




## MINERALS PROGRAM INSPECTION REPORT

PHONE: (303) 866-3567

The Division of Reclamation, Mining and Safety has conducted an inspection of the mining operation noted below. This report documents observations concerning compliance with the terms of the permit and applicable rules and regulations of the Mined Land Reclamation Board.

<b>MINE NAME:</b> Boettcher Limestone Quarry	<b>MINE/PROSPECTING ID#:</b> M-1977-348	<b>MINERAL:</b> Limestone (general)	<b>COUNTY:</b> Larimer
<b>INSPECTION TYPE:</b> Monitoring	<b>INSPECTOR(S):</b> Amy Eschberger	<b>INSP. DATE:</b> August 31, 2022	<b>INSP. TIME:</b> 09:00
<b>OPERATOR:</b> Holeim (US) Inc.	<b>OPERATOR REPRESENTATIVE:</b> Mike Toelle, Tom Newman	<b>TYPE OF OPERATION:</b> 112c - Construction Regular Operation	
<b>REASON FOR INSPECTION:</b> Normal I&E Program	<b>BOND CALCULATION TYPE:</b> None	<b>BOND AMOUNT:</b> \$2,518,261.30	
<b>DATE OF COMPLAINT:</b> NA	<b>POST INSP. CONTACTS:</b> None	<b>JOINT INSP. AGENCY:</b> None	
<b>WEATHER:</b> Clear	<b>INSPECTOR'S SIGNATURE:</b> 	<b>SIGNATURE DATE:</b> October 28, 2022	

### GENERAL INSPECTION TOPICS

This list identifies the environmental and permit parameters inspected and gives a categorical evaluation of each. No problems or possible violations were noted during the inspection. The mine operation was found to be in full compliance with Mineral Rules and Regulations of the Colorado Mined Land Reclamation Board for the Extraction of Construction Materials and/or for Hard Rock, Metal and Designated Mining Operations. Any person engaged in any mining operation shall notify the office of any failure or imminent failure, as soon as reasonably practicable after such person has knowledge of such condition or of any impoundment, embankment, or slope that poses a reasonable potential for danger to any persons or property or to the environment; or any environmental protection facility designed to contain or control chemicals or waste which are acid or toxic-forming, as identified in the permit.

(AR) RECORDS----- <u>Y</u>	(FN) FINANCIAL WARRANTY----- <u>Y</u>	(RD) ROADS----- <u>Y</u>
(HB) HYDROLOGIC BALANCE----- <u>Y</u>	(BG) BACKFILL & GRADING----- <u>Y</u>	(EX) EXPLOSIVES----- <u>N</u>
(PW) PROCESSING WASTE/TAILING---- <u>N</u>	(SF) PROCESSING FACILITIES----- <u>N</u>	(TS) TOPSOIL----- <u>Y</u>
(MP) GENL MINE PLAN COMPLIANCE- <u>Y</u>	(FW) FISH & WILDLIFE----- <u>N</u>	(RV) REVEGETATION---- <u>Y</u>
(SM) SIGNS AND MARKERS----- <u>Y</u>	(SP) STORM WATER MGT PLAN---- <u>Y</u>	(RS) RECL PLAN/COMP-- <u>Y</u>
(ES) OVERBURDEN/DEV. WASTE----- <u>Y</u>	(SC) EROSION/SEDIMENTATION--- <u>Y</u>	(ST) STIPULATIONS----- <u>N</u>
(AT) ACID OR TOXIC MATERIALS----- <u>N</u>	(OD) OFF-SITE DAMAGE----- <u>N</u>	

Y = Inspected / N = Not inspected / NA = Not applicable to this operation / PB = Problem cited / PV = Possible violation cited

## **OBSERVATIONS**

This was a normal monitoring inspection of the Boettcher Limestone Quarry (Permit No. M-1977-348) conducted by Amy Eschberger of the Division of Reclamation, Mining and Safety (Division). The operator was represented by Mike Toelle and Tom Newman during the inspection. The site is located approximately 1.5 miles north of LaPorte, CO in Larimer County. The main access to the site is from the south off of Co Rd 21C. **Photos 1-16** taken during the inspection are included with this report.

### **Operation Summary:**

This is a 112c operation permitted for 537 acres (see enclosed Google Earth images of site) to mine limestone for use in the operator's nearby cement plant. Pre-law mining activities occurred at the site. A dragline was used to remove the material in stratigraphic layers or bands defined by their chemical characteristics. This mining method left a series of deep, elongated pits at the site oriented generally north-south. Salvaged overburden was piled along the edges of the pits.

Cement kiln dust (CKD) was generated on site during operations that occurred from the early 1900s through 2002. According to the operator, disposal of CKD in mined out portions of the quarry occurred from 1980 through 2002 (in the southern half of the site). CKD was initially placed in the Dry Fill CKD area. Per the Division's approval of Technical Revision No. 3 (TR-3) in 1999, CKD disposal was to be limited to the A2 areas, located north of the Dry Fill CKD area. Approximately 140,000 cubic yards of CKD was placed in the A2 disposal areas between 1999 and 2002. Mining and plant operations ceased at the site in 2002. The site has been in various stages of reclamation since that time.

The approved post-mining land use for the site is dry rangeland. The reclamation plan calls for grading the disturbed land to slope gradients of 2H:1V or flatter, replacing up to 8 inches of topsoil, and seeding the land with a native grass seed mixture. The CKD disposal areas are to be covered with a minimum of 1.5 feet of overburden, graded for positive drainage, covered with 6-12 inches of growth medium, and seeded with the same grass seed mixture. Pre-law disturbed areas, including overburden stockpiles and previously mined A-band pits in the western portion of the permit area, will not require reclamation grading and revegetation if they are not re-disturbed by the operation. The access road that runs generally north-south across the site will remain.

It should be noted, the Division approved Technical Revision No. 8 (TR-8) on February 16, 2018 to allow geotechnical investigations to be conducted at the site to support the proposed realignment of Hwy 287 (through the permit area) as part of the Glade Reservoir Project. The approved reclamation plan for the site does not include the proposed highway realignment project. Therefore, prior to commencing with any construction activities associated with this project (beyond what was approved in TR-8), the operator would need to submit the appropriate permit revision to revise the reclamation plan and map accordingly.

### **Reclamation Summary:**

All reclamation earthwork and revegetation has been completed at the site. The final slope configurations of the elongated strip pits are stable, and vegetation has established well across the site. Portions of the pre-law overburden stockpiles stored along the western edge of the permit area and the eastern pit walls of the pre-law A-pits have slopes steeper than 2H:1V with little to no vegetative cover. Because these areas were not re-disturbed by the operation, they will not require reclamation. The site has been reclaimed in accordance with the approved reclamation plan and could be released if not for the groundwater issue described below.

The Division approved an Acreage Reduction request (AR-4) for the site on March 25, 2020, which released

325 acres from the northern portion of the permit area, leaving the current 537 acres (see enclosed site map showing revised permit area after AR-4 approval). AR-4 had initially proposed a release of 411 acres which included two pits with ponded water (Ponds A and B3). However, the Division of Water Resources (DWR) objected to the release of these pits until a plan for augmentation has been decreed by the Water Court for the ponded water. Therefore, the operator revised AR-4 to remove the two pits with ponded water from the acreage proposed for release.

### **Hydrologic Balance (Ponded Water):**

There are a total of six pits on site which are referred to as ponds since they hold water for at least some portions of the year. These include Ponds A, B3, B2, and B (north to south) along the western edge of the permit area and Ponds 2 and C along the eastern edge of the permit area. Pond B2 is typically dry. During the current inspection, the Division observed water ponded in Ponds A, B3, B, 2 and C (Pond B2 was dry).

In its last inspection report, issued on February 28, 2020, the Division cited a problem for the ponded water in the pits, requiring the operator to demonstrate the operation is in compliance with the Office of the State Engineer (SEO), taking measures to bring the site in compliance with the SEO, or has backfilled the pits to at least two feet above the water surface. The corrective action date was set for April 28, 2020. This problem was considered abated after the operator provided a copy of the Application for Approval of Plan for Augmentation that was filed with the Water Division 1 District Court on January 17, 2020.

After the current inspection, on September 1, 2022, the operator provided a copy of the Findings of Fact, Conclusions of Law, Ruling of the Referee, and Decree of the Water Court, filed on October 29, 2021, which replaces out-of-priority depletions from five ponds at the site (Ponds B3, 2, B, C, and A) associated with former quarry operations. The total surface area of these ponds is estimated to be 5.2 acres. Depletions from these ponds will be replaced using augmentation water provided by the City of Greeley pursuant to a March 5, 2019 Augmentation Water Lease Agreement. Therefore, the operator has obtained compliance with the SEO with regard to the ponded water on site.

During the inspection, there was discussion about the operator possibly submitting another acreage reduction request to release the northern portion of the permit area with Ponds A and B3. Since the operator has obtained an augmentation plan for these two ponds, and the area around the ponds has been reclaimed in accordance with the approved reclamation plan, the Division could approve a release of this area. The Division would not be able to approve a release of any lands containing CKD fill areas or monitoring wells at this time (until the groundwater issue described below has been sufficiently addressed). If the operator submits an acreage reduction request (see enclosed form) within 60 days of the signature date of this inspection report, an additional inspection will not be necessary.

### **Hydrologic Balance (Groundwater Monitoring Program):**

The operation currently monitors groundwater at the site from a total of eight monitoring wells (MW-1 – MW-8), with all but two (MW-5 and MW-8) located near or downgradient of the CKD disposal areas in the southern portion of the permit area. MW-5 was installed in overburden outside and north of the CKD disposal areas. MW-8 was recently installed to the east of MW-5, also outside and north of the CKD disposal areas.

Monitoring wells MW-1 – MW-4 were installed in 1998 and 1999. Monitoring wells MW-5 – MW-7 were installed in late 2012. A total of eight (bi-monthly) groundwater monitoring samples were collected from wells MW-1 – MW-4 for the period of April/May of 1999 through July 2000. After the July 2000 sampling event, approximately 10 years passed before these wells were sampled again, in September of 2010. Somewhat regular

sampling of these wells picked back up in March of 2011. The three additional monitoring wells installed in 2012 (MW-5 – MW-7) have been regularly monitored since 2013. The required monitoring and reporting frequency for the groundwater monitoring program was reduced from quarterly to semi-annually through Technical Revision No. 7 (TR-7), approved in 2016. This reduced frequency was to allow for complete recharge between sampling events so that true independent measurements are collected based on groundwater equilibrium conditions.

The available groundwater monitoring data does not show consistent sampling for all parameters. While some of these inconsistencies are not explained in the permit record, the inconsistencies that occurred after August of 2014 can be attributed to the Division's approval of Technical Revision No. 6 (TR-6), which reduced the required monitoring parameters for the site. In 2018, the Division required the operator to expand the sampling suite to include all applicable parameters from the Table Value Standards established by the Water Quality Control Commission's (WQCC's) Regulation No. 41, and to begin comparing parameter values to the most restrictive Table Value Standards rather than to any calculated values that may have been used previously. These changes were approved in Technical Revision No. 9 (TR-9) on October 26, 2018. A total of eight (semi-annual) sampling events have occurred at the site since TR-9 was approved, the last of which occurred in June of 2022.

The Division has had on-going discussions with the operator and the Colorado Department of Public Health and Environment (CDPHE), Water Quality Control Division (WQCD) regarding the groundwater quality in this unclassified area, including the application of WQCC's Regulation No. 41.5(C)(6) to the site. Per this regulation, sites with unclassified groundwater shall maintain groundwater quality for each parameter at whichever of the following levels is less restrictive: (A) existing ambient quality as of January 31, 1994, or (B) that quality which meets the most stringent criteria set forth in Tables 1 through 4 of "The Basic Standards for Groundwater" (Table Value Standards). The Division, as an implementing agency, is authorized to exercise its best professional judgement as to what constitutes adequate information to determine or estimate existing ambient quality, taking into account the location, sampling date, and quality of all available data. Data generated subsequent to January 31, 1994 shall be presumed to be representative of existing quality as of January 31, 1994, if the available information indicates that there have been no new or increased sources of groundwater contamination initiated in the area in question subsequent to that date.

The operator submitted Technical Revision No. 10 (TR-10) on March 5, 2019 to provide information that would allow ambient conditions to be established for the site based on groundwater monitoring data generated subsequent to January 31, 1994. Through its review of TR-10, the Division identified deficiencies in the information presented which the operator was unable to adequately address. The operator requested withdrawal of TR-10 on December 13, 2019.

In its last inspection report, issued on February 28, 2020, the Division cited a problem for the groundwater quality exceedances observed at site wells. Several parameters consistently exceed the Table Value Standards, including: Arsenic, Barium, Boron, Chloride, Fluoride, Gross Alpha, Iron, Manganese, Nitrate as N, Nitrate + Nitrite as N, Selenium, Sulfate, Thallium, Uranium, and TDS > 10,000 mg/L (no background TDS available). The operator was required to submit a Technical Revision to revise the groundwater monitoring plan to include a proposed point of compliance in accordance with Rule 3.1.7(6) and (7) at some distance hydrologically downgradient from the CKD disposal areas. Due to the lack of ambient groundwater quality for the site required by Rule 3.1.7(b)(viii), the revision was also required to include a proposed background monitoring well located outside of the CKD disposal areas and screened across similar lithological units as existing downgradient monitoring wells and the proposed compliance well. The corrective action date was set for April 28, 2020. This problem was considered abated after the operator submitted a Technical Revision (TR-11) on July 29, 2020 to address this issue.

TR-11 was approved on September 18, 2020 to revise the groundwater monitoring program to include a background monitoring well (MW-8) and, depending on the results of water quality data collected from that well, also include a compliance monitoring well (MW-9; the location of which will be addressed in a separate revision). According to the final well construction report submitted by the operator on February 19, 2021, installation of the background monitoring well MW-8 was completed in November of 2020. MW-8 was installed to a total depth of 235 fbs and screened just above the Niobrara-Codell contact (which was encountered at 230 fbs). Due to the low hydraulic conductivities at the site, it is anticipated that at least six rounds of the semi-annual groundwater sampling of MW-8 will be needed in order to have sufficient data representative of in-situ conditions to analyze. To date, the operator has provided four semi-annual monitoring reports that include data from MW-8 (starting with the 2<sup>nd</sup> semi-annual report for 2020). This means another two sampling events may be required, including the 2<sup>nd</sup> semi-annual sampling event for 2022 and the 1<sup>st</sup> semi-annual sampling event for 2023, before the operator has sufficient data to analyze. Since the deadline for submitting the 1<sup>st</sup> semi-annual sampling results is August 1<sup>st</sup> of that year, it is anticipated the results of the 6<sup>th</sup> sampling event for MW-8 will be submitted by August 1, 2023.

After sufficient water quality data has been collected from MW-8, this data will be compared with water quality data collected from other site wells (per the methods approved in TR-11). If this comparison indicates that groundwater quality observed in downgradient wells is representative of "background" conditions, the operator will submit a Technical Revision to specify the installation of MW-9 is no longer necessary, and to propose that an existing downgradient well be considered a point of compliance. If the comparison indicates the groundwater quality observed in downgradient wells is not representative of "background" conditions, the operator will submit a Technical Revision to designate MW-9 as a point of compliance and to specify the location at which it will be installed.

The sampling data provided thus far for MW-8 shows exceedances of the Table Value Standards for Antimony, Boron, Chloride, Gross Alpha, Sulfate, and Uranium. The sampling data also shows high Total Dissolved Solids at this well (greater than 10,000 mg/L).

#### **Financial Warranty:**

The Division currently holds a financial warranty for this site in the amount of \$2,518,261.30. At this time, all surface reclamation at the site has been completed in accordance with the approved reclamation plan, and all that remains is the groundwater issue discussed above. The currently held financial warranty amount is considered to be adequate at this time.

This concludes the report.

*Any questions or comments regarding this inspection report should be forwarded to Amy Eschberger at the Colorado Division of Reclamation, Mining and Safety, 1313 Sherman Street, Room 215, Denver, CO 80203, via telephone at 303-866-3567, ext. 8129, or via email at [amy.eschberger@state.co.us](mailto:amy.eschberger@state.co.us).*



**PHOTOGRAPHS**



**Photo 1.** View looking south across reclaimed A2 CKD disposal area.



**Photo 2.** View looking south across reclaimed A2-A CKD disposal area.





**Photo 3.** View looking east across reclaimed area south of Pond 2 pit.



**Photo 4.** View looking north at new background monitoring well MW-8 installed south of Pond 2 pit (outside of CKD disposal areas) and screened directly above Niobrara/Codell contact (similar to wells installed downgradient of CKD disposal areas).





**Photo 5.** View looking north across Pond 2 pit, which was holding water during inspection.



**Photo 6.** View looking north across Pond B pit, which was holding water during inspection.





**Photo 7.** View looking south across Pond B2 pit, which was dry during inspection.



**Photo 8.** View looking northwest across Pond A pit, which was holding water during inspection.





**Photo 9.** View looking north across Pond B3 pit, which was holding water during inspection.



**Photo 10.** View looking southeast across northern portion of Pond C pit, which was holding water during inspection.





**Photo 11.** View looking east across southern portion of Pond C pit, which was dry during inspection.



**Photo 12.** View looking northeast across reclaimed area west of Pond C pit.





**Photo 13.** View looking northeast across reclaimed area south of CKD disposal areas.



**Photo 14.** View looking north across reclaimed area south of CKD disposal areas. Slope at far left is part of pre-law disturbance which was not re-disturbed by this operation.





**Photo 15.** View looking south across reclaimed area south of CKD disposal areas. Slope at far right is part of pre-law disturbance which was not re-disturbed by this operation.



**Photo 16.** View looking south across gravel access road that runs generally north-south across permit area, which will remain for final reclamation.

**Inspection Contact Address**

Mike Toelle  
Holcim (US) Inc.  
3500 Highway 120  
Florence, CO 81226

Encls: Google Earth image showing entire permit area  
Google Earth image showing closer view of CKD disposal areas and groundwater monitoring wells  
Site map showing revised permit area after AR-4 approval  
Acreage Reduction request form

CC: Travis Weide, Holcim (US) Inc.  
Michael Cunningham, DRMS



# M-1977-348 / Boettcher Limestone Quarry / Holcim (US) Inc.

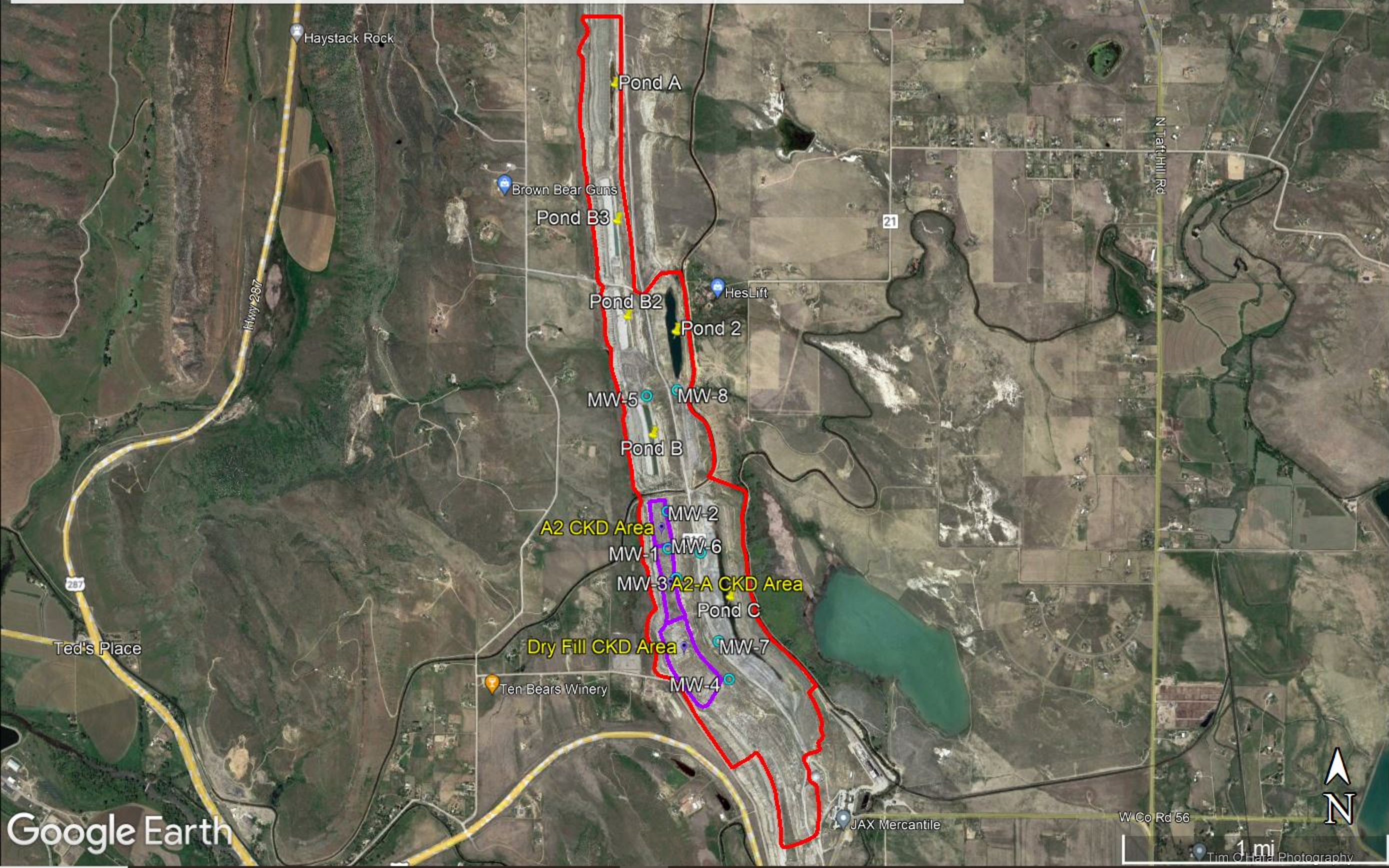
Red Outline = 537 acres = Approved Permit Area (location approximated based on permit maps)

Purple Outline = CKD disposal areas (A2, A2-A, and Dry Fill)

Blue Circles = Groundwater monitoring wells (MW-1 - MW-8)

Yellow Thumbtacks = Ponds (open pits)

(Image data from 6/11/2021)





# M-1977-348 / Boettcher Limestone Quarry / Holcim (US) Inc.

Closer view of CKD disposal areas and groundwater monitoring wells.

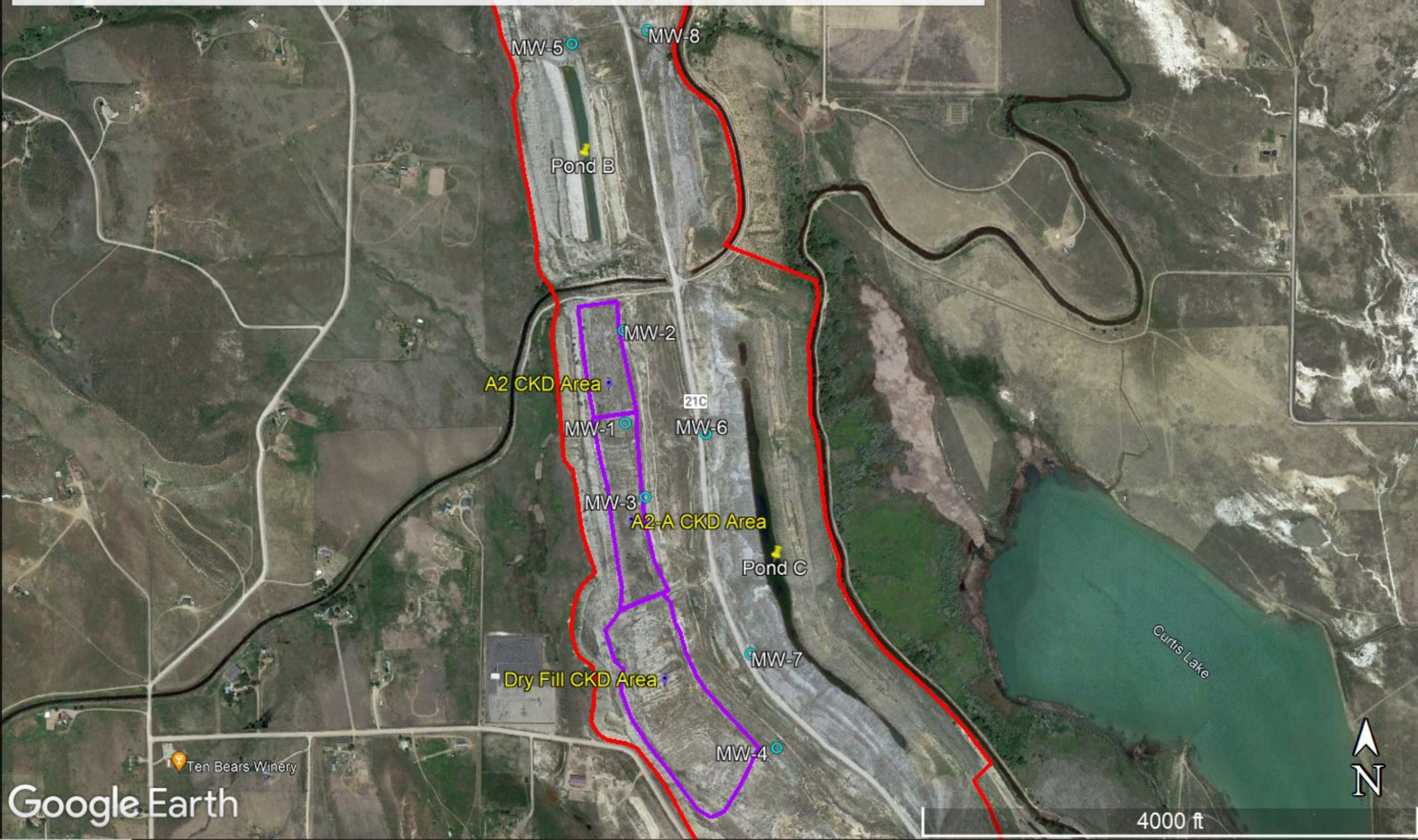
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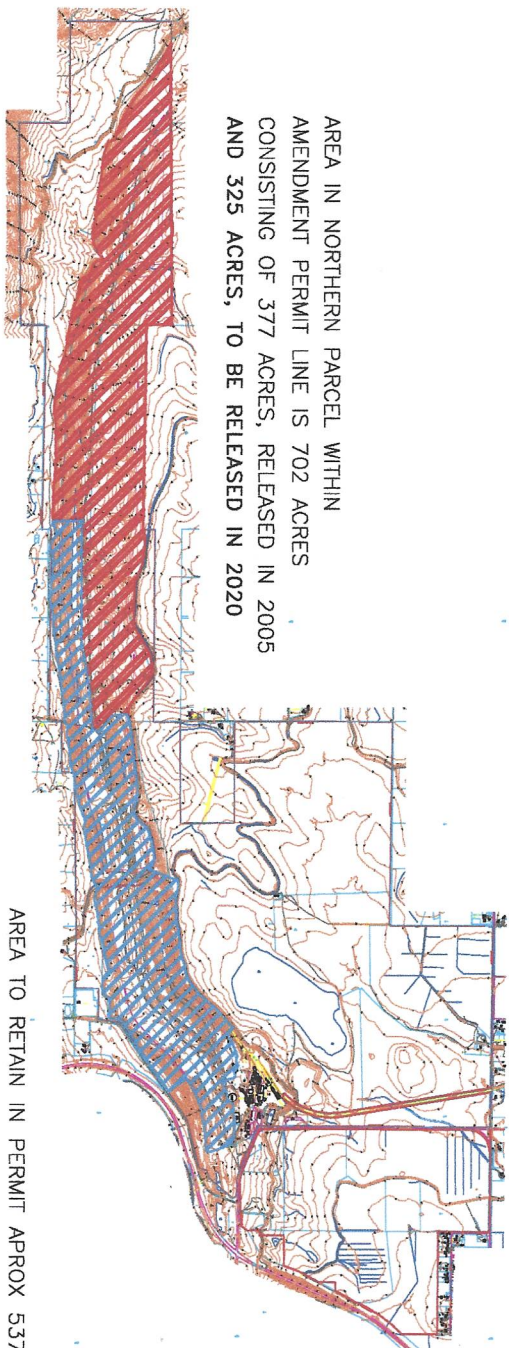
Yellow Thumbtacks = Ponds (open pits)

(Image data from 6/11/2021)





AREA IN NORTHERN PARCEL WITHIN  
AMENDMENT PERMIT LINE IS 702 ACRES  
CONSISTING OF 377 ACRES, RELEASED IN 2005  
AND 325 ACRES, TO BE RELEASED IN 2020



AREA TO RETAIN IN PERMIT APPROX 537 ACRES



- LEGEND**
- TOTAL
  - ROAD (SURFACED)
  - ROAD (UNSURFACED)
  - FENCE
  - POWER LINE
  - TELEPHONE LINE
  - RAILROAD TRACK
  - CONVEYOR BELT LINE
  - STREAM (PERMANENT) / WATER SYMBOL
  - EDGE WOODED AREA
  - PIPE LINE
  - HOLDING PROPERTY BOUNDARY
  - PERMIT BOUNDARY LIMITS
  - QUARRY FACE AS OF 11-1-2002
  - QUARRY
  - GEOTECH P-SECTION

- TRIANGULATION STATION & ELEVATION
- DRILL HOLE WITH ELEVATION
- BLAST HOLE WITH ELEVATION
- AREA TO RELEASE
- PERMIT AREA TO RETAIN

SHEET 1 OF 1



<b>Fort Collins, Colorado</b> <b>Fort Collins Plant</b> <b>Bortcher Limestone Quarry</b> <b>Permit #11-1977-348</b> <b>State Plane Colo. North</b> <b>Zone 10N03, NAD83</b>	
<b>ISSUE</b> <b>MAP PRINTED 3-18-2020</b>	<b>FOR COLLINS, COLORADO</b> <b>BRUNN BRUN WARD</b> <b>CHICKED NINE TONNIE</b> <b>SCALE: 1"=1000'</b>



COLORADO

Division of Reclamation,  
Mining and Safety

Department of Natural Resources

1313 Sherman Street, Room 215  
Denver, CO 80203

**REQUEST FOR FULL OR PARTIAL RELEASE OF PERMIT AREA/SURETY REDUCTION**

Please indicate if you are requesting:

FULL/FINAL RELEASE OF ENTIRE PERMITTED AREA (per Rule 4.17)

\_\_\_\_\_

ACREAGE REDUCTION (PARTIAL RELEASE per Rule 4.17)

\_\_\_\_\_

I wish to release \_\_\_\_\_ acres at this time.

You will need to submit with this request: a map showing the acreage to be released from the current permit and updated mining and reclamation plan maps that will accurately depict the new permit boundary if the release is approved.

SURETY (Bond) REDUCTION (per Rule 4.14)

\_\_\_\_\_

If you are requesting a surety (bond) reduction you will need to include with this request a new estimate of the actual cost to reclaim the site based on what it would cost an independent contractor to complete reclamation, including unit costs for reclamation activities as appropriate to the operation to comply with the provisions of Rule 3.1 and the Permit's approved Reclamation Plan.

File No.: M \_\_\_\_\_

Site Name: \_\_\_\_\_

County: \_\_\_\_\_

Permittee: \_\_\_\_\_

Permittee Address: \_\_\_\_\_  
(Street Address)

\_\_\_\_\_  
(City)

\_\_\_\_\_  
(State)

\_\_\_\_\_  
(Zip)





Operator (If Other than Permittee): \_\_\_\_\_

Permittee Representative: \_\_\_\_\_

Certified Mail # \_\_\_\_\_

In accordance with Rule 4.17.1(2) the Operator shall include the names, addresses and phone numbers of all owners of record to the affected land. Please attach additional sheets for this information if required.

<u>Name</u>	<u>Address</u>	<u>Phone Number</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

In accordance with Rule 4.17.1(4), if requesting a partial acreage release the Operator or their agent MUST sign that they have complied with the following statement: “All applicable portions of the Reclamation Plan requirements have been satisfied in accordance with these Rules and all applicable requirements under the Act.”

\_\_\_\_\_  
Signature of Permittee, Operator or their authorized agent      Date

*Important: In accordance with Rules 4.14.2(a) and 4.17.1(3) This release request must be submitted to the Division via certified mail and separate from any other correspondence to the Division.*