STATE OF COLORADO

DIVISION OF RECLAMATION, MINING AND SAFETY
Department of Natural Resources

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COLORADO DIVISION OF RECLAMATION MINING & SAFETY

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April 24, 2012

Matt Carnahan
Oldcastle SW Group, Inc.dba Four Corners Materials
6699 CR 521
Bayfield, CO 81122

RE: **Oldcastle SW Group, Inc.dba Four Corners Materials, File No. M-2011-028 Animas Glacier Gravel (AGG), 112(c) Permit Application – Second Adequacy Review**

Dear Mr. Carnahan,

Listed below are the second adequacy review comments for the Animas Glacier Gravel (AGG) Permit Application, File No. M-2011-028. The decision relative to this permit is scheduled for May 20, 2012, with the potential of a 60 day decision date extension based on a consent agenda item to be heard at the May 9 & 10, 2012 hearing of the Mined Land Reclamation Board. Therefore any of the listed issues that have not yet been addressed to the satisfaction of the Division will need to be addressed prior to approval of the application.

Rule 6.5 Geotechnical Stability Exhibit

The Division's staff engineer has reviewed the geotechnical stability reports submitted by the applicant and has identified the following concerns.

1.) Relative to drainages associated with the proposed access road:

a.) Culvert analyses indicate reinforced concrete pipe (RCP) with headwalls are to be used. The drawings and text state corrugated metal pipe (CMP) is to be used and no reference is made to headwalls for the CMP. The analyses, text and drawings need to be consistent.

b.) The times of concentration (TC) for the small basins contributing to the access road appear very large for the basin size and slope. I believe this is the result of using too long of an overland flow path length (200 ft) and too large of a Manning's coef. For the terrain (0.40 – woods with light underbrush). If the Applicant

insists on using 0.40, then the length should be limited to between 50 and 100 feet. If the Applicant uses n = 0.13 for Range, then an overland flow path length of up to 150 might be acceptable. The TCs should be recalculated and used to recalculate the peak flows.

2.) Relative to drainage into Basin Creek:

a.) Pond water management: The DRMS is concerned about the potential for inadequate storage in detention pond during periods of inactivity. That is, if a 100-yr event occurs, fills up the pond, but no effort is made to reduce the pond volume in a reasonable time period, a subsequent significant storm event may lead to discharge from the pond. The DRMS needs a stormwater management policy to address this type of scenario. If the pond does spill, the Applicant needs to demonstrate the existing grouted riprap channel will not be damaged by the discharge.

b.) Stormwater conveyance: There are no drawings or text in the Drainage Report addressing the specifics of conveying the impacted runoff in the pit/active area and how the DRMS can be assured potentially impacted stormwater, and ONLY potentially impacted stormwater is directed to the retention pond. Conveyance channels design to convey the 100-yr peak flow should be included on drawings and hydraulic calculations presented to demonstrate conveyance capacity. Also, some discussion and plans as to how unimpacted runoff is diverted away from the retention pond throughout the mine life is necessary to assure the DRMS that too much runoff does not reach the retention pond.

c.) Retention pond design: There is no discussion of the pond design. Is it all excavated with no berm or dam? Is the pond lined? If not The Applicant needs to demonstrate the stability of the slope to the west as this is a perched pond. If the pond is lined, are there groundwater influences that might cause the liner to float? A liner would also have impacts to the response to Item 1) above. How is sediment managed in the pond? Is sediment storage accounted for in the freeboard. Is there an overflow spillway or low level outlet?

3.) Relative to the berm along the western edge of the mining activity:

a.) Stability: depending on the depth and duration of water stored behind the berm, it could seep into the underlying material and cause the existing outslope to become unstable, resulting in a slope failure leading to a debris

flow into Basin Creek. If water is stored, a stability analysis should be performed for two conditions: a) saturated slope and, b) partially saturated slope (i.e., the upper portion based on seepage analysis for the depth and duration of water storage).

b.) Erosion: if the berm area is graded to drain (say to the north and the proposed pond), it would certainly reduce the potential for Issue #1, but if the flow velocity is high enough (> 5 fps during the design event), the berm could erode away, resulting in loss of containment and another potential debris flow into Basin Creek. If the berm area is graded to drain, then the flow side of the berm should be armored appropriately (demonstrated with calculations) or an analysis presented showing non-erosive velocities are expected.

If you have any questions, please do not hesitate to call me at (970) 259-5861.

Sincerely,

Kate Pickford
Environmental Protection Specialist

Cc: Rob Waldman, Tyler Artichoker, & Mark Chiarito, BOR; Russ Howard, The Association; Victoria Schmitt & Courtney Kuegar, La Plata County