



Date: Wednesday, December 29, 2021

Project: Lyons Quarry Reclamation

To: Andre LaRoche, Environmental Manager

From: Travis Snyder, HDR Project Manager

Subject: 2021 Reclamation Progress Summary

The following are updates for the reclamation of Lyons Quarry (DRMS permit #M1977-141) during the 2021 calendar year. Prior to the start of 2021, HDR Engineering, working as consultant to Aggregate Industries, was in the process of developing technical revision to the existing mine permit reclamation plan. Technical Revision #4 addressed reclamation to the floodplain area of the site and was conditionally approved in December of 2020. Technical Revision #5 addressed the main quarry pit area and was at the 30% concept design phase at the beginning of the year.

#### January-March 2021:

- HDR and Aggregate personnel, including biologists, geotechnical engineers and hydraulic engineer attended site visit in early January to discuss option for reclamation design and timing of working around nesting bird habitats.
- Developed 60% and 90% designs and specifications for regrading of the quarry. Each design phase was submitted to DRMS and the current landowner Boulder County Parks and Open Space (BCPOS) for comments.
- Began hydraulic analysis for a floodplain development permit application through Boulder County.
- Submitted final version of Technical Revision #5 with 100% design on March 5. Adequacy review period started.

#### April-June 2021:

- HDR and Boulder County biologists conduct nesting bird surveys of site and agree that excavation areas are inhabited with MBTA protected species. Excavation would not be allowed to begin until nesting season ends. Most species expected to fledge by early to mid-September.
- Aggregate Industries submits grading permit application with Boulder County on May 14. Supplemental documents including contractors license, Stormwater Quality Management Plan and updated grading plans are also submitted.
- DRMS adequacy review for Technical Revision #5 continues through June.

#### July-September 2021:

- Performed additional MBTA nesting surveys with Boulder County biologists. Final Lyons Quarry Nesting Survey memo submitted to DRMS outlining species of concern and

procedures for working around nesting areas prior to fledging including performing backfill on sedimentation pond away from highwall.

- Final approval for Technical Revision #4 and #5 received July 1. Boulder County grading permit conditionally approved for Phase I (quarry area only) on July 29.
- Hydraulic modeling for floodplain development permit indicates that a Letter of Map Revision through FEMA will be required to perform necessary grading work for reclamation. Plans made to provide revisions as needed.
- Reclamation kickoff meeting on August 2 with Boulder County engineers, ecologists, and BCPOS managers. Mobilization for erosion control and initial site setup begins late August.
- Erosion control installed by first week of August. Sedimentation pond backfilled by mid-September as required by Colorado Division of Water Resources as water right for keeping groundwater exposed had expired. Approximately ½ acre pond was filled to surrounding grade with borrow material adjacent to pond.
- Once mid-September fledging date passes, Aggregate begins to mobilize equipment to site for initial grading activities, access road improvements, clearing/grubbing, etc.

#### October-December 2021:

- Re-grading on top of quarry highwall begins in early October. Bulldozer, excavator and haul truck mobilized to move material from the top crest of the highwall to Quarry 2 for fill in the southwest corner of the site.
  - Excavation moved slowly initially as the sandstone overburden material was considerably harder than expected. A hydraulic hammer excavator attachment was mobilized to be able to break through the sandstone layers. Blasting remains an option but requires traffic control on nearby Hwy 7 which requires a CDOT permit. A permit application was submitted in October and is conditionally approved as of late December 2021.
  - Excavation progress has also been hindered by lack of qualified equipment operators and heavy equipment rentals during this time. Equipment operator job postings have been up since early August and have produced few qualified candidates to work on this highly-phased, technical earthwork project. Aggregate has since brought over personnel from other mine operations in Denver Metro area to assist with reclamation.
  - Aggregate is in discussion to work with CDOT contractor on Hwy 7 project to export fines material from floodplain area to be used on highway reconstruction project adjacent to site starting in January 2022.
- Soil germination bench study started in early November and is being performed by HDR at their warehouse to test soil amendments and seed mix with relatively-inorganic site soils. Soil samples were sent to the lab in early October provide nutrient analysis and recommended fertilizer amendments. Test results will help Aggregate with planning the revegetation of the project.
- Floodplain development permit application and hydraulic analysis report submitted to Boulder County in early November. Boulder County is still reviewing the application.



The project is moving forward with steady progress and will ramp up production once the floodplain development permit is approved and floodplain reclamation can commence which is expected in mid to late-January 2022. Due to delays with bird nest habitat, permit reviews and the lack of available equipment operators, the project has had several schedule setbacks. Aggregate is working through these issues to complete reclamation as quickly as possible but also is aware that operations may be slowed by winter conditions and subsurface changes in rock type. The overall safety of equipment operators working along the quarry highwall is the highest priority and adding additional equipment or pushing higher production rates may not always be the right choice for the success of the project. Aggregate and HDR have been providing Boulder County with biweekly progress reports on the scope and schedule of work performed. Aggregate will continue to coordinate with DRMS and Boulder County to assure that quality control and project goals are met as expeditiously as possible.