STATE OF COLORADO

Gagnon - DNR, Nikie <nikie.gagnon@state.co.us>

Evans Mining Resource Prelimary Adequacy Review Letter M2024056

1 message

Gagnon - DNR, Nikie <nikie.gagnon@state.co.us> Fri, Jan 10, 2025 at 5:28 PM
To: Greg Geras <GregG@asphaltspecialties.com>, Ben Miller <ben@lewicki.biz>

Hello.
Please see the attached adequacy review letter for the Evans Mining Resource 112c application.

Let me know if you have any questions on the review.

Best regards,

Nikie Gagnon
Environmental Protection Specialist

COLORADO
Division of Reclamation, Mining and Safety
Department of Natural Resources

Cell: 720.527.1640
Physical: 1313 Sherman Street, Room 215, Denver, CO 80203
Address for FedEx, UPS, or hand delivery:
DRMS Room 215, 1001 E 62nd Ave, Denver, CO 80216
nikie.gagnon@state.co.us | https://www.drms.colorado.gov

M2024056 Evans Mining Resource Adequacy Ltr #1.pdf
1341K

COLORADO
Division of Reclamation, Mining and Safety
Department of Natural Resources

January 10, 2025

Greg Geras
Asphalt Specialties Co., Inc.
345 W. 62nd Ave.
Denver, CO 80216

Re: Evans Mining Resource, File No. M-2024-056, Preliminary Adequacy Review

Dear Mr. Geras:

On November 4, 2024, the Division of Reclamation, Mining and Safety (Division/DRMS) received a 112 Construction Materials Reclamation Permit Application package for the Evans Mining Resource, File No. M-2024-056. The application was deemed complete on November 19, 2024. A pre-operation inspection of the proposed mine site was conducted on December 19, 2024. Based on the inspection and a review of the permit application package, the following items must be addressed and/or received before the Division can approve the application.

The review consisted of comparing the application content with specific requirements of Rules 1, 3, 6.1, 6.2, 6.4 and 6.5 of the Minerals Rules and Regulations of the Colorado Mined Land Reclamation Board for the Extraction of Construction Materials. Any inadequacies are identified under the respective exhibit heading along with the suggested corrective actions.

1. As required by Rule 1.6.2(d) and 1.6.5(2), please submit proof of publication in a newspaper of general circulation in the locality of the proposed mining operation. Proof of publication may consist of either a copy of the last newspaper publication, to include the date published, or a notarized statement from the paper.
2. As required by Rule 1.6.2 (e), please submit Proof of Notice to all Owners of Record of the surface and mineral rights of the affected land and the Owners of Record of all land surface within 200 feet of the boundary of affected land. Proof of Notice may be by submitting return receipts of a certified mailing or by proof of personal service.
3. The Division received comments from Colorado Parks and Wildlife and the Colorado Division of Water Resources. The comment letters are attached for your review. Please acknowledge and address the comments noted in the letters and make changes to the application/exhibits as necessary.

Application Form

4. Page 1, Questions 1.1 and 3.2: Please provide answers the two questions and resubmit the first page of the application.

6.4.3 Exhibit C Pre-mining Baseline Map (Rule 6.4.53):

5. The C-1 Baseline Map lists Martin Hernandez as the owner of parcel R895279 on the south side of the permit area. According to the Weld County Property Portal, parcel R8952790 is owned by the CR394 Dream Family Revocable Trust. Please update and resubmit the C-1 map and provide evidence that the correct landowner was notified of the application as required by Rule 1.6.2 (e).

6.4.4 Exhibit D – Mining Plan (Rule 6.4.4):

6. Exhibit A describes a right-of-way for 35th Avenue owned by the City of Evans. During the pre-operation inspection, the Division observed the dirt north/south road between two parcels owned by the Hunt Brothers on the west side of the permit area. According to the Mining Plan this road is included in the affected acres. Will this road be utilized by the proposed mining operation? Per Rule 6.4.4 (f), please update the mining plan to include a description of any existing or proposed roads that will be used for the mining operation. Describe any improvements necessary on existing roads and the specifications to be used in the construction of new roads. Describe any associated drainage and runoff conveyance structures to include sufficient information to evaluate structure sizing. Additionally, prior to commencement of mining operations, please commit to submitting a copy of the Special Use agreement with the City of Evans to the Division for the use of this road.
7. The Mining Plan map shows several natural gas pipelines within the permit area. Please add a discussion to the Mining Plan describing how the mining operation will avoid impacting the oil and gas facilities in the permit area during the different mining phases. If any of the facilities will be removed, expand on the notification and removal process required by the Energy and Carbon Management Commission.
8. Please discuss if processing will entail washing of the product and if a pond or ponds will be included in the process area. If so, add a discussion to the text of Exhibit D and to the Map C-2.
9. Section 4 Topsoil. Per Rules 3.1.9(4-5) please update the text to state that topsoil will be re-handled as little as possible and placed in a way to prevent erosion of this resource and a discussion added regarding the practices to stabilize slopes (i.e., roughen slopes prior to placement of topsoil). Note, a Technical Revision shall be submitted before topsoil stockpiles may be relocated.

Exhibit E – Reclamation Plan (Rule 6.4.5):

10. In Section 1, the Reclamation Plan states that the distribution of rangeland and water storage ponds may vary based on the market demand for inert backfill storage. Please acknowledge that a Technical Revision will be required for alterations to the post mining land use acres in Table E-1.
11. In Section 2, the applicant describes an Alternative Reclamation Plan which includes backfilling the mining pits entirely to rangeland. Please acknowledge the requirement to submit an Amendment application to completely backfill the pit.
12. Section 3 of the Mine Plan states that recycled aggregate from the Evans Pit may be used as backfill as needed to facilitate the reclamation material balance. According to Rule 3.1.5(9), the operator may backfill a pit with structural fill material generated within the permitted area, however, any inert structural fill generated outside the permit area requires the operator to submit an Inert Fill Notice that meets the Rule. Please acknowledge that this notice shall be submitted as a Technical Revision for

approval by the Division prior to placing any material from off-site in the pit. Additionally, the text states "A certification form is attached to this exhibit." No form was attached. Please either submit this attachment or delete this from the text.

Exhibit G – Water Information (Rule 6.4.7):

13. Please update the text to include a discussion on the use of water for processing gravel. If no products will be washed onsite, this should be stated in Exhibit G.
14. The applicant proposes a 100-foot setback from the South Platte River on the north end of Phase 5. For protection of the riverbank, please review the attached, "Floodplain Protection Standards for Sand and Gravel Pits Adjacent to Rivers and Perennial Streams". This Guidance document is based on the MHFD Guidelines. Note that in the scenario where no pitside bank or riverbank protection is provided, the standard setback from the river or stream is 400 feet. Based on Table 1- Standard Setbacks on Page 3 in the Guidance, the minimum setback from the river is 150 feet which requires stabilization of the riverbank and pitside banks. Please update the Mining and Reclamation Plans and maps to describe the stabilization structures that will be installed on the north side of mining Phases 3 and 5. Resubmit the maps and provide detailed designs of proposed structures (e.g., riprap, grouted boulders, side channel spillways) to be installed on pitside banks and riverbanks to control water erosion.

Exhibit H – Wildlife Information (Rule 6.4.8)

15. The applicant must address the comments of the Colorado Parks and Wildlife Division (CPW), which are enclosed with this review letter. Each of the comments must be directly addressed in your response letter, and, as applicable, comments must also be addressed by revising Exhibit H.
16. During the pre-operation inspection, the Division observed prairie dogs in the permit area. Please address timing considerations related to burrowing owls and update the discussion in Exhibit H as necessary.

Exhibit M – Other Permits and Licenses (Rule 6.4.13)

17. Please update the list of permits to include the City of Evans Special Use Permit

Exhibit R – Proof of Filing with County Clerk and Recorder (Rule 6.4.18):

18. Please provide proof that a copy of the applicant responses to this adequacy review have been placed with the Weld County Clerk and Recorder for review. Evidence may be in the form of an affidavit or receipt indicating the date on which the information is delivered.

Exhibit S – Permanent Man-Made Structures (Rule 6.4.19):

19. In accordance with Rule 6.4.19, when mining operations will adversely affect the stability of any significant, valuable and permanent man-made structure located within 200 feet of the affected area the applicant shall provide a notarized agreement between the applicant and the person(s) having an interest in the structure, that the applicant is to provide compensation for any damage to the structure. Please submit the signed/notarized structure agreements to the Division for each structure listed on

Table S-1.

20. The applicant states, "In the event that a structure agreement is unobtainable, defer to the Geotechnical Stability Exhibit which indicates that all structures will be protected." A Geotechnical Stability Exhibit was not included in the application package.

    Pursuant to Rule 6.4.19, the Division requires the Applicant to demonstrate that they attempted to obtain notarized structure agreements with all owners of the structures within 200 feet of the affected area of the proposed mine site. This attempt must be made prior to the Division's consideration of a stability analysis. Please provide this demonstration; this can be in the form of certified mailing receipts or similar documentation.

This concludes the Division's preliminary adequacy review of this application. The Division continues to review the application and may send additional adequacy reviews. The public comment period for this application closed on January 3, 2025. No objections were received on the application. Please note that the decision date for this application is **February 17, 2025**. Please allow the Division sufficient time to perform another review of your responses prior to this date. If you are unable to provide satisfactory responses to any inadequacies, it will be your responsibility to request an extension of time to allow for continued review of this application.

If you have any questions, please contact me by telephone at 720-527-1640 or by email at nikie.gagnon@state.co.us.

Sincerely,

Nikie Gagnon

Nikie Gagnon
Environmental Protection Specialist

Enclosures: CPW Comment Letter
DWR Comment Letter
DRMS Floodplain Protection Standards for Sand and Gravel Pits

Cc: Ben Miller, Lewicki & Associates
Jared Ebert, DRMS

COLORADO
Parks and Wildlife
Department of Natural Resources

Northeast Regional Office
6060 Broadway
Denver, CO 80216
P 303.291.7227

December 6, 2024

Department of Reclamation, Mining and Safety
Attn: Nikie Gagnon
1402 North 17th Ave
Greeley, CO 80631
nikie.gagnon@state.co.us

RE: CPW's Comments on the Evans Mining Resource- M-2024-056

Dear Nikie,

Thank you for the opportunity for Colorado Parks and Wildlife (CPW) to comment on the proposed Evans Mine Resource Project. It is our understanding that the project is located in Section 36 of T5N, R66W. The proposed use of the site is Sand and gravel extraction for use in construction materials such as crushed rock, sand, washed rock, concrete, and asphalt. Mining operations at the Evans Mining Resource are expected to take approximately 21 years to complete, based on an annual average production of 300,000 tons. The total mining area to be reclaimed under this permit is 99.3 acres out of the 159.2-acre permit and affected area. Reclamation of the Evans Mining Resource will convert the site to a final land use of a water storage pond and rangeland. The industrial area containing the asphalt plant and aggregate processing/recycling plants will remain after reclamation. Reclamation will occur concurrently with mining. Final reclamation will be completed after mining has finished.

The mission of CPW is to perpetuate the wildlife resources of the state, to provide a quality state parks system, and to provide enjoyable and sustainable outdoor recreation opportunities that educate and inspire current and future generations to serve as active stewards of Colorado's natural resources. CPW has a statutory responsibility to manage all wildlife species in Colorado, and to promote a variety of recreational opportunities throughout Colorado. One way we achieve this goal is by responding to referral comment requests, as is the case for this project.

After review of this project and location, CPW has the following recommendations:

RECOMMENDATIONS:

Jeff Davis, Director, Colorado Parks and Wildlife
Parks and Wildlife Commission: Dallas May, Chair • Richard Reading, Vice-Chair • Karen Bailey, Secretary • Jessica Beaulieu
Marie Haskett • Jack Murphy • Gabriel Otero • Duke Phillips, IV • Gary T. Skiba • James Jay Tutchton • Eden Vardy

The Importance Of High Priority Habitats

Developers and permitting agencies can help avoid, minimize, and mitigate impacts to wildlife from their projects by working with CPW. High Priority Habitats (HPH) are defined as sensitive habitats where CPW has recent maps regarding sensitive wildlife use, plus scientifically-backed best management practice (BMP) recommendations. HPHs are a subset of CPW's species activity maps that we collect and update for a variety of species and their particular habitats; we provide these maps to the public and regulatory agencies for the environmental assessment and land use commenting of proposed development on a given parcel, and general scientific research.

Mule deer severe winter concentration and winter concentration areas

CPW has identified Mule deer severe winter concentration and Mule deer winter concentration areas and a Mule deer Migration cooridor within the State of Colorado's 2015 State Wildlife Action Plan. Mule Deer Severe Winter Ranges are defined as that part of the overall winter range where 90% of the individuals are located when the annual snowpack is at its maximum and/or temperatures are at a minimum in the two worst winters out of ten. These areas provide crucial wintering habitat during both severe and mild winters by providing ideal forage, vegetation, and topographic features for both species. Regardless of weather patterns, winter is the most stressful period for ungulates due to the challenges winter poses for forage availability. The entirety of the project is slated for development within these HPH layers. Therefore, CPW recommends not constructing during the winter season (December 1 to April 30), if this is not feasible, CPW recommends that the applicant start construction outside of this window.

Aquatic Native Species Conservation Waters

CPW has identified Aquatic Native Species Conservation Waters within the State of Colorado's 2015 State Wildlife Action Plan. These streams provide critical habitat for native aquatic wildlife, such as amphibians and fish, while also providing crucial habitat for mammals, birds, and reptiles that utilize the habitat. There are sensitive aquatic native species (fish and amphibians) located within the South Platte River. CPW recommends no surface occupancy and no ground disturbance (year-round) within 500 feet of the ordinary high water mark of the South Platte River and to implement appropriate storm water best management practices (BMPs).

Fencing

CPW recommends that if fencing (project perimeter or internal) is erected, either during or after construction of the project, it should be the type that would allow the free passage of wildlife. This will help to ensure the safety of mule deer, white-tailed deer, and pronghorn antelope in the project area. Fencing plans should avoid the use of woven wire-type fences that will trap or prevent the movement of wildlife. CPW recommends using three or four-strand smooth-wire fencing with a minimum bottom strand height of 17 inches above

ground level and a maximum top strand height of 42 inches above ground level, along with the installation of double stays between posts.
Further information can be found in CPW's "Fencing with Wildlife in Mind" brochure.

Noxious Weeds and Native Re-seeding
Also of importance is the revegetation of disturbed soils and the control of noxious weed species through the development of a noxious weed management plan prior to initiating construction activities. The revegetation of disturbed areas and control of invasive weed species are important components of the project and it is critically important that the site be restored back to the native plant community that currently exists on site. It is preferable that native vegetation be retained on-site during the operational lifespan of the project, both as potential habitat for wildlife and to ensure successful reclamation of the project area, as noxious weeds could spread to adjacent habitats outside the project area. CPW recommends that the applicant consult with Weld County and the Natural Resource Conservation Service (NRCS) for current noxious weed best management practices.

Wildlife Escape Ramps
During open pit or open trench mining operations, CPW recommends placing temporary backfilling or other material as escape ramps in areas with steep slopes. Escape ramps will allow wildlife to exit an open pit or trench safely if they become entrapped.

Lighting
Nighttime artificial lighting has been documented to affect wildlife species of all sizes, from small macroinvertebrates to large mammals. These effects are often species-specific, and in some cases may be beneficial to one species within a local ecological community, but detrimental to another species within the same ecological community. These impacts could be expected year-round and can affect both local resident species and migrating wildlife, which may lead to collisions with other animals and structures, exhaustion, increased depredation, and direct mortality. Nighttime artificial lighting may also disrupt nocturnal species that are not accustomed to a significant increase in artificial light, leading to temporary blindness and disorientation, which may also increase the likelihood of collisions with infrastructure on site. CPW recommends that all outdoor lighting be down-shielded to minimize disturbance areas and dim the lights as much as practicable.

Per the U.S Fish and Wildlife Service recommendations[1], all outdoor lighting should be limited to warmer colors with "longer wavelengths (>560 nm) and lower correlated color temperatures (CCT<3000 Kelvin degrees)" ("Threats to Birds: Collisions - Nighttime Lighting | U.S. Fish & Wildlife Service"). Per the American Bird Conservancy, CCTs ranging from 2200 Kelvin Degrees to 2700 Kelvin Degrees is the preferred range of color. (Misguiding Light: The

[1] [4] "Threats to Birds: Collisions - Nighttime Lighting | U.S. Fish & Wildlife Service." *FWS.gov*, 4 May 2023, www.fws.gov/story/threats-birds-collisions-nighttime-lighting.

Role Artificial Light Plays in Bird Mortality from Collisions with Glass | Sheppard, PHD[2]) CPW recommends the latter range of lighting color options for implementation at the project site.

Retention Ponds

Ponds created by reclamation efforts could potentially have significant value to wildlife. To maximize this benefit, CPW recommends that ponds be designed to include irregular shorelines and one or more islands to provide cover, shelter, and nesting areas for migratory birds. Islands should be at least 15' x 25' in size for every two surface acres of water in the pond. Shoreline and island slopes should be graded to a ratio of 4 horizontal feet to every 1 vertical foot of distance, with some areas having slopes no steeper than 8 horizontal feet to every 1 vertical foot of distance. Such shallow areas will allow for the establishment of a variety of aquatic vegetation and invertebrate prey for waterfowl and shorebirds. Shorelines should be re-vegetated with native aquatic vegetation[3].

If the timing or scope of this project changes and/or if you have any questions, please contact Mike Grooms at 970-472-4458 or michael.grooms@state.co.us.

Sincerely,

Jason Surface
Area 4 Area Wildlife Manager

Cc: Mike Grooms, Greeley South District Wildlife Manager, michael.grooms@state.co.us
Lexi Hamous, NE Land Use Coordinator- lexi.hamous-miller@state.co.us

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[2] Sheppard, PHD, Christine. *Misguiding Light: The Role Artificial Light Plays in Bird Mortality from Collisions with Glass*. American Bird Conservancy, 11 May 2022, chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/abcbirds.org/wp-content/uploads/2022/05/ABC-lighting-collisions-position-statement-2022.pdf.

[3] USDA Natural Resources Conservation Service. Conservation Practice Standard – Access Control, Code 580. January 2021.

COLORADO
Division of Water Resources
Department of Natural Resources

Response to Construction Materials Reclamation Permit Application

Date: November 25, 2024

To: Nikie Gagnon, Division of Reclamation, Mining & Safety (DRMS), gagnon@state.co.us

Cc: Alec Hernandez, Lead District 2 Water Commissioner, alec.hernandez@state.co.us

From: Wenli Dickinson, P.E., State Engineer's Office (SEO), wenli.dickinson@state.co.us

RE: Evans Mining Resources, File No. M-2024-056

Applicant: Asphalt Specialties Co., 345 W 62nd Ave, Denver, CO 80216, (303) 289-8555

Location: Part of the SE ¼ of Sec. 35 and part of the SW ¼ of Section 36, Township 5 North, Range 66 West, 6th P.M., Weld County

Conditions for Approval

The proposed operation will consume groundwater by: ☒ evaporation, ☒ dust control, ☒ dewatering, ☒ water removed in the mined product, ☐ washing, ☐ concrete production and ☐ reclamation.

☒ The Applicant must obtain an approved substitute water supply plan (SWSP) or decreed plan for augmentation is required prior to obtaining a well permit.

☒ The Applicant must obtain a gravel pit which requires the Applicant to conduct a field inspection of the site and document the locations of all wells within 600 feet of the permit area prior to obtaining a well permit. The Applicant must then obtain a waiver of objection from all well owners with wells within 600 feet of the permit area or the

State Engineer must provide written notice to all well owners within 600 feet of the permit area, which may request a hearing before the State Engineer.

Comments

Mining Plan

According to the application, the mining plan calls for an average excavation of 300,000 tons of sand and gravel per year for an estimated 21 years. Mining will occur on approximately 159.2 acres in the alluvium of the South Platte River. Estimated depth to groundwater is 6 feet below grade. Mining will be accomplished by dry-mining method within a slurry wall to be installed prior to mining. Groundwater will be consumed by dewatering, dust control, water removed in the mined product, and evaporation incidental to such uses. Additionally, according to the application, surface water collected at the site will drain to the pit or reclamation reservoir.

During Mining

Prior to the use or exposure of any groundwater, the Applicant must obtain an SWSP or decreed plan for augmentation to replace depletions caused by groundwater consumption and a well permit, subject to 600-foot spacing required by section 37-90-137(2)(b), Colorado Revised Statutes (C.R.S.). **Any surface water runoff stored or consumed as a result of the mining activities must be covered by the SWSP or augmentation plan.** In addition, any stormwater runoff intercepted by this operation that is not diverted or captured in-priority must infiltrate into the ground or be released to the stream system within 72 hours. Otherwise, the operator will be required to make replacements for evaporation.

In certain areas of the South Platte River Basin, DWR staff have observed groundwater problems that appear to be related to the lining of gravel pits located near streams, and in particular, these problems occur when multiple liners are located adjacent to each other. DRMS should consider the siting and design of lined gravel pits to ensure that they will not

individually or cumulatively result in impacts to the timing and quantity of groundwater flow from upgradient locations back to the stream system. In addition to impacts to property, such as flooding upgradient and reduced water levels downgradient of the liner, there are decrees of the court that specify the timing, quantity, and amount of water depleted from the streams by wells and accreted to the stream through recharge operations. The installation of a gravel pit liner should not result in changes to the timing, location, and amount of such groundwater flow. In anticipation of mounding, the Applicant proposes a French drain around the perimeter of the pits.

Reclamation

According to the application, the area will be reclaimed as a lined storage reservoir and rangeland. The site must continue to be operated under a SWSP until such time as the proposed reservoirs are lined (lining approved by this office, backfilling is completed, and replacement of lagged depletions shall continue until there is no longer an effect on stream). Upon reclamation, if the reservoir, and any other detention structures, do not qualify as a stormwater detention facility as described in DWR's Administrative Statement Regarding the Management of Storm Water Detention Facilities, and such water is not stored under free river conditions, **the water collected in the reclaimed reservoir must be operated under a court-approved augmentation plan.**

Existing Well

Lastly, a review of our records shows well permit no. 299707 may be located on the subject property. Use of this well is limited to fire protection; the watering of poultry, domestic animals, and livestock; and the irrigation of not more than one (1) acre of home gardens and lawns. As permitted, the well cannot be used for any commercial or industrial purposes. If the well will be plugged and abandoned, it must be done in accordance with the Well Construction Rules and an abandonment report (GWS-09) must be filed with this office at DWRpermitsonline@state.co.us.

Please contact Wenli Dickinson in Denver at Wenli.Dickinson@state.co.us or (303) 607-8206 or the Lead Water Commissioner, Alec Hernandez, at Alec.Hernandez@state.co.us or at (970) 381-0828 with questions.

COLORADO
Division of Reclamation, Mining and Safety
Department of Natural Resources

Floodplain Protection Standards for Sand and Gravel Pits Adjacent to Rivers and Perennial Streams

February 2024

Introduction

Sand and gravel are necessary commodities for construction that must be mined where they exist. Many gravel deposits exist in the floodplains of rivers and streams. Historically, gravel was extracted directly from streams and rivers via in-stream mining methods. Today, floodplain mining (occurring adjacent to the main channel of a river or stream) is considered a safer and less impactful method of extracting this material.

However, floodplain mining can cause significant impacts to the surface water environment and associated infrastructure if its risks are not properly addressed. Mining operations that occur within or adjacent to floodplains have the potential to significantly impact the prevailing hydrologic balance of affected land within the boundary of a mine site, as well as the surrounding area. These operations also have the potential to cause significant damage off-site during flood events. One common example of this is when a river or stream cuts through an adjacent pit during a flood event (referred to as "stream capture"), which can lead to off-site impacts to river water diversions and other structures.

Potential damage from mining within or adjacent to floodplains can include:

- Damage to property and infrastructure
- Reduction in water quantity for water users
- Degradation of water quality for water users
- Destruction of riparian vegetation and habitat
- Short- and long-term changes to channel morphology and river behavior
- Cumulative impacts from multiple mines in a floodplain

To limit these impacts, the Colorado State Legislature and the Mined Land Reclamation Board (MLRB) have promulgated the following Statutes and Rules (citations in References section) pertaining to the extraction of construction materials.

- C.R.S. 34-32.5-116(4)(c):

  > An operator shall demonstrate that . . . all affected areas to be reclaimed as part of the approved application will not result in any unauthorized release of pollutants to the surface drainage system.

- C.R.S. 34-32.5-116(4)(h) and Rule 3.1.6(1):

  > Disturbances to the prevailing hydrologic balance of the affected land and of the surrounding area and to the quantity or quality of water in surface and groundwater systems, both during and after the mining operation and during reclamation, shall be minimized.

- C.R.S. 34-32.5-116(4)(i):

  > Areas outside of the affected land shall be protected from slides or damage occurring during the mining operation and reclamation.

- Rule 3.1.5(3):

  > All grading shall be done in a manner to control erosion and siltation of the affected lands, to protect areas outside the affected land from slides and other damage.

- C.R.S. 34-32.5-116(4)(j) and Rule 3.1.6(3):

  > All surface areas of the affected land . . . shall be stabilized and protected so as to effectively control erosion.

- Rules 6.3.3(l) and 6.3.4(1)(e):

  > [The operator must] . . . describe what measures will be taken to minimize disturbance to the hydrologic balance, prevent off-site damage, and provide for a stable configuration of the reclaimed area consistent with the proposed future land use.

The Division of Reclamation, Mining and Safety (Division) is the implementing agency to enforce the Legislative Statutes and the MLRB's Rules through permitting actions, inspections, and enforcement.

This document is intended to provide guidance related to floodplain protection for sand and gravel pits located adjacent to rivers and perennial streams. The guidance presented in this document sets the standard for review of new permit applications and for applications submitted to revise existing permits or expand mining operations into the floodplain of a river or perennial stream.

The Division will be working with operators of existing permits on a case-by-case basis to determine what permit revisions, if any, are needed to comply with these standards.

The standards below are largely based on review of guidelines developed for the Mile High Flood District (MHFD; formerly the Urban Drainage and Flood Control District), which oversees floodplain management in the Denver Metropolitan area: *"Technical Review Guidelines for Gravel Mining and Water Storage Activities Within or Adjacent to 100-Year Floodplains."* (This document is heretofore referred to as the MHFD Guidelines.) The MHFD is considered a national leader in stormwater and floodplain management, and their guidelines are broadly accepted. The Division has determined that the principles of the MHFD Guidelines are based on sound engineering, professional judgment, and decades of experience in floodplain management, and it is appropriate to apply these principles to sites located outside of the MHFD boundaries.

The Division has extensive experience regulating sand and gravel pits in floodplains, and significant lessons were learned after the extensive flooding that occurred in 2013 and 2015. Currently, approximately 25 percent of Division permits are located within a 100-year floodplain.

The extent of damage that can be caused by mined pits subjected to river flooding is illustrated in the Google Earth aerial imagery presented in Appendix A.

While this guidance document pertains to mining operations located within 400 feet of a river or perennial stream, all mining operations are responsible for preventing off-site impacts, including operations located more than 400 feet from a river or perennial stream. Accordingly, based on the details of a particular floodplain mining operation proposal, the Division may require additional or more stringent protection measures than what is presented below in this guidance document. For example, more stringent measures may be implemented for applications proposing new pits in an area with multiple existing pits, as these sites are at a higher risk of causing significant flood damage.

Standards for New Applications

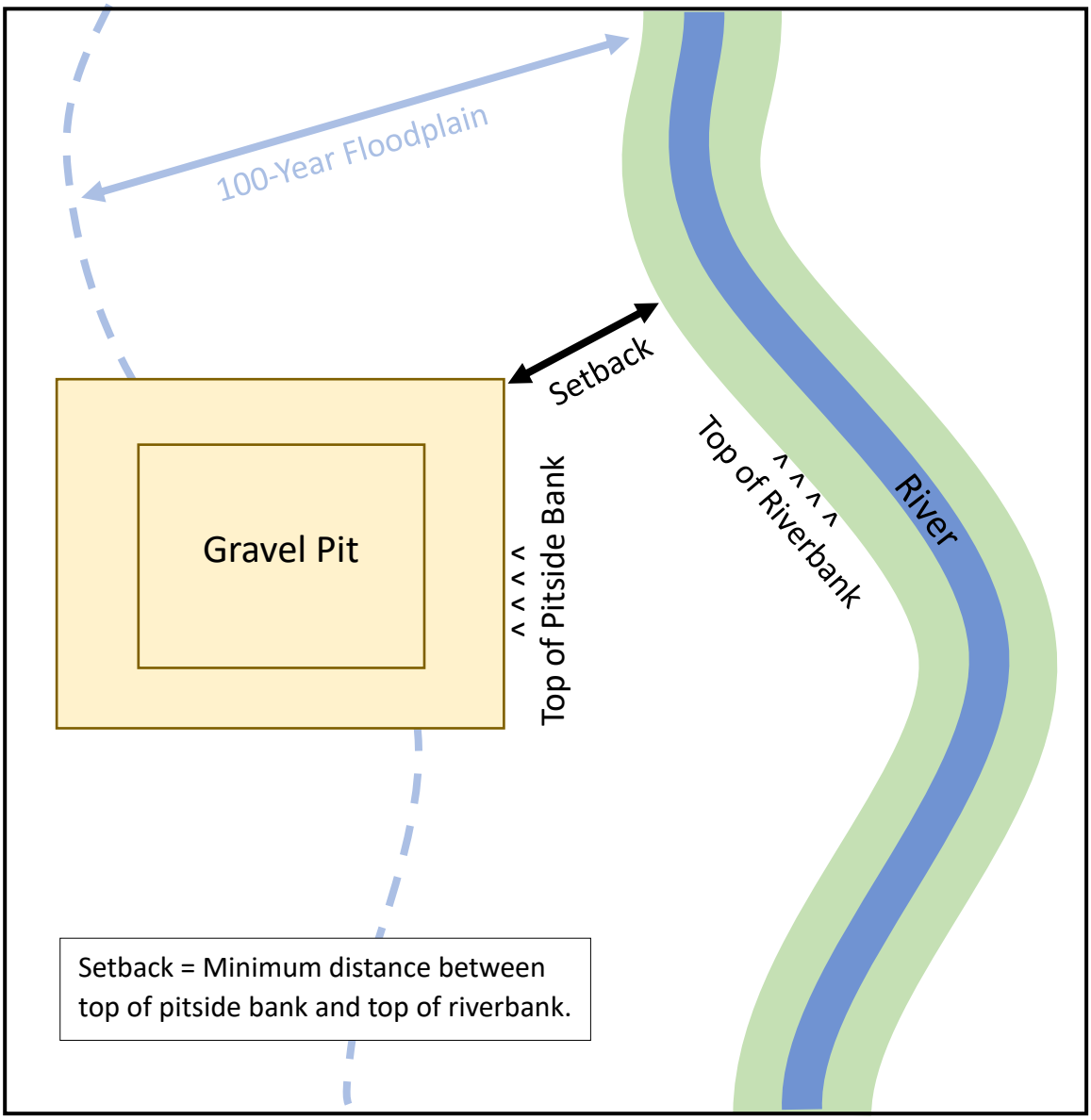
For a new permit application or an application to revise an existing operation to include a new pit adjacent to a river or perennial stream, the Division will require that one of the following options (or a combination thereof) be performed by the Applicant as part of their submittal to the Division:

1) Propose an appropriate mining setback from the banks of the river or stream. The standard setbacks presented in Table 1 below are based on the MHFD Guidelines. *Note that in the scenario where no pitside bank or riverbank protection is provided, the standard setback from the river or stream is 400 feet.* See Figure 1 below with sketch showing how setback is measured.

Table 1 - Standard Setbacks from River (Based on MHFD Guidelines)

Area Stabilized	**Minimum Setback (feet)**
None	400
Pitside Bank Only (armoring internal to the pit)	300
Riverbank Only (armoring external to the pit)	250
Riverbank and Pitside Bank	150

Figure 1 - Sketch Showing How Setback from River is Measured



2) Provide detailed designs of proposed structures (e.g., riprap, grouted boulders, side-channel spillways) to be installed on pitside banks and/or riverbanks to allow flood waters to safely flow in and out of the pit during the 100-year flood event while minimizing significant erosion of the banks. The design for these structures must be based on guidelines from a recognized authority and/or a detailed hydrology and hydraulics analysis. Guidelines could be stabilization measures presented in the MHFD Guidelines, bank protection designs presented in county drainage criteria manuals, or other applicable documents. Detailed analysis could include a hydrology and hydraulics model.

Note that in the scenario (in Table 1) where both pitside bank and riverbank protection is provided, the standard setback from the river or stream is 150 feet.

3) Provide a detailed analysis of the 100-year flow in the river or stream during the worst-case conditions of the proposed mining and reclamation scenarios. This analysis must sufficiently demonstrate that the proposed pit banks during mining and after reclamation will not be significantly eroded by the flood event. This could be done using appropriate hydrology and hydraulics models. Examples of acceptable models include the Hydrologic Modeling System (HMS) and River Analysis System (RAS) developed by the U.S. Army Corps of Engineers (USACE) Hydrologic Engineering Center (HEC). These models are commonly referred to as HEC-HMS and HEC-RAS. Links to information on these models are provided in the References section of this report.

If another regulating agency or local city or county government has developed more protective standards than those presented in this guidance document, such standards shall supersede those set by the Division. These standards would also need to be incorporated into the mine permit approved by the Division.

Upon request, the Division is available for consultation during development of an application that proposes a sand or gravel operation adjacent to a river or perennial stream.

For proposals to install riverbank protection, Applicants should be aware that additional requirements may be imposed by local governments, State agencies, and/or the U.S. Army Corps of Engineers.

References

Colorado Land Reclamation Act for the Extraction of Construction Materials, C.R.S. 34-32.5 §. Available at: https://drive.google.com/file/d/1nWs3Y_2wm8fp4eApFjUhZC2IyHxKKCM8/view

Colorado Mined Land Reclamation Board. Mineral Rules and Regulations of the Colorado Mined Land Reclamation Board for the Extraction of Construction Materials (2019). Available at: https://drive.google.com/file/d/1l5U8fOVjQ7VyB3GC7DGv6Gkczz7PwuRl/view

U.S. Army Corps of Engineers. Hydrologic Engineering Center's Hydrologic Modeling System (HEC-HMS). Information available at: https://www.hec.usace.army.mil/software/hec-hms/

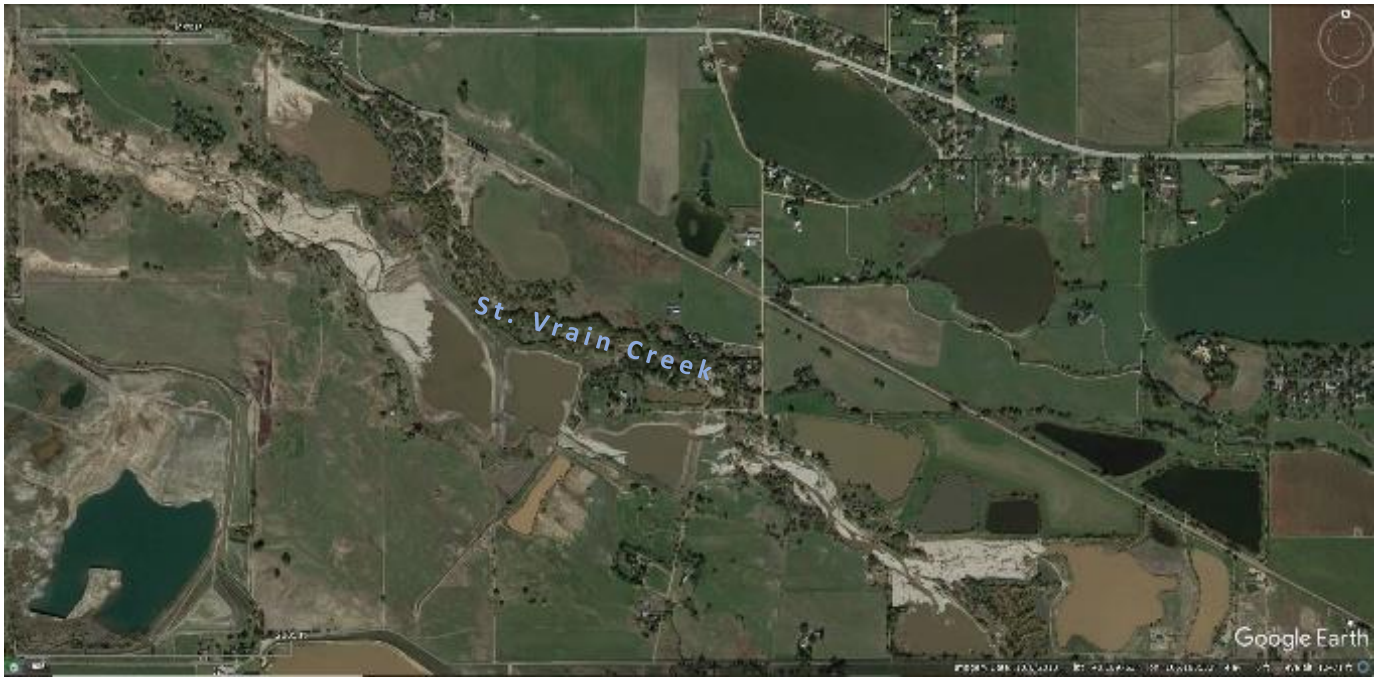
U.S. Army Corps of Engineers. Hydrologic Engineering Center's River Analysis System (HEC-RAS). Information available at: https://www.hec.usace.army.mil/software/hec-ras/

Wright Water Engineers, Inc. Technical Review Guidelines for Gravel Mining and Water Storage Activities Within or Adjacent to 100-Year Floodplains (2013, January). Available at: https://mhfd.org/wp-content/uploads/2019/12/Technical_Review_Guidelines_for_Gravel_Mining_and_Water_Storage_Activities_2013.pdf

APPENDIX A

Google Earth Aerial Imagery Showing Before (1A) and After (1B) Conditions in Boulder County After the 2013 Flood (Multiple Permits).

1A



1B

Google Earth Aerial Imagery Showing Before (2A) and After (2B) Conditions in Larimer County After the 2013 Flood (Single Permit).

2A

2B