P.O. Box 326, Cañon City, CO 81215
angela@envalternatives.com
719-275-8951

Zephyr Gold USA Ltd's

Designated Mining Regular (112d) Operation

Reclamation Permit Application

For

Dawson Gold Mine

Fremont County, CO

Application and Exhibits

Submitted

June 30, 2021

Collaborators

Angela Bellantoni, Ph.D.
Environmental Alternatives Inc.

Matt Bolu, M.Sc., P.Eng., Principal Engineer
BOMENCO Minerals Engineering Corp.,

Tim Crawford, P.G.
Bishop Brogden and Associates Water Consultants, Inc.

Will Felderhof
Zephyr Gold USA Ltd.

Loren Komperdo
Zephyr Gold USA Ltd.

John Kratz, PLS
Red Rock Land Surveys, Inc.

Iain Smart, P.Eng.
Independent Mining Engineer

Diana Sollner, M.Sc., MBA, P.Eng., CDI.D.
Gem Services

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

REGULAR (112d) DESIGNATED MINING OPERATION

RECLAMATION PERMIT

APPLICATION FORM

CHECK ONE: ☑ New Application (Rule 1.4.5) ☐ Amendment Application (Rule 1.10)

☐ Conversion Application (Rule 1.11)

Permit No. M-_____-_____ (provide for amendments and conversions of existing permits)

The application for a Regular (112d) Designated Mining Operation Reclamation Permit contains three major parts: (1) the application form; (2) Exhibits A-T, Geotechnical Stability Exhibit, the Emergency Response Plan, and Addendum 1, as required by the Office, and outlined in Rules 6.1, 6.2, 6.3, 6.4.19, 6.5, 8.0, and 1.6.2(1)(b); and, (3) the application fee. When you submit your application, be sure to include one (1) **signed and notarized original** and four (4) copies of the application form, five (5) copies of Exhibits A-T, Rule 6.5 Geotechnical Stability Exhibit, the Emergency Response Plan, Addendum 1, and a check for the appropriate application fee (described under Section (4) on Page 2). Exhibits should not be bound or in a 3-ring binders; maps should be folded to 8 ½" X 11" or 8 ½" X 14" size. To expedite processing, please provide the information in the format and order described in this form.

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GENERAL OPERATION INFORMATION

Type or print clearly, in the space provided, all information described below.

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1. **Applicant/operator or company name (name to be used on permit)**:
   Zephyr Gold USA Ltd

   1.1 Type of organization (corporation, partnership, etc.): corporation

   1.2 I.R.S. Tax ID No. or Social Security Number: _____

2. **Operation name (pit, mine or site name)**: Dawson Gold Mine

3. **Permitted acreage**: (new or existing site) 312.3 permitted acres

   3.1 Change in acreage (+) 0 acres

   3.2 Total acreage in Permit area 312.3 acres

4. **Fees**:

4.1	**New** 112d(1) Application (affecting less than 50 acres and extracting less than 1 million tons per year) application fee	**$4,025.00**
4.2	**New** 112d(2) Application (larger than above but affecting less than 100 acres and extract less than 5 million tons per year	**$6,900.00** application fee
4.3	**New** 112d(3) Application (any other operation)	**$9,200.00** application fee
4.4	**Existing** 112d(1) Amendment Fee	**$2,300.00** amendment fee
4.5	**Existing** 112d(2) Amendment Fee	**$4,025.00** amendment fee
4.6	**Existing** 112d(3) Amendment Fee	**$7,475.00** amendment fee
4.7	**New** 112d(1) Amendment Fee	**$2,875.00** amendment fee
4.8	**New** 112d(2) Amendment Fee	**$4,600.00** amendment fee
4.9	**New** 112d(3) Amendment Fee	**$8,050.00** amendment fee
4.10	Conversion Fee	see above application fees

5. **Primary commoditie(s) to be mined**: gold

6. **Name of owner of surface of affected land**: Zephyr Gold USA Ltd

7. **Name of owner of subsurface rights of affected land**: Zephyr Gold USA Ltd
   If 2 or more owners, refer to Exhibit O.

8. **Type of mining operation**: ☐ Surface ☑ Underground

9. **Location Information**: the center of the area where the majority of mining will occur lies in:

   COUNTY: Fremont

   PRINCIPAL MERIDIAN (check one): X 6th (Colorado) 10th (New Mexico) Ute

   SECTION (write number): S 14

   TOWNSHIP (write number and check direction): T 19 ☐ North ☑ South

   RANGE (write number and check direction): R 71 ☐ East ☑ West

   QUARTER SECTION (check one): ☐ NE ☐ NW ☐ SE ☑ SW

   QUARTER/QUARTER SECTION (check one): ☐ NE ☑ NW ☐ SE ☐ SW

   GENERAL DESCRIPTION (miles and direction from nearest town and approximate elevation):

   5.9 miles southwest of Cañon City, CO; elevation 6087 ft.

10. **Primary Mine Entrance Location (report in either Latitude/Longitude OR UTM):**

    Latitude/Longitude:
    Example: (N) 39° 44′ 12.98″
    (W) 104° 59′ 3.87″

    Latitude (N): deg _____ min _____ sec _____._____ (2 decimal places)

    Longitude (W): deg _____ min _____ sec _____._____ (2 decimal places)

OR

Example: (N) 39.73691°
(W) -104.98449°

Latitude (N) 38 . 39974 (5 decimal places)

Longitude (W) -105 . 28726 (5 decimal places)

OR

Universal Tranverse Mercator (UTM)

Example: 201336.3 E NAD27 Zone 13
4398351.2 N

UTM Datum (specify NAD27, NAD83 or WGS 84) _____ Zone _____

Easting _____

Northing _____

11. **Primary future (Post-mining) land use** (check one):

☐ Cropland(CR) ☐ Pastureland(PL) ☐ General Agriculture(GA)
☐ Rangeland(RL) ☐ Forestry(FR) ☑ Wildlife Habitat(WL)
☐ Residential(RS) ☐ Recreation(RC) ☐ Industrial/Commercial(IC)
☐ Developed Water Resources(WR) ☐ Solid Waste Disposal(WD)

12. **Primary present land use** (check one):

☐ Cropland(CR) ☐ Pastureland(PL) ☐ General Agriculture(GA)
☐ Rangeland(RL) ☐ Forestry(FR) ☑ Wildlife Habitat(WL)
☐ Residential(RS) ☐ Recreation(RC) ☐ Industrial/Commercial(IC)
☐ Developed Water Resources(WR)

13. **Method of Mining**: ☑ Quarry (QR) ☐ Solution (SO)

13.1 Other: Briefly explain mining method (e.g. Placer, truck/shovel): _____

Underground mining will implement the long-hole stoping mining method.

14. **Correspondence Information**:

APPLICANT/OPERATOR (name, address, and phone of name to be used on permit):

Contact's Name: David Felderhof Title: President

Company Name: Zephyr Gold USA Ltd

Street: 1959 Upper Water Street, Suite 1300 P.O. Box:

City: Halifax

State: Nova Scotia, Canada Zip Code: B3J 3N2

Telephone Number: (902) - 446-4189

Fax Number: ( ) -

PERMITTING CONTACT (if different from applicant/operator above):

Contact's Name: Angela Bellantoni Title: Consultant

Company Name: Environmental Alternatives Inc.

Street: P.O. Box: 326

City: Cañon City

State: CO Zip Code: 81215

Telephone Number: (719) - 275-8951

Fax Number: ( ) -

INSPECTION CONTACT:

Contact's Name: Angela Bellantoni Title: Consultant

Company Name: Environmental Alternatives Inc

Street: P.O. Box: 326

City: Cañon City

State: CO Zip Code: 81215

Telephone Number: (719) - 275-8951

Fax Number: ( ) -

CC: STATE OR FEDERAL LANDOWNER (if any):

Agency:

Street:

City:

State: Zip Code:

Telephone Number: ( ) -

CC: STATE OR FEDERAL LANDOWNER (if any):

Agency:

Street:

City:

State: Zip Code:

Telephone Number: ( ) -

15. **On Site Processing**:

☐ Solution (SO) ☑ Chemical (CH) ☐ Thermal (TH)

☐ Heap Leach (HL) ☐ Vat Leach (VL)

List any designated chemicals or acid-producing materials to be used or stored within permit area:

Potassium Amyl Xanthate, Methyl IsoButyl Carbinol, generic anionic emulsion flocculent

Description of Amendment:

If you are amending or converting an existing operation, provide a brief narrative describing the proposed change(s):

Maps and Exhibits:

Five (5) complete, unbound application packages must be submitted. One complete application package consists of a signed application form and the set of maps and exhibits referenced below as Exhibits A-T, the Geotechnical Stability Exhibit, the Emergency Response Plan, and Addendum 1. Each exhibit within the application must be presented as a separate section. Begin each exhibit on a new page. Pages should be numbered consecutively for ease of reference. If separate documents are used as appendices, please reference these by name in the exhibit.

With each of the five (5) signed application forms, you must submit a corresponding set of the maps and exhibits as described in the following references to Rules 6.4, 6.5, 8, and 1.6.2(1)(b):

EXHIBIT A - Legal Description
EXHIBIT B - Index Map
EXHIBIT C - Pre-Mining and Mining Plan Map(s) of Affected Lands
EXHIBIT D - Mining Plan
EXHIBIT E - Reclamation Plan
EXHIBIT F - Reclamation Plan Map
EXHIBIT G - Water Information
EXHIBIT H - Wildlife Information
EXHIBIT I - Soils Information
EXHIBIT J - Vegetation Information
EXHIBIT K - Climate Information
EXHIBIT L - Reclamation Costs
EXHIBIT M - Other Permits and Licenses
EXHIBIT N - Source of Legal Right-To-Enter
EXHIBIT O - Owners of Record of Affected Land (Surface Area) and Owners of Substance to be Mined
EXHIBIT P - Municipalities Within Two Miles
EXHIBIT Q - Proof of Mailing of Notices to County Commissioners and Conservation District
EXHIBIT R - Proof of Filing with County Clerk and Recorder
EXHIBIT S - Permanent Man-Made Structures
EXHIBIT T - Designated Mining Operation Environmental Protection Plan
RULE 6.5 - Geotechnical Stability Exhibit
RULE 8 - Emergency Response Plan
ADDENDUM 1 - Notice Requirements (sample enclosed) (Rule 1.6.2(1)(b)

The instructions for preparing Exhibits A-T, the Geotechnical Stability Exhibit, the Emergency Response Plan, and Addendum 1, are specified under Rule 6.4, 6.5, 8, and 1.6.2(1)(b) of the Mineral Rules and Regulations. If you have any questions on preparing the Exhibits or content of the information required, or would like to schedule a pre-application meeting you may contact the Office at 303-866-3567.

Responsibilities as a Permittee:

Upon application approval and permit issuance, this application becomes a legally binding document. Therefore, there are a number of important requirements which you, as a permittee, should fully understand. These requirements are listed below. Please read and initial each requirement, in the space provided, to acknowledge that you understand your obligations. If you do not understand these obligations then please contact this Office for a full explanation.

DF 1. Your obligation to reclaim the site is not limited to the amount of the financial warranty. You assume legal liability for all reasonable expenses which the Board or the Office may incur to reclaim the affected lands associated with your mining operation in the event your permit is revoked and financial warranty is forfeited;

DF 2. The Board may suspend or revoke this permit, or assess a civil penalty, upon a finding that the permittee violated the terms or conditions of this permit, the Act, the Mineral Rules and Regulations, or that information contained in the application or your permit misrepresent important material facts;

DF 3. If your mining and reclamation operations affect areas beyond the boundaries of an approved permit boundary, substantial civil penalties, to you as permittee can result;

DF 4. Any modification to the approved mining and reclamation plan from those described in your approved application requires you to submit a permit modification and obtain approval from the Board or Office;

DF 5. It is your responsibility to notify the Office of any changes in your address or phone number;

DF 6. Upon permit issuance and prior to beginning on-site mining activity, you must post a sign at the entrance of the mine site, which shall be clearly visible from the access road, with the following information (Rule 3.1.12):

a. the name of the operator;

b. a statement that a reclamation permit for the operation has been issued by the Colorado Mined Land Reclamation Board; and,

c. the permit number.

DF 7. The boundaries of the permit boundary area must be marked by monuments or other markers that are clearly visible and adequate to delineate such boundaries prior to site disturbance.

DF 8. It is a provision of this permit that the operations will be conducted in accordance with the terms and conditions listed in your application, as well as with the provisions of the Act and the Mineral Rules and Regulations in effect at the time the permit is issued.

DF 9. Annually, on the anniversary date of permit issuance, you must submit an annual fee **($1,150)**, and an annual report which includes a map describing the acreage affected and the acreage reclaimed to date (if there are changes from the previous year), any monitoring required by the Reclamation Plan to be submitted annually on the anniversary date of the permit approval. Annual fees are for the previous year a permit is held. For example, a permit with the anniversary date of July 1, 1995, the annual fee is for the period of July 1, 1994 through June 30, 1995. Failure to submit your annual fee and report by the permit anniversary date may result in a civil penalty, revocation of your permit, and forfeiture of your financial warranty. It is your responsibility, as an operator, to continue to pay your annual fee to the Office until the Board releases you from your total reclamation responsibility.

Certification:

As an authorized representative of the applicant, I hereby certify that the operation described has met the minimum requirements of the following terms and conditions:

1. This mining operation will not adversely affect the stability of any significant, valuable and permanent man-made structure(s) located within two hundred (200) feet of the affected lands. (However, where there is an agreement between the applicant/operator and the persons having an interest in the structure that damage to the structure is to be compensated for by the applicant/operator (Section 834-32-115(4)(d), C.R.S. 1984, as amended), then mining may occur within 200 feet. Proof of an agreement must be submitted to the Office prior to the decision date.)

2. No mining operation will be located on lands where such operations are prohibited by law (Section 34-32-115(4)(f), C.R.S. 1984, as amended);

3. As the applicant/operator, I do not have any mining/prospecting operations in this state of Colorado currently in violation of the provisions of the Mined Land Reclamation Act (Section 34-32-120, C.R.S. 1984, as amended) as determined through a Board finding.

4. I understand that statements in the application are being made under penalty of perjury and that false statements made herein are punishable as a Class 1 misdemeanor pursuant to Section 18-8-503, C.R.S. 1984, as amended.

This form has been approved by the Mined Land Reclamation Board pursuant to section 34-32-112,C.R.S., of the Mined Land Reclamation Act. Any alteration or modification of this form shall result in voiding any permit issued on the altered or modified form and subject the operator to cease and desist orders and civil penalties for operating without a permit pursuant to section 34-32-123, C.R.S.

Signed and dated this 23 day of June, 2021.

Zephyr Gold USA Ltd
Applicant/Operator Name

If Corporation Attest (Corporate/County Seal)

Signature: _____

By: David Feldenhof

Corporate Secretary or Equivalent President

Title: President

Town/City/County Clerk

OGB

State of ~~Province~~ Nova Scotia, Canada)

) ss.

County of Halifax)

The foregoing instrument was acknowledged before me this 23 day of June, 2021

by David Feldenhof as President of Zephyr Gold USA Ltd

_____

Notary Public

My Commission expires: does not expire

OWEN G. BLAND
Notary Public of
Nova Scotia, Canada
Bland & Associates
11-5239 Blowers Street
Halifax, Nova Scotia
B3J 1J8
Phone: 902-492-9927
Fax: 902-492-6984

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Colorado Discharge Permit System (CDPS)

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U.S. Forest Service (USFS)

Uranerz USA Inc. (Uranerz)

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X-ray diffraction (XRD)

Zephyr Gold USA Ltd (Zephyr USA)

Zephyr Minerals Ltd. (Zephyr)

1.0 INTRODUCTION

This is an application from Zephyr Gold USA Ltd (Zephyr USA) to the Mined Land Reclamation Board (MLRB) for a new underground gold mine in Fremont County, CO. Zephyr USA is a wholly owned subsidiary of Zephyr Minerals Ltd. (Zephyr), a publicly traded company with shares trading on the TSX-V, ticker ZFR and on the US OTC under ZPHYF. The following project description is presented to align with the application requirements and exhibits in the Mineral Rules and Regulations of the CO MLRB for Hard Rock, Metal and Designated Mining Operations effective July 2019.

After over 40 years of intermittent exploration, the Dawson Mountain gold resource is sufficiently defined to proceed with development. The National Instrument 43-101 Technical Report for the Dawson Property completed in March 2017 determined the gold resource as presently defined is economically attractive project at current and forecast gold prices.

The proposed total permitted acreage is 312.27 acres included in the Fremont Placer, Judith Placer and adjoining lode claims. The project (Project) will include the underground mine portal, the ore processing mill, maintenance and technical support buildings, and the dry stack tailings site. The affected area boundary will include approximately 81.98 acres.

Zephyr USA currently maintains a financial warranty in the amount of $107,900 for exploration activities that includes core drilling pads and temporary drill road construction. The proposed reclamation financial warranty for the Project is $300,000. The financial warranty includes a final cap on the tailings pile, permanent portal and air shaft closures and site reclamation to the standards required by the regulators.

1.1 Site Background

The Dawson Mining District, situated in the Greenhorn Mountains, (also known as the Wet Mountains) southwest of Cañon City, CO has been the focus of renowned extensive prospecting and early mining which is well documented. On December 10, 1898, Bonewitz Xerxes Dawson, one of six brothers, discovered gold in the Dawson Mountain area. The tent community of Dawson City sprang to life and died within three weeks (Dawson 1994). Even though the bonanza gold strike did not result in a gold mining operation, the Copper King Mine mined copper, silver and minor gold from 1899 thru 1908, transporting ore to the American Lead-Zinc Smelter in Cañon City for milling and refining (Unknown, The Copper King 1901).

Dawson Mountain, as it came to be known, was again explored for gold during the Depression, World War II and then again in the 1970's, 1980's and 1990's (Dawson 1994), and 2012 to the present. Patented lode mining and placer claims dating back to 1899 checkerboard the north facing mountainside of Dawson Mountain. The early gold prospectors dug numerous shallow shafts and adits on mineralization identified on surface and as a result patented claims such as the Copper King, Sentinel and Copper Boy patented claims, were elevated from "prospects" to "mines" as early as April 28, 1899 (Unknown, Mining Notes 1899).

US Borax Ltd., a wholly owned subsidiary of Rio Tinto Ltd., began modern day exploration at Dawson Mountain in 1976 and built a mineral property portfolio (Property) of patented and unpatented lode mining claims and one patented placer claim. From 1976 to 1986, field work on the Property included extensive surface core and reverse circulation drilling, detailed geological mapping, geochemical

sampling, trenching and sampling and an airborne geophysical survey. Based on this effort US Borax reported resources of approximately 387,000 tons grading at 0.31 ounces per short ton (oz/tn gold) near the base of Dawson Mountain which became known as the "Dawson Deposit". In addition, gold mineralization was encountered in drilling in the Windy Gulch area, approximately 700 ft to the west of the Dawson Deposit. The Property, which encompasses the currently held patented and unpatented claims (excluding the Judith Placer Claim purchased by Zephyr in 2020), was sold in 1986 to Jascan Resources Inc. (Jascan) and Atlantic Goldfields Inc. In 1988 Jascan purchased the Atlantic Goldfields interest and became the sole owner of the Property. Jascan entered into a joint venture agreement with Uranerz USA Inc. (Uranerz) in 1989, and over a 4-year period Uranerz earned a 30% interest in the project.

Exploration conducted by Jascan and Uranerz between 1986 and 1992 included considerable additional core drilling, geological mapping, geochemical surveys and several ground magnetic and very low frequency ground electromagnetic surveys. In 1987-88 Jascan was issued a mining permit for Dawson project however the deterioration in the capital markets following the crash of 1987, a material decline in the gold price and a takeover of Jascan halted the development plan. In 1989 Jascan joint ventured the Dawson Project to Uranerz USA Ltd. (Uranerz), a wholly owned subsidiary of Uranerz Gmbh based in Germany. In 1993 Uranerz reported a resource estimate of 263,000 tn grading approximately 0.46 oz./tn gold in the Dawson deposit (Uranerz 1993).

Celtic Minerals Ltd. acquired Jascan's 70% interest in the property in 1995 with the balance of 30% held by Cameco Ltd., which had acquired Uranerz. From 1995 to 2012, several project reviews were undertaken but no active exploration was conducted.

On October 31, 2012 Zephyr announced the purchase of 100% interest in the Property by purchasing 100% of the shares of Celtic USA Ltd. (Celtic) which held a 100% interest in the Property after acquiring the balance of 30% interest from Cameco. Celtic's name was changed to Zephyr USA Ltd. which today owns 100% interest in the 53 contiguous unpatented claims, 50% interest in eight patented claims, a 50% interest in the patented Fremont Placer claim and a 100% interest in the patented Judith Placer claim. Through a "Mining Lease and Agreement", Zephyr USA has 100% control of the eight patented claims. The 50% interest not owned in the Fremont Placer claim is controlled by Zephyr by way of a Property Lease Agreement whereby Zephyr has the right to use the claim for mining and milling activities and any other activity related thereto.

In 2013 CO Division of Reclamation Mining and Safety (DRMS) approved Zephyr's Notice of Intent to Conduct Prospecting Operations for Hard Rock/Metal Mines (NOI) (P-2013-002) on the patented claims and a small portion of adjoining U.S. Bureau of Land Management (BLM) land. Fremont County concurrently approved a Conditional Use Permit (CUP) for exploration on this area. Exploration programs were commenced in 2013 and continue today on a seasonal basis. Lidar topographical surveys generated detailed topographic contour map and orthophoto enabling accurate surface mapping and sampling control, and plant site and mine engineering control points.

The proposed site of the Dawson Gold Mine (DGM) is a historic prospecting and mining area in Fremont County at the toe of Dawson Mountain. Mountain trails established by prospectors and mining companies, abandoned shafts, exploration pits and timbers occur throughout the area evidence the historic use of the proposed mine site as a historical precious and base metal exploration and mining area.

Zephyr USA is submitting a permit application for an underground gold mine and mill that is expected to generate approximately 90 high paying jobs which along with purchases of materials and 3rd party support services will be an economic boost to Cañon City and Fremont County as well as broadening the scope of employment opportunities in the region.

1.2 General Project Description

The proposed DGM will be a new underground mine and surface mill facility which includes a dry stack tailings site and related ancillary buildings to support equipment maintenance and drill core logging and storage. The mill facility will also house a laboratory to perform rock analyses. The principal activities associated with this new application include underground mining, milling, dry-stack tailings management and reclamation. Milling entails crushing and grinding of mined GMR and extraction of the contained gold by means of gravity and flotation circuits. These activities are presented in more detail in subsequent sections, exhibits and appendices.

The timelines, activities and equipment details presented herein are based on anticipated mining and processing rates, gold price, gold recovery and other variable factors. The timelines may change, resulting in a shorter or longer overall life of mine (LOM). The LOM will ultimately be determined by the success in identifying additional gold resources through ongoing drilling programs, both surface and underground.

Site development including mine portal, ramp and underground infrastructure construction is expected (subject to funding), to begin within 3 months of receiving approval from MLRB. Mine and mill construction activities are anticipated to take 12 to 15 months. Underground mining and GMR processing is anticipated to commence approximately 12 to 15 months from MLRB approval.

Production mining will be carried out over five days per week, with a targeted mining rate of 300 tons per day. It is estimated that approximately 82% of the time the worker spends underground is productive time, with the remaining time used for travel to the workplace, breaks, and unplanned downtime.

All milling activities including GMR sizing and gold extraction, will be conducted inside the mill building or underground. GMR will be hauled from underground to a GMR storage area located adjacent to the mill. GMR will be sized and milled at a rate of 300 tons/day, 350 days per year. Milling will include a primary and secondary crushing circuit, a fine grinding circuit, a gold extraction circuit utilizing gravity separation equipment and flotation cells.

DGM is an underground mine which will mine and process approximately 105,000 tons of GMR annually (300 stpd X 350 days) at an estimated grade of 9.2 g/t (0.27 oz/tn) yielding an estimated 27,000 oz. gold annually. Approximately 260,000 tons of unmineralized development rock will be removed over the LOM. This rock will be used for building foundations, road construction and dry stack tailings buttress construction.

The DGM proposed permit boundary encompasses approximately 312 acres contained in the Fremont and Judith Placer claims and the Sentinel, Copper Boy, Copperopolis, Mike Sutton, Copper King and Last Show patented lode claims. Affected acres will be limited to approximately 89 acres for the LOM. During reclamation, the mill area, approximately seven acres, will be reclaimed to wildlife habitat. The

10-acre dry stack tailings pile will be capped with a vegetated cover. Legacy of mine disturbance will be limited to the dry stack tailings pile.

1.3 Background of Applicant

Zephyr Minerals co-founder, President, CEO and Director, Loren Komperdo, is a geologist with over 40 years of experience who has successfully built two companies which were bought by larger companies. Mr. Komperdo was founder and CEO of Tiberon Minerals that sold for $285 CDN million after discovering the Nui Phao Tungsten deposit in Vietnam. This mine is presently the world's largest tungsten producer. He was also founder and CEO of Keeper Resources Ltd., an oil and gas company formed in 2004 and sold four years later for $52 CDN million.

David Felderhof, co-founder, CFO and Director, Zephyr Minerals Ltd. and President, Zephyr USA Ltd., holds a Bachelor of Arts (Economics) degree and a Bachelor of Business Administration (Finance) degree from St. Francis Xavier University, obtained in 2002 and 2003, respectively. Mr. Felderhof served as Vice President and director of TSX-V listed Royal Roads Corp. (predecessor to Buchans Minerals Corporation) from 2007 until 2010. Mr. Felderhof also served as Vice President and director of TSX-V listed Buchans River Ltd. from 2007 until its amalgamation with Royal Roads Corp. in 2008. Prior to his involvement with Royal Roads Corp., Mr. Felderhof was an investment advisor with BMO Nesbitt Burns Inc.

Will Felderhof, co-founder, Executive Chairman and Director of Zephyr Minerals, is a geologist (Dalhousie University, BSc geology, 1972) with 48years of international mining experience including exploration and development for gold, silver, base metals, diamonds, uranium, tantalum, chromium and industrial minerals. Mr. Felderhof was President and CEO of Jascan (1984-1990), East Indies Mining Inc. (1995-1997) and founder and President & CEO of Acadian Mining Ltd. (2003-2010), all of which were publicly listed (TSX &TSX-V) resource companies. During his tenure with Acadian Mining he built up the largest portfolio of past producing gold properties in Nova Scotia, Canada, two of which are now being developed. He also acquired, re-developed and operated a 2200 tonne per day (tpd) (2400 tnpd) base metal mining operation in Nova Scotia, Canada.

1.4 Application Organization

This application addresses the Mineral Rules and Regulations of the Colorado Land Reclamation Board for Hard Rock Metal and Designated Mining Operations initially promulgated in May 1977 and most recently amended in July 2019. Narrative and exhibits presentation coincide with the rule outline and application exhibit list for ease of reference during review.

This application and reports herein were prepared for the exclusive use by Zephyr USA. Reports and exhibits contain site specific and mine operation detail relevant only to the DGM. None of the consultants to Zephyr nor Zephyr itself are responsible for misuse of the contents of the application in part or as a whole. This application is provided as required for review and approval by MLRB. The contents of this application should not be used for purposes other than regulatory review of Zephyr's Dawson Gold Mine in Fremont County, CO without the prior consent and written approval of Zephyr USA.

2.0 DESIGNATED MINING REGULAR (112D) OPERATION RECLAMATION PERMIT APPLICATION EXHIBITS

2.1 Exhibit A: Legal Description

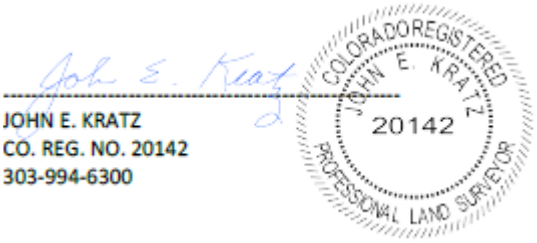
2.1.1 Exhibit A.1: Legal Description of Permit Boundary

A PARCEL OF LAND LOCATED IN SECTION 14 AND THE WEST HALF OF SECTION 13, TOWNSHIP 19 SOUTH, RANGE 71 WEST OF THE SIXTH PRINCIPAL MERIDIAN, COUNTY OF FREMONT, STATE OF COLORADO, MORE PARTICULARLY DESCRIBED AS FOLLOWS:
BEGINNING AT THE ONE-QUARTER CORNER COMMON TO SAID SECTIONS 13 AND 14;
THENCE S0° 28' 39"W, ALONG THE EAST LINE OF SAID SECTION 14, A DISTANCE OF 783.10 FEET TO THE NORTHERLY LINE OF THE PINTO LODE CLAIM (UNSURVEYED);
THENCE ALONG THE BOUNDARY OF SAID PINTO LODE CLAIM, THE FOLLOWING THREE (3) COURSES:
1. N89° 46' 32"W, A DISTANCE OF 979.07 FEET;
2. S0° 04' 28"W, A DISTANCE OF 300.00 FEET;
3. N89° 46' 32"E, A DISTANCE OF 870.12 FEET TO THE NORTHERLY LINE OF THE SENTINEL LODE CLAIM (MINERAL SURVEY NO. 13015);
THENCE ALONG THE BOUNDARY OF SAID SENTINEL LODE CLAIM THE FOLLOWING FOUR (4) COURSES:
1. N85° 57' 42"E, A DISTANCE OF 315.92 FEET;
2. S4° 30' 10"E, A DISTANCE OF 300.00 FEET;
3. S85° 57' 42"W, A DISTANCE OF 1487.78 FEET;
4. N4° 30' 10"W, A DISTANCE OF 133.68 FEET;
THENCE N89° 52' 18"W, A DISTANCE OF 9.05 FEET TO THE EASTERLY LINE OF THE COPPER BOY LODE CLAIM (MINERAL SURVEY NO. 13077);
THENCE ALONG THE BOUNDARY OF SAID COPPER BOY LODE CLAIM, THE FOLLOWING THREE (3) COURSES:
1. S22° 11' 18"E, A DISTANCE OF 17.23 FEET;
2. S66° 16' 27"W, A DISTANCE OF 1500.57 FEET;
3. N24° 42' 48"W, A DISTANCE OF 299.92 FEET TO THE SOUTHERLY LINE OF THE COPPEROPOLIS LODE CLAIM (MINERAL SURVEY NO. 14991);
THENCE ALONG THE BOUNDARY OF SAID COPPEROPOLIS LODE CLAIM, THE FOLLOWING TWO (2) COURSES:
1. S66° 19' 56"W, A DISTANCE OF 294.56 FEET;
2. N22° 54' 56"W, A DISTANCE OF 189.36 FEET TO THE SOUTHERLY LINE OF THE COPPER KING LODE CLAIM (MINERAL SURVEY NO. 12986);
THENCE S79° 13' 27"W, ALONG SAID SOUTHERLY LINE, A DISTANCE OF 432.46 FEET TO THE EASTERLY LINE OF THE LAST SHOW LODE CLAIM (MINERAL SURVEY NO. 14992);
THENCE ALONG THE BOUNDARY OF SAID LAST SHOW LODE CLAIM, THE FOLLOWING FOUR (4) COURSES:
1. S11° 17' 18"E, A DISTANCE OF 33.89 FEET;
2. S68° 58' 28"W, A DISTANCE OF 726.84 FEET;
3. N13° 57' 59"W, A DISTANCE OF 283.24 FEET;
4. N78° 42' 42"E, A DISTANCE OF 353.45 FEET TO THE WESTERLY LINE OF SAID COPPER KING LODE CLAIM;
THENCE N10° 27' 18"W, ALONG SAID WESTERLY LINE, A DISTANCE OF 177.26 FEET TO THE SOUTHERLY LINE OF THE MIKE SUTTON LODE CLAIM (MINERAL SURVEY NO. 14993);
THENCE ALONG THE BOUNDARY OF SAID MIKE SUTTON LODE CLAIM THE FOLLOWING THREE (3) COURSES:
1. S80° 32' 49"W, A DISTANCE OF 124.35 FEET;
2. N0° 07' 33"W, A DISTANCE OF 304.93 FEET;

3. N79° 18' 24"E, A DISTANCE OF 164.94 FEET TO THE WEST LINE OF THE EAST ONE-HALF OF THE SOUTHWEST ONE-QUARTER OF SAID SECTION 14;
THENCE N0° 05' 09"E, ALONG SAID WEST LINE, A DISTANCE OF 493.46 FEET TO THE SOUTH LINE OF THE JUDITH PLACER CLAIM (PATENT NO. 346927);

THENCE ALONG THE BOUNDARY OF SAID JUDITH PLACER CLAIM, THE FOLLOWING SIX (6) COURSES:
1. S89° 42' 34"W, A DISTANCE OF 1335.32 FEET TO THE WEST LINE OF SAID SOUTHWEST ONE-QUARTER OF SECTION 14;
2. N0° 27' 56"E, ALONG SAID WEST LINE, A DISTANCE OF 673.81 FEET TO THE SOUTHWEST CORNER OF THE NORTHWEST ONE-QUARTER OF SAID SECTION 14;
3. N17° 27' 33"E, ALONG THE WEST LINE OF SAID NORTHWEST ONE-QUARTER, A DISTANCE OF 569.81 FEET;
4. N88° 31' 29"E, A DISTANCE OF 2488.33 FEET TO THE EAST LINE OF SAID NORTHWEST ONE-QUARTER;
5. N0° 18' 04"W, A DISTANCE OF 606.14 FEET;
6. N88° 01' 42"E Length: 2614.98 TO THE EAST LINE OF THE NORTHEAST ONE-QUARTER OF SAID SECTION 14;
THENCE N89° 29' 52"E, ALONG THE NORTH LINE OF THE SOUTHWEST ONE-QUARTER OF THE NORTHWEST ONE-QUARTER OF SAID SECTION 13 A DISTANCE OF 1322.71 FEET TO THE NORTHEAST CORNER OF SAID SOUTHWEST ONE-QUARTER;
THENCE N0° 13' 10"E, A DISTANCE OF 419.87 FEET TO THE SOUTHERLY RIGHT-OF-WAY LINE OF FREMONT COUNTY ROAD 3A, ALSO KNOW AS TEMPLE CANYON ROAD;
THENCE N84° 13' 02"E, ALONG SAID SOUTHERLY RIGHT-OF-WAY LINE, A DISTANCE OF 45.25 FEET;
THENCE S0° 13' 10"W, A DISTANCE OF 524.04 FEET;
THENCE S89° 29' 52"W, A DISTANCE OF 45.00 FEET TO THE EAST LINE OF SAID SOUTHWEST ONE-QUARTER;
S0° 13' 12"W, ALONG SAID EAST LINE, A DISTANCE OF 1212.37 FEET TO THE SOUTH LINE OF SAID SOUTHWEST ONE-QUARTER;
THENCE N89° 59' 57"W, ALONG SAID SOUTH LINE, A DISTANCE OF 1328.48 FEET TO THE POINT OF BEGINNING,
CONTAINING 13,602,160 SQUARE FEET OR 312.263 ACRES OF LAND, MORE OR LESS.

PREPARED: 06/23/2021
ON BEHALF OF AND FOR
RED ROCK LAND SURVEYS, INC.



JOHN E. KRATZ
CO. REG. NO. 20142
303-994-6300

2.1.2 Exhibit A.2: Legal Description of Affected Area Boundary

A PARCEL OF LAND LOCATED IN SECTION 14 AND THE WEST HALF OF SECTION 13, TOWNSHIP 19 SOUTH, RANGE 71 WEST OF THE SIXTH PRINCIPAL MERIDIAN, COUNTY OF FREMONT, STATE OF COLORADO, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT ON THE EAST LINE OF THE SOUTHWEST ONE-QUARTER OF THE NORTHWEST ONE-QUARTER OF SAID SECTION 13, FROM WHICH THE NORTHEAST CORNER OF SAID SOUTHWEST ONE-QUARTER BEARS N0° 13' 12"E, A DISTANCE OF 100.01 FEET;
THENCE S0° 13' 12"W, ALONG THE EAST LINE OF SAID SOUTHWEST ONE-QUARTER, A DISTANCE OF 45.82 FEET;
THENCE S88° 23' 56"W, A DISTANCE OF 272.41 FEET;
THENCE S60° 48' 52"W, A DISTANCE OF 615.19 FEET;
THENCE S53° 39' 16"W, A DISTANCE OF 340.77 FEET;
THENCE S9° 11' 53"W , A DISTANCE OF 467.00'
THENCE S46° 07' 15"W, A DISTANCE OF 1407.76 FEET TO THE NORTHERLY LINE OF THE PINTO LODE CLAIM (UNSURVEYED);
THENCE N89° 46' 32"W, ALONG SAID NORTHERLY LINE, A DISTANCE OF 145.32 FEET TO THE WEST LINE OF SAID PINTO LODE CLAIM;
THENCE S0° 02' 01"W, ALONG SAID WEST LINE AND THE EXTENSION OF SAME, A DISTANCE OF 665.57 FEET TO THE SOUTH LINE OF THE SENTINEL LODE CLAIM (MINERAL SURVEY NO. 13015);
THENCE ALONG THE BOUNDARY OF SAID SENTINEL LODE CLAIM, THE FOLLOWING TWO (2) COURSES:
1. S85° 57' 42"W, A DISTANCE OF 275.97 FEET;
2. N4° 30' 10"W, A DISTANCE OF 133.68 FEET;
THENCE N89° 52' 18"W, A DISTANCE OF 9.05 FEET TO THE EASTERLY LINE OF THE COPPER BOY LODE CLAIM (MINERAL SURVEY NO. 13077);
THENCE ALONG THE BOUNDARY OF SAID COPPER BOY LODE CLAIM, THE FOLLOWING TWO (2) COURSES:
1. S22° 11' 18"E, A DISTANCE OF 17.23 FEET;
2. S66° 16' 27"W, A DISTANCE OF 405.96 FEET;
THENCE N76° 15' 38"W, A DISTANCE OF 721.69 FEET;
THENCE N47° 23' 22"W, A DISTANCE OF 1217.75 FEET;
THENCE N35° 49' 04"E, A DISTANCE OF 592.98 FEET;
THENCE N89° 08' 23"E, A DISTANCE OF 585.33 FEET;
THENCE S79° 21' 49"E, A DISTANCE OF 416.00 FEET;
THENCE S51° 11' 39"E, A DISTANCE OF 310.96 FEET;
THENCE N90° 00' 00"E, A DISTANCE OF 476.91 FEET;
THENCE N39° 17' 59"E, A DISTANCE OF 1250.09 FEET;
THENCE S44° 48' 41"E, A DISTANCE OF 350.00 FEET;
THENCE N41° 08' 32"E, A DISTANCE OF 440.98 FEET;
THENCE N53° 39' 16"E, A DISTANCE OF 374.86 FEET;
THENCE N60° 48' 52"E, A DISTANCE OF 682.74 FEET TO THE NORTH LINE OF THE SOUTHWEST ONE-QUARTER OF THE NORTHWEST ONE-QUARTER OF SAID SECTION 13;

THENCE N89° 29' 52"E, ALONG SAID NORTH LINE, A DISTANCE OF 289.81 FEET TO THE NORTHEAST CORNER OF SAID SOUTHWEST ONE-QUARTER;

THENCE N0° 13' 10"E, A DISTANCE OF 419.87 FEET TO THE SOUTHERLY RIGHT-OF-WAY LINE OF FREMONT COUNTY ROAD 3A, ALSO KNOW AS TEMPLE CANYON ROAD;
THENCE N84° 13' 02"E, ALONG SAID SOUTHERLY RIGHT-OF-WAY LINE, A DISTANCE OF 45.25 FEET;
THENCE S0° 13' 10"W, A DISTANCE OF 524.04 FEET;
THENCE S89° 29' 52"W, A DISTANCE OF 45.00 FEET TO THE POINT OF BEGINNING;

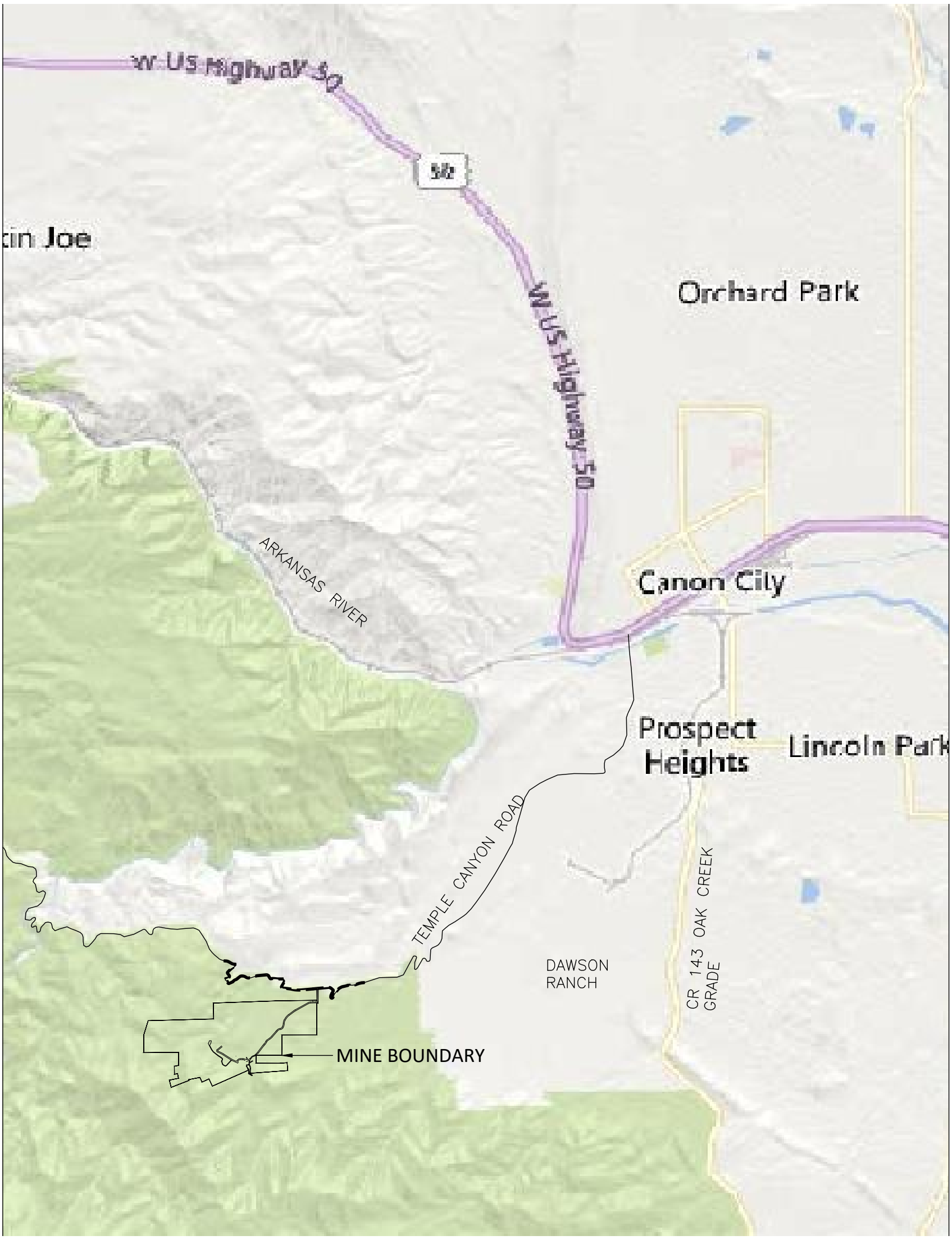
CONTAINING 3,562,040 SQUARE FEET OR 81.773 ACRES OF LAND, MORE OR LESS.

PREPARED: 06/23/2021
ON BEHALF OF AND FOR
RED ROCK LAND SURVEYS, INC.

JOHN E. KRATZ
CO. REG. NO. 20142
303-994-6300

2.2 Exhibit B: Index Map

EXHIBIT B – INDEX MAP
PROPOSED DAWSON MINE

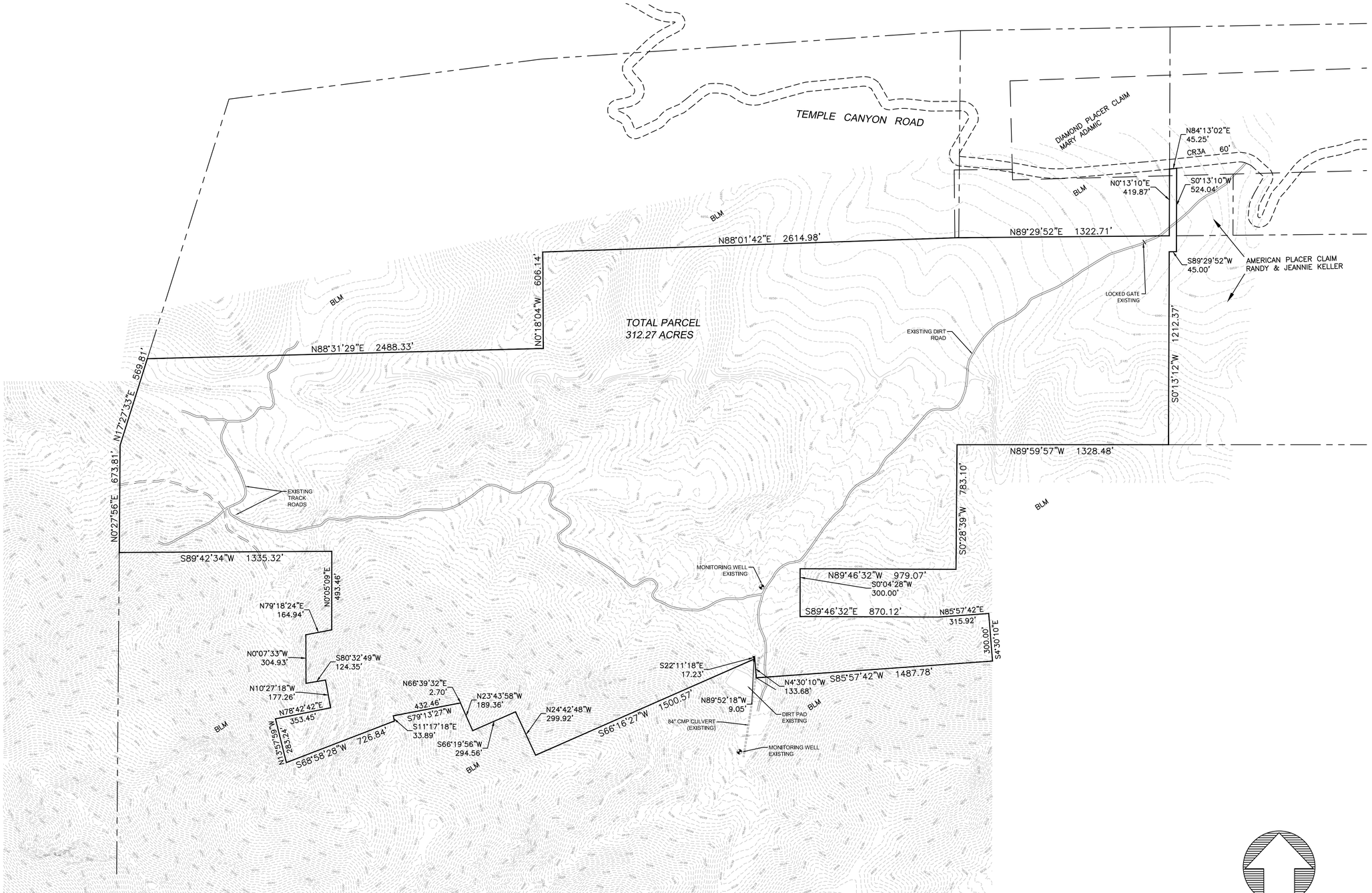


1" = 4000'

6/23/21

2.3 Exhibit C: Pre-Mining and Mining Plan Maps of the Affected Lands

EXHIBIT C.3.1
DAWSON MINE PRE-MINING MAP OF THE AFFECTED LAND
FREMONT COUNTY. COLORADO



600 0 150 300 600

ORIGINAL SCALE: 1"= 300'

6/23/21

REVISIONS

NO.	DATE	BY
1		
2		
3		
4		

DRAWN BY: JEK

CHECKED BY:

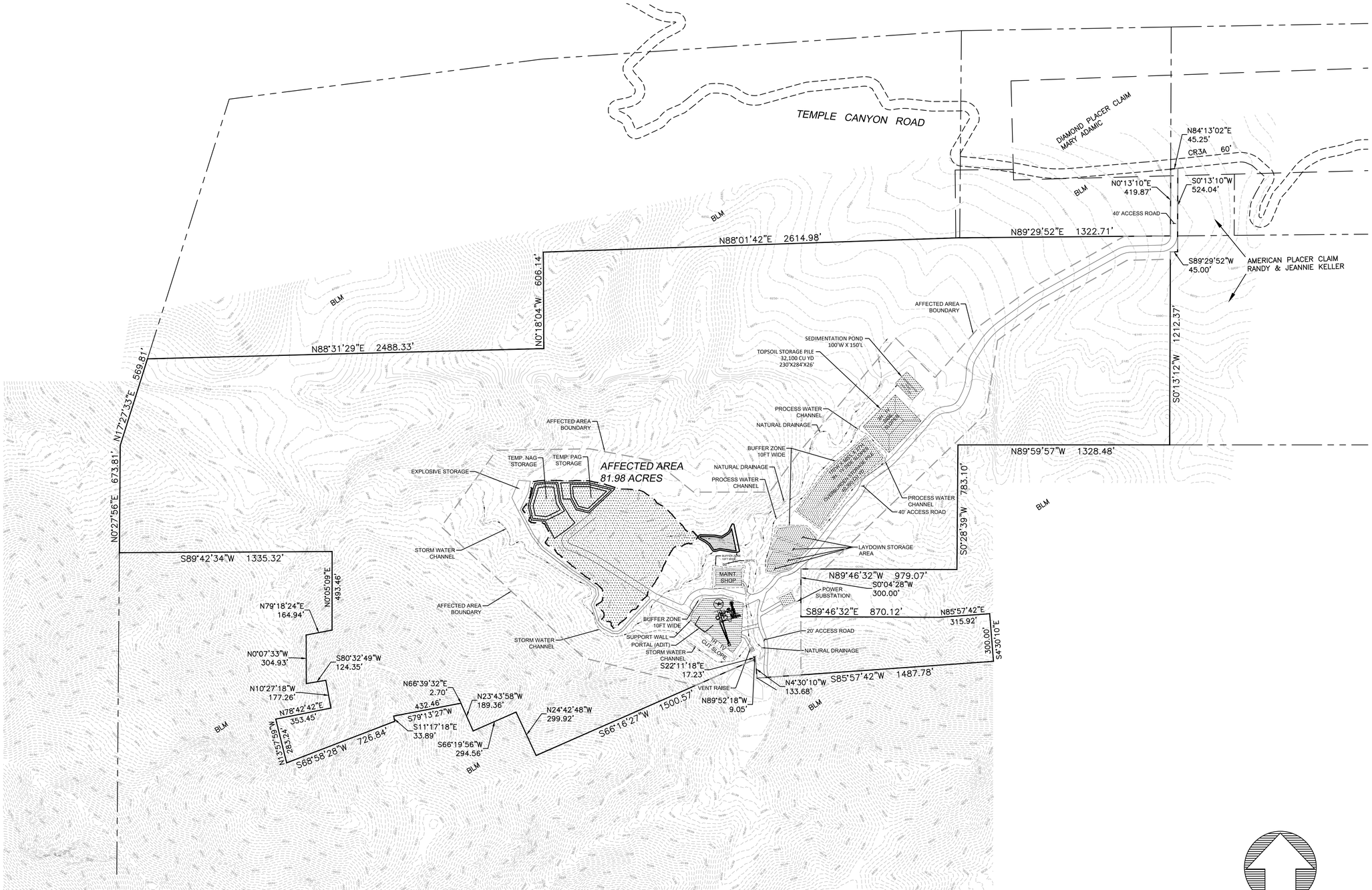
APPROVED BY:

SCALE VERIFICATION
BAR IS 1 INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

PREPARED FOR: ZEPHYR MINERALS

DAWSON MINE LIMITS
FREMONT COUNTY, COLORADO

EXHIBIT C.3.2
DAWSON MINE MINING PLAN MAP OF THE AFFECTED LAND
FREMONT COUNTY. COLORADO



600 0 150 300 600

ORIGINAL SCALE: 1"= 300'

REVISIONS			
NO.		DATE	BY
1	ADIT, DRAINAGE, VENT	03/08/21	JEK
2	REPOSITION FACILITIES, ADD EXPLOSIVE AREA	04/06/21	JEK
3	NAG, PAG STORAGE FACILITIES, ROADS	04/09/21	JEK
4	M.BOLU FACILITIES, I.S. CHANGES	04/23/21	JEK

DRAWN BY: JEK
CHECKED BY:
APPROVED BY:

SCALE VERIFICATION
BAR IS 1 INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

PREPARED FOR: ZEPHYR MINERALS

DAWSON MINE LIMITS
FREMONT COUNTY, COLORADO

6/23/21

2.4 Exhibit D: Mining Plan

2.4.1 Surface Description

2.4.1.1 Location

The DGM will be located in south-central CO, 5.9 miles southwest of the center of Cañon City, CO in Fremont County. Access is gained from County Road 3 (Temple Canyon Road) across private property via recorded easements provided in Exhibit O onto the proposed mining permit area. The permit boundary encompasses 312 acres with a proposed affected area boundary of approximately 82 acres.

The proposed mining permit area is on land owned and/or controlled by Zephyr USA. The mine site is located approximately one-mile south by road from County Road 3.

2.4.1.2 Topography and Elevation

The site lies in the foothills of the northern Wet Mountains, south of the front Range of the Southern Rocky Mountains characterized by high desert with a moderate semi-arid climate. The elevation of the proposed mining area is approximately 6,450 feet above sea level.

2.4.1.3 Land Use

The Dawson Mountain Area comprises both public land managed by United States Bureau of Land Management (US BLM) and privately owned patented placer and patented lode mining claims. A portion of the public land at Dawson Mountain is covered by unpatented lode mining claims controlled by Zephyr USA. The area of the proposed mining permit and immediately adjacent to it has historically been used for mining, mineral exploration activities and grazing cattle. The only residence directly adjacent to the permit boundary is located on the American Patented Placer Claim, which was purchased in 2013. The new owners the of American Placer Claim built a single family residence on the claim in 2014.

Fremont County zoning in the Project area is Agricultural Forestry. This zone district is described in the Fremont County Zoning Resolution as “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 4.1 pg. 4-4.1.8 (Fremont County, Department of Planning and Zoning 2009).

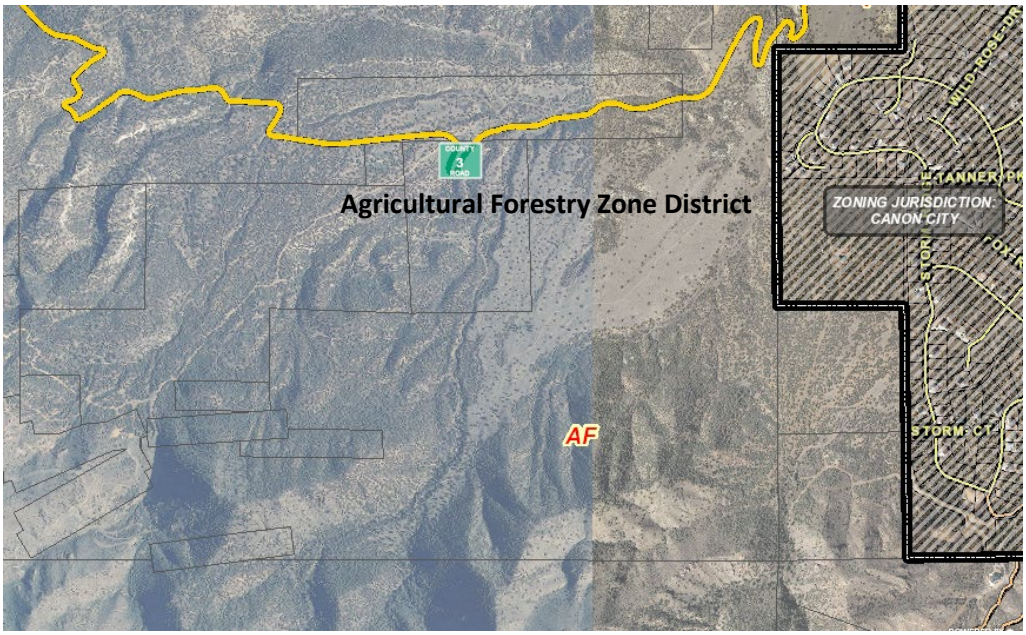


Figure 2.4.1.3-1 Fremont County Land Use Zoning Map indicating subject property and vicinity is zoned Agricultural Forestry

2.4.2 Geology

The Property sits within the northern Wet Mountains, an area of east-northeast-trending, steep southerly dipping Proterozoic volcanic and sedimentary rocks metamorphosed to upper amphibolite facies. After several periods of deformation, the Proterozoic rocks were thrust northwards over Mesozoic sedimentary rocks during the Laramide orogeny. The Proterozoic rocks are also in fault contact with the Mesozoic rocks to the east and west.

Within the Property, gold mineralization of economic interest occurs within siliceous quartz biotite ± garnet gneisses(QBG) that are overlain mainly by the well banded gneiss(WBG). A distinct copper-iron-sulphide-rich horizon (MSU) occurs in the quartz-biotite ± garnet gneiss above (in the hanging wall) the gold mineralized zone and serves as a distinct marker horizon across the Property. The MSU was the target of much of the early historical mining effort at Dawson Mountain. The footwall to the QBG is a distinctive pink quartz feldspar gneiss (PBU/PMU), which can be broadly described as 'granite' and is barren of mineralization. The planned development ramp is in the 'granite'.

The gold mineralization is largely hosted in 3 discrete horizons which range in true thickness from 2 feet up to approximately 50 feet. The gold mineralized horizons occur as lithologically continuous, relatively planar zones that strike east-northeast and dip to the southeast at 50 to 70 degrees under Dawson Mountain.

The mineralization is comprised of native gold along with 1 to 5 modal percent (average less than 3 percent) disseminated pyrite and minor chalcopyrite. Gangue mineralogy is commonly quartz, biotite, sillimanite and garnet in the stratigraphically lower sections.

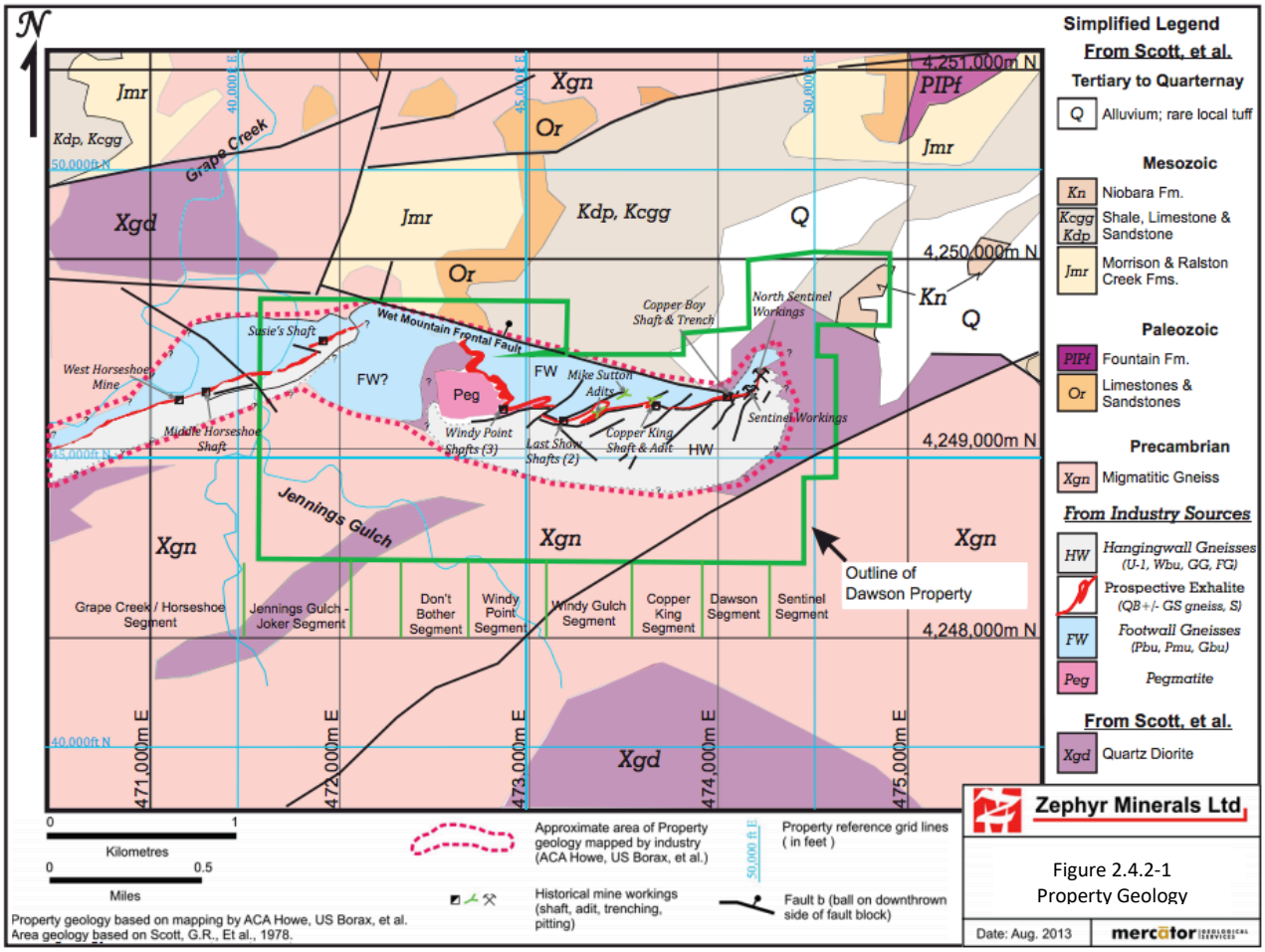


Figure 2.4.2-1: Property Geology

2.4.3 Surface Facilities

2.4.3.1 Ancillary Buildings

An office-mine services complex will be constructed on a 130-foot x 70-foot x 6-inch concrete slab foundation and contain two connected 60-foot x 60-foot sections. The east section will be created from an assembly of prefabricated components and will contain administration and technical staff offices, a mine dry (changing rooms), washroom facilities, lunchroom/meeting room and an emergency response/first aid room. The west section will contain a maintenance shop to provide mechanical, electrical and instrumentation facilities as well as warehouse and parts storage facility. The west section will be constructed with a roof structure supported on sea can walls to provide service bays for mobile equipment as well as storage space.

Assay and metallurgical laboratories will be housed in a portable trailer assembled off-site with all necessary test and safety equipment. The trailer will be hauled to site and placed and secured on blocking near the process plant building to provide daily and shift quality monitoring information on solids and water samples for the safe and efficient operation of the mill and mine.

2.4.3.2 Mine Dewatering

Water that accumulates at the active face will be pumped away using a small pneumatic diaphragm pump (Wilden type pump) or a small electric pump, using 2-inch steel or PVC pipe from the face to the sump.

Dirty water sumps will be connected by a system of overflow drain holes, with the cleaner water being pumped in stages, to the surface for clarification and reuse. The sump system will be designed so that the slimes can be cleaned out periodically.

A permanent pumping station will be constructed at the bottom of the mine that will pump water to the surface settling pond system. The pumping arrangement will be set up as a redundant parallel system, with either side capable of providing mine dewatering without the other.

2.4.3.3 Fuel and Oil Storage

Diesel fuel will be stored on site in two 4200-gallon steel tanks located on the north end of the mill pad. This provides easy access to the portal to supply the mobile equipment that will only be used on site. Engine oil and hydraulic oil will be stored in 55 gallon drums stored at the maintenance facility. Secondary containment will be provided for all petroleum products. A Spill Control, Containment, and Contingency (SPCC) Plan will be prepared and implemented for the site in accordance with federal and state regulations, as the total aboveground storage of fuel and oil in containers of 55 gallons or more will exceed 1,320 gallons.

2.4.3.4 Utilities

2.4.3.4.1 Power Supply

The total connected load for the surface facilities is estimated to be 1,265 kW with an additional 300 kW for the total mine load of approximately 1,565 kW. This converts to approximately 2,000 kVA, or 2 MVA with an assumed 0.8 power factor.

There are two potential utility connections that can support the proposed site, both supplied from the Cañon Plant substation. This substation, located beside the old Cañon power plant, distributes 13.2 kV, 69 kV, and 115 kV to the area. Black Hills Energy is the local distribution company in this area, who own the substation and the transmission and distribution lines. One of the 13.2 kV circuits runs along Temple Canyon Road up to the old scrap yard. This is designated by Black Hills as South Cañon feeder 64021. Beyond this pole runs a single phase that extends to the cell phone tower. Black Hills proposes that this line from the intersection of Temple Canyon Rd and Mariposa Rd be re-conducted and extended to the site.

This three-phase power line, supplied at 13.2 kV, can offer 9 MVA based on the current carrying capacity of conductors at that voltage. Since the mine load is estimated at 2 MVA, it is anticipated that there will be capacity in this line. Black Hills was consulted to evaluate the remaining capacity on these lines and the sensitivity to adding new loads onto it.

A substation will need to be installed at the mill site in order to step the voltage down to 4,160 V or 480 V. The crusher and the main ventilation fans are the larger loads, but it is estimated that they will operate at 480 V. The underground operations can be supplied at 13.2 kV or 4,160 V, depending on the total expected load. A standby diesel generator will be connected to the substation to provide emergency back-up power, and possibly start-up assistance for large loads.

The main electrical trunk will run down the portal initially, then down the ventilation raise or a dedicated drill hole. A substation will be installed at each level and power will be distributed throughout the mine as required.

2.4.3.4.2 Water Supply

Fresh water for the mill process water and mine operations will be supplied from groundwater wells and pumped to a fresh water holding tank at the plant. The fresh water source will also be used for showers and washroom facilities.

The supply of process water will be from concentrate and tailings thickener overflows, mine water, tailings storage recycle and fresh water makeup. A small portion of the process water will be filtered to meet requirements of select needs in the process plant such as reagent mixing, shaking table operation, cooling water etc. Filtered water will be stored in a dedicated tank for distribution. Bottom portion of the filtered water tank will be dedicated to storing sufficient volume of water for firefighting.

2.4.3.4.3 Compressed Air

Compressors for the mill and mine operations will be located within the mill building. Compressed air will be distributed as required throughout the mill. Compressed air will be delivered to the underground mine using a main line of 4-inch steel pipe. The pipe will initially run down the ramp and then down the raise system once the raises are established. Compressed air will be distributed throughout the mine from the main line via 4-inch steel pipe, and 2-inch steel and PVC pipes.

2.4.3.4.4 Communications

Telephone and internet services will be provided to the site by a local supplier in Cañon City.

A leaky feeder-type radio communication system is planned to be installed along with a wired phone system for on-site communications.

2.4.3.4.5 Security

The Dawson Gold Mine will have restricted access in order to protect and warn the public. Security practices may include fencing, locking access gate, and signage. When fencing is necessary, either a chain link fence or a rangeland barbed wire fence will be used depending upon location and circumstances. The portal will be secured by a mesh gate to prevent access from unauthorized personnel. Access restrictions will be posted on signage along the perimeter boundary and at the gated access.

2.4.3.5 Haul and Access Roads

All roads at the point of access from Fremont County Road 3 (FCR 3) aka Temple Canyon Road will be private roads. The access road and haul roads will remain consistent throughout the life of the mine and during reclamation activities and monitoring. Small vehicle roads, especially those providing access on and near the FTFS, may change as the FTFS develops. Small vehicle roads will be used for site monitoring and ancillary uses. Public travel on Dawson roads will be prohibited during mining operations, reclamation and post reclamation site monitoring.

Fugitive dust from roads will be controlled as necessary with water applied by a water truck equipped with spray bars.

Storm water and sediment control will be in accordance with the Colorado Discharge Permit System (CDPS) implementing Best Management Practices (BMP). Diversion channels, drainage ditches, culverts and sediment barriers may be implemented as needed to reduce sediment load and slow stormwater surface flow as surface development proceeds. Prior to release into drainages, storm water will be directed through sediment control devices such as silt fences, check dams and other appropriate devices. Storm water will be released from the site at historic velocity, minimizing the potential for erosion. Flow velocity reducing measures may include vegetated swales, riprap, or check dams to name a few. All storm water structures will be sized in accordance with site drainage engineering and regularly monitored and maintained during the life of the mine.

Temple Canyon Road also known as Fremont County Road 3 (FCR3) is the only public road in the vicinity of Dawson Mine. The road will be used by employees, one to two weekly haul trucks and mine operations suppliers and subcontractors. Fremont County will incorporate road upgrading, maintenance requirements and repair agreement into the Conditional Use Permit from Fremont County.

DGM will have one access from FCR 3. Because FCR 3 is not a deeded county road, but rather an easement from the Diamond Placer owner, Mary Louise Adamic, Zephyr obtained an access agreement from Ms. Adamic as well as an easement from the owners of the American Patented Placer claim. The access will be constructed as directed by Fremont County Road and Bridge Department, including a culvert and security gate.

The interior haul road will commence at FCR 3, crossing two private properties (approximately 600 ft.) then proceeding onto the Fremont Placer, owned by Zephyr. The haul road will be

approximately 40 ft. wide including three ft. drainage ditch on each side. The subsurface will be compacted native soil and surfaced with nine to 12 inches of compacted aggregate or road base. The location of the haul road at the mine facility may vary during the life of the mine but the haul road from FCR 3 to the mill will be consistent throughout the life of the mine. The haul road will accommodate hauling and support two-way traffic.

2.4.4 Underground Mine

2.4.4.1 Background Information

The property peripheral to the location of the proposed DGM contains historical workings, all of which are shallow (less than 100 ft. deep), known as the “Mike Sutton Workings,” the “Last Show,” the “Haulage Adit Fault,” the “Copper Boy Workings” and the “Copper Boy” shaft. These old workings, including pits, shafts, and adits, were primarily targeted on the copper-mineralized massive sulphide zone stratigraphically above the gold zones. Shrinkage stoping was likely the method employed at most of these deposits. None of these historical workings impact the current mine design for the Dawson gold deposit in any way whatsoever. The Dawson gold deposit has no surface expression or outcrop, is entirely intact, and has not been subjected to any historical mining.

The affected area boundary, will commence at FCR3, paralleling the access road to the mine, for approximately 1.5 miles. The affected area will include the mill, mine portal, GMR storage areas, mine/mill support facilities, explosives magazine and dry stack tailings pile. The gold resources to be mined are lithologically continuous, relatively planar zones from 2 to 50 feet true thickness that strike east northeast and dip to the south at 50 degrees to 70 degrees. The GMR to be mined and processed consists of quartz biotite +/- garnet and minor sillimanite and/or sericite with 1% to 5% pyrite and chalcopyrite and native gold.

The DGM, for purposes of this permit, based on current resources will have a life of mine (LOM), of approximately 5 years. LOM may be negatively impacted by lower gold prices and/or higher operating costs, or positively impacted with the discovery of additional mineable gold resources. The forecasted production includes the extraction of an estimated 710,000 tons of rock consisting of 448,000 tons of GMR and 262,000 tons of waste rock. Waste rock will be used for underground backfill and as an erosion protection layer in the tailings facility.

The general timelines are approximate, being dependent on many potential unanticipated factors with possible inherent timing impacts. Funding, rate of mining, production rates, and gold recovery directly impact timelines. Ancillary factors such as weather conditions, equipment availability, mining and milling supplies, and reagents availability have the potential to substantially alter the anticipated timeline.

2.4.4.2 Underground Operations

The proposed mining operation will use a long-hole sublevel stoping mining method to extract gold mineralized rock from narrow, steeply dipping mineralized zones. A main decline ramp from surface will provide access to the mine levels and stoping locations.

Mine development also includes footwall haulage ways, cross-cuts to the sills, ventilation raises, and other infrastructure such as refuge chambers, water sumps, explosives and detonator magazines, and electrical substations.

The proposed mine plan assumed the following design parameters summarized below in Table 2.4.4.2-1 Mine Design Parameters. The general mine design figures and arrangement are provided in Appendix A: Underground Mine Design Figures, Figure 1 and Figure 2.

Table 2.4.4.2-1: Mine Design Parameters

Item	Property
Mineralized Zone Width	5 ft. to 33 ft.
Mining Method	Long-hole sublevel stoping
Available Mineral Resources and Potential Mill Feed	Refer to Table 2.4.4.2-2
Dilution	6 inches wall rock at 0.035 oz./tn., averaging 14.5%
Mining Recovery	95% Overall
Milling Rate	Average 300 tons per day, 365 days per year
Mill Downtime	1 shift per week preventive maintenance, 2 weeks per year breakdowns & major maintenance
Mill Nameplate Capacity	340 tons per day
Target Mining Rate	400 tons per day
Stope Cut-off Grade	0.088 oz./ton
Haulage Level Spacing	175 feet
Sublevel Spacing	70 ft. to 90 ft.
Decline Gradient	-15%
Decline Size	15 ft. x 11 ft. (arched)
Haulage Drifts (Level Drifts)	12 ft. x 10 ft. (arched)
Raises	8 ft. x 8 ft.
Sill Drifts	10 ft. high, width of zone [minimum 10 ft.]
Cross-Cuts	12 ft. x 10 ft.
Draw Drifts	10 ft. x 10 ft.

Table 2.4.4.2-2: Summary of Mineral Resources and Potential Diluted Mill Feed

Non-diluted Mineral Resource Blocks			
	tons	**ounces**	**oz/ton**
Dawson Segment	421 k	121 k	0.288
Diluted and Mineable Potential Mill Feed			
	tons	**ounces**	**oz/ton**
Dawson Segment	449 k	117 k	0.26
Note: 0.088 oz/tn (3.0 g/t) block cut-off.			

2.4.4.3 Ramp and Drift Development

A portal will be collared on the footwall side of the gold deposit, in the steeply sloping terrain to the west of the proposed mill site. The portal will be approximately 15 ft. wide by 11 ft. high and will be established at the 6,500 ft. elevation level.

Underground access will be achieved by a -15% gradient ramp (decline) driven in the footwall gneisses. The decline is designed to stay between 60 ft. and 100 ft. from the mineralization by

spiraling at the southwest and northeast ends of the deposit and shifting southeast as the deposit dips and plunges.

The decline excavation will generate approximately 17,200 tons of waste over the 175 vertical feet between levels. The decline is planned to have a cross-sectional area of 160 ft^2, being 15 ft. wide and 11 ft. high. The decline is 10.5 ft. high at the shoulder.

As the decline development advances, planned cross-cut headings will be started to allow for the continuation of installation of mine services including water, compressed air, electrical and communications. These headings can be utilized as re-mucks and/or diamond drill bays. If required, 30 ft. bays may be cut into the wall along the decline to be used as a re-muck and/or for diamond drilling.

Infill diamond drilling will be carried out on and between current resource blocks to upgrade the resources to the indicated category. Drilling will also be undertaken on currently identified exploration targets at depths that show potential to expand the resource base.

Industry and best practice ground control standards will be implemented during mine development. Primary ground support will include bolting and screening of the back and upper walls. Additional ground support such as rebar, cable bolting or shotcrete may be included depending on specific ground conditions or designed excavations. Although rock quality is expected to be good within the footwall gneisses, a geotechnical assessment for the underground development and the portal face will be completed prior to the start of underground development to establish the ground control standards required to establish and maintain a safe operation.

During the first year's development work, waste rock will be hauled to surface. A study completed by GEM Services provided in Appendix B has determined waste rock to be inert material and non-PAG, and as such will be used for construction of surface infrastructure and dry stack tailings buttressing. Once production mining commences, the waste rock not required for surface infrastructure will be used to backfill mined-out stopes.

2.4.4.4 Raise Development

A network of 8 ft. x 8 ft. ventilation raises will be developed using either conventional drill and blast or alimak methods. During the initial raise development, connecting the 6300 ft. elevation level to surface, fresh air will be delivered to the working face on the decline using a fan and flexible ducting. After the top section of the ventilation/escape raise is completed to surface, an intake fan arrangement will be installed over the raise to provide mine ventilation.

As the decline continues to advance deeper, new ventilation raise sections will be developed from each level to tie into the top sections going to surface. The ventilation system will therefore advance relative to the development of the decline. Ventilation for the decline development beyond the lowest operating section of the raise network will be provided using an auxiliary fan and ducting. Eventually, the connected raises reach the bottom of the decline and allow fresh air to be distributed from the lowest level of the mine. The ventilation raises will be equipped with ladders and landings to provide a secondary escape way from the underground mine.

2.4.4.5 Ventilation

Ventilation requirements have been estimated based on providing 100 cubic feet per minute (CFM) to 125 CFM of fresh air per rated horsepower of diesel-powered equipment underground plus 100 CFM per person underground. An anticipated utilization rate was incorporated for each piece of mobile equipment. Approximately 150 HP to 200 HP fan will be required during the production phase.

Fresh air will be delivered to the lowest level of the mine and distributed throughout the workings as it exhausts up the decline to surface. Bulkheads, regulators, and ventilation raises will be used to control the air flow quantities directed to active areas. Air will be delivered, as required, to dead-end stopes or haulage drifts using flexible ducting and smaller auxiliary fans.

2.4.4.6 Long-Hole Mining Method

Cross-cuts and haulage (mucking) levels are developed from the decline in the footwall to provide access to the planned stopes. Stope development involves creating an upper (top) sill drift which will be driven along strike within the gold mineralized zone, under geological guidance. It will be as wide as the mineralization but in any case, no less than 10 ft. wide to accommodate mobile equipment and the long-hole drill. Similarly, a bottom sill is driven on the mucking level in the gold mineralized zone to the west and east under geological control, defining the bottom of the stopes. Draw points are excavated from the haulage level, perpendicular to the stope, through the bottom sill mineralized horizon. Sublevel sill drifts will be developed as required along the gold mineralized horizon, between the top and bottom sills, to optimize drilling and blasting relative to the orientation and size of stoping blocks.

After the sill drifts have been excavated, drop raise patterns will be drilled to enable the blasting of a “slot” from the top sill to bottom sill for each stope. The pattern will include a larger cut hole for relief and slash holes to blast the slot to the full width of the stope. The slot, required to start each stoping block, will be positioned approximately every 200 ft. along strike, beginning at the west end of the deposit. The drop raises will be used in each stope to provide a void for the initial production blasts, after which, regular stope mining will begin.

Stope blasting will be towards the drop raise slot. The size of each blast will be dependent on the amount of void available in the stope to allow for swell during blasting. The design and sequence of stoping will depend upon the grade of the material, ground conditions, continuity of gold mineralization, and continuity of thickness of the gold mineralization. Blasted rock from the stopes will be mucked from the draw points and hauled to surface.

Once a stope has been emptied, it can be backfilled with development waste rock rather than trucking it to surface to help provide wall support in open excavations. Backfilling may be scheduled relative to stope production to help reduce the number of open voids in any one area as new stopes are mined. Maximum recovery of the deposit will be possible if backfilling is completed as the deposit is mined.

2.4.4.7 Explosives and Blasting

Mine development and production blasting will typically use ANFO and/or stick powder (emulsion) explosives. Explosives types and quantities required will be determined relative to blasting needs and conditions encountered throughout the project.

Surface and underground magazines will be used for the storage of approximately 13,000 lbs of explosives and detonators on site for up to a week of blasting activity. It is assumed that inventories will be replenished each week by a local explosive supplier.

All explosives will be stored and handled according to Mine Safety and Health Administration (MSHA) and Bureau of Alcohol, Tobacco and Firearms (BATF) regulations and guidance, respectively. Magazine locations on site will comply with the requirements outlined in The American Table of Distance for Storage of Explosive Material recommended by BATF.

2.4.5 Processing Mill

2.4.5.1 Process and Plant Description

The process plant at the proposed DGM is based on an annual plant throughput rate of 120,728 standard ton (st) of run-of-mine (ROM) GMR from the mine based on a 365 days per year operation. Daily nominal throughput rate will be 330.8 st. Milling facility design layout plans and elevation drawings along with a simplified process flowsheet is provided in Appendix C: Mill Design Figures.

The mill is designed to enable the production of two marketable products; gold dore bars derived from gravity generated gold concentrates, and gold bearing sulphide concentrates from conventional flotation equipment. The processing facility will consist of a plant housing primary and secondary crushing circuits, fine GMR screening and storage, grinding, gravity and flotation circuits, concentrate and tailings dewatering areas, a dore bar furnace, a maintenance shop, and offices. These will be supported by ancillary circuits such as reagent preparation and utilities. Containers in a designated area will be used for on-site storage of reagents and other mill supplies. A portable trailer will house sampling preparation and assay laboratory equipment for mine, mill and environmental quality control needs of the operation.

Plant tailings containing both non-acid generating (NAG) and potentially acid generating (PAG) streams from the flotation circuit will be combined and sent to a tailings thickener and downstream pressure filter for dewatering. Filtered tailings cake will be hauled to FTSF for storage while the thickener overflow and filtrate water will be recycled for re-use in the plant as process make-up water.

2.4.5.2 Primary and Secondary Crushing

Run of mine GMR from the mine will be delivered by 20 st ore trucks and dumped directly into a coarse dump hopper. An apron feeder will reclaim GMR to feed a primary jaw crusher which will be set to produce a nominal 3 in. crushed product. The primary crushed GMR will be removed by scissor conveyors to a double deck vibratory screen which will be equipped with 2 in. top and $^{5}/_{8}$ in. bottom opening screen panels. The nominal minus $^{5}/_{8}$ in. screen undersize will fall by gravity into a 300 st live capacity fine ore bin located under the screen.

The fine ore bin will provide approximately 20-hour surge capacity ahead of the grinding circuit. The plus $^{5}/_{8}$ in. screen oversize will feed a secondary cone crusher which will be set to deliver a minus $^{5}/_{8}$ in. product. The cone crushed product will join the jaw crusher discharge on the crushed ore conveyor for transfer to the vibratory screen operating, in the closed circuit. Dust will be controlled by the use of a wet scrubber with the discharge slurry returning to the mill as recycle water for processing. The crusher will operate 16 hours per day or as required by GMR delivery and grinding circuit demands.

2.4.5.3 Grinding, Gravity, and Flotation

The fine GMR, reclaimed by a belt feeder from the fine ore bin, will feed the grinding ball mill. The grinding circuit will consist of a single ball mill operating in a closed circuit with a hydrocyclone for classification. The grinding circuit is designed to treat fresh GMR feed with an 80% passing size of 0.47 in. (12,000 micrometers) to produce a finished product

with a target primary grind 80% passing size of 200 mesh (74 micrometers). The cyclone overflow will proceed to flotation while the cyclone underflow will gravitate to the ball mill for further size reduction.

A portion of the fresh mill feed tonnage will be diverted from the cyclone feed to the gravity circuit for the recovery of free gold using a centrifugal gravity concentrator and a shaking table. The gravity gold concentrate from the shaking table will be collected and melted into marketable gold dore bars.

Rougher/scavenger flotation will generate a bulk sulphide concentrate. A sulphide mineral collecting agent, potassium amyl xanthate (PAX) and a frother, methyl isobutyl carbinol, (MIBC) are added ahead and during flotation for the promotion and collection of precious metal and sulphide minerals. The bulk flotation concentrate is reground to produce a target 80% passing regrind size of 400 mesh (37 micrometers). Regrind cyclone overflow will gravitate to a bank of 3-stage cleaner flotation cells operating in counter current configuration to produce a marketable grade final concentrate. Third cleaner concentrate will be pumped to dewatering while the cleaner tailings will join the rougher/scavenger flotation tailings for dewatering ahead of dry-stack tailings disposal.

The rougher/scavenger flotation circuit will produce approximately 75% to 80% of the plant feed mass while the cleaner flotation circuit tailings stream will account for approximately 15% to 20% of the plant feed mass. The final concentrate product will account for the remaining 1% to 3% of the plant feed mass depending on mill feed and optimized concentrate grades targeted.

2.4.5.4 Concentrates and Tailings Dewatering

The final cleaner flotation concentrate will first be thickened in a concentrate thickener to approximately 60% solids density. A flocculant such as Magnafloc or similar will be used to aid in settling. Thickener underflow will be sent to a filter feed stock tank ahead of concentrate filtering. Concentrate filter cake at a target moisture content of 10% will be packaged into 2 st bulk bags for shipment to markets. Filtrate water will be sent to the concentrate thickener while the overflow from the thickener will be sent to the process water tank as make up recycle water. It is estimated that approximately 1% to 3% of the plant feed by weight or 1.6 to 3.3 st per day will be recovered into the flotation concentrate depending on feed sulphide content.

A dry-stack tailings system is proposed for DGM. Combined tailings from the rougher/scavenger flotation and cleaner scavenger flotation will be sent to the tailings thickener for process water recovery and to aid in the subsequent filtration. The thickener underflow at a target solids density of at least 60%, will be pumped to a filter feed stock tank ahead of tailings filtering. A flocculant will be used to aid in settling. As in the concentrate dewatering process, filtrate water will be sent to the tailings thickener while the overflow from the thickener will be sent to the process water tank as make up recycle water.

Tailings filter cake at a target moisture content of 15% will be conveyed to a temporary stockpile on a concrete pad immediately outside of the mill building before being hauled by a truck to the FTST for storage as described in Section 2.4.6.4.

2.4.5.5 Volumes of circuits, types of vessels and conveyances and materials to be used in construction

The mill will house various sizes of bins, tanks, conveyors and other major equipment as follows.

Equipment Description & Type		Nominal Capacity	Size or Model	# of
Coarse Ore Dump	Hopper	50 t Live	322 ft^3 Live	1
Fine Ore	Bin	300 ton Live	22 ft Dia. x 27 ft 6,100 ft^3	1
Crushed Ore	Conveyor		20 In x 236 ft	1
Secondary Screen Feed	Conveyor		20 In x 173 ft	1
Ball Mill Feed	Conveyor		30 In x 40 ft	1
Primary Ball	Mill		8 ft Dia x 12.33 ft Egl	1
Rougher Flotation	Cell	100 ft^3	D-R 30	9
Regrind Ball	Mill		1.5 m Dia x 2.7 m Egl	1
Cleaner Flotation	Cell	100 ft^3	D-R 30	4
Concentrate Thickener	Tank	15.4 ton/d solids	8.3 ft Dia	1
Concentrate Filter Feed	Tank	225 ft^3	6.6 ft Dia x 8 ft H	1
Tailings Thickener	Tank	360 ton/d solids	60 ft Dia	1
Tailings Filter Feed	Tank	2,200 ft^3	13.3 ft Dia x 16.6 ft H	1
Tailings Filter Cake	Conveyor		36 In x 40 ft	1

2.4.5.6 Reagents

Flotation chemicals for use in the milling operation will be stored on site. The following are the reagents and their consumption rates that will be required for the process:

- Potassium Amyl Xanthate (PAX), a sulphide mineral collecting agent, powder form, 0.25 lb./ton
- Methyl IsoButyl Carbinol (MIBC), a frother, liquid form, 0.1 lb./ton
- A generic anionic emulsion flocculent, liquid form, 0.05 lb./ton

Chemicals will be delivered by trucks to the site, and delivered to their designated storage containers. Approximately a one-month supply of reagents will be stored on site at any given time: 2,250 lbs. of PAX, 900 lbs. of MIBC, and 450 lbs. of the generic flocculent. A plastic liner and a berm around the storage tanks will serve as secondary containment to mitigate potential spillage.

Reagents requiring mixing, PAX and flocculent, will be mixed in the respective tanks equipped with an agitator and then transferred to a head tank for distribution to the appropriate addition points in the mill. Frother (MIBC) will not require mixing and will be fed neat from its isotainer. Any spillages within the mill building will be contained and pumped to tailings.

2.4.6 Waste Rock and Tailings Storage

The first year of mine development will focus on the decline and the start of the ventilation raise which are both positioned in the non-mineralized footwall rock containing no sulphides. This waste rock, therefore, can be classified as non-acid generating (NAG) and will be trucked to the surface to be utilized as construction material for the surface site infrastructure including the site preparation for the processing mill and office/maintenance complex, road construction and maintenance, water control

systems, and construction and operation of the FTSF. NAG rock will either be placed directly as common fill for construction or stockpiled for future use. Depending on the construction use, some of the waste rock may require appropriate sizing prior to placement.

In the second year, development of haulage levels and cross cuts will require the extraction of mineralized waste to access the GMR zone and will be classified as PAG. Throughout the project, the total estimated amount of development rock is estimated to be 261,000 tons, with about half being NAG and the other half being PAG. Sampling and testing of the rock during mine development will confirm the classification, quantities and how it will be managed.

2.4.6.1 Soil Excavation and Stockpile Area

During site development an average of six inches of topsoil will be salvaged and stockpiled in the designated topsoil stockpile at the north end of the affected area near the interior road. The topsoil stockpile will contain approximately 24,000 yd^3. After all topsoil has been salvaged, the stockpile will be sloped 3H:1V and seeded with the reclamation seed mix used during exploration reclamation. The stockpile will be posted with signs indicating it is to be used for final reclamation only.

2.4.6.2 Waste Rock

Until underground backfilling can be started, all waste rock will be hauled to the surface and temporarily stockpiled within the designated footprint of the FTSF. The temporary stockpiles will be established in the north end of the FTSF to avoid construction activity and placement of tailings in the first few years of production. This will also provide a close source of rock for ongoing construction and operation of the FTSF. PAG and NAG rock will be stockpiled and managed separately to prevent any potential contamination of NAG material to be used for surface construction and operations. Water collection channels around the perimeter of the tailings area will divert any clean water around the FTSF. Any contact water will be contained and directed to the contact water pond downstream from the FTSF.

The temporary waste rock piles will be constructed in 5 ft. lifts to a maximum height of 15 ft. above the original ground surface. Catch benches 15 ft. wide will be established on each lift to develop an overall 3H:1V slope to ensure safe operating conditions are maintained. Since the blasted waste rock typically has extremely angular pieces and the internal angle of friction is expected to be approximately 45 degrees, thereby negating any stability concerns for short-term storage.

As underground backfilling capacity becomes available, the order of priority will be to use new PAG development waste rock first (to avoid haulage to surface), then the PAG stockpile will be depleted followed by any extra NAG rock not required for use on surface. It is anticipated that the maximum combined surface stockpile amount will reach approximately 50,000 tons by year 3. By year 4, all stockpiled PAG rock will be placed underground, and any further development waste generated will remain underground to be used as backfill. All remaining waste rock stockpiles will be completely depleted by year 5.

2.4.6.3 Tailings Characterization

Geochemical characterization was conducted on two tailings composite samples, each representing tailings generated from altered and unaltered ore. Tailings from altered ore was generated from 2 core samples weighing in total 20.5 kg that were obtained from the Fall 2020 drilling program on site. Tailings from unaltered ore was generated from 3 core samples weighing in total 25.0 kg, also obtained from the Fall 2020 drilling program.

In addition to the tailings, development rock expected to be used to construct the supporting buttresses within the Filtered Tailings Storage Facility (FTSF) was also geochemically characterized. Five drill core samples, ranging in weight from 4.1 to 5.4 kg each, were obtained from the Fall 2020 drilling program for this purpose.

Static tests of the composite tailings and the development rock to characterize its acid-generation and metal leaching potential included the following:

1. Mineralogy using x-ray diffraction (XRD) with a Rietveld refinement;
2. Whole rock total metals after aqua regia digestion;
3. Tailings filtrate analysis by ICP-MS
4. Paste pH;
5. Acid base accounting (Modified Sobek ABA package);
6. Sulfur specification;
7. Total inorganic carbon;
8. Rinse pH (development rock only) and
9. Shake flask extraction testing on development rock.

The two tailings samples are currently undergoing humidity cell testing to assess to characterize the long term potential of metal release. These kinetic tests are ongoing.

Items 1-7 were completed on each of the tailings samples. Items 4-9 were completed on split samples of each of the development rock samples to assess the variability.

Mineralogy of the tailings is dominated by quartz (83.9%) followed by numerous aluminosilicates (12.5% - 15.2%). The altered tailings sample contained approximately 4% carbonates, whereas the unaltered tailings contained less than 1% carbonates. The dominant carbonate form is calcite. No sulfides were detected by XRD.

2.4.6.4 Filtered Tailings Storage Facility (FTSF)

The AMEC Foster Wheeler FTSF Design Report, completed in November of 2016, is provided in Appendix E. FTSF engineering was based on geochemical analysis of Windy Gulch tailings. Windy Gulch was excluded from the mine plan in 2017. The proposed permit boundary does not include the Windy Gulch lode claim. GEM Services performed geochemical characterization (Appendix B) on the Dawson tailings and determined them to be more benign than the Windy Gulch tailings. The FTSF design, therefore, will be more than appropriate for Dawson tailings storage.

Filtered, or “dry stack”, tailings were selected as the preferred tailings management method for two primary reasons: (i) the proposed tailings location in the valley immediately north of the

proposed process plant presented an unattractive tailings storage to embankment fill ratio for conventional slurry tailings; and (ii) the proposed tailings location likely would not provide enough storage capacity for conventional slurry tailings to meet the life of the mine plan.

The FTSF has been designed to store up to approximately 1.0 million short tons of tailings over an approximate 10-year period, based on a mill throughput of 300 tpd.

Tailings will be hauled by truck from the filter plant to the FTSF site where they will be spread in thin lifts (typically 12 inches or less) and compacted in an unsaturated condition. A haul road along the south side of the FTSF will be constructed to access the placement areas. Since the tailings stack will be constantly rising in elevation throughout operations, switchback benches will likely need to be created in the face of the shell to provide an access route for haul trucks to the downstream slope of the FTSF. Waste rock will be used as required for construction of haul roads and on-going trafficability to tailings placement locations.

Two tailings placement zones with different compaction requirements are included in the design to provide physical stability of the dry stack and operational flexibility for periods of wet weather or upset conditions at the filter plant. Tailings may be placed in the General Placement Area (Zone 2) to a minimum of 90% of standard Proctor density. Only tailings meeting the 95% standard Proctor density will be placed in the FTSF Shell Placement Area (Zone 1), to provide the FTSF designed stability. The slope stability criteria applied for the FTSF design included a minimum static factor of safety of 1.5 and a minimum pseudo-static factor of safety of 1.3. The results of a seismic assessment for the site are included in Section 4.0 Geotechnical Stability.

The tailings will be stacked at an overall slope of 3H:1V with intermediate benches to control erosion and runoff. A three-foot thick, non-mineralized sand and rock layer will be progressively placed on the downstream slope of the FTSF during operations for erosion protection. This layer will form a portion of the closure cover. The AMEC report and FTSF design figures are provided in Appendix E.

Perimeter diversion channels will be constructed around the FTSF to capture clean water (i.e. non-contact) and route it around the FTSF, thereby preventing clean water run-on to the FTSF. No liner system is included in the FTSF design based on the low seepage rates observed from compacted filtered tailings stacks and the benign geochemistry of the tailings. However, an underdrainage system will be constructed to capture seepage from the FTSF foundation. The seepage, as well as runoff from the dry stack, will be directed to a geomembrane lined contact water pond downstream of the FTSF. Contact water collected in the pond will be recycled back to the processing plant, evaporated or treated (if necessary). Groundwater monitoring wells will be installed upstream and downstream of the FTSF to monitor water quality.

2.5 Exhibit E: Reclamation Plan

The Dawson Gold Mine site will be reclaimed to wildlife habitat. After mining is complete and the mill is no longer in operation, final reclamation will begin. During reclamation, the mine portal and all mine openings are sealed, the mill is dismantled, the disturbed areas are stabilized and pre-mining conditions are re-established with contours reflecting elevation changes resulting from the construction of various pads, roads and the FTSF during the LOM.

2.5.1 Growth Medium Materials

The soil type at the proposed mill site is Bronell gravelly sandy loam according to USDA NRCS web survey. Gravelly sandy loam may exist up to 16 inches deep. During mill development, four to six inches of topsoil (growth medium) will be salvaged. The salvaged growth medium will be maintained in the topsoil stockpile located at the north end of the mill site. It is anticipated that approximately 24,000 yd^3 will be stockpiled during site development.

2.5.2 Reclamation Procedure

2.5.2.1 Mill and Building Demolition and Removal

All surface structures and mining equipment will be dismantled and removed from the site to other industrial sites to be reused. Mill components including ore sizing equipment will be transported off-site. Metal buildings will be dismantled and hauled off-site. Manufactured buildings will be transported off-site.

During mill demolition, large equipment and structures that are not moved to other industrial sites will be cut to sizes that can be safely moved by salvage contractors to recycling yards. Concrete building foundations and concrete pads will be demolished using a loader and a bulldozer equipped with a ripper. Concrete debris from slabs and foundations will be broken to sufficient size to be used as backfill to seal the mine portal and ventilation shafts.

2.5.3 Mine Portal and Ventilation Raise Closing

Once mining has been completed, equipment and materials will be brought to surface prior to closure. The portal access will then be sealed with concrete debris from slabs and mill foundations, and rock fill to ensure the mine entrance and portal face is completely covered. The rock fill will be sloped to allow for placement of a topsoil cover for final reclamation.

Once the main ventilation fan has been removed, the ventilation raise will be backfilled from surface. The placement of fill will be mounded above the raise opening to allow for possible settling or subsidence over time. The fill material will be capped with a topsoil cover for final reclamation.

2.5.4 Grading, Backfilling and Ripping

Grading and backfilling will begin once mill structures are removed. Bulldozers and loaders will be used to grade and re-contour areas to blend with surrounding undisturbed topography. Backfilling may be necessary in the building footprints and in drainage areas. As areas are graded and backfilled, final grading will leave areas in a roughened state to enhance surface water penetration between replaced topsoil and subgrade, promoting vegetation growth.

Sediment ponds and drainage structures not necessary in post-mining land use will be backfilled and graded. These structures will be reclaimed after initial mill site reclamation. Ponds will be backfilled and embankments graded to blend with surrounding topography.

The majority of the interior roads will not be reclaimed. The road leading to the mill building from the main interior road will be reclaimed, approximately 300 linear feet, or 6000 ft^2. This road and areas that have been compacted by buildings will be ripped and roughened using a bulldozer equipped with a ripper. Ripped surfaces will be graded to blend with adjoining topography.

2.5.5 Growth Medium Replacement

During reclamation, approximately four inches of growth medium material will be placed on graded surface disturbances using bulldozers, loaders or motor grader.

2.5.6 Revegetation

Prepared disturbances will be seeded with a USDA NRCS recommended seed mix developed for this specific site. The seed mixture is predominately native species that will establish in the semi-arid non-irrigated location. Re-vegetation will occur either during early spring or late fall. The prepared surfaces will be drill seeded using the NRCS recommended seed mix provided in Table 10.2.5. The site will be mulched with straw at the rate of 4000 lbs./acre and then crimped using a bulldozer.

Table 2.5.6-1: Reclamation Seed Mix

Plant Species	**Seeding Rate (PLS/acre)**
Blue grama	0.25
Indian ricegrass	0.74
Sand dropseed	0.05
Little bluestem	1.34
Sideoats grama	1.82
Bottlebrush squirreltail	0.45
Needleandthread	0.54
Blue flax	0.57
Annual sunflower	3.71

2.5.7 Reclamation of the FTSF

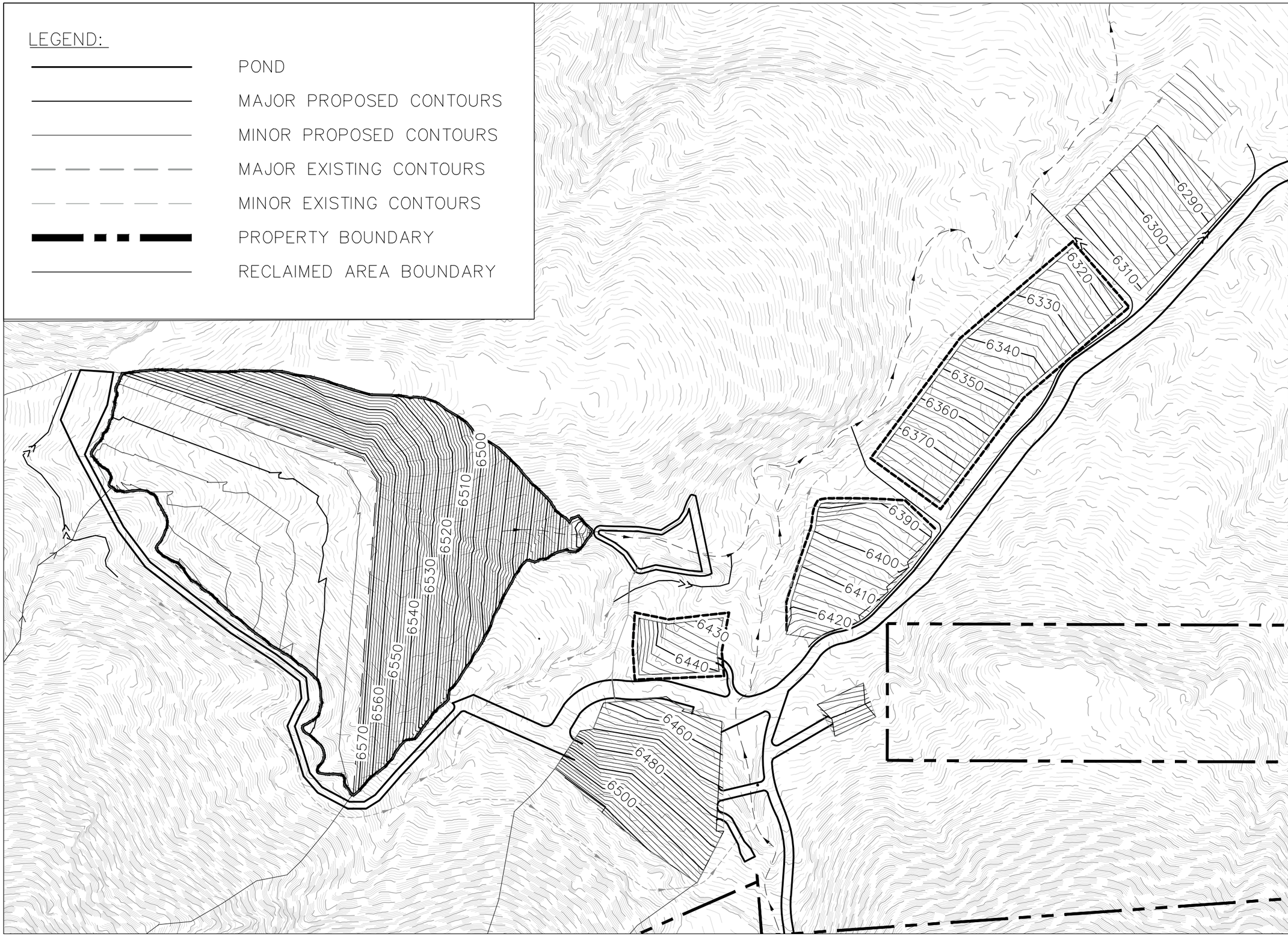
A vegetative cover system will be constructed over the FTSF. A closure channel will be constructed around the perimeter of the reclaimed FTSF to capture surface water runoff and prevent surface water runoff flow onto the reclaimed FTFS. The final surface of the FTSF will be graded to promote runoff from direct precipitation to the closure channel. Seepage from the FTSF is expected to be negligible; however, seepage will be monitored and treated if necessary to meet water quality standards of the State of Colorado. Once demonstrated to no longer be necessary for water quality monitoring, the contact water pond will be decommissioned, re-graded to original topography, and re-vegetated.

Regular visual inspections of the FTSF will be conducted during operations in accordance with the Operations, Maintenance and Surveillance (OMS) manual (Appendix F). Settlement and deformation of the FTSF will be monitored using survey monuments installed on the completed slopes. Integrity of the tailings stack will be periodically assessed with Cone Penetration Testing (CPTu) program.

2.6 Exhibit F: Reclamation Plan Map

LEGEND:

- POND
- MAJOR PROPOSED CONTOURS
- MINOR PROPOSED CONTOURS
- MAJOR EXISTING CONTOURS
- MINOR EXISTING CONTOURS
- PROPERTY BOUNDARY
- RECLAIMED AREA BOUNDARY



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0 100' 200'

SCALE: 1" = 200'

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ZEPHYR RECLAMATION EXHIBIT

6 MILES SOUTHWEST OF CANON CITY, CO 81212

PROJECT ENG: AWE
QA/QC: AWE
DRAWN BY: GPR
PROJECT #: 21.022

V1.0–06/23/2021

C1 /1

RECLAMATION EXHIBIT

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2.7 Exhibit G: Water Information

Bishop Brodgen and Associations, Water Consultants, specifically Timothy A. Crawford and Christopher J. Sanchez, prepared the contents of this exhibit on behalf of Zephyr USA.

As discussed below, the proposed mining operation is expected to intercept ground water and has the potential to affect surface or ground water systems at and in the vicinity of the proposed mine location. Provided below is information that describes the surface and ground water systems and provides details regarding potential impact on those systems as a result of the proposed mining. As summarized below, any impact that may result from the mine to ground and surface water systems is expected to be minimal and inconsequential.

2.7.1 Property and Water Information Summary

The proposed Zephyr Dawson property gold mine is located as presented in the attached Figure 1 which encompasses the affected land and adjacent land where impacts may potentially be observed. The proposed mine is located in Fremont County approximately 5.9 miles southwest of Canon City, Colorado.

Windy Gulch and Dawson Gulch flow through and around the mine in the immediately vicinity of the property and locally drain the foothills to the south and surrounding the property. These gulches are typically dry and only flow during large precipitation events. Grape Creek is a larger, perennial surface water feature that drains a larger basin to the west and southwest of the property The surface drainages are located as presented in Figure 1.

The surface geology at the property is mapped as Precambrian granodiorite consisting of massive to foliated, medium to coarse grained granodiorite and lesser amounts of quartz monzonite and quartz diorite (Miscellaneous Investigations Series Map I-869). The subsurface at the property contains part of a thin, but laterally extensive zone of gold and base-metal mineralization that trends east-northeast and dips to the south-southeast. This is the targeted gold seam. To the north of the property, the Precambiran granodiorite material contacts sedimentary bedrock including the Dakota formation and the Morrison Formation along an unnamed east-west, steeply dipping fault. Local terrace deposits (unconsolidated quaternary material) are also mapped in the general vicinity of the property. The mapped surface geology in the vicinity of the site is presented in Figure 2.

Available well data, including data from two monitoring wells at the property, indicate that the Precambrian granodiorite (a fractured hard rock unit, “Precambrian material”) and the Dakota formation are locally saturated and transmit water. For the purposes of this summary, the Precambrian material and the Dakota formation are considered aquifers. The extent of the saturation within the aquifer systems may be limited based on observations from the monitoring wells. Other geologic units identified in Figure 2 are not considered to be aquifers. Regional ground water gradients in the aquifers are generally towards the north in the Precambrian material from the mountainous areas south of the mine and towards the east/northeast in the Dakota formation towards the center of the Canon City Embayment.

Local recharge sources are mainly limited to precipitation that infiltrates the formations either as direct recharge or along drainages during runoff where they are present at the surface. Grape Creek to the north of the mine area appears to be in connection with the Precambrian material based on winter base

flow conditions and the perennial nature of the creek. Based on the local topography, Grape Creek appears to be a gaining stream draining the Precambrian material immediately adjacent to it.

The mine will be completed in the Precambrian material, which is saturated below the water table based on nearby borehole data, including monitoring wells associated with the mine. The mine is expected to intercept some ground water within that material and will be dewatered to allow for mining. Accordingly, the mine does have the potential to impact ground water systems in the vicinity of the proposed mine as a result of the mine dewatering in the form of water level changes in the aquifers. The ground water level changes have the potential to indirectly impact surface water systems in the form of stream depletions. The areas adjacent to the mine in which ground water or surface water could potentially be depleted was determined using a MODFLOW model which was used to simulate dewatering of the mine, ground water level changes in the aquifer system, and depletions to surface streams. Details regarding the MODFLOW modelling are presented in Appendix L. Based on the modelling investigation ground water level impacts potentially resulting from dewatering were limited to no more than 5 feet at a distance of approximately 1.1 miles from the mine assuming interception of ground water and constant dewatering operations over the life of the mine. Wells and surface water features outside of this approximately 1.1-mile radius will essentially not be impacted by ground water level changes caused by the mine dewatering.

Available Division of Water Resources well database information and mapping were used to identify wells located near the property and the results of a MODFLOW model of the mine dewatering were used to identify which of those wells were close enough that their potential for impact should be investigated further. This review identified 5 wells that should be investigated further. Information associated with these nearby wells are summarized in the table below.

Permit No.	Owner	Depth (ft)	Use	Distance from Underground Workings (ft)	Lithology
295711	Zephyr Gold USA LTD	140	Monitoring	N/A	Precambrian
295712	Zephyr Gold USA LTD	220	Monitoring	813	Dakota formation
59631	Keller Randy & Whited Jeri Jean	88	Domestic / Stock	3,982	Dakota formation
73772	Joe Spurgin	231	Household	3,821	Precambrian
99071	Ronald McClain	60	Domestic	6,142	Precambrian

The first two wells are monitoring wells owned by Zephyr Gold USA LTD and are currently used and will continue to be used to monitor actual ground water level changes caused by the mining.

2.7.1.1 Permit No. 59631

Permit No. 59631 (the Keller Well) is located to the northeast of the property on the American Placer as shown in Figure 1, was permitted for domestic and stock uses, was constructed in September of 1972 to a total depth of 88 feet with steel casing and perforated sections. The well had an original static water level of 67 feet and reported a pumping rate of 14 gpm. The

well is constructed in the sedimentary bedrock material neighboring the Precambrian material and, accordingly, is not completed in the same geologic material as the mine.

This well is located in a location indicated by the modelling that will experience less than 5 feet of water level change as a result of mining. The well is separated from the mine by faulting which may mute the projected impacts. The model conservatively assumed perfect hydraulic communication across the faulting which may not be the case in reality. The fault may act as either a barrier to ground water flow or as a potential source of water to the aquifer. Either condition would reduce the communication of water level changes across the faulting and to the neighboring well.

Although the water level in the aquifer may change slightly at the location of this well, the changes will be small and the well should still be capable of producing its permitted pumping rate. If water level changes do impact the pumping rate from the well (which is not expected) the well could be redrilled to a deeper depth.

The northern monitoring well which is completed in the Dakota and a proposed future downgradient monitoring well will provide insight regarding actual impacts experienced by this well.

The separation of the well from the mine by distance and the local faulting will limit any water quality impacts to the well.

2.7.1.2 Permit No. 73772

Permit No. 73772 is also located to the northeast of the property as shown in Figure 1, was permitted for household uses, was constructed in November of 1974 to a total depth of 231 feet with steel casing and perforated sections. The well had an original static water level of 195 feet and reported a pumping rate of 1 gpm. The lithologic log for the well indicates it is also constructed in Precambrian material similar to the material targeted by the mine, but is located to the north and on the opposite side of the local faulting from the mine.

This well is located in a location indicated by the modelling that will experience less than 5 feet of water level change as a result of mining.

Although the water level in the aquifer will change, the changes will be small and the well should still be capable of producing its permitted pumping rate even during and at the end of mine operations when impacts will be the greatest. If water level changes do impact the pumping rate form the well (which is not expected) the well could be redrilled to a deeper depth.

The separation of the well from the mine by distance and the local faulting will limit any water quality impacts to the well.

2.7.1.3 Permit No. 99071

Permit No. 99071 indicates a location to the west of the property as shown in Figure 1, was permitted for domestic uses and was constructed in June of 1956 (almost 65 years old) to a depth of approximately 60 feet. No construction details are available from the late registration

filing for the well. The well would be expected to be constructed in the same the Precambrian material as the mine at the indicated location.

Based on available mapping, this well may be mislocated or may no longer be used. There is no residence at the location of the well indicated by the State's database nor any road to any residence in the general area. This well may not exist at the plotted location.

If the well exists, it is located in a location indicated by the modelling that will experience less than 5 feet of water level change as a result of mining.

Although the water level in the aquifer will change, the well, if it exists, should still be capable of producing its permitted pumping rate even during and at the end of mine operations when impacts will be the greatest. If water level changes do impact the pumping rate from the well (which is not expected) the well could be redrilled to a deeper depth.

2.7.2 Potential Surface Water Impacts

Windy Gulch and Dawson Gulch are mostly dry creeks and are separated from the ground water system beneath the mine. Accordingly, these local drainages will not be impacted by the mine operations. Grape Creek which appears to be in connection with the Precambrian material immediately adjacent to the creek, but is located outside of the area of ground water level change impact indicated by the modelling. Accordingly, Grape Creek will not be directly impacted by the changes in water level in the aquifer. Grape Creek is considered a point of connection with the aquifer in the context of water rights in that some surface water feature must be identified as a point of depletion and this is the closest and most likely point of connection between the ground water system and the surface water system. Actual measurable impacts to Grape Creek are unlikely because physical impacts would require the complete interconnectedness of fractures between the mine and Grape Creek to allow for a physical pathway, which is unlikely.

No other springs, stock water ponds, reservoirs or ditches were identified within an approximate 1.1-mile area.

Figure 1 presents the location of the affected property area as well as the locations of the identified tributary water courses and drainages and wells that could potentially be affected by the proposed mining operations.

2.7.3 FTSF Leachate

2.7.3.1 FTSF Leachate Characterization

Acid base accounting results for the tailings and development rock samples classify all material as non-potentially acid generating. All but one sample had sulfide sulfur at or below the detection limit of 0.01 wt%. One development rock sample had 0.03 wt% sulfide sulfur. All tailings and development rock samples had a carbonate neutralization to acidity production ratio greater than 4. Material with a ratio greater than 2 is considered non-potentially acid generating. Paste pH for all samples ranged from 6.9 to 9.7, indicating no net acidity is currently being produced.

The FTSF leachate will be dominated by the quality of the tailings filtrate entrained in the tailings. Filtrate from altered and unaltered tailings, generated during the metallurgical testing

that produced the tailings, was directly analyzed using ICP-MS. Results were compared to the EPA effluent criteria (40 CFR Part 440 Subpart J), surface water quality standard for Grape Creek (5 CCR 1002-32), groundwater quality standard (5 CCR 1002-41) and baseline groundwater quality at the site. The filtrate meets all three standards and is similar or less than the background groundwater quality, with the following exceptions:

- Nickel and selenium concentrations exceed the surface water quality standard; however, they meet the groundwater quality standard and are similar to background groundwater concentrations
- Manganese concentration exceeds the groundwater standard, but is similar to background groundwater concentrations
- Potassium concentration is greater than background groundwater concentrations; however, there are no surface nor groundwater standards for potassium.

The evolution of tailings leachate quality is currently being assessed through humidity cell testing. These tests are ongoing. To date, many metals have not been detected after the initial filtrate was flushed.

Metal release from development rock was assessed using the shake flask extraction (SFE) test. SFE tests were done on all 5 development rock samples. The SFE test is similar to the Synthetic Precipitation Leaching Procedure (SPLP), the difference being the SFE test is conducted at a 3:1 water to solid ratio for 24 hours whereas the SPLP test is conducted at a 20:1 water to solid ratio for 18 hours. All other aspects of the procedures are the same. The SFE test was chosen because it produces a more concentrated solution (without hitting solubility limits) that enables detection of some elements that could otherwise be missed. This is a more conservative approach to the State of Colorado's leach test requirement.

Results from the SFE tests show few detectable trace metals. Metals and metalloids detected include aluminium, antimony, arsenic, barium, copper, lead, manganese, molybdenum and uranium. All parameters met the water quality standard for Grape Creek and the groundwater quality standard. The exception is lead, where 3 of the 5 samples exceeded the water quality standard for Grape Creek. Lead concentrations ranged from <0.0005 mg/L to 0.0057 mg/L. The water quality standard for Grape Creek is 0.001 mg/L. All SFE tests produced slightly alkaline pH. No sulfate was detected.

2.7.3.2 FTSF Seepage Quality

The seepage from the FTSF will comprise of filtrate introduced to the facility with the tailings, infiltration water that contacts the tailings and infiltration water that contacts the support buttresses (development rock). The contributions from development rock and tailings were combined in proportion to the tonnage of each material expected in the FTSF, utilising the seepage volume reported in "Pre-Feasibility Study Report – Dawson Filtered Tailings Storage Facility" (Amec Foster Wheeler, 2016). The estimated seepage quality thus derived was then compared to the groundwater quality standard and the baseline groundwater quality to ascertain its suitability for discharge.

In deriving the seepage quality estimate, a number of assumptions were made:

- All infiltration water contacting the tailings will acquire the quality of filtrate
- Leaching of development rock in the FTSF will occur at a 1:1 water to solid ratio
- The metal release in the SFE tests represent an ongoing release rate as opposed to total soluble metal available
- No elements precipitate out of solution
- The ratio of tailings volume to development rock volume is the same as the ratio of tailings footprint area to buttress footprint area.

The FTSF is expected to contain 500,000 short tons of tailings and 4,200 short tons of development rock. Tailings filtrate quality will dominate the FTSF seepage quality. The predicted seepage quality meets the groundwater quality standard, with the exception for manganese. However, the predicted manganese concentration (0.071 mg/L) is less than the background groundwater concentration (0.14 mg/L). The groundwater quality standard is 0.05 mg/L.

The predicted seepage quality presented herein would be reflective of short term and operating conditions. The seepage quality estimates for the long term will be developed once the kinetic tests on tailings are complete.

Test data and a detailed discussion of the geochemical characterization of the FTSF is provided in Appendix B.

2.7.4 Monitoring Data

An existing monitoring plan has been implemented at the property including two monitoring wells and two surface monitoring locations. The monitoring plan includes the collection of water levels in the existing wells, observation of surface flow conditions and the collection of water quality samples from both the surface and ground water systems. The existing monitoring plan monitors both of the surface drainages that cross the property and both of the aquifers identified beneath the property. The monitoring of these locations will be performed on a quarterly basis. The locations of the monitoring points have also been shown in Figure 1 (Permit Nos. 296711 and 296712). An additional proposed future downgradient monitoring well is planned for construction to allow for additional monitoring of water level changes in the aquifers.

2.7.5 Dewatering and Runoff Pollution Protection Plan

Consistent with Secretary of the Interior requirements and Colorado DRMS rules, the proposed mining will need to be performed in a manner to prevent unnecessary degradation of the property and adjacent lands.

Protection of the property and adjacent lands from runoff and dewatering / process water discharge impacts and pollution will be managed separately. Runoff water will be captured in stormwater channels and directed to a stormwater detention pond. Dewatering and process water not reused in the ore process will be discharged to a sedimentation pond.

2.7.5.1 Stormwater Detention Pond

Diversion channels, drainage ditches, culverts and sediment barriers will be implemented at the surface and around roadways to reduce sediment load and slow surface water runoff. All surface runoff will be diverted through sediment control devices such as silt fences, check dams,

vegetated swales, rip rap or other appropriate devices before runoff enters any existing drainage.

Clean water will be routed around tailing piles and low seepage rates are expected from tailing pile areas. Tailing pile areas will include buttress and shell placement areas as well as underdrain systems that will capture any seepage from tailing areas and discharged to a geomembrane-lined contact water pond.

It is noted that the drainages that cross the property are mostly dry and flow only during high precipitation events.

A stormwater detention pond is proposed to control stormwater drainage at the property. Based on the Mile High Flood District's Urban Storm Drainage Criteria Manual Volume 2, the stormwater detention pond should be sized to temporarily store a minimum of 10% of the 100-year flood flow to achieve a reduction of 10% of the 100-year flood flow through the structure. The drainage above the property that will flow through the affected area is estimated to be approximately 330 acres in size. The 100-year precipitation event for the property area is estimated to be 4.75 inches over a 24-hour period. Accordingly, the 100-year flood event could introduce approximately 130 acre-feet to the drainage, but a significant portion of this precipitation will infiltrate the subsurface as opposed to flow in the drainages as live flow. Based on a conservative estimation that 50% of the precipitation of ta 100-year flood event infiltrates and the remaining 50% results in live stream flow, the stormwater detention pond should be sized for the storage of up to approximately 6.5 acre-feet or 2.1 million gallons should be adequate to control the potential stormwater runoff. There are no stream gages on Windy Gulch or Dawson Gulch to confirm the flow assumptions presented above.

2.7.5.2 Sedimentation Pond

A sedimentation pond is proposed to receive dewatering water not utilized in the ore processing and water discharged from the ore processing (which is expected to be minimal).

As mentioned above and based on the monitoring well data, saturated fractures exist in the subsurface at the property. As the mine is constructed, the mine workings will intercept and drain those saturated fractures which are hydraulically connected to the mine workings. Water that flows into the mine will be evacuated using a permanent pumping station that will be constructed at the bottom of the mine. Mine inflow water will be connected at the bottom of the mine in a system of overflow pools with connecting drain holes to allow for initial settling of the inflow water with the cleanest water from the last overflow pool being pumped to the surface for clarification and reuse. Water that is not reused will be discharge to a settling pond system at the surface that will further manage sediment from the dewatering.

Dewatering of the mine may initially require dewatering rates as high as 80 gpm. On average, dewatering rates will be approximately 55 gpm based on the modelling. These estimates are conservative in that they assumed the immediate dewatering of the mine form the bottom of the mine and assumes that the Precambrian material responds to pumping as a porous media and not a fractured rock aquifer. If the fractures in the Precambrian material are not connected, dewatering rates will be much lower once the fractures drain.

For the purpose of sedimentation pond sizing, the pond should be designed around a discharge rate of 55 gpm.

Based on the Mile High Flood District's Urban Storm Drainage Criteria Manual Volume 3, the sedimentation pond should include a minimum storage volume of approximately 1.8 acre-feet or 600,000 gallons to allow for the sedimentation of the discharge water. This volume represents the water quality capture volume for the property location and should be sufficient to manage the dewatering water and limited ore process discharge if it occurs. The proposed 100-foot by 150-foot sedimentation pond should be adequate for the detainment of discharges from mine dewatering and the ore process.

2.7.6 Water Requirements

The proposed mine facilities will require water for 1) drinking water purposes, 2) fire protection, 3) crushing, grinding and gravity separation processes, 4) rougher, clear flotation and regrinding processes, 5) tailings thickening and filtering, 6) gold concentrate thickening and filtering and 7) dust control.

During development, there will be minimal water demand, but during operations, the mine facilities will require approximately 130 gallons per minute when in operation. Water will be provided by the mine dewatering, water recycling and delivery of additional fresh water to the property. The mine is proposed to operate 365 days per year and annual demands are estimated at approximately 200 acre-feet during operation. As noted, a significant portion of this water demand will be provided by the reuse of water supplies within the mining process so once the reclaim water, filtered water and potable water tanks are full, they will only need to be topped off periodically.

Dust suppression water will be provided using a truck with spreader bars using approximately 1.0 acre-feet per year.

During reclamation, there will be minimal water requirements at the property.

2.7.7 Water Supplies

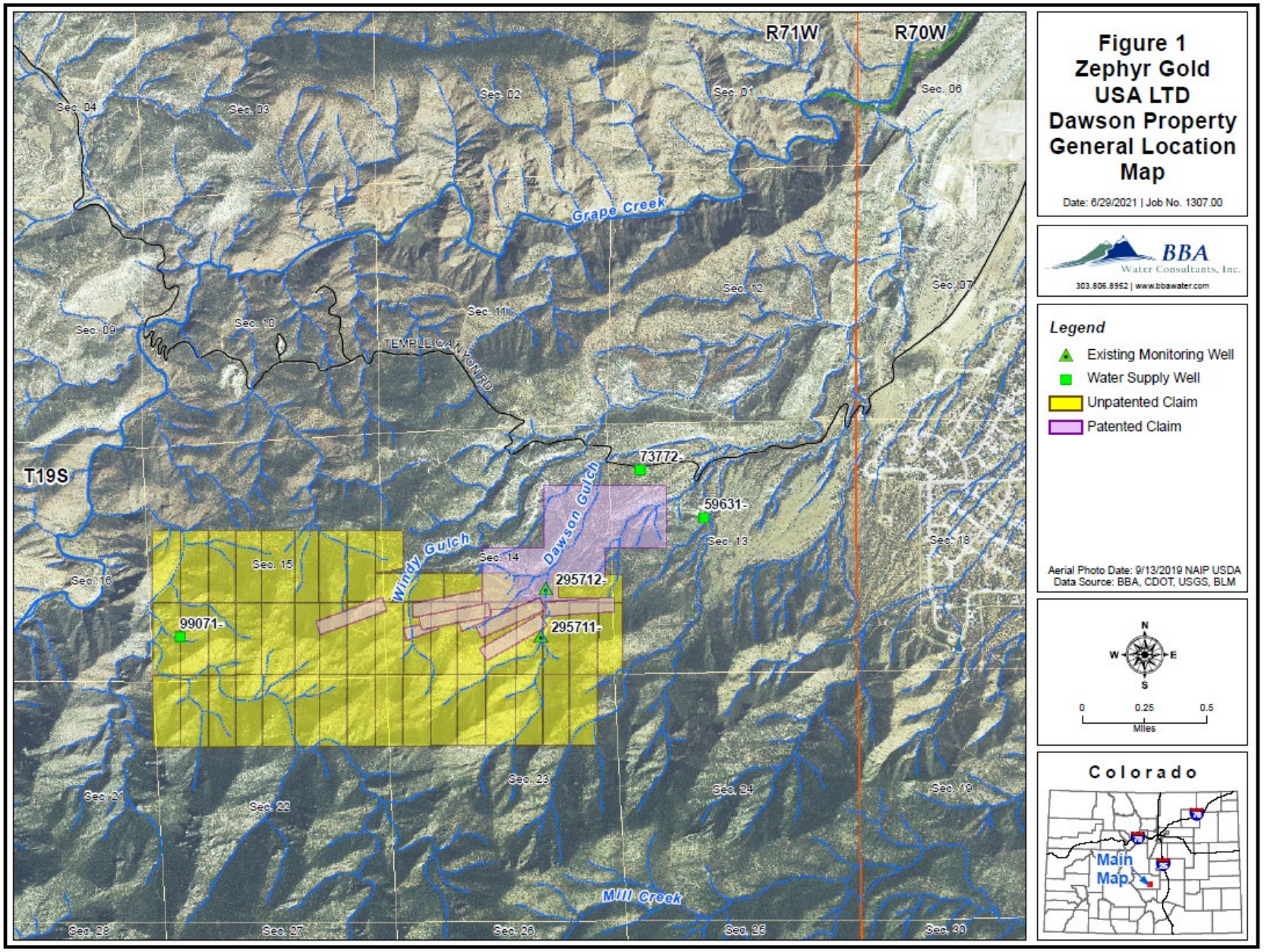
The water supplies available to the property include 1) water dewatered from the mine and 2) a new water supply well to be constructed on the property. Recycling of the water used for mine processing also provides a significant supply of the water used in the processes. The new water supply well will provide water during the development stage. During mine operation, the water supply well and the dewatering of the mine will provide water to meet water demand. During mine operation, the process will mainly rely on the recycling of water with the water supply well used to top of the potable supply and the reclaim process water tank. The mine dewatering will only be used to top of the reclaim process water tank.

An augmentation plan will be required to address the replacement of lagged stream depletions associated with the dewatering of the mine and the use of a new water supply well at the site. A portion of the dewatering water will return to the ground water system through infiltration of the discharge water. A portion will also be consumed in the potable system and the ore processing. It is feasible to project lagged stream depletions from the proposed mine operations and to identify supplies to replace those lagged stream depletion using both the return flows form the site and additional offsite supplies. As indicated above, Grape Creek will be identified as a point of depletion for augmentation purposes, but actual impacts are unlikely due the fractured rock geology at the site. The mine operator

will implement the augmentation plan, including the acquisition and dedication of any necessary water rights to operate the plan. The augmentation plan will protect senior water rights from injury resulting from depletions to the surface water system.

2.7.8 National Pollutant Discharge Elimination System (NPDES) Permit

Although the drainages at the mine are typically dry and best practices will be used to control sediment and discharges from the property including diversion channels, drainage ditches, culverts, sediment barriers and sediment ponds, a National Pollutant Discharge Elimination System (NPDES) Permit will be required in case discharges are made and the drainages do flow. Zephyr will acquire a NPDES permit from the Water Quality Control Division at the Colorado Department of Health and Environment before operations commence at the property. It would be acceptable for this to be a condition of approval.


R71W
R70W
Sec. 04
Sec. 03
Sec. 02
Sec. 01
Sec. 06
Grape Creek
Sec. 12
Sec. 07
Sec. 09
Sec. 10
Sec. 11
TEMPLE CANYON RD
T19S
73772-
59631-
Sec. 13
Sec. 18
Windy Gulch
Dawson Gulch
Sec. 14
Sec. 15
Sec. 16
295712-
99071-
295711-
Sec. 23
Sec. 24
Sec. 19
Sec. 21
Sec. 22
Mill Creek
Sec. 28
Sec. 27
Sec. 26
Sec. 25
Sec. 30
Figure 1
Zephyr Gold USA LTD
Dawson Property
General Location Map
Date: 6/29/2021 | Job No. 1307.00
BBA
Water Consultants, Inc.
303.806.8952 | www.bbawater.com
Legend
Existing Monitoring Well
Water Supply Well
Unpatented Claim
Patented Claim
Aerial Photo Date: 9/13/2019 NAIP USDA
Data Source: BBA, CDOT, USGS, BLM
N
W
E
S
0
0.25
0.5
Miles
Colorado
Main Map

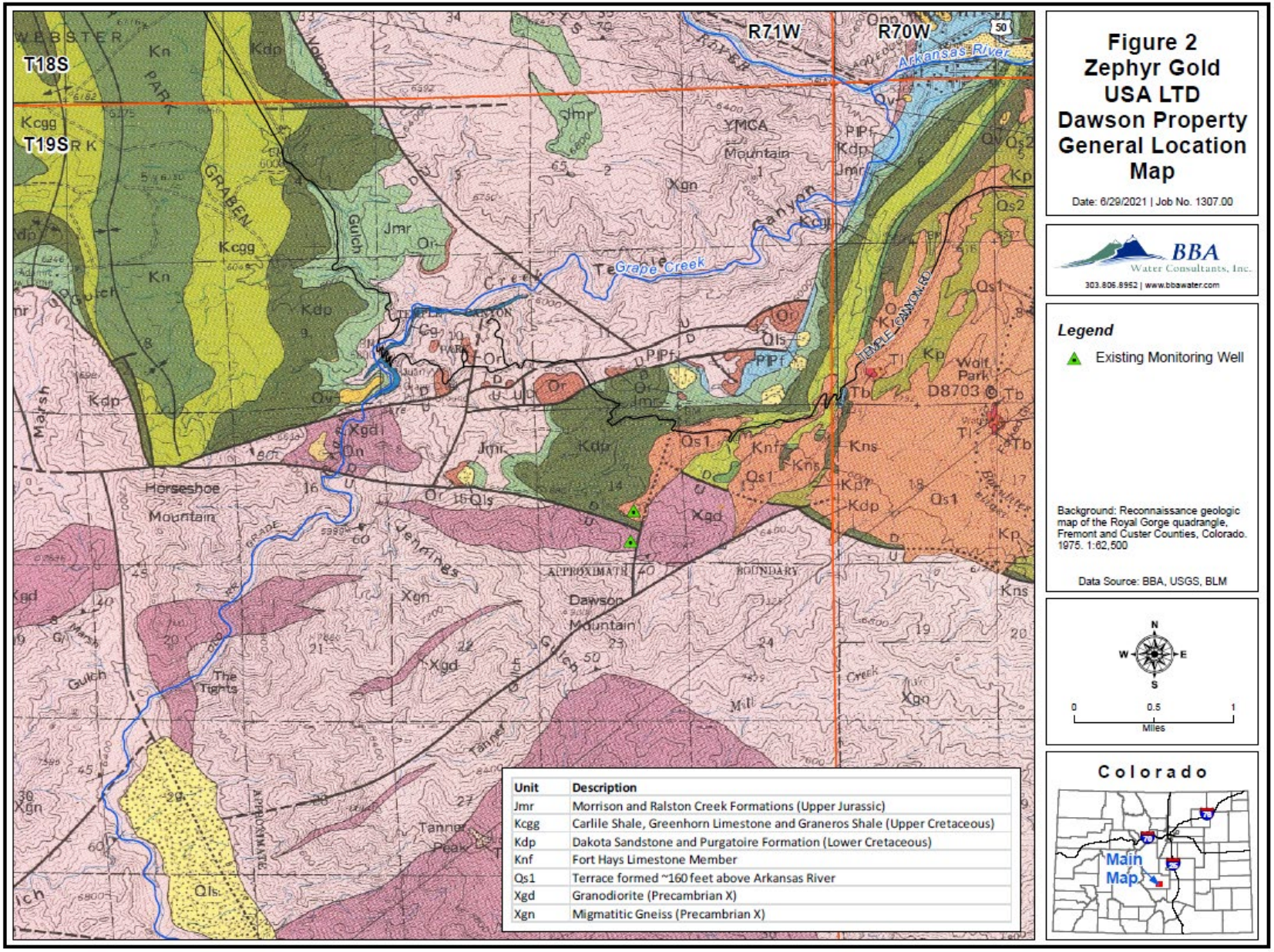

R71W
R70W
T18S
T19S
Arkansas River
Grape Creek
Horseshoe Mountain
Dawson Mountain
YMCA Mountain
Wolf Park
D8703
Unit | Description
Jmr | Morrison and Ralston Creek Formations (Upper Jurassic)
Kcgg | Carlile Shale, Greenhorn Limestone and Graneros Shale (Upper Cretaceous)
Kdp | Dakota Sandstone and Purgatoire Formation (Lower Cretaceous)
Knf | Fort Hays Limestone Member
Qs1 | Terrace formed ~160 feet above Arkansas River
Xgd | Granodiorite (Precambrian X)
Xgn | Migmatitic Gneiss (Precambrian X)
Figure 2
Zephyr Gold
USA LTD
Dawson Property
General Location
Map
Date: 6/29/2021 | Job No. 1307.00
BBA
Water Consultants, Inc.
303.806.8952 | www.bbawater.com
Legend
Existing Monitoring Well
Background: Reconnaissance geologic map of the Royal Gorge quadrangle, Fremont and Custer Counties, Colorado. 1975. 1:62,500
Data Source: BBA, USGS, BLM
N
W
E
S
0
0.5
1
Miles
Colorado
Main Map

Table 2.7-1: Water Level Data

		North Well			South Well	
Date	**Time**	**Water Level (ft)***	**Notes**	**Time**	**Water Level (ft)***	**Notes**
10/1/2014	9:30	176		10:00	45	
11/4/2014	10:30	163		10:36	36	
12/1/2014	9:54	170		10:04	37	
1/5/2015	10:48	173		11:23	55	
2/3/2015	14:00	175		14:06	46	
3/11/2015	11:22	42	Severe cold weather. Believe probe was freezing to the interior of the well casing.	11:34	51	
4/1/2015	9:15	172		9:39	55	
5/4/2015	14:38	168		14:45	55	
6/2/2015	8:47	174		8:53	28	
7/1/2015	8:42	173		9:06	27	
8/12/2015	9:23	173		9:30	34	
9/1/2015	9:05	171		9:13	37	
10/1/2015	9:03	168		9:22	29	
11/5/2015	9:05	169		9:12	39	
12/10/2015	8:49	169		8:45	40	
3/9/2021	13:48	178		13:57	55	
3/29/2021	9:00	178	Wells sampled	9:13	55	
4/27/2021	14:35	178		15:11	55	
5/27/2021	11:30	178		11:36	55	

Table 2.7-2: Groundwater Quality Data

Zephyr Gold USA
Dawson Gold Mine, Fremont County, CO
Baseline Groundwater Quality Data

Analyte Units mg/L unless otherwise noted	North Well						Groundwater Quality Standard Concentration****	South Well					
	10/2014 Q1	1/1/2015 Q2	4/2015 Q3	7/2015 Q4	10/2015 Q5	3/2021 Q1		10/2014 Q1	1/1/2015 Q2	4/2015 Q3	7/2015 Q4	10/2015 Q5	3/2021 Q1
Aluminum	<0.2	<0.2	0.28	<0.2	0.26	ND	5	<0.2	<0.2	<0.2	0.54	0.36	ND
Arsenic	<0.01	<0.01	<0.01	<0.01	<0.01	ND	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND
Beryllium	<0.005	<0.005	<0.005	<0.005	<0.005	ND	0.004	<0.005	<0.005	<0.005	<0.005	<0.005	ND
Boron	0.26	0.15	0.13	0.15	0.12	0.1	0.75	<0.1	<0.1	<0.1	<0.1	<0.1	ND
Cadmium	<0.005	<0.005	<0.005	<0.005	<0.005	ND	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND
Calcium	52	61	63	72	67	58	No Standard	67	66	66	70	76	68
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	ND	0.1	<0.01	<0.01	<0.01	<0.01	<0.01	ND
Cobalt	<0.01	<0.01	<0.01	<0.01	<0.01	ND	0.05	<0.01	<0.01	<0.01	<0.01	<0.01	ND
Copper	<0.01	<0.01	<0.01	<0.01	0.018	ND	0.2	0.012	<0.01	<0.01	<0.01	0.02	ND
Iron	<0.1	<0.1	<0.1	<0.1	0.13	ND	0.1	<0.1	<0.1	<0.1	<0.1	0.52	ND
Lead	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	ND	0.05	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	ND
Lithium	0.051	0.038	0.032	0.033	0.034	0.028	2.5	0.013	<0.01	<0.01	<0.01	0.011	ND
Magnesium	20	24	23	26	23	24	No Standard	19	19	18	21	21	19
Manganese	0.1	0.089	0.11	0.17	0.072	ND	0.05	0.036	0.013	0.014	0.029	0.023	ND
Mercury	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	ND	0.002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	ND
Nickel	<0.02	<0.02	<0.02	0.037	<0.02	ND	0.1	<0.02	<0.02	<0.02	0.038	<0.02	ND
Potassium	6.2	5.6	5.3	5.3	5.1	6.3	No Standard	4.9	4	3.7	3.5	3.5	4.3
Selenium	<0.005	<0.005	<0.005	<0.005	<0.005	ND	0.02	<0.005	<0.005	<0.005	<0.005	<0.005	ND
Sodium	80	36	5.3	19	19	18	No Standard	27	15	14	14	15	16
Vanadium	<0.01	<0.01	<0.01	<0.01	<0.01	ND	0.1	<0.01	<0.01	<0.01	<0.01	<0.01	ND
Zinc	0.025	0.11	0.03	0.12	0.057	ND	2	0.091	0.12	<0.02	0.023	<0.02	ND
Bicarbonate as $CaCO_3$	260	230	230	220	210	200	Reflected in pH	220	210	210	200	210	210
Carbonate as $CaCO_3$	<20	<20	<20	<20	<20	ND	Reflected in pH	<20	<20	<20	<20	<20	ND
Total Alkalinity as $CaCO_3$	260	230	230	220	210	200	Reflected in pH	220	220	210	200	210	210
pH (lab)*	7.85	7.88	7.73	7.77	7.92	8.31	6.5-8.5	7.7	7.85	7.84	8.23	7.91	8.09
pH (field)	8.63	7.37	8.62	7.38	8.7	7.95	6.5-8.5	8.33	7.72	7.97	7.81	8.54	7.6
Temperature °C (field)	13.5	12.7	13.4	14.8	13.7	11.3	No Standard	13	11.8	12.9	14.3	12.6	11.8
specific conductivity (lab)**	779	653	621	567	561	504	No Standard	591	531	521	537	533	495
electric conductivity (field)***	627	578	414	502	453	568	No Standard	433	406	469	468	449	541
Total dissolved solids	480	450	380	370	350	690	10,000	360	330	310	350	340	310
Flouride	2.4	1.9	2	1.8	2.1	1.8	4	1.8	1.5	1.6	2	2.1	1.9
Chloride	25	16	12	5.8	5.9	5.3	250	12	8.2	8.6	3.1	4.6	7.2
Nitrite	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	ND	1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	ND
Nitrate/Nitrite as N	<0.1	<0.1	<0.1	0.21	<0.1	ND	10	<0.1	<0.1	<0.1	1.6	1.5	0.26
Nitrate as N	<0.2	<0.2	<0.2	0.21	<0.2	ND	10	<0.2	<0.2	<0.2	1.6	1.5	0.26
Sulfate	110	92	88	82	81	77	250	66	56	57	74	71	58
Depth to Groundwater (ft from top of collar)	176	173	172	173	168	178		45	55	55	27	29	55

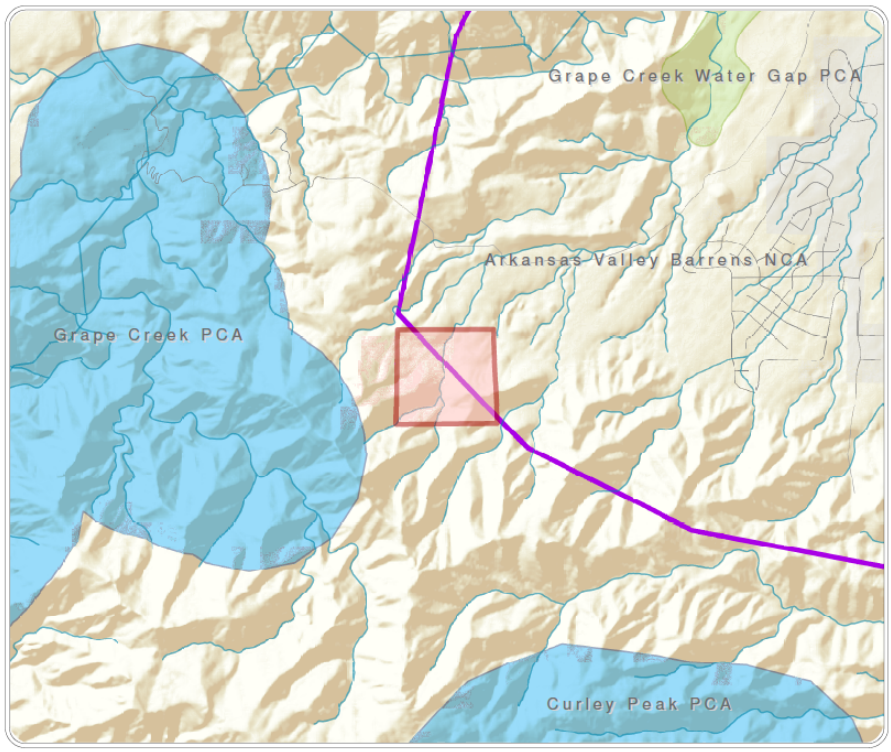
* pH measured in water at 25° Celsius
** Units in umhos/cm
*** uS/cm
**** The accepted standard is the most restrictive concentration/level in Regulation 41.

2.8 Exhibit H: Wildlife Information

Colorado Division of Parks and Wildlife (CPW) formally commented regarding vicinity wildlife habitat in 2013 as a component of the FC CUP application and review process (Appendix G). The area encompassing the Project is wilderness with numerous minor historic mining disturbances as evidenced by relict shafts, adits and mine dumps. North and northwest of the Project site is mule deer winter range and bighorn sheep habitat areas. Raptor nesting and other transitory wildlife is probable however no raptor nesting sites are present in the Project area. Winter hibernation sites for the Townsend big-eared bat were observed in previous years. However, the January 25, 2013 site survey performed by Raquel Wertsbaugh, CO DPW representative, found neither bats nor signs of bats. The adits were permanently sealed immediately following the CO DPW site survey to prevent re-habitation.

The Colorado Natural Heritage Program (CNHP) database was queried for a current list of Special Status Species that have the potential to occur in the mine vicinity (Appendix G). The potential for occurrence was based on evaluation of habitat suitability and proximity to a critical habitat area or area with bio-diversification. The Network of Conservation Areas Report listed the Grape Creek Water Gap as a high biodiversity area that is located approximately two miles west of the proposed mine. Based on the CNHP species report, the Bott's Pocket gopher is the only rare and/or imperiled mammal species in the vicinity and it was reported observed in Township 18 South, Range 70 West, beyond the extent of impact of the proposed mine. The Bott's Pocket gopher is not specifically protected under State or Federal laws.

CNHP Potential Conservation Areas (PCAs) and Network of Conservation Areas (NCAs) in the vicinity of the Dawson Gold Mine Area of Interest



Colorado Natural Heritage Program
Colorado State University
1475 Campus Delivery
Fort Collins, CO 80523-1475

Map Created
13 November 2012
CNHP Environmental Review mdm

The accuracy of the data shown on this map is not guaranteed. The Colorado Natural Heritage Program is not responsible and shall not be liable to the user for incidental, consequential or special damages arising from its use or interpretation

The absence of data for a particular area or habitat does not necessarily mean that the species does not occur on or adjacent to the project site, rather that our files do not currently contain information to document their presence.

Although every attempt is made to provide the most current and precise information possible, please be aware that some of our sources provide a higher level of accuracy than others, and some interpretation may be required. CNHP's BIOTICS data system is constantly updated and revised. Please contact CNHP for an update or assistance with interpretation of this natural heritage information.

Data are not appropriate for site level planning or evaluation.

Legend

- General Area of Interest

Potential Conservation Areas

- B1: Outstanding Biodiversity Significance
- B2: Very High Biodiversity Significance
- B3: High Biodiversity Significance
- B4: Moderate Biodiversity Significance
- B5: General Biodiversity Interest
- Network of Conservation Areas

Universal Transverse Mercator (UTM), Nad 83, Zone 13

0 0.5 1 2 Miles

N

2.9 Exhibit I: Soils Information

The mine's facility and tailings storage will be developed at the toe of Greenhorn Mountain, in the vicinity of the historic Copper King Mine. According to the NRCS web survey (Appendix H), soils in the area of interest include Bronell gravelly sandy loam, Cathedral-Rock outcrop, Coaldale very gravelly sandy loam, Louviers-Travessilla complex and Sedillo cobbly sandy loam. With the exception of Cathedral, the soils are well drained sandy loam with moderately high to high water transmissivity on or near mountain slopes or terraces. The Cathedral soil is the unweathered mountain bedrock. The NRCS map unit description is provided in Exhibit I.

Development will be primarily on Bronell and Louviers-Travessilla complex soils. These soil groups are suitable for reclamation activities. During development, Zephyr will salvage an average of four to six inches of suitable plant growth medium. The salvaged soil will be stockpiled for use during final reclamation. The actual depth of salvaged soil will vary as geotechnical studies in the area indicate elluvium soils overlay sandstone and shale. The shallowest soil depths are on the upper slopes and deepest at the toe of the slope.

2.10 Exhibit J: Vegetation Information

Consistent with the NRCS soil description, native vegetation in the proposed facility area is pinyon and juniper with understory of Scribner needlegrass, wester wheatgrass, blue grama, sideoats grama, Gambel oak and mountain mahogany. Noxious weeds have not established because very little disturbance exists and historic disturbances are old enough to have revegetated successfully. Mr. Rick Romano of the US Department of Agriculture, NRCS, Fremont County office visited the site on November 17, 2014. The vegetation inventory is provided in Exhibit J.

The CNHP Potential Conservation Area included the following vegetation description.

> Grape Creek is a long, perennial drainage that winds through rugged, granitic, lower montane hills west of the
> north end of the Wet Mountains. The steep canyon slopes above the stream are sparsely covered with rocky pinon - juniper woodland (*Pinus edulis - Juniperus* spp.) with mountain mahogany (*Cercocarpus montanus*) and Gambel oak (*Quercus gambelii*) groves. There are small prospect mines in the hills of the stream valley. This perennial stream is recovering from intensive land use in the past (grazing, railroad corridor). It previously washed out annually during high energy spring flooding once water flow resumed after being much
> reduced in winter by Deweese Reservoir upstream. This repeatedly stripped all vegetation out of the riparian corridor until recent years when the streambank vegetation has held. Intensive land use has been curbed and
> the riparian vegetation is recovering. Currently, the predominant vegetation within the corridor is the graminoid-dominated streambanks that have been gradually expanding. The entire reach is dotted with Rocky Mountain juniper (*Juniperus scopulorum*) and one seed juniper (*Juniperus monosperma*) individuals interspersed with groves of narrowleaf cottonwood (*Populus angustifolia*) and/or plains cottonwood (*Populus deltoides*). There are some groves of mature cottonwoods where the ground has significant woody debris as well as areas of regenerating cottonwoods that likely will replace the junipers as canopy dominants in the future. Shrubs are sparse along the reach, but show signs of establishment and regeneration in many places.
> Coyote willow (*Salix exigua*) is the most common, although peachleaf willow (*Salix amygdaloides*) saplings are also present. The herbaceous cover is lush along the banks. Dominant graminoids include pasture grasses like quackgrass (*Elymus repens*) and Kentucky bluegrass (*Poa pratensis*), although native Nebraska
> sedge (*Carex nebrascensis*), common spikerush (*Eleocharis palustris*), and scouring rush horsetail (*Equisetum hyemale*) are common and abundant. There are scattered forbs throughout, including wild mint (*Mentha arvensis*), water horehound (*Lycopus americana*), and others. Vines such as riverbank grape (*Vitis riparia*) and clematis (*Clematis ligusticifolia*) crawl up and cover rock outcrops and juniper and cottonwood trees in several areas. Tributaries of Grape Creek are moderate to high gradient sandy washes with ephemeral to intermittent flow. Tree canopies, where present, are mixed evergreen-deciduous woodlands, often with sporadic cover.

United States Department of Agriculture

Natural Resources Conservation Service

248 Dozier Avenue
Canon City, CO 81212
Phone (719) 275-4465

SUBJECT: Inventory and Evaluation of Land, Water, and Related Resources

DATE: 11/17/2014

TO: Angela Bellantoni Environmental Alternatives, Inc.	[X] Individual [ ] Group [ ] Unit of Government

Situation: Review vegetation at the site of the old Dawson Gold Mine (Zephyr Project) and give options for reclamation.

Suggested Solution(s): On 10/14/2014 I met with Angela Bellantoni to look at the site of the Zephyr Project. We toured the site and I found a decent stand of vegetation there.

Native grass species were blue grama, bottlebrush squirreltail,scribner or green needlegrass, Indian ricegrass, little bluestem, needle-and-thread, red three-awn, sand dropseed and sideoats grama. Introduced grass species were crested wheatgrass and downy brome (cheatgrass).

Forbs found on the site were hairy goldenaster, skelton plant, Louisiana sagewort, curlycup gumweed, yellow sweetclover, fringed sage, annual sunflower, as well as pricklypear cactus.

Shrubs observed on the site are true mountain-mahogany and rabbitbrush. Tree species were pinyon pine and Rocky Mountain juniper.

We discussed possible seeding rates that would match the species that are onsite, or at least, should be there. There is an existing seed plan from 2012 for this area which I have recreated on an updated seed plan worksheet and attached to this form. This seed mix was based on recommendations by the BLM for this site.

Please feel free to contact the office if you have any questions.

Assisted by Ridu Romano CCP#69
Natural Resources Conservation Service

2.11 Exhibit K: Climate

The climate at Dawson Gold Mine is semi-arid high desert environment with moderate summer and winter temperatures. The Nation Weather Service Cooperative Weather Station is hosted by KRLN Radio at 1615 Central Avenue, Cañon City, CO. The 2020 weather data summary is provided in Table 2.11-1. Average weather data is provided in Appendix G

Table 1.1-1: 2020 Cañon City weather data

	Average High	Average Low	Average Temp	Precip	Snow
January	52.2°	21.6°	36.9°	0.09"	T
February	43.9°	18.2°	31.1°	1.47"	14.7″
March	60.0°	29.7°	44.8°	0.72"	3.4"
April	64.4°	31.2°	47.8°	0.48"	6.6″
May	76.9°	43.8°	60.4°	0.98"	
June	85.8°	54.1°	70.0°	1.01"	
July	89.5°	59.9°	74.7°	2.80"	
August	90.4°	59.2°	74.8°	0.57"	
September	79.2°	48.9°	64.0°	0.92"	4.5″
October	68.2°	33.4°	50.8°	0.74"	9.8″
November	60.8°	30.2°	45.5°	0.24"	T
December	50.4°	22.0°	36.2°	0.59"	7.4″
Averages/Totals	68.5°	37.7°	53.1°	10.61"	46.4″
Normal	68.1°	40.3°	54.2°	13.49"	42.1"

2.12 Exhibit L: Reclamation Costs

COST SUMMARY WORK

Task Description: Reclamation cost estimate

Site: Dawson Gold Mine

TASK LIST (Direct costs)

TASK	Description	Task Hours	Cost
001	Backfill and grade facilities area	24.47	$ 10,992.44
002	Rip facilities area	9.33	$ 2,530.92
003	Rip access and interior road prior to regrading	0.33	$ 90.39
004	Regrade access and interior road	0.40	$ 100.77
005	Finish grade disturbed area	5.00	$ 479.40
006	Replace topsoil from stockpile to mill site	14.86	$ 3,717.24
007	Replace topsoil from stockpile to haul road	0.48	$ 120.12
008	Seal portal and vent shafts	95.00	$ 20,716.03
009	Plug and seal monitoring wells	18.00	$ 6,051.90
010	Reseed facilities area and haul road	14	$ 18,423.94
011	Demolish and remove all structures	250	$ 136,324.60
012	Mobilize and demobilize	7.78	$ 7,758.67
	Hours Total:	439.65	
	Direct Costs Total:		$ 207,306.42

INDIRECT COSTS

OVERHEAD AND PROFIT

Liability insurance:	2.02%	$ 4,187.59
Performance bond:	1.05%	$ 2,238.91
Job superintendent	200 hours	$ 15,000.00
Profit:	5%	$ 10,365.32
CONTRACT AMOUNT (DIRECT AND O&P)		$ 239,098.24

LEGAL-ENGINEERING-PROJECT MANAGEMENT

Engineering work and/or contract/bid preparation	5.00%	$ 11,954.91
Reclamation management and/or administration	4.50%	$ 10,759.42

TOTAL BOND AMOUNT $ 261,812.58

Mill

Task Description: Mobilize /Demobilize Task # 012

Site: Dawson Gold Mine

EQUIPMENT TRANSPORT RIG COST

Rig Capacities:	0-25 Tons	26-50 tons	51+ tons
Unit Cost:	$ 88.67	$ 117.55	$ 125.45

NON ROADABLE EQUIPMENT

Machine	Weight/Tons	Haul trip cost/hr/fleet	Return Trip cost/hr/fleet	DOT Permit cost/fleet
CAT D9	66.13	$ 205.64	$ 125.45	$ 250.00
ATLAS COPCO ROC	1.25	$ 128.04	$ 88.67	$ 250.00
CAT 12M	16.01	$ 112.15	$ 88.67	$ 250.00
CAT 623G	37.47	$ 184.07	$ 117.55	$ 250.00
Drill/Broadcast seeder with tractor	25	$ 128.26	$ 88.67	$ -
	Subtotal	$ 758.16	$ 509.01	$ 1,000.00

ROADABLE EQUIPMENT

2500 gallon water truck		$ 68.18	$ 68.18
Fuel tanker		$ 81.14	$ 81.14
Lube truck		$ 94.90	$ 94.90
Flatbed truck		$ 115.89	$ 115.89
	Subtotal	$ 360.11	$ 360.11

EQUIMENT HAUL DISTANCE AND TIME

Colorado Springs 45 miles one-way

Average speed 40 mph

Transportion Cycle Time Hours

	Non-Roadable	Roadable
Haul time:	1.13	1.13
Return time:	1.13	1.13
Loading time:	0.5	NA
Unloading time:	0.5	NA
Subtotals:	3.26	2.26

Total Non-Roadable Cost: $ 2,065.49

Total Roadable Cost: $ 813.85

JOB TIME AND COST

Total time: 7.78

Total cost: $ 7,758.67

Mill

Task Description: Bulding Demolition Task # 011

Site: Dawson Gold Mine

Laboratory - manufactured

Structure or Item Description	Dimensions	Quantity	Unit	Unit Cost	Total Cost
Office and Break Room - Metal Bldg	100x50x15	75,000	CF	$ 0.23	$ 17,250.00
Concrete slab	100x50x6"	5000	SF	$ 1.75	$ 8,750.00
Concrete supports	6 @ 18"x4'	24	LF	$ 15.72	$ 377.28
Mill - Metal Bldg	100x50x40	200,000	CF	$ 0.23	$ 46,000.00
Concrete slab	100x50x8"	5000	SF	$ 1.75	$ 8,750.00
Concrete supports	14@18"x4'	56	LF	$ 15.72	$ 880.32
Substation	2 Trans, 2 PI Units	5	EA	$ 2,500.00	$ 12,500.00
Pad	40'x40'x8"	1600	SF	$ 2.33	$ 3,728.00
Main Power Lines		2500	LF	$ 5.38	$ 13,450.00
Fan Power Lines		400	LF	$ 5.38	$ 2,152.00
Facilities Area Septic System	2 @ 1500 gallons	2	EA	$ 556.50	$ 1,113.00
Mine Fan Housing	9'x20'	1300	CF	$ 0.23	$ 299.00
Shaft housing	18' Dia x 8'	2100	CF	$ 0.23	$ 483.00
Fan	9' Dia	1300	CF	$ 0.23	$ 299.00
Pad	20'x20'x6"	400	SF	$ 1.75	$ 700.00
Portal Apron	25x20x12"	500	SF	$ 3.49	$ 1,745.00
Mine Dewatering System	6"x300'	300	LF	$ 1.90	$ 570.00
Remove debris from site	Up to 1,000 cy	1000	cy	$ 17.05	$ 17,050.00
Interior Road Culverts	30"x50'	50	LF	$ 4.56	$ 228.00
				Total	$ 136,324.60

Task Description: Reseed facilities area, ventilation fan, fan access ro Task # 010

Site: Dawson Gold Mine

Reseeding Activity	Description	Cost/Acre
Tilling	Disc harrowing 6" deep	$ 98.01
Drill seeding		$ 232.00
Mulching	Delivered hay 1 ton/acre	$ 265.00
Crimping mulch	Tractor	$ 66.02

Seed Mix

Species	Rate-PLS lbs/Acre	$/lb	Cost/Acre
Blue Grama	0.25	27.00	$ 6.75
Indian Ricegrass	0.74	22.00	$ 16.28
Sand dropseed	0.05	4.50	$ 0.23
Little Bluestem	1.34	12.00	$ 16.08
Sideoats grama	1.82	11.00	$ 20.02
Bottlebrush squirreltail	0.45	38.00	$ 17.10
Needleandthread	0.54	105.00	$ 56.70
Blue flax	0.57	17.95	$ 10.23
Annual sunflower	3.71	10.40	$ 38.58
		Total/Acre	$ 181.97

Mulch

Hay	4 ton/acre	$ 522.00

Job time and estimate

No. of Acres		7
Initial cost/acre	$	1,365.00
Reseeding cost/acre (Estimate 30% failure rate)	$	1,266.99
Initial Job Cost	$	9,555.00
Reseeding Job Cost	$	8,868.93
Total Job Cost	$	18,423.94
Job Hours		14

Task Description: Plug and seal monitoring wells Task # 009

Site: Dawson Gold Mine

Borehole Description	Sealing/Item Method	Diameter	Length	Quantity	Unit	Unit Cost	Total Cost
Bottom plug	PVC plug	6"	NA	3	Each	$ 52.93	$ 158.79
Fill wells with cement	Portland cement grout in 94 lb bags	6"	500'	60	bag	$ 11.83	$ 709.80
Cut casing at surface	Exposed casing removal	6"	NA	6	LF	$ 6.04	$ 36.24
Borehole marker	Identification marker material	NA	NA	3	Each	$ 2.89	$ 8.67
Drill rig time	Atlas Copco Roc D3-01, 3 in	NA	NA	24	Each	$ 145.92	$ 3,502.08
Water truck time	2500 gallon tank	NA	NA	24	Each	$ 68.18	$ 1,636.32
						Total cost	$ 6,051.90

Task Description: Seal portal and vent shafts Task # 008

Site: Dawson Gold Mine

Description	Dimensions	Closure Method	Quantity	Unit	Unit Cost	Total Cost
Portal - block wall	15'x11'	Adit closure - bulkhead seal	165	SF	$ 76.48	$ 12,619.20
Backfill portal	24'x7'x25'	Adit closure backfilling	153	CY	$ 3.00	$ 458.33
Vent shaft steel grate	8' diameter	Shaft closure - grate	1	Each	$ 2,200.00	$ 2,200.00
Concrete cap	8' diameter	Shaft closure - concrete cap poured in place	50	SF	$ 108.77	$ 5,438.50
					Total cost	$ 20,716.03

Task Description: Replace topsoil from stockpile to haul road Task # 007

Site: Dawson Gold Mine

HOURLY EQUIPMENT COST

Basic Machine:	Cat 623G Scraper
Unit Cost/Hour:	$ 250.15

MATERIAL QUANTITIES

Initial volume:	150	
Swell factor:	1.125	
Loose volume:	169	LCY
Unit production:	20.5	LCY

TRAVEL TIME

Haul distance	1250	ft
Total cycle time	3.5	minutes

JOB TIME AND COST

Fleet size:	I scraper
Total job time:	0.48
Total job cost:	$ 120.12

Task Description: Replace topsoil from stockpile to mill site Task # 006

Site: Dawson Gold Mine

HOURLY EQUIPMENT COST

Basic Machine:	Cat 623G Scraper
Unit Cost/Hour:	$ 250.15

MATERIAL QUANTITIES

Initial volume:	5,908	
Swell factor:	1.125	
Loose volume:	6,647	LCY
Unit production:	20.5	LCY

TRAVEL TIME

Haul distance	820	ft
Total cycle time	2.75	minutes

JOB TIME AND COST

Fleet size:	I scraper
Total job time:	14.86
Total job cost:	$ 3,717.24

Task Description: Finish grade disturbed areas Task # 005

Site: Dawson Gold Mine

HOURLY EQUIPMENT COST

Basic Machine:	CAT 12M
Horsepower:	158
Unit Cost/Hour:	$ 95.88

MATERIAL QUANTITIES

Area:	7 acres
Unit production:	1.4 acre/hr

JOB TIME AND COST

Fleet size:	1 grader
Unit cost:	$ 68.49
Total job time:	5.00
Total job cost:	$ 479.40

Task Description: Regrade interior road to mill building Task # 004

Site: Dawson Gold Mine

HOURLY EQUIPMENT COST

Basic Machine:	Cat D9	
Horsepower:	405	
Unit Cost/Hour:	$ 253.73	

MATERIAL QUANTITIES

Initial volume:	150	
Swell factor:	1.165	
Loose volume:	175	LCY
Unit production:	440	LCY/hr

JOB TIME AND COST

Fleet size:	1 dozer	
Unit cost:	$ 0.58	
Total job time:	0.40	
Total job cost:	$ 100.77	

Task Description: Rip Access and Interior Road Prior to Regrading Task # 003

Site: Dawson Gold Mine

HOURLY EQUIPMENT COST

Basic Machine:	Cat D9 with 3-shank ripper
Horsepower:	405
Unit Cost/Hour:	$ 271.17

MATERIAL QUANTITIES

Area:	0.25	acres
Rip depth	2	feet
Volume:	1,210	CY
Unit production:	0.75	acre/hr

JOB TIME AND COST

Fleet size:	1 dozer
Unit cost:	$ 361.56
Total job time:	0.33
Total job cost:	$ 90.39

Task Description: Rip Facilities Area Task # 002

Site: Dawson Gold Mine

HOURLY EQUIPMENT COST

Basic Machine:	Cat D9 with 3-shank ripper
Horsepower:	405
Unit Cost/Hour:	$ 271.17

MATERIAL QUANTITIES

Area:	7	acres
Rip depth	3	feet
Volume:	33,880	CY
Unit production:	0.75	acre/hr

JOB TIME AND COST

Fleet size:	1 dozer
Unit cost:	$ 361.56
Total job time:	9.33
Total job cost:	$ 2,530.92

Task Description: Backfill and grade facilities area Task # 001

Site: Dawson Gold Mine

HOURLY EQUIPMENT COST

Basic Machine:	Cat D9 dozer	Basic Machine:	Cat 623G scraper
Horsepower:	405	Hourly payload capacity:	19.03
Unit Cost/Hour:	$ 253.73	Unit Cost/Hour:	$ 250.15

MATERIAL QUANTITIES

Initial volume:	3780		Travel distance:	1200	FT
Swell factor:	1.165		Travel time:	1	min
Loose volume:	4403.7	LCY	Scraper cycle time:	3.5	min
Unit production:	180	LCY/hr	Unit production:	326.23	LCY/hr
			Scraper time:	13.50	

WATER TRUCK FOR DUST CONTROL DURING BACKFILLING

Basic Machine:	2500 gallon water truck
Horsepower:	150
Unit Cost/Hour:	$ 57.56

JOB TIME AND COST

Fleet size:	1 dozer, 1 scraper and 1 water truck
Total job time:	24.47
Total job cost:	$ 10,992.44

2.13 Exhibit M: Other Application Submissions

Zephyr USA will be submitting and application for a CUP for mining from Fremont County Department of Planning and Zoning (FCPZ). This application will provide information pertaining to compatibility with area land use, traffic analysis, driveway access permit, lighting plan and fire prevention plan.

Colorado Department of Public Health and Environment (CDPHE) will receive two applications: (1) An Air Pollution Emissions Notice (APEN) will be submitted to the Air Pollution Control Division (APCD) for construction and operation of the mine and; (2) A mine discharge application will be submitted to the Water Quality Control Division (WQCD).

The Colorado Department of Natural Resources, State Engineers Office (SEO) will also receive applications as follows: (1) Additional monitoring well permit applications will be submitted for construction of the proposed monitoring wells. (2) Mine dewatering will be necessary; thus an application will be submitted for anticipated dewatering as well as addressing mill needs. This application will likely be amended as the mine develops. Zephyr respects Colorado's effort to be protective and fair regarding water consumption and will maintain an open dialogue with SEO throughout LOM.

2.14 Exhibit N: Source of Legal Right to Enter

Zephyr USA's source of legal right to enter exists as owner of private land, owner of patented claims and as easements with adjoining property owners.

Appendix J contains copies of the following documents:

Adamic Diamond Placer Claim Easement

Keller Grant of Nonexclusive Easement

Copper Boy Patented Claim

Copper King Patented Claim

Copperopolis Patented Claim

Fremont Placer Patented Claim

Last Show Patented Claim

Mike Sutton Patented Claim

Sentinel Patented Claim

Judith Placer Warranty Deed

2.15 Exhibit O: Owners of Record of Affected Land and Owners of Substance to be Mined

Zephyr USA is owner of record of affected land and substance to be mined.

Appendix J contains copies of the following documents:

Adamic Diamond Placer Claim Easement

Keller Grant of Nonexclusive Easement

Copper Boy Patented Claim

Copper King Patented Claim

Copperopolis Patented Claim

Fremont Placer Patented Claim

Last Show Patented Claim

Mike Sutton Patented Claim

Sentinel Patented Claim

Judith Placer Warranty Deed

2.16 Exhibit P: Municipalities Within Two Miles

Cañon City, CO is a municipality within two miles of DGM.

City of Cañon City
128 Main Street
Cañon City, CO 81212

2.17 Exhibit Q: Proof of Mailing of Notices to County Commissioners and Conservation District

NOTICE OF FILING APPLICATION

FOR COLORADO MINED LAND RECLAMATION PERMIT

FOR **REGULAR (112d) DESIGNATED MINING OPERATION**

NOTICE TO THE BOARD OF SUPERVISORS

OF THE LOCAL CONSERVATION DISTRICT

Fremont County DISTRICT

Zephyr Gold USA Ltd (the "Applicant/Operator") has applied for a Regular (112d) Designated Mining Operation reclamation permit from the Colorado Mined Land Reclamation Board (the "Board") to conduct mining operations in Fremont County. The attached information is being provided to notify you of the location and nature of the proposed operation. The entire application is on file with the Division of Reclamation, Mining and Safety (the "Division") and the local county clerk and recorder.

The applicant/operator proposes to reclaim the affected land to wildlife habitat use. Pursuant to Section 34-32-116(7)(j), C.R.S., the Board is required to confer with the local Conservation Districts before approving of the post-mining land use. Accordingly, the Board would appreciate your comments on the proposed operation. Please note that, in order to preserve your right to a hearing before the Board on this application, you must submit written comments on the application within twenty (20) days of the date of the applicant's last newspaper publication.

If you would like to discuss the proposed post-mining land use, or any other issue regarding this application, please contact the Division of Reclamation, Mining and Safety, 1313 Sherman Street, Room 215, Denver, Colorado 80203, (303) 866-3567.

NOTE TO APPLICANT/OPERATOR: You must attach a copy of the application form to this notice. If this is a notice of a change to a previously filed application you must either attach a copy of the changes, or attach a complete and accurate description of the change.

NOTICE OF FILING APPLICATION

FOR COLORADO MINED LAND RECLAMATION PERMIT

FOR **REGULAR (112d) DESIGNATED MINING OPERATION**

NOTICE TO THE BOARD OF COUNTY COMMISSIONERS

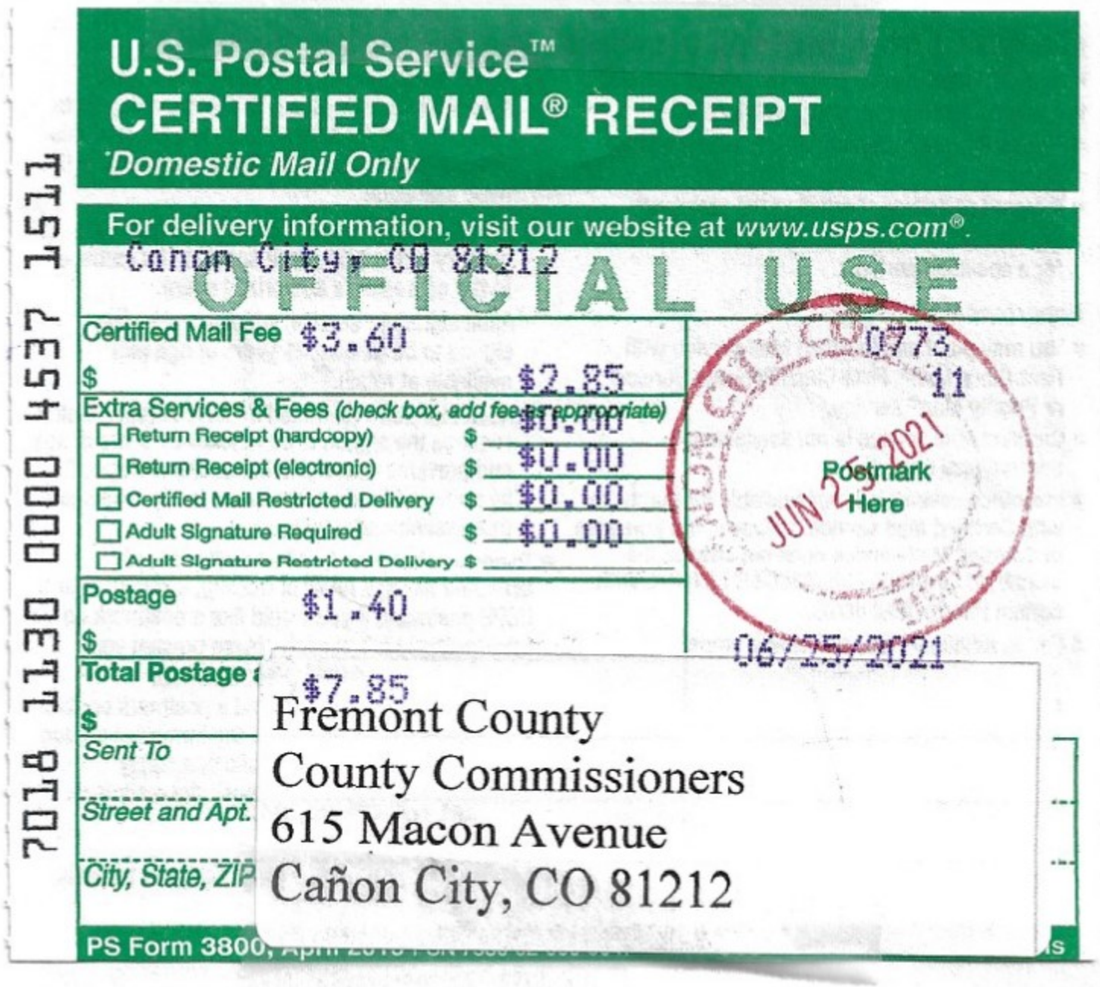
Fremont COUNTY

Zephyr Gold USA Ltd (the "Applicant/Operator") has applied for a Regular (112d) Designated Mining Operation reclamation permit from the Colorado Mined Land Reclamation Board (the "Board") to conduct mining operations in Fremont County. The attached information is being provided to notify you of the location and nature of the proposed operation. The entire application is on file with the Division of Reclamation, Mining and Safety (the "Division") and the local county clerk and recorder.

The applicant/operator proposes to reclaim the affected land to wildlife habitat use. Pursuant to Section 34-32-116(7)(j), C.R.S., the Board is required to confer with the local Board of County Commissioners before approving of the post-mining land use. Accordingly, the Board would appreciate your comments on the proposed operation. Please note that, in order to preserve your right to a hearing before the Board on this application, you must submit written comments on the application within twenty (20) days of the date of the applicant's last newspaper publication.

If you would like to discuss the proposed post-mining land use, or any other issue regarding this application, please contact the Division of Reclamation, Mining and Safety, 1313 Sherman Street, Room 215, Denver, Colorado 80203, (303) 866-3567.

NOTE TO APPLICANT/OPERATOR: You must attach a copy of the application form to this notice. If this is a notice of a change to a previously filed application you must either attach a copy of the changes, or attach a complete and accurate description of the change.



2.18 Exhibit R: Proof of Filing with County Clerk and Recorder

Clerk and Recorder

Justin D. Grantham, County Clerk & Recorder

615 Macon Avenue, Room 103 *Cañon City, Colorado 81212*

Phone 719.276.7332

Fax 719.276.7339

justin.grantham@fremontco.com

RE: MINING RECLATMATION PERMIT APPLICATION COLO STATE 34-32-112.10.8

DATE RECEIVED June 30, 2021

NAME OF APPLICANT Zephyr Gold USA Ltd

PERMIT # for Dawson Gold Mine

DATE OF HEARING _____

NAME OF CONTACT PERSON:

Angela Bellantoni **phone #** (719) 275-8971

please print

Please check which box applies to your permit:

✓ I wish to be contacted 30 days after the hearing to pickup the application

I do not wish to pickup the application 30 days after the hearing and herby give the clerk's permission to destroy

Signature Angela M Bellantoni

- **Date of Disposition** 6/30/21 **Clerk** Patty Sanders-Bosco

U:\History File\Forms\reclamation form.doc

2.19 Exhibit S: Permanent Man-Made Structures

Permanent man-made structures within 200 ft. of the affected area boundary are Zephyr's structures including the monitoring wells, access gate, historic culvert and access road.

3.0 EXHIBIT U: DESIGNATED MINING OPERATION ENVIRONMENTAL PROTECTION PLAN

[6.4.21] Summary

The purpose of this Environmental Protection Plan (EPP) is to assure compliance with the Act and Rules that are protective of environmental areas that have the potential to be affected by designated chemicals, toxic or acid-forming materials or acid mine drainage. In addition, the EPP includes implementation and commitment to appropriate wildlife protective measures recommended by CPW.

The DGM was evaluated to determine the potential to generate toxic or acid forming materials. Three aspects of the project were identified: the FTST, waste rock piles and temporary stockpiles. No designated chemicals, toxic or acid forming materials will be used as process agents. DGM does not include leach facilities, heap leach pads, impoundments, or land application sites.

[6.4.21(1)(c)(iii)] The EPP for FTSF

As described in the mine plan, mill tailings will be produced at the rate of 300 tpd and placed in the FTSF as filtered or "dry stack" tailings with a maximum dry density of approximately 15%. Geotechnical classification and geochemical characterization of tailings did not identify carbonate or sulfide minerals in the tailings samples. Minerals detected by XRD include quartz (67.5%) and numerous aluminosilicates, including feldspars (potassium and plagioclase 6.1%) and mafic aluminosilicates (21.4%), as well as magnetite (0.2%) and goethite (4.8%).

Geochemical characterization of tailings and supporting buttress material was undertaken in 2021. Details and results of the program are given in GEM Services' report "Tailings Geochemistry Characterization and Seepage Quality Estimate", provided in Appendix B of Zephyr Minerals' mine permit application.

In summary, a tailings and tailings filtrate sample from the processing of altered and unaltered ore were subjected to acid base accounting (tailings solids) and water quality analysis (tailings filtrate) to determine their potential to produce acidic drainage and to release metals. Test results indicate both tailings types are non-potentially acid generating (non-PAG). The tailings filtrate quality meet the groundwater quality standard and is less than the background groundwater quality at the site.

The tailings samples are currently undergoing kinetic testing to assess the long term metal leaching potential during post-closure. To date, leachates from the humidity cells are maintaining slightly alkaline pH with decreasing concentrations in sulfate, acidity and metals.

Development rock expected to be used as supporting buttress material in the FTSF was also characterized. Five samples were subjected to acid base accounting and short term leach tests (shake flask extraction testing). All samples are classified as non-PAG material. Results from the SFE tests show few detectable trace metals. Metals and metalloids detected include aluminium, antimony, arsenic, barium, copper, lead, manganese, molybdenum and uranium. All parameters met the groundwater quality standard. All SFE tests produced slightly alkaline pH. No sulfate was detected.

Tailings from the rougher/scavenger flotation and cleaner scavenger flotation will be combined in the thickener to recover process water that will be recycled in the mill. The thickener solids will be pumped to a filter feed stock tank and treated with a generic anionic emulsion flocculant to aid settling. Again,

any filtrate water will be sent back to the mill for reuse and the tailings filter cake with a target moisture content of 15% will be conveyed to a temporary stockpile on a concrete pad immediately outside the mille building.

Tailings will be hauled by truck to the FTSF. Tailings that meet the moisture content target will be placed in the Shell Placement Area in 12 inch lifts. Tailings that do not meet the moisture content target due to inclement weather or upset conditions at the plant will be placed in the General Placement Area target moisture content is met. Tailings will be stacked at an overall slope of 3H:1V.

The FTSF will be monitored for compaction, moisture content and large scale integrity testing. Compaction assessment will be performed once every two weeks to insure tailings are stacked to required density. Grab samples will be taken from placed tailings and tested for moisture content twice per week. Overall integrity of the FTSF will be assessed by the cone penetration test every three years.

Stormwater diversion channels will be constructed upgradient of the FTSF to divert clean water away from the FTSF. Low seepage rates are anticipated in the compacted filtered tailings stack but an underdrain will be constructed in case seepage occurs. The underdrain will convey seepage and any surface runoff from the dry stack to the geomembrane lined contact water pond. Water collected in the contact water pond will be tested for pH. Neutral pH water will be returned to the mill, allowed to evaporated or released. Non-neutral pH water will be neutralized before being returned to the plant. Pond solids will be placed in mined out underground workings.

The combination of dry stack tailings, stormwater diversion channels, the geomembrane lined contact water pond, stack monitoring and the semi-arid climate of the area will contribute to achieving a FTSF that will be inert and not susceptible to oxidation over time.

[6.4.21(1)(c)(iv)] The EPP for Waste Rock

Waste rock, primarily granite, will be temporarily stockpiled during initial underground mine development in the north end of the footprint of the FTSF. This rock will be readily available during site development. Waste rock will be used to construct the FTSF embankment and mill structure foundation construction.

In the event PAG and NAG waste rock is encountered, it will be stockpiled separately in the FTSF footprint and managed to prevent comingling. Water collection channels around the perimeter of these stockpiles will divert water runoff to the contact water pond.

All temporary waste rock piles will be constructed in 5 ft lifts to a maximum height of 15 ft. above ground surface. Approximately 30,000 tons will be generated during the first year of site development with a maximum of 50,000 tons will be total produced by year 3. After the ramp is fully constructed and the mine is operating, waste rock will remain underground being used for backfilling.

[6.4.21(2)] Maps

Exhibit C and Appendix C contain site development and mill figures.

[6.4.21(3)] Identification of Jurisdictional Agencies

Colorado Department of Public Health and Environment (CDPHE)'s Water Quality Control Division (WQCD) and Air Pollution Control Division (APCD) will require permits.

Fremont County Department of Transportation (FCDOT) will require an access permit.

Fremont County Department of Planning and Zoning will require a Conditional Use Permit for the mining operation.

[6.4.21(4)(a and b)] Other Permits and Licenses

WQCD will require a storm water and process water discharge permit.

APCD will require Air Pollution Emission Notices (APEN) for GMR sizing equipment, facility fugitive dust and mine fans.

FCDOT's access permit will require an access with a perpendicular approach to County Road 3A. It is also likely improvements to County Road 3A will be required.

[6.4.21(5) and (6)] Designated Chemical Evaluation and Handling

Three chemicals will be stored on site that aid in flotation. MSDS is provided in Appendix D. A one-month's supply of the chemicals will be stored on site in tanks at any one time. The storage tanks will be located inside a bermed area that has a plastic liner that will serve as secondary containment to mitigate potential spillage. The secondary containment will be designed to contain 100% of the largest tank plus the precipitation from a major rain event as determined by the drainage engineer. Reagent mixing will occur inside the mill building where any spillage will be contained and managed appropriately.

Potassium Amyl Xanthate (PAX) is a sulphide mineral collecting agent in powder form. It will be used at a rate of 0.25 lb./ton. Approximately 2,250 lbs. of PAX will be stored on site at any given time.

Methyl IsoButyl Carbinol (MIBC) is a frother in liquid form. It will be used at a rate of 0.1 lb./ton. Approximately 900 lbs. of MIBC will be stored on site at any one time.

A generic anionic emulsion flocculent in liquid form will be used at a rate of 0.05 lb./ton. Approximately 450 lbs. of frother will be stored on site at any one time.

[6.4.21(6)(c)]

Baseline groundwater monitoring indicates that groundwater will be encountered during ramp development. Ground water was encountered at 55 ft below ground surface on the south side of the permitted area and 175 ft. below ground surface in the vicinity of the mill building. During mine development, groundwater will be pumped to the natural drainage that discharges into the Arkansas River.

The GMR is in a granite deposit with nominal sulfur containing mineralization. In this area, ground water makes its way to the Arkansas River via underground fissures. Baseline water quality data indicates that should sufficient water reach the surface and ultimately to the Arkansas River, the water quality of the Arkansas River would not be impacted.

Also due to the nominal sulfur containing mineralization and based on tailings characterization performed to date, toxic or acid forming material is not anticipated. Since the GMR has very low sulfur

concentrations, acidic leachate is not likely to form thus mobilization of heavy metals is also not likely. None the less, to be especially protective of the environment, a contact water pond will be constructed at the toe of the tailings embankment that will serve as a collection point for all water generated or that comes in contact with tailings. The contact water pond was sized to be effective during a 100-year storm event. The contents of the pond will be monitored and mostly likely released to the natural waterway. In the event upset conditions are discovered, the water will not be released but rather treated and reused in the mill.

[6.4.21(7)] Facilities Evaluation

Windy Gulch and Dawson Gulch which flow through and around the mine property locally drain the foothills to the south and surrounding the proposed mine property. These gulches are typically dry and only flow during large precipitation events. The drainage area above the mine contributing to these two gulches is estimated to be approximately 330 acres in area. Climate data collected at the Canon City weather station from 1948 through 2006 indicates that the area typically receives an average of 12.77 inches of precipitation each year with a maximum recorded annual precipitation of 23.18 inches and a maximum 1-day precipitation event of 3.21 inches. On average, the Windy Gulch and Dawson Gulch drainage received approximately 351.75 acre/feet per year combined or an average of approximately 0.98 acre-feet per day based on the weather station data and the approximate size of the drainage basin. Based on observations of flow, this average precipitation is not sufficient for the gulches to flow through the property. The maximum 1-day precipitation event introduced approximately 88.28 acre-feet into the drainage. This maximum precipitation event occurred in 1999 and there are no observations available to confirm whether the gulches flowed during this event, but it is assumed that the gulches did flow. The 100-year rain event for the property area is estimated to be 4.75 inches over a 24-hour period equating to an introduction of approximately 130.63 acre-feet into the drainage. The projected water usage at the mine would be as high as approximately 200 acre-feet per year without reuse without the ore process, which is only 57 percent of the estimated average annual flow in these drainages. Actual use will be much lower due to the reuse of water in the ore process.

Grape Creek is a larger surface water feature that drains a larger basin to the west and southwest of the property. The infiltration of local precipitation and regional underflow are likely sources for the mine inflow and dewatering discharges. Grape Creek does not flow through the property and does not contribute to the site water balance.

Accordingly, there is an average of approximately 351.75 acre-feet per year of precipitation that falls in the drainage above the property. The majority of this precipitation infiltrates the ground water system and the drainages that cross the property are mainly dry and, accordingly, the water flows through the property as underflow though the Precambrian material.

Exhibit G presents a discussion of the surface and ground water systems in more detail. A MODFLOW ground water model was used to investigate changes to the water balance as a result of the mine development and dewatering and indicates dewatering rates ranging from approximately 80 to 55 gpm. Actual dewatering rates will likely vary with precipitation, will be impacted by the local geology and these rates should be considered potential average dewatering rates from the mine. It is expected that dewatering rates will higher when the mine is developed, encounters ground water and dewatering operations are initiated. Dewatering rates are expected to decline as the mining and dewatering continues. If the fractures encountered by the mine are not connected or have a low level of

interconnectedness, the fractures may drain over time and the dewatering rates could drop to minimal amounts.

Dewatering rates of 80 to 55 gpm equate to discharges of approximately 0.35 to 0.24 acre-feet per day. These discharge rates are lower than the average precipitation amounts which are not adequate to sustain live flow in the dry creeks so the discharge of mine dewatering water is not expected to result in live flow conditions in the gulches during mine operation. Mine discharge will infiltrate the gulch streambeds back to the ground water system downstream from the mine property.

The AMEC OMS Manual (Appendix F), Section 5.0 is the monitoring program for the DGM, specifically the FTSF. Both groundwater quality and FTSF seepage quantities from the underdrain system will monitored regularly. The manual includes maps, monitoring frequency and parameters. Groundwater wells will be installed upgradient and downgradient of the FTSF. Monitoring will occur quarterly during operations and at least eight quarters post-closure. Groundwater quality parameters are provided in Table 3 of the OMS Manual. The underdrain will be equipped with a weir or flume to measure the seepage flow rate. The flow rate and pH of the contact water pond will be recorded weekly. Seepage water quality will be tested quarterly and at least eight quarters post-closure. Standpipe piezometers will be installed in the FTSF. Water level monitoring will reveal if a phreatic surface develops with the FTSF.

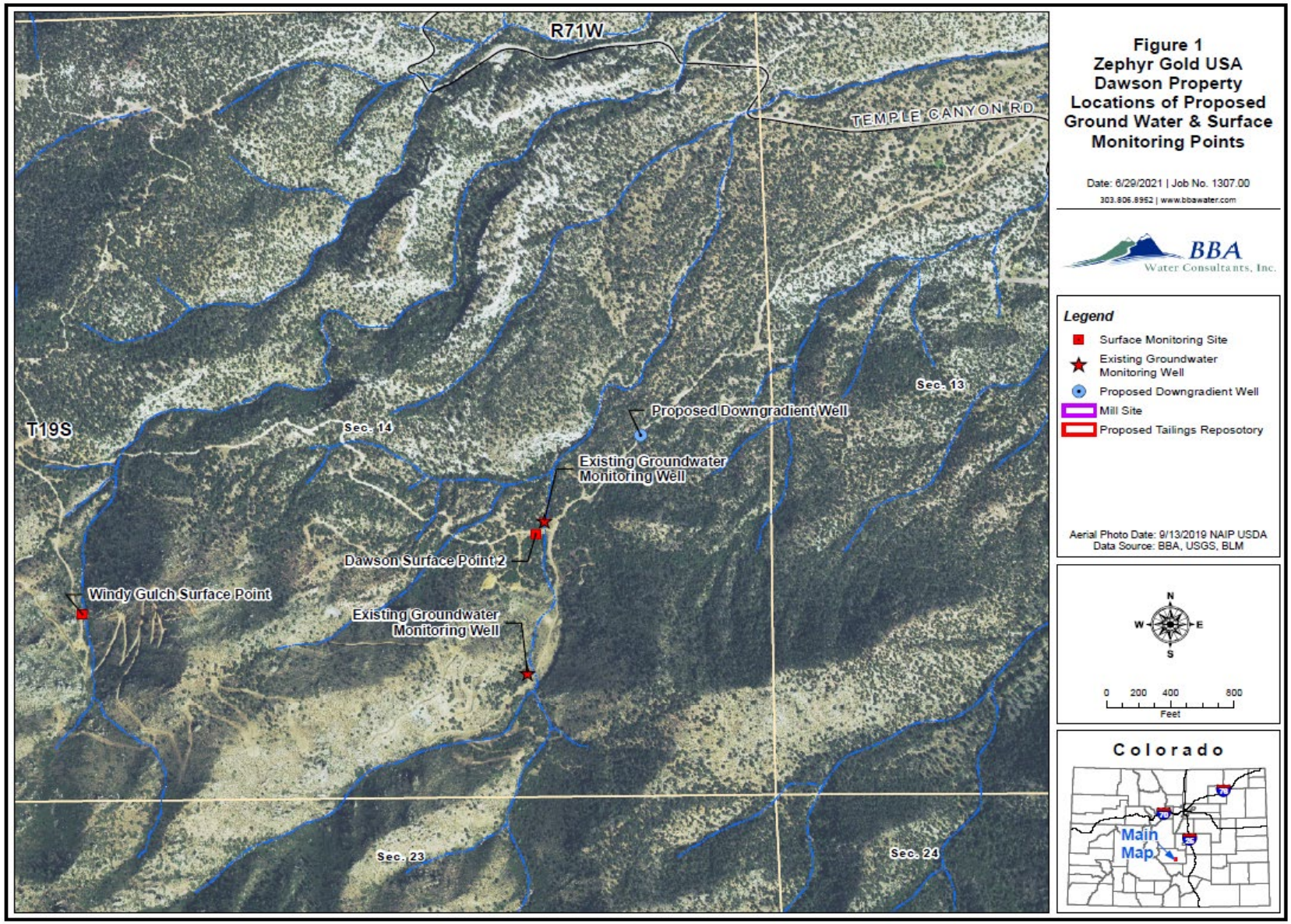
A Spill Prevention Control and Countermeasure Plan will be prepared upon approval of the application.

[6.4.21(8)] Ground Water Information

The Dawson Property mine dewatering is estimated to potentially be as high as approximately 80 gpm initially, but will more likely only be on the order of 55 gpm, especially once the total depth of the mine has been reached and dewatered using ongoing dewatering operations. These projected rates may overestimate required dewatering rates if the fractures encountered by the mine are not significantly connected. If there is limited interconnectedness of fractures encountered by the mine, dewatering rates may be significantly less. Mine water will accumulate in the bottom portions of the mine and be pumped to the Dawson Property mine portal. This discharge will mostly be used within the mine facilities, but some will be discharged to the surface and is subject to Colorado Department of Public Health and Environment (CDPHE) discharge permits. Water pumped from the mine will ultimately be discharged to surface drainage systems after flowing through a sedimentation pond. The local stream drainages the sedimentation pond overflows to is a dry gulch locally named Dawson Gulch. Dawson Gulch is tributary to Grape Creek and the Arkansas River, but rarely flows with flow mostly limited to during and immediately after large precipitation events.

Ground water quality samples have been collected as part of the planning efforts for the proposed mine. The quality of the ground water is generally favorable with regular exceedances of the accepted standard reported for only Manganese in the North Well. No water quality samples have been collected from the surface water monitoring locations as part of the monitoring because there has been no flow at the sampling location since the monitoring locations were established. The locations of the ground and surface water monitoring locations are presented in Figure 1. An additional monitoring well is proposed for the monitoring program as presented.

Water quality samples have been collected from the North and South Monitoring Wells which were analyzed for a partial suite of water quality parameters for four quarters between October 2014 and October 2015 to provide a full year of water quality data. Quarterly water quality sampling has again been resumed starting in March of 2021 to confirm whether water quality conditions have changed over time (which would not be expected as mining has not occurred and the site has not changed). No surface water quality samples were collected over either period as the drainages did not run during that monitoring period. The water quality results are presented in Appendix K.


R71W
TEMPLE CANYON RD
T19S
Sec. 14
Sec. 13
Sec. 23
Sec. 24
Proposed Downgradient Well
Existing Groundwater Monitoring Well
Dawson Surface Point 2
Windy Gulch Surface Point
Existing Groundwater Monitoring Well
Figure 1
Zephyr Gold USA
Dawson Property
Locations of Proposed Ground Water & Surface Monitoring Points
Date: 6/29/2021 | Job No. 1307.00
303.806.8952 | www.bbawater.com
BBA Water Consultants, Inc.
Legend
Surface Monitoring Site
Existing Groundwater Monitoring Well
Proposed Downgradient Well
Mill Site
Proposed Tailings Repository
Aerial Photo Date: 9/13/2019 NAIP USDA
Data Source: BBA, USGS, BLM
N
W
E
S
0 200 400 800
Feet
Colorado
Main Map

The only water quality parameter that is detected regularly in the ground water monitoring wells as an exceedance of the Regulation 41 limits is manganese. Iron and pH have also exceeded Regulation 41 standards, but only periodically. The manganese exceedance was only observed in the North Well.

Manganese is very common in soils and sediments and is commonly found with iron as a mineral oxide. When water interacts with these oxides they are dissolved and mobilized by the water. At the levels identified by the monitoring program, the water quality will likely result in aesthetic staining but not health concerns.

Ground water in the geologic material to be mined at the Dawson property mine is contained almost entirely in fractures in the bedrock material. The ground water flows through these minute fractures from the infiltration of local precipitation or regional underflow. This ground water system is contained in the Precambrian material targeted by the mine. No sedimentary geologic material will be mined during the mining process, but areas over sedimentary units will be disturbed. The Dakota formation has locally been identified as a saturated aquifer. The Precambrian ground water system will be strongly influenced by the dewatering of the mine once ground water is encountered and dewatering commences. The ground water that enters the mine will enter through the fractures that intersect the mine workings and inflows will be controlled be the characteristics of those fractures. The neighboring sedimentary aquifer will be impacted to a lesser extent due to the distance and separation from the mine dewatering by local faulting.

Regional ground water gradients in the ground water aquifer systems are generally towards the north in the Precambrian material from the mountainous areas south of the mine and towards the east/northeast in the Dakota formation towards the center of the Canon City Embayment.

Local recharge sources to the ground water systems are mainly limited to precipitation that infiltrates the formations either as direct recharge or along drainages during runoff where they are present at the surface. Windy and Dawson Gulch appear to be out of connection with the ground water system, but Grape Creek to the north of the mine area appears to be locally in connection with the Precambrian material draining the Precambrian material immediately adjacent to it.

Three ground water wells were identified within approximately 1 mile of the mine workings. One of the wells may be mislocated, one is completed in the Precambrian material but is separated from the mine workings by faulting and one is completed in the Dakota separated from the mine workings by faulting. Based on the locations of the wells and the regional faulting, the drawdown required for the mining should not impact the nearby ground water wells.

[6.4.21(9)] Ground Water Quality Data

Ground water quality samples have been collected as part of the planning efforts for the proposed mine. Two monitoring wells (North Well and South Well) were constructed at the proposed mine site to allow for the observation of water levels over time and the collection of water quality samples. The monitoring wells are located as presented in Figure 1. Water quality samples of mine inflow have not been directly sampled because the mine does not exist at this time, but will be in the future.

Water quality samples have been collected from the North and South Monitoring Wells which were analyzed for a suite of water quality parameters for four quarters between October 2014 and October 2015 to provide a full year of water quality data. Quarterly water quality sampling has again been

resumed starting in March of 2021 to confirm whether water quality conditions have changed over time (which would not be expected as mining has not occurred and the site has not changed).

The only water quality parameter that is detected regularly in the ground water monitoring wells as an exceedance of the Regulation 41 limits is manganese. Iron and pH have also exceeded Regulation 41 standards, but only periodically. The manganese exceedance was only observed in the North Well.

Manganese is very common in soils and sediments and is commonly found with iron as a mineral oxide. When water interacts with these oxides they are dissolved and mobilized by the water. At the levels identified by the monitoring program, the water quality will likely result in aesthetic staining but not health concerns. Levels of manganese in the ground water can be reduced with ion exchange treatment, oxidation and filtration.

Table 2.7-2 presents the available water quality results from the two wells and a comparison of the result to accepted standards. It is noted that the accepted standards apply to stream segments and not the raw water from the mine and since the dewatering water will be captured in sediment ponds before leaving the site, the indicated levels of dissolved metals will not impact live stream flow.

[6.4.21(10 and 11)] Surface Water Information

No water quality samples have been collected from the surface water monitoring locations on Windy and Dawson Gulch as part of the monitoring because there has been no flow to sample since the monitoring locations were established. The locations of the ground and surface water monitoring locations are presented in Figure1. Baseline water quality data is provided in Appendix K.

[6.4.21(12)] Water Quality Monitoring Plan

The AMEC OMS Manual in Appendix F includes water quality monitoring plan specific to the FTSF.

The water quality constituent that has regularly been identified as exceeding water quality standards at the site is manganese from the ground water system, based on the past water quality testing from the monitoring wells. There is the potential that, once dewatering commences, the water quality of the discharge water could be different than indicated by the monitoring wells. We will not know the actual quality of the mine dewatering water until the mining and dewatering operations commence.

Zephyr will continue to monitor the water quality at the surface monitoring points on each of the drainages that cross the property and ground the water monitoring points in both of the identified aquifers beneath the property as mining commences and progresses. Future results will be compared to the baseline quality already collected and currently being collected. The water quality of the mine discharge will also periodically be tested

Water quality monitoring results will be reported in annual reports including 1) the location of sampling, 2) a water level or description of flow conditions and 3) the results of the water quality testing. Water quality monitoring is currently and will continue to be performed on a quarterly basis throughout the mine life and continue for at least 8 quarters after mine closure unless water quality parameters drop to a level such that a lesser frequency is justified.

The water quality monitoring plan includes / will include surface and ground water monitoring points both up and down gradient from the mine site so that all impacts can be monitored.

[6.4.21(13)] Climate

The mill does not have liquid containment systems open to the environment. Climate information is provided in Exhibit K and Appendix I. The exhibit includes weather data from the local weather station in Cañon City, CO. The mountain foothills are typically a degree or two cooler than in town temperatures. Site specific wind data is not available.

[6.4.21(14)] Geochemical Data and Analysis

The seepage from the FTSF will comprise of filtrate introduced to the facility with the tailings and infiltration water that contacts the tailings and the support buttresses (development rock). During mining operations, infiltration water contacting the tailings will likely take on the filtrate quality, due to continuing additions of fresh tailings and entrained filtrate. The shake flask extraction results, adjusted for dilution affects (please see Appendix B for a description of how the test results were adjusted), were assumed to represent the quality of infiltration water contacting the development rock. The FTSF seepage quality was estimated by combining the contributions from development rock and tailings on a mass balance basis.

The predicted FTSF seepage quality, compared with background groundwater quality and groundwater quality standards, is presented in Table 1. For details regarding the calculations and the assumptions made, the reader is directed to Appendix B. The predicted seepage quality is dominated by the tailings contact water quality. Seepage is predicted to meet the groundwater quality standard, with the exception for manganese. However, the predicted manganese concentration (0.071 mg/L) is less than the background groundwater concentration (0.14 mg/L). The groundwater quality standard is 0.05 mg/L.

The predicted seepage quality presented herein would be reflective of short term and operating conditions. The seepage quality estimates for the long term will be developed once the kinetic tests on tailings are complete. However, based on humidity cell data to date, it is expected the seepage quality will improve over time.

<u>Implications for Contact Water Management</u>

The contact water pond will be comprised of FTSF seepage and surface runoff water from the FTSF. As discussed above, the seepage quality is expected to meet groundwater quality standards. The surface runoff quality will at worst be similar to the tailings filtrate quality. Given that runoff water will likely have a shorter contact time with tailings compared to infiltration water, it is reasonable to expect runoff quality to better than filtrate quality. As noted in Section 1 above, tailings filtrate meets the groundwater quality standard and is less than the background groundwater quality. Contact water in the contact water pond is expected to meet groundwater quality standards and, therefore, will not require treatment prior to discharge.

Based on the seepage quality estimate, contact water can be discharged from the contact water pond through one or a combination of the following:

1. Recycle to the mineral process plant

2. Direct discharge via an exfiltration pond

Evaporation within the contact pond. The report is provided in Appendix B.

[6.4.21(15)] Construction Schedule Information

No less than 30 days prior to commencement of GMR milling, the FTSF and ancillary structures will be constructed. The structures ancillary to the FTSF include the stormwater diversion channel that diverts stormwater from running into the FTSF area, FTSF monitoring wells and the contact water pond.

[6.4.21(16)] Quality Assurance and Quality Control (QAQC)

Mill development will be supervised by licensed engineers and contractors. A licensed professional engineer who specializes in mine facility development will be on site during construction and will conduct inspections. The engineer will prepare a certified report for the installation of the contact water pond, FTSF underdrain, stormwater detention pond, and diversion ditches.

[6.4.21(17)] Plant Growth Medium

Suitable plant growth medium is present within the proposed affected area. Plant growth medium will be salvaged from the mill facility and the footprint of the FTSF prior to installation of the underdrain. Because the mill site is located at the toe of a mountain range, ample plant growth medium is present in the canyons and ravines. Information regarding plant growth medium to be used is in Exhibit I: Soils Information.

[6.4.21(18)] Wildlife Protection

Colorado Natural Heritage Program and Colorado Parks and Wildlife provided wildlife information and harm prevention guidance. The reports are provided in Exhibit H and Appendix G.

The mill site is primarily native undisturbed wildlife habitat that may be frequented by hikers and off road vehicle enthusiasts albeit as trespassers since the proposed affected area is privately owned property. Other than historic mountain trails and internal dirt roads, the proposed mill site is undisturbed.

Public lands owned by BLM, USFS and SLB surround the proposed permit area with the exception of a portion of the east and northeast boundary. The area is known for mule deer and bighorn sheep to the north and northwest. Whereas raptor nesting and other transitory wildlife might be present, raptor nesting sites are not present in the Project area. The area was surveyed by Raquel Wertsbaugh, CPW representative, for Townsend big-eared bats in January 2013. No bats were encountered and the attractive abandoned adits were permanently sealed to prevent habitation.

The CNHP identified the Grape Creek Water Gap as a high biodiversity area. This area is more than two miles west of the proposed affected area boundary. The Bott's Pocket gopher was identified as the only rare and/or imperiled mammal in the vicinity. It was observed in Township 18 South, Range 70 West, beyond the boundary of the proposed mine.

[6.4.21(19)] Disposal of Tailings and Sludge in Mine Workings

Mine tailings will not be disposed of in the mine workings.

4.0 GEOTECHNICAL STABILITY EXHIBIT

Seismic Hazard Assessment

Dawson Gold Mine Tailings Impoundment
Fremont County, Colorado

Prepared for:

Zephyr Minerals Ltd.
Suite 1300, 1959 Upper Water Street, Purdy's Wharf Tower 1
Halifax, Nova Scotia B3J 3N2, Canada

Prepared by:

Amec Foster Wheeler Environment & Infrastructure, Inc.
180 Grand Avenue, Suite 1100
Oakland, California 94612

April 18, 2016

Project No. 74201633

April 18, 2016

Project 74201633

Loren Komperdo, P.Geol.
President & CEO
Zephyr Minerals Ltd
1700 – 1959 Upper Water Street
Purdy's Wharf Tower I
Halifax, NS B3J 3N2 Canada

Subject: **Seismic Hazard Assessment**
Dawson Gold Mine Tailings Impoundment
Fremont County, Colorado

Dear Mr. Komperdo:

Enclosed is our report providing the results of the seismic hazard analysis performed for Zephyr Minerals Ltd. Dawson Gold Mine Tailings Impoundment in Fremont County, Colorado.

We have enjoyed conducting this study for Zephyr Minerals Ltd. Please contact us if you or your team members have any questions or need any further information

Sincerely,
Amec Foster Wheeler Environment & Infrastructure, Inc.

Donald Wells, PG, CEG
Senior Associate Engineering Geologist

Alexis Lavine, PG
Associate Geologist

Kelley Shaw
Staff Geologist

Brett Byler, PE
Senior Geotechnical Engineer

DW/AL/KS/LDU
X:\Denver\74201633-Zephyr\3000_REPORTS\1_txt\Draft Zephyr_CvrLtr.docx

Enclosure

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SEISMIC HAZARD ASSESSMENT
Dawson Gold Mine Tailings Impoundment
Fremont County, Colorado

1.0 INTRODUCTION

This report presents the results of a site-specific probabilistic seismic hazard study performed by Amec Foster Wheeler Environment & Infrastructure, Inc. (Amec Foster Wheeler) as part of the pre-feasibility evaluation of embankment stability for the proposed tailings impoundment at the Dawson Gold Mine near Canon City, Colorado for Zephyr Minerals Ltd. The Dawson Gold Mine is situated within the Rocky Mountain Range, approximately 150 km south-southwest of Denver, Colorado.

2.0 EARTHQUAKE GROUND MOTIONS

The work performed for this evaluation includes a probabilistic seismic hazard analysis (PSHA) and a deterministic seismic hazard analysis (DSHA).

2.1 SITE-SPECIFIC SITE CLASSIFICATION

Information on the site conditions, specifically classification of the soil and rock following the Site Classes specified in publications such as the 2009 NEHRP Provisions (Building Seismic Safety Council [BSSC], 2009) and the 2012 International Building Code (IBC; International Code Committee, 2011) is necessary to perform the seismic hazard assessment. Site specific soils information was not provided for the Dawson Gold Mine site for the assessment of Site Class, so available geologic data for the site was used to assess the site conditions. Our understanding of the subsurface conditions at the Dawson Gold Mine is based interpretation of the geologic map of the Royal Gorge Quadrangle (Taylor et al., 1975), and other data as follows.

The site is situated on Precambrian metamorphic rocks, which are described as a massive to well-foliated quartz diorite, correlative with the Boulder Creek Granodiorite (Taylor et al., 1975), and Precambrian migmatitic gneiss (Hilchey et al., 2013). Based on the typical shear wave velocities for hard igneous and metamorphic rocks, and assuming the bedrock is relatively fresh (unweathered), the expected V_{S30} for bedrock at the mine site would be in excess of 4,920 ft/sec (1,500 m/sec). In consideration of this expected V_{S30}, and the effective limit of V_{S30} for ground motion prediction equations used in this study, an average shear wave velocity in the upper 100 feet (V_{S30}) of 3,280 ft/sec (1,000 m/sec) was used for the seismic hazard analysis at the site. In accordance with the 2009 NEHRP Provisions and the 2012 IBC, the site should be classified as Site Class B – rock with a V_{S30} between 2,500 to 5,000 ft/sec (760 to 1,500 m/sec).

2.2 HISTORIC SEISMICITY

The project site lies in the Wet Mountains along the transition between the Southern Rocky Mountain Front Range and the Great Plains to the east. The region is characterized by a series of generally north-trending mountain ranges separated by broad valleys filled with alluvial deposits. Traces of recently active faults are present along the western edge of the Sangre de Cristo mountain range to the west of the Wet Mountains. Earthquakes in this region are generally located to the west of the Rocky Mountain Front Range; however, some small magnitude seismicity associated with deep injection of fluids into boreholes has occurred in eastern Colorado. The project site is relatively close to traces of faults that have been active in Quaternary time (approximately 2.6 million years ago to the present), as shown on Figure 1.

The region in southern Colorado surrounding the site is characterized by low levels of seismicity during historical time (Figure 1). The earthquake catalog developed by the U.S. Geological Survey (USGS) for the 2014 National Seismic Hazard Mapping Program (NHSMP) was used to create a dataset of earthquakes recorded in the region surrounding the project site. The epicenters of the historical earthquakes that have occurred in the region surrounding the site are shown on Figure 1. The earliest earthquake in the earthquake catalog for the region occurred in 1870, and the earthquake catalog extends through December 2012. As shown on Figure 1, there are no recorded earthquakes within 62 miles (100 km) of the site greater than **M** 5.0. The largest recorded earthquake in Colorado occurred on November 11, 1882. The location is not well known, but the earthquake is postulated to have occurred in northwestern Colorado. This estimated magnitude 6.6 event resulted in damage to windows and plaster in Boulder, approximately 175 km north of the site. Isoseismal maps for the 1882 earthquake show Modified Mercalli Intensity (MMI) effects of VI-VII were reported south of Denver in the vicinity of the project site (Stover and Coffman, 1993). Note that MMI VI is the lowest intensity level with which physical damage to man-made structures is associated.

2.3 SEISMIC SOURCES

Seismic sources in southern Colorado consist of individual fault traces for which recurrence intervals are known with some certainty and background seismic source zones. The seismic source model used for this study was obtained from the fault source model for the USGS NHSMP (Petersen et al, 2014; http://earthquake.usgs.gov/hazards/), where the USGS Quaternary fault and fold database (http://earthquake.usgs.gov/hazards/qfaults/) was used as a basis for developing the NHSMP fault model. This latter database is the most comprehensive source of information on Quaternary (past 2.6 million years) faulting for the region.

Traces of active or potentially active faults from the NHSMP fault model located within about 93 miles (150 km) of the mine site are shown on Figure 1. The closest late Quaternary fault to the project site is the Northern Sangre de Cristo Fault, a normal fault located approximately 50

km west of the site that is reported to be capable of earthquakes as large as **M** 7.5. Other late Quaternary faults within about 93 miles (150 km) of the site include the Southern Sawatch, Southern Sangre de Cristo, and Cheraw faults. A summary of the maximum magnitude and slip rate for these fault sources is shown in Table 1.

2.4 Deterministic Ground Motions

Median and 84th percentile deterministic ground motions were estimated for the fault sources within about 93 miles (150 km) of the site using the ground motion prediction equations (GMPEs) of Boore and Atkinson (2008), Campbell and Bozorgnia (2008) and Chiou and Youngs (2008) for three of the four fault sources and a set of Central and Eastern United States (CEUS) GMPEs (described in Section 2.5) were used for the Cheraw fault. The site is located just west of the boundary between the Plate Boundary Region of the Western U.S. and the Stable Cratonic Region of the Central and Eastern U.S (CEUS).;therefore, GMPEs appropriate for each of these regions (NGA West and CEUS GMPEs) are required to evaluate ground motions for the different fault source types. The ground motions at the site were calculated using a V_{S30} of 3,280 ft/sec (1,000 m/s), and using an equal weight for each of the GMPEs.

The average median and 84th percentile values for peak ground acceleration (PGA) and 20 spectral periods for each fault within 93 miles (150 km) of the site that contributes significantly to the overall hazard are presented in Tables 2A and 2B. The nearby Northern Sangre de Cristo fault controls (has the highest accelerations) at PGA and at periods longer than 0.1 second, and the Cheraw fault controls at period of 0.02 to 0.1 seconds for the deterministic ground motions (Figure 2, and Tables 2A and 2B). The median and 84th percentile PGA at the site is 0.07 g and 0.11 g for the Northern Sangre de Cristo fault, and is 0.06 g and 0.11 g for the Cheraw fault, both respectively.

2.5 Probabilistic Ground Motions

A probabilistic seismic hazard analysis (PSHA) was performed for the project site. The PSHA was performed using the commercially available program EZ-FRISK® 8.0 (Risk Engineering, 2015). The PSHA is based on an assessment of the recurrence of earthquakes on potential seismic sources in the vicinity of the project site. The PSHA was performed using the same NGA West GMPEs that were used for the deterministic evaluation described above, and the following CEUS GMPEs: Frankel et al. (1996); Torro et al (1997); Somerville et al. (2001); Silva et al. (2002); Campbell (2003); Tavakoli and Pezeshk (2005); and Atkinson and Boore (2006). Results of the PSHA are expressed in terms of the relationship between amplitude of spectral acceleration and the associated annual rate of recurrence or return period.

The seismic source model used in the PSHA includes the active fault sources from Petersen et al. (2014) described above, including all fault sources within 125 miles (200 km) of the

project site. The analysis also includes regional seismic source zones used to capture the background seismicity not associated with the active fault sources (Petersen et al., 2014).

The results of the PSHA are presented on Figure 3 as a seismic hazard curve showing the relationship between annual probability of exceedance (or return period) and PGA for the site. Seismic hazard curves were developed for 20 additional spectral periods, and these hazard results are used to develop uniform hazard response spectra for return periods of 500, 1,000, 2,500, 5,000, and 10,000 years (Figure 4). As shown on Figures 3 and 4, and in Table 3, the PGA is estimated to be 0.11 g for a return period of approximately 2,500 years (approximately 2% probability of exceedance [P_E] in 50 years), and 0.17 g for a return period of approximately 5,000 years (approximately 1% P_E in 50 years).

2.6 Design Ground Motions

Peak ground accelerations for use in slope and dam stability analyses are described in this section. The Colorado Division of Water Resources (2007, Section 5.9.2, Seismicity Design Requirements) specifies the PGA required for use in stability evaluations for dam safety and dam construction based on the dam hazard classification as follows:

1. Dams classified as High Hazard and with a height greater than or equal to 30 feet, other than flood control structures, shall be designed for the maximum credible earthquake or for an earthquake with a minimum 5000-year return frequency;
2. Dams classified as High Hazard and with a height less than 30 feet, other than flood control structures, shall be designed for either: a) the maximum credible earthquake or an earthquake with a minimum 5000-year return frequency, or b) for a peak ground surface acceleration equal to twice the acceleration for the site with a 2% chance of exceedance in 50 years (approximately 2500-year return frequency), as estimated and published by the U.S. Geological Survey; and
3. Dams classified as Significant Hazard or High Hazard dams whose sole purpose is for flood control shall be designed for a 2% chance of exceedance in 50 years (approximately 2500-year return frequency).

The maximum credible earthquake (MCE) is intended to represent the largest event considered possible under the current tectonic regime. Based on the results of the deterministic ground motion evaluation, the MCE for the site was selected to be a M 7.5 event rupturing the Northern Sangre de Cristo fault at a distance of 31 miles (50 km) from the site, producing an 84th percentile level PGA of 0.11 g (Table 2B). Based on the results of the PSHA (Table 3), the PGA at ground motion return periods of 2,500 and 5,000 years is equal to 0.11 and 0.17 g, respectively.

The USGS PGA for a return period of 2,500 years is obtained from the USGS Seismic Design Calculator (http://earthquake.usgs.gov/designmaps/us/application.php?) using the ASCE 7-10 reference code and Site Class B site conditions. This calculation provides a median PGA of 0.115 g for the Maximum Considered Earthquake for use in geotechnical evaluations. For the

project site, the Maximum Considered Earthquake ground shaking level is equal to the ground shaking for a 2,500 year return period. Thus, the USGS PGA for a 2,500 year return period is taken as 0.115 g, and twice this value is 0.23 g.

Following the requirements for the dam hazard classifications noted above, the design PGA may be taken as follows:

1. Dams classified as High Hazard and with a height greater than or equal to 30 feet: PGA = 0.11 or 0.17 g
2. Dams classified as High Hazard and with a height less than 30 feet:
   a) PGA = 0.11 or 0.17 g, or
   b) PGA = 0.23 g
3. Dams classified as Significant Hazard or High Hazard dams whose sole purpose is for flood control: PGA = 0.11 g.

3.0 SUMMARY AND CONCLUSIONS

A preliminary ground motion evaluation was performed using readily available seismic source models and following deterministic and probabilistic approaches. The MCE is taken as the 84th percentile deterministic spectra for the largest earthquake on the closest Quaternary fault (a M 7.5 earthquake on the Northern Sangre de Cristo fault at a distance of 31 miles [50 km]) and is equal to 0.11 g. The PSHA shows that the mean PGA is 0.11 g for a return period of about 2,500 years, and is 0.17 g for a return period of about 5,000 years. These results are consistent with the known low seismicity of the Eastern Rocky Mountains and Dawson Gold Mine project area.

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TABLE 3

COMPARISON OF HORIZONTAL SITE-SPECIFIC EQUAL HAZARD RESPONSE SPECTRA

Dawson Gold Mine Tailings Impoundment
Fremont County, Colorado

Period (seconds)	Spectral Acceleration (g)				
	10% P_E in 50 Years	5% P_E in 50 Years	2% P_E in 50 Years	1% P_E in 50 Years	1% P_E in 100 Years
	Approximate Return Period (Years)				
	500	1,000	2,500	5,000	10,000
0.01 (PGA)	0.036	0.058	0.106	0.168	0.266
0.02	0.043	0.073	0.140	0.228	0.373
0.03	0.051	0.085	0.164	0.269	0.438
0.05	0.062	0.104	0.197	0.316	0.502
0.075	0.069	0.113	0.211	0.334	0.525
0.1	0.077	0.125	0.228	0.355	0.547
0.15	0.079	0.124	0.218	0.326	0.489
0.2	0.079	0.123	0.211	0.309	0.454
0.25	0.073	0.112	0.190	0.275	0.397
0.3	0.070	0.107	0.178	0.258	0.368
0.4	0.053	0.081	0.133	0.189	0.266
0.5	0.043	0.065	0.107	0.151	0.211
0.75	0.028	0.042	0.070	0.097	0.134
1	0.021	0.031	0.052	0.072	0.099
1.5	0.014	0.021	0.033	0.048	0.065
2	0.009	0.014	0.023	0.033	0.046
3	0.005	0.008	0.014	0.020	0.027
4	0.005	0.008	0.014	0.021	0.030
5	0.004	0.006	0.012	0.017	0.024
7.5	0.002	0.003	0.005	0.008	0.011
10	0.001	0.002	0.003	0.004	0.006

Notes
1. Spectra are five-percent damped, except for PGA.
2. P_E – Probability of exceedance.

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FIGURES

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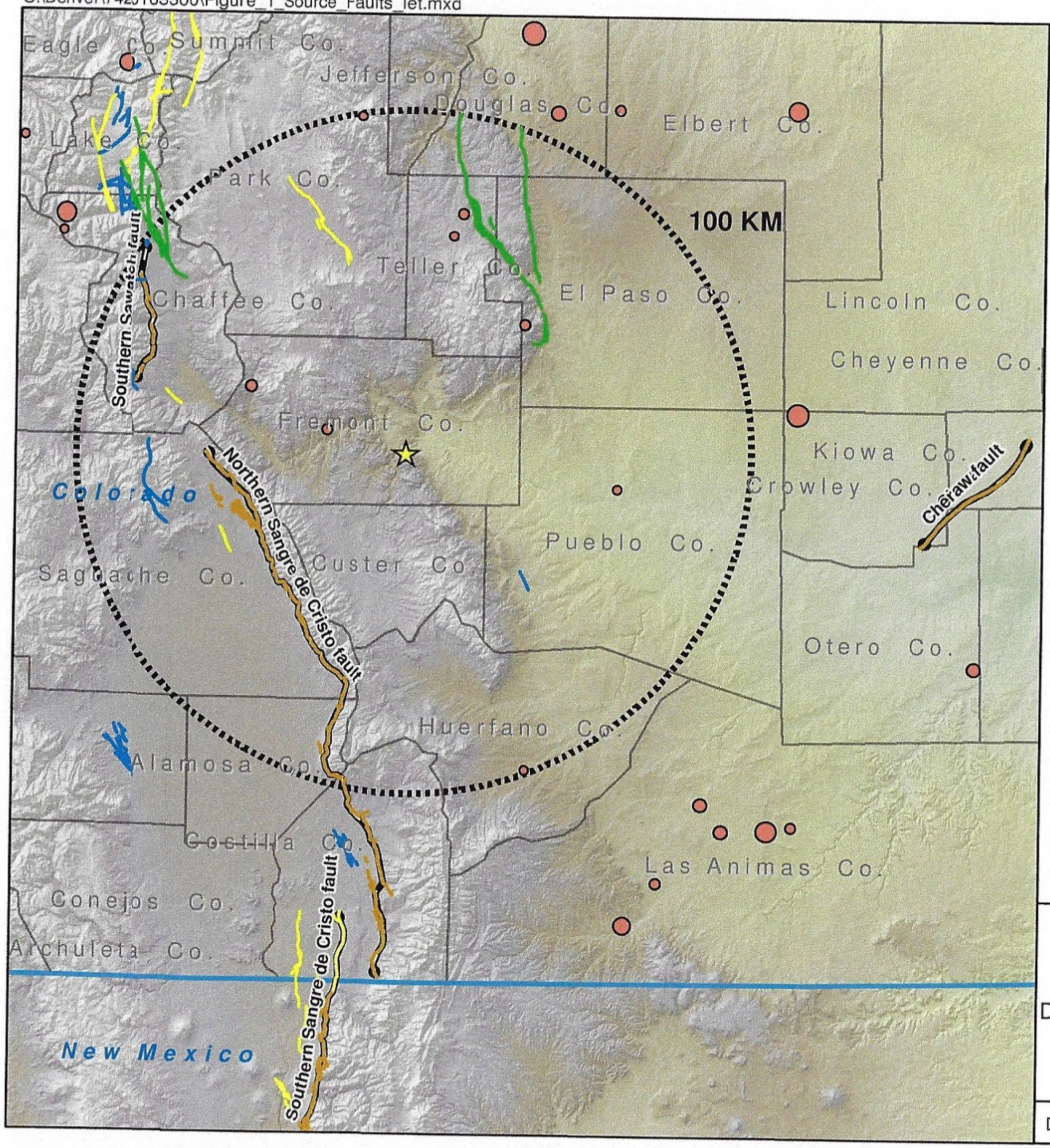


Explanation

Dawson Gold Mine Site

USGS 2014 National Seismic Hazard Mapping Project Source Faults (Petersen et al., 2014)

Quaternary Faults and Folds
(USGS, 2014)

- Historic (< 150 years)
- Holocene (< 10,000 years)
- Late Quaternary (< 130,000 years)
- Early Quaternary (< 750,000 years)
- Quaternary (< 2.6 million years)

Historical Seismicity 1870-2012
(Independent Catalog used in National Seismic Hazard Mapping Project, 2014)

- 3.0
- 4.0
- 5.0
- 6.0
- 7.0

N

0 20 40 Kilometers

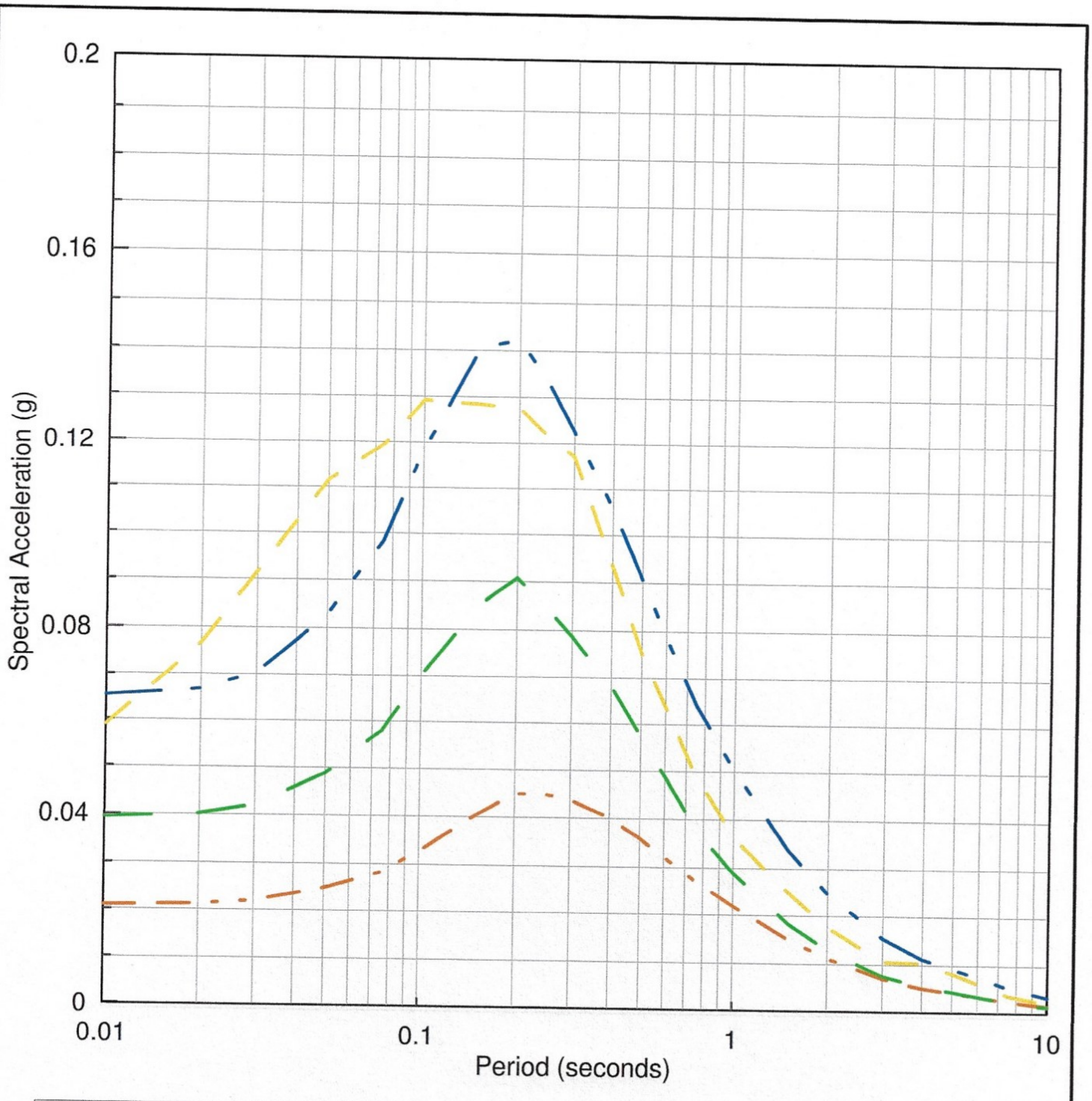
REGIONAL FAULT AND HISTORICAL SEISMICITY MAP
Dawson Gold Mine Tailings Impoundment
Fremont County, Colorado

amec foster wheeler

Date: 04/14/2016

Project No. 7420163300

Figure 1



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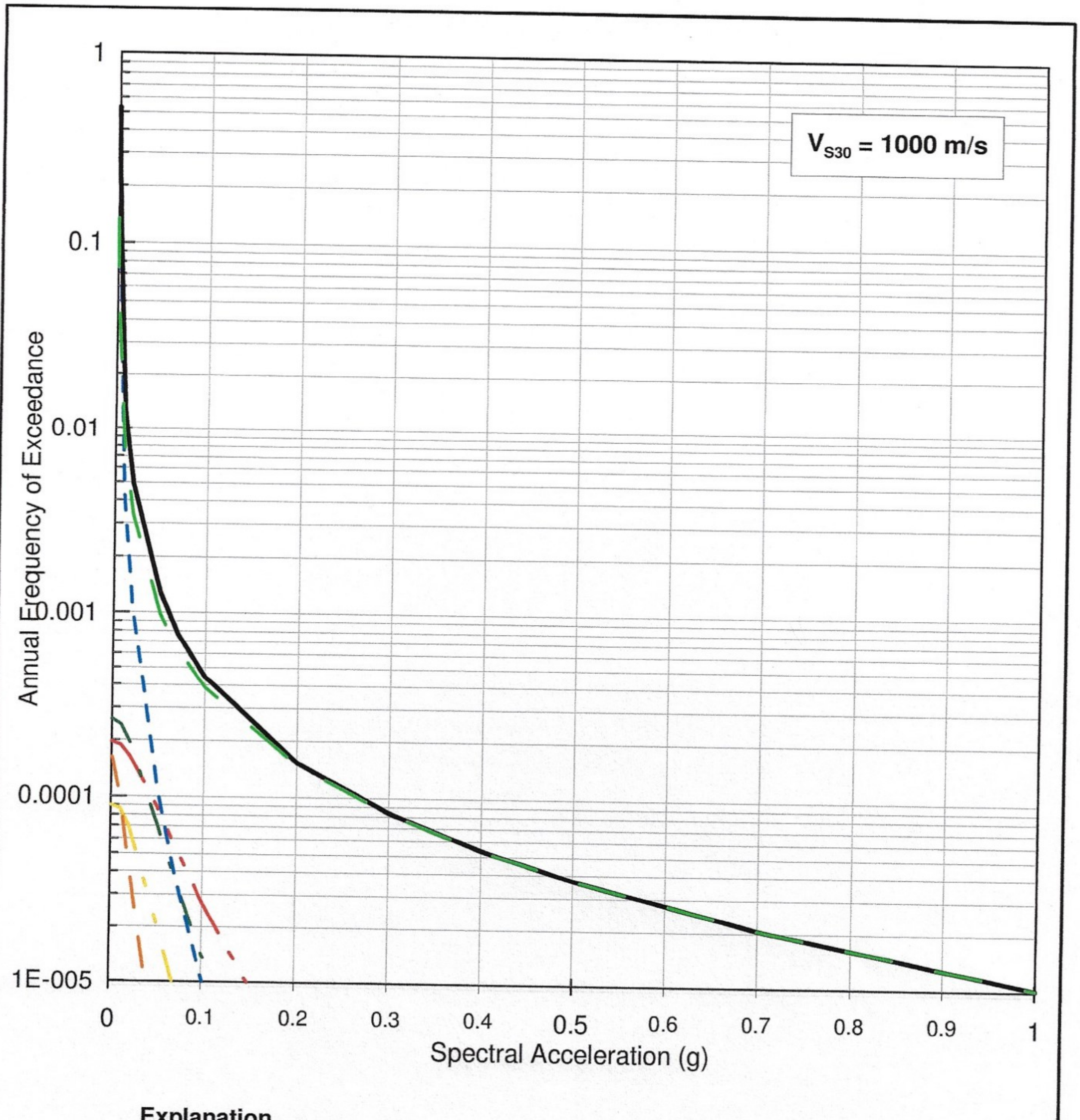
GEOMETRIC MEAN OF MEDIAN DETERMINISTIC SPECTRA FOR SELECTED SOURCE FAULTS
Dawson Gold Mine Tailings Impoundment
Fremont County, Colorado

amec foster wheeler

Date: 04/04/2016 | Project No. 7420163300

Figure
2



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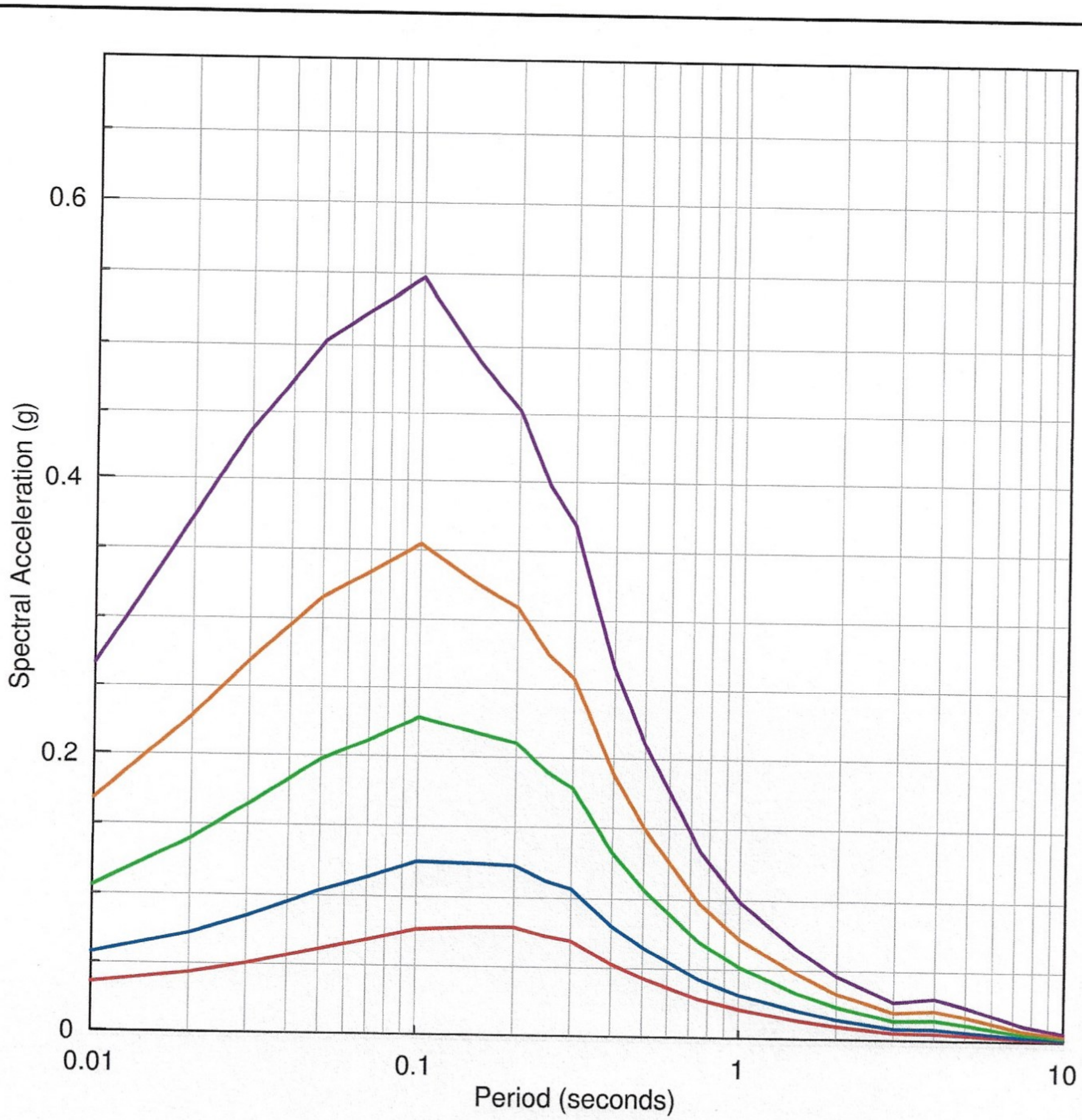
PROBABILISTIC SEISMIC HAZARD ANALYSIS (PSHA) RESULTS AT PEAK GROUND ACCELERATION
Dawson Gold Mine Tailings Impoundment
Fremont County, Colorado

amec foster wheeler

Date: 04/01/2016 | Project No. 7420163300 | Figure 3



Explanation

- 10% PE in 50 years, 500-year Return Period
- 5% PE in 50 years, 1,000-year Return Period
- 2% PE in 50 years, 2,500-year Return Period
- 1% PE in 50 years, 5,000-year Return Period
- 1% PE in 100 years, 10,000-year Return Period

Note: Vertical scale is different from Figure 2

UNIFORM HAZARD RESPONSE SPECTRA
Dawson Gold Mine Tailings Impoundment
Fremont County, Colorado

amec foster wheeler

Date: 4/01/2016 | Project No. 7420163300 | Figure 4

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TABLE 1

SOURCE PARAMETERS FOR ACTIVE AND POTENTIALLY ACTIVE FAULTS

Dawson Gold Mine Tailings Impoundment
Fremont County, Colorado

Fault Name	Closest Distance from Site (km)[1]	Direction from Site	Maximum Magnitude[2]	Slip Rate[2] (mm/yr)
Northern Sangre de Cristo fault	50	West	7.5	>0.2
Southern Sawatch fault	68	West	7.0	>0.2
Southern Sangre de Cristo fault	136	South	7.4	>0.2
Cheraw fault	146	East	7.0	>0.2

Notes

1. Distances for earthquakes represent closest distance from site to fault rupture plane (Rrup).
2. Magnitude and slip rate from Petersen et al. (2014.

TABLE 2A

COMPARISON OF HORIZONTAL MEDIAN AND 84th PERCENTILE DETERMINISTIC RESPONSE SPECTRA

Dawson Gold Mine Tailings Impoundment
Fremont County, Colorado

Period (seconds)	Median Deterministic Spectral Accelerations (g)			
	Northern Sangre de Cristo Fault - M 7.5 at 50 km	South Sawatch Fault - M 7.0 at 68 km	Southern Sangre de Cristo Fault - M 7.4 at 136 km	Cheraw Fault - M 7.0 at 146 km
0.01 (PGA)	0.065	0.039	0.021	0.059
0.02	0.067	0.040	0.021	0.077
0.03	0.071	0.042	0.022	0.092
0.05	0.083	0.049	0.025	0.112
0.075	0.098	0.058	0.028	0.120
0.1	0.118	0.070	0.033	0.129
0.15	0.141	0.085	0.040	0.128
0.2	0.142	0.091	0.045	0.128
0.25	0.133	0.085	0.045	0.121
0.3	0.123	0.079	0.044	0.117
0.4	0.106	0.068	0.040	0.094
0.5	0.091	0.057	0.036	0.075
0.75	0.064	0.038	0.027	0.049
1	0.050	0.029	0.022	0.036
1.5	0.034	0.018	0.015	0.025
2	0.025	0.013	0.011	0.018
3	0.015	0.007	0.007	0.011
4	0.011	0.005	0.005	0.010
5	0.009	0.004	0.004	0.008
7.5	0.005	0.002	0.002	0.004
10	0.003	0.001	0.001	0.002

Notes

1. Spectra are five-percent damped, except for PGA.
2. Distances for earthquakes represent closest distance from site to fault rupture plane (Rrup).

TABLE 2B

COMPARISON OF HORIZONTAL MEDIAN AND 84th PERCENTILE DETERMINISTIC RESPONSE SPECTRA

Dawson Gold Mine Tailings Impoundment
Fremont County, Colorado

Period (seconds)	84th Percentile Deterministic Spectral Accelerations (g)			
	Northern Sangre de Cristo Fault - M 7.5 at 50 km	South Sawatch Fault - M 7.0 at 68 km	Southern Sangre de Cristo Fault - M 7.4 at 136 km	Cheraw Fault - M 7.0 at 146 km
0.01 (PGA)	0.112	0.068	0.036	0.110
0.02	0.115	0.069	0.037	0.144
0.03	0.123	0.073	0.038	0.171
0.05	0.147	0.087	0.044	0.210
0.075	0.178	0.105	0.051	0.226
0.1	0.216	0.128	0.060	0.246
0.15	0.255	0.154	0.073	0.245
0.2	0.258	0.164	0.081	0.244
0.25	0.240	0.153	0.081	0.231
0.3	0.223	0.143	0.079	0.222
0.4	0.192	0.124	0.073	0.180
0.5	0.166	0.105	0.066	0.147
0.75	0.120	0.072	0.051	0.098
1	0.095	0.055	0.042	0.074
1.5	0.065	0.035	0.029	0.051
2	0.048	0.025	0.022	0.037
3	0.030	0.015	0.014	0.023
4	0.022	0.011	0.010	0.022
5	0.019	0.009	0.009	0.017
7.5	0.011	0.005	0.005	0.008
10	0.007	0.003	0.003	0.004

Notes

1. Spectra are five-percent damped, except for PGA.
2. Distances for earthquakes represent closest distance from site to fault rupture plane (Rrup).

5.0 RULE 8: EMERGENCY RESPONSE PLAN (ERP)

[8.1] Situations That Require Emergency Notification by the Operator

Zephyr USA accepts the requirement that the Office be notified, as soon as reasonably practicable, but no later than 24 hours, after the Operator has knowledge of a failure or imminent failure of the FTSF embankment, stockpile, retaining wall, or secondary containment structures that poses a reasonable potential for danger to human health, property of the environment.

[8.1] Operator's General Notification Responsibilities for Reporting Emergency Conditions

8.2.1 Emergency Reporting Procedure

Telephone notice shall be given to the Office staff as follows:

(a) during regular business hours (8:00 am to 5:00 pm, on working days) the notice shall be given to the Office.

(b) outside regular business hours, or if the Office cannot be contacted, notice shall be given to the CDPHE 24-hour Colorado Emergency and Incident Reporting Line. Specify to this agency, that the emergency authority is coordinated through the DRMS and to activate that Division's' response network.

8.2.2 Emergency Notification Information Required

Notice required pursuant to this Rule 8 shall contain the following information (to the extent known at the time of the notice, and so long as no delay occurs in reporting results):

(a) that this is notification of an emergency condition as required by Rule 8;

(b) the nature of the condition including any chemicals and toxic or acid producing materials involved;

(c) an estimate of the quantity of any chemical, toxic or acid-forming material that has been or could be released;

(d) the time and duration of the occurrence and if it is on-going, or urgency of the pending situation;

(e) any known or anticipated impacts to human health, property or the environment;

(f) precautions and corrective actions taken by the Operator; and

(g) the Operator's name(s) and contact number(s) for persons to be contacted for further information and response by the Office.

8.2.3 Follow-up Notice Requirements

As soon as practicable after an emergency situation or condition is reported and addressed, but no later than 5 working days, the Operator shall provide a written report of the event to the Office. The report shall provide a description of:

(a) actions taken to respond to and correct the emergency situation or condition;

(b) any known or anticipated adverse impacts to human health, property or the environment;

(c) name(s), address(es), telephone number(s) and email address(es) of the Operator's contact person for additional information and follow-up by the Office:

(d) monitoring and analysis that are necessary to evaluate the situation and corrective actions, copies of all pertinent data; and

(e) results of the Operator's investigation to assess the conditions or circumstances that created the emergency situation, and what corrective or protective measures will be taken to prevent a similar event form occurring in the future.

[8.3] Emergency Response Plan for Designated Chemicals

This ERP is being drafted prior to ground breaking of mine development. The mine Health and Safety Department personnel hierarchy is yet to be determined. The applicant commits to providing the ERP responsible individuals upon determination. The mine's Health and Safety Manager will develop an ERP that is compliant with US Mine Safety and Health Administration (MSHA). In addition, Fremont County Planning and Zoning Department require a Fire Protection Plan as a component of the Conditional Use Permit application.

Three chemicals will be stored on site that aid in flotation. MSDS is provided in Appendix D. A one-month's supply of the chemicals will be stored on site in tanks at any one time. The storage tanks will be located inside a bermed area that has a plastic liner that will serve as secondary containment to mitigate potential spillage. The secondary containment will be designed to contain 100% of the largest tank plus the precipitation from a major rain event as determined by the drainage engineer. Reagent mixing will occur inside the mill building where any spillage will be contained and managed appropriately.

Potassium Amyl Xanthate (PAX) is a sulphide mineral collecting agent in powder form. It will be used at a rate of 0.25 lb./ton. Approximately 2,250 lbs. of PAX will be stored on site at any given time.

Methyl IsoButyl Carbinol (MIBC) is a frother in liquid form. It will be used at a rate of 0.1 lb./ton. Approximately 900 lbs. of MIBC will be stored on site at any one time.

A generic anionic emulsion flocculent in liquid form will be used at a rate of 0.05 lb./ton. Approximately 450 lbs. of frother will be stored on site at any one time.

Emergency response supplies and location maps will be provided prior to mine start up.

6.0 RULE 1.6.2(1)(B): NOTICE REQUIREMENTS

I, Angela Bellantoni, hereby certify that I posted a sign containing the following notice for the proposed permit area known as the Dawson Gold Mine on June 30, 2021

Angela Bellantoni

June 30, 2021

Notice

This is the beginning of the ¾ mile access road to the location of a proposed mining operation. Zephyr Gold USA Ltd, whose address and phone number is 1959 Upper Water Street, Suite 1300, Halifax, Nova Scotia, Canada B3J 3N2, has applied for a Reclamation Permit with the Colorado Mined Land Reclamation Board. Anyone wishing to comment on the application may view the application at the Fremont County Clerk and Recorder's Office, 615 Macon Drive, Cañon City, CO 81212 and should send comments prior to the end of the public comment period to the Division of Reclamation, Mining and Safety, 1313 Sherman St. Room 215, Denver, CO 80203.

7.0 BIBLIOGRAPHY

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