



STATE OF
COLORADO

Ebert - DNR, Jared <jared.ebert@state.co.us>

Fwd: Gem mine Idaho Springs

Barbara Cole <barbcole@communitymattersinstitute.org>

Mon, Sep 21, 2020 at 9:27 AM

To: "Ebert - DNR, Jared" <jared.ebert@state.co.us>

Cc: "Andrew Marsh, City Administrator" <admin@idahospringsco.com>

Here is the review by CGS. Let me know if you need anything else. Barb

Barbara A. Cole, Executive Director and Founder

Community Matters Institute

A Not-for Profit Organization Dedicated to Building Resilient Economies based on the Unique Characteristics of Place Since 1986

Office Land Line: (303) 730-0396

Mobile: (303) 730-3173

Skype: barbcole54

[Quoted text hidden]



CL-19-0005_2.Mighty Argo Gondoa & Parking Deck.pdf
676K

COLORADO GEOLOGICAL SURVEY

1801 19th Street
Golden, Colorado 80401
303.384.2655



May 21, 2020

Karen Berry
State Geologist

Community Development Planner c/o
Barbara A. Cole-Community Matters Institute
City of Idaho Springs
PO Box 907
Idaho Springs, CO 80452

Location:
Sec. 36
T3S, R73W of the 6th PM
39.7427°, -105.5067°

**Subject: Mighty Argo Gondola & Parking Deck, Geologic Hazard Report for Final Development Plan
Idaho Springs, Clear Creek County, Colorado:
CGS Unique No. CL-19-0005_2**

Dear Barbara,

As requested, Colorado Geological Survey (CGS) has reviewed the Geologic Hazard Summary submitted for the Mighty Argo Gondola & Parking Deck Planned Development. Primary documents used for this review included: email request for review (4.28.20), Final Development Plan (open studio, 4.24.20), Upper Landing Site Plans (Martin/Martin, 2.21.20), Review of Geologic Summary (JVA, 4.19.20), and Revised Geologic Summary (Ground, 3.11.20). Additional project documents not listed here were also reviewed. We understand that a mixed-use development (without dwelling units) is planned. This development proposes a Cable Car, Gondola towers, Lower and upper Gondola ramps, and associated parking. Existing uses of the Argo Mill facility as museum and retail/office will remain.

Previous Reviews: CGS reviewed the Argo Annexation (letter dated 7.25.16), and planned development of the Mighty Argo & Virginia Canyon Mountain Park (letter dated 3.7.19). Significant issues related to geologic hazards and proposed development were raised in those letters. These previous letters are included, considered a part of this review and parts of them are briefly summarized in following sections:
From our letter dated 3.7.19: *CGS reiterates our previous recommendation (7.25.16) that the city require a site-specific geologic hazard analysis that evaluates:*

- *Slope stability under current and proposed conditions,*
- *Rockfall,*
- *Debris flow,*
- *Erosion,*
- *Avalanche hazards, and*
- *Suitability of the mine tailings as a foundation material.*

The evaluation should identify areas in the proposed development where engineering mitigation may be necessary and where avoidance is the only feasible solution. Because avoidance or use-limitation may be the only feasible mitigation in some specific areas, CGS recommends the geologic hazard evaluation be completed prior to approving the Final Development Plan.

Geologic hazards at the Argo Mill site are complex and varied. As stated in our July 2016 letter:

- *The final development plan is within property that contains steep slopes, drainages, mine tailings and waste rock.*

- *Proposed development is exposed to the following previously mapped geologic hazards or constraints:*
 - *Rockfall,*
 - *Mudflow/debris flow,*
 - *Unstable slopes, and*
 - *Thick deposits of erodible and potentially unstable non-engineered fill (mine tailings).*
- *The suitability of the mine tailings as a foundation bearing material (i.e. for gondola support structures) has not been evaluated.*

The applicant needs to demonstrate that proposed slopes and/or retaining walls required to develop the site as proposed, would be stable. (i.e. slope stability evaluation of the cut in the mine waste depicted on the plans along the private drive between the Gondola and Gondola support.)

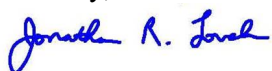
Geologic Summary: Ground Engineering has prepared a Geologic Summary that we have been asked to review in conjunction with the Final Development Plan. We offer the following recommendations and observations. The geologic summary is not the site-specific geologic hazard analysis we have recommended. The summary states (p.30): *"The following sections provide a limited discussion of common geologic hazard (sic) in Colorado and other geologic hazards may be present at the site. The discussion provided in the report is not sufficient for final design but may be used in initial project planning."* And on page 36: *"This letter has been prepared for The Mighty Argo Denali Holdings, LLC as it pertains to the initial evaluation of the Argo Mill Redevelopment as described herein. It may not contain sufficient information for other parties or other purposes."*

As stated by Ground, the intent of their summary is to provide an initial evaluation with a limited discussion of geologic hazards. From the summary we are unable to determine the extent of geologic impacts to the planned development, or conceptual mitigation for such impacts (if any). **Prior to approval of a final development plan it would be prudent for the city to require a detailed investigation that addresses the identified geologic hazards at the site and proposes conceptual mitigation. The investigation should contain enough information to determine if and where mitigation will be required for the geologic hazards at the site.**

Some of these hazards (rockfall and debris flow) can be deadly and highly destructive to property and we recommend that they be evaluated for any direct impacts to the project. (We recommend the project being evaluated include the Argo Mill office site and buildings as these are shown as a part of the development plan.) At a minimum, the investigation should evaluate any direct impacts from rockfall, and debris flow as well as the other site-specific geologic hazards including unstable slopes, potentially unstable slopes, stability of mine waste, and potential for erosion including scour erosion from Clear Creek. This will be useful in determining if any changes are necessary to the Final Development Plan and avoid potentially costly mitigation for the various hazards later.

Thank you for the opportunity to review and comment on this project. If you have questions or require further review, please e-mail jlovekin@mines.edu .

Sincerely,



Jonathan R. Lovekin, P.G.
Senior Engineering Geologist

COLORADO GEOLOGICAL SURVEY

1801 19th Street
Golden, Colorado 80401



Karen Berry
State Geologist

March 7, 2019

Alan Tiefenbach
Community Development Planner
City of Idaho Springs
PO Box 907
Idaho Springs, CO 80452

Location:
Sec. 36,
T3S, R73W of the 6th PM
39.7427, -105.5067

**Subject: Mighty Argo & Virginia Canyon Mountain Park Planned Development
City of Idaho Springs, Clear Creek County, CO; CGS Unique No. CL-19-0005**

Dear Mr. Tiefenbach:

The Colorado Geological Survey (CGS) has reviewed the Mighty Argo & Virginia Canyon Mountain Park Planned Development referral. With this referral, the CGS received: Land Use Application and Planned Development Submittal documents (2/25/19; 33 pages), Notice of Formal Application for Planned Development (2/26/19), and Planned Development drawings and notes (2/25/19; 6 sheets). The applicant proposes rezoning to facilitate mixed-use development near the historic Argo Mill, and along a proposed gondola route up the mountain to a proposed "gondola landing area". The CGS understands that proposed use may include multifamily residential, hotel, office, restaurant, and retail uses. The CGS previously reviewed the Argo Annexation, which preceded the proposed rezoning, and provided comments in a letter dated 7/25/16.

In our July 2016 letter, the CGS expressed the following concerns about feasibility of the proposed development:

- The proposed annexation property contains steep slopes, drainages, mine tailings and waste rock.
- Proposed development is exposed to the following previously-mapped geologic hazards or constraints:
 - Rockfall,
 - Mudflow/debris flow,
 - Unstable slopes, and
 - Thick deposits of erodible and potentially unstable non-engineered fill (mine tailings).
- The suitability of the mine tailings as a foundation bearing material has not been evaluated.
- The applicant needs to demonstrate that proposed slopes, and the extensive cuts and regrading that would be required to develop the site as proposed, would be stable.

The CGS has not been provided with any geologic hazard reports for the proposed development. The CGS reiterates our previous recommendation that the city require a site-specific geologic hazard analysis that evaluates:

- Slope stability under current and proposed conditions,
- Rockfall,
- Debris flow,
- Erosion,
- Avalanche hazards, and
- Suitability of the mine tailings as a foundation material.

Alan Tiefenbach
March 7, 2019
Page 2 of 2

The evaluation should identify areas in the proposed development where engineered mitigation may be necessary and where avoidance is the only feasible solution. Because avoidance or use-limitation may be the only feasible mitigation in some specific areas, the CGS recommends that the geologic hazard evaluation be completed prior to approving any rezoning that could result in future development of habitable structures in high hazard areas. We look forward to the opportunity to review additional analyses when available.

Thank you for the opportunity to review and comment on this project. If you have questions, please contact me by phone at 303-384-2632 or e-mail kemccoy@mines.edu.

Sincerely,



Kevin McCoy
Engineering Geologist

COLORADO GEOLOGICAL SURVEY

1801 19th Street
Golden, Colorado 80401



Karen Berry
State Geologist

July 25, 2016

Alan Tiefenbach
Community Development Planner
City of Idaho Springs
P.O. Box 907
Idaho Springs, CO 80452

Location:
SE¼ Section 36,
T3S, R73W, 6th P.M.
39.7437, -105.5049

Subject: Argo Annexation
City of Idaho Springs, Clear Creek County, CO; CGS Unique No. CL-17-0001

Dear Mr. Tiefenbach:

The Colorado Geological Survey has reviewed the proposed annexation of approximately 15 acres corresponding to Argo Millsite #8580A, Argo Millsite #8580B, and Santoy Millsite #18377 located north of the existing Argo Mill. With this referral, I received a request for CGS review (July 8, 2016), an Annexation Map (Clear Creek Surveying, April 11, 2016), Annexation Application narrative (Argo Holdings LLC, March 2016), an Application Status letter (City of Idaho Springs, June 16, 2016) and applicant's response (Phyllis Adams, June 28, 2016), and a Phase I Environmental Site Assessment (Ellis Environmental Engineering, Inc., revised December 2015).

The applicant states that maximum buildout might consist of 200 housing units and a 160-room hotel with conference center.

CGS has serious concerns about the feasibility of developing the annexation property as proposed:

The proposed annexation property contains steep slopes, drainages, mine tailings and waste rock. The site contains the following mapped, identified geologic hazards: rockfall, mudflow/debris flow, and unstable slopes. Specifically, the proposed hotel is located at the mouth of Rosa Gulch, within a mapped mudflow hazard. The proposed single family homes west of the proposed hotel are located within a mapped rockfall hazard and on steep slopes mapped as unstable. The proposed townhomes and single family homes east of the proposed hotel are located on a steep slope and mine tailings. The proposed multi-family units are located at the mouth of a smaller drainage (also exposed to a potential debris flow hazard) and over mine tailings.

The suitability of the mine tailings as a foundation bearing material and from an environmental health perspective must be thoroughly evaluated before *any* development is determined to be feasible.

CGS strongly recommends that the city require a site specific geologic hazard analysis that addresses slope stability under current and proposed conditions, rockfall, debris flow, erosion, and avalanche hazards. Page 9 of the Phase I ESA refers to a slope stability study and reclamation efforts within the context of existing conditions. The applicant needs to demonstrate that proposed slopes, and the extensive cuts and regrading that would be required to develop the site as proposed, would be stable.

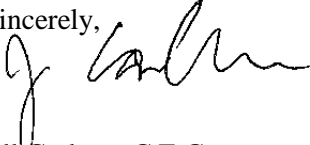
The Phase I ESA provides a good description of site environmental conditions, and identifies eight recognized environmental conditions (RECs). As noted in the Phase I ESA, the site is on the National Priorities List and is

Alan Teifenbach
July 25, 2016
Page 2 of 2

designated as part of the Clear Creek/Central City Superfund Site. Heavy metals (arsenic and lead) in the waste rock pile represent a hazard to human health and the environment. **The site's suitability for the proposed development from an environmental health perspective should be reviewed by the Colorado Department of Public Health and Environment (CDPHE).**

Thank you for the opportunity to review and comment on this project. If you have questions or require further review, please call me at (303) 384-2643, or e-mail carlson@mines.edu.

Sincerely,

A handwritten signature in black ink, appearing to read 'Jill Carlson', written over the word 'Sincerely,'.

Jill Carlson, C.E.G.
Engineering Geologist