March 20, 2025

Director Dan Victoria
Department of Planning and Zoning
Fremont County
615 Macon Avenue
Cañon City, CO 81212

RE: Holcim (US) Inc. CUP 24-001 Red Creek Quarry
Response to Deficiencies and Comments

Dear Director Victoria,

Please accept this correspondence as response to the June 13, 2024 application review. On June 26, 2024 Holcim paid the additional application fee of $1250.

**Application Form**

Item #1: Hours of operation are revised to 8-12 hours/day, 7 days a week, aligning with the Exhibit 2.9-1 Blasting Plan.

Item #6: The metal building is 12,880 $ft^2$ and the conveyor in MTAC is 481,274 $ft^2$. Subsequently, Item #7 is revised to 0.000076% coverage.

Item #13: Employees living in Fremont County, estimated 18-20, will use the plant access on Hwy 120. Fremont County residents will park personal vehicles in the cement plant parking area and travel to RCQ in a van. Employees living in Pueblo County, estimated 9-10, may use the Hwy 96 access and park employee cars at the RCQ building parking area.

Item #14: Exhibit 3.1 is revised to contain the Warranty Deed. MTAC is described in Parcel 2. MTAC is a deeded parcel.

Item #19: The requested duration of the proposed use is "Life of Use".

Item #23: The site plan is revised to contain 20 parking spaces and no ADA space per Mr. Wyatt Sanders.

Item 31b: The septic vault was approved by Fremont County Building and Environmental Health Department on August 8, 2024

**Section 2: Impact Analysis**

Item #2: Distances to nearest structure and public land feature is included in this item.

**Environmental Alternatives, Inc.** P.O. Box 326, Cañon City, CO 81212 **Phone**: 719-275-8951
**Email**: angela@envalternatives.com

## Section 3: Required Submittals

Item #1: Exhibit 3.1 Warranty Deeds contains the recorded warranty deeds.

Item #8: The Lighting Plan is included on Exhibit 3.17.

Item #15: Chief Ritter responded to the Fire Protection Plan on September 13, 2024. Chief's comments are provided in Exhibit 3.15.

## Applicable Submittals

Item 29: The DRMS letter of approval dated March 14, 2024 is provided herein as Attachment A.

## Site Plan

Item D: The subtitle remains as Conditional Use Permit for Red Creek Quarry

Item F: Exhibit 3.17 page 1, the Site Plan deck sheet, contains the legal description.

Item G: Exhibit 3.17 page 1, the Site Plan deck sheet, contains the total acreage of 1, 492 acres.

Item M: Exhibit 3.17 page 1, the Site Plan deck sheet, contains a chart comparing Residential -3 zone district development criteria vs. proposed developed.

Item O: Exhibit 3.17-7 is revised to depict 20 standard parking spaces. As stated above, Mr. Wyatt Sanders determined that ADA spaces were not required.

Item Q: Exhibit 3.17-10 depicts the access onto Hwy 96 in Pueblo County.

Item S: Exhibit 3.17-7 is revised to contain the requested dimensions.

Item T: Exhibit 3.17 depicts the FIRM flood hazard areas.

Item U: Exhibit 3.17 page 1, the Site Plan deck sheet, contains a notation regarding the proposed lighting.

Item V: Exhibit 3.17 page 1, the Site Plan deck sheet, contains a notation regarding the proposed signage.

## Additional Concerns

1. Details of the County Road 112 crossing are provided herein as Attachment B.
2. The septic vault was approved by the Building and Environmental Health Department on August 8, 2024 (Attachment C).
3. The CDOT access permit for Hwy 96 is provided herein as Attachment D.

## County Engineer's Review Comments

Questions

1. The conveyor will be elevated a minimum of 10 ft. at locations approved by CPW. This will allow wildlife to pass safely under the conveyor. The conveyor manufacturer's engineers designed the elevating spans which were reviewed by Holcim's team of engineers and safety professionals.

2. Structures that will impact US ACE jurisdictional waterways are reviewed by US ACE. The FEMA FIRM maps are an overlay on the Site Plan. Figure 2 in the Drainage Report locates each crossing and jurisdictional/review agency. Based on current understanding of US ACE jurisdiction and proposed crossing structures, Crossings 16 and 19 are US ACE jurisdiction.
3. The drainage plan details for RCQ operations facility are provided in the revised drainage plan.

Review Comments

1. Site plan coding of ephemeral vs. USACE culverts/drainage structures is included in the Drainage Plan in Figure 2.
2. The conveyor and the roads will be elevated over the Minnequa Canal at Ritchie Gulch. Siphons will not be constructed.
3. The RCQ operations facility drainage is detailed in Section 4.2 of the Drainage Plan.
4. Culvert slopes are discussed in Section 4.4 of the Drainage Plan.
5. Rip rap sizing is discussed in Section 4.5 of the Drainage Plan.

**Additional Revisions**

1. References to the Agriculture Forestry zone district were changed to the new zone district Residential 3.
2. The location of RCQ operations facility was moved from the northwest corner of RCQ to west central area, just south of the MTAC convergence with RCQ. This location was chosen because no mining will occur in this area. The northwest corner location would have been mined prior to construction of the facility. The drainage plan and site plan reflect the new location.

Please feel free to reach out to me directly with any questions.

Respectfully submitted,

Angela M. Bellantoni Ph.D.

Cc: Mike Toelle, Holcim

Enclosures:
Attachment A: CO Division of Reclamation Mining and Safety approval of 112 permit application.
Attachment B: CR112 conveyor crossing figure
Attachment C: Fremont County Building and Environmental Health approval of septic vault.
Attachment D: CDOT access permit on Hwy 96

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

# Attachment A

March 14, 2024

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

**Re: Portland Limestone Quarries - File No. M-1977-344**
**Holcim (US) Inc.**
**Amendment (AM-2)**
**Bear Creek Quarry Permit Amendment for Red Creek Quarry**

Dear Michael B. Toelle:

On March 14, 2024 the Division of Reclamation, Mining and Safety concluded its review of the Amendment application submitted to the Division on October 2, 2023, addressing the following:

Holcim is amending the Portland Limestone Quarry (Bear Creek Quarry) Permit to include the Red Creek Quarry of 4076.08 acres for a total permit area of 5615.34 acres. The Red Creek Quarry is the future limestone source for the Portland Cement Plant replacing the Bear Creek Quarry in the future. The site name was updated to "Portland Limestone Quarries"

The decision reached by the Division is: approve.

The terms of Amendment No. 2 approved by the Division are hereby incorporated into Permit No. M-1977-344. All other conditions and requirements of Permit No. M-1977-344 remain in full force and effect.

The revised liability amount exceeds the financial warranty currently held (see below), please submit additional bond or a rider to your existing bond that equals or exceeds the Revised Liability. The revision will not be final until the bond is approved by the Division.

| | |
|---|---|
| Bond Held: | $5,268,550.00 |
| Prior Liability: | $5,268,550.00 |
| Change in Liability: | $16,051,542.00 |
| Revised Liability: | $21,320,092.00 |
| Prior Permit Acreage: | 1,539.26 |
| Change in Permit Acreage: | 4,076.08 |

| | |
|---|---|
| Revised Permit Acreage: | 5,615.34 |
| Prior Affected Acreage: | 1,539.26 |
| Change in Affected Acreage: | 4,076.08 |
| Revised Affected Acreage: | 5,615.34 |

If you have any questions, please contact me by telephone at (303) 866-3567 x 8176, or by email at Hunter.ridley@state.co.us.

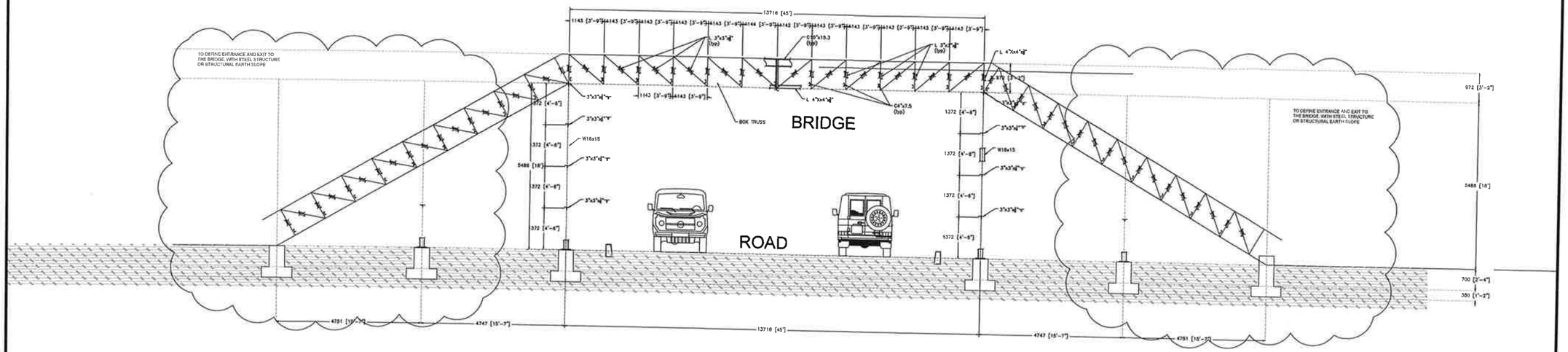
Sincerely,

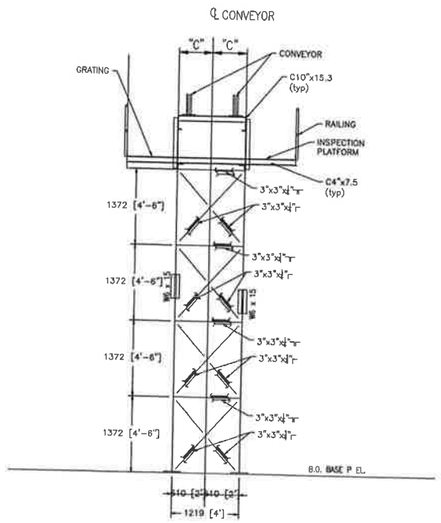
Hunter Ridley

Hunter C. Ridley
Environmental Protection Specialist

cc: Timothy Smith

M-GR-04




BENT

| Dwg. No. | REFERENCE | Ref. No. | REV | BY | APPD | DESCRIPTION | YR | MO | DA |
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| APPROVED | JAC | DRAWN | 26 | 02 | 25 |
| DATE | 26/02/25 | CHECK | 26 | 02 | 25 |
| SCALE | INDICADA | DESIGN SMR | 26 | 02 | 25 |
| P | P00001 | DES. CHK. JAC | 26 | 02 | 25 |
| | | CAD FILE: FIGURA 1 | | | |

SOLUM CONSULTING GROUP



CLIENT: ----

PROJECT: ----

TITLE: **Attachment B**
**Fremont County Road 112**
**Conveyor Crossing Overpass**

FIGURA 01 | REV A1

**Attachment C**

# FREMONT COUNTY
# BUILDING AND ENVIRONMENTAL HEALTH DEPARTMENT

615 Macon Avenue, Room 212
Canon City, Colorado 81212
Phone (719) 276-7460 Fax (719) 276-7461
wyatt.sanders@fremontco.com

August 8, 2024

Angela M. Bellantoni
Environmental Alternatives, Inc.
PO Box 326,
Canon City, CO 81212

On the 30th of July the Board of Health met and discussed your request for the temporary use of a vault as a means of sanitation for the Holcim Red Creek Quarry maintenance shop, located in the former Clevenger Ranch along the Eastern Boundary with Pueblo County, north to Hwy 96. This letter is to inform you that the Board approved your request along with all the stipulations you outlined in your request letter. (attached)

This approval will become effective at the next Board of Health Meeting at the end of August 2024, when the July meeting minutes are approved. This letter will also be sent to Fremont County Planning and Zoning Department as evidence of sanitation for Holcim's Red Creek Quarry CUP 24-001 application.

The installation of the Vault for a means of sanitation will require a permit from this department.

Sincerely,

Wyatt Sanders
Building Official

July 1, 2024

Wyatt Sanders, Building Official
Building Department
Fremont County
615 Macon Avenue, Room 212
Cañon City, CO 81212

RE: Holcim's Red Creek Quarry CUP 24-001
Request for vault septic containment

Dear Mr. Sanders,

Holcim US, Inc, (Holcim) submitted an application to Fremont County's Department of Planning and Zoning on May 13, 2024 for development of the Red Creek Quarry located in the former Clevenger Ranch along the eastern boundary with Pueblo County, north of Hwy 96.

Holcim plans to build a maintenance shop and office building in Section 24 that will provide services to miners and vendors. Pursuant to CO Division of Reclamation, Mining and Safety rules, all structures must be demolished, removed and the surface disturbance reclaimed upon termination of mining. All utility infrastructure must be removed and the ground disturbance reclaimed, this includes the septage treatment system.

Holcim respectfully requests an application to install a septic vault to service the shop and office building at Red Creek Quarry. The septic vault will be serviced regularly throughout the life of the mine. Upon completion of mining and commencement of reclamation, the vault will be removed, and the ground disturbance reclaimed. The more typical rural septic system, an onsite wastewater treatment system, requires a leach field that would have far reaching impact after 100 years, making reclamation difficult. The septic vault results in a specific ground impact that can be effectively reclaimed.

Please feel free to contact me with any questions.

Respectfully submitted,

*Angela M. Bellantoni*

Angela M. Bellantoni Ph.D.

Cc: M.Toelle, J.Villon – Holcim US Inc
K.Donahue – Brown and Caldwell

**Environmental Alternatives, Inc.** P.O. Box 326, Cañon City, CO 81212 **Phone**: 719-275-8951
**Email**: angela@envalternatives.com

# Attachment D

COLORADO
Department of Transportation
Region 2 Traffic Section
5615 Wills Blvd, Suite A
Pueblo, CO 81008
719-546-5440

January 11, 2024

Permit No. **223081**
Pueblo County

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

Dear Permittee:

1. Please **review** the attached State Highway Access Permit (Form #101) and all enclosed attachments.

2. If you choose **NOT** to act on the permit, please notify the Colorado Department of Transportation (CDOT) within 60 days of the date of this transmittal letter, CDOT will consider this permit withdrawn and reapplication will be required.

3. If you wish to **APPEAL** the Terms and Conditions of the permit, please refer to the attached Form 101, Pages 2 and 3 for an explanation of the appeal procedures.

4. **If you ACCEPT** the Permit and its Terms and Conditions and are authorized to sign as legal owner of the property or as an authorized representative, please sign and date the DocuSign Access Permit form #101 on the line marked "PERMITTEE". Your signature confirms your agreement to all the listed Terms and Conditions. **The file will be returned electronically to the permit Author for final signatures and completion. The executed DocuSign envelope will be returned to you electronically through email once the CDOT permit author has signed, executing the permit.** Keep in mind that a permit does not grant access, permission to construct or perform any work in the CDOT right-of-way. Access and permission to construct will be granted with a Notice to Proceed to construct. This states that we have an agreement to grant access at the given location to you.

5. **Once the digital signature is complete** you will receive a link to pay the permit fee through PayPal. The link is to pay the permit fee of $100.00. If the Permittee is not paying the fee and the fee is being paid by third party, a PayPal link can be requested through your permit author. **If the link is missing contact the permit author and they will send the link via email.**

6. As described in the attached Terms and Conditions, you must make a written request to obtain a Notice to Proceed. **DO NOT** begin any work within the State Highway Right-of-Way without a validated Access Permit and Notice to Proceed. Use of this permit without the Colorado Department of Transportation's validation shall be considered a violation of State Law and the permit will be revoked.

If you have any questions, please contact me at:

Teresa Guagliardo
Region 2 Traffic Section
5615 Wills Blvd, Suite A
Pueblo, CO 81008
719-546-5440
teresa.guagliardo@state.co.us

COLORADO DEPARTMENT OF TRANSPORTATION

# STATE HIGHWAY ACCESS PERMIT

| CDOT Permit No. | | | |
|---|---|---|---|
| 223081 | | | |
| State Highway No / Mp / Side | | | |
| 096A / 36.59 / Left | | | |
| Permit Fee | Date of Transmittal | Region / Section / Patrol / Name | Local Jurisdiction |
| $100.00 | 01/11/2024 | 2 / 04 / 41 / Buford | Pueblo County |

The Permittee(s): The Applicant(s):

Holcim (US) Inc. / Mike Toelle
3500 Highway 120
Florence, CO 81226
P 719-429-5566 E mike.toelle@holcim.com

is hereby granted permission to have an access to the state highway at the location noted below. The access shall be constructed, maintained and used in accordance with this permit, including the State Highway Access Code and any attachments, terms, conditions and exhibits. This permit may be revoked by the Issuing Authority if at any time the permitted access and its use violate any parts of this permit. The issuing authority, the Department and their duly appointed agents and employees shall be held harmless against any action for personal injury or property damage sustained by reason of the exercise of the permit.

Location:

SH096A ±2165 west from MP 37 (MP36.59), Left Side in Pueblo County
Access to serve as employee access to 3500 Highway 120, Florence, Fremont County

Access to Provide Service to:

| *Code* | *Land Use* | *AADT* |
|---|---|---|
| 1097 | Agricultural Field Approach _ ±640 acres of Vacant Agricultural Land (Parcel #700000088) | 1 |
| 1091 | Gravel Pit _ Third-Party & Employee only ingress/egress to the Red Creek Quarry (10 employees) and the one-time ingress for mobile and quarry equipment to be taken to the quarry site | 20 |
| | **TOTAL** | 21 |

Additional Information:

See additional Terms & Conditions.

**MUNICIPALITY OR COUNTY APPROVAL**
Required only when the appropriate local authority retains issuing authority.

| Signature | Print Name | Date | Title |
|---|---|---|---|
| | | | |

Upon the signing of this permit the permittee agrees to the terms and conditions and referenced attachments contained herein. All construction shall be completed in an expeditious and safe manner and shall be finished within 45 days from Initiation. The permitted access shall be completed in accordance with the terms and conditions of the permit prior to being used.

**The permittee shall notify Ron Young with the Colorado Department of Transportation at (719) 289-8718 at least 5 days prior to commencing construction within the State Highway right-of-way.**

The person signing as the permittee must be the owner or legal representative of the property served by the permitted access and have full authority to accept the permit and its terms and conditions.

| Permittee Signature: Date Signed by: Mike Toelle | Print Name Mike Toelle | Date 1/15/2024 \| 10:09 AM MST |
|---|---|---|
| **Co-Permittee Signature:** (if applicable) | Print Name | Date |

This permit is not valid until signed by a duly authorized representative of the Department.
COLORADO DEPARTMENT OF TRANSPORTATION

| Signature DocuSigned by: Michelle Regalado 3805D030C514462... | Print Name Michelle Regalado | Title Assistant Access Manager | Date (of issue) 1/16/2024 \| 7:36 AM MST |
|---|---|---|---|

Copy Distribution: Required: 1.Region 2.Applicant 3.Staff Access Section 4.Central Files — Make copies as necessary for: Local Authority MTCE Patrol Inspector Traffic Engineer

# Red Creek Quarry CUP 02-003
# Application for Major Modification

Prepared by:
Brown and Caldwell
1527 Cole Boulevard, Suite 300
Lakewood, CO 80401
and
Environmental Alternatives, Inc.
PO Box 326
Canon City, CO 81215

On behalf of:
Holcim (US), Inc.

Submitted May 13, 2024

May 13, 2024

Director Dan Victoria
Department of Planning and Zoning
Fremont County
615 Macon Avenue
Cañon City, CO 81212

RE: Holcim (US) Inc. CUP 02-003 Red Creek Quarry
Application for Major Modification

Dear Director Victoria,

Please accept this application on behalf of Holcim (US) Inc. to modify the above referenced Conditional Use Permit (CUP). Holcim intends to increase the CUP boundary to include 219.72 acres for the Materials Transport and Access Corridor (MTAC) between the cement plant and Red Creek Quarry (RCQ) and to change the intended use CUP 02-003 from exploration to mining.

Bear Creek Quarry (BCQ) is the current limestone and sandstone source for cement production at the Holcim plant east of Florence, CO. BCQ is reaching the end of its life. Red Creek Quarry includes six contiguous land sections: two sections in Fremont County and four sections in Pueblo County. RCQ will be the new limestone and sandstone source and will provide material to the plant for approximately 100 years.

On March 14, 2014, Colorado Division of Reclamation, Mining and Safety (DRMS) approved an amendment to Holcim's Portland Limestone Quarries (M-1977-344) that added RCQ and MTAC to the existing 112 Permit.

The following application Exhibits require explanation or clarification:

- Holcim respectfully requests a waiver of a Landscaping Plan.
- Exhibit 3.6 Drainage Plan attachments are not printed but rather provided in a flash drive only.
- At the time of this application submission, the specific equipment that will be used to develop the mine and support facility is unknown. Holcim commits to providing the county registrations for SMM equipment prior to commencement of development.
- The Lighting Plan and Utility Plan are incorporated into the Exhibit 3.17 Site Plan.
- The Fire Protection Plan was emailed to Chief Ritter (ffpdchief@yahoo.com) on May 1, 2024 along with the a project map and Exhibit 1.1 Operation Description. At the time of this application submission, a response has not been received.

Please feel free to reach out to me directly with any questions.

Respectfully submitted,

*Angela M. Bellantoni*

Angela M. Bellantoni Ph.D.

**Environmental Alternatives, Inc.** P.O. Box 326, Cañon City, CO 81212 **Phone**: 719-275-8951
**Email**: angela@envalternatives.com

# FREMONT COUNTY

## DEPARTMENT OF PLANNING AND ZONING

615 MACON AVENUE, ROOM 210, CAÑON CITY, COLORADO, 81212
Telephone 719-276-7360 / Facsimile 719-276-7374
Email: Planning@fremontco.com

## LAND USE APPLICATION

## SPECIAL REVIEW USE, CONDITIONAL USE PERMIT, COMMERCIAL DEVELOPMENT PLAN

It is recommended that the applicant schedule an appointment with a Department of Planning & Zoning Representative prior to application preparation and submittal to discuss the project as currently planned and future project proposals.

Project Name: Red Creek Quarry formerly Ranch Land Rock Pit #1 CUP 02-3
Site Address: Sections 24 and 25, Township 20 South, Range 68 West, of the 6th Principal Meridian, Fremont County

**Applicant(s)**
Name(s) Holcim (US) Inc. Hamza Mekhfi, Plant Manager
Address 3500 US Highway 120, Florence, CO 81226
Phone (719) 288-1424 Fax
Email hamza.mekhfi@holcim.com

**Owner(s)**
Name(s) Holcim (US) Inc.
Address 6211 Ann Arbor Road, Dundee, MI 48131
Phone (719) 288-1424 Fax
Email hamza.mekhfi@holcim.com

**Authorized Representative / Agent / Consultant (*if other than owner*)**
Name(s) Angela Bellantoni, Ph.D. od Environmental Alternatives Inc.
Address P.O. Box 326, Cañon City, CO 81212
Phone (719) 275-8951 Fax
Email angela@envalternatives.com

**Type of Application / Application Fee (*There maybe additional fees for publications or professional reviews*):**
☐Special Review Use Permit $1,800 ☐Major Modification to existing permit $500
☒Conditional Use Permit $1,750 ☐Major Modification to existing permit $500
☐Commercial Development Plan $1750 ☐Major Modification $500

The applicant shall provide **one (1) original document, and an electronic copy (either CD or flash/thumb drive) of the application**, site plan (**2 COPIES**) and all of its attachments (*copies of deeds, contracts, leases etcetera are acceptable*) at the time of application submittal along with the **application fee** set as per Resolution of the Board. Submittals shall be made to the Department no later than 3:00 pm on the submittal deadline date.

## Site & Development

## (Section 1)

1. Describe the proposed type of operation to include days & hours of operation, number of employees, & machinery:

   RCQ will operation during daylight hours, 8-12 hours/day, 7 days a week. Approximately 27 employees will work at the quarry. Employees and equipment currently working the Bear Creek Quarry will operate Red Creek Quarry. Please refer to Exhibit 1.1 DRMS Exhibit Mining Plan for specific mine development details, mining operation and equipment

2. Property address or schedule number: 99912030
3. Have the mineral interests been severed from the subject property? ☐ YES ☒ NO
   a. If yes (severed) who is the mineral interest owner? _____
4. Is the property currently developed? ☐ YES ☒ NO
5. Existing types & sizes of structures: No existing structures.
6. Proposed types & sizes of structures: Metal building/shop/office = 12,880; Material conveyor = 481,274 ft²
7. Lot Coverage (indicate percent or square footage): Existing 0 Proposed 0.000076%
8. FCZR Citing 4.03(b) Property size (acres or square footage) 1.492 acres
9. Amount of the property the use will encumber: 1.492 acres
10. Zone District: Residential 3 Land Use Mining
11. Please indicate the zone district & current land use for adjoining properties:
    a. Northerly: (ZD) Residential 3 Land Use: Ranching
    b. Easterly: (ZD) Pueblo County Land Use: Mining
    c. Westerly: (ZD) Residential 3 Land Use: Ranching
    d. Southerly: (ZD) Residential 3 Land Use: Ranching
12. Master Plan – Planning District of property: Plains Planning District

    (please refer to Chapter four and planning district of the Fremont County Master Plan)

13. Name(s) and type(s) of road(s) the property is accessed from:

    Hwy 120 is access to Holcim Plant with interior road, MTAC, to Red Creek Quarry.
    Fremont County employees will access through Hwy 120. Holcim will provide a carpool van for miners to RCQ.
14. Is access through adjacent properties? ☐ YES ☒ NO If yes, is access legally established through:

    ☒ Deed of record ☐ Recorded Plat ☐ Court Order (Documentation shall be provided)
    Exhibit 3.1 Warranty Deed contains MTAC description as Parcel 2.
15. Estimated Traffic Count 54 existing (per day) Number of access points 1
16. Is access from or within five-hundred feet (500') of a Colorado Department of Transportation Controlled Road:

    ☒ YES ☐ NO (If yes, CDOT approval/comments shall be required) Existing Hwy 120 access to Holcim Plant will be used.

17. Does the property lie adjacent to or within three (3) miles of any municipal boundary lines (city/town limits)? ☒

    YES ☐ NO Municipality Name(s) Florence, CO

18. Does the property lie within the boundaries or within ¼ of a mile of any service district?

☒ YES ☐ NO Entity Name(s) Upper Arkansas Water Conservation District, Florence Fire District

19. Requested duration of proposed use: _____ ☒ Life of use ☐ Estimated life of use years _____
20. Is temporary cessation proposed: ☐ YES ☒ NO Duration: _____
21. Is buffering required: ☐ YES ☒ NO (Contractor yards, Junk yards, Automobile graveyards, & Vehicle impoundment yards **require** buffering per FCZR 5.17.15)
22. Is landscaping proposed: ☐ YES ☒ NO a waiver is requested
23. Total parking spaces 20 standard size 20 compact 0 ADA 0
    (Standard 9' X 18') (Compact 7' X 15') (Please refer to section 5.3 & 5.4 of the FCZR)
24. Will the parking area include lighting? ☐ YES ☒ NO
25. Parking area surface type: Gravel Thickness: 4 inches
26. Is a loading/unloading area proposed? ☐ YES ☒ NO Size: _____ Thickness: _____
27. Will hazardous materials be stored on site? ☒ YES ☐ NO Diesel fuel in a double walled above ground storage tank
28. Will noxious weed control measures be included in the scope of the project? ☒ YES ☐ NO
29. Will any equipment meeting the Colorado Revised Statute definition of Special Mobile Machinery be stored or used onsite? ☒ YES ☐ NO
30. Mark all services and facilities necessary to accommodate the proposed use in addition to Fire Protection, Emergency Medical Response, & Law Enforcement:

    ☐ Roadway Maintenance ☒ Hospital ☐ Park & Recreation

    ☐ Airport ☐ Search & Rescue ☐ Schools ☐ Library
31. Utility Provider information: Please provide the name of provider below:
    a) **Water:** Groundwater well and bottled water
    b) **Sanitation:** Septic vault approved 8/08/2024
    c) **Electrical:** Black Hills Energy
    d) **Telephone:** Cellular provider
    e) **Refuse:** Waste Management
    f) **Irrigation Water:** NA
    g) **Natural Gas/Propane:** Mile High Propane
    h) **Cable Television:** NA

## Process & Requirements Overview

Any application which is not complete or does not include all minimum submittal requirements will be rejected by the Fremont County Department of Planning and Zoning (Department). Further, any application that is inadequate or incomplete, may be subject to postponement of placement on an agenda of the Fremont County Planning Commission (Commission), pending receipt of an adequate and complete application.

Upon receipt of a complete application, the Department will review the application and all attachments and prepare a Department Submittal Deficiency and Comment Letter (D & C Letter), which will state the submittal deficiencies which must be addressed by the applicant, Department comments and/or questions about the application, and the number of revised application packets to be supplied to the Department for placement on an agenda of the Commission. An additional full application fee may be charged to the applicant, as per Resolution approved by the Board of County Commissioners (Board), if all deficiencies as per the initial D & C Letter are not adequately addressed or provided. Each subsequent D & C Letter, based on resubmitted items, will result in another full application fee. All such fees shall be paid along with the deficiency submittal, prior to any further review of the application.

The Department, Commission, and/or Board may require additional information at any time during the application process as may be deemed necessary for thorough consideration of the application and to enable an informed final decision.

Any Land Use application for that has been submitted after the use requiring the permit has been established on the property may be subject to a penalty fee in addition to the set application fee for such permit. The penalty fee shall be equal to the initial application fee for the Land Use Application. As with all land use applications payment of associated fees do not ensure approval of the application.

If the application is approved by the Board with contingencies the contingencies shall be completed to the Department within six (6) months of the approval date, or the approval shall be deemed rescinded and the application expired, after which, re-submittal of the application, including fees, and procedural requirements, will be required.

In approving an application for Land Use, the Board may require higher standards for development than required by the Fremont County Zoning Resolution (FCZR).

Modifications, major or minor, to the Land Use Permit as approved, shall be accomplished in compliance with requirements of the Fremont County Zoning Resolution.

**Applicants shall pay all application fees to the Fremont County Treasurer's Office. Upon receipt of a complete application, a Department representative will provide the applicant with a payment check list to present to the Treasurer's Office with payment.**

Impact Analysis
(Section 2)

1. Dust and erosion control measures:

Holcim quarries operate under a Title V Air Permit No. 98FR0895 from the Air Pollution Control Division of CO Department of Public Health and Environment.

Holcim operates under a NPDES general permit COR500000 that will be provided to the county upon approval from WQCD of CDPHE.

2. Noise control measures:

Mining and hauling activities are sufficiently distant from private property development and public recreational areas to not necessitate implementation of noise control measures. Measuring from the mine boundary, the nearest structure is 2 mile south and 5.25 miles north, west end of Pueblo Reservoir 3 miles east and Ranch Land property boundary is 4 miles west

3. Odor control measures:

Nuisance odors are not anticipated.

4. Visual impact control measures:

Mining and hauling activities are sufficiently distant from public roads and private property owners/development to not necessitate construction of visual impact control measures.

5. Wildlife/plant habitat protection measures:

Please refer to Exhibit 2.5-1 Wildlife Information and Exhibit 2.5-2 Vegetation information

6. Water quality and/or water way(s) protection measures:

Exhibit 2.6-1 is Exhibit G from Holcim's CO DRMS 112 permit application that includes the protection measures that will be implemented.

7. Safety measures to protect adjacent properties, residents, & agricultural operations:

Perimeter berms and/or fences will be constructed along all mining and hauling development to protect the livestock and wildlife.

8. Measures to protect and/or preserve archaeologically or historically significant sites:

In the event archaeological or historical artifacts are encountered, activity will stop and the appropriate agency will be notified.

9. Measures to limit or control offsite discernable vibrations:

Blasting will be a regular practice during mining. Buildings and structures are at sufficient distances from blasting sites that vibrations will not be discernible. The Blasting Plan approved by DRMS is provided herein as Exhibit 2.9-1.

**Required Submittals Attachments**
**(Section 3)**

1. Current Deed of Record
2. Water supply documentation: Public water source requires documentation evidencing ability to provide service. Wells require documentation of a well permit and/or documentation that the existing well is adequate for the proposed use
3. Fremont County's Colorado Division of Water Resources Information Form
4. Sanitation Documentation: Public sewer shall require documentation evidencing ability to provide service. Onsite Waste Water System (OWTS) shall require a percolation test and report and a design plan from a certified engineer. Existing OWTS systems shall require documentation that the existing system is adequate for the proposed use
5. Refuse Plan: Shall address the storage, collection, and disposal of refuse. It shall also document screening of refuse receptacles/areas. (Refuse plans require approval by the Fremont County Environmental Health Dept.)
6. Drainage Plan: Must contain all required items under FCZR 5.10 (Drainage plans require approval by the County Engineer).
7. Landscaping Plan or justification for waiver request.
8. Lighting Plan or justification for waiver request
9. Noxious Weed Control Plan or justification for waiver request. (Plans and waiver requests require approval by the Fremont County Noxious Weed Manager)
10. List of owners and mailing address for all properties located within a five-hundred (500') foot radius of the subject property
11. County Roadway Impact Analysis Form (If accessed off a county road)
12. Colorado Department of Transportation Access Permit (If accessed off a CDOT controlled road)
13. Statement indicating how the proposed use complies with "Goals Objectives, and Implementation Strategies" of the Fremont County Master Plan District
14. Statement indicating how the proposed use will be in harmony and compatible with surrounding land uses and development in the area and/or measures that can be taken to make it in harmony & compatible.
15. Fire protection plan addressing method of fire protection, location of hydrants or other means of protection. If located within a fire protection district the plan shall be approved by the District.
16. A detailed utility plan showing the proposed or existing location of all utilities.
17. Site Plan drawn to professional standards (3 hard copies 18" x 24" or 24" x 36")
18. Submittals and exhibits should be clearly identified with section and/or question number located on the bottom right hand corner, or otherwise tabbed or marked.

**If Applicable Submittals**

19. CDOT Notification form of Proposed Land Use and comments (if access is from or within 500' of a CDOT controlled road)

20. Mineral Interest Notification and certified mailing receipt. Notification & Mailing shall be completed within 30 days prior to the scheduled Planning Commission Meeting. (this is only required if the minerals interests are severed)

21. Copies of all local, state and federal licenses and/or status of applications.

22. In circumstances of Corporate Ownership, documentation evidencing whom is eligible to execute documents on behalf of the corporation

23. In circumstances where the applicant is not the owner written authorization from the owner specifying the extent to which the representation is authorized

24. In circumstances where a consultant is making application on behalf of the owner, written authorization from the owner specifying the extent to which the representation is authorized

25. In circumstances where the property owner of record is not involved in the operation or application, documentation indicating right to occupy and use the property shall be provided. (lease or similar document)

26. Buffering Plan (If required)

27. Current registration for SMM equipment or documentation that equipment is on tax rolls associated with the property, to include list of machinery.

28. List of Hazardous materials stored and/or used on site, to include location of storage and management practices

29. Copies of mining and reclamation plans (CUP's)

30. Required information set forth in FCRZ 8.13.17.1 (Airports)

31. Required information set forth in FCRZ 8.13.17.2 (Adult Uses)

32. Required information set forth in FCRZ 8.13.17.3 (Kennels)

33. Required information set forth in FCRZ 8.13.17.4 (Antennas & Towers)

## Site Plan Drawing Requirements

a. Drawing Size: Minimum sheet size 18" x 24" to a maximum sheet size of 24" x 36";
b. Written and graphic scale with minimum of 1" = 200' max 1" = 50';
c. Appropriate title (SPECIAL REVIEW USE PERMIT, CONDITIONAL USE PERMIT, COMMERICAL DEVELOPMENT PLAN FOR {name};
d. Appropriate subtitle (brief description of the proposed use);
e. Boundary drawing of the property with bearings and dimensions illustrating the legal description;
f. Legal description of the property;
g. Acreage or square footage of the subject property;
h. Zoning classification of the subject property;
i. Zoning classification of the adjoining properties;
j. North Arrow;
k. Vicinity map locating the subject property in relation to surrounding areas;
l. Table indicating relationship between proposed and existing construction to remain on the property
m. Minimum lot size, maximum lot coverage, maximum building height, minimum lot width, minimum setback requirements (Front, Two sides, & Rear)
n. Size and shape of all existing & proposed structures: each structure shall be labeled/noted as existing or proposed. Dimensions from at least two property lines shall be noted;
o. Location of all parking areas to include size, dimensions, surface type & thickness, type of space (ADA, Standard, Compact) and a table specifying the minimum numbers of spaces required for each category;
p. Location of loading areas to include size, dimensions surface type & thickness;
q. Labeled access points including interior roadways with dimensions, surface type & thickness, circulation pattern, and dimensions from property lines;
r. Any proposed pedestrian areas & walkways to include dimensions, surface type & thickness;
s. Location and dimensions of refuse areas;
t. Identification and location of all drainageway, drainage facilities, including FEMA flood areas, to include dimensions from property lines;
u. Location, height & type of lighting for parking and off-loading areas;
v. Location, type, and size of all on-site identification signage (table may be used);
w. All easements (existing & proposed) to include dimensions from property lines (beginning, end, & centerline) width, and if they are to be vacated or relocated;
x. Significant natural features;
y. Soil types
z. Open space areas
aa. Legend identifying symbols and/or lines

**By signing this Application, the Applicant, or the agent / representative / consultant acting with due authorization on behalf of the Applicant, hereby certifies that all information contained in the application and any attachments to the Application, is true and correct to the best of the Applicant's knowledge and belief.**

**The Applicant understands that required private or public improvements imposed as a contingency of approval for the application may be required as a part of the approval process.**

**Fremont County hereby advises the Applicant that if any material information contained herein is determined to be misleading, inaccurate or false, the Board of County Commissioners may take any and all reasonable and appropriate steps to declare null and void, any actions of the Board regarding the Application.**

**Signing this Application is a declaration by the applicant that all plans, drawings and commitments submitted with or contained within this Application are or will be in conformance with the requirements of the Fremont County Zoning Resolution.**

Hamza Mekhfi _____ March 28, 2024 Applicant

Printed Name Applicant Signature Date

Hamza Mekhfi _____ March 28, 2024 Owner

Printed Name Owner Signature Date

## *Section 3 Submittal Exhibits*

Exhibit 3.1 Current Deed of Record

Exhibit 3.2 Water Supply

Exhibit 3.3 CO Division of Water Resources Information Form

Exhibit 3.4 Refuse Plan

Exhibit 3.6 Drainage Plan

Exhibit 3.8 Lighting Plan

Exhibit 3.9 Noxious Weed Control Plan

Exhibit 3.10 Owners within 500 ft.

Exhibit 3.11 Roadway Impact Analysis Form

Exhibit 3.13 Master Plan Compliance

Exhibit 3.14 Surrounding Land Use Compatibility

Exhibit 3.15 Fire Protection Plan

Exhibit 3.16 Utility Plan

Exhibit 3.17 Site Plan

Exhibit 3.17y NRCS Soil Survey

Exhibit 3.22 Corporate Ownership

Exhibit 3.24 Owner Authorization to Consultant

Exhibit 3.28 Hazardous Materials List

Exhibit 3.29 DRMS Reclamation Plan

# CUP Exhibit 1.1 Description of Proposed Operation

## CO DRMS 112 Permit Exhibit D: Mining Plan (Rule 6.4.4)
## Section 2.4

A limestone quarry and four (4) generations of cement plants have been operating east of Florence, CO since the late 1890's. The current plant facility (Plant No. 4) increased production in 2001. About 3,200,000 tons of limestone are required per year to supply the current plant. Sandstone is supplied from a smaller quarry established into the floor of the limestone quarry and is extracted at an annual rate of approximately 120,000 tons. Other raw materials are purchased.

The purpose of this Conditional Use Permit major modification application is to increase the permit area boundary to include both Sections 24 and 25 for a new limestone resource to be known as Red Creek Quarry (RCQ).

### 2.4.1 Mine Progression

Mining will commence in the northwest corner of the resource area and progress south and east through the resource over the course of approximately 100 years. The mine plan is set up in 10-year blocks based on plant capacity (Figure 2.4.1-1). During Years 0 to 10, mining will be initiated in the west side of the property with extraction progressing north in Section 24 and south into Section 25 in Fremont County simultaneously. Anticipated acres affected each 10-year period is provided in Table 2.4.1-1.

Table 2.4.1-1 Acres Affected Per 10 Years

| CUT NO. | AREA (ACRES) |
|---|---|
| Development | 18 |
| 0 to 10 years | 216 |
| 10 to 20 years | 269 |
| 20 to 30 years | 240 |
| 30 to 40 years | 478 |
| 40 to 50 years | 679 |
| 50 to 60 years | 276 |
| 60 to 70 years | 334 |
| 70 to 80 years | 273 |
| 80 to 90 years | 101 |
| 90 to 100 years | 191 |
| TOTAL | 3,074 |

In Years 0 to 10, initial mine development will occur within 18 acres to provide a cleared area for construction of the shop and office building, utilities, MTAC and secondary crusher. It is anticipated to take up to two years to complete the infrastructure development. Upon completion of development, mining will continue in Sections 24 and 25 for the remaining eight years on approximately 216 acres. Codell sandstone will be mined in this area to a depth of 15 feet, crushed and transported to the plant.

In Years 10 to 20, mining will continue in the northwest corner of Section 24, depleting the limestone in this area by Year 20. Mining will also continue south into Section 25 during Years 10 to 20.

Approximately 269 acres will be mined in Sections 24 and 25 during this period, including continued extraction of Codell sandstone in Section 24.

At the end of year 20, contemporaneous reclamation will begin in Section 24. As mining progresses into the east portion of Section 25, overburden may be hauled to Section 24 for rebuilding slopes to 3H:1V. Reclamation will continue similarly as mining progresses into the Pueblo County sections.

In Years 20 to 30 mining will continue in Section 25 moving east across the resource. This period will experience the highest strip ratio as the thickness of the overburden will be the thickest throughout the deposit. Extraction from the top 15 feet of the Codell sandstone will continue in Section 25 once sufficient acres of limestone have been removed to expose the top of the Codell sandstone. Phase reclamation will continue in Section 24 and the area used for sandstone extraction in Section 24 will be backfilled and reclaimed. Approximately 240 acres will be affected during this period.

In Years 30 to 40 mining will continue in an easterly direction. Extraction from the top 15 feet of the Codell sandstone will continue in Section 25. It is estimated that the limestone in Section 25 will be depleted during the last half of this 10-year period and mining will continue moving eastward into Sections 19 and 30 in Pueblo County. Approximate affected acreage during this 10-year period is 478 acres.

During Years 40 to 100 (approximate life of mine) mining progression is speculative at best. Mining will continue eastward through the deposit in similar manner as described above including contemporaneous reclamation in mined out areas.

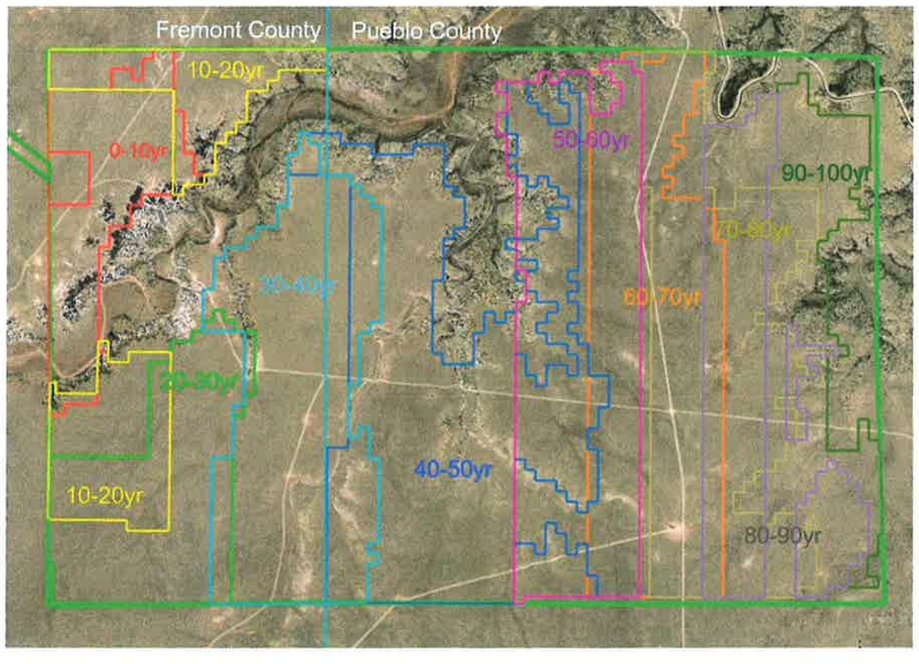


Figure 2.4.1-1 Mine Plan Blocks

### 2.4.2 Mine Infrastructure Development

The mine will develop as two distinct development projects. MTAC from the plant to RCQ. Once safe access is available for contractors, vendors and employees, development of the mine infrastructure will begin including fencing and RCQ mine buildings and utilities.

#### 2.4.2.1 Material Transport and Access Corridor

MTAC will include an access road for employees and vendors and the planned overland conveyor system. The corridor will extend from the plant to RCQ or approximately 6.7 miles. The conveyor and a maintenance road will lie inside a chain link fence. The access road will lie west of the conveyor fence.

The gravel access road will be 40-foot-wide to allow safe passage of both employees and equipment in both directions. The road will be constructed with road base as the sub grade and 8 inches of gravel. The road will have 10-foot-wide graded shoulders.

The conveyor will be constructed as the road is being constructed. The conveyor will be an overland system with 13 elevated wildlife crossings. The wildlife crossings will be constructed over shallow natural ravines or dry stream beds. The elevated section will span approximately 95 feet, reaching an elevated height of 10 feet 9 inches, allowing the safe passage of wildlife along MTAC. The conveyor will be supported by steel supports on precast concrete pads set on the graded and leveled ground surface every 9 feet.

The conveyor system and conveyor service road will be enclosed by a 6-foot-high chain link fence to prevent wildlife from coming in contact with the moving conveyor. The fence will end as the conveyor begins to elevate for the wildlife crossings and recommence as the conveyor elevation drops to within 6 feet of the ground surface. The fence will have security gates on each end of the overland stretches of conveyor.

#### 2.4.2.2 Red Creek Quarry Infrastructure Development

RCQ development will include building a shop/office building, installing a sanitation vault, grading areas for equipment and vehicle storage and an area for the secondary crusher in the northwest corner of Section 24. The area will be prepared by drilling, blasting and excavating material from a 1,000 feet by 800 feet area using a bulldozer, a loader and off-road haul trucks.

The quarry shop and offices will be located in a 184-foot by 70-foot metal building constructed on a concrete slab. The concrete slab will be reinforced with rebar and will be 8 inches thick in the warehouse, 4 inches thick in the office and 12 inches thick in the shop. The shop building will have electricity from the area provider, a septic vault engineered for up to 25 employees and a water well for sanitation and equipment maintenance needs. Equipment will be maintained and repaired in the shop. The shop will include wash bays and floor drains that discharge into an oil/water separator. Diesel fuel will be stored on site in a 20,000-gallon double walled above ground fuel tank with concrete wall crash protection structure.

### 2.4.3 Mine Development

Mining will occur as a conventional open pit mine utilizing drilling, blasting, loading, and hauling equipment. Limestone for the plant will be transported from the blasted working faces by excavators to potentially two in-pit mobile crushers located in the vicinity of the working face. This initial crushing will produce 8-inch minus material. The 8-inch minus material will be conveyed to the secondary crusher in the northwest corner of Section 24. The secondary crusher will reduce the feedstock to 4-inch minus +/- 0.5 inch that will be transported by conveyor approximately 5.7 miles to the blending hall for further processing.

Plant growth material will be salvaged and stockpiled during all site development and mining activities. Up to two feet of plant growth material will be ripped and pushed into a temporary stockpile. Haul trucks will transport the material to the property boundary and planned quarry area for construction of a 10-foot-high perimeter berm. In the event plant growth material will not be used in reclamation within one year, it will be seeded with a temporary seed mix to stabilize the surface until the material is needed in final reclamation.

During initial mine development, a temporary stockpile will be located in the northwest corner of Section 24 (Figure 2.4.3-1). The temporary stockpiles will be 1,200 feet by 800 feet with a total capacity of 3.1M tons. It will be constructed in separate stockpiles of overburden and limestone. Once sufficient mine floor is mined out, the overburden stockpile material will be pushed into the quarry as backfill for slopes. The anticipated life of the temporary stockpiles is less than 20 years.

The limestone mine will develop as a surface mine with benches and a perimeter berm (Figure 2.4. 3-2). Limestone will be mined by cutting benches with a vertical face of 36 feet and a bench of 20 feet. The depth of limestone is approximately 140 feet deep with Codell sandstone below the limestone deposit. The crest of the mine bench will be 150 to 200 feet within the permit boundary. A 10-foot berm will be constructed of overburden approximately 100 feet from the crest of the limestone bench.

The sandstone mine will be an open pit mine in the floor of the limestone mine. After extracting the limestone, a sandstone pit will be developed in the Codell. Sandstone will be mined from two 23-acre locations along the west boundary; one in each Section. Sandstone will be mined to a depth of 15 feet as a typical open pit mine using backhoes and haul trucks. The slopes of the sandstone pit will be 3H:1V.

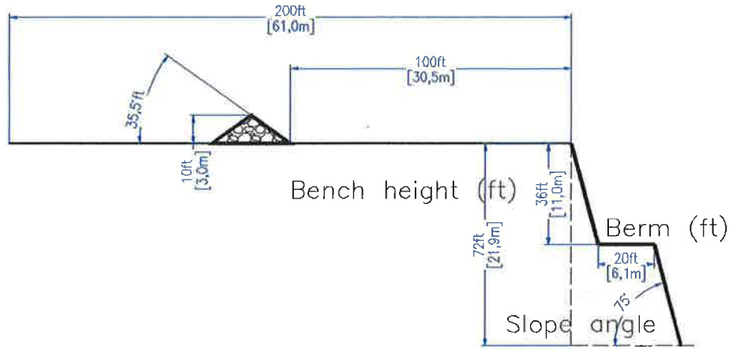


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Figure 2.4.3-2 Limestone bench mining cross section

Daily mining activity will be performed by diesel fueled loaders, a dozer, motor grader, three 100-ton off-road haul trucks, a 20,000-gallon water truck, and electric backhoes. Once the plant growth material is salvaged and the mine area is leveled, the mine area will be drilled in preparation for blasting at depths based on the geologic stratigraphy of overburden, translime, Fort Hays limestone and Codell sandstone. The drilling patterns are described in the Blasting Plan (Appendix 4.1). The blasted material is segregate as overburden and limestone. Overburden is hauled to the waste dump area and stockpiled for use during final reclamation to rebuild slopes and bring up the elevation of the mine floor or it will be used to construct the perimeter berm.

Limestone is processed twice in the RCQ, prior to being conveyed to the BCQ. Electric backhoes will feed one of two electric primary jaw crushers (each rated at 650 tons per hour [tph]) located near the working face. The crushed limestone will be conveyed to the electric secondary cone or impact crusher

(rated at 1200 tph) located in the vicinity of the shop and office building. The final product conveyed to the cement plant will be approximately 4.5-inch minus. Conveyor belts leaving RCQ will be equipped with a gamma-metrics cross belt analyzer system to provide real-time chemical analysis of the material transported to the plant.

### 2.4.4 Blasting Operations

Blasting will occur daily, Monday thru Friday, to yield limestone volumes that provide sufficient quantities of overburden and produce limestone quantities to support plant production. Blasting will conform with Bureau of Alcohol Tobacco, Firearms and Explosives regulations and monitored for seismic control as described in the Blasting Plan (CUP Exhibit 2.9-1). Blasting is performed by a blasting contractor, licensed in CO. At distances of 5,000 feet or greater, the peak particle acceleration will not exceed 1.00 in/sec$^2$. The nearest structure is the Minnequa Canal located within 500 feet of the permit boundary but more than two miles from Sections 24 and 25 in Fremont County. At this distance, ground vibration will not exceed 1.00 in/sec$^2$ thus having no negative impacts to existing structures.

### 2.4.5 Existing Structures

Existing structures within the affected area boundary include ranch fences, cattle watering infrastructure and electricity transmission lines. Ranch fences will be removed that are within the affected area. The cattle watering infrastructure, water pipe and troughs, will be dismantled and removed from the affected area. The water supply line to the cattle troughs will be capped at the permit boundary. Holcim will maintain a 25-foot radius setback from electricity transmission lines on the native ground elevation. In the quarry, the top mine bench will be setback 25 feet from the base of the pole with setback in the quarry floor up to 165 feet due to 1H:1V bench slope.

# Exhibit 2.5-1 Wildlife Information

## CO DRMS 112 Permit Exhibit H: Wildlife Information (Rule 6.4.8) Section 2.8

Wildlife information was obtained for the proposed permit area from two wildlife database sources: Colorado's Conservation Data Explorer (CODEX) and US Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC). CODEX includes a 1-mile buffer area around the subject area. The IPaC requested search area of interest was larger than actual parcels and extends the area of interest to include migration paths, for example, since species move and change location based on seasons. The proposed permit area was surveyed for wildlife habitat, presence and evidence of presence from August 8-10, 2023.

Three IPaC reports were generated for areas that included the Mining Permit and Affected Area Boundary on July 20, 2023. The following species listed under the Endangered Species Act were identified as potentially being in the area:

- Gray wolf, *Canis lupus* – Endangered
- Eastern Black Rail, *Laterallus jamaicensis ssp jamaicensis* - Threatened
- Greenback Cutthroat Trout, *Oncoryhnchus clarkia stomias* – Threatened
- Monarch Butterfly, Danaus plexippus – Candidate

No critical habitats for any listed species occur in the area.

Both Bald and Golden eagles are listed as potentially being within the area, but neither are listed federally as a Bird of Conservation Concern.

Three CODEX reports were requested for the Mining Permit and Affected Area Boundary. One report is for RCQ, where the mining will take place, and the others are for the MTAC. CODEX lists species that have a regulatory status that have been confirmed as documented to occur within one mile of a project area as well as potential species based on models, range maps and unconfirmed records. A CODEX Project Review Report was produced on July 20, 2023 and the following species were identified by CODEX as documented within a mile of the Mining Permit and Affected Area Boundary:

- Bald Eagle – Special Concern
- Southern redbelly dace – State endangered

Species with a status of State endangered, threatened or a species of special concern identified as potentially occurring within the Mining Permit and Affected Area Boundary by CODEX include:

- Black-footed ferret – State endangered
- Burrowing owl - State threatened
- Mountain plover – Special concern
- Black-tailed prairie dog - special concern
- Colorado checkered whiptail – special concern

None of the species identified as being federally or state listed as endangered, threatened or of special concern were observed within the Mining Permit and Affected Area Boundary. The absence of observation does not guarantee a species is not present, however. Therefore, each of those species is

discussed below relative to its potential for being present within the Mining Permit and Affected Area Boundary.

### 2.8.1 Gray wolf

The USFWS states in the IPaC report that gray wolves would only be present in Colorado as lone, dispersing wolves. Colorado is completely outside of the current range map for gray wolves (USFWS 2023a.

The likelihood of gray wolves being present within the Mining Permit and Affected Area Boundary is very low.

### 2.8.2 Eastern Black Rail

Colorado Parks and Wildlife documented in 2016 that the species is found in dense emergent vegetation, with a mix of new and residual growth. Also, Colorado-based research (USFWS 2023b) defined black rail habitat as emergent marsh wetlands that consisted of cattails and other wetland species, like hardstem bulrush (Schoenoplectus acutus).

The Mining Permit and Affected Area Boundary is within the known range of the Eastern black rail. However, very little, if any, habitat for this species can be found within the Mining Permit and Affected Area Boundary. While there are emergent wetland plant species found in the area, they are located in and along Red Creek and not in any emergent marshes. The overstory habitat favored by Eastern black rails is absent in these areas as well.

Therefore, the likelihood of Eastern black rails being present within the Mining Permit and Affected Area Boundary is very low.

### 2.8.3 Greenback Cutthroat Trout

Greenback cutthroat trout are cold water fish belonging to the trout, salmon and whitefish family. This species inhabits cold water streams and cold-water lakes with adequate stream spawning habitat present during spring. In general, trout require different habitat types for different life stages: juvenile (protective cover and low velocity flow, in side channels and small tributaries); spawning (riffles with clean gravels); over-winter (deep water with low velocity flow and protective cover); and adult (juxtaposition of slow water areas for resting and fast water areas for feeding, with protective cover from boulders, logs, overhanging vegetation or undercut banks). Both water quality and quantity are important. Greenbacks, like other cutthroat trout, generally require clear, cold, well-oxygenated water.

The range of the greenback cutthroat trout does not extend into Fremont County, but the range does fall within Pueblo County, through which the Arkansas River flows. The only waterbody of any substantial size within the Mining Permit and Affected Area Boundary is Red Creek. Red Creek in this area does not have enough water flow to support greenback cutthroat trout nor do the habitats exist in Red Creek that are needed to support the different life stages of the species, as described above.

Therefore, the likelihood of Greenback cutthroat trout being present within the Mining Permit and Affected Area Boundary is extremely low.

### 2.8.4 Monarch Butterfly

The monarch butterfly is not listed as an endangered or threatened species yet and is therefore not afforded the protections of the Endangered Species Act. However, a few milkweed plants of three different species (zyzotes, broadleaf and narrowleaf) were observed during the vegetation surveys. Therefore, it is possible that monarch butterflies could be present within the Mining Permit and Affected Area Boundary, but it is unlikely that they would be present in any large numbers. The Western Monarch

Milkweed Mapper, which relies on citizen science data, has milkweed locations recorded in the area north of Lake Pueblo State Park and east of Florence, CO, but no recorded sightings of monarch butterflies. The closest monarch butterfly sightings were recorded in Canon City and in the northern area of Pueblo.

### 2.8.5 Bald and Golden Eagles

According to the online Cornell Lab of Ornithology eBird map (https://ebird.org/map), both bald and golden eagles are abundant along the Arkansas River and its tributaries, including Hardscrabble Creek which is to the north and east of the Mining Permit and Affected Area Boundary. Numerous sightings have also been reported along Route 96 which is the closest road south of the Mining Permit and Affected Area Boundary.

Therefore, it is highly likely that Bald and Golden eagles may be present within the Mining Permit and Affected Area Boundary. However, there are very few areas that would be suitable for eagles to build nests, so the project area would likely be a hunting ground for the eagles rather than support any breeding pairs.

### 2.8.6 Southern redbelly dace

The southern redbelly dace is an energetic, schooling fish that inhabits clear, cool waters in small to medium streams in the Mississippi, Ohio and Missouri river drainages. Their populations are widely scattered across the Great Plains, but most of their population range occurs to the east. In the western part of their range, southern redbelly dace are restricted to rather small, scattered populations near the headwaters of tributaries of larger rivers like the Missouri, Kansas and Arkansas rivers. They are restricted to relatively small regions where the cold water from springs and headwater streams creates similar conditions to the last glacial retreat from the Great Plains Region. The optimal habitat for dace is clear, cool streams which are fed by groundwater with heavy vegetation for cover and gravel or sand substrate. Southern redbelly dace require clean gravel substrates for reproduction and feeding. They rely on their sight to feed and recognize brilliant color patterns of potential mates during spawning.

While Red Creek is a tributary to the Arkansas River, the creek is intermittently fed by connection to the groundwater along its length within the Mining Permit and Affected Area Boundary. It is possible that Southern redbelly dace could occur within Red Creek, but with the lack of consistent flow within the Mining Permit and Affected Area Boundary portion of the creek, it is unlikely that they would occur in that portion given the lack of clear stream flow and heavy riparian vegetation.

### 2.8.7 Black-tailed prairie dog and associated species (Black-footed ferret, Burrowing owl)

Black-tailed prairie dogs are found within the area that borders the Mining Permit and Affected Area Boundary. Prairie dogs were observed a good distance off to the west of Transect 17 of the vegetation survey. In Colorado, it is unlawful to capture, transport, and relocate black-tailed prairie dogs from one site to another suitable site without a permit from Colorado Parks and Wildlife.

The burrowing owl and the black-footed ferret are species closely associated with, and dependent on, black-tailed prairie dogs. The black-footed ferret was extirpated from this area but there are release sites in the vicinity.

As of this report, there are no black-tailed prairie dogs, burrowing owls or black-footed ferrets within the Mining Permit and Affected Area Boundary.

### 2.8.8 Mountain plover

The mountain plover nests in flat, dry landscapes characterized by very short, sparse vegetation (preferably less than 3 inches), with at least 30% bare ground and a slope less than 5 degrees (less than 2 degrees optimal). A conspicuous object (e.g., manure pile, clump of vegetation, rock) is usually found

near nest sites. In Colorado, the mountain plover is commonly associated with heavily grazed blue grama (Bouteloua gracilis) or buffalograss (Buchloe dactyloides) on the eastern plains. The mountain plover is strongly associated with black-tailed prairie dog towns in some parts of its breeding range. The mountain plover feeds almost exclusively on invertebrates. Grasshoppers and beetles have been reported as the most common prey.

According to the online Cornell Lab of Ornithology eBird map (https://ebird.org/map), the most recent sighting of mountain plovers near the Mining Permit and Affected Area Boundary was in 2014. Older sightings range from 1975 to 2010.

The habitat within the Mining Permit and Affected Area Boundary could potentially support mountain plovers, particularly in the vicinity of the known black-tailed prairie dogs if mountain plovers nest away from the colonies. Mountain plovers, while listed as a State species of special concern, are not afforded any legal protection beyond requiring a permit to capture or handle.

### 2.8.9 Colorado checkered whiptail

The native range of the Colorado checkered whiptail is restricted to the Arkansas River drainage of southeastern Colorado. Colorado checkered whiptails occupy a native range restricted to the Arkansas River drainage and its tributaries in southeastern Colorado. Occupied habitat includes canyons, the vicinity of hillsides, rivers, arroyos, and creeks, as well as heavily altered habitats with slopes. This lizard often is encountered in areas of Ponderosa pine, Gambel's oak, pinyon-juniper woodland, and shrublands and grasslands with rabbitbrush, cholla, and yucca. Colorado Checkered Whiptails forage opportunistically, and the most common food items for adults are grasshoppers and termites, while spiders and leafhoppers were the primary food items for young lizards.

Within the Mining Permit and Affected Area Boundary there are areas of habitat suitable for Colorado checkered whiptails but a large percentage of the habitat in the area is not their preferred habitat. Colorado checkered whiptails are a State species of special concern and are not afforded any legal protection beyond requiring a permit to capture or handle.

### 2.8.10 Wildlife Impact Mitigation Measures

Colorado Parks and Wildlife (CPW) was invited to conduct a site visit on October 19, 2023. The visit included review of project maps, explanation of mine development and contemporaneous reclamation. Upon receipt of CPW's November 14, 2023, comment letter, Holcim requested a follow up virtual meeting to discuss CPW's recommendations. Ms. Cassidy English, CPW's SE Region Land Use Coordinator, represented CPW during the virtual meeting. Ms. English clarified that the recommendations were just that, recommendations, as opposed to mitigation directives. The following wildlife impact mitigation measures will be implemented to minimize and avoid impacts to wildlife.

Contemporaneous reclamation is the primary mitigation measure that will minimize impacts to wildlife. Approximately 10% of the proposed permit area, or 450 acres, will be impacted at any one time. This will preserve approximately 4000 acres for wildlife habitat and winter range.

#### 2.8.10.1 Raptors

Raptor nests were not observed within the Mining Permit and Affected Area Boundary on August 8, 2023. However, there is a potential for foraging raptors, such as bald and golden eagles, to be present outside the Mining Permit and Affected Area Boundary. Holcim will conduct raptor surveys to identify areas with raptor nests prior to commencing surface disturbances. If nesting areas are identified, the best management practices outlined in the *Colorado Parks and Wildlife Recommended Buffer Zones and Seasonal Restrictions for Colorado Raptors* (CPW, 2020) guidance will be implemented.

### 2.8.10.2 Prairie Dogs

Prairie dogs were not observed within the Mining Permit and Affected Area Boundary on December 17, 2023. However, prairie dogs were observed to the west of MTAC indicating the possibility for prairie dog colonies to develop within the Mining Permit and Affected Area Boundary in the future. Burrowing owls utilize abandoned prairie dog burrows. Holcim will conduct surveys of burrows within the current mining operation phase in accordance with the CPW *Recommended Survey Protocol and Actions to Protect Nesting Burrowing Owls (CPW, 2021)*. If nesting burrowing owls are identified, the best management practices outlined in the *Colorado Parks and Wildlife Recommended Buffer Zones and Seasonal Restrictions for Colorado Raptors* (CPW, 2020) guidance will be implemented.

### 2.8.10.3 Aquatic Habitat

The Mining Permit and Affected Area Boundary includes several drainages along the MTAC and within the RCQ area. Holcim will implement erosion and sediment control best management practices (BMPs) to prevent sedimentation of aquatic habitats.

# Exhibit 2.5-2 Vegetation Information

## CO DRMS 112 Permit Exhibit J: Vegetation Information (Rule 6.4.10) Section 2.10

Table 2.10-1 was prepared from the NRCS soil survey database. The vegetation listed is expected and typical vegetation for the soil type. Also provided is the average annual production of vegetation in pounds per acre.

The vegetation survey was conducted from August 8-10, 2023, within the various soil type areas found within the Mining Permit and Affected Area Boundary. Sample locations were chosen to include at least one transect within each soil type located within the Mining Permit and Affected Area Boundary. At each location, a 100-ft transect was measured and marked with pin flags. The overall percentage covered within the area was visually estimated. The five most dominant plants within one foot of the transect were identified and any other notable species in the vicinity were also recorded.

For a majority of the transects, tumbleweed and blue grama were the most abundant plant species observed. Differences in abundance and diversity of plant species appears to be driven by the amount of available water, with the driest areas having more tree cholla, prickly pear and yucca while areas closer to water sources were dominated by sedges, a variety of grasses and invasive saltcedars. The areas closer to drainage areas generally have more trees, shrubs and flowering plants as opposed to areas dominated by tumbleweed and cacti. The entire area is subject to cattle grazing with no area except for one transect atop a hill absent of cattle tracks and manure. Plants present are well adapted to the presence of cattle. Based on CODEX report, no rare plants were observed.

Fremont Weed Control Officer Brittany Pierce visited the Fremont County parcels on September 28, 2020. The Integrated Weed Management Plan is provided in Appendix 4.10. Noxious weed Species observed during the vegetation field survey that are on the Colorado Department of Agriculture's Noxious Weeds list (https://ag.colorado.gov/conservation/noxious-weeds/species-id) included saltcedar (List B), Russian olive (List B) and common mullein (List C). List B includes species for which the continued spread in Colorado should be halted. List C includes species for which local agencies have authority to decide management strategies for elimination. There were no List A species observed, which include species that have newly arrived and/or are less common in Colorado but still need to be eradicated. Saltcedar was abundant within and in the vicinity of Transects 10 and 11, which were located along Red Creek. This area is also where Russian olive was observed and was in an area uphill of but in a tributary drainage of Red Creek. Common mullein was only observed in one location, Transect 5, in an area near to the middle of Parcel 3 of the Mining Permit and Affected Area Boundary.

Table 2.10-1 Soils and Vegetation Data

| Map Unit Symbol | Map Unit Name | Vegetation | Average annual production of air-dry vegetation in pounds per acre |
|---|---|---|---|
| 3 | Aquic Ustifluvents | western wheatgrass, inland saltgrass, alkali sacaton, sand dropseed, little bluestem, sedges, big bluestem, willows and scattered areas of cottonwood | 1500 |
| 48 | Kim loam | short grasses, of which blue grama predominates. | 800 |
| 52 | Kim-Cascajo complex | Kim soil vegetation and sideoats grama, blue grama, little bluestem, needleandthread and Indian ricegrass. | 750 |
| 66 MvC | Manvel | blue grama, galleta, western wheatgrass, cactus, and needlegrass. | 800 |
| 83 PmE | Penrose-Minnequa complex | blue grama, western wheatgrass, winterfat, blue grama, pricklypear, broom snakeweed and red threeawn. | 800 |
| 84 PrF | Penrose-Midway-Rock outcrop complex | sideoats grama, blue grama, Scribner needlegrass, Indian ricegrass and stands of oneseed juniper or Rocky Mountain juniper | 60 |
| 92 | Riverwash | blue grama, wester wheatgrass, needleandthread and prairie junegrass | 1200 |
| 129 | Wilid silt loam aka Wiley silt loam | blue grama, galleta, sand dropseed, and western wheatgrass. | 800 |
| LM | Las Animas fine sandy loam | willow, cottonwood, and a variety of water tolerant grasses. | Unavailable |
| WM | Minnequa-Wilid silt loams | blue grama, western wheatgrass, winterfat, galleta, sand dropseed, | 800 |

CUP Exhibit 2.6-1

# Exhibit G: Water Information (Rule 6.4.7)

# CO DRMS 112 Permit Exhibit G: Water Information (Rule 6.4.7)

# Section 2.7

## 2.7.1 Existing Conditions

The RCQ lies within the Great Plains physiographic region of Colorado and consists of Cretaceous Seaway Sedimentary rocks (Barkmann 2021). The Cretaceous sedimentary rocks of the region were deposited from an inland sea that divided the North American continent into two landmasses approximately 100 million years ago. The shifting coastal seashore line resulted in the varying marine environment responsible for the deposition with shallow water deposition represented by the sandstone units and deep water deposits represented by limestone and shales (Pinel, 1977).

The topography at the Site is generally flat with some local relief along surface water drainages with shale, limestone, and sandstone outcrops. The overall gradient slopes downward to the northeast towards Red Creek and the Arkansas River. Within the Red Creek drainage, sequences of erosion and deposition resulted in multiple alluvial stream terraces covered to varying degree in vegetation.

The Water Quality Control Division classification for Red Creek is COARUA14a based on the information obtained from the Colorado Department of Public Health and Environment Clean Water GIS website (https://cdphe.colorado.gov/clean-water-gis-maps). Below are the 5 CCR 1002-32 water quality standards for COARUA14a (Table 2.7.1-1).

***CODE OF COLORADO REGULATIONS***
***Water Quality Control Commission*** ***5 CCR 1002-32***

**REGULATION #32 STREAM CLASSIFICATIONS and WATER QUALITY STANDARDS**
**Upper Arkansas River Basin**

14a. Mainstem of Big Red Creek, Little Red Creek, and Hardscrabble Creek from their sources to their confluence with the Arkansas River.

| COARUA14A | Classifications |
|---|---|
| Designation | Agriculture |
| Reviewable | Aq Life Warm 2 |
| | Recreation E |

**Qualifiers:**
**Fish Ingestion Standards Apply**

**Other:**

*Uranium(acute) = See 32.5(3) for details.
*Uranium(chronic) = See 32.5(3) for details.

| Physical and Biological | DM | MWAT |
|---|---|---|
| Temperature °C | WS-II | WS-II |
| | acute | chronic |
| D.O. (mg/L) | --- | 6.0 |
| D.O. (spawning) | --- | 7.0 |
| pH | 6.5 - 9.0 | --- |
| chlorophyll a (mg/m²) | --- | TVS |
| E. Coli (per 100 mL) | --- | 126 |

| Inorganic (mg/L) | acute | chronic |
|---|---|---|
| Ammonia | TVS | TVS |
| Boron | --- | 0.75 |
| Chloride | --- | --- |
| Chlorine | 0.019 | 0.011 |
| Cyanide | 0.005 | --- |
| Nitrate | 100 | --- |
| Nitrite | --- | 0.5 |
| Phosphorus | --- | TVS |
| Sulfate | --- | --- |
| Sulfide | --- | 0.002 |

| Metals (ug/L) | acute | chronic |
|---|---|---|
| Arsenic | 340 | --- |
| Arsenic(T) | --- | 7.6 |
| Cadmium | TVS | TVS |
| Chromium III | TVS | TVS |
| Chromium III(T) | --- | 100 |
| Chromium VI | TVS | TVS |
| Copper | TVS | TVS |
| Iron(T) | --- | 1000 |
| Lead | TVS | TVS |
| Manganese | TVS | TVS |
| Mercury(T) | --- | 0.01 |
| Molybdenum(T) | --- | 150 |
| Nickel | TVS | TVS |
| Selenium | TVS | TVS |
| Silver | TVS | TVS |
| Uranium | varies* | varies* |
| Zinc | TVS | TVS |

Table 2.7.1-1: Regulation 32 Water Quality Standards for COARUA14a

Within the Red Creek drainage are seeps and springs flowing from fractures within the rock outcrop. Minimal water flow was observed in alluvial sediments above the seep location indicating minor flow within Red Creek independent of the identified seeps.

The surface water flow disappears into the creek sediments and Red Creek is dry at the boundary of the Site. Drainages south and east of Red Creek show signs of intermittent to no surface water flow. Upland areas on the site are grasslands with gentle slopes, few outcrops, and sparse shrubs and trees compared to the Red Creek drainage.

Another feature on the Site is the Minnequa canal, owned by Rocky Mountain Steel Mills. The canal flows across the RCQ property along the northeast corner, diverting water from the Arkansas River at Florence for irrigation purposes and municipal/domestic use. The canal is fully fenced and is siphoned under Red Creek, just north of the Site property boundary.

### 2.7.2 U.S. Army Corp of Engineers

Holcim engaged BC to begin the preliminary jurisdictional determination (PJD) for the Red Creek Quarry parcel in Fall 2019. BC personnel conducted a field reconnaissance at the Site on May 28, 2019 to observe and document conditions of the property, specifically related to the surface water drainages on the Site. The location of the sites visited are shown in Figure 2.7.2-1. A second field visit was conducted on October 1, 2019, with Joshua Carpenter, regulatory staff with the United States Army Corps of Engineers (USACE), Albuquerque District, Pueblo Regulatory office to review the site conditions and discuss potential jurisdictional resources. Based on these two field visits, BC submitted a preliminary jurisdictional determination (PJD) request to the USACE; on May 21, 2020, the USACE issued the initial PJD letter stating they concurred with the BC assessment. The USACE-approved PJD provided Holcim with the information necessary to start planning for mining operations and the disturbance footprint given the locations of jurisdictional resources.

Based on the need for better defining the limits of ephemeral tributaries to Red Creek on the site, a second field reconnaissance was conducted by BC on December 3, 2020. Initially, the first limits between upland non-jurisdictional drainages and ephemeral tributaries were delineated using the dirt road that runs east-west across the property as the basis for the distinction between jurisdictional and non-jurisdictional resources. As such, a second, initial PJD form was submitted to U.S. Army Corps of Engineers (USACE) on January 8, 2021, with the revised stream field review. The revised USACE PJD approval from the USACE was received on November 10, 2022.

A desktop evaluation of the aquatic resources along the MTAC began in September of 2023 for a PJD associated with this footprint. The corridor evaluation identified drainages within the MTAC that could be jurisdictional based on the observations made with aerial photos, topographic maps, and other readily available desktop data. The MTAC PJD form will be submitted to the USACE upon application completion.

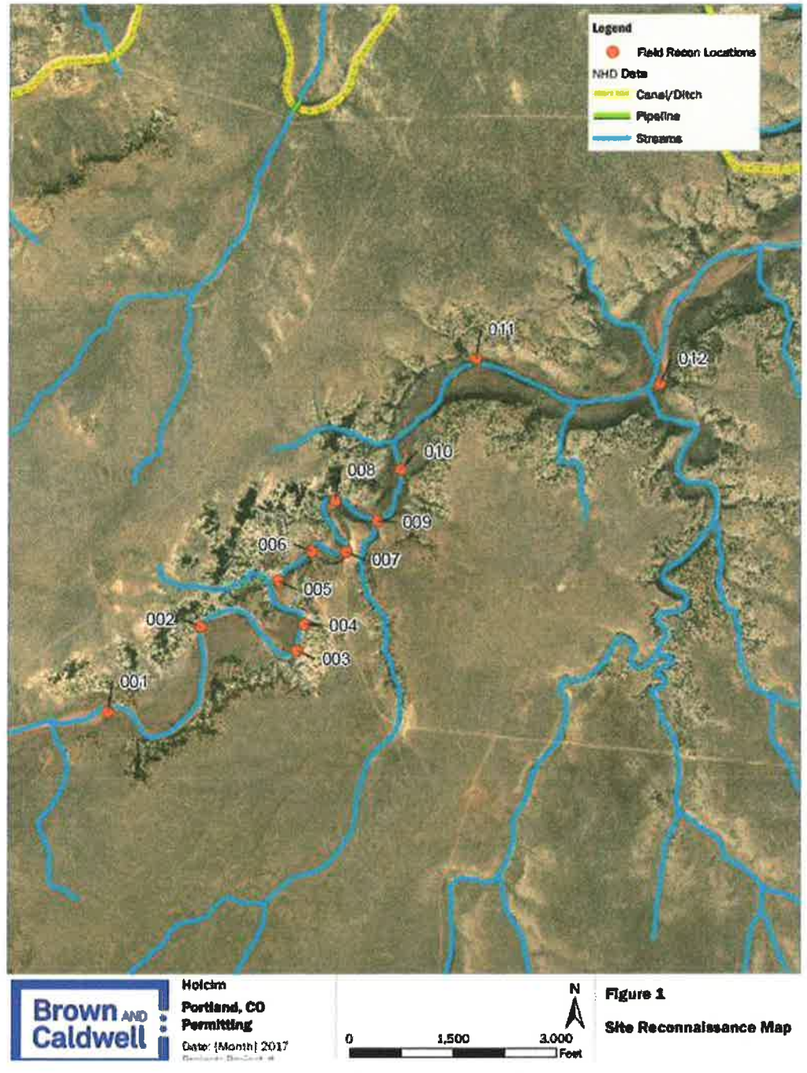



Figure 2.7.2-1: 2019 Site Reconnaissance Map

## 2.7.3 Site Investigations and Characterization

Five groundwater monitoring wells were installed both to the north and south of Red Creek in November 2021. The objective of the well locations was to assess the groundwater elevations near the surface water seeps observed in the Red Creek drainage. The wells were located upstream and downstream of the seep and within approximately 400 feet of the Red Creek canyon edge. Wells were spaced to ensure the data collected from each well was spatially distributed in order to characterize the hydrologic

properties of the water bearing units (Figure 2.7.3-1). Wells 2N and 2S were completed in two different lithologies (Fort Hayes Limestone and Codell sandstone) and are in close proximity to each other in order to monitor the hydrologic conditions in both formations.

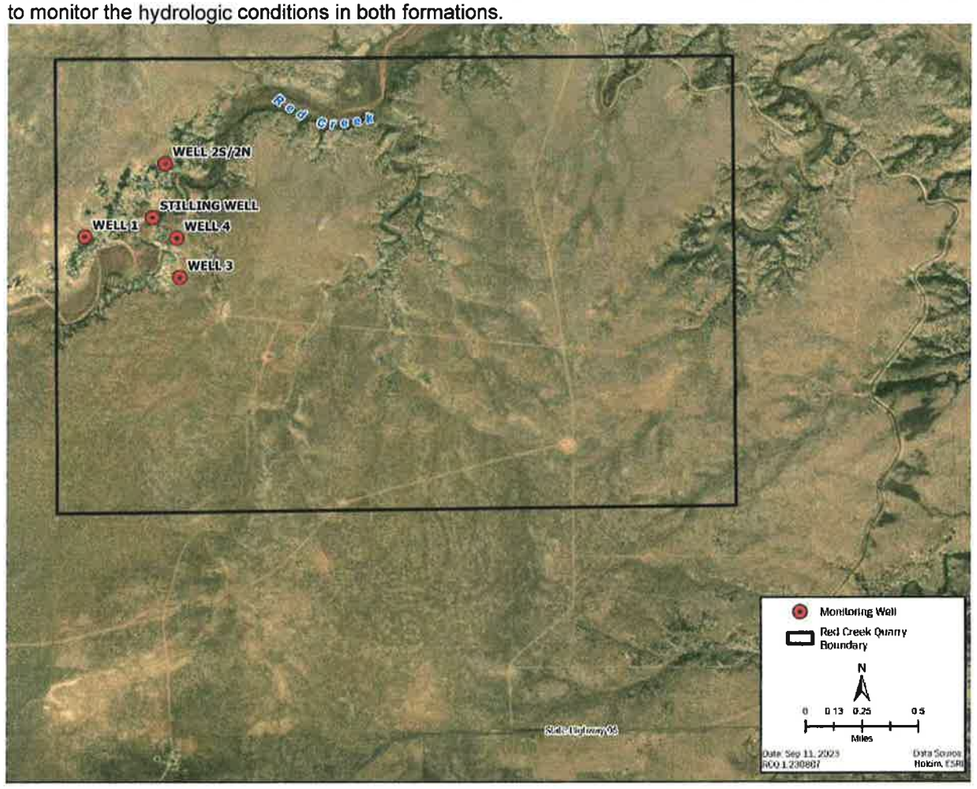



Figure 2.7.3-1: Groundwater Well Location Map

A stilling well was installed along the north side of Red Creek to measure water levels within the saturated alluvium of the creek bed as a proxy measurement of the creek water elevation (Figure 2.7.3-1). The stilling well was drilled using an auger to advance a hole to approximately five feet below ground surface. A five-foot polyvinylchloride (PVC) slotted screen with an end capped was placed into the hole then sand was backfilled in the wellbore up to the surface.

Transducers were installed after development operations in Well 1, Well 2N, Well 2S, Well 3, Well 4, and the Stilling Well to continuously monitor the groundwater levels. Immediately prior to transducer installation, a depth-to water measurement was collected to establish a value between transducer measurement and elevation. Coordinate and elevation data were collected by Holcim for each well casing and adjacent ground surface using survey equipment.

A surface water flow monitoring station consisting of a ramp flume designed to measure flow between 0.1 to 3.5 cubic feet per second (cfs) was installed in August 2022. The location of the flume was selected based on a visual reconnaissance of the stream and the proximity to the surface water seeps.

The Sampling and Analysis Plan (SAP) was implemented during the baseline monitoring and sampling activities. This SAP is designed to collect data to assess potential water resource impacts from mining

operations conducted at the RCQ. Constituent loading to surface water and groundwater could occur during mining operations from stormwater runoff or groundwater seepage into mine pits. The SAP establishes methods that will obtain accurate and defensible data by following site-specific and standard operating procedures (SOP). The SAP will be implemented for all water monitoring and sampling activities during the life of RCQ.

In conjunction with the SAP, the Quality Assurance Project Plan (QAPP) was developed and implemented during the baseline investigation. The QAPP describes quality assurance/quality control (QA/QC) procedures that will be followed during implementation of the surface water and groundwater data collection. QA is a management function and refers to the systematic planning of procedures, methods, and standards to ensure that data generated by the testing program are suitable for their intended use. QC is process-oriented and focuses on error identification and verification that data meet the established standards. The standards contained in the QAPP will be used for verification and validation of data generated by field personnel and laboratory subcontractors. The QAPP is intended to serve as a guide to field personnel and laboratory subcontractors for QC activities during the monitoring and reporting phases of this project. Specific details for sampling and analyses are provided in the RCQ Baseline Monitoring SAP and SOPs.

### 2.7.3.1 Groundwater and Surface Water Baseline Study

In a pre-application meeting, DRMS stated five quarterly monitoring events would be required to compile the necessary data to establish baseline water quality. Brown and Caldwell conducted a multi-year baseline investigation to document and characterize the hydrologic system at the RQC quarry site to evaluate if the proposed mining operations will result in the interception of groundwater, and to determine what if any, hydrologic connection may exist between groundwater and the Red Creek perennial surface water.

Field activities conducted as part of this investigation included installation of five groundwater monitoring wells, installation of pressure transducers to collect water level data, and the collection of groundwater samples for laboratory analysis. Additional field activities included the installation of a ramp flume and stilling well transducer, visual observation and documentation of surface flow locations, and the collection of surface water samples for laboratory analysis. Groundwater modeling was conducted in support of mine permitting activities to evaluate potential groundwater impacts from planned mining operations at the RCQ. The groundwater modeling report is provided under separate cover.

The results of the five quarterly surface and groundwater monitoring events identified several naturally occurring analytes present at concentrations above regulated water quality standards, including selenium, uranium, radon, and sulfate. Several groundwater and surface water studies conducted by others also found elevated concentrations of these analytes within the same lithological units and similar surface water bodies in Colorado.

Water quality data suggests the source of the surface water within the perennial section of Red Creek is groundwater based on the similarities of major ion and metal concentrations. Surface water concentrations of major ions tend to fall within the ranges observed in samples collected from the groundwater wells. Variations in the water composition of the surface water samples indicate the influence of creek bed sediments, evaporation, precipitation, and multiple groundwater seeps or springs contribute to the water quality and flow in Red Creek.

The baseline study will be extended for four additional calendar quarters in 2024. Due to groundwater and surface water constituent exceedances identified during the five-quarter baseline study, the study will continue in the 2024 calendar year. This will provide additional data that will assist in determining seasonal or weather event related impacts to water quality. Monitoring will recommence in March of 2024 with the analytical suite reduced to exclude constituents that were below detection levels and/or did not

have a water quality standard (Table 2.7.3.1-1). The resulting addendum to the Baseline Study will be submitted to the Division within 60 days of the last day of Q4 2024.

### 2.7.3.2 Groundwater Modeling

Groundwater flow modeling (Modflow) was performed on Red Creek to estimate the potential rates of groundwater entering the RCQ. In addition, the model was used to estimate potential mining impacts to Red Creek. The site conceptual model was built on available data in the area and information obtained from the existing Holcim mine plan Leapfrog model. The site-specific Leapfrog geologic model includes the base Codell Sandstone, overlying Fort Hayes Limestone, and additional overlying sediments. The contact between the Codell and Fort Hayes dips toward the north across the site. Groundwater occurs primarily within the Codell Sandstone and within the lower portion of the Fort Hayes limestone in localized areas. Sediments overlying the Fort Hayes are generally unsaturated.

Based on conservatively high potential impacts to the Codell, it was determined that the rate of groundwater entering the quarry may increase from Mine Plan Block 0-10 through Mine Plan Block 20-30. Following Mine Plan Block 20-30 the pit floor elevations are above the interpolated water table and are therefore dry. The evaluation of mining impacts to Red Creek suggested no significant influence on the creek.

The model results discussed represent a simplistic assessment for mining influence on groundwater in RCQ. To improve and extend model predictions beyond Mine Plan Block 20-30, additional groundwater monitor wells will be installed throughout the site as mining progresses into Year 20-30 block.

## 2.7.4 Potential Mining Impacts to Water Quality and Quantity

Based on groundwater modeling, mining will not impact water quantity in Red Creek. To be protective of water quality, Holcim will implement a surface and groundwater monitoring plan.

### 2.7.4.1 Monitoring Plan

Surface and groundwater monitoring will continue on a semi-annual basis between the end of the baseline study and commencement of mine development in Section 24. The analytical suite will be the reduced suite approved by the Division for the 2024 sampling events. Sampling and monitoring will occur during the second calendar quarter (April thru June) and fourth calendar quarter (October thru December) each year. Reporting will occur no more than 30 days after the end of the sampling quarter. The second calendar quarter report will be submitted by August 1 of each year. The fourth calendar quarter report will be submitted by February 1st of the following year.

Surface and groundwater monitoring will recommence on a quarterly basis two calendar quarters prior to mine development in Section 24. The analytical suite will include analytes listed in Tables 2.7.4.1-1 and 2.7.4.1-2 below. Monitoring reports will be submitted to the Division within 30 days of the last day of the monitoring quarter. Any changes to the monitoring program will be submitted to the Division as a request for a Technical Revision.

Groundwater locations will include Well 1 that lies north of Red Creek, and Wells 3 and 4 that lie south of Red Creek. Two wells will be monitored south of Red Creek because the groundwater shows natural variation in water quality as observed during the baseline water quality program. Surface water will be sampled at the seep and at SW RC2. SW RC2 is the furthest east location thus it is the most downgradient surface water location. Groundwater level data will be collected using the installed pressure transducers during the interim monitoring program. Red Creek flow data will be collected at the flume using the installed pressure transducer. Transducer data will be downloaded and reviewed quarterly.

The following analytical suite for surface and groundwater samples is proposed based on the results of the Baseline Study (Tables 2.7.4.1-1 and 2.7.4.1-2). The analyte lists are the same for surface and

groundwater to be able to evaluate the connection between the water quality for both types of water. After three years of monitoring, Holcim will submit a Technical Revision requesting a reduction of the analytical suite for those constituents with concentrations that are consistently below instrument detection limits or below regulatory standards.

In the event of a water quality exceedance, Holcim will notify the appropriate regulatory agency and implement an Adaptive Management Plan (AMP) strategy. An AMP strategy allows for the inclusion of knowledge gained and adaptation of mitigation measures as mining operations evolve. The basic AMP process includes the following steps:

1. Identify source of exceedance and operational uncertainties;
2. Quantify impacts;
3. Evaluate strategies and mitigation implementation; and
4. Monitor the performance.

Table 2.7.4.1-1 Surface Water Analyte Lists

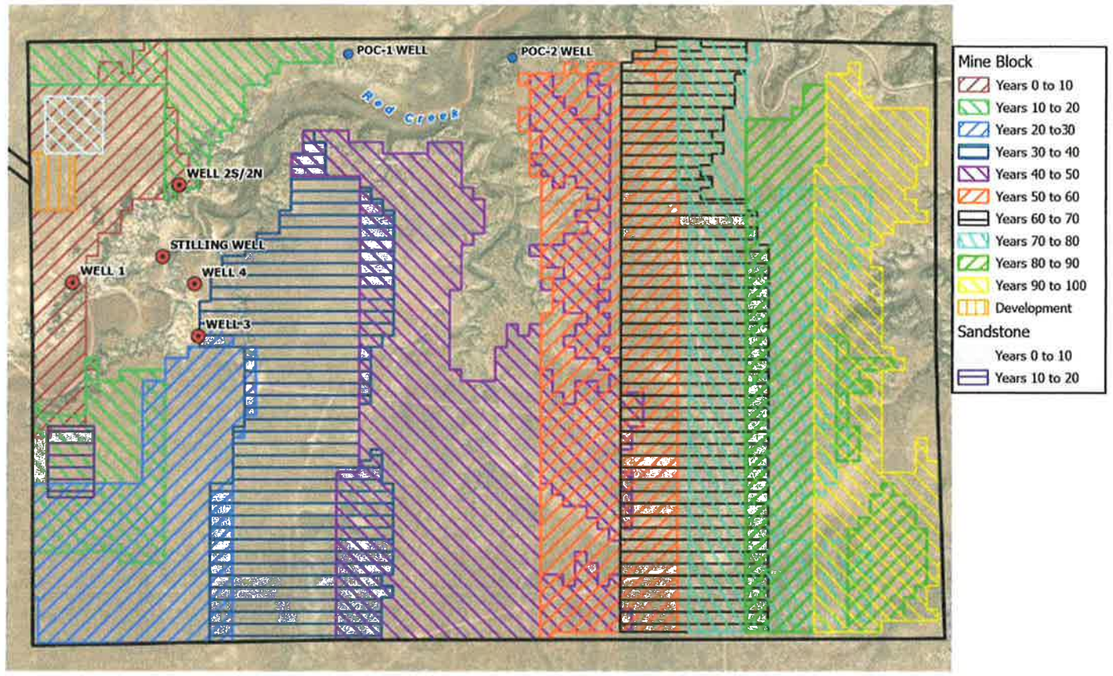
| Surface Water Samples | | | | |
|---|---|---|---|---|
| **Analyte** | **Fraction** | **Method** | **Method Detection Limit (mg/l)** | **WQCC Surface Water Regulation 32 (µg/L)** |
| ***Inorganic*** | | | | |
| Nitrate | Dissolved | E300.0 | 0.006 | 100,000 |
| Nitrite | Dissolved | E300.0 | 0.003 | 500 |
| Phosphorus | Dissolved | E365.1 | 0.008 | 110 |
| Sulfate | Dissolved | E300.0 | 0.4 | - |
| Sulfide | Dissolved | SM4500-S2 | 0.35 | 2 |
| ***Metals and Metalloids*** | | | | |
| Aluminum | Dissolved | 200.8 | 0.02 | - |
| Antimony | Dissolved | 200.8 | 0.0001 | - |
| Arsenic | Total and Dissolved | 200.8 | 0.0005 | 340 |
| Barium | Dissolved | 200.7 | 0.002 | - |
| Beryllium | Dissolved | 200.7 | 0.0013 | - |
| Boron | Dissolved | 200.7 | 0.0074 | - |
| Cadmium | Dissolved | 200.8 | 0.00005 | 2.03 |
| Chromium | Dissolved | 200.8 | 0.0005 | - |
| Chromium III | Total and Dissolved | SM3500-CR B | 0.009 | 231 |
| Chromium VI | Dissolved | SM3500-CR B | 0.009 | 11 |
| Cobalt | Dissolved | 200.7 | 0.0023 | - |
| Copper | Dissolved | 200.7 | 0.0023 | 29.3 |
| Iron | Dissolved | 200.7 | 0.0031 | - |
| Lead | Dissolved | 200.8 | 0.00013 | 10.9 |
| Manganese | Dissolved | 200.8 | 0.0004 | 2,618 |
| Mercury | Total | 245.1 | | - |
| Molybdenum | Total | 200.8 | 0.00025 | - |
| Nickel | Dissolved | 200.8 | 0.001 | 168 |
| Selenium | Dissolved | 200.8 | 0.0003 | 4.6 |
| Silver | Dissolved | 200.8 | 0.000025 | 3.5 |
| Thallium | Dissolved | 200.8 | 0.00005 | - |
| Uranium | Dissolved | 200.8 | 0.00005 | 6,915 |
| Vanadium | Dissolved | 200.7 | 0.0007 | 428 |
| Zinc | Dissolved | 200.8 | 0.0025 | - |
| ***Radiological*** | | | | |
| Gross Alpha Particle Activity | Total | | | - |
| ***Other*** | | | | |
| Oil and grease | Total | E1664A | 3 | - |
| TDS | Total | SM2540C | 5 | - |
| TSS | Total | SM2450D | 2.5 | - |

Table 2.7.4.1-2 Groundwater Analyte Lists

| Groundwater Samples | | | | |
|---|---|---|---|---|
| Analyte | Fraction | Method | Method Detection Limit (mg/l) | WQCC Groundwater Regulation 41 (µg/L) |
| ***Inorganic*** | | | | |
| Nitrate | Dissolved | E300.0 | 0.006 | 10 |
| Nitrite | Dissolved | E300.0 | 0.003 | 1 |
| Phosphorus | Dissolved | E365.1 | 0.008 | - |
| Sulfate | Dissolved | E300.0 | 0.4 | 250 |
| Sulfide | Dissolved | SM4500-S2 | 0.35 | - |
| ***Metals and Metalloids*** | | | | |
| Aluminum | Dissolved | 200.8 | 0.02 | 5,000 |
| Antimony | Dissolved | 200.8 | 0.0001 | 6 |
| Arsenic | Dissolved | 200.8 | 0.0005 | 10 |
| Barium | Dissolved | 200.7 | 0.002 | 2,000 |
| Beryllium | Dissolved | 200.7 | 0.0013 | 4 |
| Boron | Dissolved | 200.7 | 0.0074 | 750 |
| Cadmium | Dissolved | 200.8 | 0.00005 | 5 |
| Chromium | Dissolved | 200.8 | 0.0005 | 100 |
| Chromium +3 | Dissolved | SM3500-CR B | 0.009 | - |
| Chromium +6 | Dissolved | SM3500-CR B | 0.009 | - |
| Cobalt | Dissolved | 200.7 | 0.0023 | 50 |
| Copper | Dissolved | 200.7 | 0.0023 | 200 |
| Iron | Dissolved | 200.7 | 0.0031 | 300 |
| Lead | Dissolved | 200.8 | 0.00013 | - |
| Manganese | Dissolved | 200.8 | 0.0004 | 50 |
| Mercury | Dissolved | 245.1 | | 2 |
| Molybdenum | Dissolved | 200.8 | 0.00025 | 210 |
| Nickel | Dissolved | 200.8 | 0.001 | 100 |
| Selenium | Dissolved | 200.8 | 0.0003 | 20 |
| Silver | Dissolved | 200.8 | 0.000025 | 50 |
| Thallium | Dissolved | 200.8 | 0.00005 | 2 |
| Uranium | Dissolved | 200.8 | 0.00005 | 16.8 |
| Vanadium | Dissolved | 200.7 | 0.0007 | 100 |
| Zinc | Dissolved | 200.8 | 0.0025 | 2,000 |
| ***Radiological*** | | | | |
| Gross Alpha Particle Activity | Total | E900.0 | - | 15 |
| ***Other*** | | | | |
| Oil and grease | Total | E1664A | 3 | - |
| TDS | Total | SM2540C | 5 | - |
| TSS | Total | SM2450D | 2.5 | - |

## 2.7.4.2 Points of Compliance

Two wells that will be used as Points of Compliance (POC) will be constructed along the banks of Red Creek and within the north permit boundary. Point of Compliance Well #1 (POC-1) will be constructed prior to commencement of mine development in Section 24. Point of Compliance Well #2 (POC-2) will be constructed one year prior to acitivity in Mine Block Years 20 – 30. Figure 2.7.4.2-1 shows the location of the wells to be downgradient from mining activity and in an area within the permit boundary that will not be disturbed during the life of the mine. Mine development is not anticipated for up to 18 months. Holcim




commits to submitting a Technical Revision regarding construction of POC-1 within 90 days of any disturbance within Section 24

Figure 2.7.4.2-1: Approximate location of the future POC well

HOLCIM

# CUP Exhibit 2.9-1

# Red Creek Project Blasting Plan

Revised pursuant to preliminary adequacy review November 20, 2023

**Red Creek Project**
**Blasting Plan**
**Portland Plant, Holcim US**

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## 1. Introduction

**This blasting plan describe the procedures and conditions that Holcim US Inc. - Red Creek Project will use for blasting limestone and overburden material. The limestone will be used at the Portland Cement Plant for the production of cement.**

**Blasting activities will follow the general guidance and specifications in this plan.**

## 2. Situation and objectives

The objectives of this report are:

- **To present the Blasting Plan for the Red Creek Project.**
- **This plan provides guidelines and general conditions for all blasting activities that may occur at the Red Creek Project site.**

## 3. Blast Schedule Notification

### 3.1 Name, address & phone number of Operator

**Hamza Mekhfi, Plant Manager**

**Holcim US - Portland Plant**

**3500 State Hwy 120 Florence, CO 81226**

**719-288-1443, Fax 719-784-3470**

### 3.2 Identify where blasting will occur

**Red Creek Quarry is comprised of six USGS Sections with a surface area total of approximately 3,851.05 acres. The geologic layers include, Fort Hays and Translime limestone with Golden Shale and Smokey Hill overburden/waste rock.**

**For the report, the design blast was 50 holes, but it could be more or less in the daily work. The area is**

**0.109 acres**

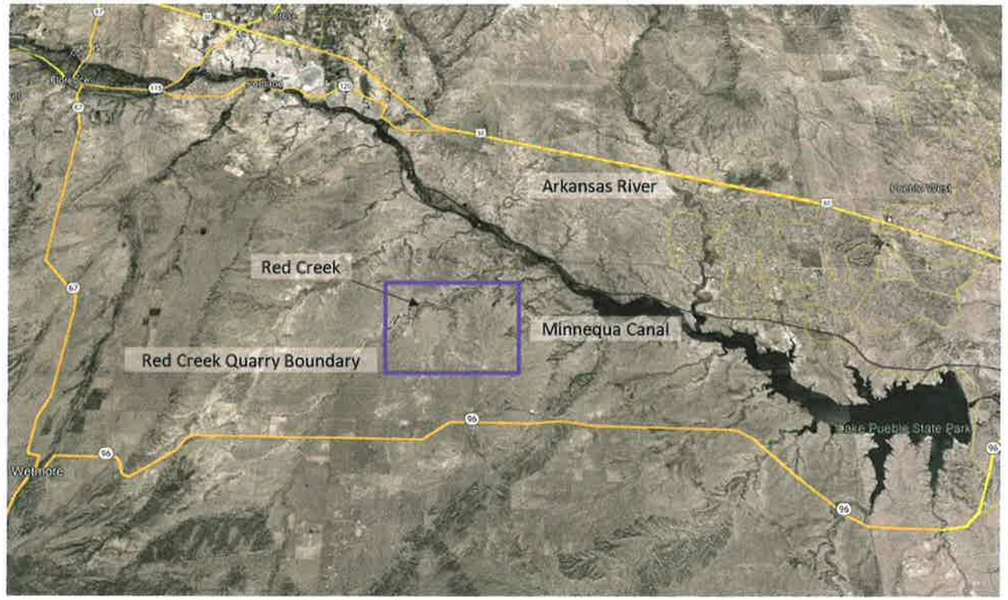



Figure 1. Location of the mining permit project.

## 3.3 Day(s) and time(s) of blasting

The Cement Plant operates 24/7 - 365 days per year. In order to meet production needs of the plant the Quarry will need to operate 8-12 hours/day and 5 to 7 days/week with blasting operations carried out 5 days/week. Monday to Friday.

## 3.4 Methods used to control access

The access has been control by:

- The quarry area will have a fence or a berm established between the property boundary and the Quarry crest..
- Access to the Quarry is selective on the entrance, the visitors and contractor must comply with Holcim Safety Standards which include - MSHA, Safety Site Specific Induction, H&S Standards, PPE, etc.)
- Applying the Standard Recommended Practices for Drilling and Blasting operations (Holcim)

## 3.5 Outline warning signals (e.g., sirens, horns, etc.)

- The Quarry must install safety signs for blasting operations along the perimeter of the quarry site.
- Signs, cones, or barricades shall be placed at the entrance to the Blast Site to prevent unauthorized entry.
- An audible blast siren warning shall be given just prior to each blast.
- Safety signs will be placed around the blasting area.
- Signs at the entrance of the Quarry will establish Designated Entry and Hold Points for Quarry.
- Signs at the entrance of the Quarry will indicate the date and time of the blast.

3.6 Schedule distribution (who is notified: e.g., workers, residents, local governments, etc.).

- **The Quarry crew is notified of blasting operations at the start of the morning shift and the status is posted on the Entrance Safety sign.**
- **Regarding any neighbors, the mining area does not have any neighbors within one-half mile of the blasting area, see the Figure 2.**

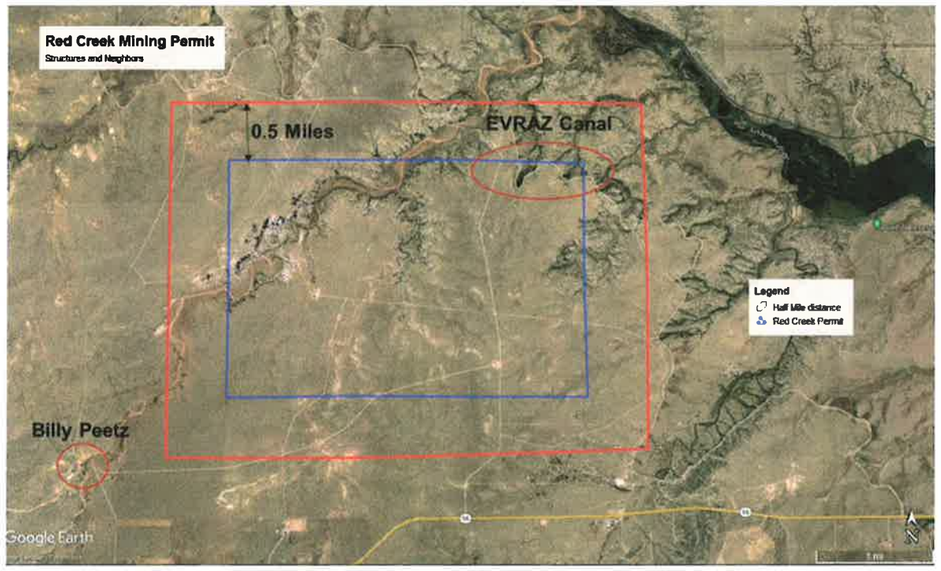



**Figure 2. Structures and neighbors one half mile distance from the mining permit.**

## 4. Pre-Blast Surveys – where agreed to and approved by structure owners

### 4.1 Generally for structures within one half mile of the blast area.

**The only structure within the permit area is the Minnequa Canal (EVRAZ Company) in the NE of the area. The Canal is outside the permit boundary by more than 200 ft. Canal owners will be notified when blasting is proposed within on-half mile of the canal.**

### 4.2 Establish a pre-blasting record of existing structure(s) condition

**The mining plan shows that the Quarry will be in the NE area (EVRAZ canal) by year 60. Holcim will track and record activities in to the vicinity of the Minnequa Canal structure as the mining face approaches to the canal**

### 4.3 Identify structures or contents sensitive to blasting.

**Minnequa Canal**

## 5. **Blast Plan**

### 5.1 Limits on ground vibration

The maximum ground vibration shall be established in accordance with the maximum peak-particle-velocity limit by the scaled-distance equation and the blasting-level chart. A seismographic record shall be provided for each blast.

- Maximum peak-particle velocity.

The maximum ground vibration shall not exceed the following limits at the location of any dwelling, public building, school, church, or community or institutional building outside the permit area.

| Distance (D) from blasting site, in feet | Maximum allowable peak particle velocity (V max) for ground vibration, inches/second[1] | Scaled-distance factor to be applied without seismic monitoring[2] |
|---|---|---|
| 0 to 300 | 1.25 | 50 |
| 301 to 5,000 | 1.00 | 55 |
| 5,001 and beyond | 0.75 | 65 |

Table 1. Scaled distance factor (Source from Office of Surface Mining Reclamation and Enforcement)

[1]Ground vibration shall be measured as particle velocity. Particle velocity shall be recorded in three mutually perpendicular directions. The maximum allowable peak particle velocity shall apply to each of the three measurements.
[2]Applicable to the scaled-distance equation

**Scaled-distance equation**

The scaled-distance equation,
$W = (D/Ds)^2$, to determine the allowable charge weight of explosives to be detonated in any 8-millisecond period without seismic monitoring; where
W= the maximum weight of explosives, in pounds;
D= the distance, in feet, from the blasting site to the nearest protected structure
Ds = the scaled-distance factor

- Blasting-level chart.

Holcim may use the ground-vibration limits in Figure 3 to determine the maximum allowable ground vibration.

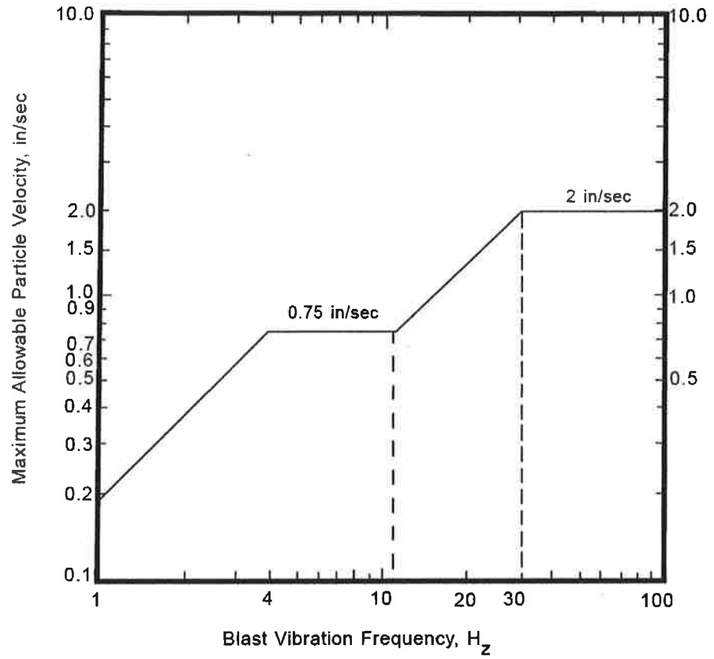



Figure 3. Alternative blasting level criteria. (Source Modified from figure B-1. Bureau of Mines R18507)

## 5.2 Limits on airblast

**Air overpressure shall not exceed the maximum limit of 136 decibel (0.124 Kpa) at the location of any building or structures within one half mile of the blast area.**

## 5.3 Methods used to control adverse effects of blasting

**For the adverse control effects of blasting, we propose the recommendations from ISEE, International Society of Explosives Engineers:**

| Flyrock Control Issues | |
|---|---|
| **Issue** | **Comment** |
| **Explosive Column Length** | Column length should never been longer than design to such and extend that estimated maximum flyrock projections can exceed ½ to 2/3 of the distance to sensitive receivers. |
| **Explosives Loaded density** | Loaded density should not be significantly higher than design-through incorrect gassing of emulsion product, errors in the size high density base charges, reduction in size of air decks, or the use of larger diameter cartridge products than was proposed in the design (where an air deck is specified, but the hole is full of water, then calculations of effective density should ignore the air/ware/deck) |
| **Stemming columns** | Stemming columns must be continues, and bridging of the stemming columns must avoid - best achieved through the use of uncontaminated, well-graded aggregate material, and loaded so as to avoid bridging |
| **Protocols for exception reporting** | Errors will happen, and adjustments to procedures can be made providing that the error is reported and tools are available to provide reliable estimates of worst-case outcomes. |

Table 2. Flyrock control issues.

| Factors Within The Blaster-In-Charge's Control that influence Ground Vibrations | | | |
|---|---|---|---|
| **Factor** | **Influence On Ground Vibration** | | |
| | **Significant** | **Moderate** | **Insignificant** |
| Charge-weight/delay | X | | |
| Delay Interval | X | | |
| Burden and Spacing | | X | |
| Stemming amount | | | X |
| Stemming type | | | X |
| Charge length and diameter | | | X |
| Borehole accuracy | | X | |
| Direction of initiation | | X | |
| Charge-weight per blast | | | X |
| Charge depth | | | X |
| Exposed detonating cord | | | X |
| Charge confinement | X | | |

Table 3. Factors within the blaster-in-charge's control that influence ground vibrations.

| Factors Outside The Blaster-In-Charge's Control That Influence Vibrations | | | |
|---|---|---|---|
| **Factor** | **Significant** | **Moderate** | **Insignificant** |
| Surface terrain (topography) | | | X |
| Type of rock | | X | |
| Depth to grade or ore (overburden) | X | | |
| Weather conditions | | | X |

Table 4. Factors outside the blaster-in-charge's control that influence vibrations.

| Procedures to reduce Ground Vibrations Regarding Blast Design Factors | |
|---|---|
| **Design Factor** | **Procedure** |
| Reduce charge-weight/delay | Reduce the charge-weight/delay in a manner consistent with acceptable fragmentation and square root scaling. Consider using smaller boreholes or explosive deck in a new blast design. |
| Explosives selection | Select explosives based on their physical properties, performance characteristics and sensitivities. Be aware of any limitations and precautions recommended by product manufacturers for sensitivities that may cause sympathetic detonations between boreholes or between chargers within a single borehole. |
| Initiation system selection | Select initiation systems for more accurate and precise firing times. Electronic initiation systems are used in critical vibration environmental locations. |
| Delay timing strategies and intervals | Change or modify the direction of initiation, especially for pre-split lines. |
| | Maximize internal relief by using one to two free faces to blast, by either increasing or decreasing delay times while maintaining desired muckpile shape and degree of fragmentation. |
| | Use signature waveform analysis to determine timing intervals for destructive interference. |
| Blast Designs | Adjust blast designs to accommodate smaller charges while maintaining the same powder (energy) factor. This includes, hole diameter and depth, spacing, burden, explosive type, and possible use of separate decks in each hole. |

Table 5. Procedures to Procedures to reduce Ground Vibrations Regarding Blast Design Factors.

| Procedure To Reduce Ground Vibrations Regarding Blast Implementation Factors | |
|---|---|
| **Field Factor** | **Procedure** |
| Drilling Accuracy | Ensure good control over drilling so that the planned burden and spacing are those actually achieved by the driller. Good drilling control with also help to reduce the subgrade drilling, and may make it possible to reduce the total charge/borehole. |
| Loading Accuracy | Review the drill logs. Properly load boreholes according to the information provided on the drill log. Borehole irregularities that may cause overloading include fracture zones, rubble zones, voids and caverns. |
| Confinement | Eliminate buffer blasting and make sure that the toe is cleared of broken rock. |
| Quality Control | Review the quality control procedures to ensure that the blast plan is properly implemented. |

Table 6. Procedure to reduce ground vibrations regarding blast implementation factors

| Factors Within The Blaster-In-Charge's Control that influence Air Overpressure | | | |
|---|---|---|---|
| **Factor** | **Influence On Air Overpressure** | | |
| | **Significant** | **Moderate** | **Insignificant** |
| Charge-weight/delay | X | | |
| Delay Interval | | X | |
| Burden and Spacing | X | | |
| Stemming amount | X | | |
| Stemming type | X | | |
| Charge length and diameter | | | X |
| Borehole accuracy | X | | |
| Direction of initiation | X | | |
| Charge-weight per blast | | | X |
| Charge depth | X | | |
| Exposed detonating cord | X | | |
| Charge confinement | X | | |

Table 7. Factors within the blaster-in-charge's control that influence air overpressure

| Factors Beyond The Blaster-In-Charge's Control That Influence Air Overpressure | | | |
|---|---|---|---|
| **Factor** | **Significant** | **Moderate** | **Insignificant** |
| Surface terrain (topography) | | X | |
| Type of rock | | | X |
| Depth to grade or ore (overburden) | | X | |
| Weather conditions | X | | |

Table 7. Factors beyond the blaster-in-charge's control that influence air overpressure.

| Procedures Regarding Blast Design Factors To Reduce Air Overpressure | |
|---|---|
| **Design Factor** | **Procedure** |
| Charge-weight/delay | Determine charge weight per delay consistent with the distance to nearby protected structures according to cube root scaling and the type of blasting. Consider using smaller boreholes or explosive decks in a new blast design. |
| Delay Interval and direction of initiation | Delay time between adjacent boreholes should exceed 1 millisecond for each 0.304 meter (1 foot) to avoid reinforcement of overpressure energy in the direction of initiation. |
| Burden and spacing | Adjust blast pattern layout commensurate to borehole diameter to achieve the powder factor appropriate to the rock type. This includes burden and spacing, hole depth, explosive type, and the uses separate decks in each hole. Large charges close to and open face may cause rapid face displacements and generate and elevated air pressure rate. |

Table 8. Procedures regarding blast design factors to reduce air overpressure.

| Procedures Regarding Blast Implementation Factors To Reduce Air Overpressure | |
|---|---|
| **Factor** | **Procedure** |
| Drilling Accuracy | Ensure good control over drilling so that the planned and spacing are those actually achieved by the driller. Good drilling control will also help to reduce the subgrade drilling, and may make it possible to reduce the total charge per hole. |
| Preblast Inspection | • Review the drill logs for the borehole conditions and drilling accuracy. The drill penetration rate will identify clay-filled seams, highly fractured zones or other zones of weakness.<br>• Check the free faces for excessive fracturing from back break and the presence of mud seams or voids. Load the front row or boreholes according to maintain sufficient burdens to minimize the potential generation of gas release or excessive throw.<br>• Ensure that design burdens are maintained for the entire length of the borehole. Check each borehole for incline and drift prior to loading. |
| Loading | • Load boreholes properly according to the information provided on the drill log. Borehole irregularities that may cause overloading include fracture zones, rubble zones, voids and caverns.<br>• Deck through all fracture zones and voids to avoid overloading boreholes. |
| Stemming | • Use sufficient stemming commensurate with the burden to eliminate blowouts at the hole collar and generation of a stemming release pulse. The stemming length should be at least 0.7 times the burden.<br>• Use competent stemming material appropriate for the drill hole diameter. Stemming material with good size and angularity promotes high-friction sidewall forces that will withstand detonation pressures and will resist ejection. Fine stemming (dust) or light weight stemming materials do not bind or lock well are more likely to be eject. |
| Expose detonation cord | Cover exposed detonation cord trunk lines when blasting near structures and consider using non-detonation cord initiation systems. |
| Weather Condition | • Schedule blasting to avoid adverse conditions. Use the internet or contact or contact local airports to get up-to date information.<br>• To avoid the temperature inversions that may be present on windless mornings, schedule blasting in the afternoon when inversions are least like to persist.<br>• When wind directions are unfavorable, if convenient, delay blasting until the wind direction is away from structures or the wind velocities decrease. |
| Quality Control | Review the quality control procedures to ensure that the blast plan is properly implemented. |

Table 9. Procedures regarding blast implementation factors to Reduce air overpressure.

## 5.4 Description of monitoring systems to be used and where to be set up

**Ground Vibrations and Air Over Pressure.**

For monitoring Ground Vibrations and Air Overpressure, the Quarry will utilize seismographs:
"Blasting seismographs are equipped to monitor ground vibration and air over pressure.

**Fly Rock and Blasting Evaluation**

Holcim will film all the blasts with the objective/purpose of identifying potential flyrock and to evaluate the blasting events.

## 5.5 Blasting protocol/procedure

In the Appendix 1 is the SOP for blasting in the Bear Creek Quarry will to the Red Creek Quarry.

## 5.6 Anticipated typical blast design

**For the blast design, Holcim will use the current blast design in Bear Creek Quarry, the Geology of Red Creek, and the Red Creek Geotechnical Assessment.**

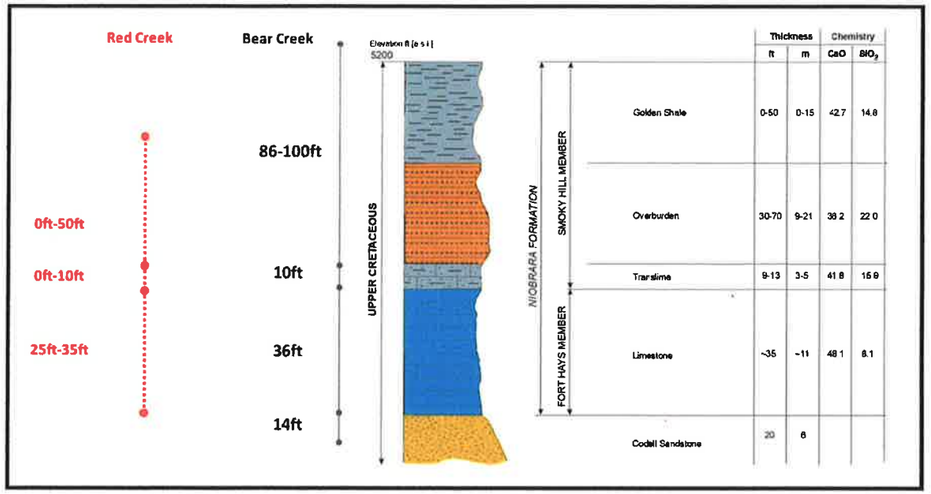



Figure 4. Stratigraphic Column

### 5.6.1 Blast purpose

**Limestone (Fort Hays, Translime) fragmentation is expected a less than four feet in size, and overburden (Smokey Hill and Golden Shale) less than five feet in size. See figure 4**

### 5.6.2 Number, spacing, diameter and depth of holes

**For the standard blast design for Limestone and overburden, the results are:**

**Fort Hays and Translime:**
Number of holes: 50
Burden: 16 ft.
Spacing: 19.7 ft.
Diameter: 5.5 inches
Depth of the holes: 48.2 ft.

**Smokey Hill and Golden Shale**
Number of holes: 50
Burden: 16 ft.
Spacing: 20.1 ft.
Diameter: 5.5 inches
Depth of the holes: 48.9 ft.

See Appendix 2. Fort Hays & Translime Bench and Smoky Hill & Golden Shale Bench blast Design.

5.6.3 Type and amount of stemming material

**The material used for stemming is a screening rock; the amount per hole is 0.085 tons by 11.2 ft. of the hole and the size of the stemming Dh/20, approx. 0.2750 inch.**

5.6.4 Blasting agent and amount per hole

**The explosive agent used is Bulk ANFO and a Blended ANFO + Slurry. The use of ANFO or Blend is dictated by the presence of wet holes. The amount of blasting agent used per hole is estimated at 305 lb** (Fort Hays and Translime), **and 334 lb** (Smokey Hill and Golden Shale)

5.6.5 Type of delay detonator and delay periods expected

**The quarry operation will utilize an Electronic detonating System; currently, the Bear Creek Quarry uses an electronic detonating system. The planned delay per hole is 8 and 16 milliseconds per hole.**

5.6.6 Location(s) of blast monitoring.

**The only structure in the area is the Minnequa Canal (EVRAZ Company) in the NE of the mining area and outside of the permit boundary. Holcim will monitor the canal when mining is within 0.5 mile of the Canal.**

## 6. Commit to Generating and Filing a Blast Report

**The red Creek Quarry must complete a blasting report for each shot. The report must be retained for at least 3 years and be available for inspection by the DRMS on demand.**
**The record shall contain the following data:**

**a. Location date and time of blast;**
**b. Name, signature and license number of blaster-in-charge;**
**c. Identification, direction and distance in feet from the nearest blast hole to the nearest potentially affected structure, such as any dwelling, school, church, or community or institutional building either:**
**i. not located in the permit area; or**
**ii. Not owned nor leased by the person who conducts the mining operations.**
**d. Weather conditions, including temperature, wind direction, and approximate velocity**
**e. Type of material blasted**
**f. Sketches of the blast pattern including number of holes, burden spacing, and delay pattern. Sketches shall also show decking, if holes are decked to achieve different delay times within a hole**
**g. Diameter and depth of holes**
**h. Types of explosives used**
**i. Total weight of explosives used per hole and maximum weight of explosives used per 8-millisecond period**
**j. Initiation system**
**k. Type and length of stemming**
**l. Mats or other protections used**
**m. Type of delay detonator and delay periods used**
**n. Number of persons in the blasting crew**
**o. Seismographic records where required including:**
**i. Type of instrument sensitivity and the calibration signal of the gain setting or certification of annual calibration**

ii. Exact location of instrument, the blast date and time, and the instrument distance from the blast
iii. Name of the person and firm taking the reading
iv. Name of the person and firm analyzing the seismographic record
v. The vibration level recorded

## 7. Blasting best practices

After detonation, shock waves and gas pressure cause dynamic stresses around a blast hole with seismic waves propagating away from it, and produces elastic deformation in the rock mass. Some adverse effects from blast are ground vibration, air pressure (airblast), dust, fumes, and flyrocks.

Geological conditions, quantity of explosives detonated at any given time, charge confinement, blasting design, and delay intervals will influence blasting vibrations, and ground movement. Portland Plant had implemented a ground vibration monitoring system at Bear Creek Quarry (BCQ), with several near field (200-250ft) and far field (father than 350ft) seismographs, it allows Quarry personal to assess compliance with regulations, prevent damage to structures, quarry walls, final walls stability, and identify any critical information to protect nearby structures, also minimize liability claims.

BCQ criteria to analyze ground motion are peak particle velocity (PPV – inches/sec) and dominant frequency (Hz), they are widely accepted measurements for potentially damaging to structures and control walls stability in the quarries. Red Creek Quarry (RCQ) will follow, and will improve best practices from BCQ. Monitoring will be a key piece to define and adjust drilling, blasting, blast design parameters with rock mass properties on it.

At Red Creek Quarry (RCQ) Smokey Hill Member, Fort Hays Member, and Codell sandstone can be considered as hard and blocky rock mass; most of materials can be classified as rock Type 3 "fair" rock strength (25Mpa- 50Mpa). Design configuration allows 36ft bench high, 20ft berm width, 75° slope angle, and 52° overall slope at final 150ft high wall. "SRK, Red Creek Geotechnical Assessment Report".

There are several controlled blasting techniques to improve the stability of the final slope face, and minimize damage. It is possible combine them as geologic conditions, mass rock properties, and drilling-blasting settings allows desired results. Next list:

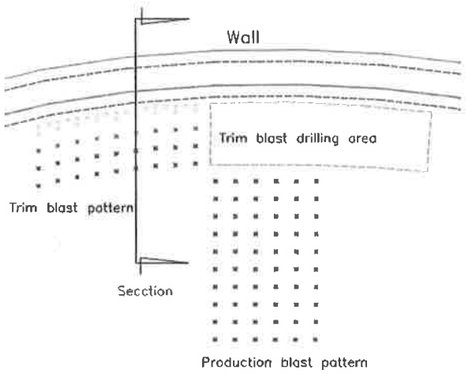
- Line drilling
- Trim blasting
- Buffer blasting
- Smooth wall blasting
- Air decking
- Presplitting

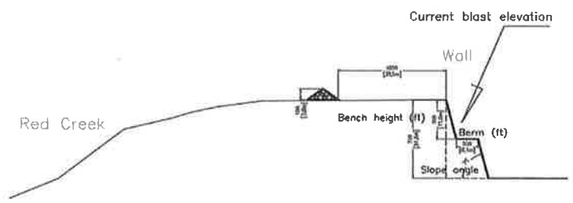
RCQ will evaluate Trim blast and Modified production blast (combination of more favorable techniques at RCQ). Both methods goal is to reduce damage to Red Creek canyon and final quarry walls. Developing RCQ will require drilling, blasting, loading, and hauling of almost 3Mio t of limestone and waste to temporary stockpiles. It will open up an area to establish Quarry offices, shop, secondary crusher and starting point for convey system. Thus, monitoring system will collect and assess any concern related to

minimize ground vibration at future RCQ facilities (offices, quarry shop, secondary crusher, convey system), track rock mass properties, emplace near field and far field seismograph locations. Define blasting criteria (PPV, Frequency ranges) for production blast, trim blast, and modified production blast. To identify better technique for production and critical areas such as close to Red Creek Canyon.

As reference, the following is an explanation of both techniques. Blast size, number of holes per row, blast design, burden – spacing, blast fragmentation will be refine during the Developing stage.

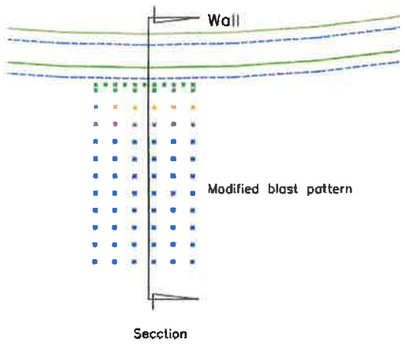
- Trim blasting, Compare with a production blast are smaller in number of holes and tonnage, the fully relieved face allows material to move away, and prevent blast energy from damaging the final wall. Graph show blast patterns, production blast with a free face perpendicular to Red Creek Canyon, after it is blast and clean expose a free face for trim blast to minimize vibrations directed into the wall.

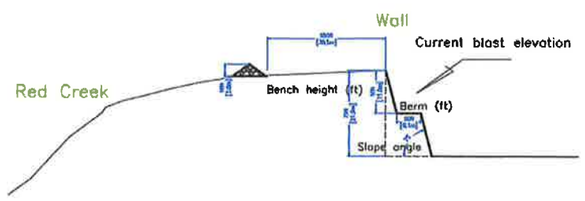



*Section, showing final slope design and Red Creek. Crest final quarry wall to berm 100ft*

- Modified production blast pattern. It could combines pre splitting, air decking, reduced charge weights near the final quarry wall by thirty to sixty percent, holes in colors close to the wall could be loaded with less explosives. Thus, this blast pattern reduces the overall energy of the blast and minimize impacts over the final quarry wall.




*Section, showing final slope design and Red Creek. Crest final quarry wall to berm 100ft*

RCQ will follow State, Federal, and international regulations, guidelines to improve its internal procedures.

Prepared by: **Oscar Mancera**
Quarry Manager, Portland Plant

Reviewed by: **Michael B. Toelle**
Manager Raw Materials and Quarries
Holcim US - Manufacturing Support Organization

**Appendix 1**

**SOP for blasting**

| HOLCIM | **Originating Department:** QUARRY | **Classification:** Work Instruction/SOP | **E** | **Q** | **H&S** |
|---|---|---|---|---|---|
| | | | Y | Y | Y |
| **Date Issued:** 8/1/22 | **Revision Date**: 03/8/2023 | **Control Number:** PD. | **HAC Number:** | | |
| **Prepared By:** Jeffrey Hauser<br>**Title:** Quarry Supervisor | **Approved By:** Oscar Mancera<br>**Title**: Quarry Manager | Page 1 | | | |
| **Distribution:** PD.16\200 Quarry | | | | | |
| **Subject**: Drill And Blasting SOP | | | | | |
| | | | | | |

# Quarry Drilling and Blasting Procedures

**PURPOSE:**

The purpose of these Standard Operating Procedures is to describe policies and procedures that will reduce the potential of accidents while enhancing the productivity, cost effectiveness of the drilling, and blasting at Holcim.

**Definitions:**

Blast Area: The area of a blast within the influence of the loading operations for a given shot. This area will be determined by the Blaster-in-Charge at the start of each blasting shift.

Safety Zone: Area established by lead blaster that keeps personnel and equipment out of harms way during the initiation of the shot.

**Holcim Responsibilities:**

- Define what bench and location is to be laid out according to quarry manager/supervisor.

- Drill Pattern with available equipment.
- Communicate any safety concerns to contractor during drilling and blasting operations.
- Communicate the needs of company to contractor along with estimated blast schedule.
- Provide personnel when available for road blocks.
- Assist in misfires.

**Drilling:**

- Quarry manager/supervisor will communicate what location needs to be laid out for a drill pattern.
- Work place exam will be conducted at beginning of each shift.
- Make sure pattern area is suitable for layout i.e. (prep floor, move berms).
- Receive pattern sheet from contractor once laid out.
- Operate drill to produce bore hole for blast to appropriate depth and size of hole.
- If on Full Face/limestone bench collect cutting samples for lab analyses.
- Remove drill from pattern once finished and place completed drill pattern sheet in appropriate drop box for contractor.

**Blasting:**

- Once pattern is finished the quarry manager/supervisor will inform contractor pattern is ready to be loaded and blasted.

- During the planned day of a blast, the quarry manager/supervisor will confirm at the beginning of the shift that the blast pattern will be loaded and shot at approx. 12:30 or lunchtime.
- If the contractor is unable to detonate the blast at 12:30 another agreed time will be put into place.
- Approximately one hour before detonation of a blast, the quarry manager/supervisor will ask what road blocks will be needed and at what time to determine the safety zone.
- Once agreed on what road blocks will be needed the quarry manager/supervisor will assign personnel to road blocks
- Quarry personnel will communicate to the contractor that they have agreed on the road blocks in place and they are blocked off.
- Road block personnel will inform contractor when and what equipment leaves the area.
- Quarry personnel will follow and answer Lead Blasters commands.
- Once the contactor lead blaster calls for all clear after the blast, then the quarry operators may leave road block assignments and quarry activity may resume.

**Misfires:**

- In case of a misfire or other site hazard the all clear signal is not to be sounded
- If a misfire is encountered, a minimum wait period of 15 minutes will be enforced for NONEL initiation systems and 30 minutes for electronic initiation systems prior to investigating the misfire
- The blast security area will be maintained with warning signs posted and adjusted for the hazard.

- Any misfire or hazardous condition must be reported to Quarry Management prior to any work occurring. This includes connecting the misfire and re-initiation attempts
- Complete the misfire checklist.

Misfires can be handled in one of three ways:

1. Re-priming or reconnecting surface lines and re-shooting unfired holes
   This can only be done if:
   A. Proper burden is present in the front of unfired holes or
   B. Sufficient material can be placed in front of free face to replace robbed burden
   C. The blast safety zone can be extended to a size capable of containing any increase in rock throw as a result of robbed burden

2. Removing the primer elements from un-shot holes
   This requires the removal of stemming material by:
   - The use of air pressure only on electronic and nonel detonators (as long as an anti-static line is used)
   - Mechanically removing overburden and stemming to access the explosive column
   - Flushing the stemming material with water

- Once the stemming is removed the product can be flushed with water pressure to the point the primers can be safely removed
- Care must be taken not to pull to hard on primer down lines
- Recovered caps or boosters must be returned to magazines in an approved vehicle or used on site in a safe manner
- When mucking operations commence on materials from unfired holes, special precautions should be taken during mucking. A blaster will be present until all material associated with unfired holes has been removed.
- All unfired detonators and other explosive products will be inspected for safety and returned to the magazine in an approved vehicle.

## Appendix 2
## Fort Hays & Translime bench and Smoky Hill & Golden Shale bench blast Design

### BLAST DESIGN
### Fort Hays & Translime Bench

| Rows | Kr |
|---|---|
| One or Two holes | 1 |
| Third and subsequent rows ie- buffer blasts | 0.9 |

| Bedding Orientation | Kd |
|---|---|
| Bedding steeply deeping into cut | 1.18 |
| Bedding steeply deeping into face | 0.95 |
| Other cases of depositation | 1 |

| Geologic Structure | Ks |
|---|---|
| Heavily cracked. Frecuent weak joins,weakly cement layers. | 1.3 |
| Thin well-cemented layers with tigth joins | 1.1 |
| Massive intact rock | 0.95 |

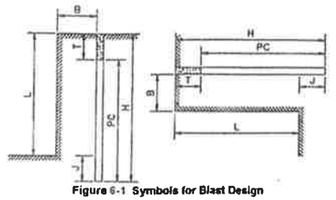



Figure 6-1 Symbols for Blast Design

where:

B = Burden
T = Stemming
J = Subdrilling
L = Bench height
H = Blasthole depth
PC = Powder column length

### CHARGE CALCULATIONS

0.3048

| | | | | | | |
|---|---|---|---|---|---|---|
| Type of rock | Fort Hays +Translime | | | | | |
| Rock Strength (weak=1, Strong =13) | 10 | | | | | |
| Bench Heigth | L | | 14.0 | m | 46 | ft |
| Bench width | A | | 100.0 | m | 328.1 | ft |
| Diameter of Explosive | De | | 140 | mm | 5.50 | inch |
| Bootom charge | Spartan 400G Booster 40/Cs | | 400 | g | 0.99 | lb |
| Weight of column charge | Lb | | 12.26 | Kg/m | 8.24 | lb/ft |
| Relastive bulk strength (ANFO=100) | Stv | | 100 | | 100 | |
| Specific Gravity of the Rock | SGr | | 2.28 | t/m$^3$ | 0.065 | t/ft$^3$ |
| Correction for number of rows | Kr | | 1 | | 1 | |
| Correction for bedding orientation | Kd | | 0.95 | t/m$^3$ | 1.18 | |
| Correction for Geologic Structure | Ks | | 1.3 | | 1.3 | |
| Density rock stemming | | | 1.63 | | 0.046 | t/ft$^3$ |
| | | | | | | |
| Max Burden (Anfo) | B | 0,008xDex(Stv/SGr)$^{1/3}$ | 3.9 | m | 12.9 | ft |
| Geologic correction factors | B" | B*Kr*Kd*Ks | **4.9** | | **16.0** | |
| Stemming | T | 0,7*B" | 3.4 | | 11.2 | |
| Subdrilling | J | 0.3xB" | 0.0 | m | 0.0 | ft |
| Stiffness ratio | | L/B" | **2.9** | | **2.9** | |
| Blasthole depth | H | 1.05x(L+J) | 14.7 | m | 48.2 | ft |
| Spacing | S | (L+7xB)/8 | **6.0** | | **19.7** | |
| No of holes per row | No | A/S | 16.6 | | 16.6 | |
| Heigth of bottom charge | hb | 1.3xB" | 5.1 | m | 16.8 | ft |
| Bottom charge | Qb | hbxLb | 62.8 | Kg | 138.5 | Lb |
| Booster | Ip | | 0.80 | Kg | 0.45 | Lb |
| Heigth of column charge | hp | H-(hb+T) | 6.17 | m | 20.24 | ft |
| Column charge | Qp | hpxLp | 75.65 | Kg | 166.77 | Lb |
| Total Charge weight per hole | Qt | Qb+Qp+Ip | 139.28 | Kg | 305.74 | Lb |
| Powder Factor | q | QtxNo/(B"xLxA) | 0.340 | Kg/m$^3$ | 0.021 | Lb/ft$^3$ |
| | | | **0.149** | Kg /t | **0.327** | Lb/t |
| Specific perforation | b | NoxH/(B"xLxA) | 0.036 | m/m$^3$ | 0.003 | ft/ft$^3$ |
| | | | 0.016 | m/t | 0.052 | ft/t |
| Specific consume stemming | | | 0.00009 t stemming/t | | | |

# BLAST DESIGN
## Smoky Hill & Golden Shale
## Bench

| Rows | Kr |
|---|---|
| One or Two holes | 1 |
| Third and subsequent rows ie- buffer blasts | 0.9 |

| Bedding Orientation | Kd |
|---|---|
| Bedding steeply deeping into cut | 1.18 |
| Bedding steeply deeping into face | 0.95 |
| Other cases of depositation | 1 |

| Geologic Structure | Ks |
|---|---|
| Heavily cracked. Frecuent weak joins,weakly cement layers. | 1.3 |
| Thin well-cemented layers with tigth joins | 1.1 |
| Massive intact rock | 0.95 |

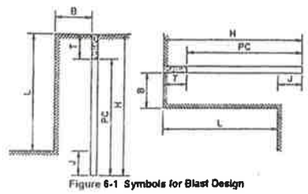



Figure 6-1 Symbols for Blast Design

where:

B = Burden
T = Stemming
J = Subdrilling
L = Bench height
H = Blasthole depth
PC = Powder column length

### CHARGE CALCULATIONS

0.3048

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Type of rock | Smoky Hill + Golden Shale | | | | | | |
| Rock Strength (weak=1, Strong =13) | 7 | | | | | | |
| Bench Heigth | L | | 15.0 | m | 49 | ft | |
| Bench width | A | | 100.0 | m | 984 | ft | |
| Diameter of Explosive | De | | 140 | mm | 5.50 | inch | |
| Bootom charge | Spartan 400G Booster 40/Cs | | 400 | g | 0.99 | lb | |
| Weight of column charge | Lb | | 12.26 | Kg/m | 8.24 | lb/ft | |
| Relative bulk strength (ANFO=100) | Stv | | 100 | | 100 | | |
| Specific Gravity of the Rock | SGr | | 2.28 | t/m$^3$ | 0.065 | t/ft$^3$ | |
| Correction for number of rows | Kr | | 1 | | 1 | | |
| Correction for bedding orientation | Kd | | 0.95 | t/m$^3$ | 1.18 | | |
| Correction for Geologic Structure | Ks | | 1.3 | | 1.3 | | |
| Density rock stemming | | | 1.63 | | 0.046 | t/ft$^3$ | |
| Max Burden (Anfo) | B | 0,008xDex(Stv/SGr)$^{1/3}$ | 3.9 | m | 12.9 | ft | |
| Geologic correction factors | B" | B*Kr*Kd*Ks | 4.9 | | 16.0 | | |
| Stemming | T | 0,7*B" | 3.4 | | 11.2 | | |
| Subdrilling | J | 0.3xB" | 0.0 | m | 0.0 | ft | |
| Stiffness ratio | | L/B" | 3.1 | | 3.1 | | |
| Blasthole depth | H | 1.05x(L+J) | 15.8 | m | 51.7 | ft | |
| Spacing | S | (L+7xB)/8 | 6.1 | | 20.1 | | |
| No of holes per row | No | A/S | 16.3 | | 48.9 | | |
| Heigth of bottom charge | hb | 1.3xB" | 5.1 | m | 16.8 | ft | |
| Bottom charge | Qb | hbxLb | 62.8 | Kg | 138.5 | Lb | |
| Booster | lp | | 0.80 | Kg | 0.45 | Lb | |
| Heigth of column charge | hp | H-(hb+T) | 7.22 | m | 23.68 | ft | |
| Column charge | Qp | hpxLp | 88.52 | Kg | 195.16 | Lb | |
| Total Charge weight per hole | Qt | Qb+Qp+lp | 152.15 | Kg | 334.12 | Lb | |
| Powder Factor | q | QtxNo/(B"xLxA) | 0.340 | Kg/m$^3$ | 0.021 | Lb/ft$^3$ | |
| | | | 0.149 | Kg /t | 0.327 | Lb/t | |
| Specific perforation | b | NoxH/(B"xLxA) | 0.035 | m/m$^3$ | 0.003 | ft/ft$^3$ | |
| | | | 0.015 | m/t | 0.051 | ft/t | |
| Specific consume stemming | | | 0.00008 | t stemming/t | | | |

CUP Exhibit 3.1 Current Deed of Record

RECEPTION#: 889838, 10/03/2011 at 04:21:04 PM, 1 OF 6, R $36.00 D $588.91
KATIE E. BARR, FREMONT COUNTY, CO CLERK AND RECORDER

Fremont Doc Fee $588.91 / Pueblo Doc Fee $831.09

# SPECIAL WARRANTY DEED

**THIS DEED,** Made this **29th** day of **September, 2011** between

**Ranch Land, LLC, a Colorado limited liability company**

of the County of El Paso and State of COLORADO, grantor(s), and

**Holcim (US) Inc.**

whose legal address is **6211 Ann Arbor Road Dundee, MI 48131**

of the County of Fremont / Pueblo, State of Colorado, grantee(s):

**WITNESS,** That the grantor(s), for and in consideration of the sum of **Fourteen Million Two Hundred Thousand Dollars and NO/100's ($14,200,000.00),** the receipt and sufficiency of which is hereby acknowledged, has granted, bargained, sold and conveyed, and by these presents does grant, bargain, sell, convey and confirm, unto the grantee(s), his heirs and assigns forever, all the real property together with improvements, if any, situate, lying and being in the County of Fremont / Pueblo, State of COLORADO, described as follows:

See Exhibit A and B attached hereto and made a part hereof.

Doc Fee
$1,420.00

also known by street and number as vacant land , Penrose, CO 81240

**TOGETHER** with all and singular the hereditaments and appurtenances thereunto belonging, or in anywise appertaining, and the reversion and reversions, remainder and remainders, rents, issues and profits thereof, and all the estate, right, title, interest, claim and demand whatsoever of the grantor(s), either in law or equity, of, in and to the above bargained premises, with the hereditaments and appurtenances.

**TO HAVE AND TO HOLD** the said premises above bargained and described, with the appurtenances, unto the grantee(s), his heirs, and assigns forever. The grantor(s), for himself, his heirs and personal representatives or successors, does covenant and agree that he shall and will WARRANT AND FOREVER DEFEND the above-bargained premises in the quiet and peaceable possession of the grantee(s), his heirs and assigns, against all and every person or persons claiming the whole or any part thereof, by, through or under the grantor(s) subject to the matters indicated on Exhibit B attached hereto.

The singular number shall include the plural, the plural the singular, and the use of any gender shall be applicable to all genders.

**IN WITNESS WHEREOF,** the grantor(s) has executed this deed on the date set forth above.

**SELLER:**

**Ranch Land, LLC**

William H Peetz, MANAGER

**by William H. Peetz, manager**

STATE OF **COLORADO** )ss:
COUNTY OF Fremont

The foregoing instrument was acknowledged before me this 29 day of **September, 2011 by Ranch Land, LLC by William H. Peetz as manager**

Notary Public

ANNETTE GRAY NOTARY PUBLIC STATE OF COLORADO

My Commission expires April 19 2013

Witness my hand and official seal.
My Commission expires: 4-19-13

SPWDTC1
Special Warranty Deed Tenants In Common

File No. F0376352

Fremont Doc Fee $588.91 / Pueblo Doc Fee $831.09

# SPECIAL WARRANTY DEED

**STATE DOC FEE**
**$831.09**

**THIS DEED**, Made this 29th day of September, 2011 between

**Ranch Land, LLC, a Colorado limited liability company**

of the County of El Paso and State of COLORADO, grantor(s), and

**Holcim (US) Inc.**

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See Exhibit A and B attached hereto and made a part hereof.

| Doc Fee |
| --- |
| $1,420.00 |

also known by street and number as vacant land , Penrose, CO 81240

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**IN WITNESS WHEREOF**, the grantor(s) has executed this deed on the date set forth above.

**SELLER:**

Ranch Land, LLC

by William H. Peetz, manager — MANAGER

STATE OF COLORADO
COUNTY OF Fremont } ss:

The foregoing instrument was acknowledged before me this 29 day of September, 2011 by **Ranch Land, LLC by William H. Peetz as manager**

Notary Public

ANNETTE GRAY NOTARY PUBLIC STATE OF COLORADO

My Commission Expires April 19, 2013

Witness my hand and official seal.
My Commission expires: 4-19-13

SPWDTC1
Special Warranty Deed Tenants in Common

File No. F0376352

Fremont Doc Fee $588.91 / Pueblo Doc Fee $831.09

Recorded Electronically
ID _____
County _____
Date _____ Time _____
Simplifile.com 800.460.5657

**SPECIAL WARRANTY DEED**

**THIS DEED,** Made this **29th** day of **September, 2011** between

**Ranch Land, LLC, a Colorado limited liability company**

of the County of El Paso and State of COLORADO, grantor(s), and

**Holcim (US) Inc.**

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**WITNESS,** That the grantor(s), for and in consideration of the sum of **Fourteen Million Two Hundred Thousand Dollars and NO/100's ($14,200,000.00),** the receipt and sufficiency of which is hereby acknowledged, has granted, bargained, sold and conveyed, and by these presents does grant, bargain, sell, convey and confirm, unto the grantee(s), his heirs and assigns forever, all the real property together with improvements, if any, situate, lying and being in the County of Fremont / Pueblo, State of COLORADO, described as follows:

See Exhibit A and B attached hereto and made a part hereof.

Doc Fee
**$1,420.00**

also known by street and number as vacant land , Penrose, CO 81240

**TOGETHER** with all and singular the hereditaments and appurtenances thereunto belonging, or in anywise appertaining, and the reversion and reversions, remainder and remainders, rents, issues and profits thereof, and all the estate, right, title, interest, claim and demand whatsoever of the grantor(s), either in law or equity, of, in and to the above bargained premises, with the hereditaments and appurtenances.

**TO HAVE AND TO HOLD** the said premises above bargained and described, with the appurtenances, unto the grantee(s), his heirs, and assigns forever. The grantor(s), for himself, his heirs and personal representatives or successors, does covenant and agree that he shall and will WARRANT AND FOREVER DEFEND the above-bargained premises in the quiet and peaceable possession of the grantee(s), his heirs and assigns, against all and every person or persons claiming the whole or any part thereof, by, through or under the grantor(s) subject to the matters indicated on Exhibit B attached hereto.

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**Ranch Land, LLC**

MANAGER

**by William H. Peetz, manager**

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COUNTY OF Fremont

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Notary Public

ANNETTE GRAY NOTARY PUBLIC STATE OF COLORADO

My Commission Expires April 19, 2013

Witness my hand and official seal.
My Commission expires: 4-19-13

SPWDTCI
Special Warranty Deed Tenants in Common

File No. **F0376352**

Exhibit A

Parcel 1:

A parcel of land located within the Southeast one-quarter of Section 20, the Southwest one-quarter of Section 21, the Northwest one-quarter of the Northwest one-quarter of Section 28 and the Northeast one-quarter of Section 29, all within Township 19 South, Range 68 West of the 6th Principal Meridian, County of Fremont, State of Colorado and being more particularly described in metes and bounds as follows.

Beginning at a point in the Northwest one-quarter of the Southeast one-quarter of Section 20, Township 19 South, Range 68 West of the 6th Principal Meridian, from which point the Southwest corner of said Section 20 bears S 56°56'25" W, a distance of 4345.43 feet, said point also being on the South line of that 5 acre parcel described at Reception No. 717745, Fremont County records;

thence along the South line of said 5 acre parcel, N 89°09'51" E, a distance of 311.28 feet, to a point at the Southeast corner of said 5 acre parcel;

thence along the East line of said 5 acre parcel, N 00°41'38" W, a distance of 332.20 feet, to a point on the North line of the Southeast one-quarter of Section 20;

thence along said North line, N 89°09'19" E, a distance of 1354.43 feet, to a point at the Northeast corner of the Southeast one-quarter of said Section 20;

thence N 89°31'25" E, along the North line of the Southwest one-quarter of Section 21, a distance of 1320.78 feet, to a point at the Northeast corner of the Northwest one-quarter of the Southwest one-quarter of Section 21;

thence along the East line of said Northwest one-quarter of the Southwest one-quarter of Section 21, S 00°03'45" E, a distance of 1327.17 feet to a point at the Southeast corner of said Northwest one-quarter of the Southwest one-quarter of Section 21;

thence departing said line, S 00°50'44" W, a distance of 2506.27 feet to a point within the Northwest one quarter of the Northwest one-quarter of Section 28, from which point the Northwest corner of Section 28 bears N 47°47'59" W, a distance of 1730.92 feet;

thence N 89°41'57" W, a distance of 2964.86 feet, to a point within the Northeast one-quarter of Section 29;

thence N 00°18'03" E, a distance of 3450.02 feet to the Point of Beginning of this description.

Parcel 2

A strip of land located within Section 28, the Northeast one-quarter of the Northeast one-quarter of Section 33, Section 34, Township 19 South Range 68 West of the 6th Principal Meridian and Section 3, Section 10, the Southwest one-quarter of Section 14, the East one-half of Section 15 and the North one-half of Section 23, Township 20 South Range 68 West of the 6th Principal Meridian, County of Fremont, State of Colorado and being more particularly described as lying 125.00 feet on each side of the following described centerline:

Beginning at a point within said Section 28 from which the Northwest corner of Section 28 bears N 36°48'18" W, a distance of 1449.43 feet;

Thence S 27°05'30" E, a distance of 113.81 feet to a point at the beginning of a curve to the left, said curve having a radius of 5682.00 feet, a central angle of 16°50'42" and a chord bearing of S 35°30'51" E; thence along said curve Southeasterly an arc distance of 1670.52 feet;

Thence S 43°56'12" E, a distance of 5704.94 feet to a point at the beginning of a curve to the left, said curve having a radius of 3875.50 feet, a central angle of 07°22'29" and a chord bearing of S 47° 37'27" E; thence along said curve Southeasterly an arc distance of 498.84 feet;

Thence S 51°18'41" E, a distance of 850.39 feet to a point at the beginning of a curve to the right, said curve having a radius of 5017.00 feet; a central angle of 61°48'57" and a chord bearing of S 20°24'13" E;

thence along said curve Southeasterly an arc distance of 5412.78 feet to a point at the beginning of a curve to the right, said curve having a radius of 12013.00 feet, a central angle of 02°55'07" and a chord bearing of S 11°57'49" W; thence along said curve Southwesterly an arc distance of 611.94 feet; thence S 13°25'22" W, a distance of 1182.22 feet to a point at the beginning of a curve to the left, said curve having a radius of 7160.00 feet; a central angle of 13°07'12" and a chord bearing of S 06°51'46" W; thence along said curve Southerly an arc distance of 1639.55 feet;

Thence S 00°18'10" W, a distance of 1167.38 feet to a point at the beginning of a curve to the left, said curve having a radius of 4943.00 feet; a central angle of 08°58'53" and a chord bearing of S 04°11'16" E; thence along said curve Southerly an arc distance of 774.84 feet;

Thence S 08°40'43" E, a distance of 2273.99 feet to a point at the beginning of a curve to the left, said curve having a radius of 5030.00 feet; a central angle of 23°12'03" and a chord bearing of S 20°16'44" E; thence along said curve Southeasterly an arc distance of 2036.81 feet;

Thence S 31°52'46" E, a distance of 2080.29 feet to a point at the beginning of a curve to the left, said curve having a radius of 5100.00 feet; a central angle of 20°42'32" and a chord bearing of S 42°14'02" E; thence along said curve Southeasterly an arc distance of 1843.33 feet;

Thence S 52°35'1 8" E, a distance of 5789.81 feet to a point on the East line of the Northeast one-quarter of Section 23, Township 20 South, Range 68 West of the 6th Principal Meridian, from which point the Northeast corner of said Section 23 bears N 00°05'49" W, a distance of 2341.06 feet, said point being the Point of Terminus of this description.

Parcel 3:

Section 19, Section 20, Section 29 and Section 30, Township 20 South, Range 67 West of the 6th Principal Meridian, County of Pueblo, State of Colorado together with Section 24 and Section 25, Township 20 South, Range 68 West of the 6th P.M., County of Fremont and State of Colorado
EXCEPTING THEREFROM that portion thereof conveyed to The Colorado Fuel and Iron Corporation, by Deed recorded March 23, 1943 in Book 944 at Page 393;

Exceptions:
Excepting from the above-described parcels of land any portion thereof lying within the right of way of the Minnequa Canal.

Basis of Bearings:
Bearings are based upon the North line of Section 28, Township 19 South, Range 68 West of the 6th Principal Meridian, from a found aluminum cap and rebar at the Northwest corner of said Section 28, marked "Hall 27931", to an aluminum cap and rebar found at the Northeast corner of said Section 28, marked "2010 LS 9853", said line is assumed to bear N 89° 18' 01" E. (GPS Derived Bearing)

# CUP Exhibit 3.2 Water Supply

## CO DRMS 112 Permit Exhibit G: Water Information (Rule 6.4.7)
## Section 2.7.5 Mine Water Source and Uses.

Water will be needed at the RCQ Mine Site for both dust suppression and sanitary purposes. Holcim has anticipated the need for two groundwater wells to provide the supply for these uses. Well siting will occur in 2024 and applications for well permits will be submitted to the Division of Water Resources once the well locations have been selected. It is anticipated that these wells will be installed in 2025. The replacement supplies for potential depletions in 2025 will continue to be a long-term lease of fully consumable water from Pueblo Board of Water Works (PBWW), which is currently being used to cover depletions at the BCQ, pursuant to the Holcim augmentation plan decreed in Case No. 16CW3102. Terms of the water lease provide for up to 175 acre-feet per year of replacement water to cover depletions from both the Holcim Bear Creek Quarry and the Holcim Wetlands SWSP/16CW3102 Decree on an annual basis. The lease also provides Holcim the option to renew through December 2039. The request for Substitute Water Supply Plan is provided in its entirety in Exhibit 3.2-1. An approval from Division of Water Resources (DWR) will be obtained prior to exposing groundwater.

## CUP Exhibit 3.3 CO Division of Water Resources Information Form

# FREMONT COUNTY'S
# COLORADO DIVISION OF WATER RESOURCES
# INFORMATION FORM FOR
# SPECIAL USE, ZONING, AND OTHER LAND USE ACTIONS

The Fremont County Department of Planning & Zoning (Department) is required to submit proposed land use actions to the State Engineer's Office (SEO) at the Colorado Division of Water Resources (DWR). The SEO is responsible for providing an opinion regarding material injury likely to occur to decreed water rights by virtue of diversion of water necessary or proposed to be used to supply the proposed land use action.

This DWR Information Form must be filled out completely and accurately to ensure that the submittal to the DWR regarding this proposed land use action includes the necessary information required by that agency. The DWR has 21 days to respond to County submittals. Incomplete submittals will be returned to the County for additional information and then must be resubmitted to the DWR.

Please note that the DWR timeframe for review may not coincide with the County deadlines or meetings, and if the DWR requires additional information, further delays may occur.

Attachments can be made to this application to provide expanded narrative for any application item including supportive documentation or evidence for provided application item answers. Please indicate at the application item that there is an attachment and label it as an exhibit with the application item number, a period and the number of the attachment for that item (*as an example, the first attached document providing evidence in support of the answer given at application item number 8 would be marked* - Exhibit DWR-8.1, *the fifth attached document supporting the narrative provided for application item 8 would be marked* - Exhibit DWR-8.5). Exhibit numbers should be placed in the lower right hand area of the exhibit.

1. Name of proposed project: Red Creek Quarry formerly Ranch Land Rock Pit #1 CUP 02-3
2. Provide a map of proposed improvements with an identified location that includes a quarter-quarter, section, township, range and principle meridian (PLSS).
3. Legal description of subject property: Sections 24 and 25 T20S, R68W in Fremont County west of the 6th P.M.
4. What is the size of the existing parcel? 1500 [X] Acres --- [ ] Square feet
5. What are the proposed uses of the subject property?
   - [ ] Residential Only
   - [X] Commercial
   - [ ] Commercial and Residential
6. What are the current uses of water on this parcel?
   a. Are there any established uses that require water? [ ] Yes --- [X] No

b. Number of existing homes: 0
If one or more, date this use was established: _____

c. Home lawn / garden irrigation: ☐ Yes --- ☒ No

If yes, amount: _____ ☐ Acres --- ☐ Square feet

Date this use was established: _____

d. Livestock watering: ☒ Yes --- ☐ No

If yes, commercial or non-commercial livestock? *(Circle one)*

If yes, date this use was established: Historic Clevenger Ranch

e. Other uses: _____

Dates established: _____

7. What will be the proposed uses of water for this parcel?

a. Number of proposed homes (including the home above if it will remain): 0

b. Lawn / garden watering, amount: 0 ☐ Acres --- ☐ Square feet

c. Livestock watering: ☐ Yes --- ☒ No

If yes, commercial or non-commercial livestock? *(Circle one)*

d. Number of Employees per day: 27 Number of days open per year: 365

e. Number of Customers per day: 0 Number of days open per year: 0

f. Bed / Breakfast Customers per day: 0 Number of days open per year: 0

g. Describe other water needs: _____
Water will be used for dust suppression on quarry roads and sanitation water for employees.

8. Source of water for the uses described above: *(If more than one source is utilized for parcel, describe which sources will supply which proposed uses)* _____
Holcim will submit for a commercial well permit upon approval of the CUP modification.

a. Is Municipal water available to parcel: ☐ Yes --- ☒ No

b. Is water available to parcel from an independent water district? ☐ Yes --- ☒ No

c. Are the uses described above proposed to be provided water by a municipality?

☐ Yes -- ☒ No

Name of provider: _____

d. Is water hauled: ☐ Yes --- ☒ No

e. Is there an existing permitted well?: ☐ Yes --- ☒ No

If yes, permit number: _____

f. Is there a Substitute Water Supply Plan? *(Substitute water supply plans provide water users a mechanism to replace out-of-priority depletions on an interim basis.)*

☐ Yes --- ☐ No **Please refer to Exhibit 8-1 DRMS Exhibit G Water**

If yes, name of plan: **Information Section 2.7.5 Mine Water Source and Uses**

g. Is there an unregistered well? ☐ Yes --- ☒ No

h. Is there a Surface Spring? ☐ Yes --- ☒ No

If yes, Court Adjudication Number and Spring Name: **Case No. 16CW3102**

9. What is the Waste Water Method?

☐ Municipal

☐ Septic with Leach Field

☒ Closed Vault, Waste Water hauled to: _____

**By signing this form, the Applicant, or the agent / representative acting with due authorization on behalf of the Applicant, hereby certifies that all information contained in the form and any attachments to the form, is true and correct to the best of Applicant's knowledge and belief.**

**Fremont County hereby advises Applicant that if any material information contained herein is determined to be misleading, inaccurate or false, the Board of Commissioners may take any and all reasonable and appropriate steps to declare actions of the Department regarding the Application to be null and void.**

**Signing this form is a declaration by the Applicant to conform to all plans, drawings, and commitments submitted with or contained within this form, provided that the same is in conformance with the Fremont County Zoning Resolution.**

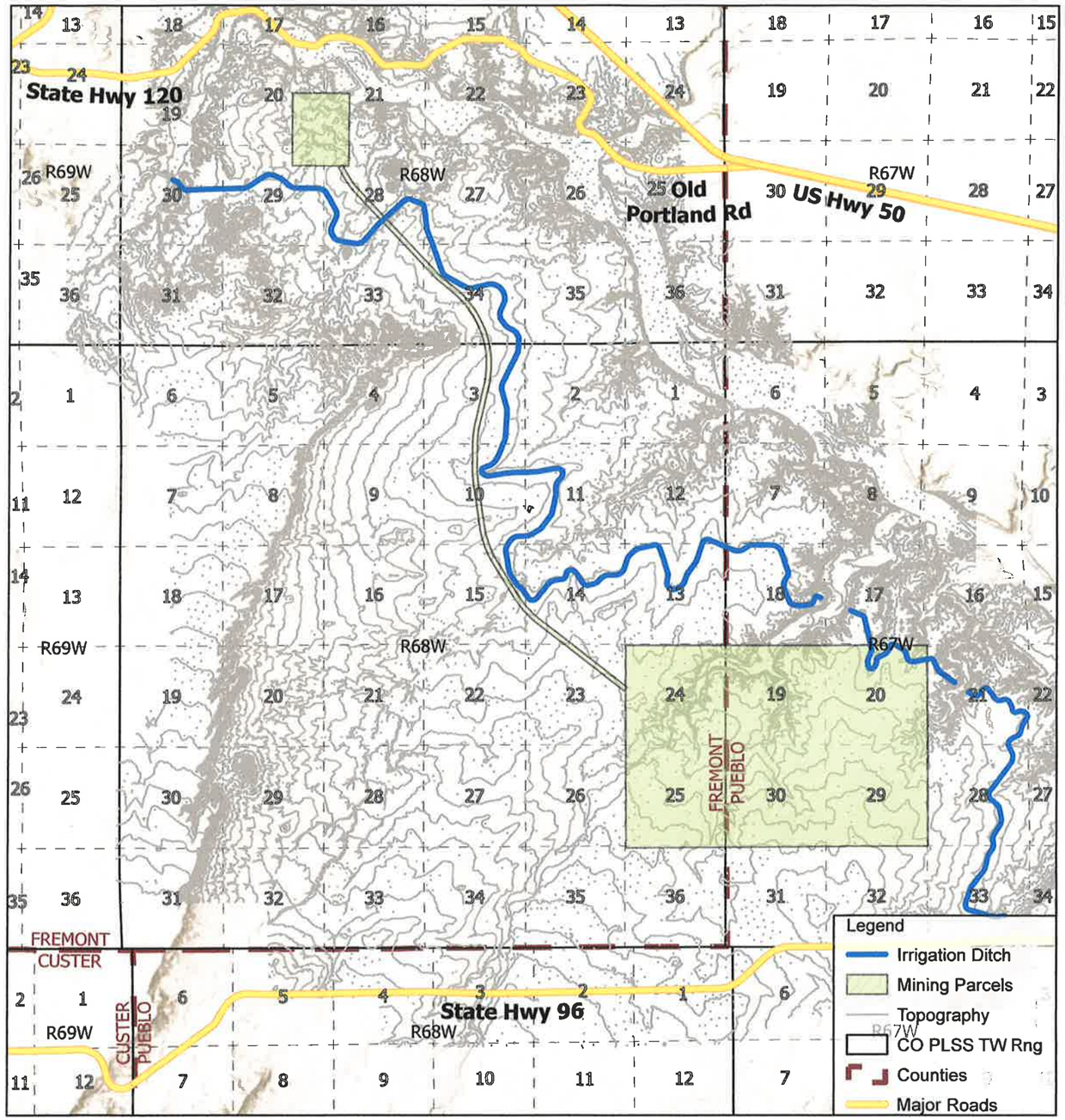
Hamza Mekhfi , _____ March 28, 2024

Applicant Printed Name Signature Date

Hamza Mekhfi , _____ March 28, 2024

Property Owner Printed Name Signature Date

(If different from applicant)




HOLCIM

# Exhibit C1 - Pre-Mining Map

Overview map showing land to be utilized by the new Red Creek Quarry mine and relevant boundaries to the surrounding area.

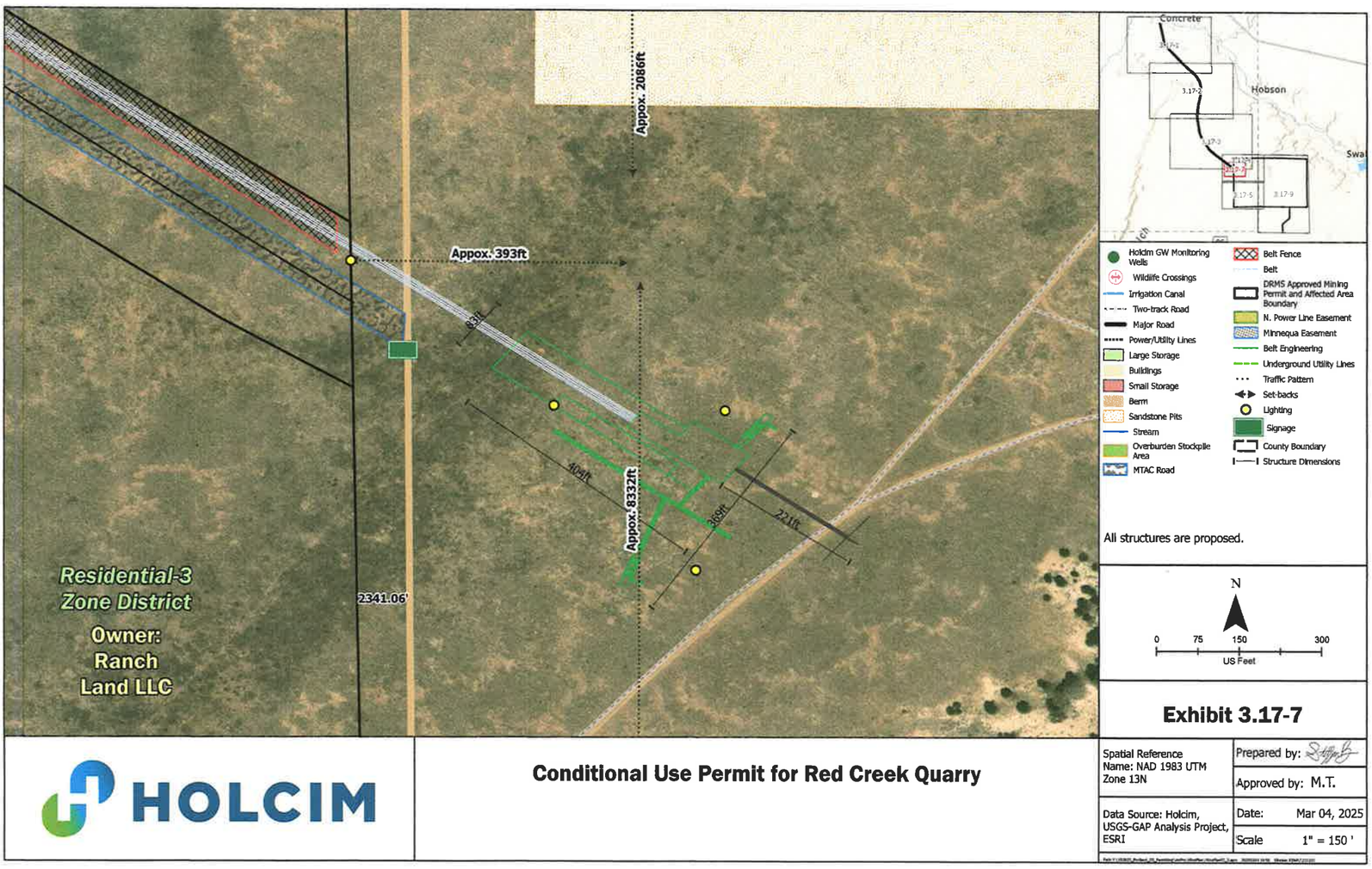
Esri, NASA, NGA, USGS
Spatial Reference
Name: NAD 1983 UTM Zone 13N
GCS: GCS North American 1983

7/13/2023

User: SBecker

N

0 0.5 1
Miles

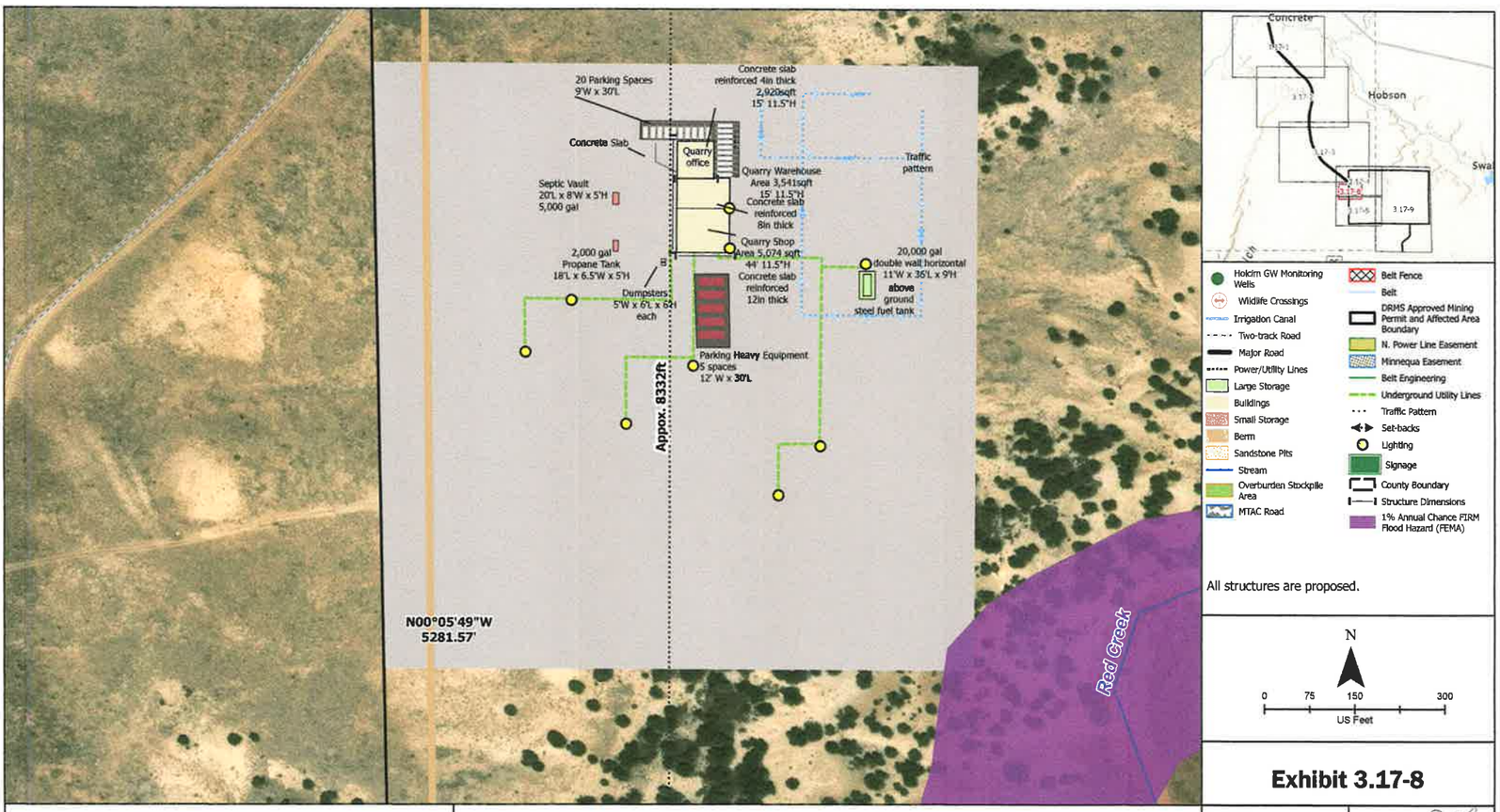



HOLCIM

**Conditional Use Permit for Red Creek Quarry**

**Exhibit 3.17-7**

| | |
|---|---|
| Spatial Reference Name: NAD 1983 UTM Zone 13N | Prepared by: |
| | Approved by: M.T. |
| Data Source: Holcim, USGS-GAP Analysis Project, ESRI | Date: Mar 04, 2025 |
| | Scale 1" = 150 ' |




HOLCIM

# Conditional Use Permit for Red Creek Quarry

## Exhibit 3.17-8

| | |
|---|---|
| Spatial Reference Name: NAD 1983 UTM Zone 13N | Prepared by: |
| | Approved by: M.T. |
| Data Source: Holcim, USGS-GAP Analysis Project, ESRI | Date: Mar 04, 2025 |
| | Scale 1" = 150 ' |

# CO DWR Exhibit 8-1

## 2.7 Exhibit G: Water Information (Rule 6.4.7)

### 2.7.5 Mine Water Source and Uses

Water will be needed at the RCQ Mine Site for both dust suppression and sanitary purposes. Holcim has anticipated the need for two groundwater wells to provide the supply for these uses. Well siting will occur in 2024 and applications for well permits will be submitted to the Division of Water Resources once the well locations have been selected. It is anticipated that these wells will be installed in 2025. The replacement supplies for potential depletions in 2025 will continue to be a long-term lease of fully consumable water from Pueblo Board of Water Works (PBWW), which is currently being used to cover depletions at the BCQ, pursuant to the Holcim augmentation plan decreed in Case No. 16CW3102. Terms of the water lease provide for up to 175 acre-feet per year of replacement water to cover depletions from both the Holcim Bear Creek Quarry and the Holcim Wetlands SWSP/16CW3102 Decree on an annual basis. The lease also provides Holcim the option to renew through December 2039. The request for Substitute Water Supply Plan is provided in its entirety in Appendix 4.7. An approval from Division of Water Resources (DWR) will be obtained prior to exposing groundwater.

#### 2.7.5.1 Dust Suppression

Water needed for dust suppression is dependent on the amount of product mined and the mining operations. Holcim will be utilizing a more efficient mining process that reduces equipment impacts and dust. Dust suppression systems will also be installed on the conveyor system that transports mined product to the cement plant. Dust suppression projections for the BCQ estimated a maximum use of 70 acre-feet per year. However, the RCQ would likely only need 60% of that amount, or approximately 40 acre-feet per year once mining begins.

Dust suppression needs during construction are difficult to estimate. Therefore, water pumped from the wells for this use will be measured and reported, but are not expected to exceed 20 acre-feet per year. Dust suppression uses will be considered 100% consumptive.

#### 2.7.5.2 Sanitary Needs

Typical water use at the BCQ and Cement Plant for domestic needs (bathrooms, kitchen) are on the order of 30 acre-feet per year for 25staff. The RCQ site will have approximately 25 staff, and so these uses are estimated to be only 1 to 2 acre-feet per year (based on typical per capita usage). These uses are 10% consumptive, with the remaining water returning to the groundwater system through a septic vault system.

# CUP Exhibit 3.4 Refuse Plan

Waste Management services the cement plant facility weekly and will provide waste collection service to RCQ. Waste dumpsters will be placed outside the maintenance/office building. Waste collection trucks will access RCQ through the Hwy 93 access road in Pueblo County. Waste collection service will be provided weekly.

# CUP Exhibit 3.6 Drainage Plan

Brown AND Caldwell
1527 Cole Boulevard, Suite 300
Lakewood, CO 80401
T: 303.239.5400

Jesik
800 W. 8th Street
Pueblo, CO 81003
T. 719.582.5588

# Technical Memorandum

Prepared for: Holcim US, Inc.

Project Title: Red Creek Quarry Permitting

Project No.: 160041

**Technical Memorandum**

Subject: Drainage Report for Red Creek Quarry

Date: March 31, 2025

To: Michael Toelle, Raw Materials and Quarries Manager, Holcim US, Inc.

From: Kelly Donahue, Brown and Caldwell

Copy to: Dan Victoria, Director, Fremont County Department of Planning and Zoning
Julio Villon, Project Manager, Holcim US, Inc.

Memo Prepared by: _____
Adam Gutta, Senior Associate Engineer

COLORADO REGISTERED TINA ROSSILLON 27453 PROFESSIONAL ENGINEER

Reviewed by: _____
Tina Rossillon, P.E., Engineer, Colorado P.E. No.

COLORADO LICENSED JOSEPH A. JESIK 39781 PROFESSIONAL ENGINEER

Design Engineer: _____
Andy Jesik, P.E., Engineer, Colorado P.E. No.

# Table of Contents



# List of Tables

# Section 1: Introduction

Brown and Caldwell and Jesik Engineering developed this drainage plan on behalf of Holcim US, Inc. (Holcim) to support the Red Creek Quarry (RCQ) permitting project for RCQ and the Material Transport and Access Corridor (MTAC) sites (herein referred to as Site). This drainage plan is intended to support a Conditional Use Permit (CUP) application submitted to Fremont County in May of 2024. It includes calculations of peak flow rates of stormwater runoff around proposed RCQ infrastructure within Fremont County and at waterway crossings along the MTAC. MTAC culverts were designed by Jesik Engineering. Culvert type, geometry, and sizing are based on road alignment, cut and fill, and peak flows calculated by Brown and Caldwell. Culvert geometry and sizing were determined to safely convey runoff across the MTAC.

This drainage plan includes preliminary design for the drainage structures. It assumes that Fremont County takes jurisdiction and will review design of the ephemeral crossings (i.e., drainage channels that are normally dry except during precipitation events). The design of non-ephemeral crossing structures are designed as part of a United State Army Corp of Engineer (USACE) Nationwide Permit Application. MTAC crossings are depicted in Figure 2 and are color coded according to jurisdictional agency, Fremont County or USACE. A copy of the USACE Nationwide Permit Application will be provided to Fremont County.

The scope of this drainage plan includes:

- Identifying existing and proposed hydrologic and hydraulic conditions within RCQ and along the MTAC.
- Calculating peak flow rates in the northwest corner of the RCQ around proposed infrastructure.
- Calculating peak flow rates at waterway crossings identified along the MTAC.
- Calculating culvert geometry and sizing to safely convey runoff across the MTAC.
- Designing a typical culvert out protection rip rap basin and apron.
- Summarizing findings and conclusions.

# Section 2: Project Overview and Site Description

The RCQ will be a new limestone quarry that provides material to the Portland cement plant site located at 3500 State Hwy 120, east of Florence, CO. RCQ is located on Holcim property on the USGS Hobson and Florence SE Quadrangles, Colorado. The quarry property comprises approximately 3,851 acres in total, located in both Fremont County and Pueblo County. The 250-foot (ft)-wide MTAC, encompassing approximately 222 acres in Fremont County, connects RCQ to the Portland plant site. Approximately 1,722 acres are in Fremont County and subject of the conditional use application. The Site boundary is depicted on Exhibit 3.17 maps, and topography for the Site is depicted on Figures 1.

The topography at RCQ and along the MTAC is generally flat with some local relief along surface water drainages with shale, limestone, and sandstone outcrops. The topography of the region upgradient (upstream) of the RCQ and MTAC has a gentle slope to the north and east and a steep sloped ridge west and south of the MTAC. The overall gradient slopes downward to the northeast toward Red Creek and the Arkansas River. Within the Red Creek drainage, sequences of erosion and deposition resulted in multiple alluvial stream terraces covered in varying degrees of vegetation.

Existing structures within RCQ and along the MTAC include barbed wire fences, electrical distribution lines, ranch roads, the Minnequa Canal and associated cattle watering conveyance systems that deliver water to cattle troughs. The MTAC runs northwest along a similar alignment of the Minnequa Canal and crosses it at one location.

Fremont County zoning in the area is Residential 3. This zone district is described in the Fremont County Zoning Resolution as a "Non-urban area established primarily for the purpose of efficiently using land to conserve forest resources, protect the natural environment and preserve uninhabited areas, and to allow for farming and ranching activities." Mining is permitted as a Conditional Use in Section 4.03(b) (Fremont County, Department of Planning and Zoning, 2024).

Activities associated with the mining project include surface mining, material sizing, material conveyance from the quarry to the cement plant, and reclamation. The mine plan includes both Fremont County and Pueblo County parcels, developing the mine in 10-year mine blocks for an expected life of mine of 100 years. Mine infrastructure will be located in the southwest quarter of the northwest quarter of Section 24 in Fremont County for the life of the mine. Mining will commence in the northwest corner of RCQ and progress south and east over the course of approximately 100 years. The MTAC from the plant to RCQ and the Hwy 96 access to RCQ will be developed first. Once safe access is available for contractors, vendors, and employees, development of the mine infrastructure, including fencing and RCQ mine buildings and utilities, will begin. The MTAC will include an access road for employees and vendors and the planned overland conveyor system. The corridor will extend from the Holcim cement plant to RCQ, a distance of approximately 6.7 miles. The gravel access road will be approximately 40 ft wide to allow safe passage of both employees and equipment in both directions.

# Section 3: Hydrologic Evaluation

## 3.1 Basin Hydrology

The RCQ and MTAC are within the Arkansas River basin; a high-altitude, semi-arid hydrologic basin of approximately 5,200 square miles that extends from Leadville to Pueblo, CO (USGS, 1984). The Arkansas River basin is the headwaters of the Arkansas River and the source of much of the surface water used in southeastern Colorado. The Site is located within the Upper Arkansas subbasin, Hydrologic Unit Code 11020002.

RCQ and the MTAC are generally in areas of minimum flood hazard, with three exceptions, based on the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) panel of the surrounding area. The exceptions are Red Creek within RCQ, Ritchie Gulch (Crossing 2B and 2C), and Willow Spring Creek. The locations of Ritchie Gulch and Willow Spring are identified on Exhibit 3.17 maps and Figure 2. The FEMA FIRM panels of RCQ and the MTAC are included as Attachment C.

There are no USGS flow monitoring stations along any of the surface water drainages within the project-proposed mining boundaries nor along the MTAC. Red Creek flows northeast through the RCQ and into the Arkansas River approximately 2 miles northeast of the Site. Within the Red Creek drainage are seeps and springs flowing from fractures within the rock outcrop. Minimal water flow was observed in alluvial sediments above the seep location, which indicates minor flow within Red Creek independent of the identified seeps.

The surface water flow disappears into the creek sediments, and Red Creek is dry at the Site's boundary. Drainages south and east of Red Creek show signs of intermittent to no surface water flow. Upland areas on the Site are grasslands with gentle slopes, few outcrops, and sparse shrubs and trees compared to the Red Creek drainage.

The existing streams crossing the MTAC are a mix of channels with sustained surface water and ephemeral streams and gulches that are normally dry unless conveying stormwater runoff.

## 3.1 Hydrologic Analysis

This section summarizes the methods and assumptions used to estimate peak flows to be used in the hydraulic culvert sizing analysis.

Mining infrastructure is proposed to be constructed in the northwest portion of RCQ property, adjacent to and partially overlapping an existing stormwater channel. This channel is included for analysis and is proposed to be diverted around the infrastructure and rejoined with the natural channel near the northern property line. The Red Creek channel will not be altered by mining operations nor contribute flow to the reclaimed pits.

Surface water in the vicinity of the MTAC flows into Arkansas River tributaries, which cross the MTAC at several locations. Waterway crossings considered for analysis in this drainage plan are shown on Figure 1. These were selected based on the available topography information and USGS maps of streams and drainages. Stormwater runoff that collects along the MTAC from surface flows or smaller drainages, including stormwater flowing in rills from shallow concentrated flows, will be intercepted by and re-directed along the edge of the MTAC access road in a shallow channel and directed into the next downstream culvert.

Based on field observations and a review of the Site topography, it was determined that several of the waterway crossings include multiple distinct flow channels. Where this is the case, the contributing drainage areas are separated into sub-areas (e.g., 2A, 2B, and 2C). Grading and drainage improvements (e.g., construction of rip rap-lined flow channels) will be conducted to direct stormwater flows into the culverts.

### 3.1.1 Precipitation

Design precipitation depths were taken from the National Oceanic and Atmospheric Administration (NOAA) Precipitation Frequency Data Sever website based on the NOAA Atlas 14, Volume 8 Version 2.0, Location: Penrose, Colorado, USA. The point precipitation frequency estimate from NOAA is included in Attachment A.

Precipitation depths to be analyzed were selected based on the Colorado Department of Transportation (CDOT) design guidance and the Fremont County Department of Planning and Zoning Subdivision Regulations. The 25-year, 24-hour storm was selected for design of MTAC crossings based on the CDOT hydrology design guidance for drainage features crossing a rural two-lane road. The 100-year, 6-hour Soil Conservation Service (SCS) storm was selected for design around quarry facilities based on the Fremont County Department of Planning and Zoning Subdivision Regulations to convey runoff from this storm type without damage to permanent facilities and structures. Although RCQ and the MTAC are not subdivisions, conveying runoff from the 100-year, 6-hour SCS storm was included in the analysis to understand the potential for overtopping the MTAC access road.

The precipitation depths from NOAA Atlas 25-year, 24-hour and 100-year, 6-hour SCS Type II storm events—hereafter referred to as the 25-year and 100-year design storms, respectively—were selected for hydrologic analysis. The 25-year and 100-year design storm precipitation depths for the area are 3.01 and 3.49 inches, respectively, at the time of this drainage plan.

### 3.1.2 Drainage Areas, Time of Concentration, Soil Groups

One location was selected for analysis within the RCQ boundary where an existing channel will be diverted around proposed infrastructure. Along the MTAC, 23 locations were selected for analysis at waterway crossing locations. The locations are depicted on Figure 2.

The contributing drainage areas for each location were delineated using the USGS web application StreamStats in conjunction with topography of the surrounding area provided by Holcim. Surface topography of the RCQ and the MTAC is included on Figure 1, the topography around the proposed RCQ infrastructure is included on Figure 1, and topography along the MTAC is included on Exhibit 3.17 maps.

The time of concentration for each drainage area was generated by StreamStats. These values were used to analyze existing conditions. This project does not alter the time of concentration of the upstream contribution drainage areas (e.g., through conversion of permeable into impermeable surfaces).

The hydrologic soil groups (HSG) within RCQ and the MTAC property are included on Exhibit 3.17 maps. The HSGs of the upstream drainage areas were generated by StreamStats. Curve Numbers associated with brush in fair condition were selected based on fieldwork observations made by Brown and Caldwell; 56 for HSG A and B, 70 for HSG C, and 77 for HSG D.

The StreamStats reports for each drainage area—including the location, time of concentration, and HSGs and composite Curve Number—are provided in Attachment B and summarized in Table 1.

**Table 1. Summary of Drainage Area Hydrology Inputs**

| Location Identifier | Area (acres) | Time of Concentration (minutes) | Composite Curve Number |
|---|---|---|---|
| RQC NW Corner | 55 | 128 | 71 |
| Crossing 1 | 230 | 145 | 69 |
| Crossing 2A | 831 | 60 | 68 |
| Crossing 2B | 10,340 | 383 | 68 |
| Crossing 2C | 345 | 185 | 65 |
| Crossing 3 | 128 | 114 | 66 |
| Crossing 4 | 33 | 63 | 67 |
| Crossing 5 | 237 | 115 | 69 |
| Crossing 6A | 29 | 59 | 71 |
| Crossing 6B | 1,164 | 189 | 67 |
| Crossing 6C | 35 | 94 | 70 |
| Crossing 7 | 749 | 153 | 66 |
| Crossing 8 | 160 | 76 | 68 |
| Crossing 9 | 96 | 56 | 67 |
| Crossing 10 | 27 | 53 | 66 |
| Crossing 11 | 26 | 30 | 62 |
| Crossing 12 | 23 | 38 | 59 |
| Crossing 13 | 134 | 50 | 62 |
| Crossing 14 | 218 | 66 | 64 |
| Crossing 15 | 141 | 118 | 56 |
| Crossing 16 | 2,560 | 275 | 63 |
| Crossing 17 | 24 | 45 | 67 |
| Crossing 18 | 134 | 93 | 64 |
| Crossing 19 | 826 | 98 | 70 |

### 3.1.3 Peak Flow Rates

The peak flow rates for the design storms were calculated using the hydrologic modeling software, HydroCAD. The HydroCAD model report is provided in Attachment C. Peak flows are summarized in Table 2.

**Table 2. Summary of Peak Flow Rates**

| 25-year 24-hour Storm (cfs) | | | | | | | |
|---|---|---|---|---|---|---|---|
| RQC NW Corner | Crossing 1 | Crossing 2A | Crossing 2B | Crossing 2C | Crossing 3 | Crossing 4 | Crossing 5 |
| 10.5 | 35.0 | 218.1 | 715.8 | 30.4 | 17.4 | 7.7 | 42.5 |
| Crossing 6A | Crossing 6B | Crossing 6C | Crossing 7 | Crossing 8 | Crossing 9 | Crossing 10 | Crossing 11 |
| 10.2 | 123.9 | 7.8 | 91.0 | 35.6 | 24.0 | 6.3 | 5.2 |
| Crossing 12 | Crossing 13 | Crossing 14 | Crossing 15 | Crossing 16 | Crossing 17 | Crossing 18 | Crossing 19 |
| 2.5 | 20.2 | 35.3 | 196.7 | 143.1 | 6.9 | 17.2 | 196.4 |
| **100-year 6-hour Storm (cfs)** | | | | | | | |
| RQC NW Corner | Crossing 1 | Crossing 2A | Crossing 2B | Crossing 2C | Crossing 3 | Crossing 4 | Crossing 5 |
| 22.2 | 81.0 | 539.7 | 1,620.0 | 78.2 | 44.9 | 19.4 | 100.0 |
| Crossing 6A | Crossing 6B | Crossing 6C | Crossing 7 | Crossing 8 | Crossing 9 | Crossing 10 | Crossing 11 |
| 22.7 | 298.8 | 17.9 | 222.8 | 86.5 | 61.0 | 16.6 | 16.5 |
| Crossing 12 | Crossing 13 | Crossing 14 | Crossing 15 | Crossing 16 | Crossing 17 | Crossing 18 | Crossing 19 |
| 10.4 | 64.3 | 100.4 | 437.0 | 383.6 | 17.9 | 48.0 | 436.4 |

*cfs = cubic feet per second*

# Section 4: Hydraulic Design Considerations

This section discusses the upstream drainage conditions and current stormwater management practices, as well as the design of structures, including a diversion channel, culvert, and rip rap, to safely convey peak flow from the design storms.

## 4.1 RCQ Site Drainage

Stormwater drainage around the RCQ mine buildings is shown on Figure 2. The area around the shop building will be graded to direct stormwater away from the building and infrastructure. Storm water will be diverted towards the mine perimeter berm or to open areas of the mine to allow for infiltration into the ground. Stormwater from the shop area will not be allowed to discharge to Red Creek. A gravel base layer of several inches will overlie the natural bedrock surface surrounding the RCQ buildings and parking areas to allow for positive drainage and infiltration of stormwater. A Stormwater Management Plan and Spill Prevention, Control, and Countermeasure Plan will be drafted to govern the management of stormwater around the RCQ buildings, tanks, and other infrastructure.

## 4.2 Upstream Drainage Conditions and Stormwater Management

Upstream drainage conditions include natural infiltration and overland flow from predominantly open land into tributaries of the Arkansas River. Existing structures near the RCQ and along the MTAC include earthen stock pond embankments, a sand borrow pit, access roads (dirt roads), the Minnequa Canal, and access road bridges over the Minnequa Canal.

Stormwater run-off from the upstream drainage areas described in Section 3 will be managed to prevent damage to the RCQ, the MTAC, and upstream and downstream structures and features. Stormwater management will include construction of a diversion channel in the northwest corner of RCQ to divert flow around the proposed infrastructure in that area, and construction of culverts at strategic locations to convey flow across the MTAC. The design of the diversion channel, culverts, and rip rap outlet protection are included in this plan.

## 4.3 RCQ Diversion Channel

This section describes the proposed diversion channel to collect and convey stormwater flows around the proposed RCQ infrastructure. Proposed infrastructure in the northwest corner of RCQ includes a material staging area (also referred to as the waste dump area), a material processing unit (crusher), conveyor equipment, and associated support facilities (e.g., gravel parking area, office). Grading will be performed to shed water away from new infrastructure into the new diversion channel. The new infrastructure will not significantly change the quantity of impervious area and does not change the time of concentration in this area.

Existing stormwater flow through this area follows an existing shallow channel that is typically dry. The contribution drainage area and peak flow rates were summarized previously in Section 3.

A stormwater channel will be constructed to divert stormwater from the upstream drainage area and to collect stormwater runoff from the proposed infrastructure. Site grading will route the stormwater around the proposed infrastructure. Channel sizing was conducting using Manning's equation for open channel flow and the following assumptions:

- Channel is trapezoidal with 2H:1V side slopes.
- Channel is lined with rip rap with a Manning's n value of 0.035.
- The bottom width and depth of the channel are 3 ft and 2 ft, respectively.
- The channel will have a minimum slope of 0.5 percent.
- Channel is designed to convey the 25-year design storm at 50 percent or less of total channel depth.
- Channel is designed to convey the 100-year design storm with a minimum of 0.5 ft of freeboard.

Table 3 summarizes the channel flow capacity, depth, and velocity during the design storms.

**Table 3. Red Creek Quarry Stormwater Channel**

| Full-Flow Flow Capacity (cfs) | Flow Depth to Convey 25-Year Design Storm (ft) | Freeboard During 25-Year Design Storm (ft) | Flow Depth to Convey 100-Year Design Storm (ft) | Flow Velocity During 100-Year Design Storm (fps) | Freeboard During 100-Year Design Storm (ft) | Design Criteria Met? |
|---|---|---|---|---|---|---|
| 46.9 | 1.0 | 1.0 | 1.4 | 2.8 | 0.6 | Yes |

*cfs = cubic feet per second*
*fps = feet per second*

## 4.4 MTAC Crossings

The haul and services roads will adjoin each other at the Minnequa Canal and be located above the existing canal. There will be no major modifications to the canal such as a siphon. The conveyor will be elevated to provide sufficient height for wildlife and canal service vehicles.

Channels beyond MTAC limits were not assessed as part of this drainage plan and are assumed to be stable. Road alignments were determined for the service and haul roads. Culvert type, geometry, and sizing are based on the road alignment, cut and fill, and peak flows determined from the hydrologic study completed by Brown and Caldwell. Culverts were selected to convey the design storm peak flows without causing damage to upstream and downstream features. The hydrologic analysis described above, and additional analysis and assumptions described below, is intended to show that culverts along the MTAC are technically viable.

Either bridges, pipe culverts or box culverts were selected. Bridges will be like railroad bridges, built offsite and then placed across the crossings with minimal disturbance. Hydraulic sizing for the MTAC culverts was conducted using Culvert Studio developed by Hydrology Studio. This drainage plan is preliminary; tailwater conditions are assumed to be free draining such that culvert flow capacity will not be limited by tailwater. This assumption limits the drainage calculations to hydraulic design and sizing of the culverts to safely convey the design storms. Service and haul roads were combined into 1 crossing at some locations. Culverts were designed to provide wildlife crossings for small, medium, or large animals.

The culverts are assumed to be either concrete pipes or rectangular concrete boxes. Culvert slopes were determined for each culvert from culvert inverts at the road alignment and are indicated in the attached Table 4. A Manning's roughness value of 0.012 was used for each culvert modeled in Culvert Studio.

Culvert sizes were selected to convey the 25-year design storm with headwater less than 66 percent (two-thirds full) of the culvert height and to convey the 100-year design storm without headwater above the top of the culvert inlet. Table 4 provides a summary of the proposed culvert sizing.

**Table 4. MTAC Crossing Structure**

| Crossing Number | Proposed Structure | Span (ft) | Length/ Width (ft) | Opening Height | Diameter (ft) | Upstream Invert Elevation | Top of Structure Elevation | Bottom slope (%) | Riprap Size D50 (in) |
|---|---|---|---|---|---|---|---|---|---|
| RCQ Xing | Pipe | | | | 3 | | 6.8 | | |
| 1-HP | (2) Pipes | - | 56 | - | 3 | 5243.4 | 5247.2 | 2 | 10 |
| 1-SP | (2) Pipes | - | 24 | - | 3 | 5245 | 5248.8 | 1.5 | 6 |
| 2B-HB-W | Box | 16 | 75 | 12 | - | 5169 | 5181.8 | 0.5 | 24 |
| 2B-SB-W | Box | 16 | 50 | 12 | - | 5171 | 5183.8 | 0.5 | 24 |
| 2A-HB | Box | 10 | 50 | 8 | - | 5175 | 5183.8 | 2 | 18 |
| 3-H-Bridge | Bridge | 30 | 50 | 4 | - | 5190 | 5193.8 | 2.4 | |
| 3-SP | Pipe | - | 24 | - | 3 | 5193 | 5196.8 | 2.1 | 10 |
| 4-HS-Bridge | Bridge | 82 | 52 | 5 | - | 5195 | 5200.8 | 1.8 | |
| 5-HS-Bridge | Bridge | 80 | 52 | 7 | - | 5191.5 | 5199.3 | 1.7 | |
| 6A-HP | Pipe | - | 56 | - | 3 | 5179 | 5182.8 | 1.8 | 6 |
| 6A-SP | Pipe | - | 24 | - | 3 | 5181 | 5184.8 | 1 | 5 |
| 6BC-HB | Box | 8 | 52 | 6 | - | 5178 | 5184.8 | 1.9 | 18 |
| 6B-SB-CV | Box | 8 | 35 | 8 | - | 5179 | 5187.8 | 1 | 15 |
| 6C-SP | Pipe | - | 24 | - | 3 | 5179 | 5182.8 | 1 | 5 |
| 7-HP | (4) Pipes | - | 56 | - | 3 | 5205 | 5208.8 | 2 | 10 |
| 7-SP | (4) Pipes | - | 24 | - | 3 | 5207 | 5210.8 | 1 | 10 |
| 8-HB | Box | 6 | 50 | 4 | - | 5200 | 5204.8 | 1.9 | 5 |
| 8-SB-CV | Box | 6 | 38 | 4 | - | 5201 | 5205.8 | 1 | 5 |
| 9-HB | Box | 4 | 50 | 4 | - | 5198 | 5202.8 | 1.8 | 5 |
| 9-SB-CV | Box | 4 | 35 | 4 | - | 5199.5 | 5204.3 | 2.9 | 5 |
| 10-HP | Pipe | - | 56 | - | 3 | 5211 | 5214.8 | 2.2 | 5 |
| 10-SP | Pipe | - | 24 | - | 3 | 5213.4 | 5217.2 | 1 | 5 |
| 11-HP | Pipe | - | 56 | - | 3 | 5211.5 | 5215.3 | 4 | 5 |
| 11-SP | Pipe | - | 24 | - | 3 | 5215 | 5218.8 | 2 | 5 |
| 12-HP | Pipe | - | 56 | - | 2.5 | 5217 | 5220.8 | 2 | 5 |
| 12-SP | Pipe | - | 24 | - | 2.5 | 5220 | 5223.8 | 2 | 5 |
| 13-HP | (2) Pipes | - | 56 | - | 3 | 5195.5 | 5199.3 | 2 | 10 |
| 13-SP | (2) Pipes | - | 24 | - | 3 | 5197 | 5200.8 | 2 | 6 |
| 14-HS-Bridge | Bridge | 62 | 50 | 6 | - | 5191 | 5197.8 | 6 | |
| 15-HS-(4)P | (4) Pipes | - | 80 | - | 3 | 5208.5 | 5212.3 | 1.9 | 10 |
| Canal Drainage (S | (2) Pipes | - | 80 | - | 3 | 5186 | 5189.8 | 3.8 | |
| 16-HS-Bridge | Bridge | 164 | 51 | 7 | - | 5137 | 5144.8 | 2 | 24 |
| 17-HS-Bridge | Bridge | 152 | 51 | 9 | - | 5131 | 5140.8 | 1 | 24 |
| 18-HS-P | Pipe | - | 80 | - | 3 | 5143 | 5146.8 | 1.3 | 6 |
| 19-HS-Bridge | Bridge | 110 | 50 | 8 | - | 5058 | 5063 | 2 | 14 |
| 19-CV-W | Conveyor | 134 | - | 14 | - | - | - | - | |

*Notes: HP – Haul pipe*
*SP – Service - pipe*
*HB –Haul - box*
*SB –Service - box*
*CV – Conveyor*
*W -Large wildlife crossing*
*HS – Haul and service roads merged to 1 crossing*
*SB-CV – Service and conveyor crossing on 1 structure*

## 4.5 Rip Rap

This section describes rip rap sizing to protect the RCQ diversion channel and MTAC culverts from erosion.

### 4.5.1 RCQ Channel Rip Rap Lining

Rip rap sizing for the RCQ diversion channel was conducted to determine stone sizing in shallow-slope channels using the method as described in the USACE publication Hydraulic Design of Flood Control Channels. The flow depth and velocity associated with the 100-year design storm calculated in Section 4.2 was used. This calculation method indicates that rip rap with a $D_{30}$ size (i.e., rip rap size of which 30 percent is finer by weight) greater than 1 inch is sufficient to prevent erosion. A minimum $D_{30}$ size of 2 inches installed to a minimum thickness of 6 inches is recommended for this channel.

### 4.5.2 MTAC Culvert Rip Rap Protection

This drainage plan assumes that rip rap will be placed at the culvert inlets and that rip rap basins will be used to protect against scour/erosion. The HY-8 and Culvert Studio programs include analysis of rip rap basins. This analysis was used to confirm that a technically sound and economically feasible rip rap basin was viable for each culvert.

Design of the rip rap inlet and outlet protection for box and pipe crossings. As noted in Section 1, the design of the remaining structures will be developed as part of a USACE Nationwide Permit Application. Rip rap sizing was conducted using Culvert Studio.

Table 5 summarizes the rip rap sizing and dimensions for the inlet protection and outlet basin. A typical detail for the rip rap inlet protection and outlet basin is provided in Appendix F.

**Table 5. MTAC Rip Rap Sizing for Culvert Inlet and Outlet Protection**

| Crossing Identification, Culvert Type and Dimension | Minimum Rip Rap Size (inch) | Dissipation Pool Depth (in) | Dissipation Pool Length (ft) | Apron Lenth (ft) | Total Basin Length (ft) | Basin Width at End of Apron (ft) |
|---|---|---|---|---|---|---|
| Crossing 8-HP, Concrete Box 6 ft wide x 4 ft tall | $D_{50}$ = 5 | 5 | 12 | 4 | 16 | 34 |

# Section 5: Conclusion

The proposed culverts and outlet protection for the project will be protective of upstream and downstream drainage conditions and will appropriately convey runoff from the design storms. The primary change to the existing drainage conditions is the addition of culvert crossings to convey stormwater across the MTAC.

The proposed grading and drainage features have been designed according to the methods and assumptions described herein. The hydrologic analysis inputs (drainage area, time of concentration, hydraulic soil groups, composite curve number) and peak flows are included in Attachment D. The Culver Studio culvert analysis reports for the crossings are provided in Attachment E, and the shape and dimensions for each culvert is summarized in Table 4.

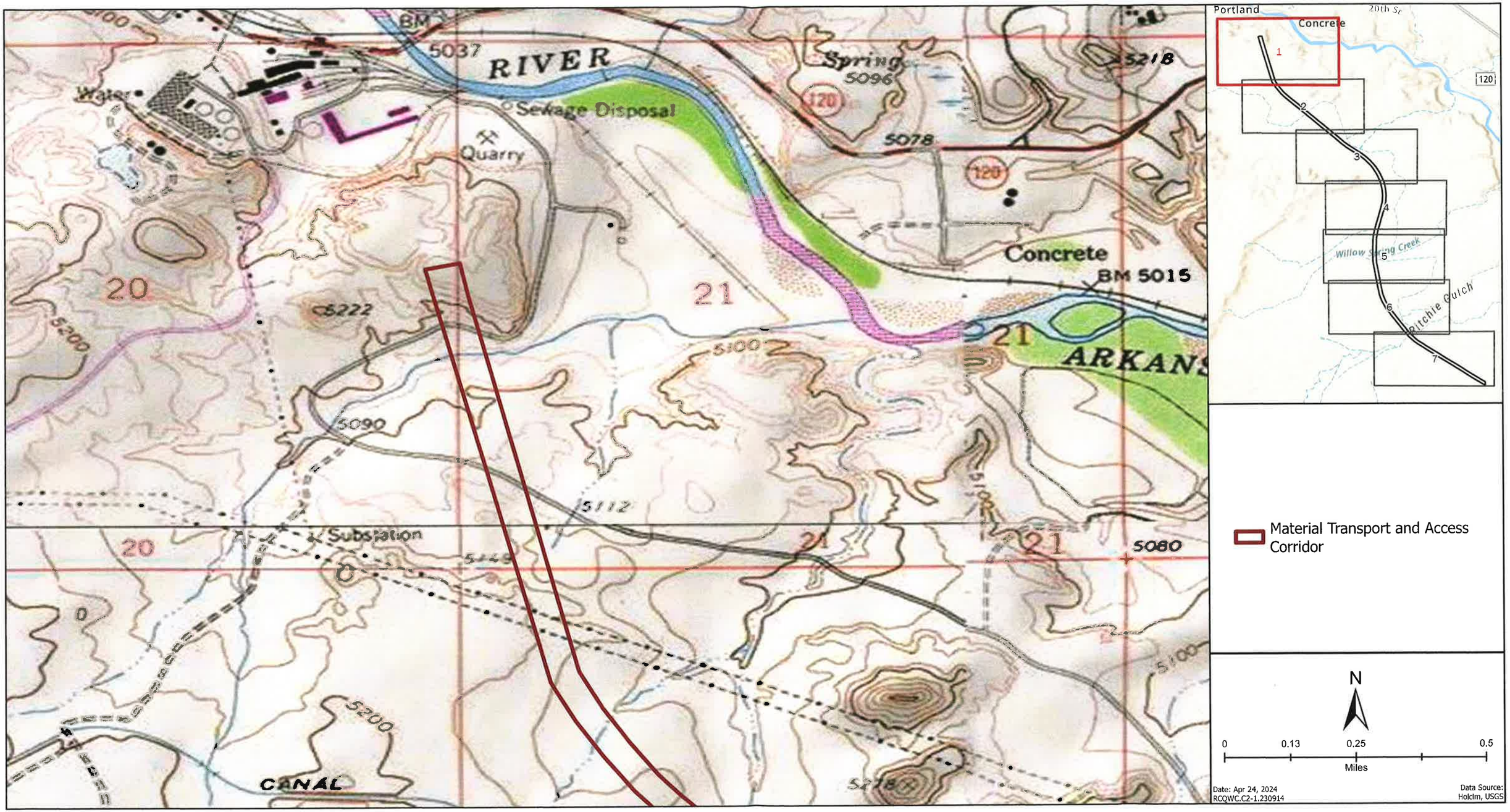
# References

Federal Highway Administration. 2006, "Hydraulic Engineering Circular No. 14, Third Edition, Hydraulic Design of Energy Dissipators for Culverts and Channels."

Fremont County, Department of Planning and Zoning. 2024, "Fremont County, Colorado Zoning Resolution Adopted October 16."

United Stated Army Corp of Engineers, Engineering Manual 1110-2-1601. 1994, "Engineering and Design, Hydraulic Design of Flood Control Channels."

# Figures




| | | |
|---|---|---|
| Brown AND Caldwell | DATE: Apr 24, 2024<br>Project No: 160041<br>Client: Holcim<br>Figure ID: RCQWC.1.230914 | Figure 1<br>Material Transport and<br>Access Corridor U.S. Geological Survey Topography |

Map 1
Red Creek Quarry
MTAC Topographic

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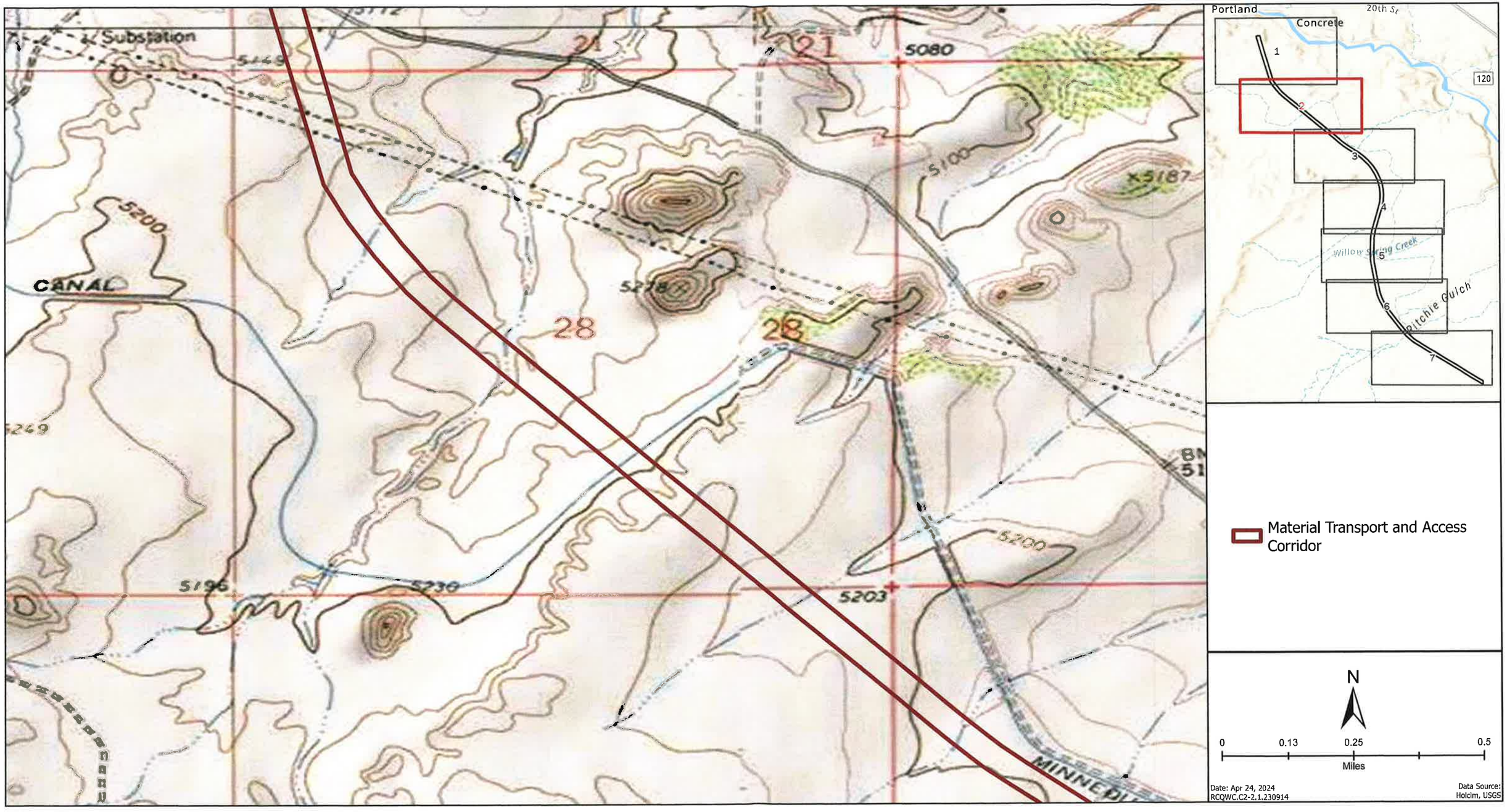


Brown AND Caldwell

DATE: Apr 24, 2024
Project No: 160041
Client: Holcim
Figure ID: RCQWC.2.230914

Figure 1
Material Transport and
Access Corridor U.S. Geological Survey Topography

Map 2
Red Creek Quarry
MTAC Topographic

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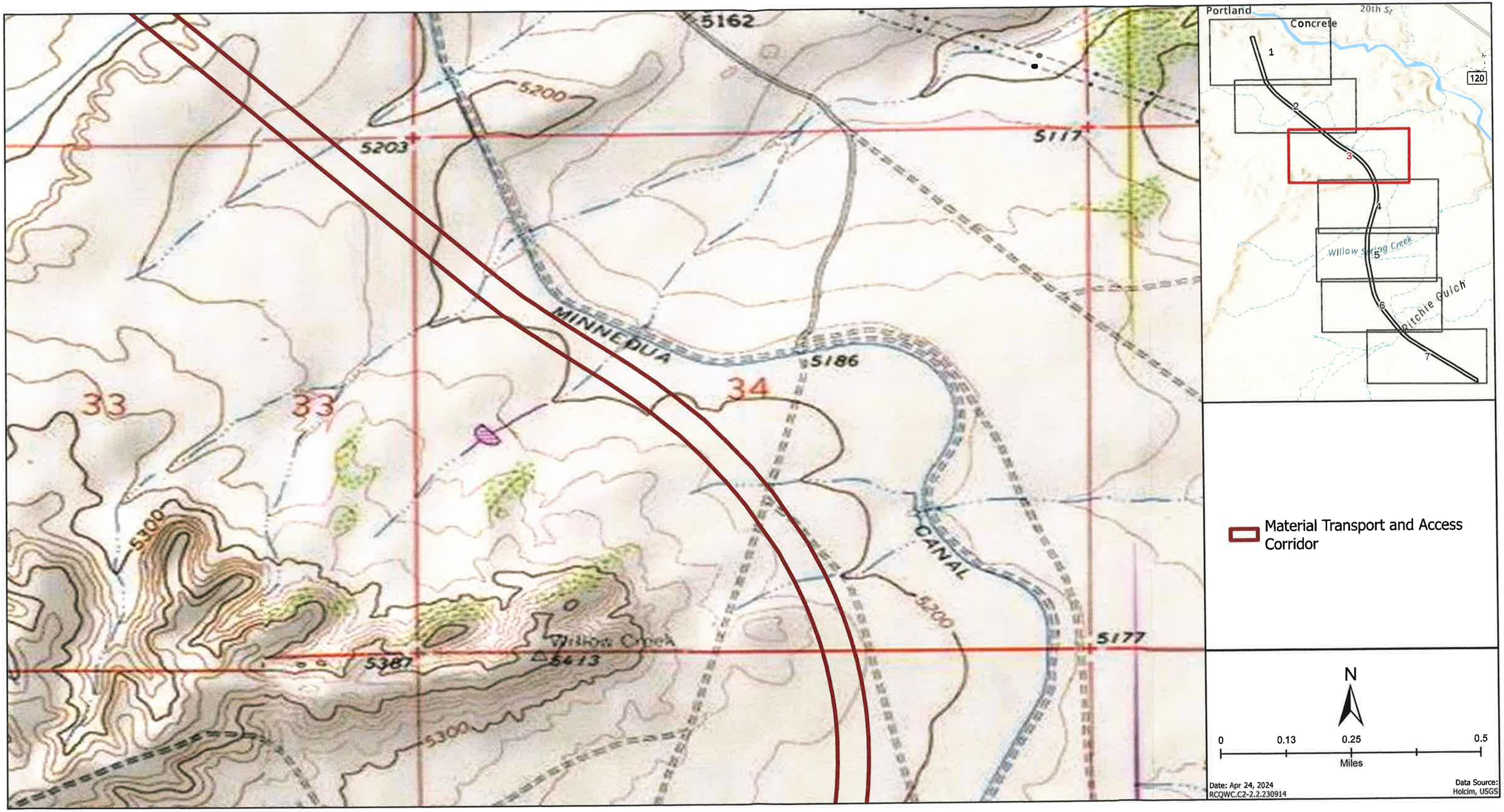


| | | | |
|---|---|---|---|
| Brown AND Caldwell | DATE: Apr 24, 2024<br>Project No: 160041<br>Client: Holcim<br>Figure ID: RCQWC.3.230914 | Figure 1<br>Material Transport and<br>Access Corridor U.S. Geological Survey Topography | Map 3<br>Red Creek Quarry<br>MTAC Topographic |

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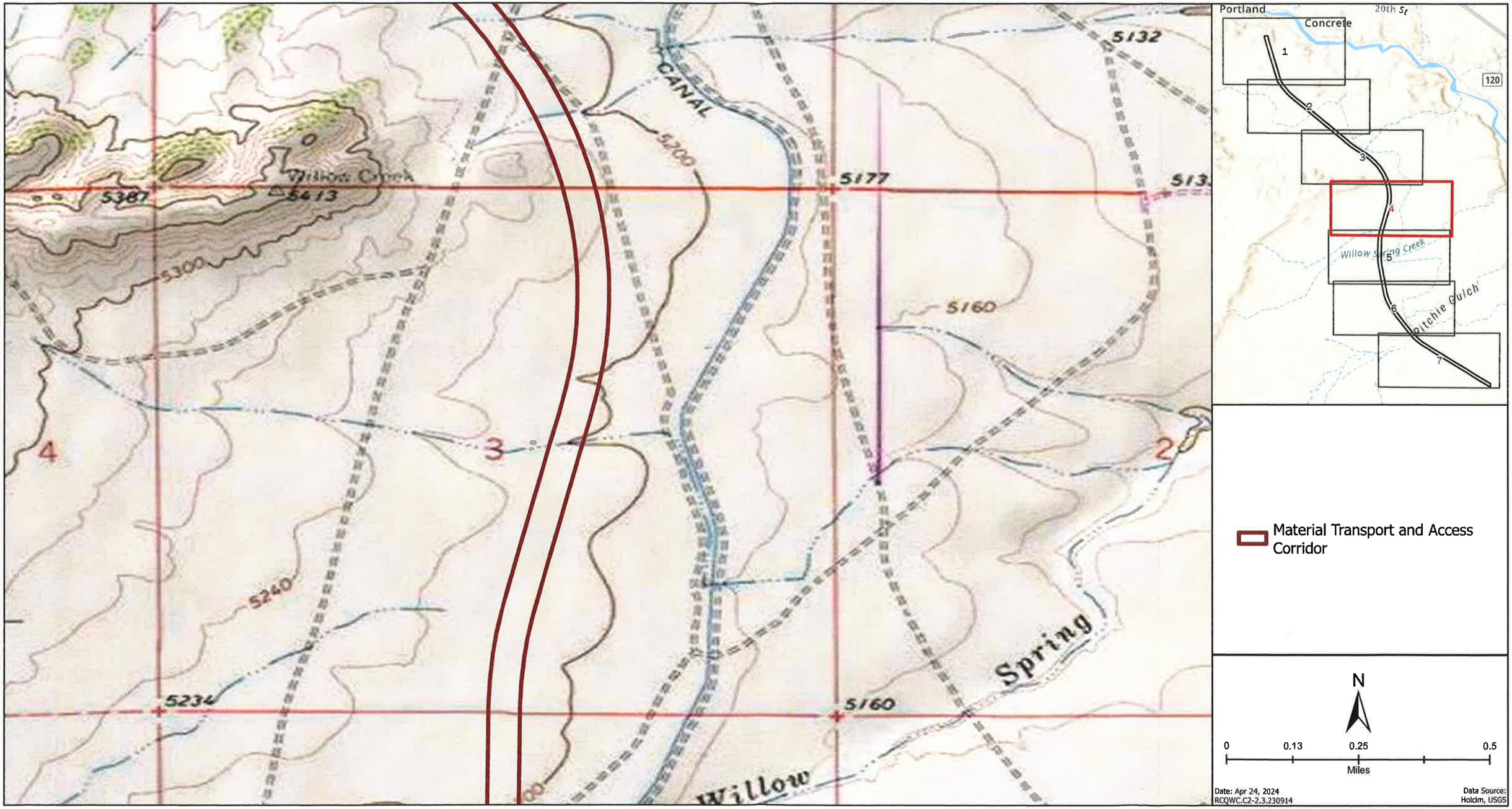


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| Brown AND Caldwell | DATE: Apr 24, 2024<br>Project No: 160041<br>Client: Holcim<br>Figure ID: RCQWC.4.230914 | Figure 1<br>Material Transport and<br>Access Corridor U.S. Geological Survey Topography |

Map 4
Red Creek Quarry
MTAC Topographic

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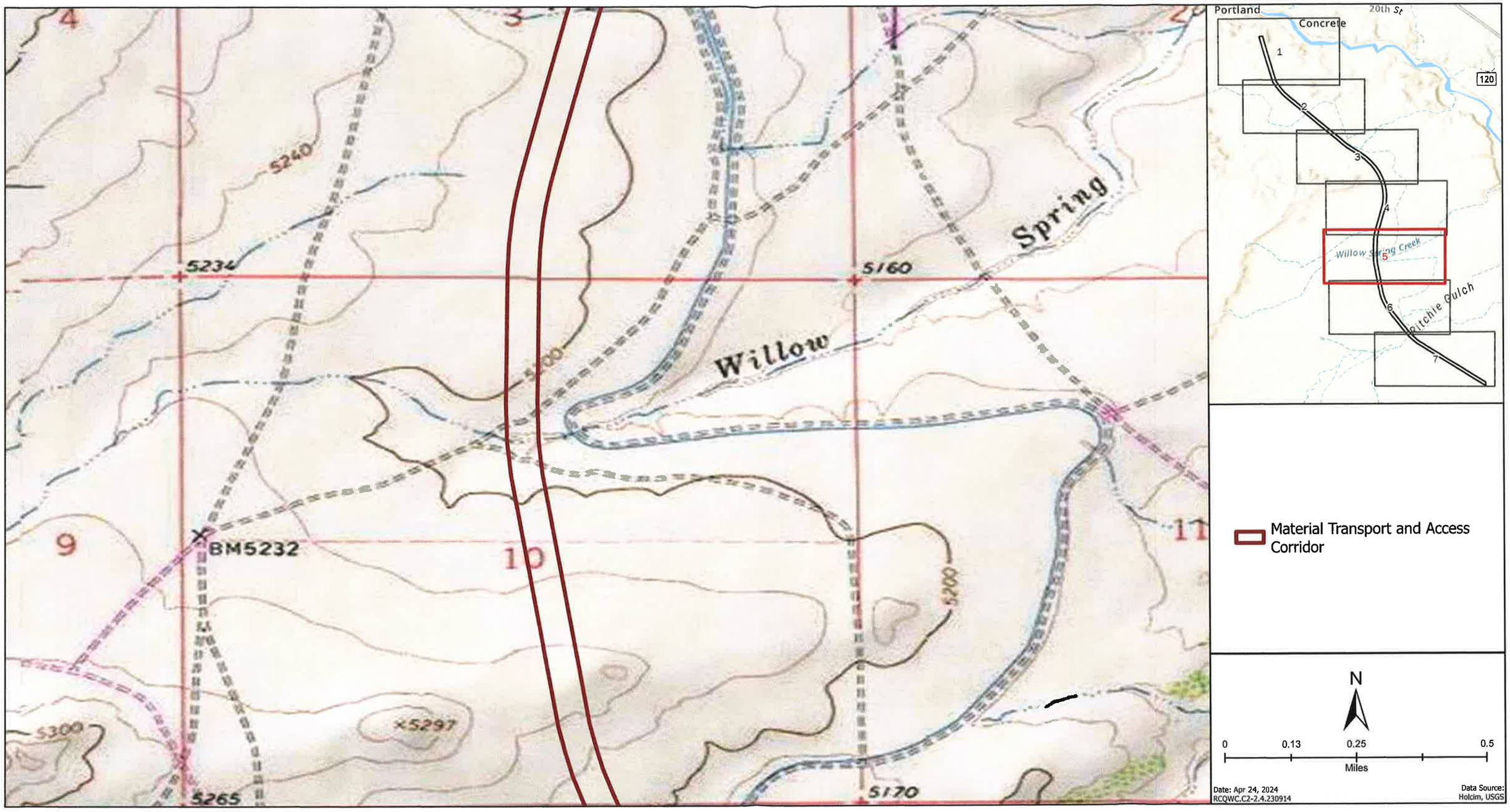


| | | |
|---|---|---|
| Brown AND Caldwell | DATE: Apr 24, 2024<br>Project No: 160041<br>Client: Holcim<br>Figure ID: RCQWC.5.230914 | Figure 1<br>Material Transport and<br>Access Corridor U.S. Geological Survey Topography |

Map 5
Red Creek Quarry
MTAC Topographic

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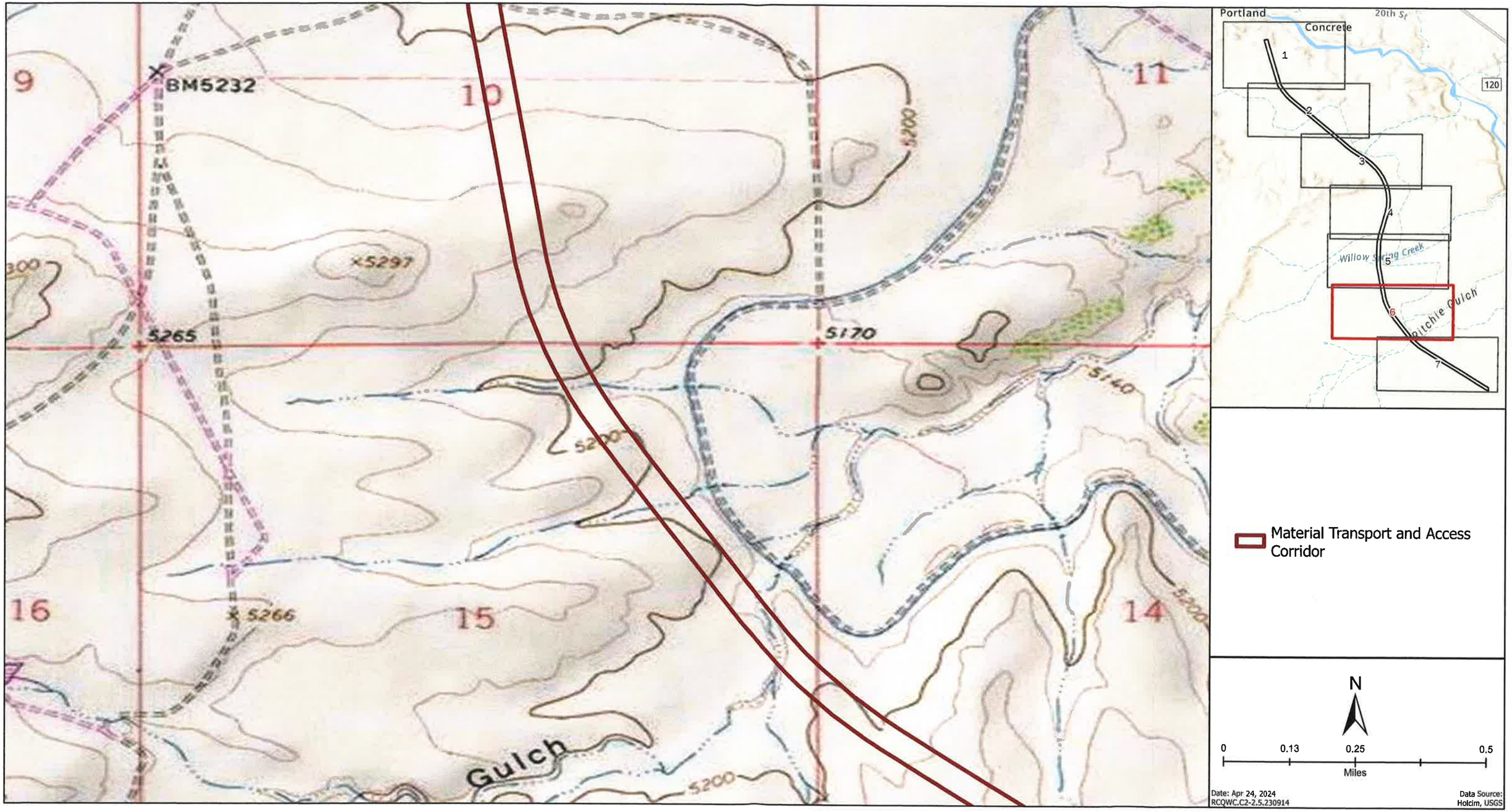


Brown AND Caldwell

DATE: Apr 24, 2024
Project No: 160041
Client: Holcim
Figure ID: RCQWC.6.230914

Figure 1
Material Transport and
Access Corridor U.S. Geological Survey Topography

Map 6
Red Creek Quarry
MTAC Topographic

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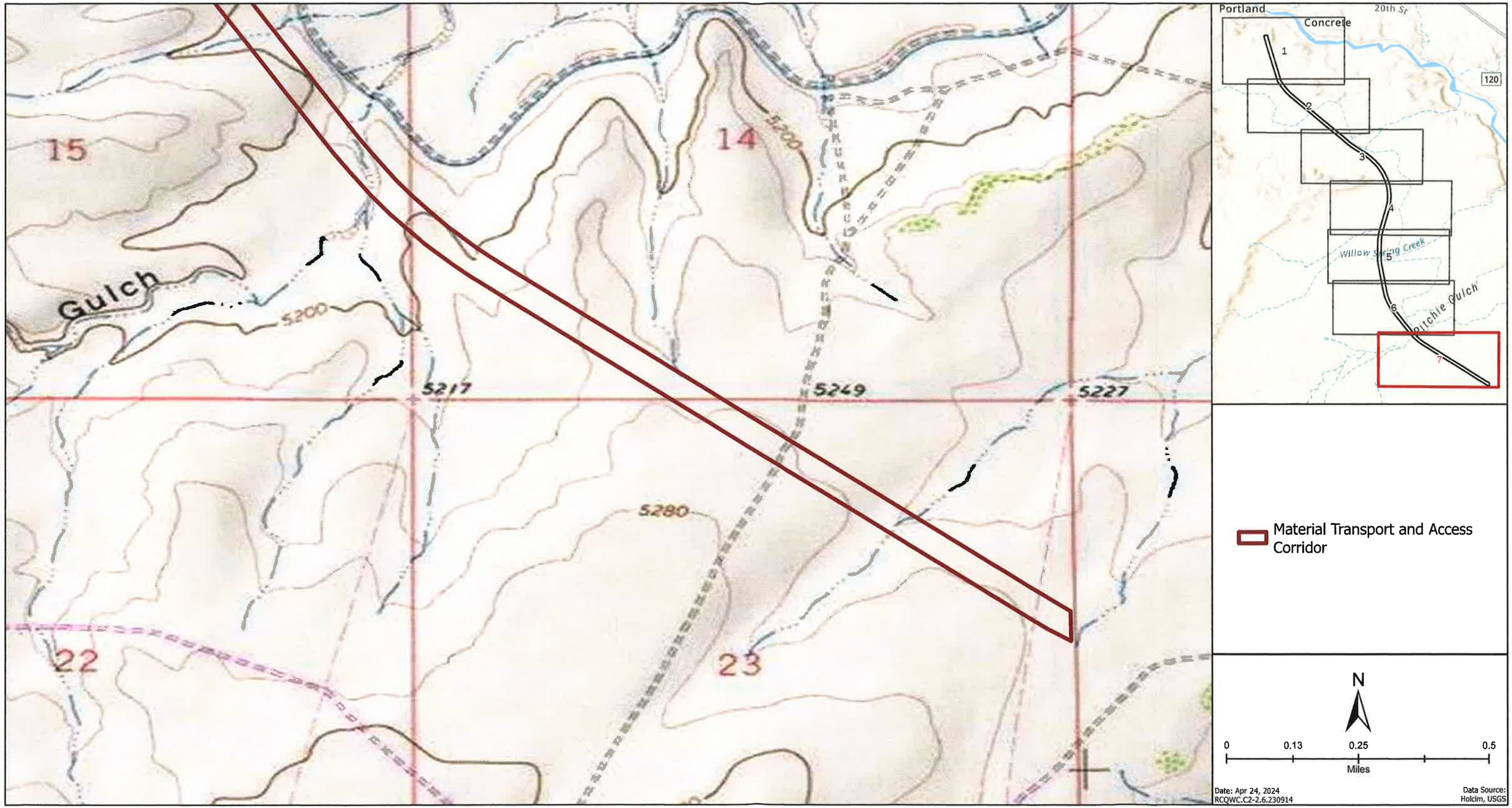


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|---|---|---|
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Map 7
Red Creek Quarry
MTAC Topographic

Path: T:\160041 - Red Creek Quarry\140 Data_Info_Ref Material\06 GIS Data\mapdocs\RCQ_WaterResMS\RCQ_MTAC_TopoMS.aprx 20240424 15:03 SBecker

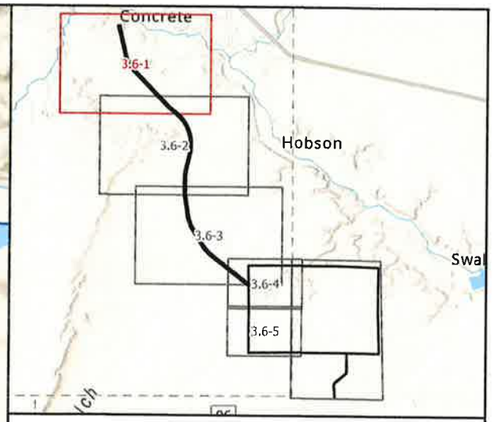
**Crossing 19**
Drainage Area (approx) = 826 acres
Peak Flow Rate:
- 25-Year Storm = 196 cfs
- 100-Year Storm = 436 cfs
Culvert Shape - Bridge

**Crossing 18 (flow line not shown)**
Drainage Area (approx) = 134 acres
Peak Flow Rate:
- 25-Year Storm = 17 cfs
- 100-Year Storm = 48 cfs
Culvert Shape - Pipe

**Crossing 17** - Small Drainage
(flow line not shown)
Drainage Area (approx) = 24 acres
Peak Flow Rate:
- 25-Year Storm = 7 cfs
- 100-Year Storm = 18 cfs
Culvert Shape - Pipe

**Crossing 16**
Drainage Area (approx) = 2560 acres
Peak Flow Rate:
- 25-Year Storm = 143 cfs
- 100-Year Storm = 383 cfs
Culvert Shape - Bridge

**Crossing 15**
Drainage Area (approx) = 141 acres
Peak Flow Rate:
- 25-Year Storm = 197 cfs
- 100-Year Storm = 437 cfs
Culvert Shape - Pipe




- Irrigation Canal Fence
- Irrigation Canal
- MTAC Road
- Mining Permit and Affected Area Boundary

NHDFlowline

Max Scale Visible
- 1:24,000
- 1:50,000
- 1:100,000
- 1:250:000
- 1:500,000
- 1:1,000,000
- 1:2,000,000
- 1:5,000,000

- Stormwater Flow Direction (TYP.)
- Stormwater Ditch
- MTAC Road
- Belt Fence
- Berm
- Small Storage
- Large Storage
- Buildings
- Parking
- Development
- Heavy Parking
- Belt Engineering
- Semi-Mobile Crusher

Annotation Legend
- USACE Jurisdictional
- State of Colorado Jurisdiciton

N

0 1,500 3,000
US Feet

HOLCIM

# Figure 2
## Red Creek Quarry and Materials Transport and Access Corridor Waterway Crossings

| | |
|---|---|
| Spatial Reference Name: NAD 1983 UTM Zone 13N | Prepared by: |
| | Approved by: M.T. |
| Data Source: Holcim, USGS-GAP Analysis Project, ESRI | Date: Mar 05, 2025 |
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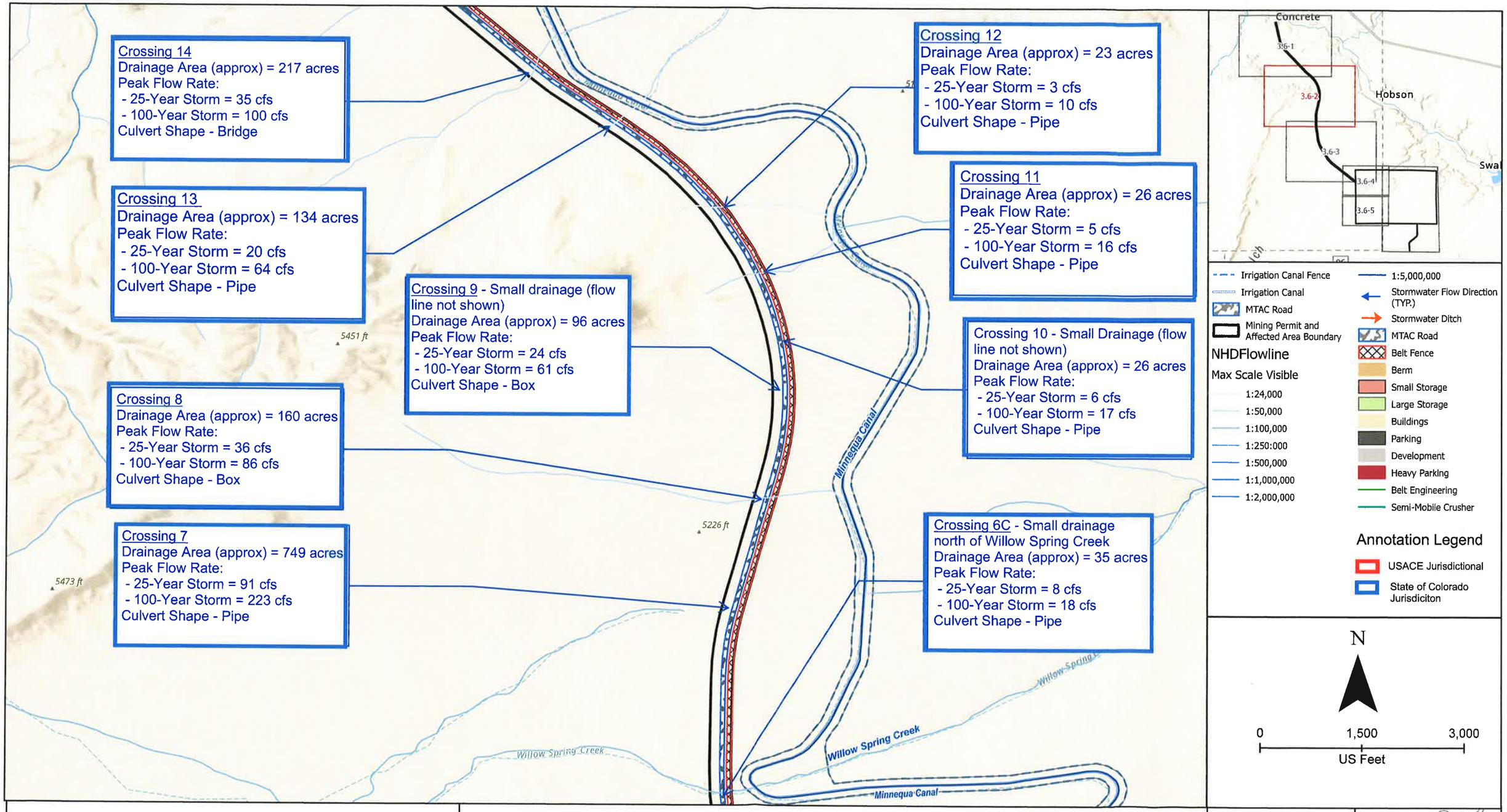



HOLCIM

# Figure 2
## Red Creek Quarry and Materials Transport and Access Corridor Waterway Crossings

| | |
|---|---|
| Spatial Reference Name: NAD 1983 UTM Zone 13N | Prepared by: |
| | Approved by: M.T. |
| Data Source: Holcim, USGS-GAP Analysis Project, ESRI | Date: Mar 05, 2025 |
| | Scale 1" = 1,333' |

Crossing 6B - Willow Spring
Drainage Area (approx) = 1165 acres
Peak Flow Rate:
- 25-Year Storm = 124 cfs
- 100-Year Storm = 299 cfs
Culvert Shape - Box

Crossing 6A - Small drainage south of Willow Spring Creek (flow line not shown)
Drainage Area (approx) = 29 acres
Peak Flow Rate:
- 25-Year Storm = 10 cfs
- 100-Year Storm = 23 cfs
Culvert Shape - Pipe

Crossing 5
Drainage Area (approx) = 237 acres
Peak Flow Rate:
- 25-Year Storm = 100 cfs
- 100-Year Storm = 43 cfs
Culvert Shape - Bridge

Crossing 4 - Small Drainage between Crossing 3 and 5 (flow line not shown)
Drainage Area (approx) = 33 acres
Peak Flow Rate:
- 25-Year Storm = 8 cfs
- 100-Year Storm = 19 cfs
Culvert Shape - Bridge

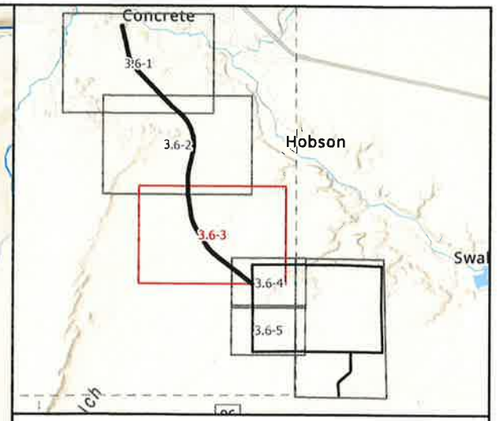
Crossing 3
Drainage Area (approx) = 128 acres
Peak Flow Rate:
- 25-Year Storm = 17 cfs
- 100-Year Storm = 45 cfs
Culvert Shape - Pipe

Crossing 2C - Tributary of Ritchie Gulch
Drainage Area (approx) = 345 acres
Peak Flow Rate:
- 25-Year Storm = 30 cfs
- 100-Year Storm = 78 cfs
Culvert Shape - Box

Crossing 2A - Tributary of Ritchie Gulch
Drainage Area (approx) = 832 acres
Peak Flow Rate:
- 25-Year Storm = 218 cfs
- 100-Year Storm = 539 cfs
Culvert Shape - Box

Crossing 2B - Ritchie Gulch
Drainage Area (approx) = 10,340 acres
Peak Flow Rate:
- 25-Year Storm = 716 cfs
- 100-Year Storm = 1,620 cfs
Culvert Shape - Box

Crossing 1
Drainage Area (approx) = 224 acres
Peak Flow Rate:
- 25-Year Storm = 35 cfs
- 100-Year Storm = 81 cfs
Culvert Shape - Pipe




- Irrigation Canal Fence
- Irrigation Canal
- MTAC Road
- Mining Permit and Affected Area Boundary

NHDFlowline

Max Scale Visible
- 1:24,000
- 1:50,000
- 1:100,000
- 1:250:000
- 1:500,000
- 1:1,000,000
- 1:2,000,000
- 1:5,000,000

- Stormwater Flow Direction (TYP.)
- Stormwater Ditch
- MTAC Road
- Belt Fence
- Berm
- Small Storage
- Large Storage
- Buildings
- Parking
- Development
- Heavy Parking
- Belt Engineering
- Semi-Mobile Crusher

Annotation Legend
- USACE Jurisdictional
- State of Colorado Jurisdiciton

N

0 1,500 3,000
US Feet

HOLCIM

# Figure 2
## Red Creek Quarry and Materials Transport and Access Corridor
## Waterway Crossings

| | |
|---|---|
| Spatial Reference Name: NAD 1983 UTM Zone 13N | Prepared by: |
| | Approved by: M.T. |
| Data Source: Holcim, USGS-GAP Analysis Project, ESRI | Date: Mar 05, 2025 |
| | Scale 1" = 1,333' |

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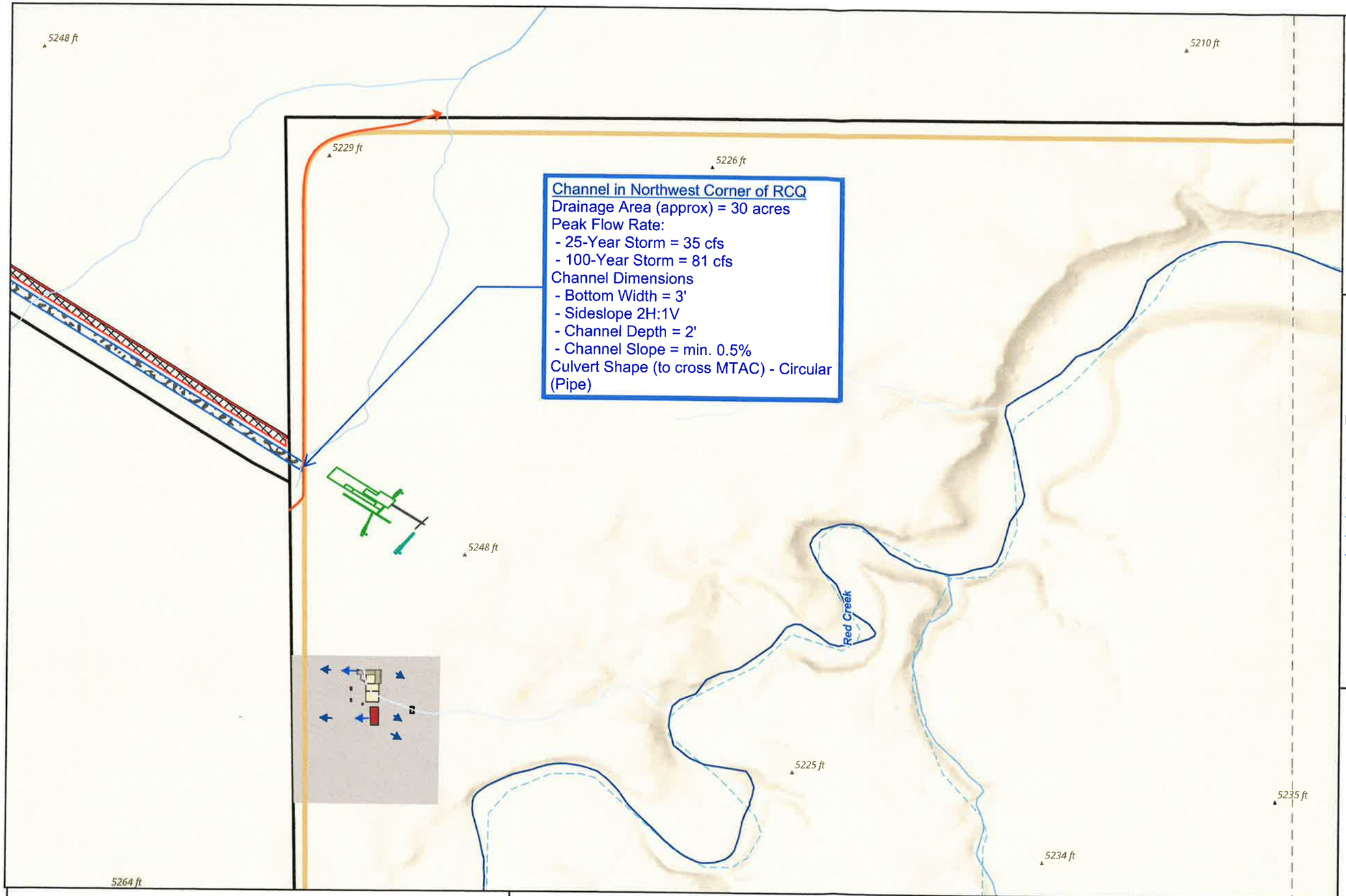


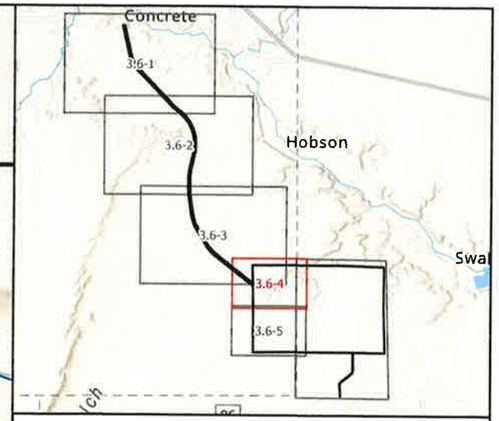


- Irrigation Canal Fence
- Irrigation Canal
- MTAC Road
- Mining Permit and Affected Area Boundary

NHDFlowline

Max Scale Visible

- 1:24,000
- 1:50,000
- 1:100,000
- 1:250:000
- 1:500,000
- 1:1,000,000
- 1:2,000,000
- 1:5,000,000
- Stormwater Flow Direction (TYP.)
- Stormwater Ditch
- MTAC Road
- Belt Fence
- Berm
- Small Storage
- Large Storage
- Buildings
- Parking
- Development
- Heavy Parking
- Belt Engineering
- Semi-Mobile Crusher

Annotation Legend

- USACE Jurisdictional
- State of Colorado Jurisdiciton

N

0 500 1,000

US Feet

HOLCIM

# Figure 2
## Red Creek Quarry and Materials Transport and Access Corridor
## Waterway Crossings

| | |
|---|---|
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| | Approved by: M.T. |
| Data Source: Holcim, USGS-GAP Analysis Project, ESRI | Date: Mar 05, 2025 |
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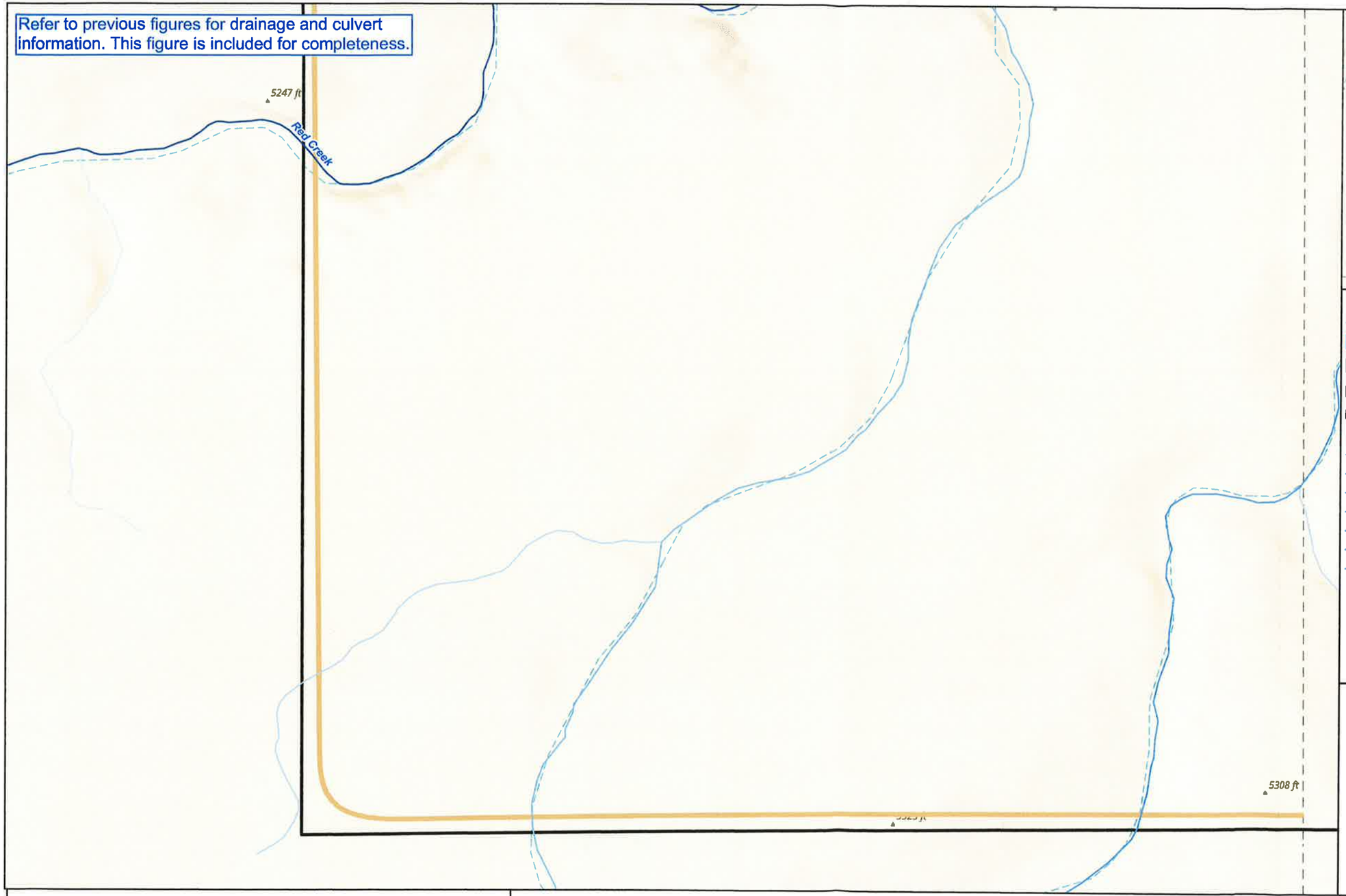
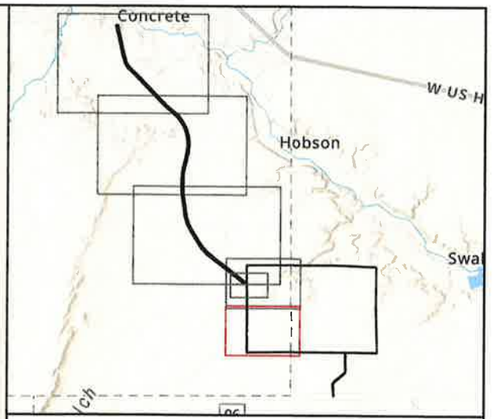
Refer to previous figures for drainage and culvert information. This figure is included for completeness.




- Irrigation Canal Fence
- Irrigation Canal
- MTAC Road
- Mining Permit and Affected Area Boundary

**NHDFlowline**

Max Scale Visible

- 1:24,000
- 1:50,000
- 1:100,000
- 1:250:000
- 1:500,000
- 1:1,000,000
- 1:2,000,000
- 1:5,000,000

- Stormwater Flow Direction (TYP.)
- Stormwater Ditch
- MTAC Road
- Belt Fence
- Berm
- Small Storage
- Large Storage
- Buildings
- Parking
- Development
- Heavy Parking
- Belt Engineering
- Semi-Mobile Crusher
- Links

N

0 500 1,000

US Feet

HOLCIM

# Figure 2
## Red Creek Quarry and Materials Transport and Access Corridor
## Waterway Crossings

| | |
|---|---|
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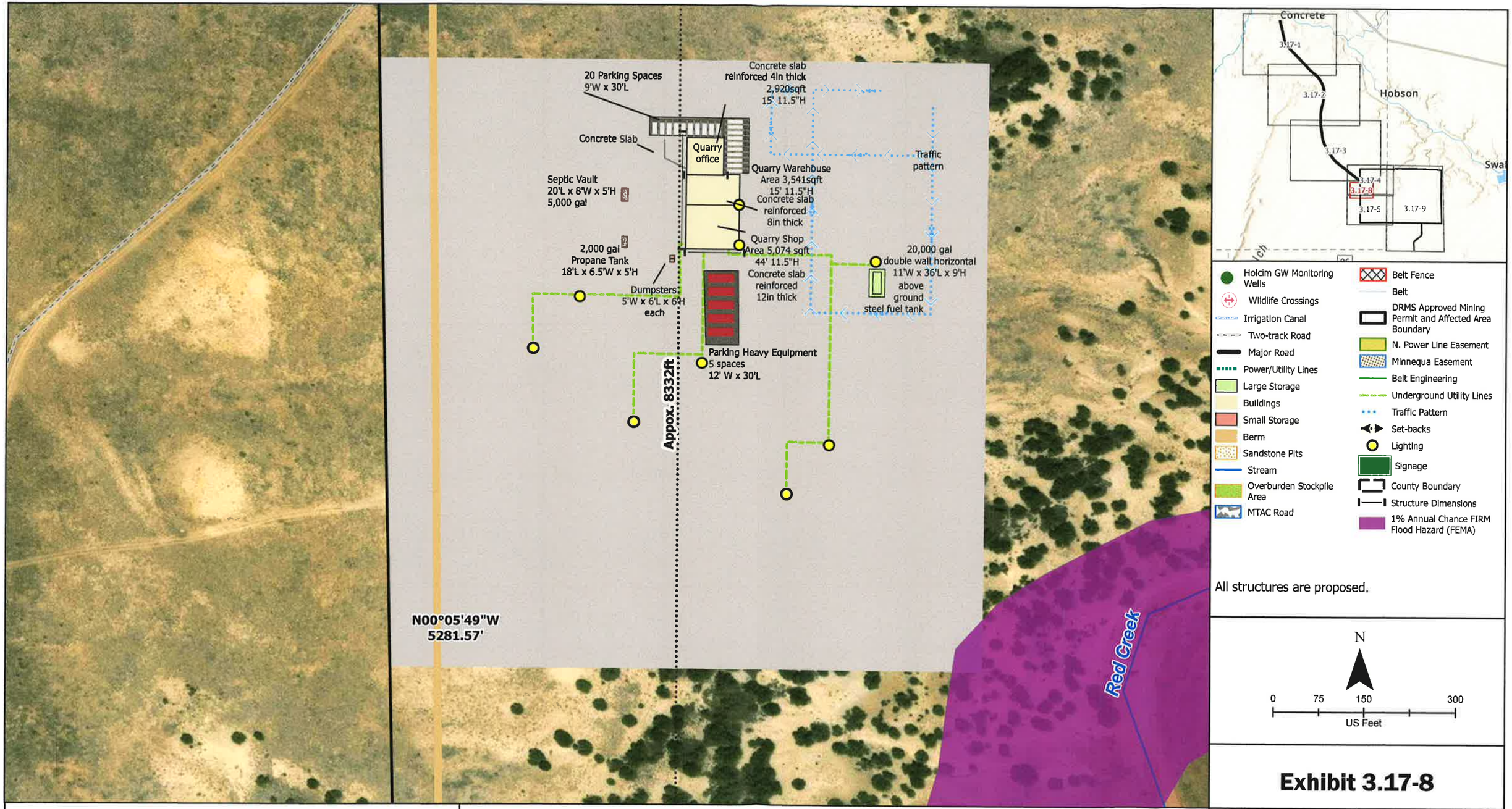


HOLCIM

# Conditional Use Permit for Red Creek Quarry

## Exhibit 3.17-8

| | |
|---|---|
| Spatial Reference<br>Name: NAD 1983 UTM<br>Zone 13N | Prepared by: |
| | Approved by: M.T. |
| Data Source: Holcim, USGS-GAP Analysis Project, ESRI | Date: Mar 04, 2025 |
| | Scale 1" = 150 ' |

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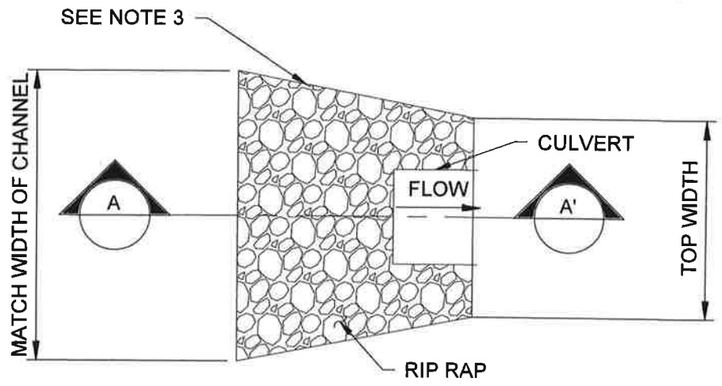
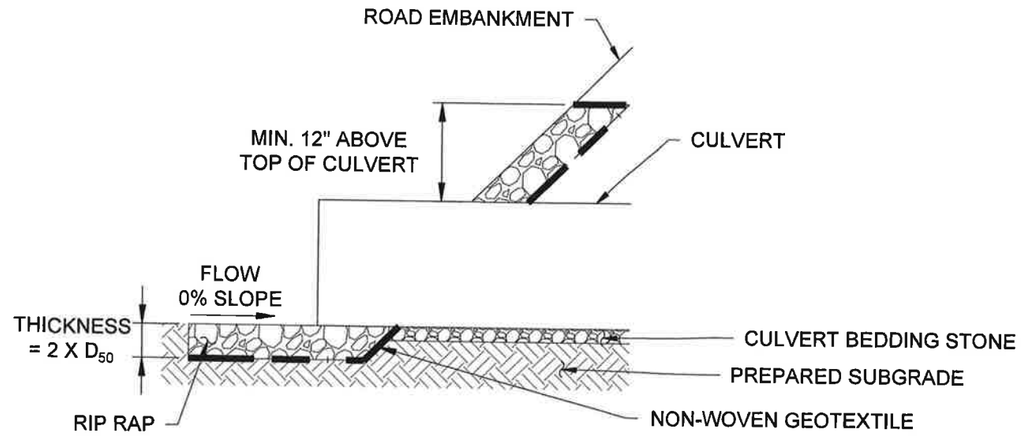
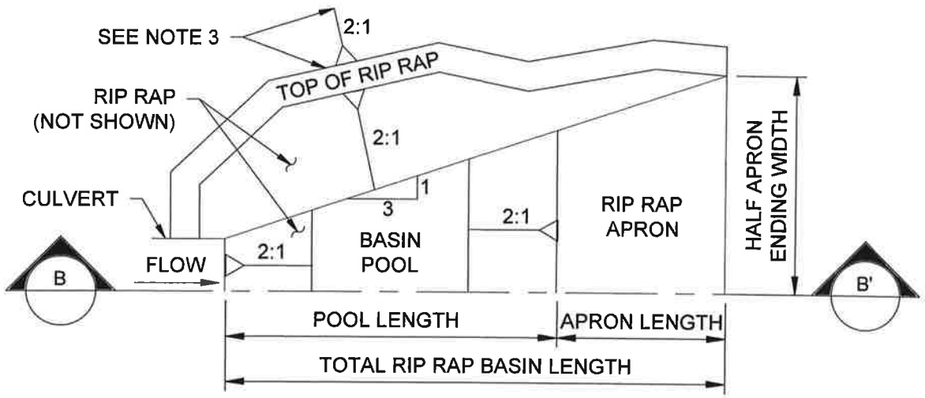


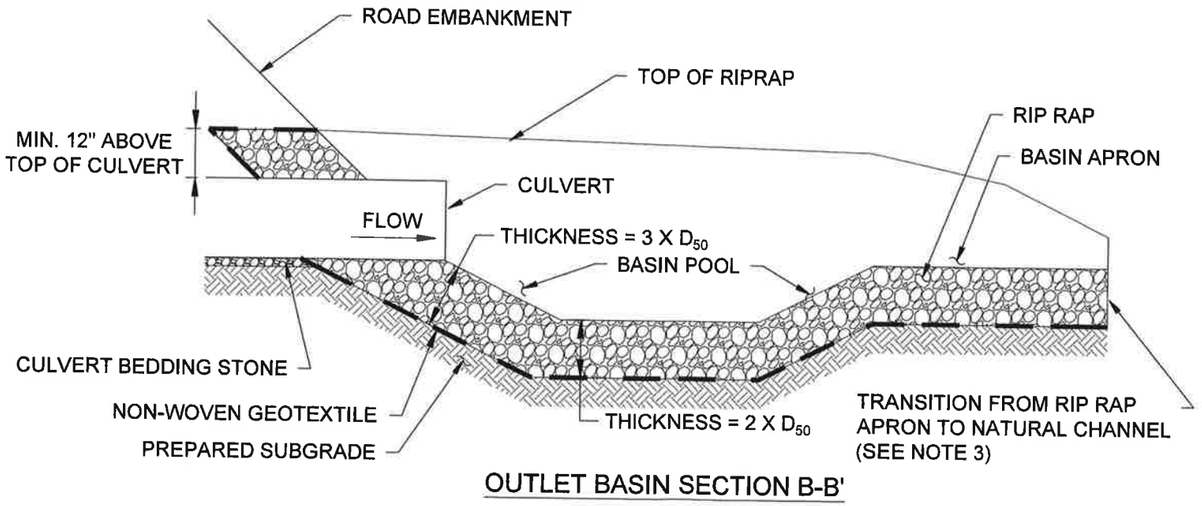

INLET APRON PLAN




INLET PROTECTION APRON SECTION A-A'




HALF PLAN OF RIP RAP OUTLET BASIN




OUTLET BASIN SECTION B-B'

NOTES:

1. THIS DETAIL DEPICTS A TYPICAL CULVERT INLET PROTECTION APRON AND OUTLET PROTECTION BASIN AND IS NOT INTENDED FOR CONSTRUCTION. DIMENSIONS SHALL BE DETERMINED BASED ON FINAL CULVERT DESIGN.
2. REFER TO THE RED CREEK QUARRY AND MATERIAL TRANSPORT AND ACCESS CORRIDOR DRAINAGE PLAN FOR THE CULVERT SHAPE AND DIMENSIONS, THE MINIMUM RIP RAP $D_{50}$ SIZE, RIP RAP LAYER THICKNESS, AND DIMENSIONS.
3. GRADE THE INLET AND OUTLET TO PROVIDE A SMOOTH TRANSITION BETWEEN THE RIP RAP, ROAD EMBANKMENT, AND SURROUNDING GRADE.

Brown AND Caldwell

NOT TO SCALE
JOB NUMBER: 160014
DATE: April 12, 2024

HOLCIM USA, INC.
RED CREEK QUARRY
AND MTAC

TYPICAL RIP RAP INLET AND OUTLET BASIN DETAIL

FIGURE
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