



CHEYENNE COUNTY BOARD OF COMMISSIONERS

P.O. Box 567, 51 South 1st Cheyenne Wells, CO 80810 Website: www.co.cheyenne.co.us
Phone: (719) 767-5872 Fax: (719) 767-5753 Email: ccadmin@rebeltec.net

January 18, 2024

Division of Reclamation, Mining & Safety
Attn: Nikie Gagnon
1313 Sherman Street, Room 215
Denver, CO 80203

Re: Preliminary Adequacy Review (Larsen Pit, File #M-2023-036)

Dear Ms. Gagnon,

We are in receipt of your letter dated December 15, 2023 regarding the aforementioned Construction Materials (112) Reclamation Permit Application for consideration in Cheyenne County, Colorado. We have attached information with this letter in order to have the application be considered complete.

General Application Information:

1. We acknowledge receipt of the letters and comments from the Division of Water Resources and History Colorado.

Exhibit G – Water Information:

2. We will evaluate the drainage if we foresee measurable precipitation in the forecast and determine if temporary or permanent berms need created to prohibit offsite drainage.

Exhibit S – Permanent Man-Made Structure:

3. Enclosed is the engineering evaluation conducted.

Additional Information:

4. This adequacy response letter has been filed with the Clerk and Recorder's Office and enclosed is a newly signed proof of filing with County Clerk document.

If you have any questions or concerns, please do not hesitate to contact me at the address, phone number or email address listed above.

Sincerely,

Marcy L. Brossman
Cheyenne County Administrator
Enclosures

Jolly, Commissioner, Vice Chairman

Ronald R. Smith, Commissioner, Chairman

Darin C. Dickey, Commissioner

Marcy L. Brossman, Administrator

Allison Brown, Clerk to the Board

January 16, 2024

Marcy L. Brossman
Cheyenne County Administrator
P.O. Box 567, 51 S. 1st St.
Cheyenne Wells, CO 80810

Re: Technical Evaluation of Potential Impacts to Adjacent Union Pacific Railroad Structures – Larsen Gravel Pit – Cheyenne County, Colorado

ELECTRONIC COPY VIA EMAIL: ccadmin@rebeltec.net

Dear Ms. Brossman:

Per your instructions, American Environmental Consulting, LLC (AEC) recently completed a site reconnaissance and technical assessment of the potential impacts from a proposed gravel pit mining operation known as the Larsen Pit. The proposed operation is located as shown on the attached exhibit (Figure 1) that you provided to us and is part of your 112 Mining Permit application submitted for the operation for approval by the Colorado Division of Reclamation Mining and Safety (DRMS). That application process includes a requirement to provide notices to adjacent landowners within 200 feet of the proposed permit boundary. Union Pacific Railroad (UPRR) is the only entity with ownership of property and right-of-way within 200 feet. The property is on an adjacent parcel abutting the south section of the proposed gravel pit mining operation (Figure 1). The notification also includes a requirement to obtain a letter from close-proximity landowners (UPRR) specifically excluding your proposed operations from liabilities associated with collateral impacts from planned operations to any structures located in proximity. In lieu of receipt of written assurances (Structure Letter) from Union Pacific as part of the conditional approval of the proposed operation by DRMS, Cheyenne County may, at their own expense, solicit an independent assessment that "shall provide an appropriate engineering evaluation that demonstrates that such structure shall not be damaged by activities occurring at the mining operations." The evaluation carried out by AEC supports the alternative evaluation allowed for by DRMS for the 112 Mining Permit.

Physical Setting

Per Figure 1, the proposed Larsen Pit is located between County Road R and US 40 about midway between the Towns of Kit Carson and Cheyenne Wells, Colorado. The proposed operation covers approximately 33 acres, whose south property boundary straddles the right of way and Union Pacific rail line. Based on available satellite imagery for the area, and visual inspection of the site during field reconnaissance carried out by AEC personnel on January 10, 2024, the only structure(s) along the southern Larsen Pit property boundary include the rail line itself, and associated fencing that defines the property boundary with the Cheyenne County land holdings. Figures 2, 3, 4, and 5 are photographs taken during the site reconnaissance in the

vicinity of the rail corridor for general reference. The rail line itself is located approximately 200 feet south of the fence line that also defines the east/west property boundary.



FIGURE 1
DRMS 112 Permit Exhibit C (per Cheyenne County, Colorado)

For the purposes of its evaluation, AEC assembled a topographic map and overlay satellite imagery covering the property area based on available recent USGS 1-meter survey data. This map is provided as Figure 6. Figure 6 illustrates the projected geometry of the pit if excavated to maximum depth of 20 feet at the south property boundary, and the highwall with a top at the fence line (no setback) with a 3:1 slope. Profile locations are also noted along the south property boundary and were used as the basis for an initial evaluation of potential gravel mining impacts to the rail line structure. Figure 7 shows Profiles A, B and C and illustrates the relative elevations of the proposed pit bottom and rail line and the geometry of a pit highwall. As can be seen on Figure 1, the proposed operation also includes a perimeter topsoil berm. For purposes of the

AEC

AEC assessment, we assumed as a worst-case scenario that excavation could proceed as far south as the UPRR-property boundary.



FIGURE 2

View East Between UP Rail and South Fence line



FIGURE 3

View South From South Fence Line to UP Rail

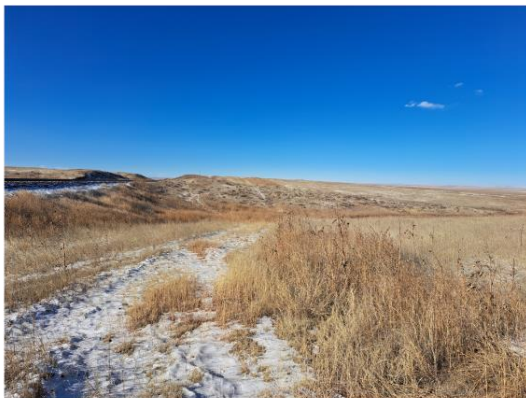


FIGURE 4

View West Between UP Rail and South Fence line



FIGURE 5

View North Into Proposed Pit From South Fence line

Analysis and Assessment of Potential Structure Impacts

AEC evaluated the physical setting of the proposed gravel mining operations, utilizing the projected profiles (Figure 7) that traverse multiple locations along the entire property boundary and determined that the potential for any damage to Union Pacific rail lines is extremely unlikely. *Based on the spatial relationships between the rail line and the prospective excavation geometry, no further geotechnical evaluation of slope stability or supporting soil testing is required.* This conclusion is based on fundamental geotechnical principles considering the location of the deepest excavation high wall relative to both the property boundary and the subject structure (rail line). According to Cheyenne County, the proposed operation will only create a pit of maximum 20 feet depth, and therefore, from a slope stability perspective it is technically impossible to induce a shallow slope failure given the observed ground conditions that would extend more than 40 feet into the Union Pacific property assuming that

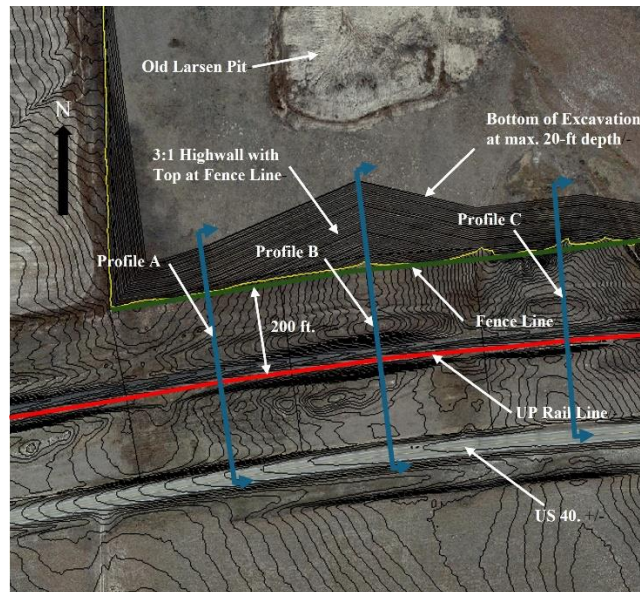


FIGURE 6
Topographic Map of Proposed Larsen Pit/Union Pacific Property Area

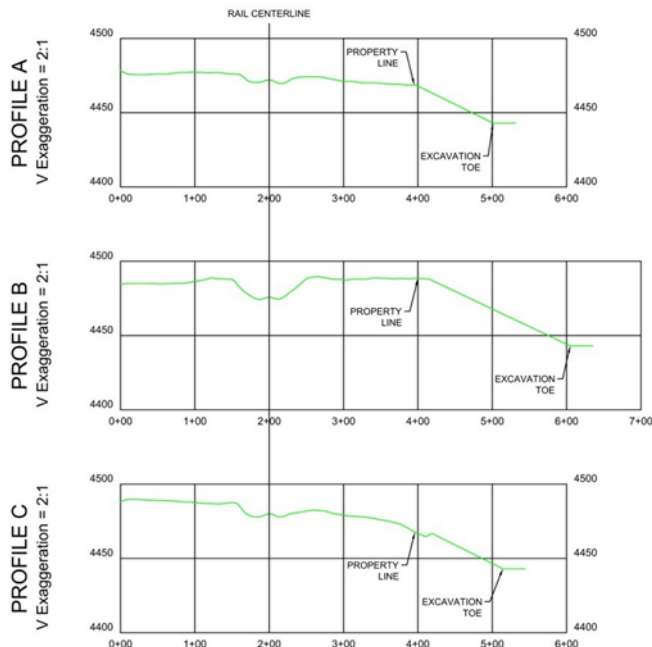


FIGURE 7
Profiles Through Proposed Larsen Pit and Union Pacific Property

gravel excavation proceeds in such manner that the top of the southern highwall would extend to the fence line property boundary as a worst-case scenario. This arrangement provides a minimum 200-foot setback to the rail line. In addition, no explosives will be used during excavation, and

only minor ground vibrations that could enhance the potential for slope failures can be expected from the suite of mobile earth-moving equipment that typically will be employed at the operation. *In conclusion and in our professional opinion, no evidence demonstrating potential for damage to Union Pacific exists for the planned gravel mining operation.*

Recommendations

AEC recommends that in developing its planned gravel mining operations, that Cheyenne County include the following practices to further mitigate any potential for collateral damage to any Union Pacific structures:

- 1) Maintain a minimum 50-ft setback on the north side of the Union Pacific property line for any excavation; and
- 2) Maintain 3:1 (horizontal :vertical) slopes on the south highwall of the operating pit including the 50-ft. setback.

Please feel free to contact us if you have any questions or if you are requested by DRMS to supply any additional input.

Respectfully,

American Environmental Consulting, LLC



William A. (Bill) Cincilla, PE
Senior Engineer

PROOF OF FILING WITH COUNTY CLERK

I, Alisiauna Torres (Cheyenne County Clerk & Recorder's Office)
received additional pages for a proposed gravel pit application, also known as the Larsen Pit, on
1-18-2024 (date) for public review pursuant to rule 1.6.2(2) of the Mineral Rules and
Regulations of the Colorado Mined Land Reclamation Board for the Extraction of Construction
Materials.

 (Signature)

Deputy Clerk (Title)