Dear Curt Campbell,

We have reviewed the plans for the referenced permit application. The project proposes the use of stormwater basins to meet the Performance Standards established by LCRA's Highland Lakes Watershed Ordinance (HLWO). We have the following comments regarding the plans and application:

1. Public Notice
   a. Mailed Notice: Provide a statement signed by the applicant certifying that each owner has been sent a notice of the application by first class mail.

   U1 – Comment cleared.

2. Financial Security
   a. Changes to the Erosion and Sedimentation Control Plan have been requested. Please revise the cost estimate to include these changes. Once the cost estimate is approved, a letter of credit or other form of financial security acceptable to LCRA must be submitted prior to issuance of a permit. Letter of Credit shall have a minimum expiration of 3 years or shall renew automatically until LCRA determines that the project has achieved final stabilization. Contact this reviewer for a template for the letter of credit.

3. General Requirements
   a. Include a slope map at the same scale as the water quality management plan, depicting slope categories of 0-5%, 5-20%, and over 20%.

   U1 – Comment cleared.

   b. Provide design information for the access roads within the property.

   U1 – Include roadway design information in the plans. Include the future pavement section as well if pavement is proposed. Provide design information for the boat ramp, the slope of the boat ramp (>10%) poses an erosion risk, provide permanent stabilization beyond gravel base. Include permanent stabilization information for the roadway embankments based on these designs. Also, include notes on the watering schedule for dust control.

   c. Please separate the construction plans from the report and create a stand-alone construction plan set.

   U1 – Comment cleared.

   d. Once the dredging operation is complete, will the plant be removed from the site? If so, please provide a plan to demobilize and restore the site.
4. Erosion/Sediment Control

a. Please provide revegetation plans and include these costs in the Letter of Credit. A restoration plan for all disturbed areas on the site that includes seed, sod and mulch type and rate of application; application technique; watering and fertilization schedule; and criteria for acceptance of revegetation is required.

   U1 – Specify seed, sod and mulch type, and rate of application, application technique, water and fertilizing schedule on the revegetation plan.

b. Please provide a detailed sequence of construction showing different items constructed in each phase. Include details of erosion controls that relate to each phase and specifications for and locations of controls.

   U1 – Specify in the sequence of construction item #1 that the limited clearing for installation of temporary erosion controls shall be held to a maximum of 15 feet wide.

c. Please depict the Limits of Construction line, location of all access roads, haul roads, equipment storage areas, and spoil and topsoil stockpile areas on the temporary erosion control plan.

   U1 – There is proposed grading activities outside of the limits of construction shown on the Erosion Control Plan. Please revise the limits of construction to include all proposed construction activities. Erosion controls need to be captured in the limits of construction as well.

d. Provide sizing calculations for the proposed channel that drains to the extended detention basin. Include flow, normal depth, and velocity of flow in the channel. If erosive velocities are expected provide additional erosion controls for mitigation.

   U1 – Comment cleared.

e. Provide grading and details for the proposed earthen berms throughout the project.

   U1 – Comment cleared.

f. Provide sizing and design information for the proposed culvert under the access road.

   U1 – size the crossing so that the 100-yr 24-hr flow does not overtop the road or design the road as a low water crossing to prevent the gravel base road from washing out during storm events in this location. Provide permanent stabilization at the outfall of the culvert based on the velocities found in the 100-yr flow calculations. Rip Rap rock size and apron size needs to follow HLWO requirements found at the link below. https://www.lcra.org/download/pipe-outfall-detail-pdf/?wpdmdl=29451

g. Include the sequence of construction on the Erosion Control Plans.

   U1 – Comment cleared.

h. Install rock berms rather than silt fence at all locations where concentrated flows are to be encountered, pond outfalls, culvert outfalls, etc.

   U1 – Comment cleared.

i. Install a rock berm around the culvert inflow to prevent sediment from clogging and/or flowing through the culvert and across the access road.

   U1 – Comment cleared.

j. Add silt fence to the north side of the plant stockpile area outside of the earthen berm at least until the earthen berms are permanently stabilized.

   U1 – Comment cleared.
k. Show J-hooks on the plans where required.

   U1 – Comment cleared.

l. The seed mixture quantity in the Engineer’s Erosion Control Cost Estimate needs to reflect the entire limits of construction. Revise the quantity to reflect this.

   U1 – Comment cleared.

m. The fee for the water truck rental does not account for all the watering requirements as outlined in the water application assumptions “watering occurs every two weeks for the first three months, followed by once monthly until the vegetation is established, approximately six months total”.

   U1 – Comment cleared.

n. U1 – Include the HLWO Erosion/Sedimentation Control General Notes in the plans.

5. Water Quality Management

   a. Please identify proposed vegetated buffer areas and mechanism for achieving sheet flow through buffer areas.

      U1 – There are areas shown on the plans as natural vegetated filter strips that are over the maximum 12% slope. Please revise.

   b. Show the 25-year water surface elevation on the pond profiles.

      U1 – Comment cleared.

   c. Verify that the sediment forebay volume is equal or greater than 25% of the total water quality volume.

      U1 – Comment cleared.

   d. Detail the gabion divider separating stage 1 and 2 of the extended detention pond.

      U1 – call out the height of the gabion divider on the plans.

   e. Provide calculations for apron and rock size for all proposed rock rip rap. Include installation details for rip rap.

      U1 – Rip rap size called out on the plans call for 1.5” rock. Revise the callout to reflect the correct size per the HLWO Technical Manual. Extend the rip rap to the width of the flow coming from the overflow spillway. Call out the apron dimensions on the plans.

   f. Specify the soil profile for the extended detention basin.

      U1 – Sheet C3.1 was not included in the resubmittal. Provide the soil requirements for the extended
detention basin. Soil requirements can be found in Section 4.2.3 (8) of the HLWO Technical Manual.

g. Natural vegetated filter strips require a slope of less than 12%, revise grading to be less than 12% maximum.

U1 – Areas called as natural vegetated filter strips along the boat ramp have slopes in excess of 12%, please revise. Sheet C1.0 is called as the cover sheet.

h. Provide outfall specifications for both water quality ponds. The primary spillways are not detailed, callout outfall inverts on plans, what size is the primary outfall of the bioretention pond, show the underdrain layout in the bioretention basin, show cleanout locations for the underdrain.

U1 – Call out the inverts of the underdrain piping in the bioretention pond at various points to show the minimum slope is being met. The underdrain piping outfall is not detailed, including rip rap sizing and apron dimensions as shown on the plans.

i. Show the 25-yr water surface elevation on the pond profiles. Show that a minimum 4” of freeboard is provided.

U1 – Comment cleared.

j. Label existing contours on the pond detail sheets.

U1 – Comment cleared.

k. Provide level spreader sizing calculations based on the calculations based on Equation 2.11 of the HLWO Technical Manual.

U1 – The level spreader needs to be sized based on the entire flow passing through the access road culvert crossing, not just what is coming from the ponds. Please revise.

l. U1 – Specify the location of the PVC cap with orifice on the plans. The note on the detail is incorrect. The orifice cap should be installed at the outfall of the extended detention basin (inflow to the bioretention basin. Specify the rip rap sizing shown on the plans at this outfall location.

m. Revise the grading to keep runoff upgradient of the bioretention pond from draining into the pond in the location shown below. Upstream runoff needs to be redirected around the bioretention pond.

n. U1 – As an alternative to an extended detention basin discharging to a bioretention basin, please consider the practice of biofiltration. Design criteria can be found at this location and details and other
guidance can be found here.

6. Maintenance Plan
   a. Separate the Maintenance Plan from the Engineering Report and provide as a stand-alone document.
      U1 – Comment cleared.

7. Land Ownership
   a. Please provide an authorization letter, copy of the land lease, deed, and other forms of proof of ownership for all project aspects including ingress/egress easements and sand processing plant operations. Please provide supporting maps to illustrate land ownership/leases.
      U1 – If proof of ownership or control of the property within the scope of the application is a lease, please provide documentation demonstrating authority of lessor to lease the property.

If you have any questions about these comments, please call me at (512) 578-7633, or contact me by e-mail at blake.allison@lcra.org.

Additional information addressing these comments or revised application materials must be provided within 30 calendar days from the date of this letter. An extension of time to provide information may be requested, however the cumulative amount of time to provide additional information may not exceed 6 months from the date that the application for permit was filed.

Thank you,

Blake Allison
Water Quality Protection

CC: Llano County