



King County

Department of Permitting and Environmental Review

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November 20, 2018

John Priebe
Raging River Quarry, LLC
3132 NE Harrison Street
Issaquah, WA 98029

**RE: Request for Information; KC File GRDE15-0004;
Raging River Quarry Permit Revision Application (Existing Operation)**

Dear John Priebe:

This letter is related to King County Department of Permitting and Environmental Review (DPER) review of the application materials that Raging River Quarry (RRQ) submitted for the required permit revision for King County mining permit GRDE15-0004. DPER sent a letter on June 8, 2018 requesting that additional information and revisions be provided by July 25, 2018.

In response to DPER's letter, RRQ requested a short extension to resubmit the revised Road Surface Management Plan, revised Dust Mitigation Plan, revised Noise Management Plan, revised Traffic Management Plan, information on the anticipated years of operation remaining with estimated volumes/tonnage to be hauled, and their proposal for clearing within the Preston-Fall City Road ROW to provide the required entering sight distance to DPER. DPER agreed to grant an extension to August 10, 2018 for those specific items. RRQ also requested that updates to the critical areas information, which will need to be reflected on the site plan, be handled in conjunction with the upcoming site plans updates and other resubmittals as outlined below in this letter, and that DPER schedule a follow-up meeting with RRQ to discuss the ecological review items in more detail. On July 20, 2018, RRQ requested via email an additional extension to allow the quarry at least two weeks after the time that samples of supplemental plans from other mine sites have been provided to the quarry to submit the revised supplemental plans. The requested sample is being conveyed as an attachment to this letter. Therefore, in response to the quarry's request for an extension and in consideration of the upcoming Thanksgiving holiday, the quarry will have until **December 10, 2018** (more than two weeks from the date of this letter) to provide DPER with copies of the revised supplemental plans (Traffic Management Plan, Road Surface Management Plan, Dust Mitigation Plan, and Noise Mitigation Plan) that were discussed in the June 8, 2018 letter.

While the attached sample supplemental plan is related to a topic that is not intended to be part of this permit's revision process (cultural resources and archaeological requirements), it still serves as a good example of a plan that discusses both general best practices and site-specific requirements that are

appropriate to that particular mine site, addresses some requirements that go beyond the minimum requirements in King County Code, and identifies both activities that will occur during all operations and specific circumstances that would prompt specific actions to be taken, which are described in the plan. All conditions and requirements related to that topic are incorporated into the supplemental plan, and the permit condition at that mine site related to that topic simply states, *“All operations shall comply with the ‘Cultural Resource Plan for Operation of the Cadman, Inc. North Bend Gravel Operation Near North Bend’ dated July 2002 and approved by King County on October 7, 2002. A copy of this plan is attached to these conditions. Any modifications to this plan must be reviewed and approved by King County prior to implementation.”* This is the type of approach DPER is hoping to accomplish with the supplemental plans at Raging River Quarry. Ideally, all relevant permit conditions, rezone conditions, and SEPA conditions related to the topic of a supplemental plan that are currently in effect at the site, as well as code requirements or other relevant regulations related to the topic of each supplemental plan, would be incorporated into the supplemental plan; then, the permit conditions can be revised to simply require that the quarry comply with the approved supplemental plan.

Based on continued review of the submitted permit revision application materials, including the geological information (letters dated August 14, 2018 and September 28, 2017), the Blasting Plan (received by DPER on December 14, 2017), the December 2017 Technical Information Report (TIR), and other elements of the mining plan (site plan and supplemental plans), King County DPER staff has additional comments, as noted below. As discussed above, feedback on several individual topical plans and reports was previously provided in a separate letter. The requests in this letter are in addition to those discussed in the June 8, 2018 letter.

A. Geological Review

A geologist from DPER has reviewed the GeoEngineers reports dated August 14, 2017 and September 28, 2017 regarding impacts from the improperly controlled blasting. In addition, the DPER geologist visited the site. Please see the following comments and request for supplemental information:

1. GeoEngineers’ August 2017 report assessment concluded that the blast occurred too close to the face of the slope and that loose fill soils at the crest of the slope posed risk of erosion and failure. The subsequent September 2017 report determined that Eastside Rock Products had substantially complied with their recommendations.
 - The blast event deposited soil, rock and vegetation debris on the slope and accumulated against trees below the 300 foot elevation. This area is classified as landslide and steep slope hazard area by the county and is to remain undisturbed. There is potential for adverse impacts to the long-term health of the trees impacted. An arborist should be retained to evaluate the existing condition of the trees in the vicinity, determine impacts from trunk damage and soil/debris surficial accumulation and make recommendations for remediation as necessary. GeoEngineers should prepare a supplemental report to address any issues raised by the arborist assessment.
 - GeoEngineers should also provide supplemental evaluation with respect to the sediment above the 300 foot elevation. Although material has been removed from the top of slope area as noted in their most recent report, the remaining thickness, steepness and loose condition of the material poses a continued risk of mass wasting and the potential for

deposition below the 300 foot level. Code requires that the risk of damage be eliminated or minimized. At the time of my site visit, the straw covering was insufficient to be effective and very little hydro-seeded vegetation had become established.

Please note that the consultant compared this event to one that occurred nearby in 2015 and concluded that vegetation would reestablish naturally. Given the much greater depth and volume of the current blast event, additional attention is necessary.

2. Improperly planned and controlled blasting has caused impacts to landslide and steep slope hazard areas. These areas were to remain undisturbed as a requirement of the permit. In addition, the county has received complaints that at least one offsite well has experienced turbidity associated with the blasting. Additional oversight of the blasting plan and individual blasts is necessary until it can be demonstrated that additional adverse impacts from blasting will not occur.
 - Future blast events should be reviewed and approved by GeoEngineers prior to blasting. As part of the review, GeoEngineers should confirm that the locations of the seismometers are appropriate to confirm no offsite impacts.
 - GeoEngineers should evaluate and address the turbidity complaint and make recommendations as necessary for adjusting the blasting on site, monitoring, or additional mitigation. We understand the potential limitations of the evaluation if the property owner will not allow access to the well or property.
3. The functioning of the infiltration ponds are in part dependent on the depth to the seasonal high groundwater elevation. The standard is seasonal high groundwater must be at least three feet below the pond base elevation when a mounding analysis has been provided. Per SWDM page 5-47, a mounding analysis is required for a site like this one unless the depth to the maximum wet season groundwater table or a restrictive layer has been shown to be greater than 15 feet and the other guidelines found in SWDM Section 5.2.1 are met (see especially the subsections for Soils, Measured Infiltration Rate, Design Infiltration Rate - Infiltration Facilities, and Groundwater Mounding Analysis). The geotechnical engineer should assess site subsurface conditions and determine that this standard is met. Typically, piezometers are installed to measure groundwater fluctuations. The geotechnical engineer should also comment on the pond location and function with respect to mapped landslide hazard drainage areas, landslide hazard areas, steep slope hazard areas, and erosion hazard areas.

The requirement to provide additional oversight of the blasting plan and individual blasts is effective immediately. No further blasting is approved without providing sufficient documentation to DPER of review and approval by the quarry's geotechnical consultant. **Please submit the information requested in item A.2 for review by DPER in advance of the next proposed blast.**

Please submit the information requested in item A.1 prior to **December 20, 2018.**

The geotechnical evaluation and recommendations necessary for analysis of the infiltration facilities (comment A.3) and related to the well turbidity complaint shall be submitted to DPER by **February 18, 2019**, along with any other required resubmittals due on that date.

For questions related to the geological review and requested geotechnical evaluations, please contact **Steve Bottheim** at 206-477-0372 or Steve.Bottheim@kingcounty.gov.

B. Blasting Plan

In addition to the comments above related to geotechnical review of the blasting plan, please address the following other comments in the revised Blasting Plan:

1. Please include a revision date on the Blasting Plan and number the pages to provide clarity.
2. Include a map that shows the proposed monitoring equipment locations for blasts. This map shall also be included with submittal of the blast reports to DPER for all future blasts, effective immediately.
3. **Part One** – Some of the required conditions related to the blasting plan (found in the P-suffix conditions and in King County Code) were omitted from “Part One: Regulations.” Permit conditions related to blasting, including a requirement to follow a proposed Blasting Plan, must be done in accordance with current State and Federal regulations, including OSMRE guidance (the most current best practices should be applied), but where appropriate, the permit conditions also need to be compatible with any code requirements or existing SEPA or permit conditions that are more stringent than those requirements, such as those contained in the 1984 Rezone conditions from File No. 134-74-R, as revised in February 1985. For example, the rezone conditions in File No. 134-74-R limit blasting to no more than twice a week and require that all blasting be "confined" blasts, which are requirements that are not mentioned in this proposed blasting plan.
4. Regarding item 1) c), DPER recommends that the quarry provide information in the blasting plan about the four acceptable methods of monitoring as taken from OSMRE guidance and noted in KCC 21A.22.070.B.1.c. If one of the four methods will always be used at the quarry, specify which method is currently used (and will continue to be used into the future). Providing information on how the applicable regulations are being implemented at this specific site will assist in making the requirements understandable to the affected residents and managing expectations from the surrounding community.
5. There are some elements related to the blasting notification that could potentially be further enhanced, if necessary. For example, the quarry may wish consider sending a one-time or an annual written notice to all residences within either the ½-mile radius or 1-mile radius of the quarry informing residents that they have the option to go to the quarry’s website and sign up to be on the Blasting Advisory List, describing the standard limitations that always apply to the blasting schedule (such as the required conditions regarding blasting only daylight hours, only between the hours of 3:00 pm and 4:30 pm on weekdays, and no more than two times per week), and informing residents that at least 24-hours notification of any changes to the schedule will be provided to all residents that request it through the Blasting Advisory List, except in the case of emergency.
6. Regarding item #4 on page 1 of the blasting plan, state that no explosive materials are to be stored on site. This permit revision doesn’t authorize such storage. Per the P-suffix conditions that apply under this permit, any future storage of explosive materials on site would require prior approval of the appropriate department within King County, and at this time, DPER does not anticipate granting such an approval. Any future approval of storage of explosive materials on the site, following review of such a request by King County, would require that

the blasting plan and permit conditions be revised anyway, so it is more appropriate for this current blasting plan to prohibit the storage of those materials on site. If the quarry wishes to include the previously used wording of the condition in the Blasting Plan for context, it should be accompanied by a qualifier that makes it clear that storage of explosive materials on the site is currently prohibited because DPER has not approved it.

7. Since the blasting plan submitted for DPER review discusses current MSHA requirements, add a statement indicating that an updated blasting plan shall be submitted to DPER if warranted by future changes in MSHA regulations.
8. Since the blasting plan submitted for DPER review references state and federal requirements related to blasting, add a statement indicating that the quarry is responsible for notifying DPER if conflicts arise between the contents and requirements of the Blasting Plan, King County Code, and any applicable state or federal regulations.
9. **Part Two: Planning** – Items a) and b) in this section discuss best practices and development of the design of the blast to minimize noise, dust, and vibration generated by the blast. What are the proposed best practices? Are there some best practices that are implemented as part of every blast design? Are there other best practices that are prompted by certain conditions present at the time of the blast (like weather) or at a particular type of blast location within the site?
10. **Part Two: Blasting Notification** – Item “a” states that ERP will provide [blasting] details and contact information on its website for any local residents that would like to be added to the RRQ Blasting Advisory List. Upon visiting www.eastsiderock.com, information about the RRQ Blasting Advisory List was a little difficult to locate within the webpage. The quarry may wish to consider making the information about the RRQ Blasting Advisory List easier to find within the main ERP webpage or providing a link near the top of the website that directs interested residents and community members to a separate page with more detailed information about the blasting (for example, the quarry could even provide a link to the approved ERP Blasting Plan once DPER has finished reviewing it).
11. It may also be beneficial to post the typical “schedule” on the website as well, such as the required conditions regarding blasting only daylight hours, only between the hours of 3:00 pm and 4:30 pm on weekdays, and no more than two times per week, or it may be beneficial to include standard details like that about the schedule within the text of the email notification that is sent out to residents that signed up to be on the Blasting Advisory List along with a reminder about the previously mentioned option that residents have to receive a second notification at least 15 minutes prior to the blast. While the 15-minute warning notification option is described clearly in the ERP Blasting Plan, the availability of that supplemental notification option doesn’t appear to be clearly described on either the quarry website or within the contents of the standard 3-day advance notification.
12. **Part Two: Blasting Notification** – Item “d” notes that “ERP will promptly follow up with any complaints.” Could the blasting plan specify a particular timeframe within which the quarry will follow up or “respond” to complaints? Will the individual submitting a complaint to the quarry be contacted directly? Will the quarry notify DPER when the quarry directly receives complaints about blasting? Does this commitment to follow up on complaints extend to complaints that DPER receives and passes on to the quarry? What will be the process for documenting these complaints?

13. **Part Two: *Blasting Notification*** – In the event of a change in scheduling, the quarry is required by KCC 21.A.22.070.B.3 to provide notice of changes in the time schedule at least twenty four hours before the changes take effect to any resident that requests it, except in case of emergency, rather than “as soon as practically possible” as is currently noted in item “f.” It may be beneficial to note this option on the website along with the information regarding the Blasting Advisory List.
14. **Part Two: *Blasting Notification*** – Item “g” notes that residents within a one-mile radius may also request to be notified again on the day of the blast. How are residents being informed of this option, do the 3-day notification emails advise residents that they can be re-notified? Would it be beneficial to make a note of this option on the website along with the other information regarding the Blasting Advisory List?
15. At the bottom of page 3 and top of page 4, consider the feasibility of reducing the airblast level even further, below the proposed 125 dB limit. Discuss how the airblast levels will be reduced beyond their current typical levels or the steps that will be taken to ensure they continue to remain at levels lower than the agreed upon thresholds. Is the only procedure that will be used to minimize airblast “using high quality crushed rock for stemming?”
16. On page 4, under the “Dust Control” subheading, please note that PSCAA requirements apply along with the paraphrased requirements from King County code. KCC 21A.22.070.C.3 uses the phrase “significantly increase” rather than “meaningfully increasing” as was used in this plan. PSCAA requirements dictate that reasonable precautions be taken, which would include but are not limited to implementation of the dust control plan, and if reasonable precautions are not being taken, then the permissible increase in fugitive dust emissions is zero, regardless of whether the dust remains on the mine site or carries over to the neighboring property. As noted in the PSCAA review comments that were attached to the June 8, 2018 letter, the quarry may wish to review the CDC document *RI 9689* or contact PSCAA if the quarry has additional questions regarding dust control during blasting or the PSCAA requirements.
17. Discuss when wind and dust control circumstances would warrant stopping, cancelling, or postponing blast in the Dust Control or Blasting Procedures sections. Are there particular wind speed thresholds or wind directions that would prompt postponement of a blast?
18. Per PSCAA feedback, consider the possibility of working with the blasting contractor to modify the current blasting procedures to accommodate the addition of water cartridges for additional dust control. If necessary, incorporate this into the Dust Control or Blasting Procedures sections.
19. The section of the blasting plan titled “Steep Slope Stability Control,” on page 4, shall be reviewed by the applicant’s geotechnical professional and licensed blasting contractor, with attention given especially to the proposed setback distances and the proposal base blast designs in particular areas on a specified maximum blast volume. On page 4, item f, under the “Blasting Procedures” subheading, define the quantity and locations of seismographs.
20. The ERP Blasting Plan should also be reviewed or prepared under the guidance of a licensed blasting contractor. Provide a letter or other written report documenting that a licensed blasting contractor has reviewed the contents of the ERP Blasting Plan and found them compatible with OSMRE guidance and other applicable standards, regulations, or requirements that would fall under the purview of a licensed blasting contractor. This review

of the proposed blasting plan is in addition to the geotechnical review requirements discussed in Section A of this comment letter.

21. In addition to the proposed blasting plan submitted to DPER for review, please also provide background information regarding the observed airblast levels from blasts that have occurred in the time period since mining resumed around 2014. These should have been measured by a two Hz or lower flat response system; indicate the type of monitoring system used to evaluate airblast levels during blasts. Provide a corresponding discussion on the feasibility of providing a reduction in the maximum permissible airblast level to 125 db, which is consistent with what is indicated in the proposed blasting plan, in contrast to the typical 133 db limit on airblast levels from the OSMRE 1987 Blasting Guidance Manual and KCC 21A.22.070.B.1.a, and discussion on the feasibility and potential benefits of reducing the maximum permissible airblast to a level even lower than 125 db.

The geotechnical review/approval of the future blast events discussed in comment A.2 shall be provided prior to the next proposed blast. An updated Blasting Plan, reviewed by the quarry's geotechnical consultant and with the comments/revisions noted in items B.1 through B.21 above incorporated, shall be submitted to DPER along with other requested information in this letter, prior to **January 19, 2019**.

C. Site Plan (revisions dated December 14, 2017)

The following requested updates and revisions to the site plan are based on the reviews that have been completed thus far, and additional feedback may be provided as reviews continue. Please address the following comments in the resubmittal of the site plan:

1. "Phase 2" should not be shown on the site plan because mining of this area is not reflected in the drainage analysis and other plans/studies. Phase 2 cannot be approved under this grading permit unless the TIR and other required studies and plans include an evaluation of this area sufficient to demonstrate whether the areas depicted as Phase 2 would meet current design and operating standards and/or previously established permit conditions, P-suffix conditions, and SEPA conditions. To avoid confusion, remove the depiction of "Phase 2" from all plan sheets and figures. Site plans shall meet the requirements in SWDM Section 2.3.1.2, including General Plan Format item 4, which requires an overall site plan sheet delineating both the site and the project site.
2. The way that the proposed contours tie in to the existing contours for "Phase 1" is not clearly addressed in the site plan and sections. For example, how will the final bench meet existing topography for elevations above 510? For the Phase 1 scenario, where do the grades between 430 and 510 tie in to existing contours? Include plan details drawn at a more detailed scale as necessary to illustrate areas near the proposed mining limits. The mining plan should depict limits for mining that are realistic about the space needed to tie in to existing topography and to provide the proposed access road without working beyond the limits of the current permit (respecting the required setbacks). The site plan shows a proposed access road in an area where the proposed slopes for Phase 1 exceed 400%. If this is proposed, the contour spacing may need to be adjusted to reflect the wider bench necessary for the access road, and the

alignment of the access road may need to be adjusted to reflect consistency with the proposed alignment for excavations and benches in Phase 1.

3. *Sheet C1.02:* In the northeast corner of parcel 224079011, a 75 foot setback must be maintained from the corner of the adjacent RA-10 property. Clearly indicate on the plans that, under the current grading permit, there should be a 10 foot setback provided between parcel 224079011 and parcel 224079033. This setback must be maintained until such time as a grading permit is approved for expansion on to parcel 224079033. For the plans to be approved for the GRDE15-0004 revision, do not show the setbacks along the eastern and southern property lines of parcel 224079033. This permit is not intended to establish the setbacks in those locations, which would be handled under a future grading permit. The p-suffix conditions that apply in this location as a result of the rezones override “Note 1” shown on this sheet, which describes only the current requirements for setbacks under KCC 21A.22.060.F.
4. *Sheet C1.02:* The detail for the ROW encroachment should also show the presence of the caretaker’s trailer and the parking/stockpile area to the southwest of the existing scale (or these should be removed and the area appropriately restored). If there is not a path forward to approve these uses and incorporate them into the required Special Use Permit (SUP) from Real Estate Services (RES) for non-transportation use of county ROW due to their location in the M-zone, ROW, and closer to the Raging River than the 300 foot contour line, then, these should be removed from the site plan and the appropriate restoration, replanting, and stabilization noted on the site plan. Previous King County decisions related to this mine provided exceptions to the condition about use of the area below the 300 foot contour line only for certain required elements of the site, such as the required access, maintenance to the access road, required drainage features, and a required noise mitigation device. For example, the conditions from the 1984 rezone (file 134-74-R) specifically note an exception allowing vegetation removal closer to the river than the 300 foot contour (or within 200 feet of the river, whichever is greater) only for the “necessary drainage ditches.” This is one of the post-effective rezone conditions that paralleled the permit conditions from the early grading permit file # 1592-73, which was established prior to approval of the rezone. On the copies of the grading permit 1592-73 annual renewal following the Ordinances 5075 and 5112 (approvals establishing pre-effective and post-effective rezone conditions) and Ordinance 6653 (the effective date of the rezone, permit revision date of 2/4/85), an additional edit is included to clarify that the exception would also apply to the approved berm along the Carmichael Road (edit is separately dated 2-4-81). The current uses in this area go beyond those that were approved with the original grading permit or allowed by the rezone conditions; therefore, parking, stockpiles, equipment storage, and the caretaker’s residence, which may be mining-related uses/activities, would need to be removed or relocated to another part of the site to comply with this permit condition. Additional clearing in this area occurred within recent years.
5. The area shown to the northwest of the mine for a potential future sound barrier and/or noise mitigation device should be removed from the plan sheets unless it is to be approved under this permit revision. Proposed work within the “triangular portion” of parcel 224079011 is outside the potential scope of the current permit. Future mining-related work within the portions of parcel 224079011 that have already been designated “reclaimed” by WA State Department of Natural Resources may be outside the scope of the current permit.

6. *Sheet C3.3*: Revise the “Wetland Outlet Detail” so that it includes the previously requested information regarding the detailed elevations and cross sections. This detail should be shown at a larger scale. It should include existing contours and additional existing spot elevations should be included. There should be a cross section and drainage profile that shows elevations in the “outlet” in relation to current elevations in the disturbed/cleared mine permit area and, if the mine phase(s) to be approved under this permit extend into this area, in relation to the proposed mining and reclamation elevations.
7. The plan sheets must include cross sections and profiles for the drainage system. See page 2-24 to 2-27 in 2016 SWDM Section 2.3.1.2 for a list of drainage plan elements that should be included in the plan set.
8. The TESC elements shown on Sheets C2.01 and C3.02 are not sufficient to address SWDM requirements for the area between the scale and Preston-Fall City Road. Straw wattles are not a satisfactory way of handling water quality requirements for the bridge area. The details for this area should also account for the presence of the noise berm alongside the access roadway. The quarry is a type of development site, not just a construction site, so the proposed solution for drainage in this area needs to address all the applicable SWDM Core and Special Requirements, not just the TESC requirements.
9. The list of conditions on Sheet 6 (C3.31) is neither a full list of the current permit conditions nor a full list of the conditions that will be in effect following approval of this permit revision. Some of these conditions will be superseded by requirements to comply with the specialized plans prepared as a requirements of the periodic review. The requirements of the periodic review that required follow-up action are also current permit conditions, which may be revised or eliminated once this permit revision is finalized and goes into effect.
10. Show the updated critical areas information on the site plan. Update the wetland flag locations, revise the wetland buffer widths (larger widths as discussed as part of ecological review), and remove the buffer averaging proposal from the GRDE15-0004 site plan. The site plan may show that the proposed mining limits under GRDE15-0004 overlap with the wetland buffers, but this is true only for the L-shaped portion of 224079011 that is within the limits of the original mine permit. Any required mitigation for these impacts will need to be incorporated into the restoration required as part of the reclamation phase for the site.
11. Prepare and submit a ROW Use proposal to DPER for the vegetation clearing required to obtain the minimum ESD noted in the KC DOT staff review comments when looking to the north (left) for an approaching southbound vehicle. This ROW Use proposal for clearing will be reviewed by DPER and/or KC DOT for approval as part of the current permit revision application.
12. For purposes of clarity, throughout the plan set, change references to the access road so they read “SE Carmichael Road.” According to the references that DPER uses for 911 addressing requests, “SE Carmichael Road” is the official name of the access road. Labels that say “William Carmichael Road” or “A.R. Carmichael Road” or use other names for this road are outdated and should be updated where practical (with the exception of references within legal descriptions or direct quotes from historical documents).
13. Note that portions of the required setbacks adjacent to the residential zoned properties need to be maintained to a level equivalent to Type 1 landscape screening, as described in KCC 21A.16.040.A with native plantings only. The required width of the Type 1 landscape screen is 20 feet. A 20 foot width with existing vegetation or with supplemental plantings (when/if

needed) meeting the minimum requirements for planting mix, planting rate and planting ratios described in KCC 21A.16.040.A.1 would be required within all of the required 75 foot and 150 foot buffers except in certain areas where the existing mine operation had historically been within those buffers, such as along the north property boundary where the DNR abatement actions occurred and where an interior mine access road has existed within the setback since early in the mine's operation (i.e. prior to 2000, likely when it was established that the mine was an existing non-conforming use).

Please submit a revised site plan to DPER by **February 18, 2019**, along with the other required resubmittals described in this letter. If you require clarification regarding the necessary site plan revisions, please contact or **Amanda L. Reeck** at **206-263-5783** or **areeck@kingcounty.gov**.

D. Ecological Review

Following requests from the quarry to provide additional clarification regarding the ecological review comments that were included in DPER's June 8, 2018 letter, as well as receipt of an Addendum Technical Response for Wetland A Rating prepared by Gary Schulz, DPER environmental scientist Laura Casey completed additional critical areas review of the application materials. At this time, DPER is clarifying that the following comments related to the site plan are still accurate, along with the other ecological review comments provided in the June 8, 2018 letter:

1. Revise the site plan to show a 150-foot buffer around Wetland A, consistent with King County's current critical areas code (see attached memo dated 9/19/2018).
2. The "Phase 1" mining limits that the quarry proposes for approval under this permit may extend into or "overlap" with the 150-foot buffer on the site plan as long as any identifiable environmental impacts resulting from that use of the buffer can be mitigated during the future reclamation.
3. The buffer averaging proposal is not necessary for the work that can be permitted under the revision to the current permit for the ongoing quarry operation. Some version of this may potentially become relevant as part of the expansion permit, but the proposal to incorporate work on the triangular portion of parcel -9011 (for example, to install a sound barrier or other noise mitigation device) cannot be permitted under this permit revision.

The rationale behind these requirements is outlined in the attached memo, "Response to Schulz Addendum." Please contact **Laura Casey** at **206-477-0368** or **Laura.Casey@kingcounty.gov** if you have questions regarding the ecological critical areas review or shoreline requirements.

Please submit a revised site plan and the other previously requested ecological review information to DPER by **February 18, 2019**, along with the other required resubmittals that are described in this letter.

If, at this point in time, the quarry and their consultants would still like to schedule a meeting to discuss or obtain additional feedback related to the ecological review comments in the June 8, 2018 letter, please contact either **Laura Casey** at **206-477-0368** or **Laura.Casey@kingcounty.gov** or **Amanda L. Reeck** at **206-263-5783** or **areeck@kingcounty.gov** to schedule a meeting with the appropriate staff.

E. TIR Section 1, Project Overview (TIR page 1)

The requested updates and revisions to the TIR and engineering plans, described in the following sections, are based on the reviews that have been completed thus far, and additional feedback may be provided as reviews continue. Please address the comments provided below, in Section E through Section O of this letter, as part of the resubmittal of the TIR and site plans due **February 18, 2019**:

1. Provide the required TIR worksheet (SWDM Reference Section 8-A) and the other three required figures containing all the required information as described on SWDM page 2-9. While the provided figures and drawings in the December 14, 2017 TIR contained some of the information described on page 2-9, they did not show all the required information.
2. The site is not 50.23 acres for the purposes of this permit revision and the TIR/drainage plans currently under review. Parcel 2224079033 isn't included in this permit revision. The required Site Location and Drainage Basin/Site Characteristics figures for TIR Section 1 should reflect an accurate definition of the *site* and *project site*. Please also be advised that, while both parcels 2224079011 and 2224079035 are part of the site, only a portion of -9011 can be permitted for mining-related activities under this revision, and parcel -9035 can only be used for future potential stormwater facilities, which have not yet been reviewed and approved. Please review the SWDM definitions of "site" and "project site," and update the references to those terms accordingly.
3. At this time, the proposed expansion permit is not at a point far enough in its review in which there is sufficient certainty to review the drainage plan associated with the expansion. There is some flexibility in setting up the TIR and drainage plan in such a way that they can be more easily updated once additional information is available regarding the separate proposed expansion, as long as it is done within the established framework of the 2016 SWDM requirements. However, only plans related to the existing operation under permit GRDE15-0004 can be reviewed for approval as part of this permit revision, and, for the purposes of clarity, future work or facilities to be completed under the expansion permit should only be discussed conceptually in the TIR when relevant, as they cannot be approved under this permit. All portions of work shown on plans or in the TIR that are not being considered for approval under this permit revision should be clearly labeled as such (for example, "Phase 2" and parcel -9033), and if illustration of future phases is necessary, it should preferably be limited to separate plan sheets whenever possible.
4. There are some other inaccuracies in the project overview:
 - a) The statement about soils present on the site doesn't acknowledge that the surface soils mapped in the NRCS soils map may not reflect current or future conditions because some of the soils present at the time of NRCS mapping have been excavated and/or stripped away due to the mineral extraction use.
 - b) In addition to water quality needs, the analysis in the TIR is also intended to address flow control and other core and special requirements under current SWDM standards. The analysis currently presented in the TIR doesn't address how the site meets water quality requirements under the 2016 SWDM because it only includes sizing for the required pre-settling needed when using infiltration to meet flow control requirements. The study in this TIR is not intended to "project" the water quality needs for the future operations (as was stated in the third paragraph on **page 1**). The analysis being reviewed through this TIR is only intended to address ongoing operations within the limits of the current permit, and it will not address water quality for the future expansion area, which will be handled under a separate permit.

- c) This permit requires full drainage review because the overall mine site covered by this permit results in over 7,000 sf of land disturbing activity and also because it results in over 2,000 square feet of new/replaced impervious surfaces. In addition to the project characteristics that trigger full drainage review, the project may also require construction or modification of a drainage pipe/ditch 12 inches or more in size/depth, any proposed modification on or near the bridge may be within a flood hazard area, and this project includes improvements at a high-use site.
 - d) The water quality facility sizing calculations currently presented are not based on methods described in Chapter 6 of the 2016 KC SWDM.
5. The vicinity map on **page 2** shouldn't include the expansion area because review of this TIR won't provide approvals for the expansion parcel.
 6. The key purpose of this specific project's TIR is to demonstrate whether or not the site is meeting all the current requirements from the 2016 SWDM that would apply if the site were being permitted today. The reason that the drainage review requirements are different for this site than for other types of sites (where areas served by previously approved facilities may not necessarily need show that they meet current standards) is that the periodic review process has been established for mine sites as a means for ensuring that current site design and operating standards are applied to the site when necessary to mitigate identifiable environmental impacts. In some cases, if there is no identifiable impact, the site may not be required to fully comply with all current standards. However, the report should still provide a comprehensive analysis of the site/project in relation to current SWDM requirements, and it should be clear about identifying which aspects of the site meet current standards/requirements and which do not.

F. TIR Section 2, Conditions and Requirements Summary (TIR pages 3 and 4)

The following comments are related to the statements contained in TIR Section 2 (pages 3 and 4 of the 12/14/2017 TIR). Some of these comments will be best addressed simply as edits to the summary of conditions and requirements provided in TIR Section 2, while others will need to be addressed as revisions to the specific portions of the TIR that deal with the relevant core or special requirements.

Summary

1. The 2002 Hart Crowser report didn't demonstrate compliance for the current site (as it exists today) or the proposed operational site plan as shown on Sheet C3.01. The Hart Crowser report was prepared when the 1998 Surface Water Design Manual was in effect, and it was intended to address specific issues at an inactive site prior to the increase in activity and additional mining that has occurred between 2014 and the present. The focus of the Hart Crowser report was sizing of a conveyance system to connect what was, at the time, the "former" rock crushing area to the infiltration ponds. Since mining has resumed at the site in recent years, that conveyance system has been modified and mostly eliminated and a portion of the ditch section constructed under that permit has been replaced with a culvert, which has not yet been analyzed for compliance with Core Requirement # 4. The corrective work required, at the time of the Hart Crowser report, seems to have included a repair to one of the four ponds, but the ponds were not resized or analyzed for capacity. The pond dimensions and volumes described in the Hart Crowser report are also inconsistent with those discussed in the current draft TIR. Please remove or correct these statements in the December 2017 draft TIR about the Hart Crowser report.

2. See the statement in the Section 1 comments regarding the aspects of this site/project that trigger full drainage review.

Core Requirement #1

3. What does the statement “subsurface infiltration will quantify all stormwater with any possible overflows directed to the northeast” mean?
4. Clearly state that discharge requirements 1, 2, and 3 all apply at this site.

Core Requirement #2

5. Why, out of the various problem types noted in your Level 1 offsite analysis, was specifically the “Conveyance System Nuisance Problem Type 1” identified as requiring a Level 2 offsite analysis? Please see the additional comments provided for Section 3.

Core Requirement #3

6. Clearly state that under the 2016 SWDM the project would be required to provide onsite flow control **facilities** to mitigate the impacts of storm and surface water runoff generated by any new impervious surfaces, new pervious surfaces, and replaced impervious surfaces that are identified as target surfaces under the conservation flow control area-specific requirements.
7. State whether or not the Level 1 or Level 2 offsite analysis resulted in any modifications to the flow control requirements.
8. State whether or not there will be bypass of runoff from non-target surfaces and whether or not this is required per SWDM Section 1.2.3.2.F. The facility requirement for geotechnical analysis in a landslide hazard drainage area applies at this site (Section 1.2.3.2.I). State whether or not any of the other implementation requirements from Section 1.2.3.2 apply, or provide a reference to the appropriate section of the TIR where these requirements will be addressed.

Core Requirement #4

9. The report does not provide sufficient information to determine whether the existing and/or proposed conveyances provide capacity for the 25-year, 15-minute storm event as stated in subsection 2.1.4 of this draft TIR.
10. In addition to the capacity requirements, there are additional requirements related to conveyances that apply at this site, such as the provisions related to the landslide hazard drainage area and the requirements to provide spill control for pollution-generating surfaces and lining for groundwater protection.
11. Also, the conveyance calculations provided in Section 5 didn’t address the specific conveyance systems currently in use at the site or that are proposed for future use under this permit.
12. The bridge is considered a conveyance (for the river), which should be mentioned in the TIR Section 5, but also, sizing of conveyances related collection of runoff from the bridge surface may need to be analyzed.

Core Requirement #5

13. It may be helpful to provide a statement summarizing and clarifying which aspects of the CSWPP plan, such as certain erosion and sediment control BMPs, have already been installed at the site and only require ongoing adaptive management; which aspects of the CSWPP requirements will require additional implementation as the mining phases(s) under this permit progress; which elements of the proposed to meet CSWPP requirements are new (based either on the PRRD requirements or on new work required as part of this permit

revision); and which erosion and sediment control strategies and BMPs at the site are related to CSWPP requirements, but need to be addressed through other more comprehensive SWDM requirements due to the nature of this project as a mine site (long-term development) rather than a traditional construction site.

Core Requirement #6

14. A drainage facility declaration of covenant and grant of easement must be recorded prior to engineering plan approval. DPER will provide further guidance to RRQ on the steps required to fulfill this requirement when the plan set and TIR for the permit revision is nearly ready for permit approval.
15. For sites with drainage facilities to be privately maintained, the operations and maintenance manual should contain a brief description of each facility or BMP, what each facility or BMP does, and how it works. **In addition**, the manual shall include a copy of the Maintenance Requirements for Flow Control, Conveyance, and WQ Facilities (see Appendix A) **and provide an outline of maintenance tasks and the recommended frequency each task should be performed**. The site- and project-specific manual should specifically address maintenance considerations listed in the design criteria or requirements for each type of facility or BMP used on the site. Providing a copy of Appendix A is just the starting point for the operations and maintenance manual and **does not fully satisfy Core Requirement #6**.
16. The revised permit will also be conditioned to require that a copy of the Operation and Maintenance Manual approved with the permit revision shall be retained on site and shall be transferred with the property to any new owner. A log of maintenance activity indicating when cleaning occurred and where waste was disposed of shall also be kept by the owner and be available for inspection by the County.

Core Requirement #7

17. The assertion that this is a private operation with no proposed public improvements is not relevant to whether or not Core Requirement #7 applies. There are two types of financial guarantees for projects constructing or modifying drainage facilities. If this permit revision requires the quarry to construct drainage facilities, as defined by the 2016 SWDM, the Drainage Facilities Restoration and Site Stabilization Financial Guarantee requirement will apply and a bond quantities worksheet will need to be completed. The SWDM states that the Drainage Facilities Restoration and Site Stabilization Financial Guarantee may be combined with other required guarantees as allowed in Ordinance 12020, so the financial guarantee requirements under Core Requirement #7 will be evaluated in conjunction with other updates to other required financial guarantee amounts as discussed in the September 2017 periodic review. The second type of financial guarantee discussed under Core Requirement #7 —the Drainage Defect and Maintenance Financial Guarantee— only applies when a project includes drainage facilities to be maintained and operated by King County.

Core Requirement #8

18. Core Requirement #8 applies to this project. The December 2017 TIR wasn't adequate to demonstrate that this site is meeting the water quality requirement. There are two identified sphagnum bog wetlands in the Raging River basin, but the site is outside the drainage areas of the bogs. Therefore, the site is in the basic water quality treatment area; however, as a commercial/industrial project where >50% of the runoff draining to the WQ facility is from a commercial/industrial land use, per SWDM Section 1.2.8.1.A, the Enhanced Basic WQ menu

- shall be used in place of the Basic WQ menu for the design of the WQ facility to treat runoff from the target surfaces (see SWDM pages 1-71 and 1-72).
19. Since the site is within one-quarter-mile of a fresh water designated for aquatic life use or that has an existing aquatic life use, the Enhanced Basic WQ menu required for this site's land uses may only be reduced to the Basic WQ Menu for runoff that is infiltrated per the standards of Section 5.2 into soils that meet the groundwater protection standards described in Section 5.2.1. This TIR has not documented that the soils beneath the infiltration facilities meet the groundwater protection standards in a way that would change the required treatment menu. If the applicant believes this project qualifies to an exemption or exception related to some aspect of the WQ requirements, then, the applicant needs to show in the TIR why/how the exemption or exception applies.
 20. The "pre-settling cells" analyzed in the TIR are not currently sized as a wetpond, so they are not water quality facilities meeting SWDM requirements. Even if these pre-settling ponds A through C were to provide the minimum pre-settling volume required prior to an infiltration facility, providing infiltration alone does not satisfy even the Basic Treatment Menu, and based on the information provided thus far, the Enhanced Basic WQ menu needs to be used when analyzing whether this site's current facilities are meeting the current SWDM requirements.
 21. The project needs to either demonstrate that it is providing the required water quality treatment or describe how it qualifies for an exemption or exception. If the quarry cannot meet the requirements in the ways set forth in the SWDM, DPER may require that the quarry establish a Groundwater Monitoring Plan/Program at the site. If necessary, this supplemental plan would require review and approval by DPER before this permit revision could be approved, and its implementation would be a condition of the revised permit. Please describe the type and frequency of monitoring that occurs at the required monitoring locations for the NPDES permit; a proposal for a Groundwater Monitoring Plan/Program related to addressing King County's Core Requirement #8 for the site may need to include more locations and types of monitoring than are currently required by the site's NPDES permit.
 22. State whether or not the Level 1 or Level 2 offsite analysis results in any modifications to the water quality requirements.

Core Requirement #9

23. The proposed project is on a site that is 5 acres or larger and is located outside the Urban Growth Area (UGA); therefore, the site is considered a Large Rural Lot, which means that the requirements in SWDM Section 1.2.9.2.3 apply (rather than Section 1.2.9.2.2, as was stated in Section 2.1.9 of the submitted TIR). The Large Rural Lot BMP Requirements state that the project must demonstrate compliance with the LID Performance Standard (described in Section 1.2.9.1.B, page 1-83) using an approved continuous runoff model.
24. The hydrologic modelling calculations would need to be updated to truly demonstrate that the project is fully infiltrating developed condition flows (or infiltrating up to the 100-year storm event as was stated in Section 2.1.9 of the submitted TIR). The drainage basin delineations and model inputs do not yet fully meet SWDM requirements, and the design infiltration rates used for the calculations were not established using methods that meet SWDM requirements. Therefore, the project has not yet demonstrated how it satisfies the requirements in SWDM Section 1.2.9. The modelling for LID Performance Standard is currently insufficient, and the project hasn't qualified for the exemption from the flow control BMPs requirements, described on page 1-83, for impervious surfaces served by an infiltration facility. Correct or remove the statements in TIR subsection 2.1.8 on page 4 of the TIR).

25. Not all portions of the site are draining to the infiltration facilities, so the analysis for Core Requirement #9 would need to consider whether LID Performance Standard and/or FCBMPs are required for the portions of the site that do not infiltrate. Only impervious surfaces served by infiltration facilities designed in accordance with the flow control facility requirement (Section 1.2.3.1), the facility implementation requirements (Section 1.2.3.2), and the design criteria for infiltration facilities (Section 5.2) would be exempt from the flow control BMPs requirement. When using an approved continuous runoff model to demonstrate compliance with the LID Performance Standard (matching developed discharge durations to pre-developed durations for the range of pre-developed discharge rates from 8% of the 2-year peak flow to 50% of the 2-year peak flow, assuming historic site conditions as the predeveloped condition), the model would need to include areas of the site that do not currently flow to the existing infiltration facilities (see SWDM page 3-6 for additional details on modeling for the LID Performance Standard).

Special Requirement #1

26. No comment.

Special Requirement #2

27. This project is adjacent to a flood hazard area for the Raging River, so the boundaries of the 100-year floodplain, applicable floodway, and channel migration hazard areas must be delineated on the site improvement plans and profiles prepared for this project site.

Special Requirement #3

28. Agreed; this special requirement is not applicable for this project. The project doesn't rely on an existing flood protection facility or modify/construct a new flood protection facility. There are no existing flood protection facilities associated with the project site's river frontage.

Special Requirement #4

29. The assertion that the project will not connect to any public storm systems is not relevant to whether or not source control requirements apply. This project still must provide source control. To meet the source control requirements in the SWDM, any necessary structural source control BMPs must be shown on the site plan and reviewed as part of the engineering/drainage review for this permit revision. At minimum, the site must implement the BMPs required through its general NPDES permit from the Washington State Department of Ecology, and the quarry will be required to provide DPER with a copy of the stormwater pollution prevention plan and BMP plan required under the NPDES permit. All applicable structural source control measures from the NPDES permit shall be shown on the site improvement plans submitted to DPER for engineering review and approval. If King County determines that the NPDES permit's BMPs are ineffective at reducing the discharge of contaminants or not being implemented, then, the site will also need to implement BMPs prescribed in King County's Stormwater Pollution Prevention Manual. See SWDM Section 1.3.4 for more information.

Special Requirement #5

30. This site experiences routine use by more than 25 diesel vehicles, which means according to the SWDM this is a high-use site. Therefore, the project site likely requires oil control, at least in some locations. Please address this requirement.

G. TIR Section 3, Offsite Analysis

1. Revise the offsite analysis to address the following:
 - a. Ensure the Level 1 Offsite Analysis meets the requirements of the SWDM and contains all the required information. Use the guidance contained on SWDM pages 2-10 through 2-14 in addition to SWDM Section 1.2.2 (pages 1-27 through 1-37). The offsite analysis should clearly summarize the results of Level 1 Tasks 1 through 4, identify potential problems, and if a problem was identified clearly state whether or not, based on the knowledge of the engineer preparing the TIR, the project/site has the potential to aggravate the problem and state why.
 - b. Why, out of the various problem types noted in your Level 1 offsite analysis, was specifically the “Conveyance System Nuisance Problem Type 1” identified as requiring a Level 2 offsite analysis?
 - i. The Level 2 offsite analysis may be unnecessary for this problem type.
 - ii. DPER determines whether the Level 2 or Level 3 analysis is required based on the results of a complete Level 1 analysis. If, based on the judgement of the engineer preparing the report for the quarry, it is clear that additional analysis is needed, the Level 2 or 3 analysis can be proactively provided in the next draft of the TIR, but in that case, the analysis should be consistent with SWDM guidance and requirements for the Level 2 or higher analysis.
 - iii. If the applicant’s engineer states that a Level 2 analysis was completed, there should be some “rough quantitative data” related to the identified potential problem type, which has not been provided in the December 2017 draft.
2. The analysis should clearly state whether the problem(s) identified for Level 2 offsite analysis are considered significantly aggravated, based on the additional “rough quantitative” information provided through the Level 2 analysis. For example, for conveyance system nuisance problems, the criteria related to this determination are described on page 1-33 and in Table 1.2.3.A (on page 1-40).
3. Task 1 of the offsite analysis should include a map showing the study area, site boundaries, property lines, topographic information, downstream flowpath for a distance of one mile and any potential/existing problems identified.
 - a. The study area for Task 2 extends at least one mile downstream, which should be shown on the map.
 - b. The study area on the map shall also extend upstream of the project site a distance sufficient to preclude any backwater effects from the proposed project. If there are characteristics that limit the extent of the contributing upstream area or the upstream area that could potentially be influenced by backwater effects, those should be made clear on the offsite analysis map or in the text of the Level 1 Downstream Analysis Report.
4. For Task 2 of the offsite analysis, potential/existing problems identified using the resource documents shall be documented in the Drainage System Table (see Reference Section 8-B) as well as described in the text of the Level 1 Downstream Analysis Report. Simply providing compiled copies of some of the documents reviewed is not sufficient. Additionally:
 - a. Page 5 of the TIR notes that WQ impairments have been identified in the Raging River sub-basin, but the remainder of the offsite analysis narrative does not clearly provide the required information about these potential problems listed on page 2-13. Page 2-12 of the SWDM states that potential/existing problems identified in the documents examined under Task 2 shall be documented in the Drainage System

- Table (see Reference Section 8-B) as well as described in the text of the Level 1 Downstream Analysis Report.
- b. There are more known environmentally sensitive areas than are shown on the “sensitive areas map” included in Appendix B. For example, whether or not the project has any potential impacts on the wetlands identified in the wetland memos would need to be discussed or documented in the Level 1 Offsite Analysis to determine whether or not additional analysis is warranted.
 - c. The statement on page 6 of the submitted TIR, which says, “There are no current documented downstream problems associated with the project site,” contradicts other statements that were provided in the offsite analysis.
5. For Task 3 of the offsite analysis, there may be more than one discharge location examined if not all of the project site currently flows (or historically flowed) to the location of the quarry’s infiltration facilities.
 6. Each drainage system component and problem shall be addressed in the offsite analysis report in three places: on a map (Task 1), in the narrative (Task 4), and in the Offsite Analysis Drainage System Table (see Reference Section 8-B). The drainage system descriptions and problem descriptions included in the narrative of the Level 1 Downstream Analysis Report should include the information indicated on SWDM pages 2-12 and 2-13.
 7. In Task 5, for any existing or potential offsite drainage problem determined to be one of the three defined problem types in Section 1.2.2.1, the design engineer must demonstrate that the proposed project neither aggravates (if existing) nor creates the problem as specified in the drainage problem-specific mitigation requirements set forth in Section 1.2.2.2. For any existing or potential water quality problem determined to be one of the seven defined water quality problem types in Section 1.2.2.1, the design engineer must document how the applicable water quality problem-specific mitigation requirement in Section 1.2.2.3 will be met. The provided TIR narrative regarding Task 5 only seems to discuss the possibility that certain problems may have been identified through the resource review and the narrative does not document whether or not any necessary mitigation requirements have been met.

H. TIR Section 4

1. Reorganizing this section to match the required standardized format, as described on 2016 SWDM pages 2-14 and 2-15, will facilitate quicker more efficient review of the revised TIR.
2. Number/caption all the tables included in the TIR to make it more convenient for DPER to provide any necessary review comments or feedback on the updated submittal.
3. **Page 16 – Performance standards:** Provide a brief discussion regarding which specific requirements apply from Section 1.2.3.1, which modifications/exemptions/exceptions that apply to the site or to specific targeted surfaces to address onsite or offsite drainage conditions, which additional flow control facility implementation requirements from Section 1.2.3.2 apply at this site, which conveyance system capacity standards apply at the site, which water quality menu(s) apply at the site, and which flow control BMP standards apply at this site (i.e. the LID Performance Standard). The requirements for the Performance Standards subsection of the TIR (TIR Section 4, Part C) are described on page 2-15.
4. **Page 16 – Flow Control:** The draft TIR states that infiltration ponds are proposed for all target surfaces, which is inaccurate. There are target surfaces on the site that aren’t served by the current infiltration facilities. For example, the drainage plan presented in the December 2017 TIR does not demonstrate that portions of the site, including the bridge crossing the

- river and the access road from the scale house to Preston-Fall City Road, which the 2017 PRRD requires be addressed in this permit revision, are served by the current infiltration facilities.
5. **Page 16 – *Water Quality*:** Presettling is part of flow control requirements and, by itself, does not satisfy the water quality requirements. This site requires use of the Enhanced Basic WQ menu. This site is in a Basic WQ Treatment Area. However, 50% or more of the runoff that drains to the water quality facility is from one or more of the land uses listed at the top of SWDM page 1-72, so the Enhanced Basic WQ menu shall be used in place of the Basic WQ menu. State which option(s) from the Enhanced Basic WQ menu are being provided on the site. Based on the information provided in the December 2017 TIR, the project does not appear to qualify for any of the four exemptions from Core Requirement #8. The grain size analyses that were provided with the August 15, 2016 Stormwater Infiltration Assessment in Appendix D of the TIR didn't demonstrate qualification for any of the Core Requirement #8 exemptions or exceptions related to infiltration through soil with properties required for groundwater protection (see CR #8 and pages 5-51 thorough 5-53). State how this mine site proposes to meet the Enhanced Basic WQ menu requirements.
 6. **Page 16 – *Water Quality*:** The treatment goal/pollutant removal target listed on page 16 is incorrect because the site requires use of the Enhanced Basic WQ menu.
 7. **Page 16 – *Water Quality*:** There is an exception that allows for a reduction of the Enhanced Basic WQ Menu to the Basic WQ Menu for treatment of runoff that is infiltrated in some locations; however, since the infiltration is within ¼ mile of fresh water with aquatic life, the soils below the infiltration facilities would need to meet the groundwater protection standards described in Section 5.2.1 for this exception to apply. According to the grain size analysis in the August 15, 2016 “Stormwater Infiltration Evaluation,” most of the samples tested did not meet the soil suitability criteria.
 8. **Page 16 – *Water Quality*:** The December 2017 TIR doesn't demonstrate that the site has provided a Wetpond. A “sediment trap” or “settling pond” sized to provide presettling for an infiltration facility is not equivalent to a Wetpond sized to meet the basic water quality design volume. See additional comments below regarding the WQ calculations.
 9. **Page 16 – *Water Quality*:** A portion of the site is in a five-year time of travel wellhead protection area, and another portion of the site is within a CARA. Both of these are considered groundwater protection areas according to the 2016 SWDM. Most of the existing infiltration facilities for the site are within a Category 2 CARA. Show the limits of the CARA and wellhead protection area on the drainage plan. Within the groundwater protection areas, industrial sites must provide water quality treatment prior to infiltration (Core Requirement #8, Special Requirement #5, and infiltration facility general requirements). See also SWDM Section 6.2.4, for liner requirements for both conveyances and facilities within the groundwater protection area and outside the groundwater protection area based on soil infiltration rates.
 10. **Page 16 – *Water Quality*:** The extent and type of liner required for WQ facilities will be based on the specific facility option selected from the WQ menu, which has not yet been clearly established.
 11. **Page 16 – *Water Quality*:** Please see the 2016 SWDM subsection titled “Other Important Information about Core Requirement #8” on page 1-69. These requirements all apply at this site.
 12. **Page 17 – *Basin Modeling, Existing Conditions*:** This section may need to include a discussion of both the historic site hydrology (pre-development) and the more recent existing conditions (since the 1970s, after mining commenced) that dictate which subbasins either

flow through or are contained on the site. Is the 10.75-acre contributing area consistent with the areas that historically contributed runoff to the site and that would have had a natural discharge point consistent with the location of the infiltration facilities? Provide all of the required information as described on SWDM page 2-14 for the Existing Site Hydrology subsection (TIR Section 4, Part A). Discuss the assumptions and site parameters that were used in analyzing the existing site hydrology. One of the drawings provided in the TIR should clearly provide all of the information noted on page 2-14 of the 2016 SWDM under the words “must be provided on a topographical map.” The “Existing Conditions” figure provided following page 18 of the current draft TIR doesn’t meet those requirements.

13. **Page 17 – Basin Modeling, Existing Conditions:** The statement that the site consists of 50.23 acres is inaccurate for this permit application. This permit revision application is only applicable to the previously permitted mine site (the site of the existing operation).
14. **Page 17 – Basin Modeling, Existing Conditions:** The statement that the project “proposes to fully infiltrate all the runoff up to the 100-year storm event” is inaccurate since some target areas within the site do not flow to the existing infiltration facilities and/or were not included in the model.
15. **Page 17 – Basin Modeling, Existing Conditions:** It is confusing to state that the TIR is only for Phase 1 of the mining operations when the plan shows a future Phase 2. Any “future” phases that cannot meet the drainage review requirements (or other required DPER standards) during the review for this permit revision will not be able to be included on the approved plan sheets under this permit revision.
16. **Page 17 – Basin Modeling, Existing Conditions:** The predeveloped conditions table is inaccurate/incomplete.
 - a. Some of the Phase 2 area in the existing conditions is tributary to the mine site.
 - b. If the ground cover category is “till” in predeveloped conditions, it can’t be outwash in developed conditions, unless additional field investigations and soils testing/characterization of the anticipated soil types during and following mining is provided. This predevelopment assumption is also in conflict with the statement on page 18, which notes that “portions of the site were labeled as outwash soils prior to current mining operations.”
17. **Page 17 – Basin Modeling, Developed Conditions:** Again, please refer to the SWDM Chapter 2 description of the Developed Site Hydrology subsection of the TIR (TIR Section 4, Part B) and ensure that this portion of the TIR provides the required information. SWDM Page 2-14 states, “The developed subbasin areas and flows shall be clearly depicted on a map and cross-referenced to computer printouts or calculation sheets.” The narrative, tables, computer output, and graphical representations (as provided in the “Developed Conditions Exhibit” within the TIR and on Sheets C2.01 and C3.01 of the site plan) in combination do not clearly describe the selected parameters and values used in analyzing the developed site hydrology. The pattern of hydrology for portions of the site outside of the identified 10.75-acres that has been assumed as tributary to the infiltration facility has not been clearly discussed. The subbasin areas should be clearly depicted and consistently labeled on the map, in the summary tables within the TIR narrative, and in the hydrologic modelling reports. The current labeling system is not clear. For example, on the developed conditions exhibit “Phase 1” area is labeled 10.75 acres while this acreage value is actually a combination of areas within the Phase 1 limits, plus some previously mined areas, and some offsite flows, but the label implies that the area within the heavy dashed line is 10.75 acres. When comparing the graphical depiction to the tables in the narrative and to the inputs shown in the hydrologic

model output, it should be clear which areas contribute flows to the project site and which do not, as well as the origin of the totals used as modelling inputs.

18. **Page 17 – Offsite Basin Table:** The “offsite areas” flowing onto and through the site/project site haven’t all been addressed. For example, portions of the areas labeled Phase 2 will contribute flows to the project site, and there are possibly also some undeveloped areas outside mining limits that flow towards the areas included in the Phase 1. These areas need to be discussed in the narrative, clearly represented in the summary table(s) and depicted on the “Developed Conditions Exhibit.”
19. **Page 18 – Discussion of effective impervious credit:** The statement that “the proposed and existing access roads and parking lot are do not have a collection system” is inaccurate. Portions of the access road and internal circulation roads do have a collection system (ditch/interceptor swale). This would mean those impervious areas do not meet the definition in the manual and don’t qualify for the proposed effective impervious area modelling as 50% impervious and 50% till grass.
20. **Page 18 – Discussion of effective impervious credit:** The Hart Crowser report didn’t provide approval of a drainage plan for the current site. This department’s review of the 2002 Hart Crowser report and associated plans was intended to address interim stormwater management at a site that was inactive/dormant, stabilized, partially reclaimed, and expected to remain inactive for some time. At most, assuming all of the impervious surfaces were modelled at 50% EIA, only approximately five and a half acres of impervious surface for an inactive/stabilized rock crusher area (gravel lot and roads) and the mine face (bedrock) as well as some pervious areas were analyzed (using KCRTS) under that report for the purposes of a King County grading permit and planning approval that allowed reclamation/abatement actions to occur as required by CADMAN’s reclamation permit with Washington State Department of Natural Resources (DNR). The Hart Crowser report would have been reviewed under the 1998 Surface Water Design Manual and is not particularly relevant to the current mine permit revision (GRDE15-0004) with the exception of the small portion of the property that is already considered reclaimed under the DNR permit.
21. **Page 18 – Discussion of effective impervious credit:** If you believe the EIA reduction should apply to portions of the post-development land cover at this site, please review the criteria contained in SWDM Section 3.2.2.1. Note 1 on SWDM Table 3.2.2.D states that use of the EIA of 0.5 for Gravel/Dirt Roads and Parking Lots, Roads without Collection System should only be used in the absence of detailed surveys or physical inspection (for example, the field inspection might reveal the drainage route from the impervious surface to the drainage system is actually via pipe, channel, or short sheet flowpath). The effective impervious fraction is the fraction of actual total impervious area connected to the drainage system. Portions of the roadways/access/parking area included in the 0.85 acres do have a collection system (interceptor swale/ditch/Ponds A, B, and C/proposed collection system on bridge), and those areas should not have the EIA reduction applied to them. Furthermore, as pollution-generating pervious surfaces, these areas may require collection systems to allow the runoff to be routed through appropriate treatment prior to discharge or infiltration.
22. **Page 18 – Discussion of land cover types:** Some items from the analysis used in the Hart Crowser report related to a blanket adjustment in effect at the time (adjustment approved under the 1998 and 2005 surface water manuals). If you believe Item 1 from that Aggregate Mine Blanket Adjustment, which is currently under consideration for potential use with the 2016 SWDM, related to assignment of land cover types should apply to portions of this site, please review the criteria contained in the blanket adjustment to evaluate whether any portions of the site may qualify for Item 1 in that potential blanket adjustment. If any other

items from the adjustment will be used for the analysis in this TIR, the adjustment needs to be clearly referenced in the TIR, the applicable sections of the SWDM standards or requirements that are not being met must be identified, and the specific items from the adjustment being applied at this site should be noted in the TIR. If items from the adjustment are used and an updated aggregate mines blanket adjustment has not been finalized before approval of this permit revision is needed, then, it may be necessary for the quarry to request that DPER review an individual drainage adjustment for approval in place of the blanket adjustment.

23. **Page 18 – Developed (Phase 1) table:** The acreages in the developed conditions table do not add up to 10.75 acres as shown in the totals for this table. The developed conditions MGSFlood modelling did include the 0.390 acres that are listed in the “Offsite Basin” table, which when added to the values in the “Developed (Phase 1)” table equal 10.75 acres.
24. **Page 18 – Developed (Phase 1) table:** It appears that there are areas that were listed as Till-Forest in the Predeveloped Basin table that are now shown as Outwash-Forest or Outwash-Grass in the Developed Conditions Table. If the analysis accounts for the surfaces being outwash soils in developed conditions based on the NRCS web soil survey, then, the soils would also be considered outwash soils for the existing/predeveloped conditions as well unless an onsite evaluation has provided more site-specific details about soil types than the NRCS soil survey. Since this is a mine site, there may be additional data and knowledge about the onsite soils that could inform use of a soil type that differs from the soil survey, but supporting data must be provided. If the soil survey maps do not accurately represent the soils for a proposed project (including offsite areas of concern), it is the design engineer's responsibility to ensure that the actual soil types are properly mapped.
25. **Page 18 – Developed (Phase 1) table:** The TIR narrative states that the Developed (Phase 1) basin area table summarizes the developed areas used in modeling after taking into account the upstream area, but the “Phase 2” area that would contribute flows to the project site area is not included in the totals in that table. At minimum, the “Phase 2” area needs to be accounted for as offsite flows when calculating tributary basins to the mined area and the drainage facilities, but cleared areas may need to be considered new pervious surfaces within the project site and compacted portions of the Phase 2 area (that have been or will be regraded, but not mined) may need to be considered new impervious surfaces. If runoff from these “Phase 2” areas is going to be collected and bypassed around the site until a future permit expansion, then that concept needs to be addressed in the TIR. On Sheet C3.01, it appears areas such as the over-steepened slope, rockfall area, and parts of the unopened King County ROW drain towards the access road, mining-area, or directly towards the stormwater system, which means they must be included as part of the model's basins.
26. **Existing Conditions Exhibit** – All areas contributing runoff to the site should be delineated on the existing conditions exhibit. The scale of the map and the contour intervals must be sufficient to determine the basin and subbasin boundaries accurately. The direction of flow, the acreage of areas contributing drainage, and the limits of development shall all be indicated on the map. Each subbasin contained within or flowing through the site shall be individually labeled and parameters for the approved stormwater model referenced to that subbasin. The existing conditions exhibit provided in the current TIR is missing some of the required elements, which makes it difficult to evaluate similar information shown on the developed conditions exhibit, especially in areas such as the “Phase 2” portion of the site, the northwest corner of the site with the wetland buffers, and the areas uphill from the access road and “parking area,” which may contribute flows to the project site. See SWDM page 2-14 for information about required elements in the Part A of TIR Section 4.

27. **Existing Conditions Exhibit** – Do not show the anticipated/proposed 75-foot buffer around the parcel 22407-9033 property boundary. Review and approval for the final buffer width on parcel 22407-9033 will be established through the expansion permit application and cannot be approved with this permit revision. The 75 foot buffer does apply along the western edge of parcel 22407-9011. If you are showing the required buffers and setback on this exhibit for reference, please also correct the depiction of the 150 foot setback along the northeast corner of parcel 22407-9011, show the correct wetland buffer width, more clearly highlight the 300 foot contour line, and show a 10-foot buffer on the GRDE15-0004 site between parcel 22407-9011 and parcel 22407-9033, which will intersect with the setback created by the 200 foot shoreline setback and the limit imposed by the 300 foot contour line.
28. **Developed Conditions Exhibit** – Same comments as above regarding buffer widths and setbacks. This “Developed Site Hydrology” subsection of the TIR shall provide narrative, mathematical, and graphical presentations of parameters selected and values used for the developed site conditions, including acreage, soil types and land covers, roadway layouts, and all constructed drainage facilities and any required flow control BMPs. Developed subbasin areas and flows shall be clearly depicted on a map and cross-referenced to computer printouts or calculation sheets. All maps, exhibits, graphics, and references used to determine developed site hydrology must be included, maintaining the same subbasin labeling as used for the existing site hydrology whenever possible. If the boundaries of the subbasin have been modified under the developed condition, the labeling should be modified accordingly (e.g., Subbasin "Am" is a modified version of existing Subbasin "A"). There should be a map illustrating which portions of the site are directed to FCBMPs and/or are bypassed around the infiltration facilities. Some of this information is implied on the “outfall detail” included on the erosion control plan, but the “Developed Conditions Exhibit” does not provide clear and complete information about those subbasins.
29. **Developed Conditions Exhibit** – The labelling for the ponds in the “Developed Conditions Exhibit” is unclear (missing leaders). Also, the pond naming scheme used in the December 2017 TIR exhibits and on the December 2017 site plans is not consistent with that used in the Riley Group Stormwater Infiltration Evaluation, which assumed construction of two new ponds (A and B) and combined the smaller basins A, B, and C shown in the December 2017 design as one facility, labeled Pond C.
30. **Existing and Developed Conditions Exhibits** – The scales noted are inaccurate. If these required maps are being reduced to a smaller size than they were drawn at, please ensure this is clear and that the resulting drawing scale is an acceptable engineering scale. It may also be useful to have an existing conditions map and a developed conditions map that are drawn at the same scale.
31. **Pages 21 and 22 – Flow Control Modeling:** Again, for the Flow Control System (Part D), please ensure all the required information, as summarized on page 2-15 of the SWDM, has been provided.
32. **Page 21 – Existing Pond Volumes and Assumptions:** When did the updated survey of the pond WSEs occur, and why haven’t the ponds been resurveyed during the dry season to confirm the assumptions that were previously made and noted on page 21?
33. **The information provided regarding pond geometry and pond volumes is insufficient to verify the accuracy of the MGSFlood modelling inputs.** The relationship between the available data, assumptions made, tabulated volumes, and MGSFlood inputs is not clearly presented. Sections, profiles, and details must be provided consistent with SWDM Chapter 2, pages 2-15 and 2-24 through 2-26 (at a level sufficient to verify modelling assumptions and whether the ponds meet SWDM requirements, standards, and design criteria).

34. **Page 21 – *Infiltration Rate Testing and Design Infiltration Rate:*** The infiltration testing methods used do not meet current SWDM requirements. Also, averaging the measured rates from within three separate ponds (out of five total ponds) and then applying that one rate to the infiltration model for all five facilities is not an acceptable assumption, especially when it is known that one of the three tested rates was very different from the others. For example, if the discussed correction rates were applied to the measured rate in the silty sands at IT-2, which roughly corresponds to the location of Pond F, it would result in a design infiltration rate for that pond of only 0.45 inches/hour, which is substantially different from the rate that was applied for Pond F in the MGSFlood analysis. In order to demonstrate through hydrologic modelling whether the existing facilities meet SWDM requirements, the infiltration rates applied in the model must have been determined using one of the acceptable methods. Furthermore, Pond D, which did not include an infiltration test location, was modelled in MGSFlood with the same design infiltration rate of 10 in/hr as Ponds E through G/H, but field observations by DPER staff have indicated that Pond D typically isn't currently functioning as an infiltration facility.
35. **Page 22 – *Infiltration Rate and Groundwater:*** Section 4.3 of the TIR states that groundwater was not encountered up to a depth of 8 feet from the bottom of the infiltration ponds. The Stormwater Infiltration Evaluation provided to support the infiltration pond hydrologic analysis also did not clearly demonstrate that the depth to groundwater below the proposed pond bottom(s) is greater than 15 feet; if the soil logs and test pit data provided are not deep enough to demonstrate that the design provides more than 15 feet separation between the pond bottom and the seasonal high groundwater level, then, a mounding analysis would be required.
36. **Page 22 – *Infiltration Rate and Groundwater:*** Section 4.3 of the TIR also discusses the engineer's decision to use the fixed infiltration rate option in MGSFlood instead of using the MGSFlood option to apply Massman adjustment factors. Use of the Massman adjustment factors is not supported by the 2016 King County SWDM. The 2016 SWDM requires use of the fixed infiltration rate option in MGSFlood in conjunction with an appropriate level of groundwater analysis (i.e. the required mounding analysis).
37. **Page 22 – *Summary of MGS Flood Modelling:*** Please provide more informative summary tables and narrative regarding how the ponds were modelled within the narrative of the TIR. Also, Section 4.3 of the December 2017 TIR stated that "the point of compliance shows the 100-year storm event is fully infiltrated," but this is inaccurate due to the fact that some portions of the site bypass the current facilities.
38. **Page 22 – *Water Quality Calculations:*** The "Presetting" portion of the general requirements for infiltration facilities in Section 5.2.1 simply provides the two options available to meet the presettling design requirement that applies to all infiltration facilities. It does not set forth requirements for provision of the required level of WQ treatment at a site.
 - a. One of the options to meet this general requirement for presettling is to provide a presettling pond or vault with a size based on the calculated basic water quality design volume. The other (recommended) alternative is to provide a water quality facility from the Basic WQ menu.
 - b. The method from SWDM Section 6.4.1.1 that was used to calculate 0.25 times the basic water quality design volume (on pages 22 – 23 of the December 2017 TIR), is not acceptable for use on projects where one of the approved models for continuous hydrologic analysis is required for other design calculations. The WQ volume from the approved model (MGSFlood output) should be used instead, which for this site results in a larger required WQ volume than was shown in Step 4 the December 2017

water quality calculations. When used appropriately, the MGSFlood WQ design tools already include the necessary interpolation and conversion of the 2-year, 24-hour amount to the 6-month, 24-hour precipitation amount, as discussed in SWDM Section 6.2.1. Furthermore, if the NRCS method described in Section 6.4.1.1 was appropriate, then some of the inputs used in the calculations would need to be corrected.

- c. Step 4 of the calculations of the flow volume to be treated (using the NRCS method) indicates that the minimum “wetpool design volume” would be 29,084 cubic feet. If calculated correctly, this would be the minimum volume required to provide basic WQ treatment, which is not necessarily enough to meet the requirements of the Enhanced Basic WQ menu.
39. **Page 23 – *Water Quality Calculations, Pre-settling Pond step:*** The final step in Section 4.4 of the December 2017 TIR multiplies the calculated basic WQ volume by 0.25 to find the required pre-settling pond to verify whether the minimum requirement for a settling has been provided pond (not a WQ facility). It shows that a volume of 7,271 cubic feet is required. However, Sheet C3.01 shows that the volume of Pond A + Pond B + Pond C only equals 5,028 cubic feet, so not even the required minimum pre-settling volume has been provided. Also, the additional criteria listed for settling ponds or vaults listed under the presettling subheading on page 5-50 would need to be met, and the TIR, plans, and details have not provided sufficient information on the design depth of the pre-settling ponds or the conveyance capacity of the series of Ponds A through C to verify whether or not those criteria have been met (depth of 4 to 6 feet and overflow capacity sufficient to pass the developed 100-year peak flow).
 40. **Page 23 – *Water Quality Calculations:*** Based on the information presented in this December 2017 TIR, the applicant hasn’t demonstrated that the site meets the Water Quality Core Requirement #8. The options available at an existing mine site like this one would be to a) propose a way to meet the water quality requirements, b) apply for an individual drainage adjustment, which would need to be reviewed and approved prior to approval of this permit revision, with appropriate references to that adjustment provided in the resubmitted TIR, or c) since the potential for WQ impacts at this site are primarily through infiltration to groundwater, agree to provide additional groundwater quality monitoring as a condition of the permit revision. See also comments F.18 through F.22 in this letter.
 41. **MGS Flood Modelling – *Appendix C:*** Include a copy of the electronic files.
 42. **MGS Flood Modelling – *Appendix C:*** The surface areas of the ponds need to be included as impervious surfaces. The total pond surface area at max. elev. for ponds D, E, F, and G-H is approximately equal to the assumed surface area of 0.22 acres shown in the “Developed Conditions Exhibit;” however, there was no impervious surface included for the “pre-settling” Ponds A, B, and C. Also, any areas, such as portions of the property outside the mine limits and even outside of the site, that drain directly to the drainage facilities need to be reflected in the contributing basins for the analysis.
 43. **MGS Flood Modelling – *Appendix C:*** Why is the Climatic Region Number showing up as “0” in the project report? Typically, if the extended time series is used for calculations at this location with a MAP closer to 60 than 70, I would expect this to show up as “20” instead of zero.
 44. **MGS Flood Modelling – *Appendix C:*** Based on the soils testing that was provided, the infiltration rates may need to be different from one pond to the next. See comments elsewhere on the infiltration rate letter (Appendix D). King County SWDM requires use of the constant infiltration rate, but also requires the additional groundwater information to support the design infiltration rate. The constant infiltration option is not more conservative

than the Massmann adjustment factor option unless the fixed rate is used in conjunction with the additional groundwater information required by the SWDM, such as infiltration testing meeting the SWDM standards with appropriate adjustment factors applied, information about depth to groundwater, and a mounding analysis when required (likely required in this location).

45. **MGS Flood Modelling – Appendix C:** The TIR narrative, plans, sections, profiles, and details need to provide additional information to support the pond geometry that was used as inputs in the continuous model for the hydrologic calculations (pond depths, profile of pond bottom elevations relative to one another, length/width, pond volume, outlet/riser geometry).
46. **MGS Flood Modelling – Appendix C:** The MGSFlood model inputs only include Phase 1, not Phase 2. If Phase 2 isn't reflected as impervious area in the MGSFlood calculations, then the mine plan for this permit revision cannot include those areas in the mining limits. Also, even if the permit revision is only for "Phase 1" mining, accurate MGSFlood inputs would likely reflect at least a portion of the "Phase 2" areas as contributing areas in the offsite basin.
47. **MGS Flood Modelling – Appendix C:** If the predeveloped scenario is entirely "Till," the pervious areas in the post-developed scenario would also be till, unless an explanation is provided that is supported by additional site-specific soils information, prepared and stamped by a *civil engineer* with expertise in soils, with soils properly mapped, with soil classification symbols that conform to the SCS Soil Survey for King County used in the report, and with the equivalent soil type (till, outwash, or wetlands) per the approved stormwater model indicated (see Table 3.2.2.B).

I. TIR Section 5

1. What are the sizes and slopes of the existing culverts? Existing ditches/swales?
2. The actual design of the existing or proposed conveyances, such as the culverts and the "interceptor swale and rock-check dam," should be discussed in this section of the TIR, rather than only discussing what the sizes should be in theory.
3. Both the conveyance analysis and CSWPP/TESC plan do not sufficiently address the surface water control/collection requirements within the project site. While mine sites are dynamic and the exact collection and conveyance system may vary over time, an ongoing plan to address these requirements is necessary, both as presented for Core Requirement #4 in SWDM Section 1.2.4, SWDM page 2-16, Section 3.3.3, and Chapter 4 (analyze as a new system first since the purpose of this TIR is to evaluate whether the mine site is meeting current standards) and as presented in SWDM Section D.2.1.6, Section 1.2.5, page 2-17, Section 2.3.1.3, and Section 2.3.1.4 (if related to ESC and Core Requirement #5). Within the active mine area, TESC guidelines may be helpful in informing the approach to the design (such as spacing of interceptor swales), but the design should meet the requirements for development sites as presented in the appropriate SWDM sections.
4. Much of the site is within a mapped landslide hazard drainage area and/or a landslide hazard area. Applicable conveyance requirements related to these areas must be met.
5. For any reach or partial reach of new conveyance (ditch, channel or closed pipe system) proposed by a project, a geotechnical analysis and report is required if the conveyance is located within 200 feet of a steep slope hazard area or landslide hazard area, OR if the conveyance is located within a setback distance from top of slope equal to the total vertical height of the slope area that is steeper than 15%. The geotechnical analysis must consider cumulative impacts from the project and surrounding areas under full built-out conditions. A

- low-permeability liner per Section 6.2.4 for the trench or channel may be required if warranted by soil stability conditions.
6. The conveyance system groundwater protection requirements in SWDM Section 1.2.4.3.H apply at this site (page 1-59). This provision requires that ditches/channels be lined appropriately to reduce the risk of groundwater contamination when they convey runoff from pollution-generating impervious surfaces that comes into direct contact with an outwash soil. Also, for any portions of the site that discharge into an offsite drainage system or a natural onsite drainage feature, the requirement for a spill control device as described in SWDM Section 1.2.4.3.G would apply (page 1-58). Since some pollution-generating portions of the site are not conveyed to the infiltration facility in the concept presented in the December 2017 TIR draft, this provision would apply to any discharges from those surfaces. This spill control provision is in addition to the SWDM spill control requirements related to WQ facilities and infiltration facilities. See also the 2016 SWDM subsection titled "Other Important Information about Core Requirement #8" on page 1-69.
 7. Bridges over waterways are considered conveyance structures. The TIR should discuss the existing bridge. Bridges shall be designed to convey flows and pass sediments and debris for runoff events up to and including the 100-year event in a manner that does not increase the potential for flooding or erosion to properties and structures near or adjacent to the bridge, or cause bridge failure (see SWDM Section 4.3.3). Bridge clearance is the vertical distance between the 100-year water surface and the low chord of the bridge. Bridge clearance requirements are contained in the KCRDCS. Compare the mapped BFE to the elevation of the existing low chord of the bridge. Section 5 of the Technical Information Report shall include a discussion of the need for a safety margin in the evaluation of the bridge and the rationale for its selection. Bridge work and abutment locations are also governed by provisions of the King County critical areas code, KCC 21A.24.
 8. State whether or not the Level 1 or Level 2 offsite analysis resulted in any modifications to the conveyance requirements, such as whether or not there is a need to analyze the capacity to convey portions of the 100-year peak flow to address flooding or erosion problems.
 9. Note whether or not there are any interflow or interception issues to be addressed for the project, such as any seeps or springs that may influence the drainage system or site's hydrology.
 10. The contributing subbasins or point of compliance for particular stretches of conveyance may differ from those used for analysis of the infiltration facilities. The MGSFlood modelling may need to be modified or supplemented accordingly.

J. TIR Section 6 (Appendix D)

1. The Stormwater Infiltration Evaluation prepared for Raging River Quarry by the Riley Group, dated August 15, 2016 and provided in Appendix D of the December 2017 TIR is not sufficient for use in analyzing the design of the infiltration facilities at the project site (see also related comments regarding TIR Section 4).
2. Any requirements associated with impacts to an erosion hazard area, steep slope hazard area, or landslide hazard area should also be addressed in the soil study. The geotechnical professional shall provide a report stating whether the location is suitable for the proposed infiltration facility, and shall recommend a design infiltration rate. See also additional design

criteria and requirements related to the steep slope hazard area and landslide hazard area in SWDM Section 5.2.2.1.

3. The stormwater infiltration assessment does not meet the minimum requirements outlined as general requirements for infiltration facilities in SWDM Section 5.2.1, pages 5-44 through 5-49, and elsewhere in the SWDM. It does not evaluate and provide recommendations related to the specific proposed drainage design and infiltration facilities presented in the TIR and on the site plan, does not provide the minimum number of tests per facility, does not provide at least one test hole reaching the maximum wet season water table (or extending at least one fourth the maximum width of the pond below the pond bottom), does not include the necessary mounding analysis, does not demonstrate that soil suitability criteria have been met (would be required if adequate WQ facilities are not provided prior to infiltration), and does not use one of the accepted methods of infiltration testing. The civil engineer and geotechnical professional should review information in the SWDM to ensure all the necessary information has been provided and addressed in the soils data and geotechnical professional's written option to support the proposed drainage plan.
4. In responding to other comments in requests for information, it may become necessary to include additional special reports and studies that affect drainage design/problems. For example, additional information that may need to be prepared related to critical areas/wetlands details, water quality, future bridge maintenance, and the various supplemental topical plans may be relevant for inclusion in Section 6 or TIR appendices.

K. TIR Section 7

1. The 2017 Periodic Review Report and Decision (PRRD), and its conditions, is considered part of the current permit.
2. Include a list of any other permits (current or anticipated), registrations, and other agency approvals that may affect the drainage plan, such as the WA State DNR reclamation permit, the WA State Department of Ecology NPDES general permit, the PSCAA registration, the ROW SUP, the haul road agreement, and, potentially, the proposed expansion permit. Note any requirements from those permits that affect the design/analysis of the drainage plan for the permit revision being reviewed and/or the current mine site operation under GRDE15-0004. For example, the reclamation plan with DNR needs to be compatible with the mine plan proposed under GRDE15-0004, so if the state reclamation requirements create certain constraints that affect the feasibility of certain approaches to the drainage design, then, those limitations should be discussed here. Provide the titles of any other permits, the agencies requiring the other permits, and the permit requirements that affect the drainage plan. Examples of other permits are listed in Section 1.1.3.

L. TIR Section 8

1. The Construction Stormwater Pollution Prevention (CSWPP) plan needs to be updated to meet SWDM requirements, include all the required elements, and to better reflect the current conditions at the site (both the narrative, which would be included in the TIR, and

any required elements on the plan sheets). See SWDM Section 1.2.5.1, SWDM pages 2-17 and 2-18, SWDM Section 2.3.1.3, and SWDM Appendix D.

2. Some aspects of the TESC will have already been implemented on the site or would have been required in early periods of the mine operation when the site disturbance first occurred. The focus of the current TESC plan should be adaptive management of the existing BMPs and identification of those specific locations on the site where new BMPs will be required (for example, in response to newly opened areas as mining progresses or any new clearing, in response to certain changing site conditions, or when other permit requirements may require new construction that will need to be stabilized, such as construction to install new drainage facilities or FCBMPs).
3. The work discussed in items 3 and 4 on page 27 in Section 8 of the TIR is all related to ongoing long-term mine operations at the site, which should be designed to provide the same functions and meet the same permanent standards as are discussed under other SWDM requirements, similar to design and implementation of the storm water facilities and a drainage system that would be used at other established development sites. Items designed only as CSWPP and temporary erosion and sediment control measures are not sufficient for the ongoing work and clearing/grading activities that occur at a mine site over an extended period of time.
4. In item 4.ii, the infiltration ponds discussed should not be used as a sediment pond for TESC purposes. The discussion of use of permanent infiltration ponds as for sedimentation ponds/traps, which is found in King County CSWPP Standards (Appendix D), is intended as a strategy for typical construction sites where, following completion of construction under a site development or building permit and full stabilization of the site, the temporary sediment pond would be excavated further to its final grading and converted for use as a permanent infiltration pond to be used as a flow control facility. This is not what is occurring at the quarry.
5. There are inaccuracies in the project information and ESC elements presented in Section 8 of the TIR:
 - a. Item 1.i states, "The boundary of sensitive areas and their buffers will be left uncleared," which is not true as a broad statement about this site. As a mining/grading permit approved prior to King County's current critical areas regulations, the extent of the mining limits may be allowed to extend into the designated buffer of the delineated wetlands and portions of these buffers may have been previously cleared or disturbed as part of the mining operation or under this permit. Furthermore, there are a number of other types of critical areas present on the site, which have been already or will be cleared.
 - b. Item 1.i states, "All storm runoff is conveyed to the presettling and infiltration ponds." This is inaccurate due to the fact that a portion of the access road and bridge does not currently flow to the facilities, and the proposed design to address this shortcoming does not route the collected runoff to the infiltration facilities.
 - c. Item 5.i states, "As the excavation progresses over the years, past mining faces/areas will be reclaimed and vegetated, but the mining plan and site plans do not indicate how that will occur or even demonstrate that this approach would be feasible. Also, there are some areas, such as the over-steepened slope and rock

fall area, where soil has been disturbed that are currently shown as being outside of the proposed "Phase 1" mining limits.

6. The CSWPP should be compatible with the requirements of site's NPDES Sand and Gravel General Permit, but certain CSWPP elements necessary to meet King County SWDM requirements may be more stringent than or go beyond the minimum required by the NPDES permit for some aspects of the mine site. If the CSWPP for this site is referencing BMPs from the Ecology manual rather than the King County 2016 SWDM and CSWPP Standards (Appendix D) due to the use of those BMPs in the NPDES permit, then, please verify that the referenced BMPs from the 2014 SWMM are at least equivalent to the comparable BMPs found within the KC 2016 SWDM.

M. TIR Section 9

1. Only the Drainage Defect and Maintenance Financial Guarantee is specifically for facilities to be maintained/operated by King County. If this permit revision requires construction of drainage facilities (even if the facilities will be maintained and operated by private parties), then, the drainage facilities restoration and site stabilization financial guarantee requirement must be met.
2. If this permit revision requires construction of drainage facilities, a bond quantities worksheet will need to be provided. The bond quantities worksheet may also be relevant to the determination of the overall financial guarantee requirements for this permit, which are related to the bond requirements from the site's P-suffix conditions, KCC 21A.22.090, and KCC Title 27A.
3. There is a P-suffix condition for this permit that also includes a bond requirement, which is not currently being satisfied.
4. As of December 2017, it appeared the mine had a \$21,500 reclamation guarantee with WA State DNR (a performance security, which may have recently been recalculated by the DNR). To the extent to which the mine's reclamation bond on file with the DNR is required for purposes intended by King County, the reclamation bond amount may count towards combined financial guarantee requirements of King County for this site, as will be determined by DPER in consultation with King County DNRP, DOT, and other affected agencies per KCC 27A.30.020. Appropriate financial guarantee amounts will be set when this permit revision application has had further review and is closer to approval.
5. The quarry will need to record a drainage facility declaration of covenant and grant of easement before this permit revision is approved. DPER will provide additional guidance to the quarry on the content and procedures for this declaration of covenant when this permit revision is closer to approval. If the quarry believes an equivalent declaration of covenant is already in effect at the site, please provide the a copy of the recorded document so that DPER can determine whether it is sufficient or whether it will need to be vacated and replaced with an updated declaration of covenant based on the drainage facilities to be approved under this permit revision.
6. The facility summary sheets must be provided.
7. The section labeled, Description of Operations/Locations/Vehicles/Special Items on the certificate of liability insurance submitted to DPER on behalf of the quarry needs to be

updated to indicate the following: King County, its appointed and elected officials and employees, are named as an additional insured with respect to liability relating to Clearing and/or Grading Permit Number GRDE15-0004 and with respect to liability relating to the construction or maintenance of the drainage facilities required by project, GRDE15-0004. The section labeled, Description of Operations/Locations/Vehicles/Special Items also needs to indicate: This policy provides insurance in the amounts and types of coverage required in both KCC 16.82.090 and KCC 09.04.100. The cancellation section needs to indicate: Should any of the above-described policies be cancelled before the expiration date thereof, the issuing company will mail 30 days written notice to the certificate holder named to the left.

N. TIR Section 10

1. The operations and maintenance manual should be more than “a copy of Appendix A of the 2016 KC SWDM.” Appendix A is intended to supplement your project’s or site’s individualized operations and maintenance manual. At minimum, provide a more specific description of each facility, and outline of maintenance tasks, and the recommended frequency of each task. See SWDM page 2-19. These should be compatible with the other topical/supplemental operating plan narratives that were required by the 2017 PRRD.
2. Pre-settling ponds don’t “treat” the runoff; they just provide pre-settling.
3. Is there an anticipated frequency of sweeping proposed for the construction entrance, rather than just as necessary?
4. What is the frequency that the pre-settling ponds are checked for sediment?
5. If a Wet Pond is proposed to meet the water quality requirements, then, the Wet Pond sheet from Appendix A (#16) will need to be provided.
6. The Native Vegetated Surface and Oil Control sheets may also be necessary.
7. Provide proposed operations/maintenance procedures for any non-standard BMPs and facilities that aren’t included in Appendix A.
8. Note any items where the maintenance procedures for a mine site differ from typical procedures that apply for other sites, especially if the standard maintenance sheets from Appendix A would conflict with the procedures feasible at the mine site. For reference, see items discussed in the Aggregate Mine Blanket Adjustment.

O. Drainage review items closely related to June 8, 2018 comments

The following comments duplicate or are closely related to feedback on the supplemental plans and reports as discussed in the earlier request for information. The required updates to the site plan, TIR, and other plans/reports in response to the geological review and site/engineering/drainage review should be compatible with one another and with the quarry’s responses to the comments below:

1. Provide a profile through the man-made ditch south of Wetland A, the adjacent wetland edge, and the area where the previously existing culvert has been blocked with fill. Show the recently placed fill and provide an evaluation by an engineer of the anticipated water levels and capacity of the ditch in relationship to a 100-year event.

2. If stormwater facilities are proposed under this permit (GRDE15-0004) for the location currently marked "area reserved for future infiltration pond," then this parcel must also be evaluated for the presence of wetland, aquatic areas, or wildlife conservation areas.
3. Incorporate the recommendations regarding BMPs and stormwater facilities within Shoreline jurisdiction into any revisions to the stormwater management proposal for areas along Carmichael Road that do not currently drain to the existing stormwater ponds.
4. If dust suppressant, such as Recycled Asphalt Pavement, is proposed for dust mitigation, it should also be discussed in the TESC Plan, CSWPP, and source control plan for the site.
5. Regarding the Material Excavation portion of the Dust Mitigation Plan, how are the proposed strategies for "effective bench design" and "compact quarry layout" to reduce material handling reflected in the site plan currently submitted for review with the grading permit?
6. The site plan (and supplemental plans, such as the Noise Management Plan) currently under review would not provide for relocation of the crushing plant to upper benches. If this is a proposed material handling strategy for dust mitigation, it could only occur after a future permit revision (or the future expansion permit) or if incorporated into the current reviews. A substantial change in the site configuration such as that would likely require review by outside noise consultants. Since this strategy is not feasible under the existing permit as currently described in the other application materials, it should be removed from the Dust Management Plan.
7. For physical elements of the noise management plan, it would be helpful to either reference the location of the specific noise mitigation features as shown on the site plan set currently under review by DPER, or to include a noise mitigation schematic that is consistent with the site plan proposed for approval under this permit.
8. The area on the plan set Sheet C3.01 designated as "potential location for sound barrier and/or noise mitigation devices" would not be allowed in that location under this permit. Those portions of the site are outside the originally permitted area. The triangular portion of the site is outside the potential limits of the 1973 permit, and the small portion of the potential noise mitigation area that is within the footprint of the originally permitted parcel is in a location that has already been designated as reclaimed by the DNR.
9. "Reorienting the benches and faces to run north to south," as mentioned in the noise management plan, is a noise management strategy that would need to be reflected on the site plan. All of the supplemental plans and the approved site plan need to be compatible with one another.
10. Regarding Level 2 of the Road Surface Management Plan, what criteria are used to determine when additional spall pads are needed in addition to the permanent sections of quarry spalls located before/after the scale? Periods of excessive precipitation and periods of high precipitation are noted as factors in the determination that additional measures may be needed. Are some actions automatically taken throughout the defined wet season from October 1 to April 30? What would the observed conditions be that prompt maintenance of the quarry spall pads? Please show the permanent quarry spall pads (at minimum) on the TESC plan and typical locations for placements of the intermittent supplemental quarry spall pads.
11. Installation of straw wattles on the bridge does not adequately address the potential impacts from tracking of sediment on to the bridge or other discharges from the pollution generating

surfaces of the bridge. Further edits to the drainage plan and road management plan are needed address these issues.

12. If the statement in Level 2 of the Road Surface Management Plan regarding “proposed maintenance to drainage along the western approach to the bridge” is in reference to the proposed modifications to the drainage plan discussed in the Section 8 of the TIR and shown on Sheets C2.01 and C3.02, be aware that the proposed approach to stormwater management along those portions of Carmichael Road needs to be revised to comply with SWDM requirements.
13. If a wheel wash is proposed as an additional strategy in the Road Surface Management Plan or Dust Mitigation Plan, it will require review/approval from DPER to evaluate impacts that it may have on other aspects of the mine site, such as the stormwater system, steep slopes, shorelines jurisdiction, or other permit conditions. A wheel wash for a mine site is considered one of the structural source controls to be considered when evaluating SWDM Special Requirement #4, so, if proposed, it would need to be included on the site plan. Per SWDM page 1-103, “all applicable structural source control measures shall be shown on the site improvement plans submitted for engineering review and approval.” If proposed, you should also address the wheel wash in the temporary and permanent erosion and sediment control plans for the site. The proposed Traffic Management Plan may need to be modified to accommodate wheel washing. If a wheel wash is proposed, it may be necessary to address the potential need for a water source for the wheel wash as well.

P. Summary of Requested Materials

DPER’s ability to continue with review of the required permit revision application is limited until the comments above have been addressed and the requested information is provided. Please submit the following required items to DPER, which are **due by February 18, 2019 unless specified differently below**:

- Two copies of the requested geotechnical reports/studies/letters **due prior to the next proposed blast**.
- Two copies of the requested geotechnical reports/studies/letters due **December 20, 2018**.
- Two copies of the requested geotechnical reports/studies/letters due **February 18, 2019**.
- Four copies of a revised plan set, including mining plan, grading, drainage, other site improvements, the proposed reclamation plan (for informational purposes), and critical areas information. The ROW encroachment detail related to the potential special use permit (non-transportation use of the ROW area near SE Carmichael Road southwest of the existing scale) shall also be updated by **February 18, 2019**.
- Two copies of the revised drainage plan/TIR.
- Four copies of supplemental plans that require additional revisions, such as the Blasting Plan, which is due **January 19, 2019**.
- Three copies of information related to the ROW Use review for the necessary site distance clearing proposal (see comment C.1 in the June 8, 2018 letter) shall be provided to DPER by **January 19, 2019**. DPER and KC DOT may also request an initial draft of the ROW Use

proposal for the vegetation clearing required to obtain the minimum ESD during the process to develop the haul road agreement.

- One electronic copy of all revised/resubmitted information that is included in each re-submittal packet.
- One accompanying drop-off cover sheet for each re-submittal packet.

The requested sample of a supplemental plan has been provided. Therefore:

- Submit the previously requested revised supplemental plans by **December 10, 2018** (more than two weeks from the date of this letter).
- Provide two copies of the previously requested information regarding the anticipated number of years of operation remaining under the current permit, a summary of truck trip levels experienced in previous years, anticipated estimated truck trips and volumes/tonnage for the remaining mining under the current phase, as well as any future mining phases that are to be permitted under GRDE15-0004 under this permit by **December 10, 2018**.
- Please work with DPER and KC DOT to begin the process to develop the required haul road agreement in a timely manner, by contacting **Amanda L. Reeck** at DPER at **206-263-5783** or **areeck@kingcounty.gov** before **December 10, 2018**, so that a meeting can be scheduled with the appropriate parties.

Please provide all the requested information as compiled resubmittal packets for each deadline rather than submitting items individually. A completed drop-off cover sheet will be needed for each deadline.

For questions related to the geological review and requested geotechnical evaluations, please contact **Steve Bottheim** at **206-477-0372** or **Steve.Bottheim@kingcounty.gov**. For questions related to the ecological review and requested ecological information, please contact **Laura Casey** at **206-477-0368** or **Laura.Casey@kingcounty.gov**. If you need clarification or have general questions regarding the other requested items, please contact **Amanda L. Reeck** at **206-263-5783** or **areeck@kingcounty.gov**.

Sincerely,



Amanda L. Reeck
Engineering, Resource Product Line

Enclosures

Cc: Steve Bottheim, DPER, Environmental Scientist
Laura Casey, DPER, Environmental Scientist
Joe Barto, DPER, Engineer
Robert Eichelsdoerfer, KC DOT, Traffic Engineer

**CULTURAL RESOURCE PLAN FOR OPERATION OF THE
CADMAN, INC. NORTH BEND GRAVEL OPERATION
NEAR NORTH BEND IN KING COUNTY, WASHINGTON**

Prepared for:
Cadman, Inc.
P.O. Box 97038
Redmond, WA 98073-9738

Prepared by:
Gail Thompson, Ph.D.



Historical Research Associates, Inc.
119 Pine Street, Suite 301
Seattle, WA 98101

September 2002

APPROVED
SUBJECT TO
PERMIT CONDITIONS
3/10/05 P. M.
KING COUNTY
LAND USE SERVICES DIV.

1. INTRODUCTION

Cadman, Inc. (Cadman) is planning to operate the North Bend Gravel Operation, east of North Bend in King County, Washington. The project involves development of two areas of land, including the Edgewick (Lower) Site and the Grouse Ridge (Upper) Site. Operations will include the excavation and processing of sand and gravel. Extraction will start on the Lower site; later extraction from the Upper Site will use a conveyor to move material to the lower site for processing. Construction of concrete and asphalt batch plants is planned for the Lower Site in later stages of development.

King County retained URS Corporation to conduct a cultural resource assessment for the Project's SEPA Environmental Impact Statement that included background research, field survey, and analysis. King County sent consultation letters to the Muckleshoot, Puyallup, Tulalip, and Snoqualmie Indian Tribes. The cultural resource assessment located no resources. It recommended no additional work for the Lower Site based on previous disturbance of the location. The assessment recommended additional archaeological investigations for the Upper Site along with training of Project personnel and provisions for treating unanticipated discoveries of human remains and cultural resources. This plan describes procedures for meeting these needs. It is intended to:

- Comply with applicable laws and regulations, including Chapter 20 of the King County code; and Title 27 Revised Code of Washington, Chapter 27.44 Indian Graves and Records; and Chapter 27.53 Archaeological Sites and Resources.
- Describe to regulatory and review agencies the procedure Cadman, Inc. will follow to train Project personnel, conduct monitoring, and deal with unanticipated discoveries, and
- Provide direction and guidance to Project personnel as to the proper procedures to be followed.

2. PROCEDURES FOR PERSONNEL TRAINING

- A. The training will involve any field supervisors, environmental inspectors, and equipment operators who work on land clearing or other initial ground disturbance activities for the Project. Training will occur at the beginning of each such work phase.
- B. The training will be conducted by a professional archaeologist with experience in monitoring ground-disturbing activities in Western Washington.
- C. The training will summarize the applicable laws and regulations for cultural resources, emphasizing that state law prohibits the disturbance of Indian burials and of archaeological sites to collect artifacts. The training also will summarize the cultural resource work that has been conducted for the Project, the potential for human remains and cultural resources, and the concerns of Indian tribes and archaeologists. The archaeologist will discuss archaeological sites and isolated finds and the importance of

avoiding disturbance to cultural deposits. The archaeologist will demonstrate examples of prehistoric and historic-period artifacts that come from Western Washington.

- D. The training will review the procedures of the Project's Cultural Resource Monitoring and Management Plan. It will discuss the roles of the archaeologists, Indian tribes, King County, and the State Office of Archaeology and Historic Preservation.
- E. The training will discuss examples of how the procedures have been applied on similar projects and will discuss problems that may arise and how they can be solved.

3. PROCEDURES FOR ADDITIONAL ARCHAEOLOGICAL INVESTIGATIONS

- A. Cadman will provide for additional archaeological review of the Lower Site and each 50-acre parcel in the Upper Site. Additional review of the Lower Site shall occur prior to initial vegetation-clearing activities. Additional review of the Upper Site shall occur at least three months before initial vegetation-clearing activities take place within each Upper Site mine phase.
- B. The review will be conducted by a professional archaeologist with experience working in the uplands of western Washington. The archaeologist shall meet the Secretary of Interior's Professional Qualification Standards contained in 36 CFR Part 61.
- C. For the Lower Site, which has received greater previous archaeological survey, the archaeologist will review the King County Cultural Resource Database GIS file showing the locations of historical roads, trails, and other potential archaeological sites. For the Upper Site, which has received lesser previous archaeological survey, the archaeologist will review information on the parcel such as the King County Cultural Resource Database GIS file and other available maps, aerial photographs, and/or soils information to determine the sensitivity of the parcel for containing archaeological resources.
- D. Based on these reviews, the archaeologist will evaluate the sensitivity of the Project areas for containing cultural resources and the level of previous ground disturbance, which could have destroyed such resources. The archaeologist will conduct additional fieldwork and/or monitoring of initial vegetation-clearing or other ground-disturbance activities in sensitive areas, as appropriate in his/her professional judgment. Sensitive areas include, for example, stream valleys and terraces, lake margins, ridge tops, historical roads and trails, passes, slopes potentially used for burials, and similar areas where prehistoric and historic-period archaeological resources are more likely to occur than in other areas. Additional field work in such sensitive areas shall include shovel testing and sample screening on a grid interval of no greater than 25 meters and to a depth sufficient to reach sterile soil.
- E. For the Upper Site, a Cadman representative or the archaeologist will notify the Indian tribes listed below that an archaeological review is taking place and will invite the tribes to visit the parcel if they wish and to provide information on concerns they may have about the potential for disturbance of cultural resources.

Snoqualmie Indian Tribe – 425-333-6551

The Tulalip Tribes – 360-651-4000

Muckleshoot Indian Tribe – 253-939-3311

- F. For each review, the archaeologist will prepare a report describing the methods, background research, and results of the archaeological review of the parcel, including a map showing sensitive areas requiring additional archaeological fieldwork and/or monitoring during clearing. Cadman will provide copies of the report for review by the affected Indian tribes, King County Historic Preservation Program, and the State Office of Archaeology and Historic Preservation.
- G. Cadman will implement the recommendations made for additional archaeological survey or monitoring of initial vegetation-clearing or other ground-disturbing activities. The archaeologist will prepare a supplemental report describing the results of additional archaeological fieldwork and/or monitoring, including a map showing the areas of fieldwork and/or monitoring and the approximate locations of pedestrian transects and subsurface tests. The supplemental report will be provided to the King County Historic Preservation Program and the State Office of Archaeology and Historic Preservation.
- H. If finds are made of human remains, prehistoric materials, or historic-period materials that are 40 years or older, Cadman will follow the procedures in Sections 4 and 5 below.

4. PROCEDURES FOR THE FINDING OF HUMAN SKELETAL REMAINS

Any human remains that are discovered during construction will at all times be treated with dignity and respect. The affected Indian Tribes are the Snoqualmie, Tulalip, and Muckleshoot Indian Tribes.

- A. If any member of the construction work force believes he or she has made an unanticipated discovery of human skeletal remains, the Cadman Site Supervisor will be responsible for stopping construction work adjacent to the discovery. The area of work stoppage will be adequate to provide for the security, protection, and integrity of the remains.
- B. The Site Supervisor will be responsible for taking appropriate steps to protect the discovery by installing a physical barrier such as exclusionary fencing and prohibiting vehicles, equipment, and unauthorized personnel from traversing the discovery site. The Site Supervisor will immediately contact the Cadman Environmental Supervisor.
- C. The Environmental Supervisor will immediately call the King County Sheriff's office and a cultural resource consultant who can identify human bones. The Sheriff's office may arrange for a representative of the King County Coroner's office to examine the discovery and will determine whether it should be treated as a crime scene or as a human burial.

- D. If the remains are determined to be aboriginal, Cadman will notify the affected Indian Tribes, the King County Historic Preservation Program, and the State Office of Archaeology and Historic Preservation as listed in Attachment A. These parties and Cadman will consult to determine what treatment is appropriate for the remains.
- E. If disinterment of aboriginal human remains is necessary, the consulting parties, which will include the affected Indian Tribes, the King County Historic Preservation Program, and the State Office of Archaeology and Historic Preservation, will jointly determine the final custodian of the human remains.
- F. Cadman will make a good faith effort to accommodate requests from the affected Indian Tribes that they be present during the implementation of mitigation measures related to human remains.
- G. Cadman will resume land clearing or other ground disturbance activities in the area of the discovery only after completion of its treatment.

5. PROCEDURES FOR THE FINDING OF CULTURAL RESOURCES

- A. If any member of the construction work force believes that he or she has found a cultural resource, the Cadman Site Supervisor will be responsible for stopping work adjacent to the discovery. The area of work stoppage will be adequate to provide for the security, protection, and integrity of the remains. A cultural resource discovery could consist of (but is not limited to), for example:
 - i. An area of charcoal or charcoal -stained soil
 - ii. An arrowhead, stone tool, or stone chips
 - iii. A cluster of bones or burned rocks in association with stone tools or chips
 - iv. A cluster of tin cans or bottles older than 40 years
 - v. Cedar trees with large areas stripped of bark or other trees with large blazes or other notable cultural modifications.
- B. If the Site Supervisor believes that the discovery is a cultural resource, he or she will take appropriate steps to protect the discovery site by installing a physical barrier such as exclusionary fencing and prohibiting vehicles, equipment, and unauthorized personnel from traversing the discovery site. The Site Supervisor will immediately notify the Cadman Environmental Supervisor
- C. The Environmental Supervisor will arrange for the discovery to be evaluated by a qualified professional archeologist. The archeologist will recommend whether the discovery is potentially eligible for listing in the National Register of Historic Places or the King County Landmarks Register and will submit a site registration form to the State Office of Archaeology and Historic Preservation and the King county Historic Preservation Program.

- D. Cadman will immediately contact the King County Historic Preservation Program and the State Office of Archaeology and Historic Preservation to seek consultation regarding the National Register and Landmark-eligibility of the discovery. In the event that the discovery is of aboriginal materials, consultation will include the affected Indian Tribes. If the consulting parties determine that the cultural discovery is National Register and/or Landmark-eligible, they will consult further to determine appropriate treatment of the discovery. Treatment measures may include avoidance, preservation in place, mapping, photography, limited probing and sample collection, or other activity, and curation and deposition at a qualified curatorial facility such as the Burke Museum.
- E. The archaeologist will implement the appropriate treatment measure(s) and later provide a report on their methods and results.
- F. Cadman will resume land clearing or other ground disturbance in the area of the discovery only after it has been evaluated and treated.

Attachment A – North Bend Gravel Operation – Parties to Contact

King County Sheriff's Offices
911 (State that the situation is not life-threatening)

Archaeological Consultant
Historical Research Associates, Inc.
Gail Thompson or Jim Carter
206-343-0226

State Office of Archaeology and Historic Preservation
Dr. Robert G. Whitlam, State Archaeologist
360-407-0771

King County Historic Preservation Program
Charlie Sundberg, Preservation Planner
206-296-8673

Snoqualmie Indian Tribe
Ray Mullen, Council Member
425-222-6900

The Tulalip Tribes
Hank Gobin, Cultural Specialist
360-651-4000

Muckleshoot Indian Tribe
Melissa Gilbert, Cultural Resource Specialist
360-802-2202



King County

**Department of Permitting
and Environmental Review**

35030 SE Douglas St, Suite 210
Snoqualmie, WA 98065-9266

206-296-6600 TTY 206-296-7217
www.kingcounty.gov

COPY

September 19, 2018

TO: Amanda Reeck, Senior Engineer

FM: Laura Casey, Environmental Scientist III - Ecologist

RE: Raging River Quarry GRDE15-0004
Response to Schulz Addendum of July 8, 2018 regarding Wetland A Rating

I reviewed the Addendum Technical Response for Wetland A Rating, Raging River Quarry, by Gary Schulz, dated July 8, 2018. I conferred with DPER Environmental Scientist colleagues prior to preparing this response.

At issue is whether or not there are three other wetlands within one-half mile of Wetland A, with relatively undisturbed connections. Relatively undisturbed is described as light grazing or open water, but not bisected by paved roads, fill, fields, pastures, or other development, according to Department of Ecology's Washington State Wetland Rating System for Western Washington (2004). Wetland B is located west of Wetland A, in an undisturbed forest. To the north of Wetland A are two other wetlands, separated by gravel driveways to individual houses. The area between the wetlands is forested, not lawn, and is undisturbed other than by the gravel driveways. To the northwest is a gravel County road serving several houses. It is not paved.

Gary Schulz reports that the gravel driveways constitute fill, and that the residences are "other development". These driveways are not elevated above the ground surface, so I disagree that they constitute fill. The residences and yards are set back from the wetlands by protective buffers.

Gary Schulz conferred with Ecology staff Amy Yahnke, who is quoted stating that a rarely used path or gravel road can be considered relatively undisturbed if it is used less than once or twice a week. She says that daily usage of a road or area is considered disturbed. My colleagues and I disagree with Gary Schulz and Amy Yahnke's interpretation in relation to a gravel driveway to an individual residence.

As noted previously, the larger 150-foot buffer that would result from concluding that there are three wetlands within half a mile and the connections are relatively undisturbed would likely not affect the active mine operation under the current ongoing permit. It could change some proposed work under the expansion proposal, or result in additional restoration during reclamation once the mining is complete. However, the reclamation plan is subject to State Department of Natural Resources approval.

The site plan should be revised to show the larger 150-foot buffer around Wetland A.

TO: Amanda Reeck

RE: Raging River Quarry GRDE15-0004 Response to Schulz Addendum July 8, 2018

September 19, 2018

Page 2

If you would like to discuss this review, I can be reached at 206-477-0368 or by email at laura.casey@kingcounty.gov.

Cc: Joe Barto, Review Engineer II