-9, the legend symbols shown for Clean Water Diversion Ditch and Road Ditch are different than those shown on the other figures in this exhibit – they are shown as dashed lines rather than solid lines. If these are in error, please correct these symbols in the legend to reduce any confusion they may cause.

149) It appears that the culvert that was present at the Deadman Creek crossing in Figure G-10 (DM-CC-1) will be removed by this phase, and a new culvert (DM-CC-2) will be installed east of the crossing, under the adjacent creek road. Is this correct?

Figure G-12 – Water Management Plan – Final Reclamation Phase:

150) This figure shows several drainage ditches to remain after reclamation, including in each of the three reclaimed pits and in the F1 reclaimed stockpile area. Will these ditches be of the typical earthen design or armored design? Will the ditches be vegetated? Who will continue to maintain these ditches after reclamation? Has the landowner agreed to take on this responsibility?

151) Please describe in more detail the final drainage patterns that will be established in the reclaimed mining area. For example, Figure G-12 shows drainage ditches along the pit floors which appear to empty into the adjacent creeks. Will the outflows be reinforced in any way to prevent erosion?

152) It appears that the proposed drainage ditch along the North Pit floor must climb upgrade before being routed downgradient to empty into Little Turkey Creek (at southeastern edge of pit). How will this portion of the ditch be designed to achieve positive drainage?

153) It appears that the two proposed drainage ditches in the North Pit Extension will both drain toward a culvert and then into Deadman Creek. Please describe the design of this culvert and its outflow into Deadman Creek. Will the outflow be reinforced in any way to prevent erosion during high precipitation events?

154) Please describe the design of the proposed drainage ditch that exits from the northern edge of the North Pit, crossing the reclaimed riparian zone, and flowing into Deadman Creek. How will positive drainage be achieved in this area?

155) How will Little Turkey Creek be re-established for reclamation at the first crossing near the main entrance?

Attachment G-2 – Water Resources Summary:

Executive Summary:

156) In discussing the proposed operation mining below the elevation of Deadman Creek, the text states that there is not a hydraulic connection between the streambed and the deeper aquifer system and, therefore, mining will not interact with this drainage. Has the applicant investigated the shallow aquifer system in this valley? Will adjacent pits mined below the elevation of this creek have an impact on any shallow aquifer system that might exist in this valley? How will the applicant work to minimize this potential impact?

157) The text states that surface water present in drainage ways will not be intercepted. However, earlier in this exhibit, the applicant proposes constructing a watershed divide berm along the northern portion of the North Pit to intercept precipitation and surface runoff in this drainage area, allowing it to flow through sediment ponds, then pumping the water back to the river. Please explain this discrepancy.

158) The text states that a seep area with two existing springs within the proposed quarry area will be mined out, but water discharged from the springs will continue to drain to Little Turkey Creek. Please explain how water discharged from the springs will continue to drain to the creek. Does the applicant anticipate any slope stability issues of the pit wall in the area of the seeps?

159) The text states that the proposed quarry will not intercept the geologic fault zones associated with the drainages in which wells in the vicinity of the proposed mine produce water, and therefore, will not directly interact with the fault zones. However, the applicant has stated that groundwater in these alluvial systems is near creek surface, and at least for Deadman Creek, the pits will be mined below elevation of the creek surface. Therefore, please explain how mining below the creek surface will not impact the drainage system.

Geology/Hydrogeology/Hydrology:

160) The text states that Little Turkey Creek flows most of the year in the granitic canyon portions of the property in Section 16, but does not flow year-round in the lower alluvial material areas of the property in Sections 15 and 22. Please submit a diagrammatic cross-section oriented roughly perpendicular to the east fault zone, which depicts the hydrogeological setting of the area from the proposed mining area to the area east of the fault zone. Additional cross-sections and/or diagrams may be needed to fully describe the hydrogeological setting, including the relationship

of the creek fault zone aquifers with the east fault zone and the sandstone aquifer located east of the fault zone.

161) The text states that the north-south oriented high-angle thrust faults probably functions as a barrier to groundwater flow, effectively isolating the groundwater system in the hard rock materials from the sedimentary formations. Please provide additional information to support this statement. While the fault zone may act somewhat as a hydrologic barrier, one would expect some groundwater flow to occur through this structural feature, perhaps not at a consistent rate. However, the question of whether or not the fault zone acts as a hydrologic barrier is not as critical given the Division's requirement for the operation to develop and implement a groundwater monitoring program. Under this program, existing groundwater conditions will be characterized before mining begins, and groundwater will be regularly monitored for impact.

162) The text indicates that the Little Turkey Creek and Deadman Creek drainages are both structurally controlled by narrow fault zones trending northwest to southeast along the creeks, but not extending beyond the drainages as presented in Figure C-3. However, in looking at Figure C-3, a portion of the Deadman Creek fault zone trends northeast-southwest along the west fault line. According to the mining plan maps submitted, this portion of the fault zone will be mined out by the North Pit Expansion. Does the applicant anticipate any slope stability issues along the southern pit wall of the North Pit Expansion related to mining out this arm of the creek fault zone? Because the North Pit Expansion will be mined below the elevation of Deadman Creek, what potential impacts to Deadman Creek, if any, might occur due to mining out this arm of the creek fault zone? Might this fracture zone work as a water conduit into the pit during high precipitation events? If so, will the applicant have sufficient pumping capacity to mitigate?

163) The text states that well permit information from the DWR well database indicates that water supply wells located west of the high-angle thrust faults produce water from the granodiorite hard rock. Are these wells completed in the Little Turkey Creek fault zone?

Potential Surface Water Impacts:

164) The text states that the North Pit Extension and the northeast portion of the North Pit will be filled to establish positive drainage to Deadman Creek, thus eliminating the need for pumping. On Figure G-12, it is difficult to determine how positive drainage will be established due to the green pattern that overlays the contours in this area. Please explain in detail how positive drainage will be created in disturbed areas for reclamation, or revise Figure G-12 so that the reclamation area pattern does not cover up the underlying contours to such an extent.

Potential Ground Water Impacts:

165) The text states that during drilling, the only highly productive aquifer zone that was encountered was in the borehole that intercepted the Little Turkey Creek fault zone (HC001-15). The Division has determined that this aquifer system should be monitored by the operation under a groundwater monitoring program. The Division recommends the applicant begin monitoring this aquifer as soon as possible to characterize existing conditions before mining begins.

Groundwater monitoring wells should be located hydrologically upgradient and downgradient from the proposed limits of disturbance. Although groundwater does not appear to have been encountered in the Deadman Creek fault zone (HC007-15), the Division will require that this potential aquifer also be monitored under the groundwater monitoring program for this operation.

166) The applicant discusses the high-angle thrust faults that separate the two geologic units, granodiorite to the west of the faults, and sandstone units to the east of the faults. The fault zone is said to effectively separate the two groundwater systems. However, further down, the text states that some of the existing wells located to the east of the quarry reportedly penetrated granitic bedrock material in addition to sandstone, indicating that there is a complex structural geology associated with the faulting. The applicant then goes on to state that groundwater flow across this complex geologic structure is limited. Please provide information to support this statement. Additionally, Figure 3 only shows one well (179279) located east of the fault zone that is reportedly completed in granite. The text "some of the existing wells" implies that there is more than one well east of the fault zone completed in granite. Are there wells present that were not included on Figure 3? If so, please revise this figure and Table 1 to include all wells.

167) The text states that the wells to the west and to the north of the proposed quarry are completed in the same material as the proposed quarry (granodiorite), which makes groundwater impact to these wells more feasible. The applicant then goes on to state that impacts will not occur to these wells. Please describe what impacts, if any, could potentially occur to these wells, and how the applicant will work to minimize impact.

168) The text indicates that there is a consistent water table present in the hard rock granodiorite controlled by the elevation of Little Turkey Creek, but the proposed mining will occur above the elevation of the creek, and thus, above the water table. Please provide a cross-section oriented roughly perpendicular to the Little Turkey Creek fault zone, which shows the approximate elevation of the water table in this drainage.

169) The text states that mining below the elevation of Deadman Creek will likely be above the water table in this drainage. Please explain how the operation will proceed if the water table in this drainage is encountered during mining. Additionally, what impact might this have on local wells, if any?

170) In this attachment, BBA Water Consultants (BBA) recommends the installation of two monitoring wells before mining begins, to quantify and confirm that groundwater level changes are not occurring in water supply wells west and east of the proposed mine. They recommend the wells be constructed in the granitic material to depths below the elevation of the bottom of the proposed quarry and such that they intercept groundwater, if present. Per their recommendations, one well should be located along the western boundary of Section 16, 500-1,000 feet south of Little Turkey Creek. The other well should be located along the eastern boundary of Section 16, or perhaps along the existing roadway, 500-1,000 feet south of Little Turkey Creek. BBA recommends that monitoring include monthly water level measurements and at least two analyses of water quality (during spring runoff and during fall or winter) to establish baseline

conditions. BBA recommends these wells be completed outside of the creek fault zone. Has the applicant installed the recommended wells or have plans to do so before disturbing the area south of Little Turkey Creek? The Division agrees that installing deeper wells (outside of the creek fault zones) would be beneficial in monitoring impact to water levels of the basement rock groundwater system. The applicant should consider including these wells in the required groundwater monitoring program.

Proposed Water Uses, Operations and Demands:

171) Per Rule 6.4.6(1), you must provide an estimate of the project water requirements including flow rates and annual volumes for the development, mining, and reclamation phases of the project. The applicant gave an estimated volume for the mining phases (30 acre-feet/year); however, no estimate was provided for the reclamation phases. Please proved this estimate.

172) The text states that sanitary return flows will be contained in a vault or storage tank on site, then pumped and transported off site for disposal. Please describe here or show on one of the figures submitted the estimated location of the proposed vault or storage tank.

Figure 2 – Surface Water Feature Location Map:

173) This figure shows a seep area present south of Little Turkey Creek which appears to be approximately 350-500 feet from the creek. Are these natural seeps coming from the creek fault zone? Or are they coming from the adjacent bedrock? If they are coming from the bedrock, does this suggest that the bedrock water table is actually higher in elevation than estimated in this exhibit?

174) The seep area appears to be located just downgradient of the proposed topsoil stockpile area (TS1). Of course, this is a more optimal situation compared with seeps coming from upgradient of the proposed stockpile. However, does the applicant anticipate any issues with accessing or stabilizing this stockpile due to the seeps?

175) Once the operation begins mining the South Pit, does the applicant anticipate any slope stability issues along the northern pit wall related to the seep area?

EXHIBIT H - Wildlife Information (Rule 6.4.8):

Threatened and Endangered Species:

176) The text states that under U.S. Fish and Wildlife Service's (USFWS) direction, a second survey for Mexican spotted owl will be completed at the site in 2016, and further consultation with USFWS will occur after the survey to avoid or minimize adverse effects to Mexican Spotted Owl. Please commit to providing the results of this second survey to the Division.

Potential Effects:

177) The applicant proposes developing a noise mitigation plan once the current noise studies are completed. Please commit to providing this plan to the Division once it is completed.

178) The applicant proposes completing a nesting raptor survey during nesting season within ½ mile of disturbance prior to initial construction and operations. Please commit to providing the results of this survey to the Division once it is completed.

Please note that if the results of any ongoing surveys require a change to the Wildlife Exhibit or Mining Plan, these changes may be done through the revision process.

Biological Evaluation - Prepared by BIO-Logic, Inc.:

Other Wildlife:

179) The text states that the site is located within a landscape that provides migration corridors on ridges and in drainages, where elk make seasonal movements between higher elevation summer ranges and winter ranges at generally lower elevations. The site also provides seasonal or year-round habitat for other big game species including mule deer, black bear, and mountain lion. What measures will the applicant take to minimize impact to these species during operation? Will the migration corridors be re-established post-mining?

EXHIBIT I - Soils Information (Rule 6.4.9):

180) The text states that topsoil availability within the predominant map unit (MU 77) in the proposed mining area is limited and ranges from 0-6 inches. The proposed reclamation plan includes replacing topsoil on disturbed land at an average depth of 6 inches. Therefore, does the applicant anticipate the need to import topsoil for reclamation (if less than 6 inches is available to salvage)? If so, the applicant should include this proposed activity in Exhibit E. Otherwise, any changes to the reclamation plan may be considered at a later date through the revision process.

EXHIBIT J - Vegetation Information (Rule 6.4.10):

Federally Listed Plant Species:

181) The text states that the proposed permit area is within the geographic range of the federally threatened Ute ladies'-tresses, a species of orchid. USFWS is considering requesting surveys be conducted for this species, and if necessary, the survey will be completed in summer 2016 in suitable habitat at the proposed access road crossing for Little Turkey Creek, the only area where disturbance could affect the plant. Please commit to providing the results of these surveys to the Division.

Vegetation Community Descriptions:

182) In some of the vegetation community descriptions (i.e., riparian woodland, mountain shrubland, grassland), some Colorado state-listed noxious weed species were identified, including: Dalmation toadflax, Common teasel, Canada thistle, Bull thistle, Common burdock, Common mullein, and Musk thistle. Please submit a weed management plan that includes measures for controlling particular species identified in this exhibit.

EXHIBIT K - Climate (Rule 6.4.11):

General Conditions:

183) The text states that the most distinguishing characteristic of the Colorado Springs climate is the frequency and intensity of thunderstorms during summer. According to weather records, this city is the most thunderstorm prone city west of the Mississippi River. The text then states that during summer, thunderstorms that drop an inch or two of rain in periods of under an hour are not uncommon. Given this information, is the proposed stormwater management plan designed to function properly during these frequent and intense rainfall events?

184) The text describes another important climatological feature being the monthly distribution pattern of moisture, especially during the growing season. However, much of that moisture comes in quick and occasionally intense storms that exhibit heavy runoff and only moderate soil absorption. Once again, is the proposed stormwater management plan designed to accommodate these periods of heavy runoff? Additionally, is the proposed revegetation plan suitable for reclamation under these particular climatological conditions, including type of plant species?

Wind – Site Modifications:

185) The text states that due to the potential for strong winds at the proposed site, consideration should be given to using moisture conserving techniques where conifers are to be planted. Please describe what moisture conserving techniques the applicant intends to implement.

EXHIBIT L - Reclamation Costs (Rule 6.4.12):

186) The text states that the costs are based on a conservative scenario which the mine is developed to full extent of mining phase III, which is approximately 10 years in the future. The Division interprets this to mean that the applicant wishes to be bonded for up to full development of Phase III (shown in Figure C-6) at this time. Is this correct? If this is the case, then costs to reclaim all disturbances during this phase, including the North Pit, the F1 fines/overburden stockpile, the TS1 stockpile, the permanent plant facility, the creek crossing to the North Pit, the scale house/office, haul roads, and the access road will need to be included in this exhibit. The Division requires this information in order to calculate the required financial warranty.

187) The text states that the total reclamation area at the end of Phase III is 180.11 acres, but this area does not include areas of Phase I that will be reclaimed during Phase II mining. Please be aware

that the maximum allowed disturbed acreage must include all land disturbed by the operation, including land in active use by the operation and land in reclamation. Please provide an estimate of the maximum disturbed acreage for full development of Mining Phase III, breaking the acreages down by disturbance area (e.g., North Pit mined benches, North Pit floor, creek crossings, F1 stockpile area, TS1 stockpile area, plant facility, scale house, haul roads, access road).

188) Please provide an estimate of how many acres will require grading, backfilling, ripping, subsoil placement, topsoil placement, revegetation, demolition, etc., breaking each task down by disturbance area.

189) Please provide more details for each reclamation task which will allow the Division to calculate an adequate financial warranty. For example, please specify what disturbance areas will be graded, corresponding acreages, average push distance, average push gradient, material description, finish dressing (i.e., rough, medium, smooth), final slope gradient, type of machine used, and number of machines dedicated to that task. As another example, for ripping work, please specify what disturbance areas will be ripped, corresponding acreages, ripping depth, type of machine used, and number of machines dedicated to that task.

190) Please break down the revegetation task by disturbance area (e.g., North Pit mined benches, North Pit floor, creek crossings, F1 stockpile area, TS1 stockpile area, plant facility, haul roads, scale house area, access road) and by type of revegetation proposed. For example, in Exhibit E, you propose three revegetation community types (Douglas Fir-Lodgepole Pine community, Gambel's Oak-Mountain Mahogany shrub community, and riparian habitat). It also appears that you propose seeding all disturbed land with a grass mixture before the other vegetation is planted. Therefore, please provide a break down of the three revegetation communities and the grass mixture by disturbance area, including corresponding acreages, how the seedbed will be prepared to eliminate compacted conditions (e.g., plowed, chiseled, disced), quantity of each grass and plant species per acre (and size for tree planting), method of seeding/planting, fertilizer type and application rate (if used), mulch type, application rate and crimping method (if used).

191) Please provide more details for the demolition and removal of all facilities/buildings/structures (e.g., plant facility, scale house, culverts) that will be present at full development of Mining Phase III, so the Division can calculate an adequate financial warranty. For example, for the proposed permanent plant facility, please provide the dimensions and foundation thickness of the building, the type and number of equipment that will be used to break up the foundation, demolish the building, and remove the debris. Additionally, if any of the broken up material will be buried or used as backfill on site, please include the proposed locations, haul distances, estimated volumes of material, and type of equipment used for this task. If any demolished material will be hauled off site (as mentioned in this exhibit), please include estimated volumes, type and number of equipment used, and location of (or distance to) proposed dump site.

192) Per Rule 4.2.1(1), the financial warranty shall be set and maintained at a level which reflects the actual current cost of fulfilling the requirements of the reclamation plan. It is the Division's understanding that the applicant wishes to implement a phased mining bond approach, with the

initial financial warranty amount to cover all phases up to full development of mining phase III. Please commit to notifying the Division before the operation disturbs additional land (before moving into mining phase IV). At that time, the Division will require a Technical Revision be submitted to increase the maximum allowed disturbed acreage, and to include all information required for the Division to calculate a financial warranty covering additional disturbances up to a proposed mining phase. Please be aware that, at any time throughout the operation, the applicant may submit a surety reduction request to account for reclamation that has been completed. However, until land has been fully released from the permit, the Division must include some costs for reclamation of that land. For example, once several mined benches have had subsoil and topsoil replaced, and have been seeded and planted, the Division may only require partial revegetation costs for these benches.

EXHIBIT M - Other Permits and Licenses (Rule 6.4.13):

Other Permits and Licenses:

193) The text states that Transit Mix is currently preparing all other permits and licenses, and a list is provided. Does this mean that the applicant does not currently hold any of these permits, licenses, or approvals, but is in the process of obtaining them?

194) For CDPHE, Air Pollution Control Division, please specify what permits will be obtained.

195) Will a Substitute Water Supply Plan be required for water use and/or stormwater detention for this operation? If so, please commit to obtaining this approval from the DWR.

A Class III Cultural Resource Inventory of the Proposed Hitch Rack Ranch Crushed Stone Quarry and Access Routes, Prepared by Cultural Resource Analysts, Inc:

196) The report lists five archaeological sites that were recorded by the project. All five recorded sites are recommended as not eligible for inclusion in the National Register of Historic Places. However, the environmental permitting for the development parcel requires clearance from the Colorado Office of Archaeology and Historic Preservation. Has the applicant obtained clearance from this office? If this clearance has been or will be obtained for the operation, please include it on the list of required permits, licenses, and approvals submitted with this exhibit.

EXHIBIT N - Source of Legal Right to Enter (Rule 6.4.14):

197) Please be advised that the notarized statement submitted does not meet the requirements for this exhibit. Per Rule 6.4.14 and Rule 6.3.7, please provide a description of the basis for legal right of entry to the site and to conduct mining and reclamation, for all owners of record of surface and minerals rights of the affected land. This may be a copy of access leases, deed, abstract of title, or a current tax receipt. A signed statement by the landowner and acknowledged by a Notary Public stating that the Operator/Applicant has legal right to enter and mine is also acceptable.

EXHIBIT S - Permanent Man-Made Structures (Rule 6.4.19):

198) The text states that the only man-made structures are utility lines along Hwy 115 near the entrance to the property on the east end of the permit boundary. Additionally, it states that there are no permanent man-made structures within 200 feet of the permit area other than the quarry itself. However, according to materials submitted with the application (and observations made during the Division's partial inspection conducted on April 12, 2016), there are a few structures located inside of or within 200 feet of the proposed affected land that are not owned by the applicant, and thus, will require structure agreements (e.g., Hwy 115, Hitch Rack Ranch Road, Little Turkey Creek Road, road adjacent to Deadman Creek, existing culverts). Additionally, a structure agreement will be required for the utility lines present along Hwy 115 if they are located within 200 feet of the proposed permit boundary.

Please note that roadways and above-ground or underground utilities (if present) within 200 feet of the proposed affected area are considered permanent man-made structures. In accordance with Rule 6.4.19, when mining operations will adversely affect the stability of any significant, valuable and permanent man-made structure located within 200 feet of the affected area, the applicant may either:

(a) Provide a notarized agreement between the applicant and the person(s) having an interest in the structure, that the applicant is to provide compensation for any damage to the structure; or

(b) Where such an agreement cannot be reached, the applicant shall provide an appropriate engineering evaluation that demonstrates that such structure shall not be damaged by activities occurring at the mining operation; or

(c) Where such structure is a utility, the Applicant may supply a notarized letter, on utility letterhead, from the owner(s) of the utility that the mining and reclamation activities, as proposed, will have "no negative effect" on their utility.

Before option (b) could be approved, the applicant would need to demonstrate that a notarized agreement between the structure owners and the applicant was attempted. If an agreement is attempted but not attained, the Division is authorized under Rule 6.4.19(b) to accept the engineering evaluation.

EXHIBIT 6.5 – Geotechnical Stability:

199) Please review and respond to the comments provided by Peter Hays, which are enclosed with this document.

Additional Comments:

200) Per Rule 1.6.2(1)(g), the Division must receive proof of notices provided for in Rule 1.6.2(1)(d), (e), and (f) before the application can be approved.

201) Please review and respond as necessary to the agency comments provided by History Colorado, Colorado Parks and Wildlife, and Colorado Division of Water Resources, which are enclosed with this document.

202) Please inform the Division how the Applicant will address the jurisdictional issues raised in the timely letters of objection to the application.

203) Pursuant to Rules 1.6.2(1)(c) and (2), response to these adequacy issues must be placed with the County Clerk and Recorder and thereby made available for public review. Please ensure response to these adequacy issues includes proof this was done.

Please ensure the Division sufficient time to complete its review process by responding to these adequacy issues two weeks prior to the decision/recommendation date, by July 22, 2016. If additional time is required to respond to these adequacy issues please request an extension to the decision/recommendation deadline, currently set at August 5, 2016. The Division reserves the right to further supplement this document with additional adequacy issues and details as necessary.

If you have any questions, please contact me by telephone at 303-866-3567, ext. 8129, or by email at amy.eschberger@state.co.us.

Sincerely,

Amy Eschberger

Amy Eschberger
Environmental Protection Specialist

Enclosure(s): DRMS Preliminary Adequacy Review – Exhibit G, Water Information, From Tim Cazier, Dated May 3, 2016
DRMS Review of Blasting Plan, From Peter Hays, Dated May 10, 2016
DRMS Review of Exhibit 6.5 – Geotechnical, From Peter Hays, Dated May 11, 2016
Comment from History Colorado, Received on March 22, 2016
Comment from Colorado Parks and Wildlife, Received on April 18, 2016
Comment from Colorado Division of Water Resources, Received on April 21, 2016

CC: Paul Kos, Norwest Corporation (via email)
Wally Erickson, DRMS
Tony Waldron, DRMS

COLORADO
Division of Reclamation, Mining and Safety
Department of Natural Resources

1313 Sherman Street, Room 215
Denver, CO 80203

Date: May 3, 2016

To: Amy Eschberger

From: Tim Cazier, P.E.

RE: Hitch Rack Ranch Quarry, DRMS File No. M-2016-010;
Preliminary Adequacy Review – Exhibit G, Water Information

The Division of Reclamation, Mining and Safety (Division) engineering staff has reviewed the February 19, 2016, Exhibit G Water Information portion of the 112c mine reclamation permit application prepared by Norwest Corporation for Transit Mix Concrete Company. The following comments are posed to ensure adequate engineering analyses and design practices are implemented to eliminate or reduce to the extent practical the disturbance to the hydrologic balance expected by the mining operation with respect to water quality and quantity in accordance with Rules 3.1.6(1), 6.4.7.

1. Page G-3, paragraph a, Little Turkey Creek. The narrative states "No mining will occur within 100 feet of the stream, and mining will remain at least 10 feet above the stream at all times." Please provide a typical cross-section depicting a) the stream (Little Turkey Creek); b) from where the 10 feet will be measured (e.g., thalweg, water level at the 10-, 25-, or 100-year peak flow, etc.); and c) the direction of grading to promote positive drainage from the mined areas (during operations and after reclamation).
2. Page G-9, paragraph b, Deadman Creek. The narrative states "No mining will occur within 100 feet of the stream". No mention is made to the effect that mining will remain at least 10 feet above the stream at all times." Please provide a typical cross-section depicting a) the stream (Deadman Creek); b) if the 10-foot limit is intended, from where the 10 feet will be measured; and c) the direction of grading to promote positive drainage from the mined areas (during operations and after reclamation).
3. Page G-9, paragraph c, Drainage Discussion. The narrative states water will be pumped from sediment ponds to Deadman Creek during operations. Please address how the Colorado Division of Water Resources requirement to discharge detained water within 72 hours of a storm event will be accomplished with the pumping scenario.

4. Page G-11, first paragraph. The narrative references "county regulations" prescribing the 10-year, 24-hour storm event to design culverts and ditches, but the 100-year, 24-hour storm for designing sediment ponds. The Division is unfamiliar with El Paso County regulations, but questions how 100-year peak flows/runoff volumes can be conveyed to sediment ponds in channels and culverts designed only to convey the 10-year peak flow. The Division requires all permanent hydraulic conveyance structures (ditches, channels, culverts, overflow spillways, etc.) be designed to safely convey the peak flow resulting from the 100-year, 24-hour design storm event with adequate freeboard. Sediment ponds may be designed to handle the runoff volume and sediment from the 10-year, 24-hour storm as long as overflow spillways/outlet works are designed to safely convey the peak flow from the 100-year, 24-hour storm. {*Note: if there are temporary channels, please consult with the Division engineering staff as to the appropriate design storm recurrence interval*}

5. Page G-11, Table G-3. The Division questions the curve number (CN) used for "Native" cover for two reasons: a) hydrologic soil group (HSG) "B" was selected, however the soil survey in Exhibit I, Soils Information indicates the majority of Section 16 is soil map unit 77, described as HSG "D"; b) when using the SCS runoff method, low curve numbers (i.e., 55) and low rainfall are known to under predict runoff estimates. The CN used for "Reclaimed stockpile" (71) appears to have been obtained from the SCS TR-55 manual Table 2-2c – Runoff curve numbers for other agricultural lands. This table was developed from test plots in the mid-west where annual rainfall is higher than in Colorado. Table 2-2d was developed for "arid and semiarid rangelands". The Division can accept the selection of HSG "C" given the reclaimed stockpile is constructed of disturbed material and is more conservative than HSG "A" or "B" for process fines, however a more appropriate CN should be obtained from Table 2-2d, "Herbaceous" cover with a fair to good hydrologic condition ($74 \leq CN \leq 81$).

    a. Please provide sound rationale for the selection of 55 for "Native" cover and demonstrate how the combination of low precipitation and small CN will NOT under predict runoff; or use a more appropriate CN from Table 2-2d, such as 71 (HSG "D" for good hydrologic condition Pinyon-juniper).

    b. Please provide sound rationale for the selection of 71 for "Reclaimed stockpile" cover; or use a more appropriate CN from Table 2-2das discussed above.

6. Page G-12, paragraph a, Ditches. This paragraph refers to "Clean water diversion ditches" for separating unimpacted runoff from affected areas. Clean water diversion ditches appear to be absent from Figures G-5 through G-12. Please clarify the intent to include these channels and provide reference locations.

7. Page G-12, paragraph i, Terrace Ditches. This paragraph states terrace ditches are designed for the 10-year, 24-hour storm. As stated in Comment No. 4 above,

permanent channels need to be designed to safely convey the 100-year, 24-hour storm with adequate freeboard.

8. Page G-13, first paragraph. This paragraph states the PADER method is used for riprap sizing. The Division's experience with riprap sizing is that the PADER method undersizes riprap. The SEDCAD manual indicates the Simons/OSM is the more conservative method for sizing riprap in the SEDCAD software package. If the SEDCAD software is used for riprap sizing, the Division requires the Simons/OSM method be used for riprap sizing. {*Note: The Division engineering staff can provide other riprap sizing methods* (e.g., USACE's EM 1110-2-1601, USDA OK's HL181 Rock Chute Between 2 and 40 %, etc.) *if there is an interest*}.
9. Page G-13, Table G-4. The "Access Road Ditches", "F1 Ditch" and "TS1 Ditch" are not specifically shown on Figures G-5 through G-12. Please label all designed channels on appropriate figures.
10. Page G-13, paragraph b, Sediment Ponds. This section states the ponds a typically 10 feet deep. Be aware of the Colorado Division of Water Resources, Dam Safety Branch Rules for "Jurisdictional Size Dam": "… *exceeds 10 feet in height measured vertically from the elevation of the lowest point of the natural surface of the ground where that point occurs along the longitudinal centerline of the dam up to the crest of the emergency spillway of the dam. For reservoirs created by excavation, or where the invert of the outlet conduit is placed below the surface of the natural ground at its lowest point beneath the dam, the jurisdictional height shall be measured from the invert of the outlet at the longitudinal centerline of the embankment or from the bottom of the excavation at the longitudinal centerline of the dam, which ever is greatest.*" Please confirm none of the ponds will be jurisdictional, or commit to getting the proper permits from the Office of the State Engineer.
11. Page G-14, paragraph c, Culverts. The project culverts appear to be designed for peak flow resulting from the 10-year, 24-hour storm. Please address design culvert performance for the 100-year, 24-hour storm to include road overtopping, and/or culvert capacity for higher headwater that does not overtop appurtenant roads.
12. Page G-15, second paragraph. The narrative states Culverts LTC-CC-1 and LTC-CC-6 were sized based using the USGS StreamStats website. Based on the limited information provided on Figures G-5 and G-6, it is unclear what purpose Culverts LTC-CC-2 through LTC-CC-6 serve. The Division is concerned that given the planned disturbance to the upgradient watershed, the use of statistical methods for peak flow prediction may not be valid. Please provide sound rationale for using statistical methods to estimate peak flows in disturbed watersheds and indicate on the appropriate figures which drainages/sub-drainages are to be controlled by Culverts LTC-CC-2 through LTC-CC-6.
13. Page G-15, Table G-6. This table appears to be full of errors. The fourth column is labeled "HW/D Ratio". However, it appears to be the headwater elevation in

feet. The fifth column is labeled "100-yr, 24-hr Peak Flow (cfs)". My best guess is these numbers are culvert sizes in inches. The sixth column is also labeled "HW/D Ratio". Numbers between 2 and 2.5 are typically considered to be acceptable design practice (as a maximum). All but three of these are in excess of 2.5, two are actually shown as being over 4,000! The Division has absolutely no idea what these numbers are supposed mean. The last (7th) column is listed as "Culvert Diameter (in)". Not a single one of these 15 values is a standard culvert size. Please fix this table.

14. Page G-16, second paragraph. The narrative discusses an added benefit of BMPs to increase the time of concentration (Tc), thereby providing attenuation of peak flows. The Division's position is that BMPs are temporary in nature and probably not a significant factor in increasing the Tc. If this is factored into the SEDCAD Tc calculations, please revise these calculations.

15. Figure G-5. The purpose of the LTC culverts is unclear from the information on this figure. Please add notes and/or additional drainage paths to help illustrate their purpose.

16. Figure G-6. The purpose of the LTC-CC-1 culvert is unclear from the information on this figure. No outlet culvert is shown for either F1-SP-1 or NP-SP-1. The line color of clean water diversions and road ditches makes it difficult to differentiate the two on the figure. No clean water diversion channels are identified for the fines stockpile (F1), the topsoil stockpile (TS1) or the north pit. There also appears to be a culvert (approximately 750 feet long) in the TS1 drainage. Such a culvert will not have maintenance access for when it becomes plugged. This is not an acceptable approach for separating unimpacted water. Topography contours are not visible. It is difficult to discern whether a diversion channel is necessary for the plant site. Please revise the figure to address these comments.

17. Figure G-7. Same issues identified in Comment No. 16. In addition, either "Road Ditch" or "Clean Water Diversion" lines appear to cross both native ground and the fines stockpile, F1, as well as intersecting each other. Ditch and grade-to-drain directions would be useful. Please revise accordingly.

18. Figure G-8. Same issues identified in Comment No. 16. In addition, the "Drainage Divide Berm" appears to be aligned perpendicular to the north and east highwalls, providing no outlet for sediment pond DM-SP-1. Again, ditch and grade-to-drain directions would be useful as well as notes indicating which, if any, sediment ponds will need to be pumped. Please revise accordingly.

19. Figure G-9. Same issues identified in Comment Nos. 16 and 18. In addition, more "blue lines" appear to randomly cross the fines stockpile, F1 and two more culvert segments appear to have been added to the topsoil stockpile, TS1. Buried pipes for stockpile stormwater management are not acceptable as discussed in Comment No. 16. The culvert symbol for DM-CC-1 is missing. Please revise accordingly.

20. Figure G-10. Same issues identified in Comment No. 18. In addition, it appears contact channels along edges of the fines stockpile, F1 would be necessary and there is no topsoil stockpile on the drawing. Please revise accordingly.

21. Figure G-11. Same issues identified in Comment No. 20. In addition, the legend symbols for "Road Ditch" and "Clean Water Diversion" have changed to dotted lines, but none are shown on the figure, except the existing Deadman and Little Turkey Creek alignments. Please revise accordingly.

22. Figure G-12. Ditch and grade-to-drain directions would be useful. Culvert DM-CC-2 and various ditches that are not shown on Figure F-1 are on this drawing, yet the green "honeycomb" hatched areas on Figure G-12 appear to be identical to the blue "inverted triangle" hatch on Figure F-1. Please explain the differences and revise the figure(s) accordingly.

23. Figure G-14. Cross Section A-A' shows an outlet pipe to the creek. Based on the Division's understanding of the pit floor where the sediment ponds are to be located, these pipes are to be located several feet in competent rock. Is the intent to excavate/blast solid rock in order to install these outlet pipes?

24. Figure G-15. The culvert profile shows the culvert outfall invert at the same elevation as the receiving channel invert, as opposed to free outfall. The SEDCAD culvert analyses all show a zero tailwater depth. Depending on the receiving channel geometry, there will be a tailwater, and given the one percent pipe slope, there is a potential for the culvert to be outlet controlled. This figure should be modified to show a free outfall or tailwater depths should be considered in the culvert analyses.

25. Attachment G-1, SEDCAD Model Reports. The Division could not locate a map or figure delineating SEDCAD structures and subwatersheds which is necessary to review the SEDCAD model input and results. It also appears that some time of concentration estimates include overland/sheet flow segments greater than 300 feet (e.g., p. 12 of SEDCAD report Stru #6, SWS #1 is 535 horizontal feet). TR-55 Upland method for time of concentration calculations limits overland flow segments to less than 300 feet (see top of page 6) and based on experience should be shorter as slopes increase. Please review all times of concentration estimates to ensure proper methodology and model input is appropriate and provide a subwatershed/structure routing delineation map.

Sheet flow

Sheet flow is flow over plane surfaces. It usually occurs in the headwater of streams. With sheet flow, the friction value (Manning's n) is an effective roughness coefficient that includes the effect of raindrop impact; drag over the plane surface; obstacles such as litter, crop ridges, and rocks; and erosion and transportation of sediment. These n values are for very shallow flow depths of about 0.1 foot or so. Table 3-1 gives Manning's n values for sheet flow for various surface conditions.

Table 3-1 Roughness coefficients (Manning's n) for sheet flow

For sheet flow of less than 300 feet, use Manning's kinematic solution (Overtop and Meadows 1976) to compute T_t:

$$T_t = \frac{0.007(nL)^{0.8}}{(P_2)^{0.5} s^{0.4}} \quad \text{[eq. 3-3]}$$

where:

T_t = travel time (hr),
n = Manning's roughness coefficient (table 3-1)
L = flow length (ft)
P_2 = 2-year, 24-hour rainfall (in)
s = slope of hydraulic grade line (land slope, ft/ft)

Screen capture from TR-55, note 300-foot limit for sheet flow (underlined)

26. The Division could use a figure illustrating the 100-foot horizontal and 1-foot vertical offsets for mining activities in the vicinity of both Little Turkey Creek and Deadman Creek, as discussed in Comment Nos. 1 and 2 above. Such a figure would be useful in describing the mine limits. Please provide such a figure or drawing.

COLORADO
Division of Reclamation, Mining and Safety
Department of Natural Resources

1313 Sherman Street, Room 215
Denver, CO 80203

Date: May 10, 2016

To: Amy Eschberger; Division of Reclamation, Mining & Safety

From: Peter Hays; Division of Reclamation, Mining & Safety

Re: Review of Blasting Plan; Transit Mix Concrete Co.; Hitch Rack Ranch Quarry; File No. M-2016-010

The Division of Reclamation, Mining and Safety (Division/DRMS) has reviewed the Blasting Plan included within Exhibit D - Mining Plan for the Hitch Rack Ranch Quarry 112c permit application. The Division is required to make an approval or denial decision no later than August 5, 2016. Therefore, a response to the following Blasting Plan adequacy review concerns should be submitted to the Division as soon as possible.

1. The Applicant did not provide a pre-blasting survey plan in the initial Blast Plan submitted with the permit application package. Please provide the Division a copy of the pre-blasting survey plan.

2. The Applicant did not provide a flyrock control plan in the initial Blast Plan submitted with the permit application package. Please provide the Division with a plan to control flyrock from damaging nearby permanent man-made structures.

3. The Applicant states all blasts will be monitored using seismic instruments. The seismic instruments will measure ground vibration and peak particle velocity. Please provide the Division with the proposed maximum peak particle velocities in inches/second based on the distance from the blast site to all structures within one mile of the blast location.

4. The Applicant states all blasts will be monitored using seismic instruments. The seismic instruments will measure ground vibration and peak particle velocity. Please commit to recording the peak particle velocities in three mutually perpendicular directions from the blasting site. The maximum peak particle velocity shall be the largest of any of the three measurements.

5. The Applicant states all blasts will be monitored using seismic instruments. Please provide the Division with the location off all seismic instruments.

6. The Applicant states all blasts will be monitored with microphones to measure air over pressure (air blast) and noise. Please provide the Division with the lower frequency limit of the planned measuring system in Hertz (Hz) and maximum level in decibels (dB) for each frequency limit.

7. The Applicant states all blasts will be monitored with microphones to measure air over pressure (air blast) and noise. Please provide the Division with the location of the microphones.

8. The Applicant did not provide details of the blasting records in the initial Blast Plan submitted with the permit application package. Please commit to maintaining a record of all blasts, including seismograph and airblast reports, for at least 3 years. The blasting reports shall be available for inspection by the Division and by the public on request. The blasting reports should contain the following minimum information:

    a. Name of the operator conducting the blast
    b. Location, date, and time of blast
    c. Name, signature, and license number of blaster-in-charge
    d. Identification, direction and distance, in feet, from the nearest blast hole to the nearest permanent man-made structure
    e. Weather conditions, including temperature, wind direction, and approximate velocity
    f. Type of material blasted
    g. Sketches of the blast pattern including number of holes, burden, spacing, and delay pattern
    h. Sketches shall also show decking, if holes are decked to achieve different delay times within a hole
    i. Diameter and depth of holes
    j. Types of explosives used
    k. Total weight of explosives used per hole and maximum weight of explosives used per 8-millisecond period
    l. Initiation system
    m. Type and length of stemming
    n. Mats or other protections used
    o. Type of delay detonator and delay periods used
    p. Number of persons in the blasting crew
    q. Reasons and conditions for each unscheduled blast

9. Additionally, please commit to maintaining the following information, at minimum, for seismographic and airblast records:

    a. Type of instrument, sensitivity, and the calibration signal of the gain setting or certification of annual calibration
    b. Exact location of instrument and the date, time and its distance from the blast
    c. Name of the person and firm taking the reading
    d. Name of the person and firm analyzing the seismographic record
    e. The vibration and/or airblast level record

If you have any questions, please contact me at (303) 866-3567 Ext. 8124.

Cc: Wally Erickson; Division of Reclamation, Mining & Safety
Tim Cazier; Division of Reclamation, Mining & Safety

COLORADO
Division of Reclamation, Mining and Safety
Department of Natural Resources

1313 Sherman Street, Room 215
Denver, CO 80203

Date: May 11, 2016

To: Amy Eschberger; Division of Reclamation, Mining & Safety

From: Peter Hays; Division of Reclamation, Mining & Safety

Re: Review of Exhibit 6.5 - Geotechnical; Transit Mix Concrete Co.; Hitch Rack Ranch Quarry; File No. M-2016-010

The Division of Reclamation, Mining and Safety (Division/DRMS) has reviewed the Geotechnical Assessment included within Exhibit 6.5 for the Hitch Rack Ranch Quarry 112c permit application. The Division is required to make an approval or denial decision no later than August 5, 2016. Therefore, a response to the following Geotechnical Exhibit adequacy review concerns should be submitted to the Division as soon as possible.

The following list describes the information used by the Division as presented in the permit application to evaluate slope stability for the proposed quarry. Please review the list and confirm the list is accurate.

- The Geotechnical Assessment was based on seven (7) boreholes completed by Norwest Corporation (Norwest) and six (6) boreholes completed during a previous site investigation by another company.
- Granite and granite composites are the most common rock types within the proposed quarry and pit wall locations.
- The rock mass was characterized using the 1989 version of the Rock Mass Rating System. Points were assigned using the following categories; Uniaxial Compressive Strength (UCS), Rock Quality Designation (RQD), Discontinuities Spacing, Discontinuities Condition and Groundwater Conditions.
- Groundwater levels were not identified during drilling due to the use of drilling mud.
- Stability analysis models were performed assuming saturated groundwater conditions.
- The overall stability analysis was performed for five (5) cross-sections at various wall heights and orientations.
- A bench stability analysis was performed for each rock type and condition for a 40 foot bench height at a 2V:1H slope.
- The geotechnical analysis was performed by Norwest using GeoStudio software SLOPE/W Version 8.4.

- The wall heights used in the overall analysis varied from 275 feet to 410 feet.
- The proposed bench dimensions are forty (40) feet in height and twenty (20) feet in width.
- The bench highwall angle was designed at 63 degrees, 2V:1H.
- A Factor of Safety of 1.3 for Static and 1.0 for Pseudo-Static Conditions design criteria was used for the bench scale slope analysis.
- The overall highwall angle was designed at 45 degrees, 1H:1V.
- A Factor of Safety of 1.5 for Static and 1.0 for Pseudo-Static Conditions design criteria was used for the overall slope analysis.
- The TS1 - Topsoil Stockpile facility will contain 317,000 bank cubic yards of topsoil.
- The F1 - Fines/Overburden Stockpile will be constructed with 3H:1V slopes.

1. Please provide a geotechnical stability analysis for the following stockpile and backfill locations as required by Rule 6.5 of the Mineral Rules and Regulations of the Colorado Mined Land Reclamation Board for the Extraction of Construction Materials.
    a. TS1 - Topsoil Stockpile
    b. F1 - Fines/Overburden Stockpile
    c. F3 - North Pit Backfill Area

2. Please provide the material placement procedure and testing protocols for the following stockpile and backfill locations as required by Rule 3.1.5 of the Mineral Rules and Regulations of the Colorado Mined Land Reclamation Board for the Extraction of Construction Materials.
    a. TS1 - Topsoil Stockpile
    b. F1 - Fines/Overburden Stockpile
    c. F3 - North Pit Backfill Area

3. Please explain how the downhill toe of the TS1 - Topsoil Stockpile and F1 - Fines/Overburden Stockpile will be stabilized to prevent potential downgradient movement of the stockpiles. Please provide geotechnical investigation data and details for the starter dam/embankment/retaining wall design, if available.

4. Please provide the material placement procedure and testing protocols for the F2 - North Pit Expansion Area backfill as required by Rule 3.1.5 of the Mineral Rules and Regulations of the Colorado Mined Land Reclamation Board for the Extraction of Construction Materials.

5. Please provide parallel and perpendicular cross-sections for the TS1 - Topsoil Stockpile, F1 - Fines/Overburden Stockpile, F3 - North Pit Area Backfill and F2 - North Pit Expansion Area for Mining Phases 1 through 6.

6. Please provide the SLOPE/W slope stability analysis data from the Norwest overall slope analysis to allow the Division to duplicate the analysis with Clover Technology's Galena software for verification purposes.

7. Please provide the SLOPE/W slope stability analysis models for all conditions for the bench scale analysis from the Norwest analysis to allow the Division to duplicate the analysis with Clover Technology's Galena software for verification purposes.

8. Please provide justification for the Phi angle value of 0 degrees used in the Norwest SLOPE/W slope stability analysis.

9. Please provide justification for the circular failure analysis instead of a wedge failure analysis used in the Norwest SLOPE/W slope stability analysis.

10. As recommended in Section 6.3 of the Norwest Geotechnical Assessment - Rev. B, dated January 26, 2015, please commit to conducting further geotechnical assessments during the initial quarry development to evaluate pit wall design performance and wall angles.

11. As recommended in Section 6.3 of the Norwest Geotechnical Assessment - Rev. B, dated January 26, 2015, please commit to submitting a plan to divert surface water runoff around the pit walls.

12. As recommended in Section 6.3 of the Norwest Geotechnical Assessment - Rev. B, dated January 26, 2015, please commit to submitting a plan to install instrumented groundwater monitoring wells behind the highwalls where natural topography continues above the pit crest.

13. As recommended in Section 6.3 of the Norwest Geotechnical Assessment - Rev. B, dated January 26, 2015, please commit to additional geotechnical investigations to determine if adversely dipping low angle faults are present.

14. As recommended in Section 6.3 of the Norwest Geotechnical Assessment - Rev. B, dated January 26, 2015, please commit to routine monthly bench face mapping by qualified personnel to assess the rock mass quality and structural geology against design assumptions throughout quarry development.

15. As recommended in Section 6.3 of the Norwest Geotechnical Assessment - Rev. B, dated January 26, 2015, please commit to routine visual inspection of the pit slopes by qualified personnel to identify blast damage and modify blasting techniques as required.

16. As recommended in Section 6.3 of the Norwest Geotechnical Assessment - Rev. B, dated January 26, 2015, please commit to routine pit slope movement monitoring with EDM/Prism surveying, laser scanning, and/or extensometers.

17. As recommended in Section 6.3 of the Norwest Geotechnical Assessment - Rev. B, dated January 26, 2015, please commit to routine daily visual inspections by qualified personnel to assess pit slope stability, catchment benches, berms, clean-up efforts, restricted access points and monitoring systems.

18. As recommended in Section 6.3 of the Norwest Geotechnical Assessment - Rev. B, dated January 26, 2015, please commit to surveying the pit walls and reconciliation with designs to be completed on a regular basis.

19. As recommended in Section 6.3 of the Norwest Geotechnical Assessment - Rev. B, dated January 26, 2015, please commit to performing additional geotechnical investigations to confirm conditions prior to mining the area south of Little Turkey Creek.

If you have any questions, please contact me at (303) 866-3567 Ext. 8124.

Cc: Wally Erickson; Division of Reclamation, Mining & Safety

AME

HISTORY Colorado

March 17, 2016

Amy Eschberger
Environmental Protection Specialist
Division of Reclamation, Mining and Safety
1313 Sherman Street, Room 215
Denver, CO 80203

Re: Notice of 112 Construction Materials Reclamation Permit Application Consideration Transit Mix Concrete Co., Hitch Rack Ranch Quarry, File No. M-2016-010 (SHPO Project #69882)

Dear Ms. Escberger:

Thank you for your correspondence dated March 11, 2016 (received by our office on March 16, 2016) regarding the above subject project.

A search of the Colorado Cultural Resource Inventory database indicated that no cultural resource inventories have taken place in the proposed project area and no historic properties have been recorded within the property area. However, our files contain incomplete information for this area, as most of Colorado has not been inventoried for cultural resources. As a result, there is the possibility that as yet unidentified cultural resources exist within the proposed project area.

Should human remains be discovered during the proposed project activities, the requirements under State law C.R.S. 24-80 (part 13) apply and must be followed.

Thank you for the opportunity to comment. If we may be of further assistance, please contact Todd McMahon, Staff Archaeologist at (303) 866-4607/todd.mcmahon@state.co.us or Amy Pallante, Intergovernmental Services Director at (303) 866-4678 amy.pallante@state.co.us

Sincerely,

Steve Turner, AIA
State Historic Preservation Officer
ECN/TCM

P

COLORADO
Parks and Wildlife
Department of Natural Resources

Southeast Region
4255 Sinton Road
Colorado Springs, CO 80907
P 719.227.5200 | F 719.227.5223

April 18, 2016

Amy Eschberger
Colorado Division of Reclamation, Mining and Safety
Environmental Protection Specialist
1313 Sherman Street, Room 215
Denver, CO 80203

RE: Notice of 112 Construction Materials Reclamation Permit Application Consideration
Transit Mix Concrete Co., Hitch Rack Ranch Quarry, File No, M-2016-010

Dear Ms. Eschberger:

Colorado Parks and Wildlife (CPW) is in receipt of the above referenced quarry lease application and is familiar with the site. Transit Mix Concrete has already met with CPW and the United States Fish and Wildlife Service (USFWS) about the proposed quarry. Based on the location of the proposed quarry, both CPW and USFWS instructed Transit Mix Concrete to perform surveys for the federally and state threatened Mexican spotted owl, since it is known habitat for the species.

CPW notices that the mining operation is set to take place around Little Turkey Creek. All wetland areas should be buffered a minimum of 100 feet from the outside edge of the creek. Any development, surface disturbance, and outbuildings should be discouraged except where necessary for mining operations. Additionally, hydrological flows that support wetlands should remain undisturbed and not impeded.

Natural vegetation should not be altered unless for purposes necessary to the mining operation. Native grasses and forbs should be maintained and mowing strongly discouraged except as required around the immediate areas of buildings and mining operations.

The control of noxious weeds is the responsibility of the landowner. Noxious weeds shall be actively controlled using methods such as mowing and spraying. Species specific control measures should be used when pesticides are felt necessary for the control of noxious weeds. All equipment that is entering the site from a different location should be cleaned of all soil and vegetation to help prevent the spread of noxious weeds.

If any fencing is to be used, wildlife friendly fencing should be utilized. CPW will provide information on wildlife friendly fencing upon request.

COLORADO
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Due to the presence of black bears on the property, CPW recommends that the operators of the facility invest in bear-proof trash containers if trash is going to be present on the facility. Trash containers should be stored in a garage or in a solid locked storage shed until the morning of trash collection during those months when bears are most active (April – November).

Feeding of big game species is illegal in Colorado. This includes putting out salt blocks, hay, grain, or other items to attract big game. The use of bird feeders should be strongly discouraged from April through November to avoid conflicts with black bears.

Once mining is complete, all reclamation efforts could have potentially significant value to wildlife. To maximize this benefit, CPW recommends that the mining site be returned to the same condition as prior to being mined. Planting of trees and shrubs attractive to wildlife is encouraged. Reseeding of grasses and forbs over large areas should be a mix of warm and cool season plants that are palatable and attractive to wildlife. All vegetation used in reclamation should be species that are native to Colorado and present in the region. For further consultation, contact CPW.

CPW appreciates being given the opportunity to comment. Please feel free to contact District Wildlife Manager, Cody Wigner, should you have any questions or require additional information at 719-227-5287 or via email at cody.wigner@state.co.us.

Sincerely,

Frank McGee
Area Wildlife Manager

Cc: SE Region File
Area 14 File
Cody Wigner, DWM

COLORADO
Division of Water Resources
Department of Natural Resources

Office of the State Engineer
1313 Sherman St, Suite 818
Denver, CO 80203

Response to Reclamation Permit Application Consideration

DATE: April 21, 2016

TO: Amy Eschberger, Environmental Protection Specialist

CC: Division 2 Office; District 10 Water Commissioner

FROM: Caleb Foy, P.E.

RE: Hitch Rack Ranch Quarry, File No. M-2016-010
Operator: Transit Mix Concrete Co.
Contact: Andre LaRoche, (719) 475-0700
Secs. 16, 21- 23, Twp. 16S, Rng. 67W, 6th P.M., El Paso County

CONDITIONS FOR APPROVAL

☒ The proposed operation does not anticipate exposing groundwater. Therefore, exposure of ground water must not occur during or after mining operations.

☒ The proposed operation will consume water by: ☐ evaporation, ☒ dust control, ☐ reclamation, ☐ water removed in the mined product, ☒ processing, ☐ other:.

☒ All water used on-site for mining needs shall be a legal supply of water provided by an appropriate supplier. The applicant shall confirm the legality of any proposed source of water supply with the Division of Water Resources prior to use in the operation.

☒ To assist in avoiding adverse impacts to water resources or vested water rights, the applicant shall consult with the local Water Commissioner (Doug Hollister, Doug.Hollister@state.co.us) regarding any activity that might affect the flow of water to any stream system and/or ditch.

☒ The application materials indicate that the storm water management plan will include construction of ditches, sediment ponds, and culverts as a part of this project. The applicant should be aware that, unless the storm water detention structures can meet the requirements of a "storm water detention and infiltration facility" as defined in section 37-92-602(8), Colorado Revised Statutes, the structure may be subject to administration by this office. The applicant should review DWR's *Administrative Statement Regarding the Management of Storm Water Detention Facilities and Post-Wildland Fire Facilities in Colorado*, attached, to ensure that the notification, construction and operation of the proposed structure meets statutory and administrative requirements. The applicant is encouraged to use *Colorado Stormwater Detention and Infiltration Facility Notification Portal*, located at https://maperture.digitaldataservices.com/gvh/?viewer=cswdif, to meet the notification requirements.

COMMENTS: The local Water Commissioner, Doug Hollister, may be contacted at (719) 227-5291 or Doug.Hollister@state.co.us regarding legal supplies of water in the area.

COLORADO
Division of Water Resources
Department of Natural Resources

1313 Sherman Street, Room 821
Denver, CO 80203

Administrative Statement Regarding the Management of Storm Water Detention Facilities and Post-Wildland Fire Facilities in Colorado

February 11, 2016

The Division of Water Resources (DWR) has previously administered storm water detention facilities based on DWR's "Administrative Approach for Storm Water Management" dated May 21, 2011. Since the passage of Colorado Senate Bill 15-212, that administrative approach has been superseded. This document describes SB 15-212, codified in section 37-92-602(8), Colorado Revised Statutes (C.R.S.), and how the law directs administrative requirements for storm water management. The document is for informational purposes only; please refer to section 37-92-602(8) for comprehensive language of the law.

Pursuant to section 37-92-602(8), storm water detention facilities and post-wildland fire facilities shall be exempt from administration under Colorado's water rights system only if they meet specific criteria. The provisions of SB15-212 apply to surface water throughout the state. SB15-212 *only* clarifies when facilities may be subject to administration by the State Engineer; all facilities may be subject to the jurisdiction of other government agencies and must continue to obtain any permits required by those agencies.

Storm Water Detention Facilities

Pursuant to section 37-92-602(8), a storm water detention and infiltration facility ("Detention Facility") is a facility that:

- Is owned or operated by a government entity or is subject to oversight by a government entity, including those facilities that are privately owned but are required by a government entity for flood control or pollution reduction.
- Operates passively and does not subject storm water to any active treatment process.
- Has the ability to continuously release or infiltrate at least 97 percent of all of the water from a rainfall event that is equal to or less than a five-year storm within 72 hours of the end the rainfall event.
- Has the ability to continuously release or infiltrate at least 99 percent of all of the water from a rainfall event that is greater than a five-year storm within 120 hours of the end the rainfall event.
- Is operated solely for storm water management.

In addition, to qualify for the allowances provided in SB-212, the facility:

- Must not be located in the Fountain Creek watershed, unless the facility is required by or operated pursuant to a Colorado Discharge Permit System Municipal Separate Storm Sewer System Permit issued by the Department of Public Health and Environment pursuant to Article 8 of Title 25, C.R.S.
- Must not use water detained in the facility for any other purpose nor release it for subsequent diversion by the person who owns, operates, or has oversight over the facility. The facility cannot be operated as the basis for a water right, credit, or other water use right.
- Must not expose ground water.
- May include a structure or series of structures of any size.

If the Detention Facility was constructed *on or before* August 5, 2015 and meets all the requirements listed above, it does not cause material injury to vested water rights and will not be subject to administration by the State Engineer.

If the Detention Facility is constructed after August 5, 2015, meets the requirements listed above, and the operation of the detention facility does not cause a reduction to the natural hydrograph as it existed prior to the upstream development, it has a rebuttable presumption of non-injury pursuant to paragraph 37-92-602(8)(c)(II). A holder of a vested water right may bring an action in a court of competent jurisdiction to determine whether the operation of the detention facility is in accordance with paragraph 37-92-602(8)(c)(II)(A) and (B) has caused material injury. If the court determines that the vested water rights holder has been injured, the detention facility will be subject to administration.

In addition, for Detention Facilities constructed after August 5, 2015, the entity that owns, operates, or has oversight for the Detention Facility must, prior to the operation of the facility, provide notice of the proposed facility to the Substitute Water Supply Plan (SWSP) Notification List for the water division in which the facility is located. Notice must include: the location of proposed facility, the approximate surface area at design volume of the facility, and data that demonstrates that the facility has been designed to comply with section 37-92-602(8)(b) paragraphs (B) and (C). The State Engineer has not been given the statutory responsibility to review notices, however, DWR staff may choose to review notices in the course of their normal water administration duties. Not reviewing notices does not preclude the Division Engineer from

taking enforcement action in the event that the above criteria are not met in design and/or operation.

To satisfy the notification requirement, operators are encouraged to use the Colorado Stormwater Detention and Infiltration Facility Notification Portal developed by Urban Drainage and Flood Control District ("UDFCD"), located at: https://maperture.digitaldataservices.com/gvh/?viewer=cswdif.

Types of detention Facilities contemplated under this statute include underground detention vaults, permanent flood detention basins,[1] extended detention basins,[2] and full spectrum detention basins.[3] Storm Water Best Management Practices[4] (BMPs) not contemplated above, including all Construction BMPs and non-retention BMPs, do not require notice pursuant to SB-212 and are allowed at the discretion of the Division Engineer. Green roofs are allowable as long as they intercept only precipitation that falls within the perimeter of the vegetated area. Green roofs should not intercept or consume concentrated flow, and should not store water below the root zone. BMPs that rely on retention, such as retention ponds and constructed wetlands, will be subject to administration by the State Engineer.

Any detention facility that does not meet all of the statutory criteria described above, in design or operation, is subject to administration by the State Engineer.

[1] Flood detention basin: An engineered detention basin designed to capture and slowly release peak flow volumes to mitigate flooding (Urban Drainage and Flood Control, 2010).
[2] Extended detention basin: An engineered detention basin with an outlet structure designed to slowly release urban runoff over an extended time period (Urban Drainage and Flood Control, 2010).
[3] Full spectrum detention basin: An extended detention basin designed to mimic pre-development peak flows by capturing the Excess Urban Runoff Volume and release it over a 72 hour period (Urban Drainage and Flood Control, 2010).
[4] Best management practice: A technique, process, activity, or structure used to reduce pollutant discharges in stormwater (Urban Drainage and Flood Control, 2010).

Post-Wildland Fire Facilities

Pursuant to section 37-92-602(8), a post-wildland fire facility is a facility that:

- Includes a structure or series of structures that are not permanent.
- Is located on, in or adjacent to a nonperennial stream[5].
- Is designed and operated to detain the least amount of water necessary, for the shortest duration of time necessary, to achieve the public safety and welfare objectives for which it is designed.
- Is designed and operated solely to mitigate the impacts of wildland fire events that have previously occurred.

In addition, to qualify for the allowances provided in SB-212, the facility:

- Must be removed or rendered inoperable after the emergency conditions created by the fire no longer exist, such that the location is returned to its natural conditions with no detention of surface water or exposure of ground water.
- Must not use water detained in the facility for any other purpose nor release it for subsequent diversion by the person who owns, operates, or has oversight over the facility. The facility will not be operated as the basis for a water right, credit, or other water use right.

If the post-wildland fire facility meets the requirements listed above, it does not cause material injury to vested water rights. While DWR recognizes that post-wildland fire facilities are essential to the protection of public safety and welfare, property, and the environment, DWR may, from time to time, request that the person who owns, operates, or has oversight of the post-wildland fire facility supply information to DWR to demonstrate they meet the criteria set forth above.

If a post-wildland fire facility does not meet all the criteria set forth above, it will be subject to administration by the State Engineer.

[5] DWR may use the National Hydrography Dataset or other reasonable measure to determine the classification of a stream

Resources and References

Colorado Stormwater Detention and Infiltration Facility Notification Portal: https://maperture.digitaldataservices.com/gvh/?viewer=cswdif

Colorado Senate Bill15-212: http://www.leg.state.co.us/CLICS/CLICS2015A/csl.nsf/fsbillcont3/13B28CF09699E67087257DE8006690D8?Open&file=212_enr.pdf

United States Geological Survey National Hydrography Dataset: http://nhd.usgs.gov/

Urban Drainage and Flood Control District 37-92-602(8) explanation memo and FAQ's: http://udfcd.org/crs-37-93-6028-explanation-memo-and-faqs/

Urban Drainage and Flood Control District. (2010). *Urban Storm Drainage Criteria Manual: Volume 3, Best Management Practices*, updated November 2015. Located at: http://udfcd.org/volume-three