



Planning & Development Services Division

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## Salt Lake County Planning Commission

Public Meeting Agenda

**\*\*Revised\*\***

**Wednesday, April 16, 2014 8:30 A.M.**

**THE MEETING WILL BE HELD AT SALT LAKE COUNTY GOVERNMENT CENTER  
2001 SOUTH STATE STREET, NORTH BUILDING, MAIN FLOOR, COUNCIL CHAMBERS,  
ROOM N1100**

**ANY QUESTIONS, CALL (385) 468-6700**

*REASONABLE ACCOMMODATIONS FOR QUALIFIED INDIVIDUALS MAY BE PROVIDED UPON RECEIPT OF A REQUEST WITH 5 WORKING DAYS NOTICE. PLEASE CONTACT WENDY GURR AT 385-468-6707. TTY USERS SHOULD CALL 711.*

The Planning Commission Public Meeting is a public forum where the Planning Commission receives comment and recommendations from applicants, the public, applicable agencies and County staff regarding land use applications and other items on the Commission's agenda. In addition, it is where the Planning Commission takes action on these items. Action may be taken by the Planning Commission on any item listed on the agenda which may include: approval, approval with conditions, denial, continuance or recommendation to other bodies as applicable.

### **BUSINESS MEETING**

- 1) Approval of Minutes from the March 12, 2014 meeting.
- 2) Township Services Introduction, Patrick Leary
- 3) Mountain Accord Introductory Presentation
- 4) Other Business Items (as needed)

### **PUBLIC HEARINGS**

#### **Conditional Use –**

**28643 – (Continued from 03/12/2014 meeting)** – Snowbird Resort is requesting minor site and floor plan amendments to a previously approved condo project at Snowbird Ski Resort known as Alpen Vista or Superior Lodge. The request is being driven by an updated avalanche study for this site. **Location:** 9525 East Little Cottonwood Canyon. **Zone:** FR-20, Foothills and Canyons Overlay Zone (FCOZ). **Planner:** Lyle Gibson

**28833** – Tanya Friese for Crown Castle International Corp. and Alta Ski Lifts Company– Request for a Conditional Use Permit for construction and operation of a Wireless Telecommunications HUB building. **Location:** 10027 East Little Cottonwood Canyon Road. **Zone:** FR-20, Foothills and Canyons Overlay Zone (FCOZ). **Community Council:** Granite. **Planner:** Todd A. Draper

**Rezone –**

**28823** – Scott Carlson for AES Investments LLC and MRL Real Estate Development LTD. – Request to rezone subject properties from R-1-10 z/c (Residential Single Family, 10,000 sq. ft. min. lot size, includes zoning conditions) to R-1-10 (Residential Single Family, 10,000 sq. ft. min. lot size) and R-1-15 (Residential Single Family, 15,000 sq. ft. min. lot size). **Location:** 3677 East Little Cottonwood Road. **Community Council:** Granite. **Planner:** Todd A. Draper

**ADJOURN**



**MEETING MINUTE SUMMARY**  
**Salt Lake County Planning Commission Meeting**

Wednesday, March 12, 2014 8:30 a.m.

**Approximate meeting length:** 3 hours 38 minutes  
**Number of public in attendance:** 13  
**Summary Prepared by:** Wendy Gurr  
**Meeting Conducted by:** Commissioner Young

**\*NOTE:** Staff Reports referenced in this document can be found on the State and County websites, or from Salt Lake County Planning & Development Services.

**ATTENDANCE**

**Commissioners and Staff:**

Commissioners	Public Mtg	Business Mtg	Absent	Planning Staff / DA	Public Mtg	Business Mtg
Tod Young – Chair	x	x		Todd Draper	x	x
Neil A. Cohen	x	x		Wendy Gurr	x	x
Jeff Creveling	x	x		Max Johnson	x	
Ronald Vance – Vice Chair	x	x		Lyle Gibson	x	x
Clare Collard			x	Tom Christensen (DA)	x	x
Todd Sutton			x			
Bryan O’Meara	x	x				

**BUSINESS MEETING**

**Meeting began at – 8:37 a.m.**

- Approval of Minutes from the February 12, 2014 meeting.  
**Motion:** to approve the Minutes from the February 12, 2014 meeting with the correction of the word sight to site.  
**Motion by:** Commissioner Cohen  
**2<sup>nd</sup> by:** Commissioner Vance  
**Vote:** unanimous in favor (of commissioners present)

*Commissioners had a brief discussion. They confirmed they have not had a committee meeting on the Bylaws.*

*Commissioner O’Meara motioned to move the review of Bylaws to the end of the meeting, Commissioner Creveling 2<sup>nd</sup> the motion.*

*Staff Todd Draper made the request to move other business items to the end of the meeting.*

**PUBLIC HEARINGS**

**Hearings began at – 8:45 a.m.**

**28680 – (Continued from 12/11/2013 and 02/12/2014) -** Nefi Garcia of Technology Associates – Requesting Conditional Use approval for a stealth wireless telecommunications facility. **Location:** 9850 South 2700 East. **Zone:** R-1-43 (Residential). **Community Council:** Granite. **Planner:** Todd Draper

*Staff Todd Draper presented the Staff Report and provided an analysis.*

*Commissioners and Staff had a brief discussion.*

## **PUBLIC PORTION OF MEETING OPENED**

**Speaker # 1:** Applicant

**Name:** Nefi Garcia

**Address:** 5710 South Main Street, Murray

**Comments:** He wants to know where on the parcel this facility can go. There has been talk about going to the Southeast part of the barn and the property owner has issues with that, and opposition from the neighbors. Least opposition is the Northeast corner. There are two neighbors in opposition, Julie Berg to the West would have less an impact, but North would be closer to Christine Barker and more issues. Anywhere they go there would be opposition. This has been reviewed by Staff and the Planning Commission spoke about the stealth. The mitigating factor is a stealth tree, a brushy, full tree. He quoted factors from staff approval with conditions. The seven additional feet is for a natural look. He believes this meets the code and requests approval.

*Commissioners had questions for applicant. He responded with the antennas will remain where they are at 60 feet. If they are lowered, the existing trees will cause issues with the signal. A good looking tree needs the additional height, and aesthetic look. He can look at a tower and determine the height of a tower. The additional height would be just tree and not antennas. Staff Todd Draper confirmed if the tree is taller, the setback would be further from the structure. As the tree gets taller the setback gets further. Applicant is trying to find a spot further away from the neighbors.*

**Speaker # 2:** Property Owner

**Name:** Stan Sieverts

**Address:** 9850 South 2700 East

**Comments:** They have tried to move the tower, but believe if they move it in any other direction it would impact other neighbors. They believe it is in the best spot and if it isn't approved, they will find somewhere else for it and will be back here again in a few months.

*Commissioners had questions for the property owner. He said with Ms. Berg to the West and looking to North East, she would be staring at the existing cell phone tower. The way her home is positioned, the view would be to the East and the potential pole is not East. If they went further to the North, it would impact Ms. Barker more. He still feels it is in the best spot on his property.*

**Speaker # 3:** Citizen

**Name:** Julie Berg

**Address:** 9898 South 2700 East

**Comments:** Julie advised that she had received an appraisal. In the opinion of her appraiser, the impact of her property values would be detrimental from 5-20%. The location is 17 feet from her property line. She had planned to build a guest home. They are still proposing 17 feet from her property line. She feels the property owner has unwillingness to compromise. His horse stalls can be moved. He is concerned about his ability to build by the front part of land. She quoted an article from the Salt Lake Tribune regarding Dimple Dell. She feels no one from the neighborhood is in favor of this, except the property owner. The Granite Community Council is not in favor, she wishes for a denial.

*Counsel Tom Christensen confirmed this is a conditional use application, different from a rezone. Our hands are tied on a valid application. He quoted the State Statute 17-27a-506 that is included in the County Code 19-84-090, that conditional uses shall be approved if they propose ways to mitigate adverse impacts.*

*Commissioners and Staff had a brief discussion. Commissioner Young passed around a photo of an existing pole at the Dimple Dell Ranchettes and asked the Applicant Nefi Garcia to respond. The monopoles can be painted to blend in with the background. The applicant advised he isn't familiar with the monopole Commissioner Young is*

*pushed through this facility. He tried to find something that will fit in to the areas, with the pine trees, especially on Ms. Berg's side. There are 3 positions in a cam pole and they would all be taken, then there is nothing left.*

**Speaker # 4:** Citizen

**Name:** Christine Barker

**Address:** 2600 East 9800 South

**Comments:** She has questions regarding the pole, this is the first time she has seen something like this. Each company has their own tower; rather than all companies going on the monopine. She is curious about planting pine trees and where they will be planted.

*Staff Todd Draper advised the trees will be on the property line or in the enclosure and the public would not have input unless they went directly to the applicant or the property owner.*

*Staff Todd Draper provided additional feedback.*

### **PUBLIC PORTION OF MEETING CLOSED**

*Commissioners, Counsel and Staff had a brief discussion.*

*Commissioners called Applicant Nefi Garcia back to the podium to confirm where the trees would be planted. Mr. Garcia confirmed the trees would be planted outside the enclosure. The Commissioners asked about moving the enclosure to the East. He doesn't like this, but will agree to that.*

*Commissioners had a brief discussion.*

**Motion:** to approve application #28680 with 2 minor modifications to the recommendations of Staff:

- 1) 3.1, 1. To allow the 67 foot overall height of the tower.
- 2) 3.1, 5. To relocate the enclosure 12 feet from the existing properties West line for the inclusion of the trees for screening. The number of trees such that they would permit at maturity the screening of the neighbor's property.

**Motion by:** Commissioner Creveling

**2<sup>nd</sup> by:** Commissioner Vance

**Vote:** unanimous in favor (of commissioners present)

*Commissioner Cohen recused himself at 10:05 am from the next application, as he is employed by Snowbird.*

**28643** – Doug Greer is requesting minor site and floor plan amendments to a previously approved condo project at Snowbird Ski Resort known as Alpen Vista or Superior Lodge. The request is being driven by an updated avalanche study for this site. **Location:** 9525 East Little Cottonwood Canyon. **Zone:** FR-20  
**Planner:** Lyle Gibson

*Staff Lyle Gibson presented the Staff Report and provided an analysis.*

*Commissioners and Staff had a brief discussion.*

### **PUBLIC PORTION OF MEETING OPENED**

**Speaker # 1:** MJSA Architects speaking on behalf of Snowbird the Applicant

**Name:** Brian McCarthy

**Address:** 1025 South 800 East

**Comments:** The project is at the same height as it was, the deflection wall was 4 feet taller and they can keep it at building height. They are adding 850 square feet of foot print for the reflection wall. They are dealing with avalanche and they determined there would be more significance having the building there. It would make it a safer building, and 28 unit numbers which was previously approved and footprint is basically the same. The soil from the basement excavation would be used on site and will help mitigate avalanche impacts. They are not going with Geo Foam. The enclosure would be used for lockers. They also relocated the elevator.

*No public was present to speak either for or against the application.*

### **PUBLIC PORTION OF MEETING CLOSED**

*Commissioners had a brief discussion.*

**Motion:** to continue application #28643 to the April 16<sup>th</sup> meeting to obtain additional information.

**Motion by:** Commissioner Creveling

**2<sup>nd</sup> by:** Commissioner O'Meara

**Vote:** unanimous in favor (of commissioners present)

*Commissioner Cohen rejoined at 10:40 am.*

**28755** – Don Goldy of Corner Canyon Construction – Conditional Use request to convert an existing Single-Family Dwelling into a Two-Family Dwelling – **Location:** 8296 South Etienne Way (2720 East). **Zone:** A-1. **Community Council:** Willow Creek. **Planner:** Todd A. Draper.

*Staff Todd Draper presented the Staff Report and provided an analysis.*

*Commissioners and Staff had a brief discussion.*

### **PUBLIC PORTION OF MEETING OPENED**

**Speaker # 1:** Contractor for Corner Canyon Construction, on behalf of Property Owner

**Name:** Don Goldy

**Address:** 736 East Corner Ridge Drive, Draper

**Comments:** Property owner hired him to take this on. She is in her 60's and a widow. Her daughter and family will live in the main residence and watch over her as she ages. They understand there is concern over parking, there is ample parking. Property has a 4 car garage and drive way that can fit additional 8-10 cars. They are taking the existing pool house that is already attached to the main house. They are not doing any structure modification all cosmetic. They are replacing windows and doorways. Utilities are connected and have ample plumbing and electricity.

*Commissioner Vance asked what the definition of the salon is. The daughter moving in has an existing salon business. There is minimal impact, just a beauty salon. She is licensed and will ask to transfer the license. The salon room would allow her to continue what she is already doing.*

### **PUBLIC PORTION OF MEETING CLOSED**

**Motion:** to approve application #28755 as presented with Staff recommendations.

**Motion by:** Commissioner O'Meara

**2<sup>nd</sup> by:** Commissioner Creveling

**Vote:** unanimous in favor (of commissioners present)

### **BUSINESS MEETING (Continued)**

**Meeting continued at – 11:05 a.m.**

#### **2. Review of Bylaws**

*They have been busy and did not have time to meet. They need to have this completed, so they can be published and posted to the county website, so the public can learn what the Planning Commission is. The public needs to know what to expect when they attend a public meeting. Commissioner Young had a*

problem with Rules of Procedures. Staff Todd Draper advised that has been corrected to Rules and Procedures. They had a commission meeting in February 2012. We need legal counsel opinion before it can be adopted. Counsel Zach Shaw wrote an opinion, and there are conflicting provisions. Commissioner Young quoted County Code 19-05-060, and wants everyone to abide by this. Counsel Tom Christensen advised they are conflicting and it is safer to have the County Council review and approve Bylaws for all Planning Commissions. Counsel Tom Christensen advised these are not just rules for the commission, but it affects those who stand before them. Bylaw committee will take that into consideration.

Commissioner Young provided a hand out, memorandum of understanding. Commissioner Cohen questioned why they think they need something like that.

Commissioners, Counsel and Staff had a brief discussion over notifications.

3. Other Business Items (as needed)

- i. Staff discussed upcoming training opportunities.
- ii. Staff advised the commissioners regarding procedures, as well as, duties and responsibilities.

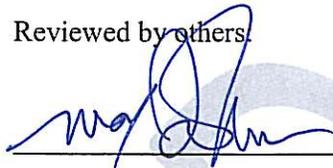
**MEETING ADJOURNED**

**Time Adjourned – 12:05 a.m.**

Minutes reviewed by:

  
\_\_\_\_\_ 3/24/2014

Reviewed by others:

  
\_\_\_\_\_ 3/25/14

  
\_\_\_\_\_ 3/25/14





**STAFF REPORT**

Executive Summary									
<b>Hearing Body:</b>	Salt Lake County Planning Commission (Continued from 3/12/14)								
<b>Meeting Date and Time:</b>	Wednesday, April 16, 2014	08:30 AM	<b>File No:</b>	2	8	6	4	3	
<b>Applicant Name:</b>	Snowbird Resort	<b>Request:</b>	Conditional Use						
<b>Description:</b>	Site and Floor Plan Modification to existing Conditional Use								
<b>Location:</b>	9525 E. Little Cottonwood Canyon - Snowbird Ski Resort								
<b>Zone:</b>	FR-20 Forestry & Recreation	<b>Any Zoning Conditions?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>					
<b>Planning Commission Rec:</b>	Not Yet Received								
<b>Staff Recommendation:</b>	Approval with Conditions								
<b>Planner:</b>	Lyle Gibson								

**1.0 BACKGROUND**

**1.1 Summary**

The applicant is requesting minor site and floor plan amendments to a previously approved condo project at Snowbird Ski Resort known as Alpen Vista or Superior Lodge. The request is being driven by an updated avalanche study for this site. The project has not changed to where it does not comply with the existing conditions of approval, however it is the opinion of staff that the modifications to the building footprint and floor plan should be brought before the Planning Commission for approval.

The modifications to the building have not altered the proposed limit of disturbance and does not request additional units or additional uses. However the new avalanche study data has altered the building design as a safety measure in order to protect the structure in the event of an avalanche. The structural alteration includes a deflection wall to divert snow impact from a direct impact to the structure. The deflection wall is located on the southeast corner of the structure and adds about 1150 sq. ft. of building footprint to the site. The deflection wall creates an enclosed space that has created interest in some extra usable space within the building. The applicant would like to use the space for the elevator shaft and storage or mechanical equipment. Inserting these features as part of the new space allows for a slightly different floor layout. It is important to note that the deflection wall is actually about 4 ft. taller than the rest of the building in order to divert potential avalanche impacts over the structure.

In addition to the changes from the deflection wall, the applicant has also proposed enclosing the north end of the 3rd floor. This will not add to the original footprint or building height, but does create additional usable space on the top floor. Also, with the blessing of the utility companies for the concept, the applicant has proposed a notable change to the basement floor layout includes a recreation and lounge area with a swimming pool, lockers, wine cellar, and restrooms.

This project has already received an approval from the Salt Lake County Planning Commission on October 16, 2013 for 3 stories and 28 units subject to the conditions on page 2 of this report. The Commission asked at the hearing on 3/12/14 to see the avalanche study and additional elevations before making a decision on the changes.

**The conditions of approval for the project are currently as follows:**

- 1 ) The total number of units in any configuration within the proposed building be limited to 28 units.
- 2 ) In order to accommodate the proposed additional units and points of access the building shall be modified to allow for an additional floor (creating 3 total) and the foot print shall be allowed to be expanded as proposed towards the existing parking garage and to the north of the building to create new covered stair access. The Limits of Disturbance (LOD) will remain as previously approved as shown on the attached plans. All previously approved Waivers and Modifications granted to this project shall apply.
- 3 ) The 28 parking spaces and 2 ADA parking spaces previously approved for this condominium project under application 24577 shall be increased to 33 parking spaces and 2 ADA spaces that shall be set aside and identified in the adjacent parking structure for Condominium parking only. The units are most likely to be used as short stay lodging versus a long-term residence. Consequently, the nature of parking is also different; actually less parking is needed than a standard residential unit. In addition to the reserved spaces Snowbird Ski and Summer Resort has significant unassigned parking that could accommodate additional needed spaces.
- 4) The property shall be subject to the Avalanche Plan of Snowbird Ski and Summer Resort.

**-Requirements remaining from previous approvals**

- 1) Limits of Disturbance (LOD) fence and erosion control measures shall be installed per the approved plans and an LOD inspection must be passed under the building permit application prior to issuance of the building permit and commencement of construction.
- 2) Footing excavations shall be inspected and approved in writing by a qualified geotechnical engineer prior to the placement of concrete forms or rebar.
- 3) Site development and construction shall be performed in strict compliance with all FCOZ standards and requirements, other than those which have been modified or waived by the Planning Commission, and all other applicable ordinances, codes, and development standards.
- 4) Site development and building construction shall be in strict compliance with the approved site plan and building elevations. Any modifications require approval from this office prior to construction.
- 5) Upon complaint that any of the requirements of this approval or any other county ordinance is being violated, the County shall review the complaint and if substantiated, may institute revocation procedures.
- 6) Building materials and colors approved under the original Employee Housing application for this site (File #23400) shall apply to this project.
- 7) Landscaping: trees used for site re-vegetation shall be an equal mix of indigenous conifer and deciduous trees. Tree numbers and species identified in a Plant List on the Re-vegetation Plan submitted under the original Employee Housing application for this site (File #23400) shall apply to this project.
- 8) Applicant shall bond for or complete re-vegetation of all disturbed areas as shown on the previously approved Re-vegetation/Reclamation Plan for the original Employee Housing application for this site (File #23400), prior to release of power-to-panel.

The following waivers and modifications of FCOZ standards were approved under the previous Employee Housing for this site (File #23400) shall apply to this project:

- a) Waiver of Section 19.72.030.B.1. to allow the proposed building to be constructed on slopes which are over 30%.
- b) Waiver of Section 19.72.030.B.4. which requires slopes over 30% to be maintained as open space.
- c) Modification of Section 19.72.030.J.3. to allow improvement of the Peruvian Gulch Stream as recommended by Urban Hydrology (rip-rap stream banks).
- d) Modification of Section 19.72.030.J.4. to allow the proposed building to be located approximately 84 feet from the normal high water mark of the Peruvian Gulch Stream.

**1.2 Hearing Body Action**

19.05.040 Powers and duties.

E. Approve or deny conditional use permits

This application is on the Salt Lake County Planning Commission agenda for a decision to approve or deny the proposed conditional use amendment.

19.10.030 Conditional uses.

Ski resort facilities and improvements which do not satisfy the criteria of Section 19.10.020, subparts (E)(1) through (E)(4) of this chapter, as well as those which are referred to the planning commission by the development services director in accordance with Section 19.84.080 provisions of this title, shall be subject to review and approval by the planning commission. In its consideration of ski resort and public use development proposals in areas situated within the foothills and canyons overlay zone, the planning commission may waive and/or modify the regulations of Chapters 19.72 and 19.73 of this title in accordance with the procedures and criteria set forth in Section 19.72.060, "Administration and enforcement."

**1.3 Neighborhood Response**

Before the hearing on 3/12/14 staff had not received any comment from the community about the project. Since that hearing staff has received the following.

- Received a call from Friends of Alta 3/18/14. Said she received the notice, curious as to what the project was. Had the notice for a while but didn't realize the meeting was already past. When informed about the project she did not raise any concerns or have any other questions.

- Staff also received a letter from a neighboring property (see attached).

**2.0 ANALYSIS**

**2.1 Applicable Ordinances**

Section 19.84.060 of the Conditional Use Chapter of the Zoning Ordinance establishes five standards to be used in evaluating Conditional Use applications. The Planning Commission must find that all five of these standards have been met before granting approval of an application. Based on the foregoing analysis, Staff suggests the following:

Criteria Met		Conditional Use Criteria and Evaluation
YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>	<u>Standard `A`:</u> <i>The proposed site development plan shall comply with all applicable provisions of the Zoning Ordinance, such as parking, building setbacks, building height, etc.</i>
		The use as proposed complies with the provisions of the zoning ordinance and the approved Snowbird Ski and Summer Resort Master Plan such as parking, limits of disturbance, building height.
YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>	<u>Standard `B`:</u> <i>The proposed use and site development plan shall comply with all other applicable laws and ordinances.</i>
		Prior to final approval, the project will be required to comply with all applicable laws and ordinances as verified through the technical review process.
YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>	<u>Standard `C`:</u> <i>The proposed use and site development plan shall not present a traffic hazard due to poor site design or to anticipated traffic increases on the nearby road system which exceed the amounts called for under the County Transportation Master Plan.</i>
		Since the previous planning commission hearing, traffic has completed a review of the

		original proposal of up to 28 units and has approved the project. It is not anticipated that this proposal will not present a traffic hazard.
YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>	<i>Standard `D': The proposed use and site development plan shall not pose a threat to the safety of persons who will work on, reside on, or visit the property nor pose a threat to the safety of residents or properties in the vicinity by failure to adequately address the following issues: fire safety, geologic hazards, soil or slope conditions, liquefaction potential, site grading/ topography, storm drainage/flood control, high ground water, environmental health hazards, or wetlands.</i>
		According to the county geologist, the building is located in an avalanche slide path and adjacent to another. The avalanche study provided by the applicant indicates, for the modeled slide, the building will not be inundated and gives specific pressures for all walls and the roof to be able to withstand the results of an avalanche. Plans stamped by a structural engineer will be required prior to final approval.
YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>	<i>Standard `E': The proposed use and site development plan shall not adversely impact properties in the vicinity of the site through lack of compatibility with nearby buildings in terms of size, scale, height, or noncompliance with community general plan standards.</i>
		The proposal remains compatible with surrounding structures in terms of size and scale. The amendments slightly change the building height to the south due to the deflection wall, but in terms of scale in relation to nearby buildings, including the cliff lodge the building is compatible.

## 2.2 Zoning Requirements

### Allowed Uses:

Snowbird Ski and Summer Resort - Master Plan Update - Approved 10/27/2008

Page 2 of 2: Allowed Uses in the Base Area

The FCOZ regulations encourage clustering of development onto properties more appropriate for development based on slope, vegetation, stream and wetland protections, as well as safety and aesthetic considerations. This plan, as stated in the original approval letter, approves the clustering of the approved units/rooms within the approved base area of the resort as encouraged by FCOZ regulations. Therefore, the rooms are allowed to be built anywhere within the approved base area, subject to all applicable FCOZ and other County Ordinances and regulations, regardless of the actual underlying base zone designation. This is also the case for resort related commercial uses listed in the FM-20 zone. This means that multi-family rooms or resort related commercial as indicated in the FM-20 zone could be built in the FR-20 zone as long as they are clustered within the approved base area and comply with all other applicable requirements, including but not limited to FCOZ regulations.

19.10.030 Conditional uses.

The following conditional uses are subject to the requirements of this chapter, all general and specific conditions, criteria, and approval procedures set forth in [Chapter 19.84](#), "Conditional Uses," and, for properties situated within the foothills and canyons overlay zone, the procedures and provisions of [Chapter 19.72](#), "Foothills and Canyons Overlay Zone" and [Chapter 19.73](#), "Foothills and Canyons Site Development and Design Standards."

Ski resort facilities and improvements which do not satisfy the criteria of [Section 19.10.020](#), subparts (E)(1) through (E)(4) of this chapter, as well as those which are referred to the planning commission by the development services director in accordance with [Section 19.84.080](#) provisions of this title, shall be subject

to review and approval by the planning commission. In its consideration of ski resort and public use development proposals in areas situated within the foothills and canyons overlay zone, the planning commission may waive and/or modify the regulations of Chapters [19.72](#) and [19.73](#) of this title in accordance with the procedures and criteria set forth in [Section 19.72.060](#), "Administration and enforcement."

M.

Planned unit development subject to the conditions and requirements set forth in [Chapter 19.78](#), "Planned unit development";

**Building Height:**

According to the approved Snowbird Ski and Summer Resort Master Plan Update, page 2 of 2. Building Heights in the Base Area. In order to accommodate the total number of units allowed in the resort to be clustered in the base area, building heights in the approved base area will be governed as specified in the FM-20 zone, regardless of the underlying base zone. This shall include but is not limited to, the potential to allow building heights for commercial and multifamily developments to exceed the building heights allowed in the FR-20 zone, as long as the subject development is located within the approved base area and meets the criteria established in the FM-20 zone for determining building height on a case by case basis for these types of uses.

19.10.060 Building height.

A. Conditional Uses—Case-by-Case Determination. Because of the unique nature of the topography, vegetation, soils, climatic and aesthetic characteristics of the foothills and canyons, the allowable height of conditional use structures in the FM-10 and FM-20 zones shall be determined on a case-by-case basis by the planning commission, subject to consideration of the following criteria:

1. Protection of the natural setting;
2. Relationship to other structures and open spaces;
3. Contour intervals and topographic features;
4. To the maximum extent feasible, the building height should not exceed the height of surrounding trees and vegetation;
5. Protection of scenic vistas, especially views from public rights-of-way and public lands; and
6. Other elements deemed appropriate to ensure that the provisions of [Section 19.10.010](#) are met.

B. Multifamily Residential Conditional Uses—Maximum Height. Notwithstanding the case-by-case determination permitted by this section, the maximum height of a residential conditional use in the FM zones shall not exceed one hundred feet.

**Density / Total Units:**

The resort is subject to the existing approved master plan which limits the resort to a maximum of 3,089 rooms (or 2,136 additional rooms over the existing 953 rooms) on private property at the resort.

Rooms have been determined to be defined as residential units or guest rooms. The development as proposed includes privately owned condominium units. The site has already received approval for 20 condominium units under application 25319. The number of units, 28, has been previously approved by the planning commission under this application.

## 2.3 Other Agency Recommendations or Requirements

**Geology:** the geologist has looked at the updated avalanche study and feels that the deflection wall proposal is a preferred means of dealing with the potential impacts from multiple avalanche paths. Final design of the wall must be engineered and approved by the geologist, structural engineer, and building department.

**Grading:** The new proposal will not violate previously approved waivers and L.O.D. The deflection wall solves a health safety issue and if not used for storage or usable space, it would still be enclosed space filled with geofoam which can be a maintenance issue.

## 2.4 Other Issues

### 19.10.050 Limits of disturbance/setbacks.

Because of the unique nature of the topography and climatic conditions of the foothill and canyon areas, limits of disturbance and setbacks for permitted uses including single-family dwellings and accessory structures in the FM zones shall be determined on a case-by-case basis by the development services director. Limits of disturbance and setbacks for conditional uses shall be as finally approved by the planning commission upon the recommendation of the development services director (see Chapter 19.72). All determinations of limits of disturbance shall be subject to the conditions and criteria set forth in the foothills and canyons overlay zone, Section 19.72.040, "Establishment of limits of disturbance."

### 19.10.080 Natural hazards.

Construction of permanent structures in areas subject to natural hazards, including floods, landslides, and avalanches, shall be subject to the requirements and limitations set forth in Chapter 19.74, "Floodplain Hazard Regulations," and Chapter 19.75, "Natural Hazard Areas."

### 19.10.090 Water quality.

- A. Department of Health Approval Required. Prior to issuance of a conditional use permit or site plan approval for all uses in the FM zones, regardless of size or number of units, the applicant shall receive the written approval of the health department certifying that all water quality and health requirements have been satisfied and that the proposed construction will not damage the natural watershed.
- B. Developments of More than Nine Lots/Units. Developments of more than nine lots or units shall receive the written approval of the Utah Department of Environmental Quality certifying that the culinary water system and the sewerage system meet all state water quality and health requirements. All approvals shall be in accordance with the regulations of the Utah Department of Environmental Quality relating to culinary water supply and wastewater disposal.
- C. Applicable State Regulations and Standards. The applicable state regulations for individual wastewater disposal systems can be found in the Utah Administrative Code, Sections R317-501 through R317-513, as amended from time to time. The applicable state regulations for culinary water supply can be found in Utah Administrative Code, as amended from time to time.
- D. Subsequent Changes in Site Plan. If, after department of health or Utah Department of Environmental Quality review and action pursuant to this section, a site plan is modified such that the original limits of disturbance changes the applicant must submit the modified site plan to the appropriate health agency for retesting and a new determination whether all state wastewater and culinary water standards have been met. Evidence of such retesting must be submitted prior to final approval of the site plan.

### 19.10.100 Grading.

Grading shall be permitted only in conformance with the standards and limitations set forth in the foothills and canyons overlay zone, Section 19.72.030C, "Grading Standards."

**19.10.110 Tree and vegetation protection.**

Removal of trees or natural vegetation shall not be permitted except in conformance with the standards and requirements set forth in the foothills and canyons overlay zone, Section 19.72.030H, "Tree and Vegetation Protection."

**19.10.120 Utilities.**

All utilities in the FM zones shall be placed underground, except as may be provided for in Chapter 19.79, "Utility and Facility System Placement Regulations."

**19.10.130 Building location, construction and design.**

All buildings and accessory structures in the FM zones, including single-family and multifamily dwellings, shall be located, constructed, and designed in compliance with the development standards set forth in the foothills and canyons overlay zone, Section 19.72.030, "Development standards," and in Chapter 19.73 of this title, "Foothills and Canyons Site Development and Design Standards."

**19.10.140 Off-street parking.**

B. Conditional Uses. The planning commission shall determine the number of off-street parking spaces required, provided the minimum requirements of Chapter 19.80 shall be met, except that for hotels and resort hotels one-half parking space shall be provided for each guestroom. The planning commission may modify the requirements of Sections 19.80.060 through 19.80.120 if such modification will better preserve views, protect existing trees/vegetation, or reduce the amount of disturbance to steep slopes, wetlands, streams, or other sensitive environmental areas.

**3.0 STAFF RECOMMENDATION**

**3.1 Staff recommends APPROVAL of the proposed Conditional Use with the following conditions:**

- 1 ) In addition to previously imposed conditions, space inside the deflection wall shall be limited to usable but non habitable space.

**3.2 Reasons for Recommendation**

- 1 ) The proposed changes do not violate previous conditions of approval.
- 2 ) The addition of the deflection wall resolves a health / safety concern. If the wall were to be built, utilization of the interior space for purposes of the lodge seems logical.
- 3 ) Enclosing the north end of the top floor is in harmony with the FCOZ ordinance as it creates very little visual impact due to its location below the elevation of the bypass road.

**3.3 Other Recommendations**

- 1) All other existing conditions of approval shall remain.
- 2) Applicant shall complete the technical review process with staff

T. Chad Horne  
TCH Holdings, LLC  
9098 S. Blackjack Road  
Alta, UT 84092

Mr. Lyle Gibson, Planner  
Salt Lake County Planning Department  
Via E Mail  
[LGibson@slco.org](mailto:LGibson@slco.org)

Re: Superior Lodge at Snowbird

Dear Mr. Gibson:

This letter is in support of Snowbird's application to build 28 condominium units adjacent to the Cliff Lodge Parking Structure and the Alta By-Pass Road. I can see the building site from many of the windows of my home and my home office. I look forward to seeing the building completed that has been sitting idle for a number of years.

I have reviewed the plans and renderings for the building and feel it will be an asset to our community. It seems that great care was taken to integrate the architecture and colors of the building into the surrounding colors and textures of this very special canyon. The architect and planners should be commended for their efforts to keep the building in harmony with its environment.

Sincerely,

T. Chad Horne,  
TCH Holdings, LLC

[Chorne01@mac.com](mailto:Chorne01@mac.com)  
801-742-9838 / 813-918-9855



**Identify** Clear

Parcel  
ID 10: 3006401001  
ID 14: 30064010015000  
Address: 9525 E LITTLE COTTONWOOD  
Acreage: 59.139999  
Owner: SNOWBIRD LTD.  
Owner Address: PO BOX 929000

Layer Options

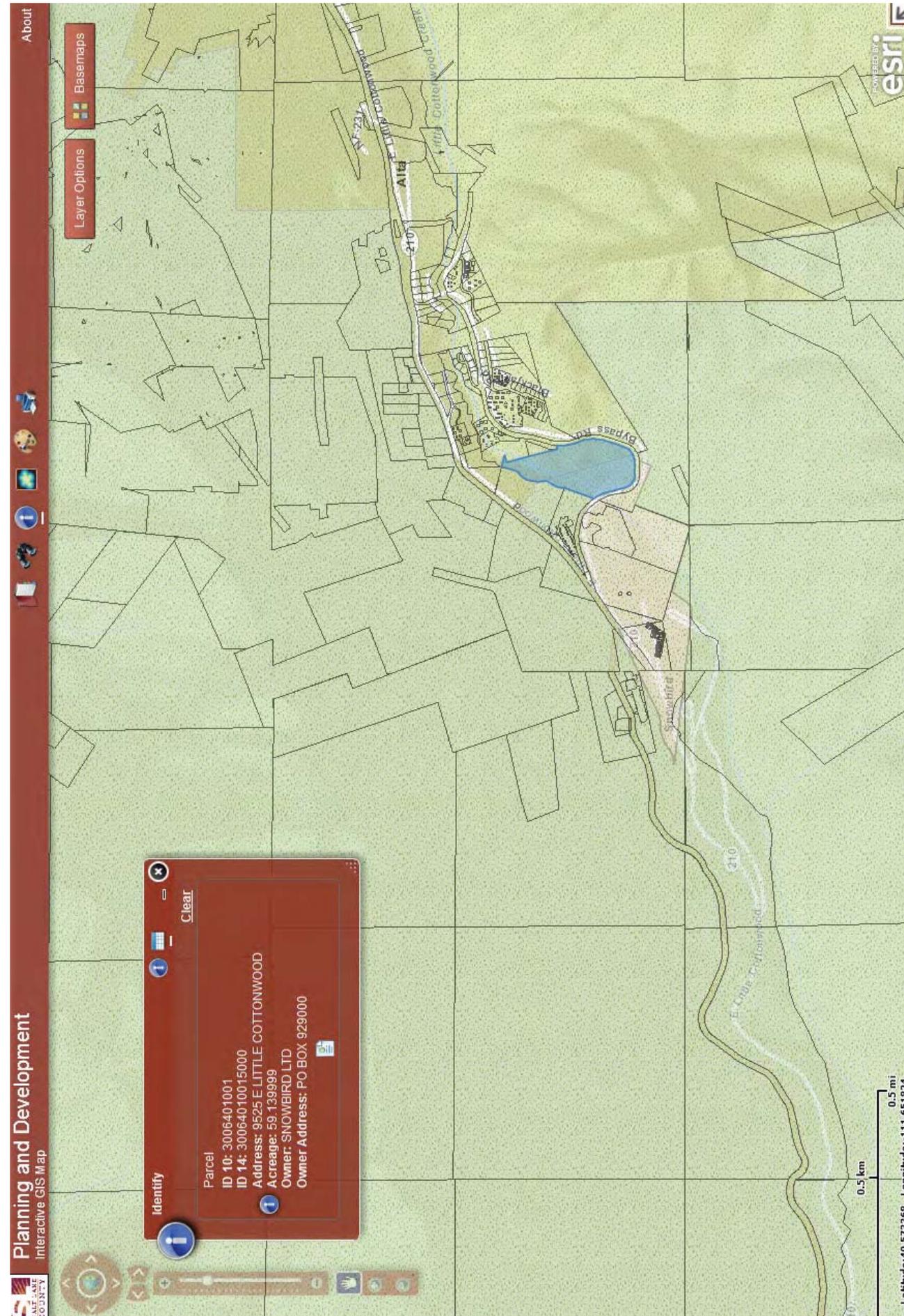


Basemaps

0.5 km

0.5 mi

Latitude: 40.573368 Longitude: -111.651824





# Planning and Development

Interactive GIS Map



About

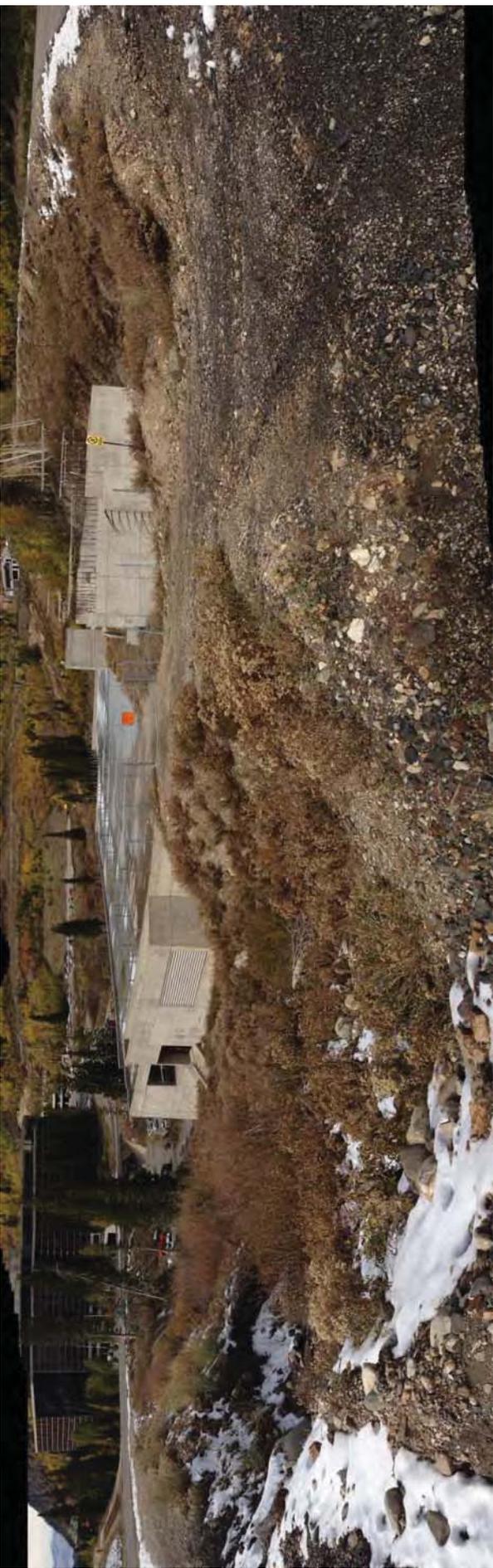
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Basemaps



115117426-4015819723 | 115117426-4015819723

POWERED BY  
**esri**



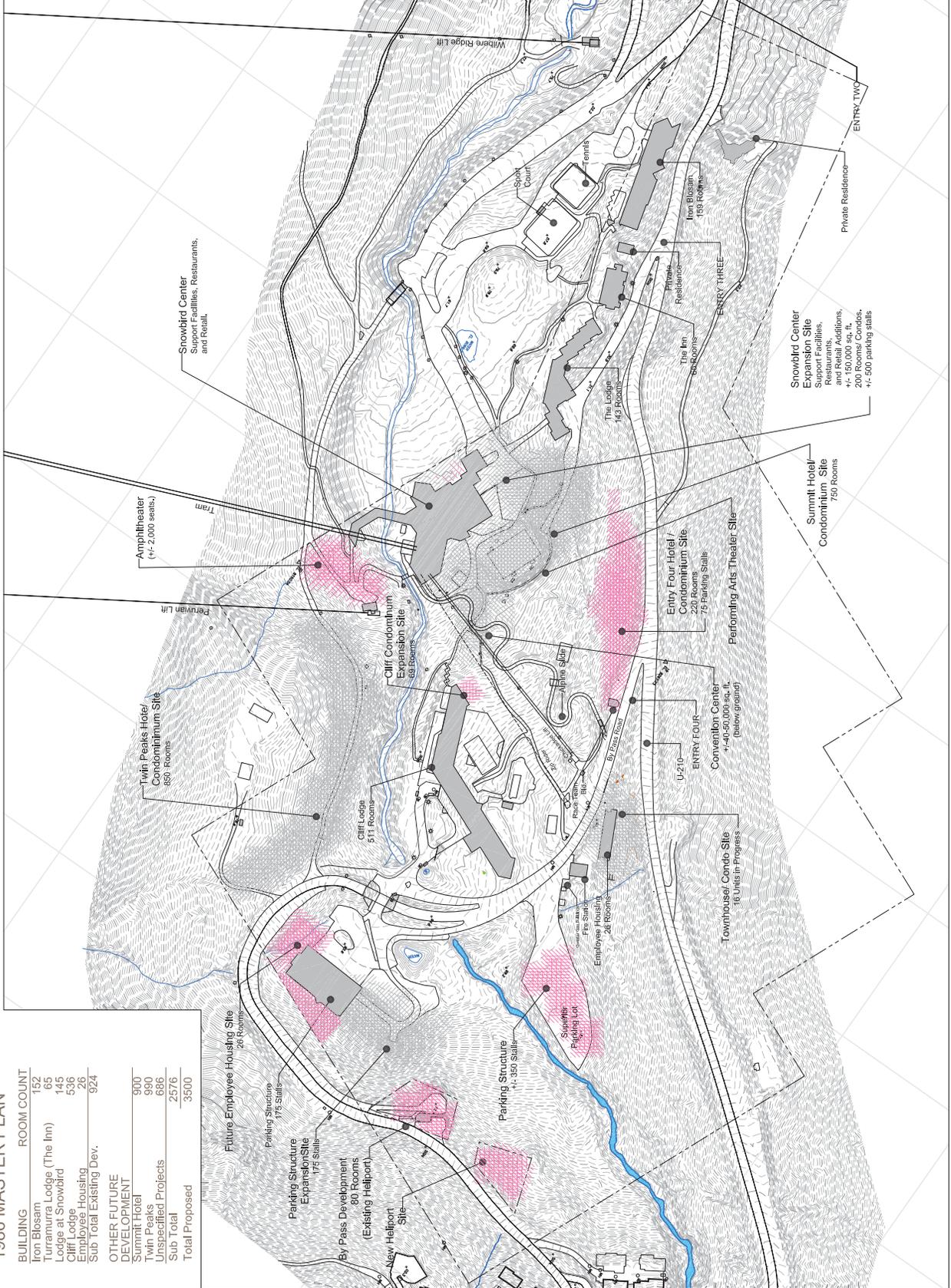
**Current Site Condition**

# SNOWBIRD 2006 Master Plan

## ROOM COUNT FROM 1986 MASTER PLAN

BUILDING	ROOM COUNT
Iron Blossam	152
Turramurra Lodge (The Inn)	65
Lodge at Snowbird	145
Cliff Lodge	536
Employee Housing	26
Sub Total Existing Dev.	924

OTHER/FUTURE DEVELOPMENT	ROOM COUNT
Summit Hotel	900
Twin Peaks Hotel	990
Unspecified Projects	686
Sub Total	2576
Total Proposed	3500



## DEVELOPMENT DATA

EXISTING LODGING	# OF ROOMS
Iron Blossam	159
The Inn	65
Lodge at Snowbird	143
Cliff Lodge	511
Employee Housing	26
<b>Subtotal</b>	<b>904</b>

PROPOSED LODGING	# OF ROOMS
Townhouses	16
Employee Housing	0
(Relocation-No net gain in unit count)	
Twin Peaks Hotel/ Condo	850
Cliff Condo Expansion	69
Summit Hotel/ Condo	750
Snowbird Center	200
Entry Four Hotel/ Condo	220
By Pass Development	80
<b>Subtotal</b>	<b>2185</b>

PROJECT TOTAL	3089
---------------	------



1986 Master Plan  
Development Area



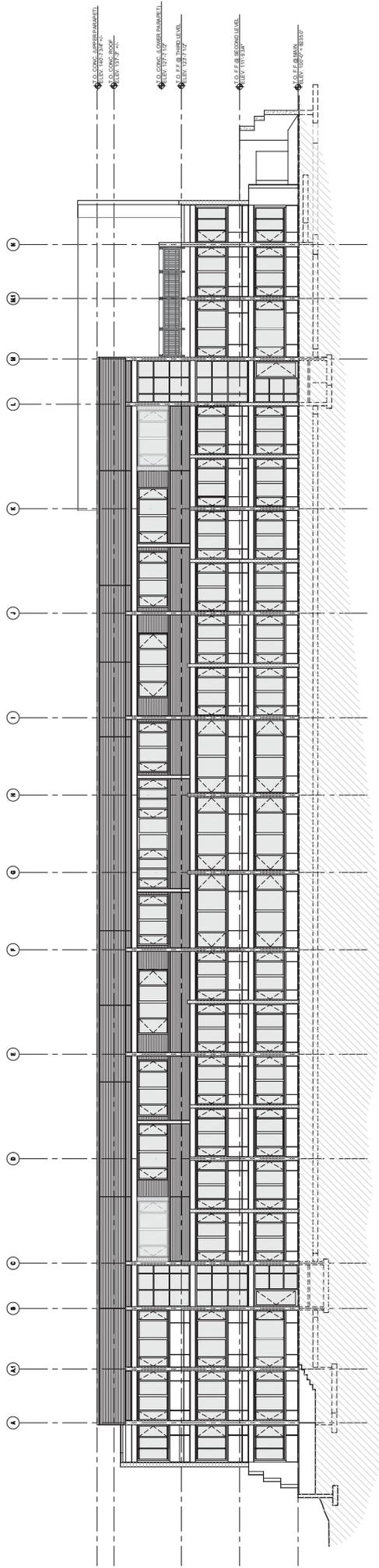
New Development Area



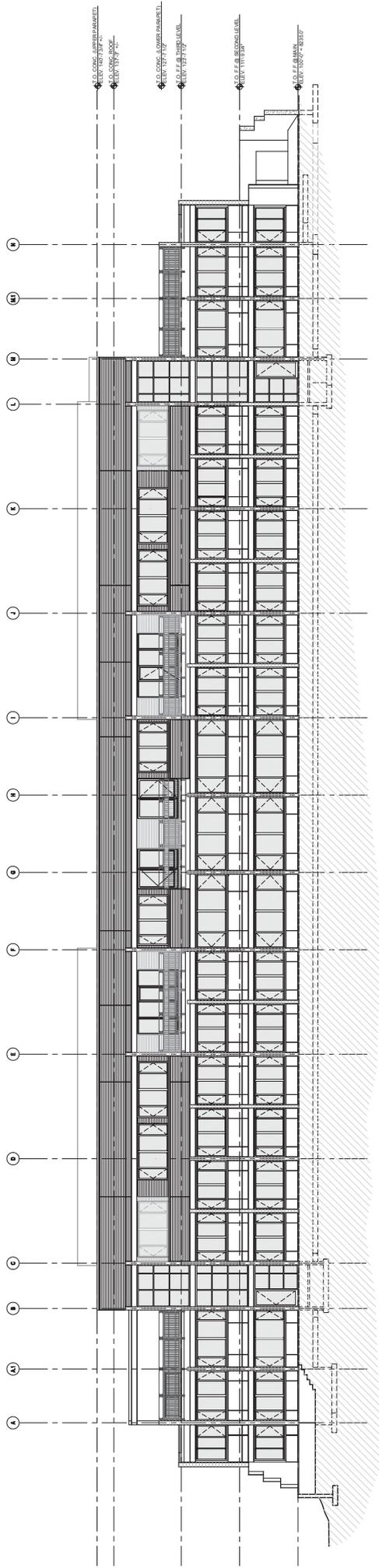
6/13/2006



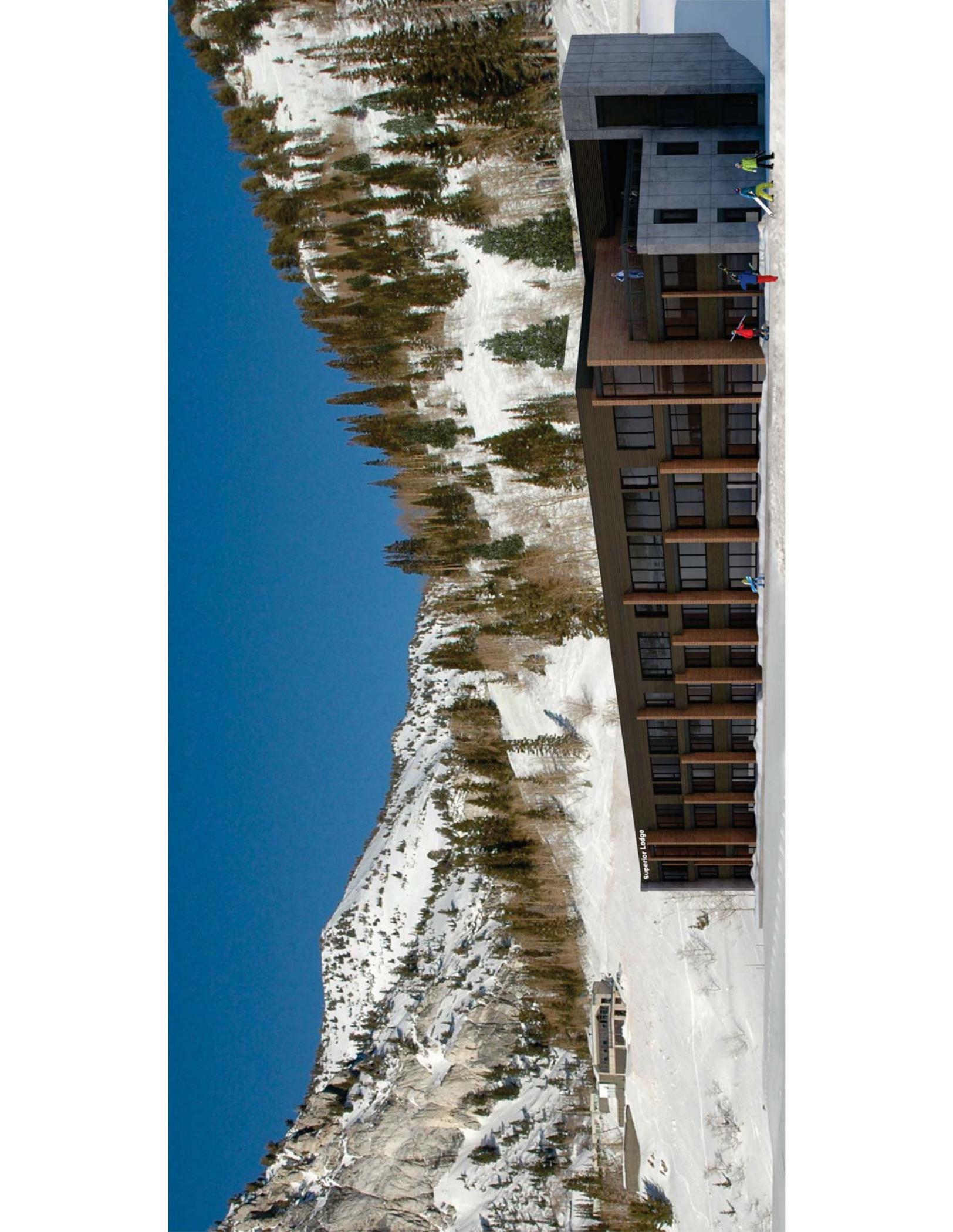




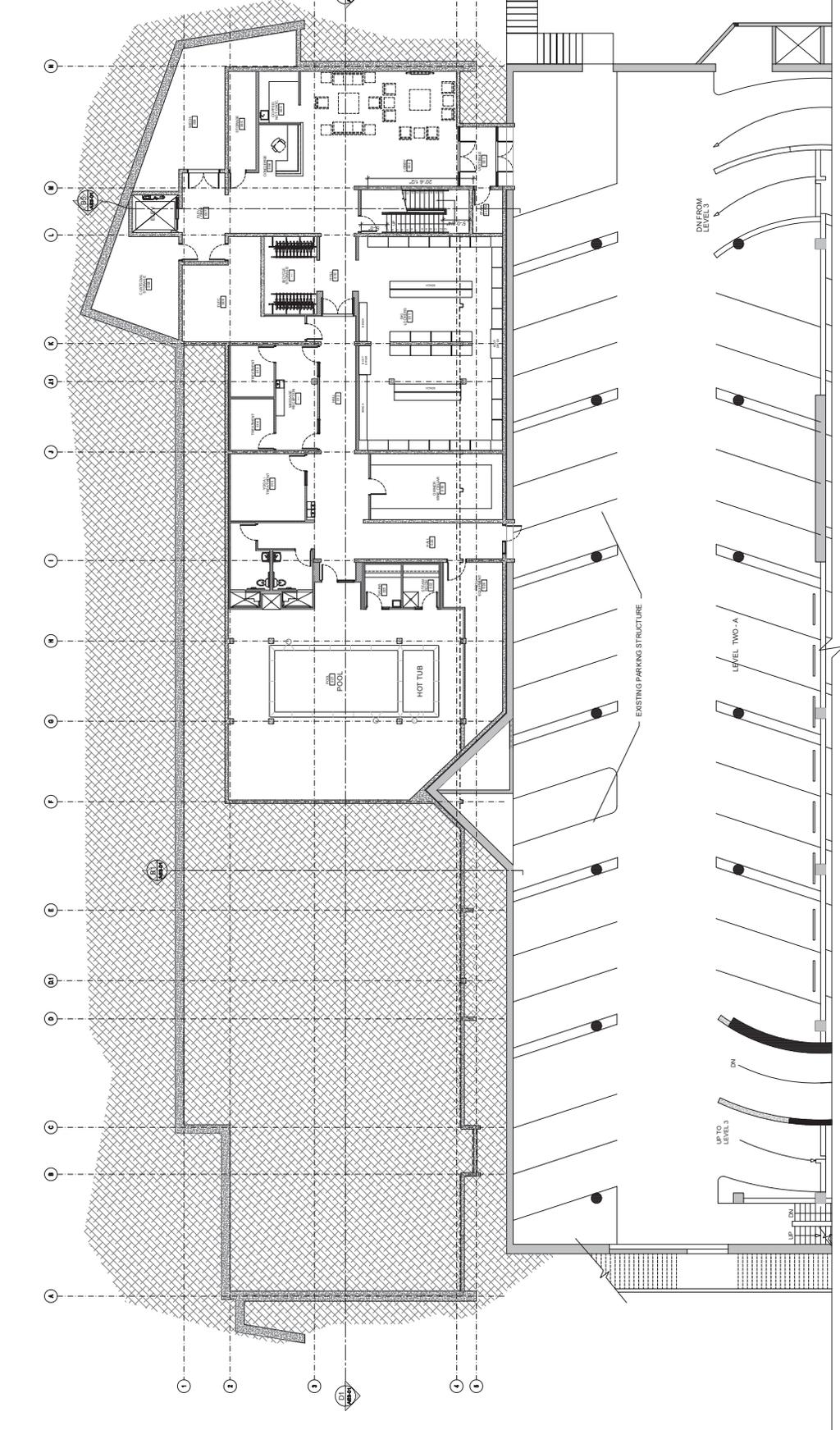
PROPOSED (Jan. 24, 2014)



PROPOSED (Sept. 6, 2013)







STAMP

SYMBOL LEGEND

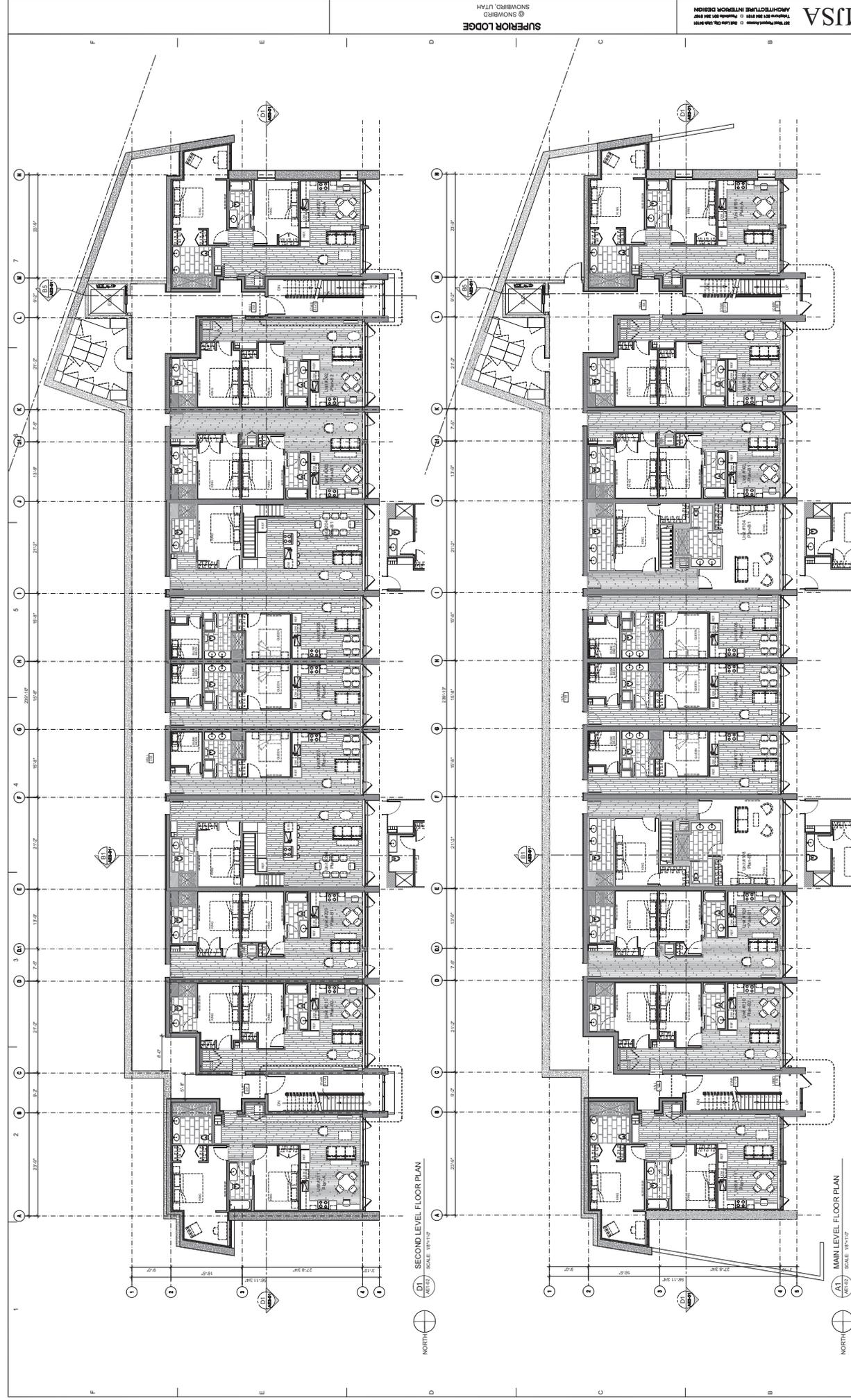
WALL TYPE	WINDOW IDENTIFICATION NUMBER
DOOR IDENTIFICATION NUMBER	REFERENCE NOTE
REFER TO DETAIL INDICATED	REFER TO INTERIOR ELEVATIONS INDICATED
REFER TO BUILDING SECTION INDICATED	REFER TO BUILDING ELEVATION INDICATED
GRID NUMBER	ROOM NAME AND NUMBER

NORTH  
 BASEMENT LEVEL PLAN  
 SCALE: 1/8" = 1'-0"

REFERENCE NOTES

FOOT PRINT / ELEVATOR LOBBY AND STAIRS  
 SCALE: 1/8" = 1'-0"

1 2 3 4 5 6 7  
 A B C D E F



**STAMP**

SYMBOL LEGEND

WALL TYPE

WINDOW IDENTIFICATION NUMBER

DOOR IDENTIFICATION NUMBER

REFERENCE NOTE

REFER TO DETAIL INDICATED

REFER TO INTERIOR ELEVATIONS INDICATED

REFER TO BUILDING SECTION INDICATED

REFER TO BUILDING ELEVATION INDICATED

GRID NUMBER

ROOM NAME AND NUMBER

PROJECT NO. 10052

DATE 03/31/2014

PROJECT NAME SUPERIOR LODGE

PROJECT LOCATION SMOYER, UTAH

ARCHITECTURE INTERIOR DESIGN

MJSA

207 West 10th Street  
 Provo, UT 84601  
 Phone: 801.733.8888  
 Fax: 801.733.8889

MAIN AND SECOND LEVEL FLOOR PLANS

SCALE: 1/8" = 1'-0"

7

6

5

4

3

2

1

REFERENCE NOTES

AT (REV) MAIN LEVEL FLOOR PLAN SCALE: 1/8" = 1'-0"

DT (REV) SECOND LEVEL FLOOR PLAN SCALE: 1/8" = 1'-0"

NORTH

NORTH

PROJECT NO. 10052

DATE 03/31/2014

PROJECT NAME SUPERIOR LODGE

PROJECT LOCATION SMOYER, UTAH

ARCHITECTURE INTERIOR DESIGN

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207 West 10th Street  
 Provo, UT 84601  
 Phone: 801.733.8888  
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MAIN AND SECOND LEVEL FLOOR PLANS

SCALE: 1/8" = 1'-0"

7

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3

2

1

REFERENCE NOTES

AT (REV) MAIN LEVEL FLOOR PLAN SCALE: 1/8" = 1'-0"

DT (REV) SECOND LEVEL FLOOR PLAN SCALE: 1/8" = 1'-0"

NORTH

NORTH

PROJECT NO. 10052

DATE 03/31/2014

PROJECT NAME SUPERIOR LODGE

PROJECT LOCATION SMOYER, UTAH

ARCHITECTURE INTERIOR DESIGN

MJSA

207 West 10th Street  
 Provo, UT 84601  
 Phone: 801.733.8888  
 Fax: 801.733.8889

MAIN AND SECOND LEVEL FLOOR PLANS

SCALE: 1/8" = 1'-0"

7

6

5

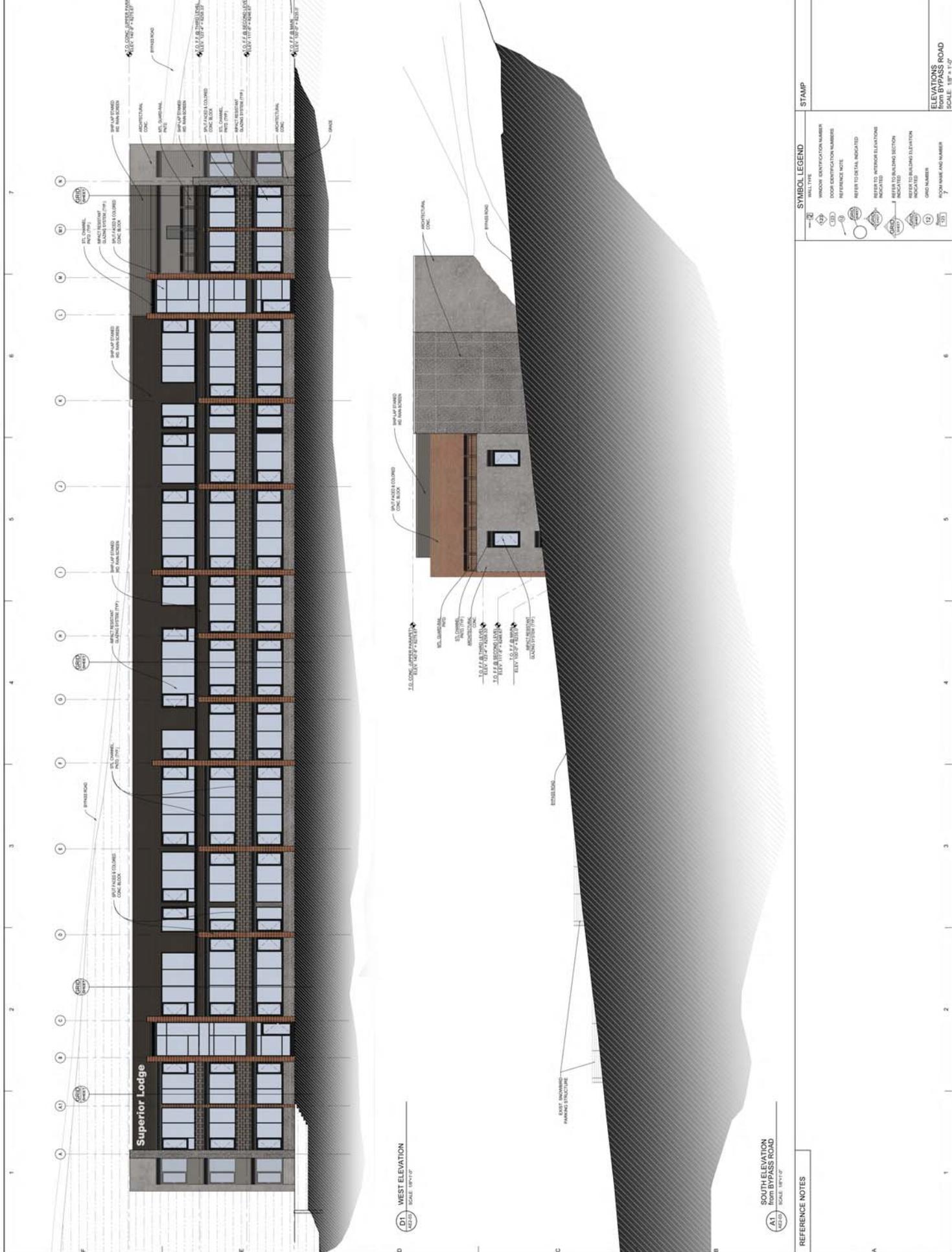
4

3

2

1





**D1 WEST ELEVATION**  
SCALE: 1/8" = 1'-0"

**A1 SOUTH ELEVATION**  
from BYPASS ROAD  
SCALE: 1/8" = 1'-0"

**REFERENCE NOTES**

**SYMBOL LEGEND**

WALL TYPE	WINDOW IDENTIFICATION NUMBER
DOOR IDENTIFICATION NUMBER	REFERENCE NOTE
REFER TO DETAIL INDICATED	REFER TO INTERIOR ELEVATIONS
REFER TO BUILDING SECTION INDICATED	REFER TO BUILDING ELEVATION INDICATED
FLOOR NUMBER AND NUMBER INDICATED	GRID NUMBER

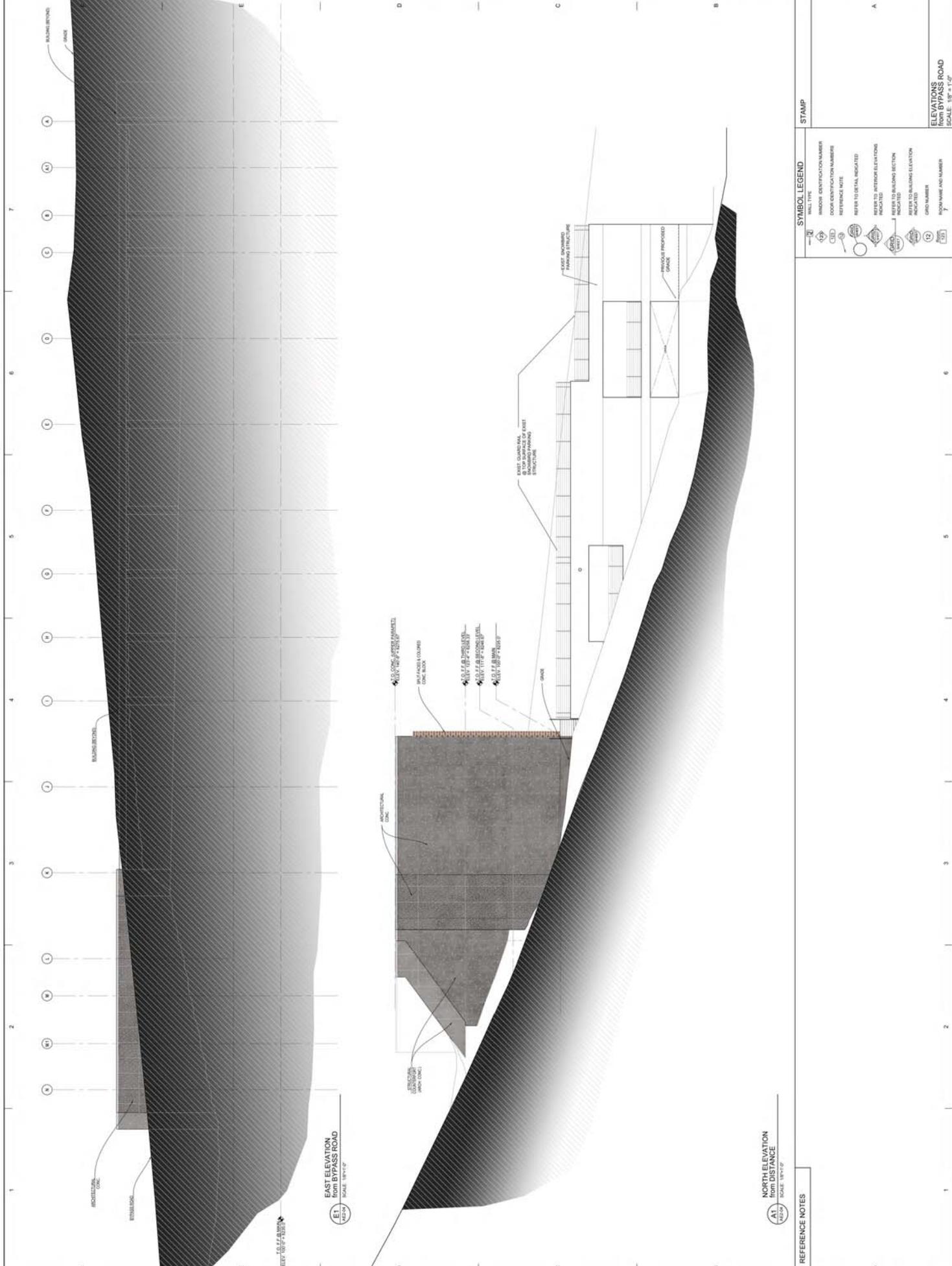
**STAMP**

**MJSA**  
ARCHITECTURAL INTERIOR DESIGN  
1000 West Broadway, Suite 1000  
Denver, CO 80202  
Phone: 303.733.1111  
Fax: 303.733.1112  
www.mj-sa.com

PROJECT NO: 13002  
DATE: 03/31/2014  
DRAWING NO: AE2-03  
SCALE: 1/8" = 1'-0"

**ELEVATIONS**  
from BYPASS ROAD  
SCALE: 1/8" = 1'-0"

**SUPERIOR LODGE**  
@ SNOWBIRD  
SNOWBIRD, UTAH



**SYMBOL LEGEND**

WALL TYPE	WINDOW IDENTIFICATION NUMBER
DOOR IDENTIFICATION NUMBER	REFERENCE NOTE
REFER TO DETAIL INDICATED	REPORTED INTERIOR ELEVATIONS
PACKAGED	INDICATED
REFER TO BUILDING SECTION	INDICATED
REFER TO BUILDING ELEVATION	INDICATED
GRID NUMBER	ROOM NAME AND NUMBER

**REFERENCE NOTES**

**STAMP**

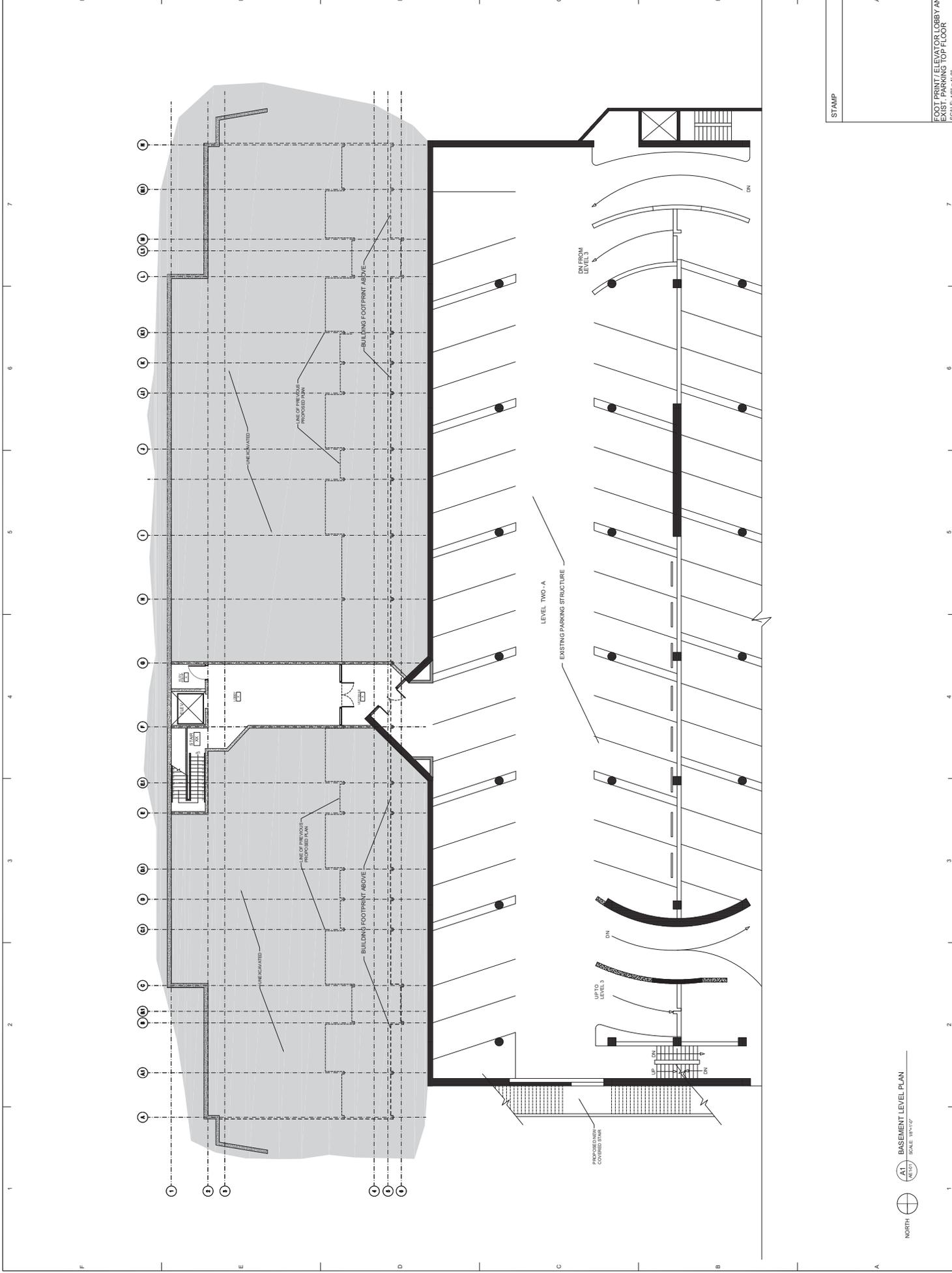
**A1**  
 NORTH ELEVATION  
 from DISTANCE  
 SCALE: 1/8" = 1'-0"

**E1**  
 EAST ELEVATION  
 from BYPASS ROAD  
 SCALE: 1/8" = 1'-0"







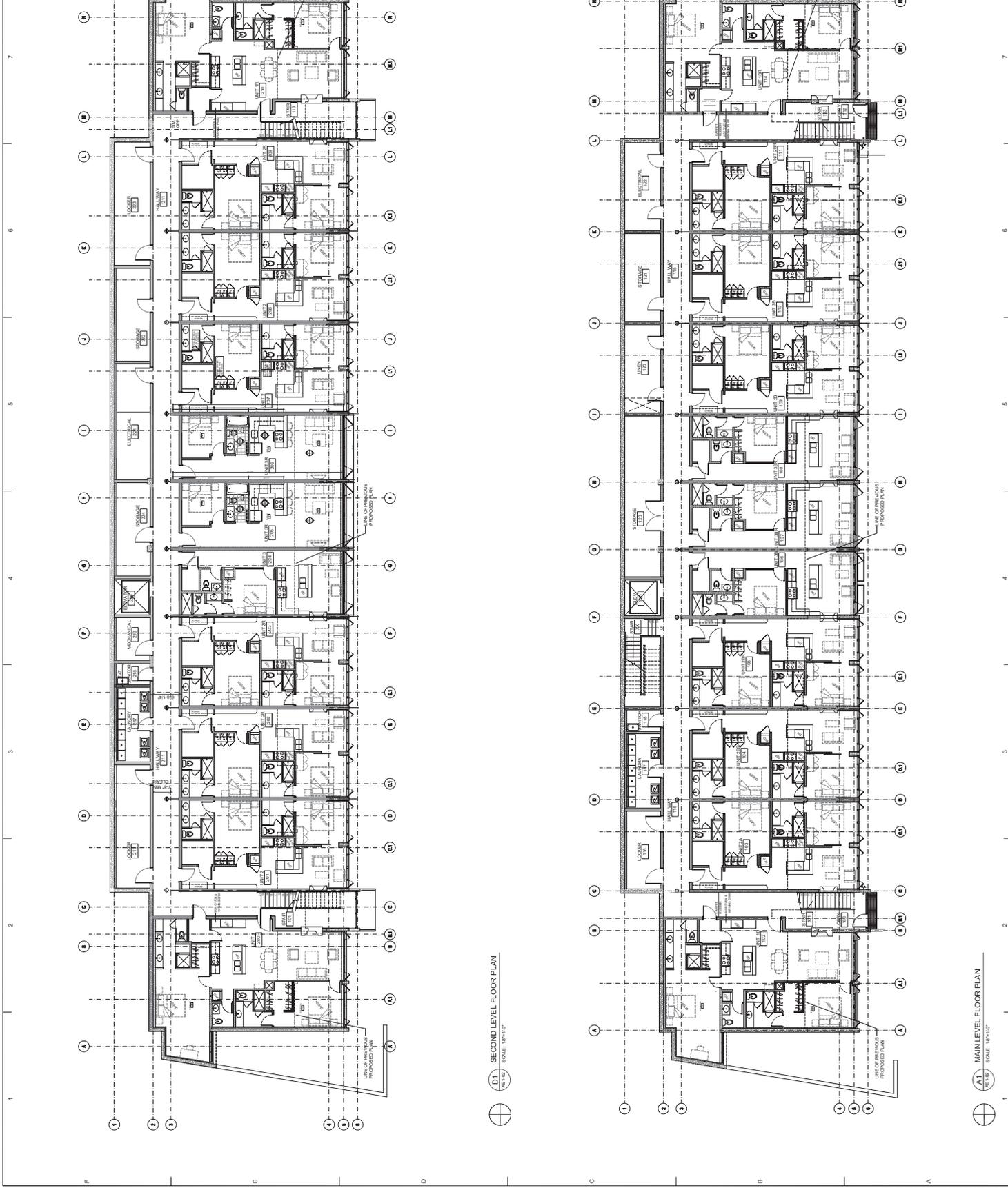


NORTH  
 (A1) BASEMENT LEVEL PLAN  
 1/8" = 1'-0"

STAMP

PROJECT NO:	13052
DATE:	09/05/13
SHEET:	AEI-01

FOOT PRINT/ELEVATOR LOBBY AND EXIST. PARKING TOP FLOOR  
 SCALE: 1/8" = 1'-0"

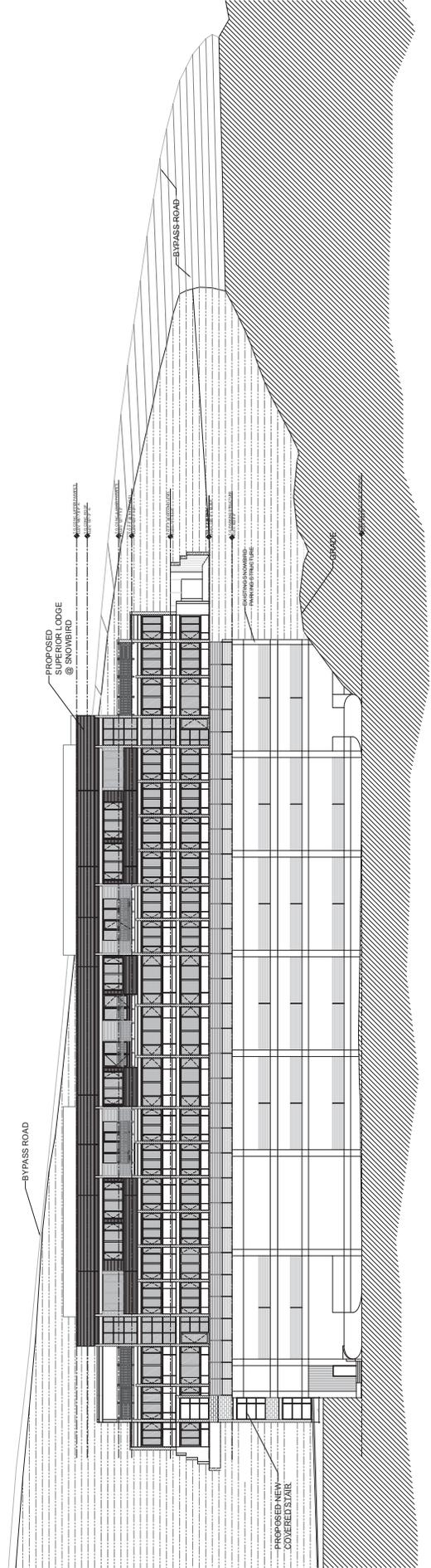




STAMP	PROJECT NO.	13052
	DATE	08/05/13
WEST ELEVATION WITH EXISTING PARKING STRUCTURE		SCALE: NTS

**MISA**  
 ARCHITECTURE INTERIOR DESIGN  
 107 West Park Avenue  
 Salt Lake City, Utah 84103  
 Telephone: 801.524.8800  
 Fax: 801.524.8801  
 © Copyright 2013

**SUPERIOR LODGE**  
 @ SNOWBIIRD  
 SNOWBIIRD, UTAH

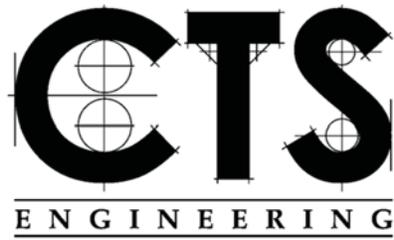


DL  
 WEST ELEVATION  
 SCALE: NTS

1 2 3 4 5 6 7

A B C D E F

7 6 5 4 3 2 1



Snow Avalanche Engineering Study

Client: Snowbird Ltd.

Location: Employee Housing Structure

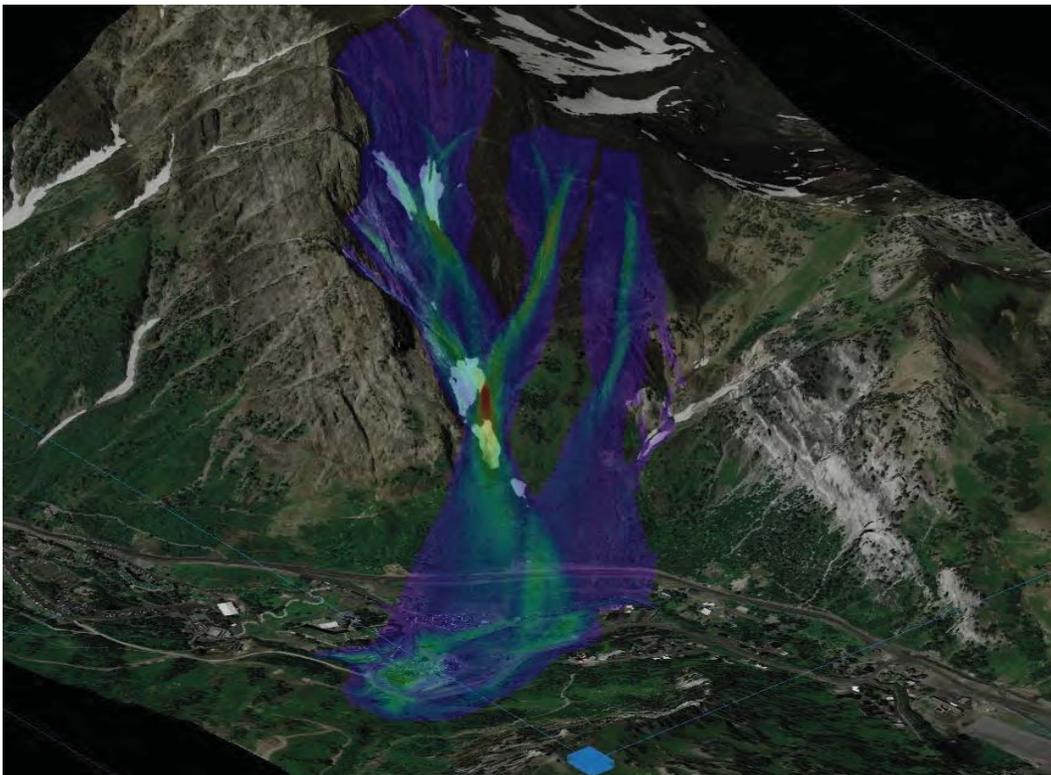
East of Existing Parking Garage

Consultant: CTS Engineering

Joseph D Crilly S.E.

4625 S 2300 East Ste. 105

Holladay, Utah 84117



# Snow Avalanche Report Employee Housing Structure for Snowbird Ltd.

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## Directive:

CTS Engineering was contracted on December 2, 2013 by Snowbird Ltd. to perform a snow avalanche hazard analysis on the property to the east, south east of the existing two story parking structure at Snowbird Utah. The hazard analysis was to meet the requirements of Salt Lake County Municipal Code section 19.75.060. The results of the study were to be provided for the construction of a new three story structure at this location.

The study will provide for structural loading of any proposed structure meeting the dimensions provided at the onset of the study, (approximately 240' x 60'). Loading will be for a 100- year event from any of the snow avalanche paths that reach the building site.

## Engineering Background and Prior Experience:

Joseph Crilly, SE the lead engineer at CTS Engineering will be providing all of the engineering analysis used in the study. I have over twenty years' experience performing avalanche hazard studies in Little Cottonwood Canyon. I have performed studies using four different analysis types: beginning with Vollmy methods, PCM equations coupled with statistical methods, AVAL-D and RAMMS. The latter two programs are PC based up-winded finite difference scheme equation-solving computer programs developed by SLF, the Swiss Federal Avalanche Institute. The program used for this project is RAMMS which utilized DEM files available from the state GIS data base. RAMMS program analyzes the terrain in a three dimensions using DEM files considering terrain elevation along the length of the avalanche path and along the width of the avalanche path. The DEM files are "stitched" together to form a file which was representative of the avalanche study area. (See figure 1). AVAL-1D was used as a verification of the RAMMS program and to determine the powder blast loads from a powder avalanche from Superior. AVAL-1D is a two-dimensional program that only analyzes elevation affects along the length of the path.

I was the lead engineer on the snow avalanche study for the new Watch Drain Tunnel Building for Salt Lake County Service area #3. That building site is just to the north of this site.

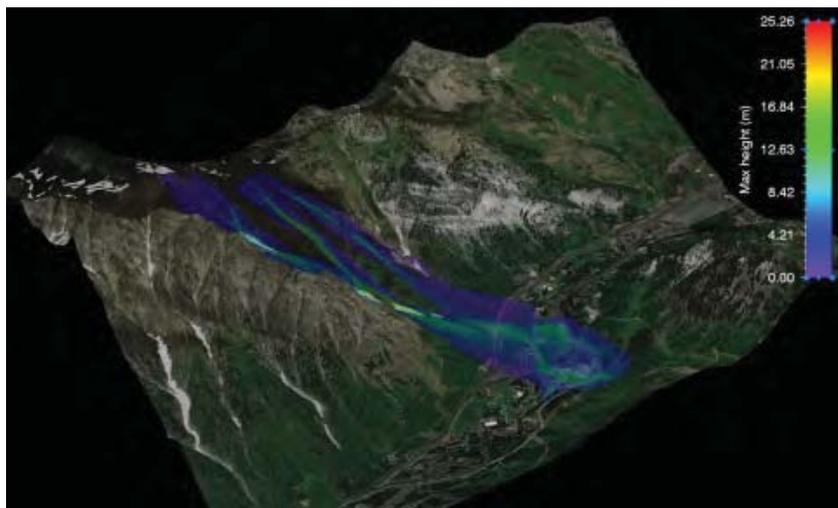


Figure 1. 3 Dimensional Terrain Model.

# Snow Avalanche Report Employee Housing Structure for Snowbird Ltd.

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## Prior Reports:

There is one prior report for this location but this report did not take in to account the snow avalanche hazard from Superior Bowl and also did not consider the full starting zone potential of the Black Jack Area, and Comma Chute area.

## Weather and Snowfall Data:

Little Cottonwood Canyon is one of the most avalanche prone location in the United States. The average annual snow fall is in excess of 200 cm (500 inches). This snow coupled with the steep topography of the canyon causes many locations in the canyon to be in a snow avalanche hazard area. The avalanche paths under consideration in this study are monitored by the State of Utah department of Transportation, (UDOT) due to the effects on the state highway 210 and the by-pass road; and Snowbird Ltd Snow Safety due the effects on the property and skiing operations of Snowbird Ltd . This monitoring includes snow avalanche control work delivered by explosive hand charges or explosive projectiles firing into the starting zones to release small avalanches to prevent the buildup of larger avalanches. The two agencies coordinate their efforts to provide safety to the public in these areas.

Weather data are available dating back to 1950. This data provides daily precipitation rates at the weather station at Alta Utah; located approximately 1 mile east on highway 210 at an elevation of 2660m. In addition there are data from both Big and Little Cottonwood Canyons of “significant” avalanches where crown heights and runout distances are available for model correlation. Release area information on the three paths affecting the project site were coordinated with UDOT and Snowbird Ltd snow safety personnel; Liam Fitzgerald, and Peter Schory.

100-year event: This report will provide snow avalanche impact forces based on the “100-year” event; this is in accordance with Bulletin 49: *Snow-Avalanche Hazard Analysis for Land-Use Planning and Engineering*, Table 5<sup>1</sup>. This document is part of the Salt Lake County Municipal Code requirements by reference in code section 19.75.060 part F. The 100-year event is a probabilistic event that has a 1% chance of occurrence each year. Little Cottonwood Canyon has good historical records dating back 75 years. When examining past events there is only a 53% chance of a 100- year event occurring in the last 75 years, whereas there is a 64% chance of a 50-year event occurring, and 95% chance of a 25- year event occurring. This demonstrates that although the historical record indicates a certain event may not have occurred in 75 years, or only once in seventy–five years, a greater length of time is required to ascertain this one time or never witnessed event is in fact of the 100-year probability.<sup>2</sup>

## Site location:

The site is located to the east of the existing two story parking garage in the Cliff Lodge parking area. See Figure2. The site is impacted by the three slide paths: Main Superior slide path from the north, Black Jack and Comma Chute area from the east, and Key Hole / P Gulch from the south. The Main Superior slide path is located north of mile post 11 on state highway 210, also known as Little

---

<sup>1</sup> Mears, Bulletin 49, *Snow Avalanche Hazard Analysis for Land-use planning and Engineering* , 1992, pg. 17.

<sup>2</sup> LaChapelle, *Encounter Probabilities for Avalanche Damage*, 1966, Alta Avalanche Study Center.

## Snow Avalanche Report Employee Housing Structure for Snowbird Ltd.

---

Cottonwood Canyon road. The Black Jack and Comma Chute slide paths are to the east. Key Hole area and P Gulch area in Snowbird Ski Area boundaries. Images of the slide paths are in Appendix A. Superior slide path is less likely to reach the site in a 25 year event; the 100 year event will do so with gusto. The Black Jack Area slide may reach the site with more frequency, (every 10-25 years), but with much less if any, destructive force. The Key Hole area slide path would only reach the site very infrequently; > 50 year return period.



Figure 2.

### Analysis Model Input Data:

The RAMMS model requires several input parameters:

**Topographical Data:** First a proper DEM file representing the area around the project must be constructed; second the calculation area must be defined, this can be the entire DEM file or a smaller portion to limit calculation time. The DEM files used were sourced from 2m LiDAR data provided from the state of Utah GIS data base. These files were then filtered to 5m contours to provide the smoothing of the terrain representative of ground snow cover that avalanches frequently flow on top of. Smoothing also eliminates any data anomalies which can be found in the LIDAR files.

**Release information:** The area containing the snow in the starting zone must be outlined in the model. The release height is also required, combined with the release area will determine the avalanche volume. Both the release areas and the release heights were reviewed with snow safety personnel who have a combined eighty years of experience in Little Cottonwood Canyon. These volumes correlated with the volume of snow utilized in the Wasatch Drain Tunnel Site Avalanche Study.

# Snow Avalanche Report Employee Housing Structure for Snowbird Ltd.

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Table 1

RETURN PERIOD	PATH	AVE. CROWN HEIGHT	VOLUME
50	SUPERIOR	1.0 m	335,200 m <sup>3</sup>
100	SUPERIOR	1.5-2 m	472,000 m <sup>3</sup>
300	SUPERIOR	2.5 m	750,000 m <sup>3</sup>
10	BLACK JACK AREA	2 m	17,065 m <sup>3</sup>
100	BLACK JACK AREA	1-2.5 m	128,340 m <sup>3</sup>
100	KEY HOLE AREA	1 m	121,000 m <sup>3</sup>

Friction Parameters: Friction parameters are determined based on terrain and elevation. The avalanche paths studied in this report are all above 1500m a.s.l. (above sea level). Therefore the only variables with the friction parameters are avalanche size, and terrain features. The friction parameters used were all calculated by RAMMs. The values for these friction parameters are attached in Appendix B.

Global parameters: Return period and size of the avalanche. The return period specified is indicated in the table of results. Design forces are all derived from the 100-year return period per the Salt Lake County Ordinance. The size or volume of the avalanche is classified by the calculated volume in the program. All the avalanches in this analysis, whose output was utilized for design loads, were in the large size category.

Forest information / Gullies: (or other means that will reduce energy from the avalanche) Where applicable forest areas, or steep gullies, like Little Cottonwood Creek are model with the use of forest areas. These areas have greater friction parameters and “take” energy and therefore snow out of the avalanche model. By modeling a “forest” area into the friction parameters greater friction values are used in these areas.

Snow density: The snow density used for all of the models is 300 kg / m<sup>3</sup>. This represents a 30% water weight in the snow. Based on studies in Little Cottonwood Canyon and, and others<sup>3</sup> this is an acceptable average density to use. This is the density recommended by the Swiss guidelines.

Screen shots of the release areas, and flow heights for the three paths are provided in Appendix C

---

<sup>3</sup> P.A. Schaerer, *Observations of Avalanche Impact Pressures*, Division of Building Research of the National Research Council of Canada.

## Snow Avalanche Report Employee Housing Structure for Snowbird Ltd.

---

Output:

The output from various RAMMS runs are listed in the table and attached in Appendix D. A summary of this table is reproduced below in table 2:

Table 2

RETURN PERIOD	PATH	VOLUME	IMPACT PRESSURE	FLOW HEIGHT
50	SUPERIOR	335200 m <sup>3</sup>	200 kPa	5 m
100	SUPERIOR	472000 m <sup>3</sup>	425 kPa	10 m
300	SUPERIOR	750,000 m <sup>3</sup>	475 kPa	12 m
10	BLACK JACK AREA	17,065 m <sup>3</sup>	60 kPa	0.8 m
100	BLACK JACK AREA	128,340 m <sup>3</sup>	300 kPa *	6.0 m *

\*Flow height and impact pressure vary across the east elevation of the new structure, see attached loading diagrams.

Over sixty various RAMMS model scenarios were run in an effort to bracket the solution that best represented the “100- year” event as required for engineering of the structure. Appendix D reflects 17 of these computer runs.

Use of the reference pressures shall be coordinated with the Appendix E files which show plan views and section views through the building area footprint. Loading from different slide paths are non-concurrent. The loading from Superior bowl is consistent across the North elevation for direct impact. The deposition loads vary along the length of the building and are shown on sheet E3. Loading from Black Jack Area is non uniform. See sheets E4-E5 for loading from this slide path. E6 illustrates the loading on all four sides of the structure.

Powder avalanche loads were generated with AVAL-1d and are included in Appendix E sheet 6. Aval-1D was utilized to calculate the suspension powder blast pressure at the site location. Point information and dense flow simulation information are in Appendix F.

AVAL-1D was also used as a verification of RAMMS model. The table below indicates the velocities and pressures at the building site location using both models. The runout distances were similar both approximately 2000 m in length. AVAL-1D has a lower velocity and therefore pressure at the site, possibly from the narrowing of the track in the AVAL-1D model, whereas the RAMMS programs utilizes the existing topography and slopes and actually splits in to flows mid slope before combining again just above highway 210. See Figure 3. The velocities are within 20% of each other which affects the pressure more since it is calculated based on  $p \propto V^2$ .

Table 3

Program	Return Period	Volume	Velocity	Pressure	Flow Height
RAMMS	300-yr	386,738 m <sup>3</sup>	36.6 m/s	401 kPa	4 m
AVAL-1d	300-yr	388,266 m <sup>3</sup>	31 m/s	288 kPa	3.8 m

# Snow Avalanche Report Employee Housing Structure for Snowbird Ltd.

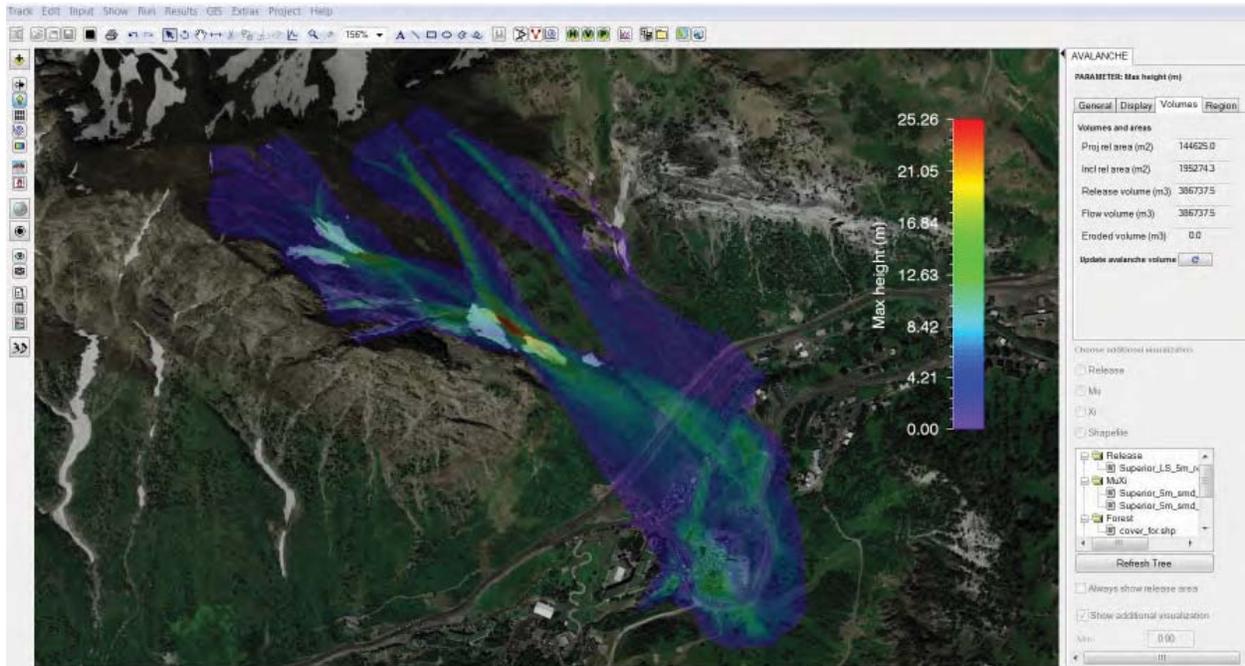


Figure 3 Flow Heights Main Superior 300-year event

## Applications of results:

The building's structural engineer is directed to Bulletin 49 by Art Mears chapter 5 Avalanche Structural Protection or other literature on the subject matter of equations for avalanche structural protection, (See Appendix G). Any surface parallel to the avalanche flow is subject to frictional forces as the avalanche passes by. Due to the turbulent nature of the snow avalanche flow the exact direction of impact is unknown and the most conservative angle of impact within 10 degrees of the assumed direction should be applied. For example if it appears a wall is parallel to the flow the normal force on that wall should be considered  $P_{flow} \times \sin(10)^2$ , and frictional forces would be the coefficient of friction of the material times the normal force.  $P_{flow}$  is the pressure perpendicular to the direction of flow, provided in table 2.

## Operational Precautions:

The occupants of the building will be required to maintain a strict inter-lodge and maximum security system coordinated with Snowbird Ltd Snow Safety and Security Personal. This protocol will require the occupants to remain in certain locations within the building as determined by the safety requirements of the building engineers and architects

## Snow Avalanche Report Employee Housing Structure for Snowbird Ltd.

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### Summary:

Numerous models and analysis were run to determine the appropriate design avalanche to meet the design criteria of Salt Lake County. Historical data, reviews with snow safety experts, and the application of the most sophisticated avalanche program commercially available generated the results for this report.

The results provided in table 2 and Appendix E will provide the structural engineer of record impact forces which will enable them to engineer the building for the effects of a design avalanche. Grading and site walls around the building can aid in reducing these impact forces, by changing the angle of impact.

The building engineer may contact me for any further information or discussion of load applications.

While building in areas of natural hazards the client is advised that no natural disaster can predicted with 100 percent accuracy, it is with that understanding that the report is prepared. Every effort was made to deduce the correct conclusions when developing the avalanche models. Under no circumstances should this report be viewed as the upper limit of avalanche loads at the site, it is my best engineering calculations of the design forces required to build in this location in accordance with Salt Lake County Municipal Code. The site is in a location which is impacted by three avalanche paths, each path with its own unique characteristics and geometry. These characteristics were taken into account with the use of terrain modeling, release area generation, and release area heights. It is because RAMMS is the only commercially available avalanche analysis software which can take all of these factors into account that it was chosen to be used on this project. It is also the varying exposure, distance all of these areas are from each other, and the effects of control work that multiple paths releasing simultaneously were not considered as a design event.

If there are any questions regarding this report or if I can be of any further service to you on this or any other project please do not hesitate to call.

Sincerely,

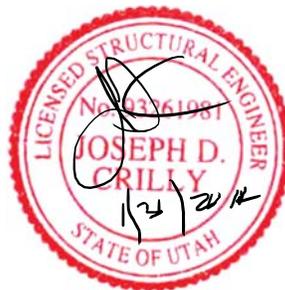


Joseph D Crilly, SE

President CTS Engineering

801-274-2831

joe@ctsengineering.net





**NORTH**

**Main Superior**

**Black Jack  
and Comma  
Chutte Area**

**LOCATION OF PROPOSED  
BUILDING SITE**

**P. Gulch  
Gulley**

A 1 of 3

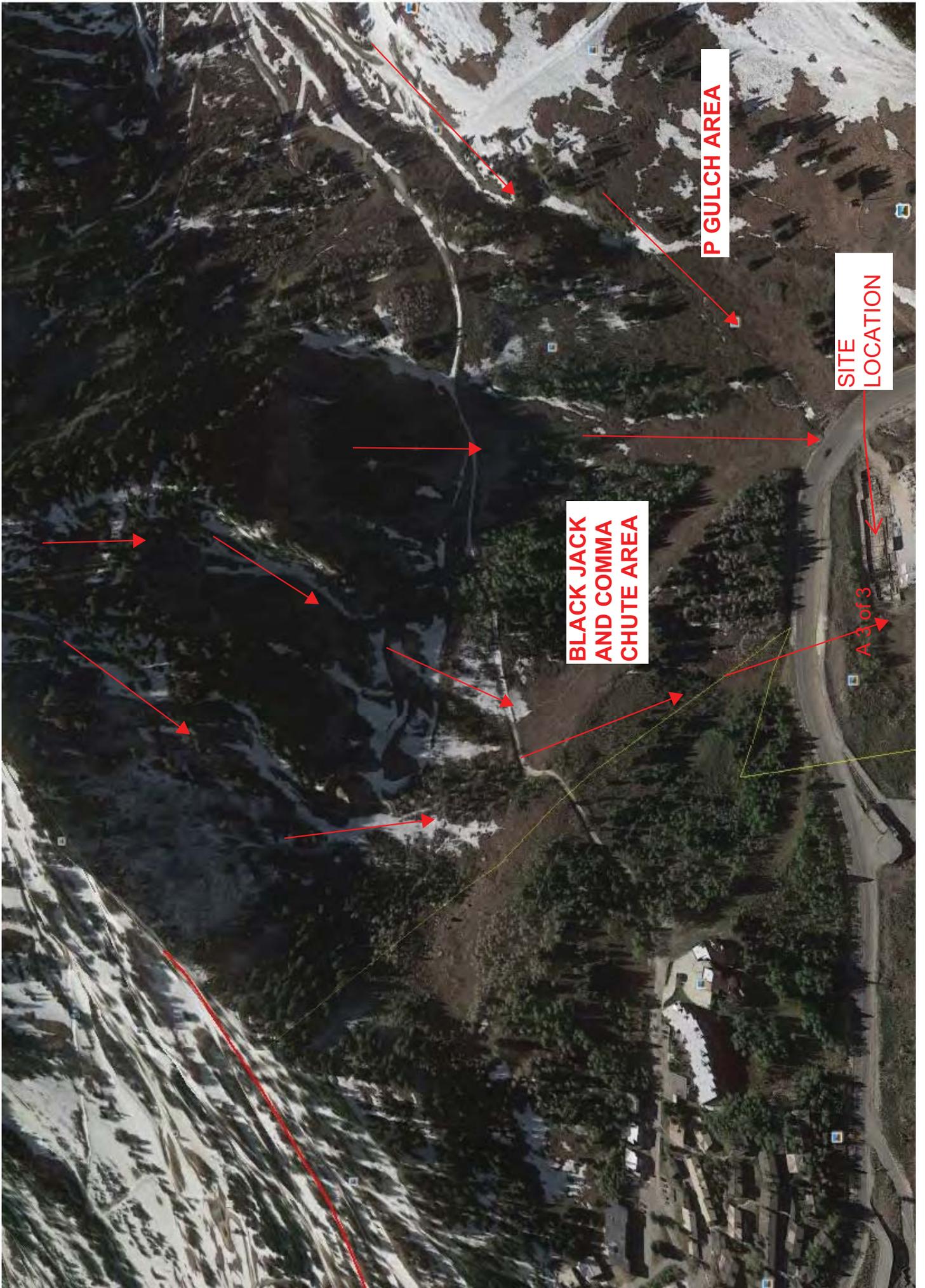
GOOSE

**MAIN SUPERIOR AVALANCHE PATH**

**SITE  
LOCATION**

A2 of 3





P GULCH AREA

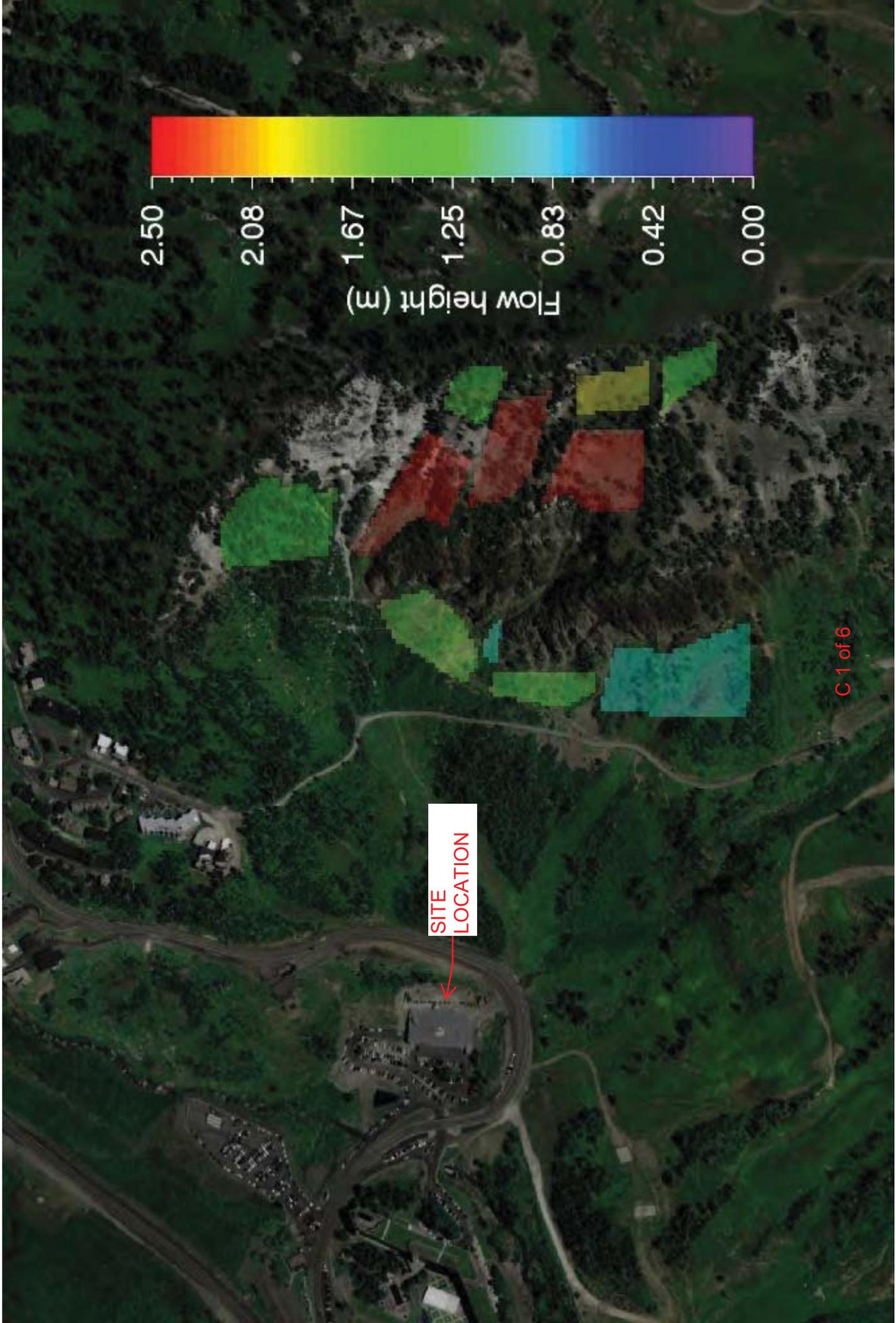
BLACK JACK AND COMMA CHUTE AREA

SITE LOCATION

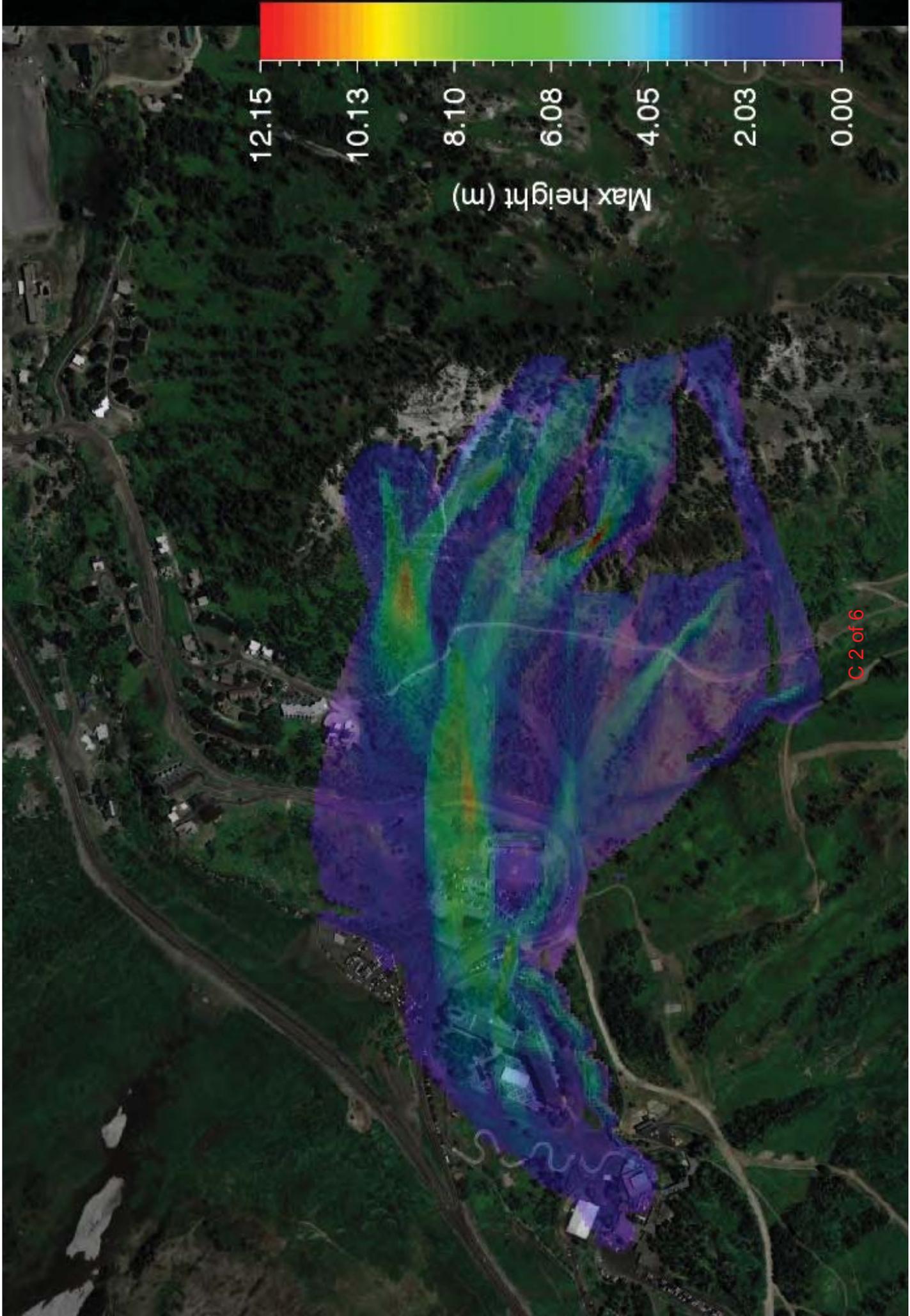
A 3 of 3

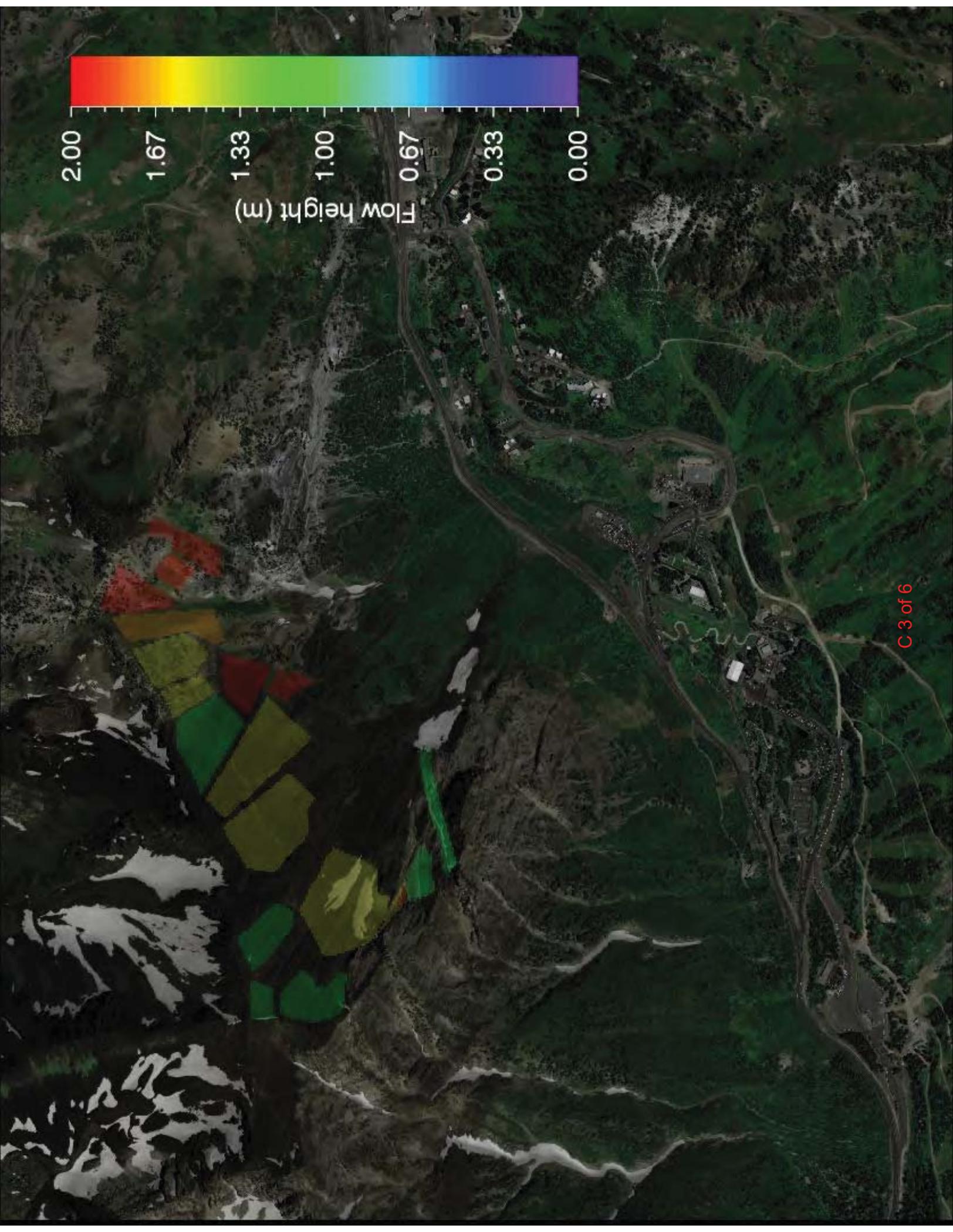


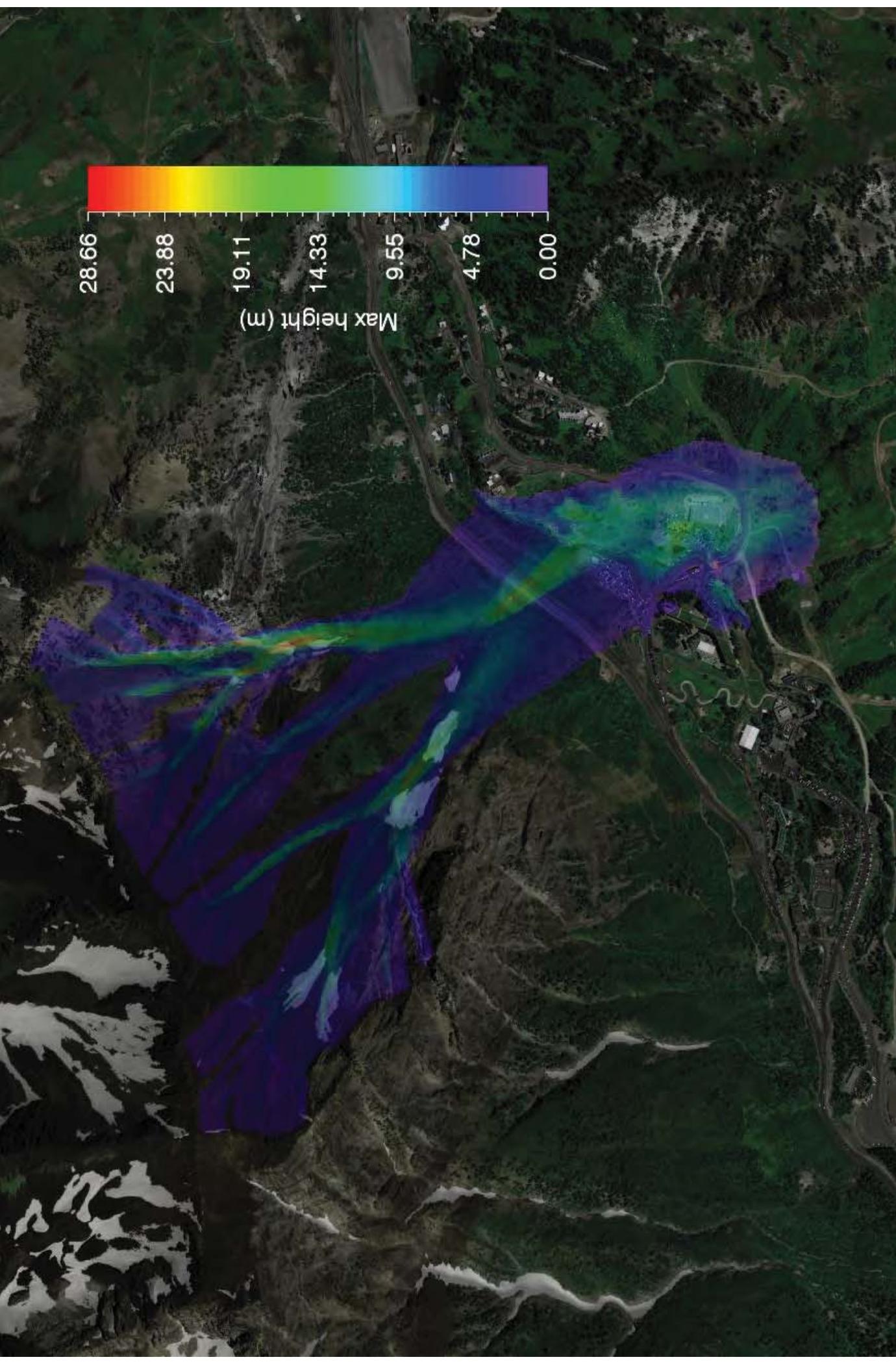
Small avalanche ( 5 - 25'000 m <sup>3</sup> )		300-Year		100-Year		30-Year		10-Year	
		μ	ξ	μ	ξ	μ	ξ	μ	ξ
	Altitude (m.a.s.l.)								
unchannelled	above 1500	0.235	2000	0.245	2000	0.25	2000	0.26	2000
	1000 - 1500	0.25	1750	0.26	1750	0.265	1750	0.275	1750
	below 1000	0.265	1500	0.275	1500	0.285	1500	0.295	1500
channelled	above 1500	0.28	1500	0.29	1500	0.3	1500	0.31	1500
	1000 - 1500	0.3	1350	0.31	1350	0.315	1350	0.325	1350
	below 1000	0.31	1200	0.32	1200	0.33	1200	0.34	1200
gully	above 1500	0.37	1200	0.38	1200	0.39	1200	0.4	1200
	1000 - 1500	0.38	1100	0.39	1100	0.4	1100	0.41	1100
	below 1000	0.4	1000	0.41	1000	0.42	1000	0.43	1000
flat	above 1500	0.215	2500	0.225	2500	0.23	2500	0.24	2500
	1000 - 1500	0.23	2250	0.24	2250	0.245	2250	0.255	2250
	below 1000	0.245	2000	0.255	2000	0.26	2000	0.27	2000
<b>Tiny avalanche (&lt; 5'000 m<sup>3</sup>)</b>		300-Year		100-Year		30-Year		10-Year	
unchannelled	above 1500	0.275	1500	0.28	1500	0.285	1500	0.29	1500
	1000 - 1500	0.29	1400	0.295	1400	0.3	1400	0.305	1400
	below 1000	0.3	1250	0.31	1250	0.32	1250	0.33	1250
channelled	above 1500	0.31	1250	0.32	1250	0.33	1250	0.34	1250
	1000 - 1500	0.33	1180	0.34	1180	0.345	1180	0.355	1180
	below 1000	0.34	1050	0.35	1050	0.36	1050	0.37	1050
gully	above 1500	0.42	1050	0.43	1050	0.44	1050	0.45	1050
	1000 - 1500	0.43	1000	0.44	1000	0.45	1000	0.46	1000
	below 1000	0.44	900	0.45	900	0.46	900	0.47	900
flat	above 1500	0.26	1750	0.265	1750	0.27	1750	0.275	1750
	1000 - 1500	0.27	1600	0.275	1600	0.28	1600	0.285	1600
	below 1000	0.28	1500	0.285	1500	0.29	1500	0.295	1500
forested area (mu=delta, xi=fix)		0.02	400	0.02	400	0.02	400	0.02	400

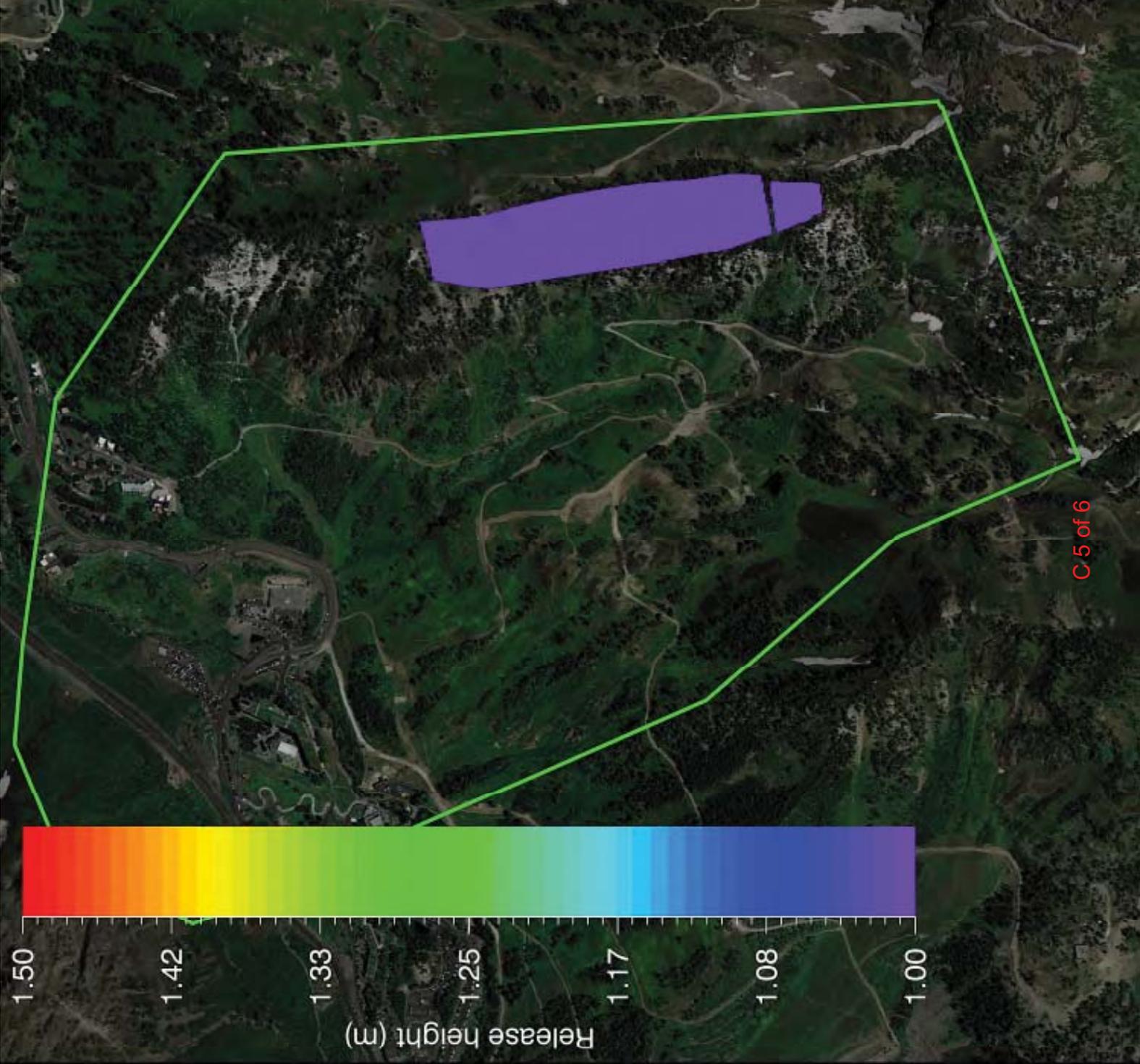


SITE  
LOCATION

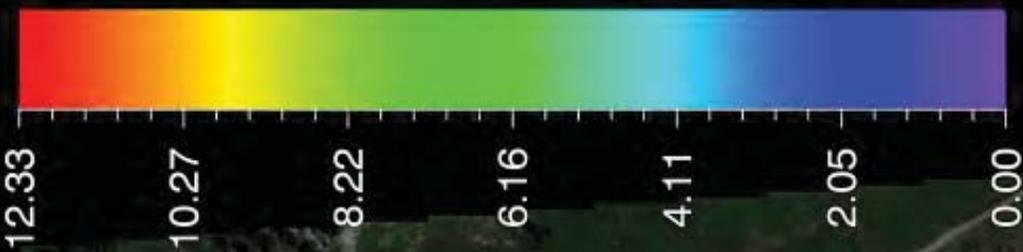






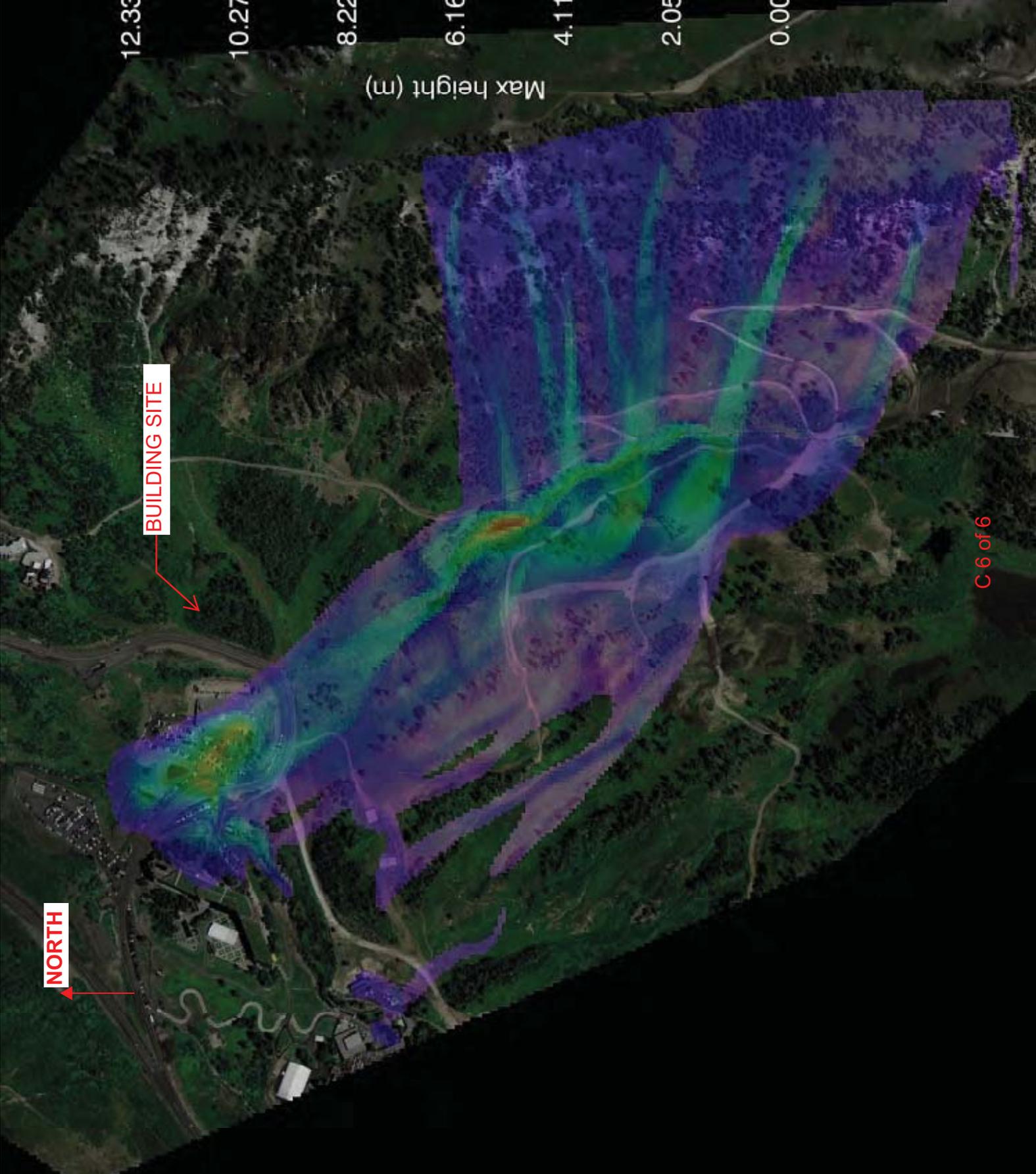


C-5 of 6



BUILDING SITE

NORTH



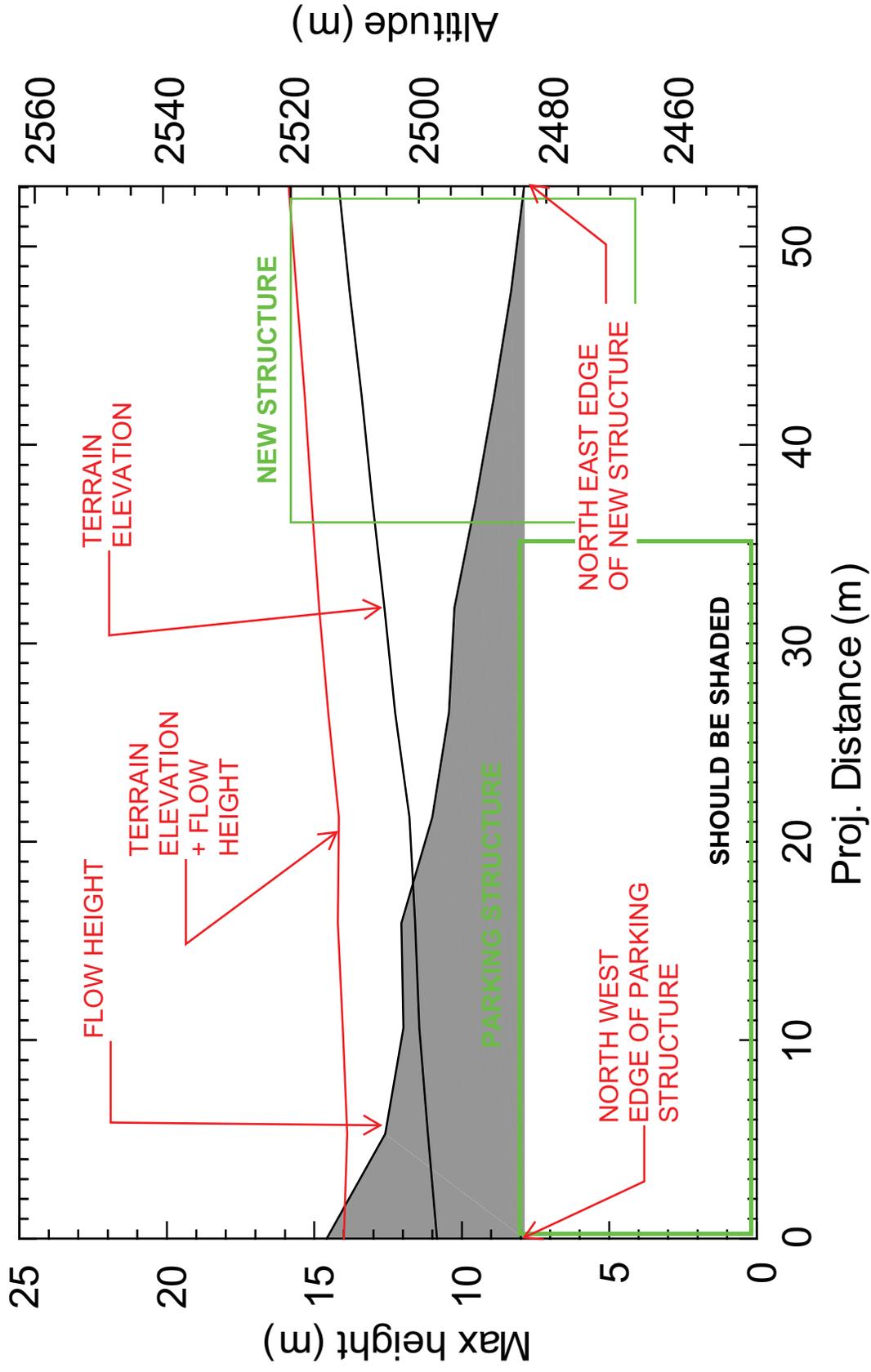
RAMMS Computer Output

Path	file path	Return period	Input Variables					snow density kg/m <sup>3</sup>	Starting zone elevation	Volume classification	Structure design information					max V along Path	Impact at site	Rise time	Angle of impact	Flow height at site	Design Deposition height	max deposition load
			Numerical Scheme	DEM resolution	Xi	Mu	Release Vol				do	Dump step	max V Along Path	runout distance	max V at site							
Superior Only	Superior_30W_no_LS.o ut.g	30		3000	.17-.29	284,000 m <sup>3</sup>	1.5 m	2.5 sec	300	3340 m 10958 ft	2510 m 8235 ft	Large	2000 m 6562 ft	56 m/sec 125 mph	80 kPa 1671 psf	16 m/sec 36 mph	3.0 sec	90.0 deg	1.9 m 6.2 ft	1.0 m 3.1 ft	282 kg/m <sup>2</sup> 58 psf	
Hell Gate Back Bowl - LS				2000	.14-.27		2.0 m	5.0 sec	300	3340 m 10958 ft	2510 m 8235 ft	Large	2000 m 6562 ft	150 m/sec 336 mph	70 kPa 1462 psf	15 m/sec 34 mph	3.0 sec	90.0 deg	1.5 m 4.9 ft	0.8 m 2.5 ft	225 kg/m <sup>2</sup> 46 psf	
Superior Only	SUPERIOR_W_HELIPAD	100		3000	.14-.27	284,000 m <sup>3</sup>	1.5 m	2.5 sec	300	3340 m 10958 ft	2510 m 8235 ft	Large	2000 m 6562 ft	41 m/sec 91 mph	165 kPa 3446 psf	24 m/sec 54 mph	3.0 sec	75.0 deg	3.1 m 10.2 ft	1.6 m 5.1 ft	465 kg/m <sup>2</sup> 95 psf	
Superior Bowl 1	Superior_LS_W_HELIPAD_15M_4rm_2secdum.p.w2	100		3000	.14-.27	466,000 m <sup>3</sup>	1.5 m	2.0 sec	300	3340 m 10958 ft	2510 m 8235 ft	Large	2000 m 6562 ft	150 m/sec 336 mph	280 kPa 5848 psf	30 m/sec 67 mph	3.0 sec	90.0 deg	8.0 m 26.2 ft	4.0 m 13.1 ft	1200 kg/m <sup>2</sup> 246 psf	
Superior Bowl 2	Superior_w_Structures_2.w2	100		3000	.14-.27	466,200 m <sup>3</sup>	1.5 m	1.0 sec	300	3353 m 11000 ft	2510 m 8235 ft	Large	2000 m 6562 ft	150 m/sec 336 mph	940 kPa 7101 psf	95 m/sec 78 mph	3.0 sec	90.0 deg	10.0 m 32.8 ft	5.0 m 16.4 ft	1500 kg/m <sup>2</sup> 308 psf	
Superior Bowl 3	Superior_w_Structures_2_w_stream.w2	100		3000	.14-.27	466,200 m <sup>3</sup>	1.5 m	1.0 sec	300	3353 m 11000 ft	2510 m 8235 ft	Large	2000 m 6562 ft	150 m/sec 336 mph	326 kPa 6809 psf	33 m/sec 74 mph	3.0 sec	90.0 deg	9.5 m 31.2 ft	4.8 m 15.6 ft	1425 kg/m <sup>2</sup> 292 psf	
Superior Bowl 4	Superior_and_LS_W_HELIPAD_15m_stream.w2	100		3000	.14-.27	466,000 m <sup>3</sup>	1.5 m	0.5 sec	300	3353 m 11000 ft	2510 m 8235 ft	Large	2000 m 6562 ft	150 m/sec 336 mph	300 kPa 6286 psf	30 m/sec 67 mph	2.7 sec	90.0 deg	9.0 m 29.5 ft	4.5 m 14.8 ft	1350 kg/m <sup>2</sup> 277 psf	
Superior Bowl 5	Superior_and_LS_W_HELIPAD_15m.w2	100		3000	.14-.27	466,000 m <sup>3</sup>	1.5 m	2.5 sec	300	3353 m 11000 ft	2510 m 8235 ft	Large	2000 m 6562 ft	150 m/sec 336 mph	325 kPa 6788 psf	31 m/sec 69 mph	3.0 sec	90.0 deg	10.0 m 32.8 ft	5.0 m 16.4 ft	1500 kg/m <sup>2</sup> 308 psf	
Superior Bowl 6	Superior_5m_smoothed	100		3000	.14-.27	466,000 m <sup>3</sup>	1.5 m	1.0 sec	300	3353 m 11000 ft	2510 m 8235 ft	Large	2000 m 6562 ft	150 m/sec 336 mph	240 kPa 5013 psf	29 m/sec 64 mph	2.5 sec	90.0 deg	8.5 m 27.9 ft	4.3 m 13.9 ft	1275 kg/m <sup>2</sup> 261 psf	
Superior Bowl 7	SUPERIOR_and_LS_W_HELIPAD	100		3000	.14-.27	508,000 m <sup>3</sup>	1.5-2.0	2.5 sec	300	3353 m 11000 ft	2510 m 8235 ft	Large	2000 m 6562 ft	150 m/sec 336 mph	530 kPa 11069 psf	41 m/sec 92 mph	2.5 sec	90.0 deg	10.0 m 32.8 ft	5.0 m 16.4 ft	1500 kg/m <sup>2</sup> 308 psf	
Superior Bowl 8	Superior_5m_smoothed_2	100		3000	.14-.27	472,000 m <sup>3</sup>	1.5-2	5.0 sec	300	3353 m 11000 ft	2510 m 8235 ft	Large	2000 m 6562 ft	150 m/sec 336 mph	425 kPa 8876 psf	38 m/sec 85 mph	2.5 sec	90.0 deg	10.0 m 32.8 ft	5.0 m 16.4 ft	1500 kg/m <sup>2</sup> 308 psf	
Superior Bowl 9	Superior_and_LS_W_HELIPAD_2_0m_stream.w2	100		3000	.14-.27	607,000 m <sup>3</sup>	2.0 m	1.0 sec	300	3353 m 11000 ft	2510 m 8235 ft	Large	2000 m 6562 ft	150 m/sec 336 mph	450 kPa 9398 psf	59 m/sec 86 mph	2.5 sec	90.0 deg	11.0 m 36.1 ft	5.5 m 18.0 ft	1650 kg/m <sup>2</sup> 338 psf	
Superior Bowl 10	SUPERIOR_and_LS_W_	300		3000	.14-.27	750,000 m <sup>3</sup>	2.5 m	1.0 sec	300	3353 m 11000 ft	2510 m 8235 ft	Large	2000 m 6562 ft	150 m/sec 336 mph	475 kPa 9921 psf	39 m/sec 87 mph	2.5 sec	90.0 deg	12.0 m 39.4 ft	6.0 m 19.7 ft	1800 kg/m <sup>2</sup> 369 psf	
Superior Bowl 11	Snowbird_LS_2nd_order_1m.out.gz	50		3000	.14-.27	335,193 m <sup>3</sup>	1.0 m	5.0 sec	300	3353 m 11000 ft	2510 m 8235 ft	Large	2000 m 6562 ft	150 m/sec 56 mph	200 kPa 4177 psf	25 m/sec 56 mph	5.0 sec		5.0 m 16.4 ft	2.5 m 8.2 ft	750 kg/m <sup>2</sup> 154 psf	

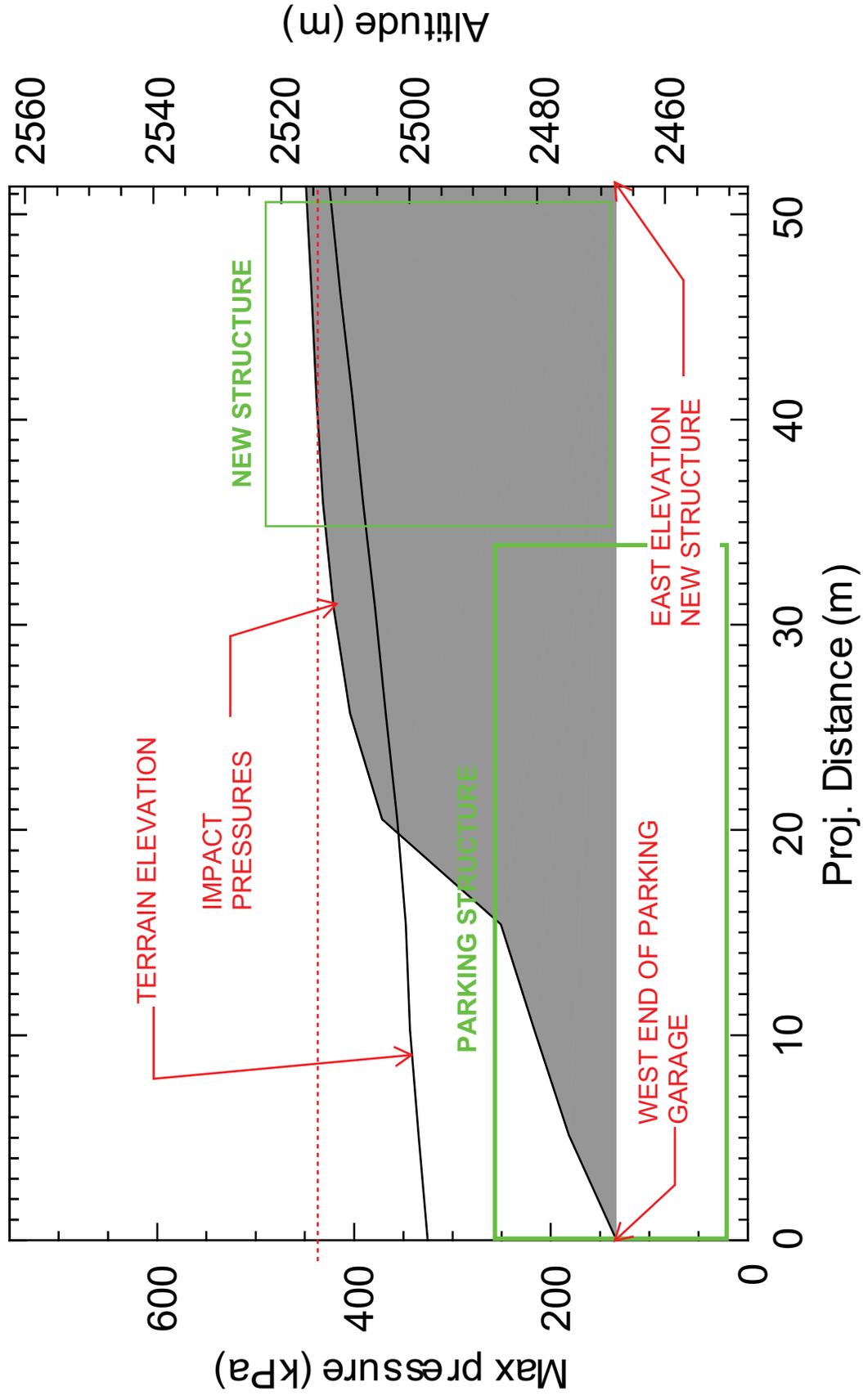
RAMMS Computer Output

Path	file path	Input Variables										Volume classification				Structure design information						
		Return period	Numerical Scheme	DEM resolution	Xi	Mu	Release Vol	do	Dump step	snow density kg/m <sup>3</sup>	Starting zone elevation	Start	end	runout distance	max V Along Path	impact at site	V at site	Rise time	Angle of impact	Flow height at site	Design Deposition height	max deposition load
Black_Jack_max	B\withstructures.out	100	Second Order	5.0 m	2000	.14-.27	128,340 m <sup>3</sup>	1-2.5	5.0 sec	300	2920 m 9580 ft	2515 m 8251 ft	large	50 m/sec 112 mph	300 kPa 6266 psf	21 m/sec 47 mph	5.0 sec			6.0 m 19.7 ft	3.0 m 9.8 ft	900 kg/m <sup>2</sup> 185 psf
BlackJack Upper & Lower	Black_JackArea_Upper_Lower.out.gz	100	Second Order	2.0 m	2000	.14-.27	136,000 m <sup>3</sup>	2.0 m	5.0 sec	300	2920 m 9580 ft	2515 m 8251 ft	large	150 m/sec 336 mph	283 kPa 5911 psf	12 m/sec 26 mph	5.0 sec			6.0 m 19.7 ft		1800 kg/m <sup>2</sup> 369 psf
Black_Jack Lower	Black_JackArea_Lower.d	100	Second Order	2.0 m	varies	varies	103,184 m <sup>3</sup>	2.0 m	5.0 sec	300	2706 m 8878 ft	2515 m 8251 ft	large	146 m/sec 327 mph	120 kPa 2506 psf	20 m/sec 45 mph				2.6 m 9.2 ft		840 kg/m <sup>2</sup> 172 psf
Comma Chute	Comma_chute_complete	10	Second Order	2.0 m	varies	varies	17,065 m <sup>3</sup>	2-2.5m	5.0 sec	300	2920 m 9580 ft	2515 m 8251 ft	small	35 m/sec 78 mph	60 kPa 1253 psf	14 m/sec 31 mph				0.8 m 2.6 ft		240 kg/m <sup>2</sup> 49 psf
Comma Chute partial	Comma_chute_smallout	10	Second Order	2.0 m	varies	varies	3,325 m <sup>3</sup>	1.0 m	5.0 sec	300	2856 m 9370 ft	2515 m 8251 ft	small	28 m/sec 63 mph	0 kPa 0 psf	0 m/sec 0 mph				0.0 m 0.0 ft		0 kg/m <sup>2</sup> 0 psf
Keyhole Area	pgultch_100yr.out.gz	100	Second Order	5.0 m	2000	.14-.27	121,031 m <sup>3</sup>	1.0 m	2.0 sec	300	2971 m	2497 m	large	46 m/sec	135 kPa	21 m/sec				1.1 m 11.6 ft	0.5 m 5.8 ft	162 kg/m <sup>2</sup> 7 psf

**NORTH ELEVATION PARKING STRUCTURE AND  
NEW STRUCTURE. FLOW HEIGHT FROM  
SUPERIOR BOWL**

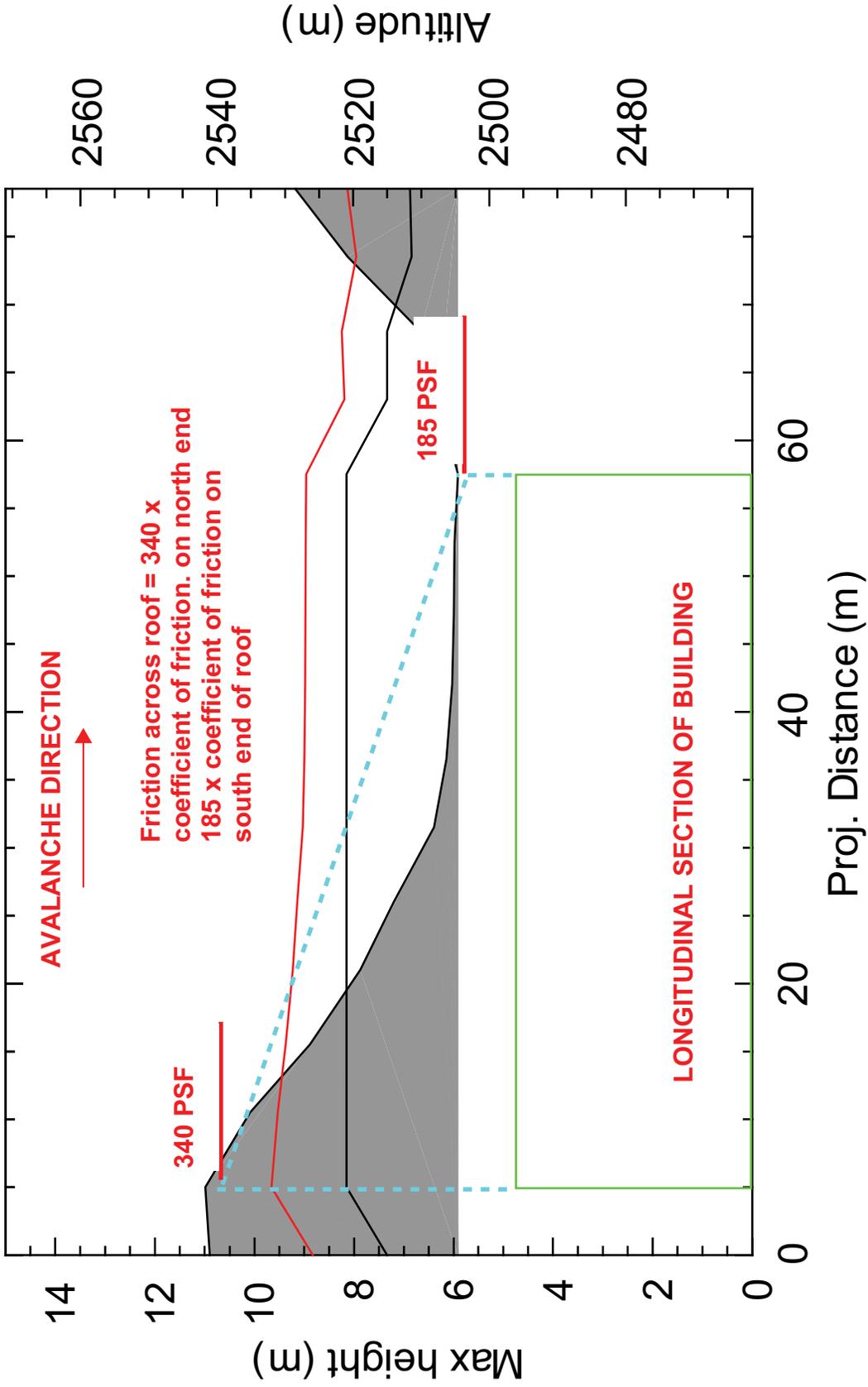


# IMPACT PRESSURES NORTH ELEVATION

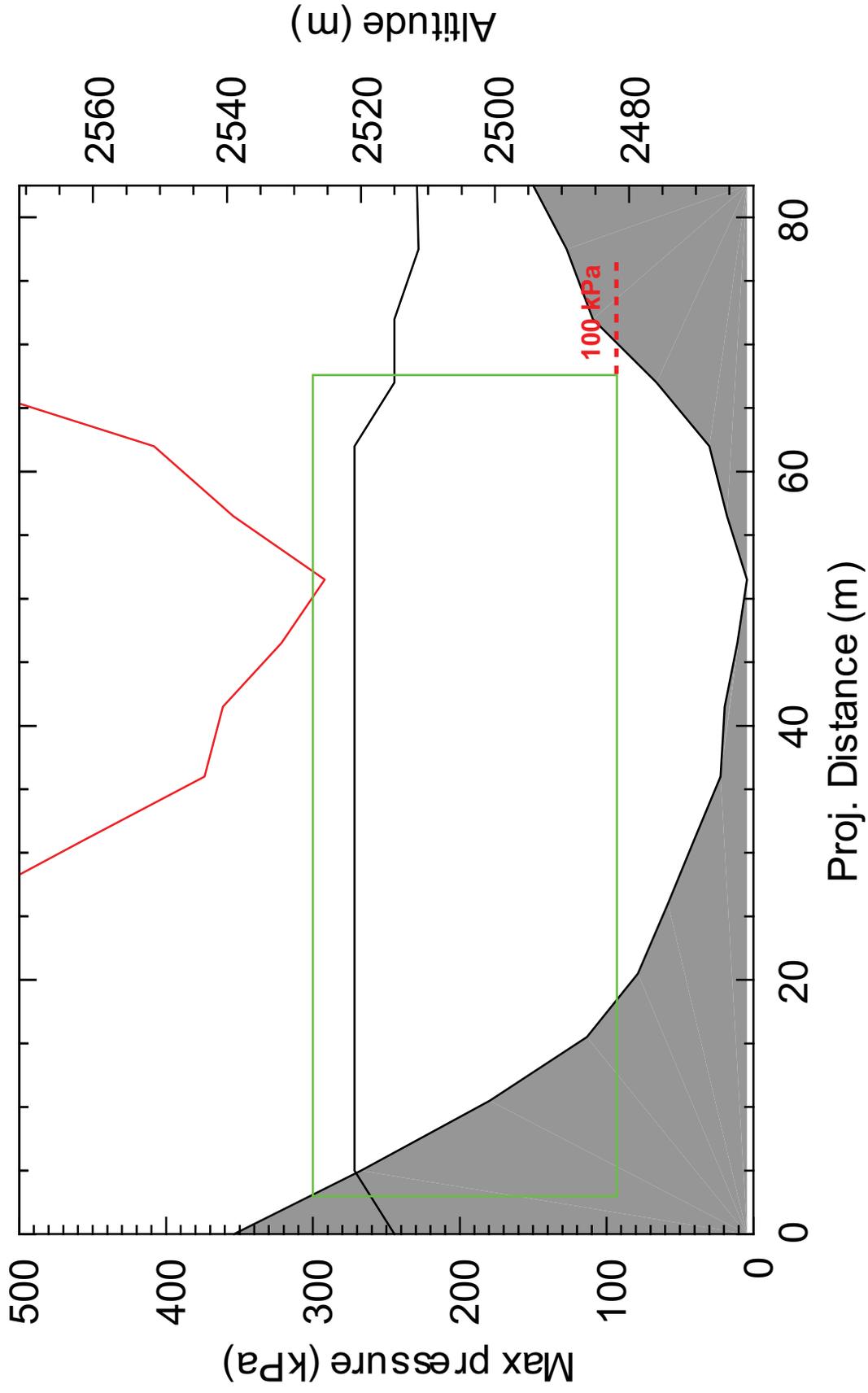


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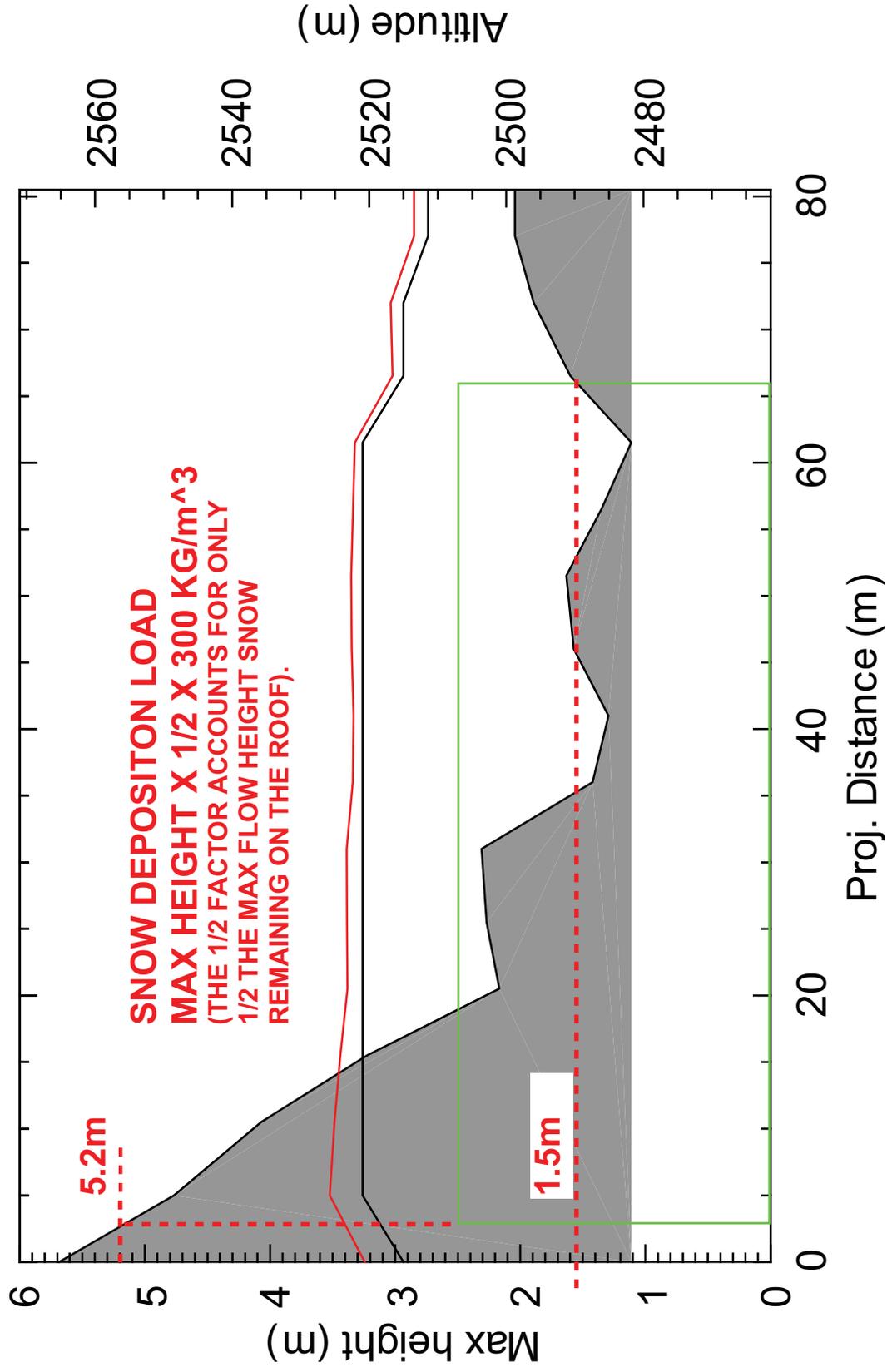
FLOW HEIGHT ACROSS ROOF:  
STATIC DEPOSITION LOAD IS SHOWN  
ALSO.

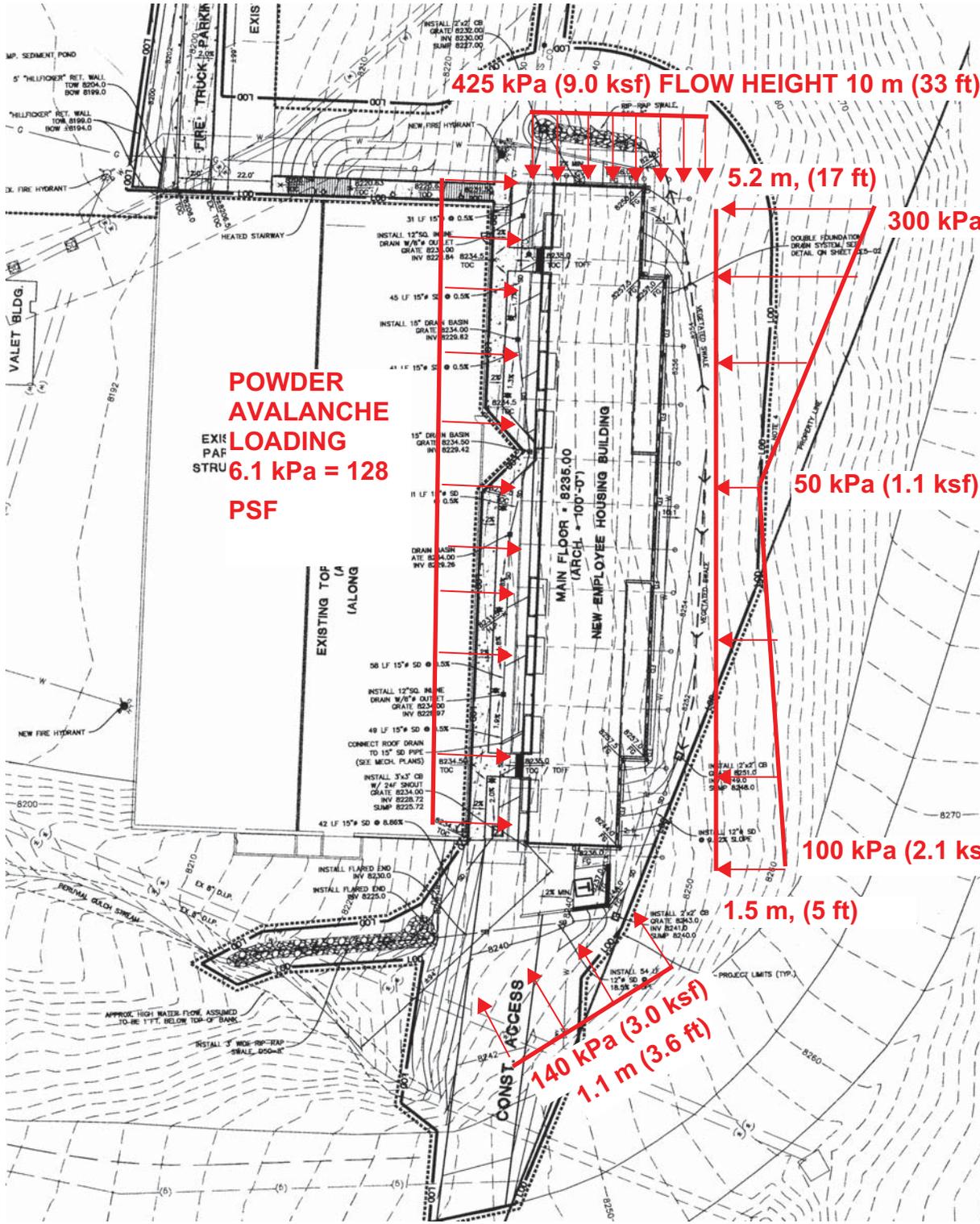


**BLACK JACK IMPACT PRESSURE EAST  
ELEVATION NORMAL TO SURFACE**



**BLACK JACK MAX FLOW HEIGHT SECTION  
THROUGH BUILDING FOOTPRINT**





**POWDER  
 AVALANCHE  
 LOADING**  
 EXIS  
 PAF  
 STRU  
**6.1 kPa = 128  
 PSF**

**425 kPa (9.0 ksf) FLOW HEIGHT 10 m (33 ft)**

**5.2 m, (17 ft)**

**300 kPa (6.3 ksf)**

**50 kPa (1.1 ksf)**

**100 kPa (2.1 ksf)**

**1.5 m, (5 ft)**

**140 kPa (3.0 ksf)  
 1.1 m (3.6 ft)**

**PLAN NORTH**



## Powder Avalanche Simulation Point Results

### AVAL-1D point information

Filename: Superior\_1\_5.idp  
Point nr.: 204

#### Input information:

Projected distance (m) 1791.8  
Height a.s.l (m) 2514.6  
Slope angle (°) 0.0

#### Powder snow output information:

V mean saltation (m/s) 5.9  
V max saltation (m/s) 45.4  
V max suspension (m/s) 76.4  
Rho max erodible (kg/m<sup>3</sup>) 150.0  
Rho max saltation (kg/m<sup>3</sup>) 45.8  
Rho min suspension (kg/m<sup>3</sup>) 1.2  
Rho max suspension (kg/m<sup>3</sup>) 2.6  
P max saltation (kPa) 10.7  
P max suspension (kPa) 6.1  
H min snowcover (m) -0.00  
H max snowcover (m) 0.00  
H max saltation (m) 1.38  
H max suspension (m) 75.6

Directory: V:\Projects\CTS Projects\FY 2013\13081\_Snowbird\_Avalanche\_Study\ALI\_5\

CTS Engineering / 31.1.2014

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## Dense Snow Simulation Results

### AVAL-1D Log File

Name of simulation file: V:\Projects\CTS Projects\FY  
2013\13081\_Snowbird\_Avalanche\_Study  
\ALI\_5\dense snow simulation.idl

Name of input file: V:\Projects\CTS Projects\FY  
2013\13081\_Snowbird\_Avalanche\_Study  
\ALI\_5\dense snow simulation.ava

Date of calculation: Fri Jan 31 10:57:20 2014

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#### Output results:

Reason for end of calculation

#### **Simulation stopped due to low mass flux!!**

Time (s) 83.00

Mass flux limit (m<sup>3</sup>/s) 155

#### General simulation parameters

Calculated return period (years) 300

Overall max velocity (m/s) 56.08

Overall max height (m) 6.49

Total volume in system (m<sup>3</sup>) 388226

Minimal mass flux condition (m<sup>3</sup>/s) 155

Total mass in system (t) 116468

Mass error in system -6.405258e-010

#### Parametric description of runout zone

Maximal depth at the last simulation  
step (m) 5.61

#### Position of Maximal Depth

a) projected avalanche length (m) 1926.49

b) altitude above sea level (m a.s.l.) 2514.60

#### Mean mass position (half of the mass above/below this position)

a) projected avalanche length (m) 1727.02

b) altitude above sea level (m a.s.l.) 2514.60

Projected length considered for mean deposition depth calculation (+/- one  
standard deviation from mean mass position)

from (m)	1433.64
to (m)	2013.61
Mean deposition depth (m)	2.70

#### Distances and heights in avalanche track

Limit between high and low pressure zone (kPa)	30.00
Limit defining end of low pressure zone (kPa)	0.30
Distance begin of starting zone - end of high pressure zone (m)	2003.00
Distance begin of starting zone - end of low pressure zone (m)	2056.00
Distance end of high pressure zone - end of low pressure zone (m)	53.00
Height above sea level of end of high pressure zone (m)	2532.38
Height above sea level of end of low pressure zone (m)	2542.40
---> Control value of length of the avalanche (m)	1992.00

#### Monitoring points

Drain tunnel:	
Max velocity (m/s)	33.64
Max flowheight (m)	5.48
Distance Drain tunnel: - end of high pressure zone (m)	246
Distance Drain tunnel: - end of low pressure zone (m)	299

#### Summary of comparison

Subject	Simulated values	Control values	Percentage
Avalanche length (m)	2056	1992	-3.21
Flow velocity points (m/s)			
Drain tunnel:	33.64	0.00	100.00
Flow height points (m)			
Drain tunnel:	5.48	0.00	100.00

## Dense Snow Simulation Point Results

### AVAL-1D point information

Filename: dense snow simulation.idl  
Point nr.: 177  
Monitoring points:

#### Input information:

X-Coord. (m) 444880.1  
Y-Coord. (m) 4492653.5  
Projected distance (m) 1766.6  
Height a.s.l (m) 2514.6  
Slope angle (°) 0.0  
Width (m) 215.0  
Xi (m/s<sup>2</sup>) 2500.0  
Mu ( ) 0.16

#### Dense flow output information:

V max (m/s) 33.0  
-> H corresp. (m) 3.7  
H max (m) 5.46  
-> V corresp. (m/s) 27.8  
P max (kPa) 326.7  
Upper flow width (m) 215.0  
Left cross section angle (°) 0.0  
Right cross section angle (°) 0.0

Directory: V:\Projects\CTS Projects\FY 2013\13081\_Snowbird\_Avalanche\_Study\ALI\_5\

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with a minimum of excavation for foundations. They may be very effective in reducing avalanche frequency in starting zones which are usually subject to strong wind redistribution of snow.

### Disadvantages

The fences will not prevent avalanches during storms with unusual wind directions or during storms with light winds. In some cases, these unusual conditions may produce maximum avalanches in some paths. If such unusual wind-loading or storm conditions are considered to be possible during the design period, fences should not be depended upon to provide adequate protection from avalanches. The fences may also have an undesirable appearance in some mountain areas and also will not prevent avalanches resulting from high temperatures or rain.

## Deflecting Berms

### Purpose

Deflecting berms in the lower track and runout zone intercept and deflect avalanches at a small angle to their natural flow direction and divert snow away from the objects to be protected. They do not necessarily shorten avalanche runout distance.

### Structure form and design

Deflectors are usually earthen berms 5 to 12 m high but may also be structural or rock-filled cribbing.

Experience has shown that deflecting angles of less than 25° are generally required to deflect avalanches and also keep the avalanches moving, reduce deposition at the base of the berm, and prevent overtopping. Because runout distances are not shortened by deflectors, design must ensure adequate space for the deflected snow. The minimum height,  $H$ , of the berm can be estimated by the equation

$$H = H_s + H_a + H_v, \tag{5.1}$$

where  $H_s$  = depth of previous snow and avalanche deposits,

$H_a$  = design-avalanche flow depth,

$H_v = (V \sin \phi)^2 / 2g$ ,

$V$  = design-avalanche velocity at the berm,

$\phi$  = deflection angle, and

$g$  = gravitational acceleration.

Design-avalanche criteria such as velocity,  $V$ , at the design point and flow depth must be known in order to apply equation (5.1) and objectively determine the required height of structures. The recommended method for determining the design velocity is through application of statistical and physical modeling procedures, (see page 23). Because the velocity is an important design parameter, it must be determined in some systematic manner (Chapter 3). The design height can be computed, as is usually done in Switzerland, or estimated by local evidence of damage on trees or structures. Powder-blast flow height may exceed flowing debris height by 10 m or more, (Chapter 2 and 3), therefore, large, dry-snow avalanches cannot be completely diverted by berms.

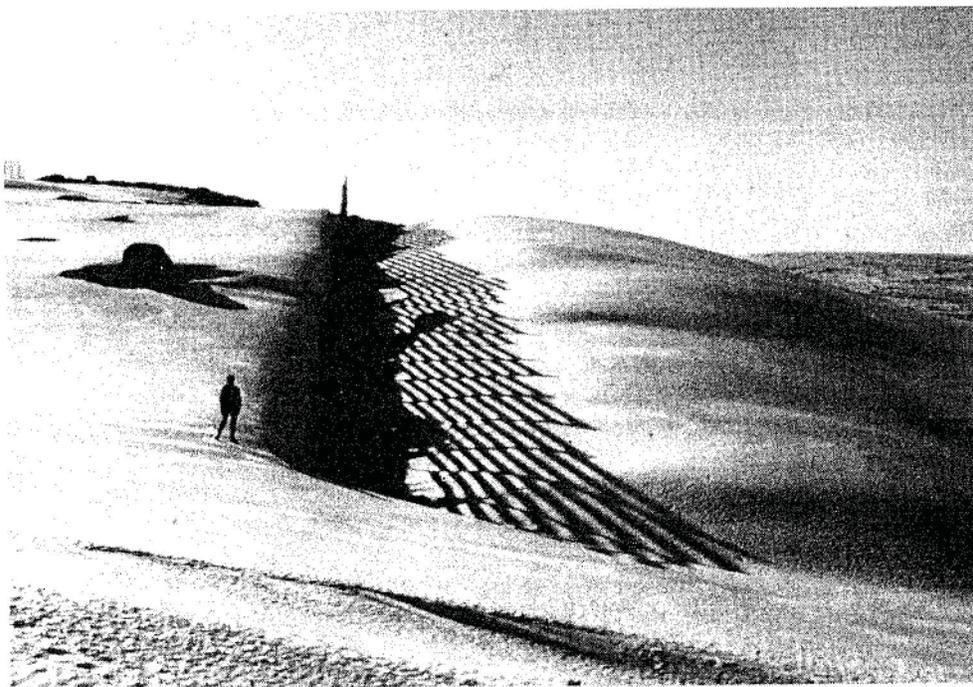


Figure 29. These snow (wind) fences reduce the amount of snow blown into the starting zone and decrease avalanche frequency and size on an avalanche path in western Norway (photo by J. O. Larsen).

Forces on deflecting berms result from the momentum change of the design avalanche. Massive earthen structures are usually stable with respect to large avalanche forces. Structural walls, however, require a careful analysis to determine if they are stable against overturning, sliding, and crushing. Pressures normal to a deflecting wall,  $P_n$ , can be estimated by the equation

$$P_n = \rho(V \sin \theta)^2, \quad (5.2)$$

where  $V$  and  $\theta$  are defined above and  $\rho$  is the avalanche flow density. Unit uplift,  $P_v$  and shear  $P_s$  forces also result from avalanche momentum change at the wall and can be estimated by the relationship

$$P_v = P_s = 0.5 P_n. \quad (5.3)$$

The height  $H$ , over which the forces on the berm act, is determined by equation (5.1). These forces can be assumed to be uniformly distributed with height, however this is probably a conservative overestimate. An alternative assumption is that forces are reduced linearly with height, similar to a hydrostatic load. Berm design height and strength must be rationally based on calculated design criteria.

Figure 30 illustrates the various design criteria required for berm design.

### Advantages

Deflecting berms, especially the earthen variety, are relatively inexpensive. Costs will depend on the size of the defense work which, in turn, depends on the size of the design avalanche and area requiring protection, the availability of material, and heavy-equipment charges. All of these factors will vary considerably from one area to another. When terrain and other factors are suitable, large areas can be made hazard free.

### Disadvantages

Berms may not be effective on gentle slopes ( $<15^\circ$ ), when more than two avalanches per season are expected. In such cases, avalanche deposits will tend to backfill berms, thereby reducing the effective height and enabling subsequent avalanches to overrun them easily. Earthen structures may also require a large volume of material because they will generally be approximately three times as wide as they are high (assuming 1.5:1 side slopes). This means they sometimes can scar the terrain over wide areas and may occupy land that could be used for other purposes. As noted above, deflecting berms probably will not be effective in changing the direction of fast moving dry-snow or

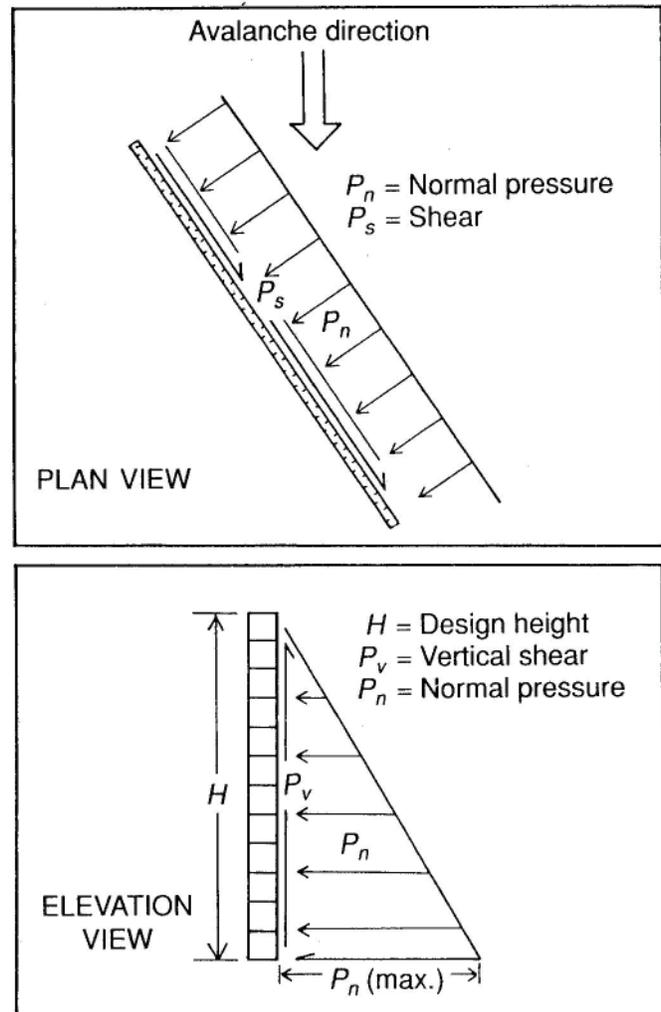


Figure 30. Forces acting on an avalanche deflecting wall.

powder avalanches. Berms may also increase avalanche runout distance in the direction of deflection.

## Retarding Mounds

### Purpose

Mounds shorten runout distances by creating additional friction between the avalanche and the ground, spreading avalanches laterally, and reducing the effective flow height. They can be used to reduce the runout distance and volume of flowing avalanches but do little to shorten the runout of fast-moving powder avalanches.

### Structure form

Individual mounds are usually conical-shaped earthen structures 4 to 8 m high arranged in a checker-board pattern with the rows placed at right angles to the



**STAFF REPORT**

Executive Summary									
<b>Hearing Body:</b>	Salt Lake County Planning Commission								
<b>Meeting Date and Time:</b>	Wednesday, April 16, 2014	08:30 AM	<b>File No:</b>	2	8	8	3	3	
<b>Applicant Name:</b>	Tanya Friese	<b>Request:</b>	Conditional Use						
<b>Description:</b>	FCOZ Conditional Use - Wireless Telecommunications HUB Building								
<b>Location:</b>	10027 East Little Cottonwood Canyon Road								
<b>Zone:</b>	FR-20 Forestry & Recreation	<b>Any Zoning Conditions?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>					
<b>Community Council Rec:</b>	Approval with Conditions								
<b>Staff Recommendation:</b>	Approval with Conditions								
<b>Planner:</b>	Todd A. Draper								

**1.0 BACKGROUND**

**1.1 Summary**

Crown Castle International is requesting approval for construction of and operation of a Wireless Telecommunications HUB building on the subject property. This HUB will support a series of wireless towers that will be installed throughout Little Cottonwood Canyon on property owned either by the U.S. Forest Service or the Utah Department of Transportation. A similar project was recently completed in Big Cottonwood Canyon. Additionally, for clarification purposes the subject property for this application is a relatively large parcel under the ownership of Alta Ski Lifts Company, but located within the jurisdiction of the Unincorporated County. This project affects a relatively small portion of that property.

**1.3 Neighborhood Response**

No formal responses received as of the writing of this report.

**1.4 Community Council Response**

At their April 2, 2014 meeting, the Granite Community Council recommended approval of the proposal with conditions that the architecture of the building be modified to enhance screening of exterior equipment and to blend in more with its surroundings. Specifically the wood and concrete exterior of Snowbird was discussed. A formal recommendation from their group has not yet been received, but is expected to be provided to the Planning Commission at the Planning Commission Meeting.

## 2.0 ANALYSIS

### 2.1 Applicable Ordinances

Section 19.84.060 of the Conditional Use Chapter of the Zoning Ordinance establishes five standards to be used in evaluating Conditional Use applications. The Planning Commission must find that all five of these standards have been met before granting approval of an application. Based on the foregoing analysis, Staff suggests the following:

Criteria Met		Conditional Use Criteria and Evaluation
YES <input checked="" type="checkbox"/>	NO <input checked="" type="checkbox"/>	<p><u>Standard `A':</u> <i>The proposed site development plan shall comply with all applicable provisions of the Zoning Ordinance, such as parking, building setbacks, building height, etc.</i></p> <p>Discussion: The proposed building appears to meet most zoning standards with 2 notable exceptions:</p> <p>1) The building may encroach into natural slopes greater than 30%. As the slope analysis provided does not appear to meet required ordinance standards it is difficult to determine if zoning ordinance has been met or not with regards to the prohibition of development on steep slopes. Encroachment into man made slopes in excess of 30% has typically been allowed for the construction of retention structures in the past, however the position of the building relative to the location of the natural slope is difficult to determine at this time . Staff believes that this would best be sorted out through the subsequent technical review process and should it later be determined that a slope waiver or variance is necessary that a separate application could be submitted at that time.</p> <p>2) Un-faced concrete walls are discouraged by the FCOZ ordinance. Concrete walls should be split faced, stamped, or have other significant architectural elements added to it. The intent is to break up the mass and wall lines in an effort to avoid unbroken expanses of building mass and walls that can intrude into the natural canyon setting and dominate a site. The current proposal calls for architectural tooling lines in the concrete approximately every 6 feet on the building and stamped concrete on the retaining walls. In staffs opinion additional tooling or architectural features need to be added to help break up the wall mass (horizontal and vertical elements). Also there are few details provided regarding the treatment of the concrete roof structure. Staff would suggest that the the roof structure also have a concrete treatment, coloration, and/or other details added to differentiate it from the building walls and the retaining walls.</p> <p>Staff would support the addition of conditions that would satisfy these criteria.</p>
YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>	<p><u>Standard `B':</u> <i>The proposed use and site development plan shall comply with all other applicable laws and ordinances.</i></p> <p>Discussion: Compliance with this criterion will continue to be monitored throughout the subsequent technical review process and a final approval will not be issued unless this has been met to the satisfaction of the individual reviewers and reviewing agencies.</p>

YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>	<u>Standard `C'</u> : <i>The proposed use and site development plan shall not present a traffic hazard due to poor site design or to anticipated traffic increases on the nearby road system which exceed the amounts called for under the County Transportation Master Plan.</i>
		Discussion: The site is unmanned and will have limited traffic to and from the site relative to this specific use.
YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>	<u>Standard `D'</u> : <i>The proposed use and site development plan shall not pose a threat to the safety of persons who will work on, reside on, or visit the property nor pose a threat to the safety of residents or properties in the vicinity by failure to adequately address the following issues: fire safety, geologic hazards, soil or slope conditions, liquefaction potential, site grading/ topography, storm drainage/flood control, high ground water, environmental health hazards, or wetlands.</i>
		Discussion: Final approval will not be granted by staff until compliance with these issues is achieved with the individual reviewers and reviewing agencies through the subsequent technical review process.
YES <input checked="" type="checkbox"/>	NO <input checked="" type="checkbox"/>	<u>Standard `E'</u> : <i>The proposed use and site development plan shall not adversely impact properties in the vicinity of the site through lack of compatibility with nearby buildings in terms of size, scale, height, or noncompliance with community general plan standards.</i>
		Discussion: The proposed building would be fairly compatible with nearby buildings, with the exception of the sole use of concrete as the construction material which would affect how the massing and scale of the building is viewed. Staff believes however that reasonable conditions can be imposed that would have the effect of alleviating this concern.

## 2.2 Zoning Requirements

### 19.83.070 Color.

Monopoles, antennas, and any associated buildings or equipment shall be painted to blend with the surroundings which they are most commonly seen. The color shall be determined on a case-by-case basis by the planning commission for conditional uses and development services division for permitted uses. Within six months after the facility has been constructed, the planning commission or the development services division may require the color be changed if it is determined that the original color does not blend with the surroundings.

### 19.83.080 Sites in the foothills and canyons.

For the purpose of this chapter the foothills and canyons are defined as the areas shown on the maps in the document entitled "Salt Lake County Foothill and Canyon Development Standards."

A. Any grading for telecommunication facilities, including access roads and trenching for utilities, shall comply with the Uniform Building Code. Telecommunication facilities in the foothills and canyons shall comply with the FR zone requirements for grading (Section [19.12.100](#)), natural vegetation (Section [19.12.110](#)) and utilities (Section [19.12.120](#)). Everything possible should be done to minimize disturbance of the natural environment.

B. A computer-generated visual simulation of the proposed structures is required for all sites in the foothills and canyons. The simulation shall show all structures including but not limited to monopoles, antennas, and equipment buildings.

C. Everything possible should be done to minimize disturbance of the visual environment. Site placement and color should be carefully considered to blend in with the surroundings.

D. Continuous outside lighting is prohibited unless required by the FAA for the monopole.

#### **19.83.090 Additional requirements.**

The following shall be considered by the planning commission for conditional uses:

A. Compatibility of the proposed structure with the height and mass of existing buildings and utility structures.

B. Location of the antenna on other existing structures in the same vicinity such as other monopoles, buildings, water towers, utility poles, athletic field lights, parking lot lights, etc. where possible without significantly impacting antenna transmission or reception.

C. Location of the antenna in relation to existing vegetation, topography including ridge lines, and buildings to obtain the best visual screening.

D. Spacing between monopoles which creates detrimental impacts to adjoining properties.

E. Installation of, but not limited to, curb, gutter, sidewalk, landscaping, and fencing as per Sections [19.76.210](#) and [19.84.050](#)

#### **19.83.100 Accessory buildings.**

Accessory buildings to antenna structures must comply with the required setback, height and landscaping requirements of the zoning district in which they are located. All utility lines on the lot leading to the accessory building and antenna structure shall be underground.

#### **19.83.110 Non-maintained or abandoned facilities.**

The building official may require each non-maintained or abandoned telecommunications facility to be removed from the building or premise when such a facility has not been repaired or put into use by the owner or agent within ninety calendar days after notice of non-maintenance or abandonment is given to the owner or agent. The applicant shall post a site specific bond when a permit is issued to guarantee removal of the facility and site restoration. The type of bond and amount shall be determined upon review by county staff. No bond shall be required for roof or wall mounted facilities.

#### **19.84.050 Approval/denial authority.**

The planning commission has the authority to approve, deny, or approve with conditions conditional use applications.

A. Planning Commission Approval.

1. The planning commission shall review and approve or deny each application during a public meeting.

2. The planning commission's decision shall be based on information presented through the public meeting process, including: the materials submitted by the applicant, the recommendation of the director or director's designee, and input from interested parties and affected entities.
3. If conditions are specified, the director or director's designee shall issue a final approval letter upon satisfaction of the planning commission's conditions of approval.
4. If the applicant fails to meet all conditions of approval within twelve months of the planning commission's decision, the application is deemed denied. A twelve-month extension may be granted upon the payment of an additional filing fee equal to the original filing fee.
5. A planning commission decision shall be made on a complete conditional use application within a reasonable time frame, not to exceed ninety days. The planning commission is authorized to review and take action on an application as outlined in [Section 19.84.040](#) after having notified the applicant of the meeting date.
6. Failure by the applicant to provide information that has been requested by the planning commission, the director or director's designee to resolve conflicts with the standards in [Section 19.84.060](#) (above) may result in an application being denied.

B. Decision. Each conditional use application shall be:

1. Approved if the proposed use, including the manner and design in which a property is proposed for development, complies with the standards for approval outlined in [Section 19.84.060](#); or
2. Approved with conditions if the anticipated detrimental effects of the use, including the manner and design in which the property is proposed for development, can be mitigated with the imposition of reasonable conditions to bring about compliance with the standards outlined in [Section 19.84.060](#); or
3. Denied if the anticipated detrimental effects of the proposed use cannot be mitigated with the imposition of reasonable conditions of approval to bring about compliance with the standards outlined in [Section 19.84.060](#)

#### **19.84.075 Graffiti preventative materials or design.**

A. Whenever the planning commission determines that there is a reasonable likelihood that graffiti will be placed on the surfaces of proposed improvements it shall require, as part of the conditional use approval, that the applicant apply an anti-graffiti material, approved by the development services division, to each of the surfaces to be constructed. The anti-graffiti material shall be used on surfaces from ground level to a height of nine feet. The planning commission may approve dense planting or appropriate design measures in place of anti-graffiti materials.

B. Whenever the planning commission becomes aware of graffiti having been placed on any surfaces constructed as part of development approved as a conditional use, it may require that the applicant or his/her successor in interest apply an anti-graffiti material to such surfaces where no such material was previously required.

## **2.3 Other Agency Recommendations or Requirements**

### **Urban Hydrology Review - Review Conditionally Approved**

The proposed plan is approved pending a technical review by this agency. The following is required to be submitted as part of the technical review:

1. Final drainage plan. Plan shall show the size of pipe, flow lines, type of pipe, ground cover over the pipe, and catch basin locations. Rim and invert elevation required on all pipe and boxes.
2. Profile and cross section of canal or ditch, including flow lines and high water mark elevations.
3. Plan and profile of drainage system (show all existing utilities)
4. A flood control permit from the Engineering Division.
5. Submitted plans shall contain the name and phone number of the registered professional engineer (PE stamp required, signed and dated), project name, address, north arrow, and scale (minimum 1 inch = 20 feet).
6. Approximate storm drain impact fee is \$0.00.

### **Salt Lake County Health Department - Review Pending**

The following needs to be submitted prior to approval:

- 1) A Salt Lake City Watershed letter.
- 2) Secondary containment for any stored hazardous material is required.

### **UDOT - No response received**

### **SLC Watershed - No response received**

### **Traffic Review - No response received.**

### **Geology - Review Conditionally Approved**

The proposed use is approved or not regulated by this agency.

The proposed site plan is approved, pending a technical review by this agency.

The project site falls within East Hellgate avalanche slide path. Applicant has consulted other studies/experts and conferred with Geology (RBT). The likely impact pressure to be used as design for structure is 1800 psf. Geology conditionally approved if:

1. Structure is not designed for human habitation.
2. Structure is designed to 1800 psf impact pressure.
3. Structure has avalanche mitigation features incorporated into design.

Geology withholds formal approval until specific mitigation features can be assessed.

### **Grading Review - Review Conditionally Approved**

- 1-Site was partially covered by snow at the time of field inspection
- 2-Site is in Hellgate Avalanche slide path. A structure cannot be used for human occupancy due to the avalanche study area. An avalanche hazard analysis will need to be performed.
- 3-Area of development has slopes in excess of 30% and will require a Geo-technical report prepared by a registered design professional as to special conditions of the site will be required.
- 4-Grading plans are not signed or stamped by an Engineer
- 5-Need submit a certified slope analysis
- 6-Retaining walls will be required to be design by a registered design professional
- 7-Need to provide erosion controls and copy of N.O.I.

## 2.4 Other Issues

### Planning Review - Review conditionally approved

1. Encroachment into natural slopes over 30% is not permitted.
2. Slope analysis appears to be incorrect, does not utilize 2 foot contour intervals, and is not certified.
3. No details provided on the color or treatment of the roof. Staff would suggest looking at options such as a green roof or color change that help it blend better into the surrounding setting as seen from above.
4. Limits of disturbance fencing and calculations needs to be shown on the site plan.
5. Drainage from the roof needs to be addressed.
6. Need to indicate on the site plan how snow storage will be accommodated.
7. Retaining walls limited to 6 feet in height. A combination of 2 walls may be required.
8. Additional details regarding re-vegetation need to be provided. The current plan only shows existing conditions and must include proposed re-vegetation measures and details.
9. Access must be approved by UDOT
10. The limited architectural treatment of the concrete face of the building does not meet the intent of the FCOZ ordinance with respect to the integration of concrete walls with their site and surroundings, please revise and resubmit.
11. Please submit a more detailed color scheme for the doors, trim, and exterior mechanical equipment.

Staff does note the desires of the Community Council for the use of wood and similar architectural elements to help blend the building in with its surroundings and other nearby structures. Staff would suggest that if the Planning Commission concurs with an/or requires such elements that they be be utilized more as an accent and remain simplistic and minimal in character.

## 2.5 Subdivision Requirements

Not applicable. The area will likely be leased separately to the operator by the Alta Ski Lift Company.

## 3.0 STAFF RECOMMENDATION

### 3.1 Staff recommends APPROVAL of the proposed Conditional Use with the following conditions:

- 1 ) Revised architecture be submitted that; a) provides screening of the exterior HVAC units as seen from the roadway, and b) provides increased architectural details and treatment of the concrete building that has the effect of breaking up the mass and scale of the building. Approval of the revised architecture to be at the discretion of staff.
- 2 ) Submit a certified slope analysis to staff. Encroachment into natural slopes exceeding 30% is not allowed except upon the granting of a separate waiver or variance.
- 3 ) Compliance with all requirements of the individual reviewers and review agencies as identified through the completion of the technical review process.

### 3.2 Reasons for Recommendation

- 1 The Listed conditions are needed to ensure that the proposal meets specific ordinance requirements as well as the intent of the ordinances.
- 2 ) The listed conditions represent reasonable and implementable measures for the mitigation of potential negative impacts to surrounding properties and the public in general.

### 3.3 Other Recommendations

None at this time.

# File #28833

Aerial Map



Thu Mar 13 2014 02:49:07 PM.

POWERED BY  
**esri**

PLANS PREPARED BY:

2162 West Grove Parkway  
Suite 400  
Pleasant Grove, UT 84062  
(801) 763-5100

NO.	DATE	DESCRIPTION	BY:

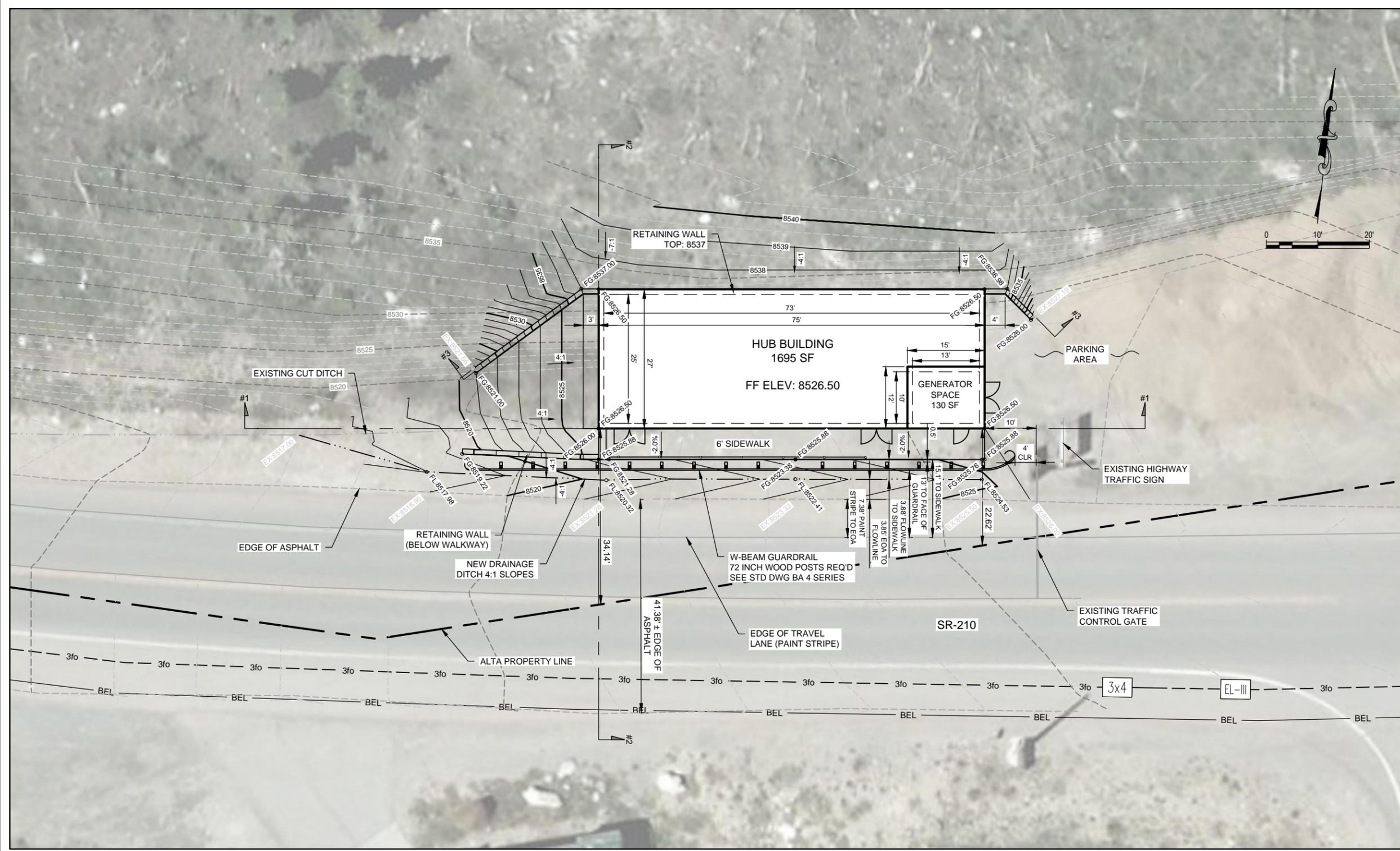
ISSUE DATE:  
**MARCH 2014**

SITE INFORMATION:  
**LITTLE COTTONWOOD CANYON ROAD HUB BUILDING DESIGN**  
JOB#  
SALT LAKE CITY, UTAH  
HWY SR-210  
SALT LAKE COUNTY

SEAL:  
  
**PRELIMINARY REVIEW**

SHEET TITLE:  
**SITE AND GRADING PLAN**

SHEET NUMBER:  
**CG-1**



**NOTES:**

**LEGEND:**

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2000 CORPORATE DRIVE  
CANNONSBURG, PA 15317

PLANS PREPARED BY:



2162 West Grove Parkway  
Suite 400  
Pleasant Grove, UT 84062  
(801) 763-5100

NO.	DATE	DESCRIPTION	BY:

ISSUE DATE:  
**MARCH 2014**

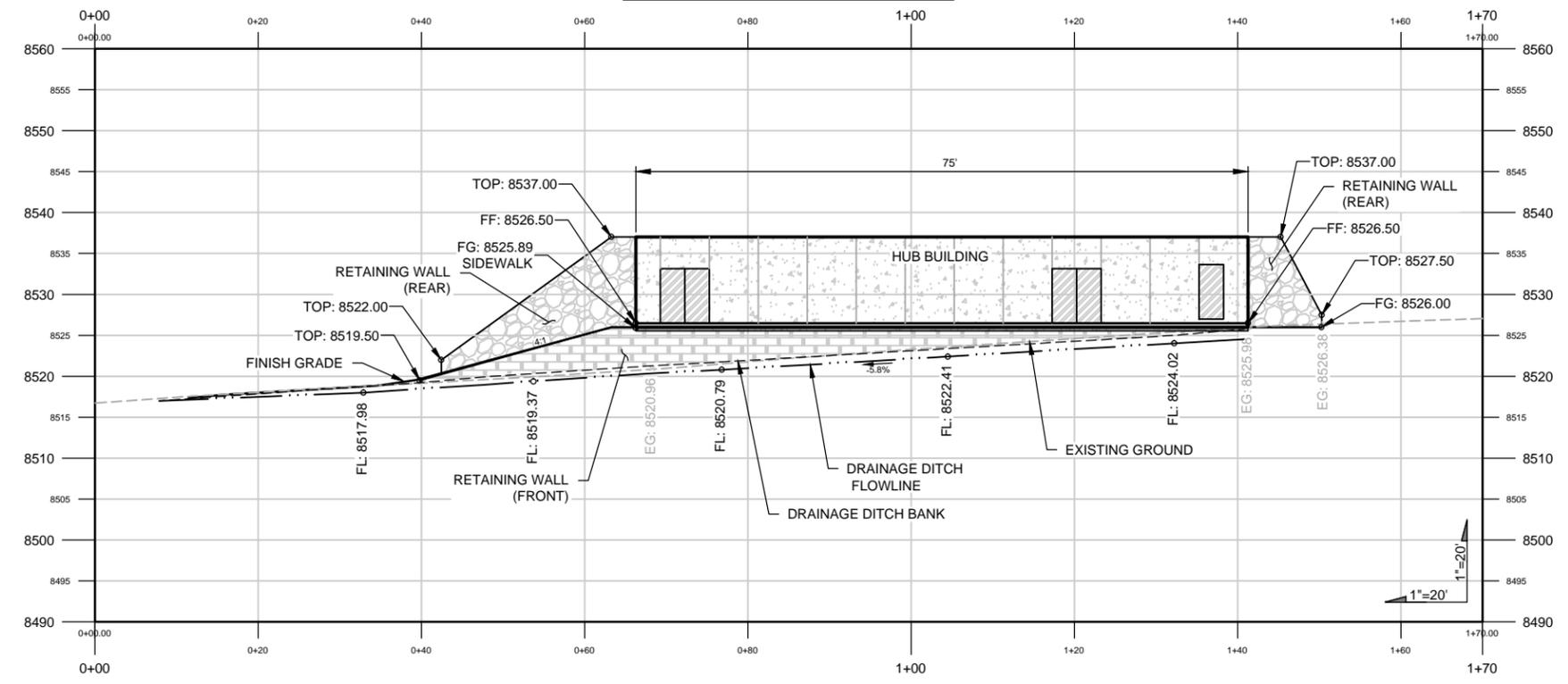
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**LITTLE COTTONWOOD  
CANYON ROAD  
HUB BUILDING DESIGN**  
JOB#  
SALT LAKE CITY, UTAH  
HWY SR-210  
SALT LAKE COUNTY

SEAL:  
**PRELIMINARY  
REVIEW**

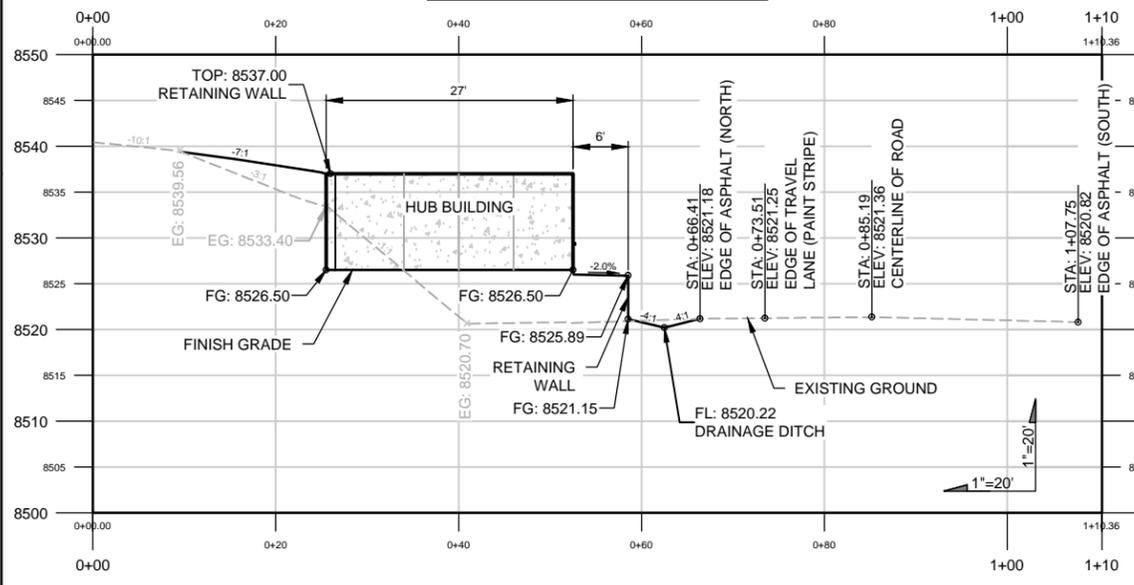
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**PROFILES & SECTIONS**

SHEET NUMBER:  
**CG-2**

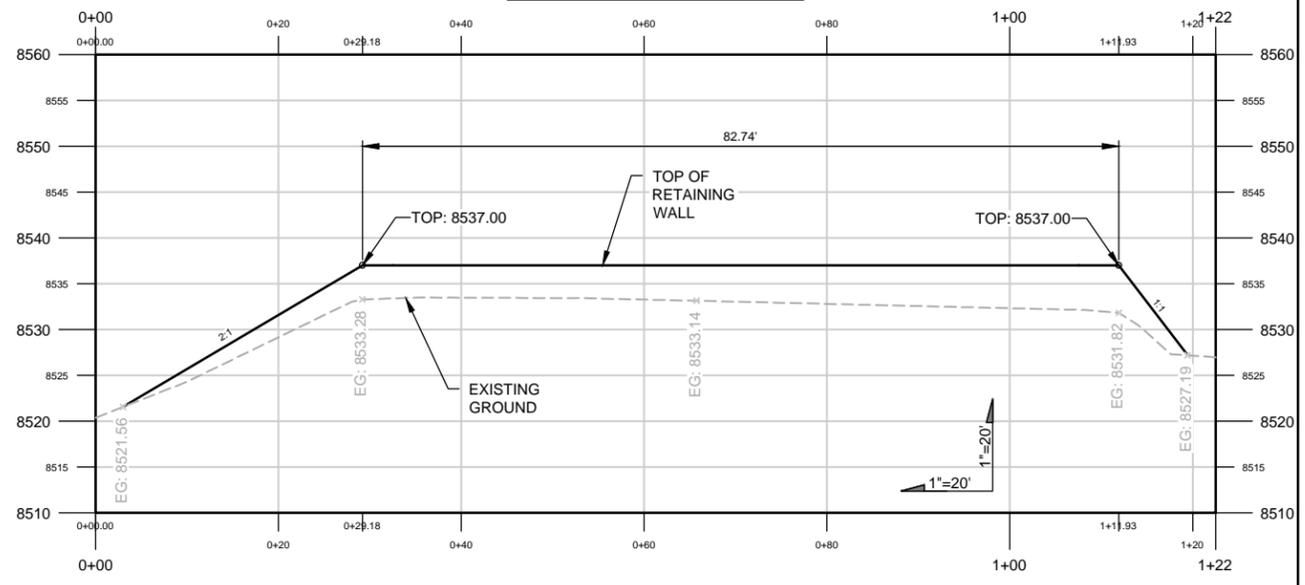
#1 HUB - ELEVATION PROFILE



#2 HUB - SECTION PROFILE



#3 HUB - WALL PROFILE



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O:\2012\PG-154-1212\_Little Cottonwood Canyon Fiber Optical Project Data\Concept\Working\Cameron\PG-154-1212\_Design\opt 2.3.1.dwg - CG-3 ALTA PROPERTY LAYOUT - 3/05/2014 02:41pm cameronc



2000 CORPORATE DRIVE  
CANNONSBURG, PA 15317

PLANS PREPARED BY: \_\_\_\_\_



2162 West Grove Parkway  
Suite 400  
Pleasant Grove, UT 84062  
(801) 763-5100

NO.	DATE	DESCRIPTION	BY:

ISSUE DATE:  
**MARCH 2014**

SITE INFORMATION:  
**LITTLE COTTONWOOD  
CANYON ROAD  
HUB BUILDING DESIGN**  
  
JOB#  
SALT LAKE CITY, UTAH  
HWY SR-210  
SALT LAKE COUNTY

SEAL:  
  
**PRELIMINARY  
REVIEW**

SHEET TITLE:  
**ALTA PROPERTY  
LAYOUT**

SHEET NUMBER:  
**CG-3**

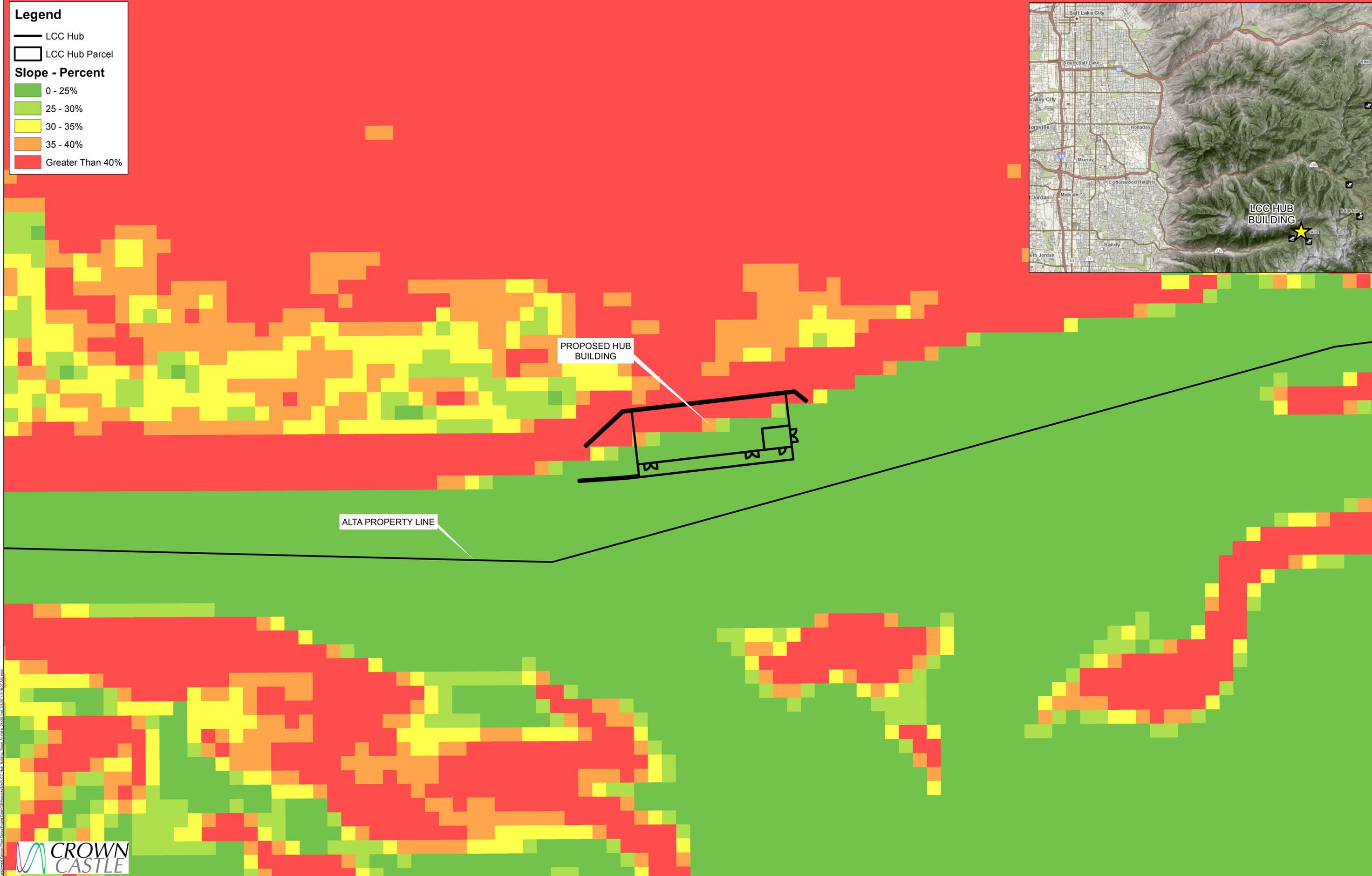
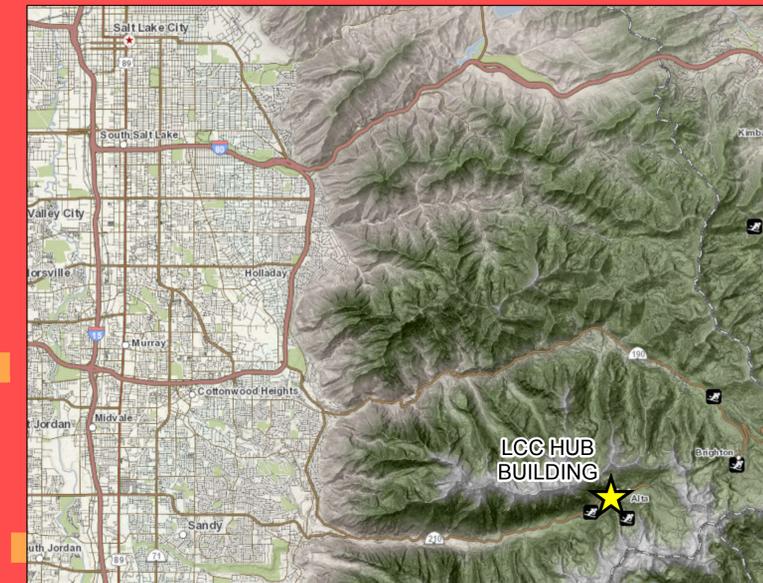






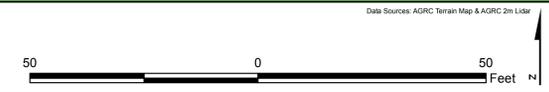
**Legend**

- LCC Hub
- LCC Hub Parcel
- Slope - Percent**
- 0 - 25%
- 25 - 30%
- 30 - 35%
- 35 - 40%
- Greater Than 40%



2162 West Grove Parkway  
Suite 400  
Pleasant Grove, UT 84062  
(801) 763-5100

Proposed Hub Building - Slope Analysis  
Little Cottonwood Canyon Build



DATE	3/4/2014
DRAWN	EHB
	Figure 1

C:\Users\jld\OneDrive\Documents\Projects\Little Cottonwood Canyon Build\Map\Map\_2014\_03\_04\_10\_30\_14.mxd









**STAFF REPORT**

Executive Summary									
<b>Hearing Body:</b>	Salt Lake County Planning Commission								
<b>Meeting Date and Time:</b>	Wednesday, April 16, 2014	08:30 AM	<b>File No:</b>	2	8	8	2	3	
<b>Applicant Name:</b>	Scott Carlson	<b>Request:</b>	Zone Change						
<b>Description:</b>	R-1-10 z/c to R-1-15 and R-1-10								
<b>Location:</b>	3677 Little Cottonwood Road								
<b>Zone:</b>	R-1-10 Residential Single-Family	<b>Any Zoning Conditions?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>					
<b>Zoning Condition:</b>	See previously recorded ordinance (attached).								
<b>Planning Commission Rec:</b>	Not Yet Received								
<b>Community Council Rec:</b>	Approval								
<b>Staff Recommendation:</b>	No formal recommendation from staff								
<b>Planner:</b>	Todd A. Draper								

**1.0 BACKGROUND**

**1.1 Summary**

The applicant is proposing to rezone the subject properties as part of a larger plan to subdivide them into legal lots for residential use. A separate subdivision application for this purpose has been submitted. The areas proposed to be classified as the R-1-15 zone would restore those areas back to a previously existing zoning classification. Additionally, the purpose of the rezone is to eliminate zoning conditions placed upon the property that pertained more particularly to a previously proposed PUD development that was never completed and the application file expired. Accordingly, there are two areas indicated on the attached site plan that are proposed to remain R-1-10, but without the zoning conditions that currently encumber them (see section 2.2 below for specific zoning condition language).

**1.2 Neighborhood Response**

No formal response has been received.

**1.3 Community Council Response**

The Granite Community Council reviewed this request at their April 2, 2014 meeting. They made a recommendation of approval at the meeting. Their formal response has not been received as of the writing of this report.

## **2.0 ANALYSIS**

### **2.1 General Plan**

The 1993 Granite Community Master Plan reflects a desire of the Community to preserve and keep the rural or country feel of the community while providing for orderly residential development. Preservation of low density neighborhoods is listed as the primary goal. Additionally, development should proceed in a manner that will extend community assets to future residents and improve the quality of life for all.

The Master Plan supports low density residential development. The R-1-10 and R-1-15 zones are listed in the plan as low density residential zones.

The Master Plan strongly recommends providing new areas for single family homes on 1/2 acre and 1/3 acre lots.

The Land Use Plan Map that accompanies the Master Plan classifies this area as low density residential for 2-4 dwelling units per acre (see attached map). The proposed zoning classifications would be compatible with the Land Use Plan Map.

County Wide Goals and Policies included in the Granite Master Plan also include the policy that within the county that a diverse range of housing in each community (price, type, size, and location of dwelling) be encouraged, as well as housing that continues to encourage a high level of home ownership. This policy would support the rezone proposal.

### **2.2 Existing Zoning and Land Use**

The existing land uses are residential in nature. The existing zoning is R-1-10 z/c which allows for 10,000 sq. ft. single-family residential lots. The zoning conditions which apply to the properties at this time are as follows:

1. Dwelling units shall be limited to a maximum density of 3.8 dwelling units per acre, based on the acreage of the property after the area necessary for dedication to Little Cottonwood Creek Road is subtracted from the total acreage, and a maximum of 22 dwelling units, whichever is less.
2. The homes shall be limited to single-story from original grade. Single Story shall mean the first floor elevation shall be no more than 3 feet above original grade. Second floor living space will be limited to an office-style space within the pitched roof over the first floor, with a dormer-style window facing the inside of the PUD and a skylight on the opposite side of the window facing up at the same angle as the roof. Walk out basements below the main floor may be allowed if existing topography supports walk out basements.

### **2.3 Other Agency Recommendations or Requirements**

None identified.

## 2.4 Other Issues

Zoning Conditions are permitted in Salt Lake County Ordinance as follows:

19.90.060 Conditions to zoning map amendment.

A. In order to provide more specific land use designations and land development suitability; to insure that proposed development is compatible with surrounding neighborhoods; and to provide notice to property owners of limitations and requirements for development of property, conditions may be attached to any zoning map amendment which limit or restrict the following:

1. Uses;
2. Dwelling unit density;
3. Building square footage;
4. Height of structures.

B. A zoning map amendment attaching any of the conditions set forth in subsection A shall be designated ZC after the zoning classification on the zoning map and any such conditions shall be placed on record with the planning commission and recorded with the county recorder.

C. In the event any zoning condition is declared invalid by a court of competent jurisdiction, then the entire zoning map amendment shall be void. Any deletion in or change to zoning condition shall be considered an amendment to the zoning ordinance and shall be subject to the requirements of this chapter.

## 2.5 Subdivision Requirements

The applicant and owners are planning on dividing and consolidating the subject properties and parcels into 5 legal lots through the subdivision process. Applications to this effect have been submitted to the County.

Most of the currently existing subject parcels came into being through land divisions that did not comply with the requirements of County Subdivision ordinance at the time they were created. The recordation of a new subdivision plat will be required to amend portions of 2 platted lots that included within the subject parcels under consideration with these applications.

A hearing before the Mayor or his designee for approval to amend the existing subdivisions will be required. This decision or action taken with regards to that hearing will have no impact or bearing on the rezone application at hand.

Additionally, the applicant may wish to amend, modify, or vacate certain platted public utility easements. This will likely require a legislative action of the County Council, and will be processed separately with the Subdivision application.

### **3.0 STAFF SUGGESTED CONSIDERATIONS**

#### **3.1 Considerations for APPROVAL of the proposed Zone Change**

- 1 ) The Master Plan supports low density residential development.
- 2 ) The R-1-10 and R-1-15 zones are low density residential zones.
- 3 ) The proposed zoning classifications are compatible with the Land Use Plan Map.
- 4 ) The existing zoning conditions are outdated and are incongruent with County Ordinance.

#### **3.2 Considerations for DENIAL of the proposed**

- 1 ) The Master Plan strongly recommends providing new areas for single family homes on 1/2 acre and 1/3 acre lots. The request for the R-1-10 zone is not encouraged by the written Master Plan.
- 2 ) Elimination of the zoning conditions will potentially allow for development with greater impacts to neighboring properties

#### **3.3 Other Considerations**

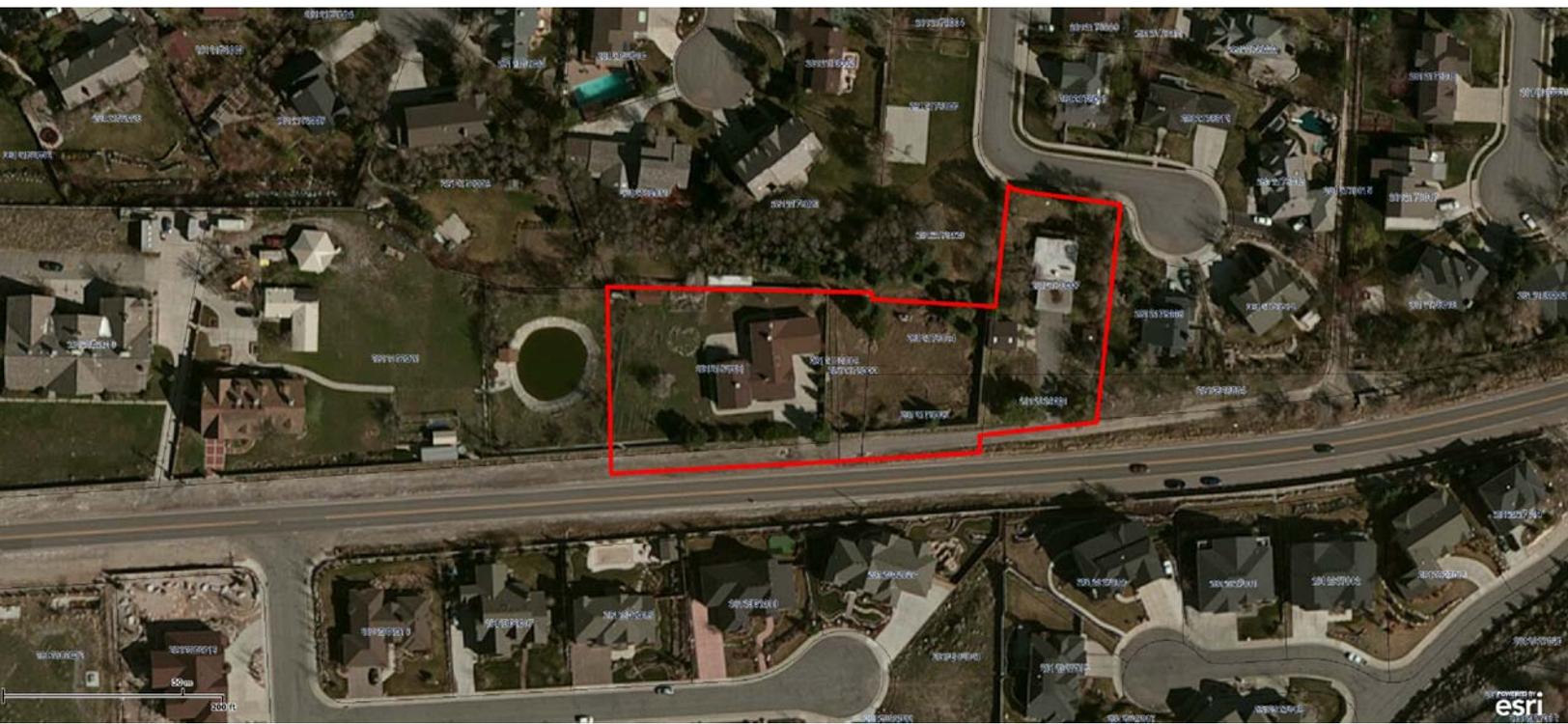
The Planning Commission may consider recommendations to the County Council of Approval as Proposed, Approval with Conditions, Approval with Modifications, or Denial as proposed.

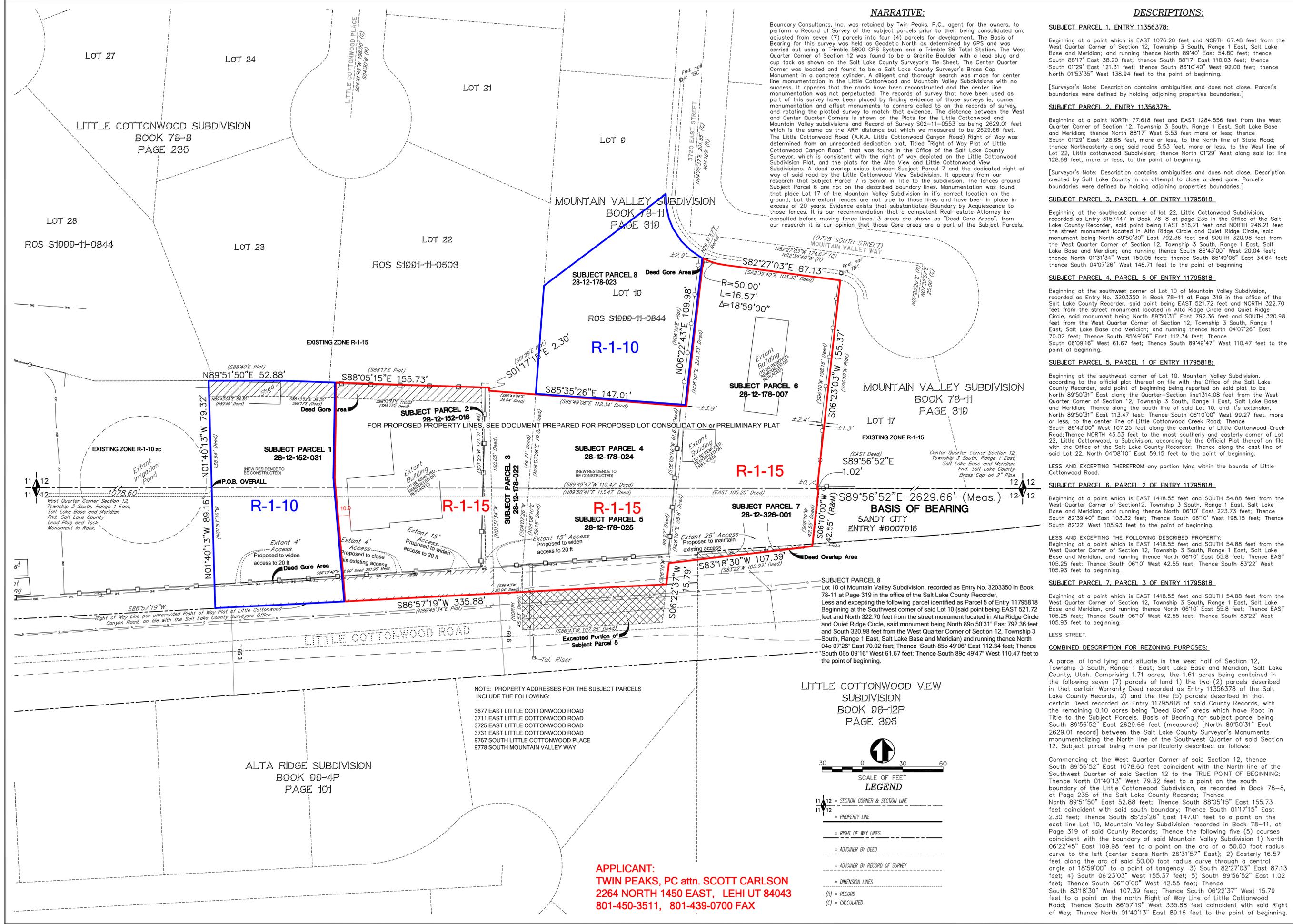
# #28823 Zoning Map



Fri Mar 21 2014 04:54:57 PM.

# #28823 Aerial Map





**NARRATIVE:**

Boundary Consultants, Inc. was retained by Twin Peaks, P.C., agent for the owners, to perform a Record of Survey of the subject parcels prior to their being consolidated and adjusted from seven (7) parcels into four (4) parcels for development. The Basis of Bearing for this survey was held as Geodetic North as determined by GPS and was carried out using a Trimble 5800 GPS System and a Trimble S6 Total Station. The West Quarter Corner of Section 12 was found to be a Granite Boulder with a lead plug and cup tack as shown on the Salt Lake County Surveyor's Tie Sheet. The Center Quarter Corner was located and found to be a Salt Lake County Surveyor's Brass Cap Monument in a concrete cylinder. A diligent and thorough search was made for center line monumentation in the Little Cottonwood and Mountain Valley Subdivisions with no success. It appears that the roads have been reconstructed and the center line monumentation was not perpetuated. The records of survey that have been used as part of this survey have been placed by finding evidence of those surveys; corner monumentation and offset monuments to corners called to the records of survey, and rotating the plotted survey to match that evidence. The distance between the West and Center Quarter Corners is shown on the Plats for the Little Cottonwood and Mountain Valley subdivisions and Record of Survey S02-11-0553 as being 2629.01 feet which is the same as the ARP distance but which we measured to be 2629.66 feet. The Little Cottonwood Road (A.K.A. Little Cottonwood Canyon Road) Right of Way was determined from an unrecorded dedication plat, titled "Right of Way Plat of Little Cottonwood Canyon Road", that was found in the Office of the Salt Lake County Surveyor, which is inconsistent with the right of way depicted on the Little Cottonwood Subdivision Plat, and the plats for the Alta View and Little Cottonwood View Subdivisions. A deed overlap exists between Subject Parcel 7 and the dedicated right of way of said road by the Little Cottonwood View Subdivision. It appears from our research that Subject Parcel 7 is Senior in Title to the subdivision. The fences around Subject Parcel 6 are not on the described boundary lines. Monumentation was found that placed Lot 17 of the Mountain Valley Subdivision in its correct location on the ground, but the extant fences are not true to those lines and have been in place in excess of 20 years. Evidence exists that substantiates Boundary by Acquisition to those fences. It is our recommendation that a competent Real-estate Attorney be consulted before moving fence lines. 3 areas are shown as "Deed Gore Areas", from our research it is our opinion that those Gore areas are a part of the Subject Parcels.

**DESCRIPTIONS:**

**SUBJECT PARCEL 1, ENTRY 11356378:**  
Beginning at a point which is EAST 1076.20 feet and NORTH 67.48 feet from the West Quarter Corner of Section 12, Township 3 South, Range 1 East, Salt Lake Base and Meridian; and running thence North 89°40' East 54.80 feet; thence South 88°17' East 38.20 feet; thence South 88°17' East 110.03 feet; thence South 01°23' East 121.31 feet; thence South 86°10'40' East 92.00 feet; thence North 01°53'35" West 138.94 feet to the point of beginning.

[Surveyor's Note: Description contains ambiguities and does not close. Parcel's boundaries were defined by holding adjoining properties boundaries.]

**SUBJECT PARCEL 2, ENTRY 11356378:**  
Beginning at a point North 77.618 feet and EAST 1284.556 feet from the West Quarter Corner of Section 12, Township 3 South, Range 1 East, Salt Lake Base and Meridian; thence North 88°17' West 5.53 feet more or less; thence South 01°29' East 128.68 feet, more or less, to the North line of State Road; thence Northeasterly along said road 5.53 feet, more or less, to the West line of Lot 22, Little Cottonwood Subdivision; thence North 01°29' West along said lot line 128.68 feet, more or less, to the point of beginning.

[Surveyor's Note: Description contains ambiguities and does not close. Description created by Salt Lake County in an attempt to close a deed gore. Parcel's boundaries were defined by holding adjoining properties boundaries.]

**SUBJECT PARCEL 3, PARCEL 4 OF ENTRY 11795818:**  
Beginning at the southeast corner of lot 22, Little Cottonwood Subdivision, recorded as Entry 3157447 in Book 78-8 at page 235 in the Office of the Salt Lake County Recorder, said point being EAST 516.21 feet and NORTH 246.21 feet the street monument located in Alta Ridge Circle and Quiet Ridge Circle, said monument being North 89°50'31" East 792.36 feet and SOUTH 320.98 feet from the West Quarter Corner of Section 12, Township 3 South, Range 1 East, Salt Lake Base and Meridian; and running thence South 86°43'00" West 20.04 feet; thence North 01°31'34" West 150.05 feet; thence South 85°49'06" East 34.64 feet; thence South 04°07'26" West 146.71 feet to the point of beginning.

**SUBJECT PARCEL 4, PARCEL 5 OF ENTRY 11795818:**  
Beginning at the southwest corner of Lot 10 of Mountain Valley Subdivision, recorded as Entry No. 3203350 in Book 78-11 at Page 319 in the office of the Salt Lake County Recorder, said point being EAST 521.72 feet and NORTH 322.70 feet from the street monument located in Alta Ridge Circle and Quiet Ridge Circle, said monument being North 89°50'31" East 792.36 feet and SOUTH 320.98 feet from the West Quarter Corner of Section 12, Township 3 South, Range 1 East, Salt Lake Base and Meridian; and running thence North 04°07'26" East 70.02 feet; Thence South 85°49'06" East 112.34 feet; Thence South 06°09'16" West 61.67 feet; Thence South 89°49'47" West 110.47 feet to the point of beginning.

**SUBJECT PARCEL 5, PARCEL 1 OF ENTRY 11795818:**  
Beginning at the southwest corner of Lot 10, Mountain Valley Subdivision, according to the official plat thereof on file with the Office of the Salt Lake County Recorder, said point of beginning being reported on said plat to be North 89°50'31" East along the Quarter-Section line 161314.08 feet from the West Quarter Corner of Section 12, Township 3 South, Range 1 East, Salt Lake Base and Meridian; Thence along the south line of said Lot 10, and it's extension, North 89°50'31" East 113.47 feet; Thence South 06°10'00" West 99.27 feet, more or less, to the center line of Little Cottonwood Creek Road; Thence South 86°43'00" West 107.25 feet along the centerline of Little Cottonwood Creek Road; Thence North 45.53 feet to the most southerly and easterly corner of Lot 22, Little Cottonwood, a Subdivision, according to the Official Plat thereof on file with the Office of the Salt Lake County Recorder; Thence along the east line of said Lot 22, North 04°08'10" East 59.15 feet to the point of beginning.

LESS AND EXCEPTING THEREFROM any portion lying within the bounds of Little Cottonwood Road.

**SUBJECT PARCEL 6, PARCEL 2 OF ENTRY 11795818:**  
Beginning at a point which is EAST 1418.55 feet and SOUTH 54.88 feet from the West Quarter Corner of Section 12, Township 3 South, Range 1 East, Salt Lake Base and Meridian; and running thence North 06°10' East 223.73 feet; Thence South 82°39'40" East 103.32 feet; Thence South 06°10' West 198.15 feet; Thence South 82°22' West 105.93 feet to the point of beginning.

LESS AND EXCEPTING THE FOLLOWING DESCRIBED PROPERTY:  
Beginning at a point which is EAST 1418.55 feet and SOUTH 54.88 feet from the West Quarter Corner of Section 12, Township 3 South, Range 1 East, Salt Lake Base and Meridian, and running thence North 06°10' East 55.8 feet; Thence EAST 105.25 feet; Thence South 06°10' West 42.55 feet; Thence South 83°22' West 105.93 feet to beginning.

**SUBJECT PARCEL 7, PARCEL 3 OF ENTRY 11795818:**  
Beginning at a point which is EAST 1418.55 feet and SOUTH 54.88 feet from the West Quarter Corner of Section 12, Township 3 South, Range 1 East, Salt Lake Base and Meridian, and running thence North 06°10' East 55.8 feet; Thence EAST 105.25 feet; Thence South 06°10' West 42.55 feet; Thence South 83°22' West 105.93 feet to beginning.

LESS STREET.

**COMBINED DESCRIPTION FOR REZONING PURPOSES:**  
A parcel of land lying and situate in the west half of Section 12, Township 3 South, Range 1 East, Salt Lake Base and Meridian, Salt Lake County, Utah, comprising 1.71 acres, the 1.61 acres being contained in the following seven (7) parcels of land 1) the two (2) parcels described in that certain Warranty Deed recorded as Entry 11356378 of the Salt Lake County Records, 2) and the five (5) parcels described in that certain Deed recorded as Entry 11795818 of said County Records, with the remaining 0.10 acres being "Deed Gore" areas which have Root in Title to the Subject Parcels. Basis of Bearing for subject parcel being South 89°56'52" East 2629.66 feet (measured) [North 89°50'31" East 2629.01 record] between the Salt Lake County Surveyor's Monuments monumentizing the North line of the Southwest Quarter of said Section 12. Subject parcel being more particularly described as follows:

Commencing at the West Quarter Corner of said Section 12, thence South 89°56'52" East 1078.52 feet coincident with the North line of the Southwest Quarter of said Section 12 to the TRUE POINT OF BEGINNING; Thence North 01°40'13" West 79.32 feet to a point on the south boundary of the Little Cottonwood Subdivision, as recorded in Book 78-8, at Page 235 of the Salt Lake County Records; Thence North 89°51'50" East 52.88 feet; Thence South 88°05'15" East 155.73 feet coincident with said south boundary; Thence South 01°17'15" East 2.30 feet; Thence South 85°35'26" East 147.01 feet to a point on the east line Lot 10, Mountain Valley Subdivision recorded in Book 78-11, at Page 319 of said County Records; Thence the following five (5) courses coincident with the boundary of said Mountain Valley Subdivision 1) North 06°22'45" East 109.98 feet to a point on the arc of a 50.00 foot radius curve to the left (center bears North 26°31'57" East); 2) Easterly 16.57 feet along the arc of said 50.00 foot radius curve through a central angle of 18°59'00" to a point of tangency; 3) South 82°27'03" East 87.13 feet; 4) South 06°23'03" West 155.37 feet; 5) South 89°56'52" East 1.02 feet; Thence South 06°10'00" West 42.55 feet; Thence South 83°18'30" West 107.39 feet; Thence South 06°22'37" West 15.79 feet to a point on the north Right of Way Line of Little Cottonwood Road; Thence South 86°57'19" West 335.88 feet coincident with said Right of Way; Thence North 01°40'13" East 89.16 feet to the point of beginning.

NOTE: PROPERTY ADDRESSES FOR THE SUBJECT PARCELS INCLUDE THE FOLLOWING:  
3677 EAST LITTLE COTTONWOOD ROAD  
3711 EAST LITTLE COTTONWOOD ROAD  
3725 EAST LITTLE COTTONWOOD ROAD  
3731 EAST LITTLE COTTONWOOD ROAD  
9767 SOUTH LITTLE COTTONWOOD PLACE  
9778 SOUTH MOUNTAIN VALLEY WAY

LITTLE COTTONWOOD VIEW SUBDIVISION BOOK 08-12P PAGE 305



**APPLICANT:**  
TWIN PEAKS, PC attn. SCOTT CARLSON  
2264 NORTH 1450 EAST, LEHI UT 84043  
801-450-3511, 801-439-0700 FAX

**BOUNDARY CONSULTANTS**  
Professional Land Surveyors  
1295 North 1700 West, Farr West, Utah  
801-792-1589 801-690-7158 FAX

RECORD OF SURVEY, PARCEL CONSOLIDATION AND ADJUSTMENT OF TAX PARCELS 28-12-152-031, -016, 28-12-178-022, -024, -025, -007, 28-12-326-001 LYING AND SITUATE IN THE WEST HALF OF SECTION 12, TOWNSHIP 3 SOUTH, RANGE 1 EAST, SALT LAKE BASE AND MERIDIAN APPLICATION FOR RE-ZONE

DATE: 03-28-14  
SCALE: 1"=30'  
PROJECT NUMBER: 13013002

DESIGNED	DEF	CHECKED	SSC
DRAWN	DEF		
SHEET	1		
OF	1		

# GRANITE COMMUNITY LAND USE PLAN

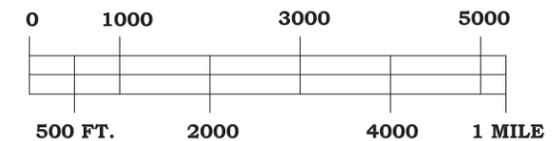
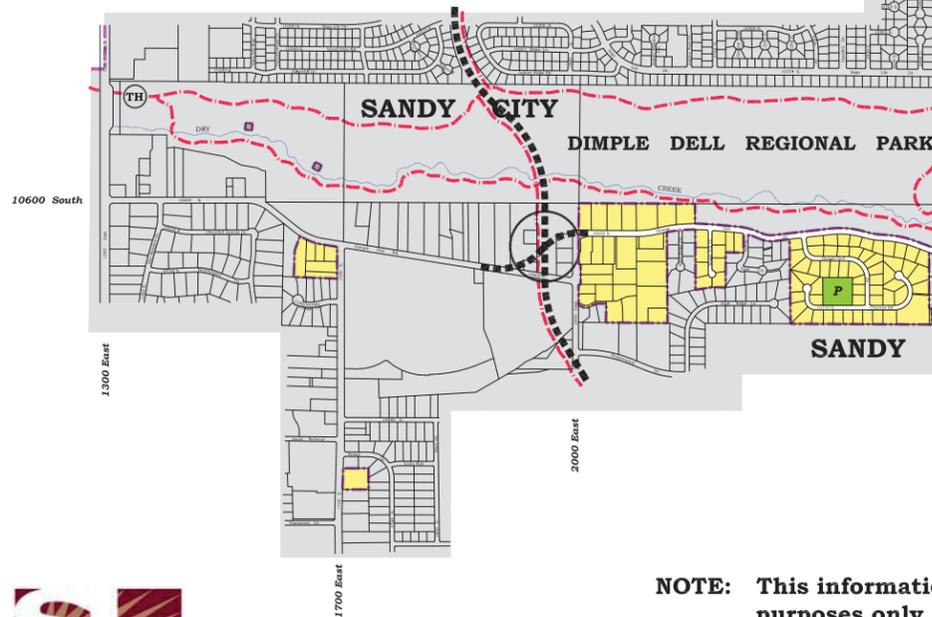
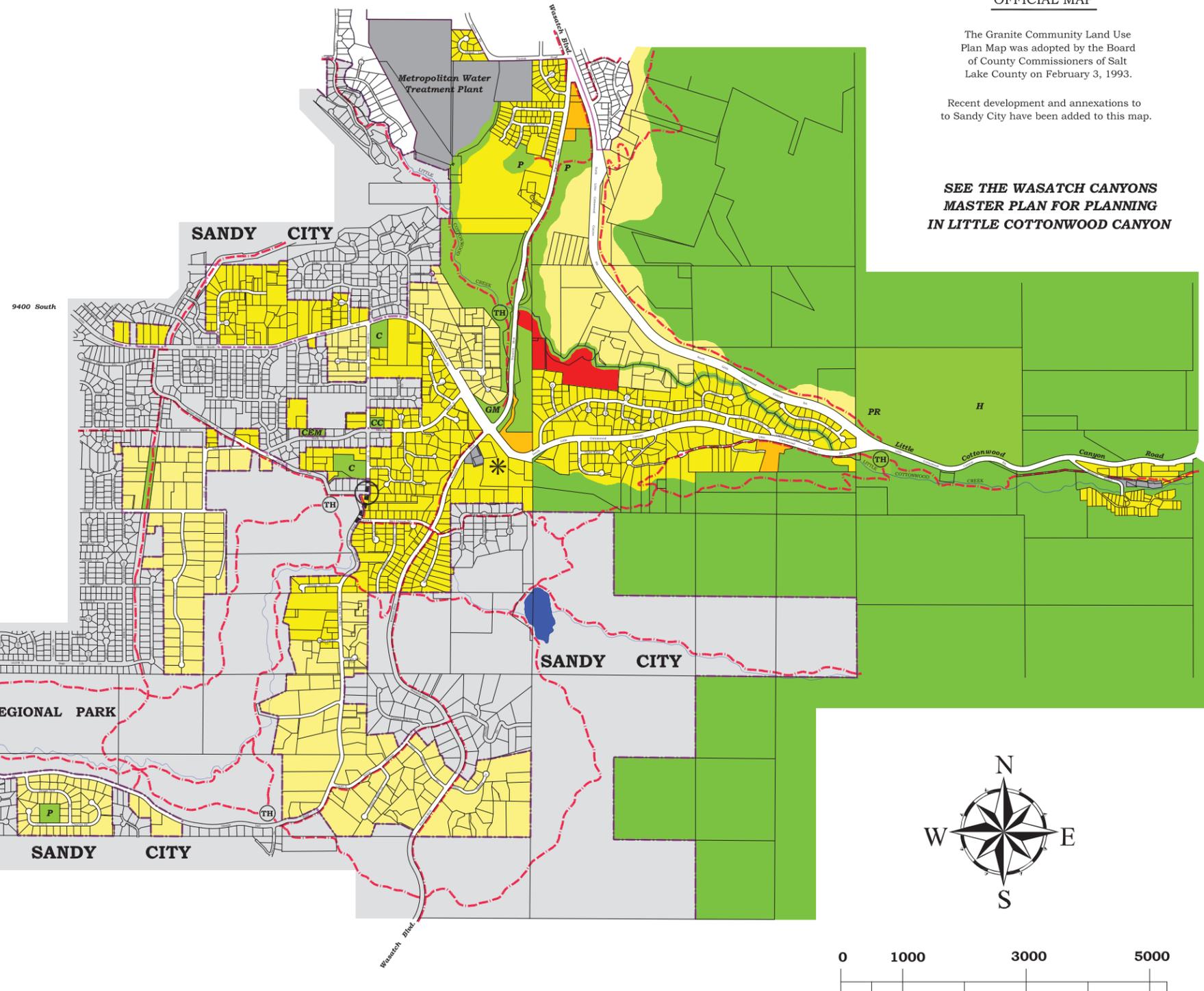
## OFFICIAL MAP

The Granite Community Land Use Plan Map was adopted by the Board of County Commissioners of Salt Lake County on February 3, 1993.

Recent development and annexations to Sandy City have been added to this map.

**SEE THE WASATCH CANYONS  
MASTER PLAN FOR PLANNING  
IN LITTLE COTTONWOOD CANYON**

	<b>RESIDENTIAL - Primarily Low Density Estates</b> Less than 2 units per acre
	<b>RESIDENTIAL - Primarily Low Density</b> 2 to 4 units per acre
	<b>RESIDENTIAL - Primarily Medium Density</b> 4 to 12 units per acre
	<b>UTILITY - Providing a Public Service</b>
	<b>FOREST SERVICE / OPEN SPACE</b> Possible Limited Residential
	<b>PUBLIC FACILITY / PARK / CHURCH</b> CEM - Cemetery, PR - Park & Ride Lot, P - Park, H - Historical Site, TH - Trail Head, C - Church, CC - Community Center, * - Special Use Museum, GM - Geologic Viewing Area
	<b>SPECIAL USE COMMERCIAL</b> Possible Limited Residential
	Intersection Realignment & Improvement
	Road Extension or Connection
	Trails - Existing & Proposed



**NOTE:** This information is for general planning purposes only. It is not intended to be used for site specific data.



**GRANITE COMMUNITY  
STANDARD DENSITY ALLOWED IN RESIDENTIAL ZONES**

ZONE -----	MINIMUM LOT SIZE (SQ.FT.) -----	GROSS UNITS PER ACRE -----	NET UNITS PER ACRE (-ROADS) -----
<b>Low Density Residential</b> -----			
R-1-43	43,000	1.00	0.75
R-1-21	21,000	2.00	1.50
R-1-15	15,000	2.70	2.18
R-1-10	10,000	4.35	3.29
R-1-8	8,000	5.44	4.08
A-1 (sf)	10,000	4.35	3.29
A-2	43,000	1.00	0.75
F-1	43,000	1.00	0.75
<b>Medium Density Residential</b> -----			
R-2-10	10,000	8.70	6.58
A-1 (dp)	10,000	8.70	6.58
<b>High Density Residential</b> -----			
RM	(Determined by the Planning Commission)		

**Figure 22**

The table describes density limits for various residential zones in the Granite Community. The Granite Plan encourages basically low-density single family homes (1/3 acre or larger lots).

Source: Salt Lake County Zoning Ordinance.









