

SAN JUAN REGIONAL PLANNING COMMISSION
AGENDA
September 16, 2025
San Juan County Courthouse

San Juan Regional Planning Commission Meetings shall be conducted in a hybrid virtual/in-person format. All persons including Board Members, Staff, Applicants and interested Public may meet in person or via Zoom. The information necessary to connect to the public meeting is listed below.

- 7:00 PM Roll Call of Members and Minutes
Minutes of August 19, 2025**
- 7:10 PM Joy Global Underground Mining LLC
Improvement Permit Application for the Demolition of the Lead Carbonate
Mill, Lead Carbonate Mill Site USMS 20726**
- 7:30 PM Cascade Meadows LLC
Subdivision Application for the Construction of up to 72 units on Tract A1
and B1 Cascade Village**
- 8:00 PM Lloyd and Ester Swartz
Overland Estates Preliminary Subdivision Application**

OTHER:

Times listed above are approximate.

Discussion of an agenda item may occur before or after the assigned time.

ADJOURN: Next Regular Meeting – 7:00 PM, Tuesday August 19, 2025

Join Zoom Meeting

<https://zoom.us/j/92136473203>

Meeting ID: 921 3647 3203

One tap mobile

+16699006833,,92136473203# US (San Jose)

+12532158782,,92136473203# US (Tacoma)

Dial by your location

+1 669 900 6833 US (San Jose)

+1 253 215 8782 US (Tacoma)

Meeting ID: 921 3647 3203

The San Juan Regional Planning Commission met virtually via zoom and in the Commissioner meeting room on Aug 19, 2025, at 7:03 PM with roll call showing the following attendance

Bev Rich	X	Ken Safranski	X
Jim Weller	X	Melissa Childs	Absent
Lindsey Halvorson	X	Austin Lashley	X
Jim Harper	X		

Present via Zoom were Bev Rich, Lindsey Halvorson, Jim Harper, Christopher Langford, Amanda. Present in the San Juan County Meeting Room were William Tookey, Land Use Administrator and Chris Tookey, Secretary, along with Jim Weller, Ken Safranski, Austin Lashley, Lisa Adair, Bill Jones, Mike Luther, Joel and Emily Stalo, Seth Weber and Steve Leisle.

MINUTES: July 15, 2025

Ken Safranski moved to approve the minutes. Austin Lashley seconded the motion. The motion passed unanimously with a show of hands.

**COUNTY IMPROVEMENT PERMIT PRELIMINARY/FINAL PLAN
APPLICATION TO CONSTRUCT AND OPERATE A 3-SITE CAMPGROUND
WITH ASSOCIATED UTILITIES AND IMPROVEMENTS LOCATED AT 1208
LIME CREEK ROAD. ACCESS TO THE SITE WILL BE FROM LIME CREEK
ROAD CR1.**

The applicant Christopher Langford was present via Zoom.

After presentations from William Tookey, Land Use Administrator, and the background of the project, a period of Public Hearing was called with no comments. After the Public Hearing closed, the Planning Commission members talked about their concerns. Ken Safranski then made a motion to recommend to the San Juan County Commissioners that you approve the proposed County Improvement Permit Application Preliminary/Final Plan with the 10 conditions. Jim Harper seconded the motion; A roll call vote was called and the motion passed unanimously with a yes vote.

A letter was sent to the San Juan County Commissioners for their meeting on September 10.

**COUNTY IMPROVEMENT PERMIT AMENDMENT, SKETCH PLAN FOR
THE DEVELOPMENT OF A DRIVEWAY EXTENSION. THE PROPERTY IS
LOCATED AT 1301 COUNTY ROAD 2 AND WILL BE ACCESSEDBY CR2.**

The property is currently owned by Joel and Emily Stalo, who were present in the Commissioner's Room to answer questions.

After discussion of the driveway project from William Tookey, Land Use Administrator and the applicant. A period of Public Hearing was called with no comments. After the

Public Hearing closed, Ken Safranski made a motion to recommend to the San Juan County Commissioners that you approve the proposed County Improvement Permit Application Sketch Plan with the 11 conditions as recommended in the staff report. Jim Harper seconded the motion. A roll call vote was called and the motion passed. A letter was sent to the San Juan County Commissioners for their meeting on September 10.

COUNTY IMPROVEMENT PERMIT APPLICATION SKETCH PLAN FOR DEVELOPMENT OF A HYDROELECTRIC SYSTEM AND TURBINE SHED NEAR ARRASTRA CREEK TO PROVIDE ELECTRICITY TO MIKE LUTHER'S CURRENT CABIN. THE PROPERTY IS LOCATED IN ARRASTRA GULCH AND WILL BE ACCESSED BY CR 55.

Mike Luther the applicant and owner was present in the Commissioners Room to answer questions.

After discussion and background of the hydroelectric system and presentations project was presented by William Tookey, Land Use Administrator and the applicant. A period of Public Hearing was called with a comment in favor of how effective small hydroelectric plants are. After the Public Hearing closed, the Planning Commission members talked about their support for this proposed improvement. Jim Harper made a motion to recommend to the San Juan County Commissioners that you approve the proposed County Improvement Permit Application Sketch Plan with the 9 conditions as recommended in the staff report. Lyndsey Halvorson seconded the motion. A roll call vote was called and the motion passed unanimously with a yes vote. A letter was sent to the San Juan County Commissioners for their meeting on August 13.

COUNTY IMPROVEMENT PERMIT APPLICATION SKETCH PLAN FOR THE HISTORIC PRESERVATION AND RESIDENTIAL USE OF THE TRAM HOUSE LOCATED ON THE BIG GIANT 1156A AND THE CONTENTION 14320. THE PROPERTY IS LOCATED NEAR GOLD LAKE IN LITTLE GIANT BASIN AND WILL BE ASSESSED BY COUNTY ROAD 21A.

The property is currently owned by Larry Zastrow ZLMLLC. The applicant has a contract to purchase the property. Discussion and background of the project from William Tookey, Land Use Administrator and the applicant. A Public Hearing was called with lengthy comments in favor of how effective preservation of historic structures. After the Public Hearing closed, the Planning Commission members talked about their support for this proposed preservation improvement. Ken Safranski then made a motion to recommend to the San Juan County Commissioners that you approve the County proposed Improvement Permit Sketch Plan Application with the 13 conditions. Jim Harper seconded the motion. The roll call vote passed unanimously. The motion passed.

A letter was sent to the San Juan County Commissioners for their meeting on August 13.

San Juan Regional Planning Commission
August 19, 2025

The meeting was adjourned at 9:12 PM.

Respectfully Submitted,

Christine M. Tookey, Secretary

MEMORANDUM

September 16, 2025

TO: San Juan Regional Planning Commission

FR: William A. Tookey

RE: Lead Carbonate Mill Claim USMS 20726

Joy Global Underground Mining LLC f/k/a Joy Manufacturing Company has submitted an Improvement Permit application for the demolition of the Lead Carbonate Mill structure. The property is located in Gladstone and will be accessed by Country Road 110.

The applicant plans to demolish the structure due to liability concerns.

Section 2 – 102 APPLICABILITY states that the demolition or dismantling of any structure requires a Use Permit or Improvement permit.

San Juan County Master Plan, Chapter 9 Vision states that:

Heritage. Thanks to the continued efforts to conserve historic sites, structures, and resources in town, the county, and in the backcountry, San Juan County and Silverton are national role models for preserving historic structures, landscapes, archives and icons. Goal HA-3 Support and promote the efforts of the San Juan County Historical Society and other entities and individuals to preserve historic/cultural resources

The property is currently owned by Joy Global Underground Mining, and the taxes are current.

The application fees have been paid.

The adjacent landowners have been notified via US Mail of the proposed Improvement Permit application. The list of adjacent property owners and copy of the letter are included.

The property is located in the **Mountain Zoning District and Historic Preservation Overlay District**. requires a minimum parcel or lot area of 5 acres with a setback of 20 feet from public lands and 30 feet from private property lines. The property is 9.43 acres. It appears that the improvements exceed the setback requirements.

The applicant has substantially met the requirements for application submittals as required by 3-102 Requirements for Uses and Improvements.

The proposed improvements should have minimal impact on the adjoining properties. Adjoining property owners have been notified and at this time I have not received any comments from them.

As reflected in the Master Plan, San Juan County has strongly supported the preservation of historic structures and our mining heritage. Recognizing that the remains of the building is in poor condition, it still provides a glimpse to the past.

While it may not be practical for the applicant to preserve the structure they could explore strategies with the San Juan Historical Society for the stabilization and preservation of the structure. This could include grant funding and possibly donation of property to an organization that would be capable of preserving the structure.

The applicant could also preserve the history of the structure by contracting with a firm to provide a archaeological study and report of the site.

Additionally the applicant could install a sign with pictures of the Lead Carbonate and a short history.

The Planning Commission has the option to recommend approval of the application as submitted, approval with conditions, denial of the application or to table the decision until additional information is provided.

Should the Planning Commission choose to recommend approval they should do so with the conditions listed below:

1. All work on the Lead Carbonate Mill Sites shall fully and completely comply with, and strictly conform to, all terms, conditions and restrictions contained in the San Juan County Zoning and Land Use Regulation, all permits issued, and all applicable State and Federal rules and regulations.
2. That the applicant consults with the San Juan County Historical Society concerning possible alternatives to demolition.
3. That the applicant contract with an archeologist to provide and report to preserve the history of the structure.
4. That an archeologist is on site during the demolition and that any historic artifacts discovered during the demolition be donated to the Historical Society.
5. That the applicant install an informational sign about the history of the Lead Carbonate Mill that is reviewed and approved by the Historical Society.
6. Any other conditions that the Planning Commission deem necessary.

Should the Planning Commission recommend denial they should do so on the grounds that it is located in the Historic Overlay District and that it is contrary to the San Juan County Master Plan.

September 16, 2025

To: San Juan Regional Planning Commission

Fr: William A. Tookey, Land Use Administrator

Re: Cascade Meadows Subdivision Sketch Plan

Cascade Meadows LLC, 665 Glacier Drive, Unit 5, Durango, CO 81301 has submitted a Subdivision Sketch Plan Application for the development of the Cascade Meadow Subdivision located on Tract A1 and B1.

Tract A1 is owned by Cascade Meadows LLC and Tract B1 is owned by Cascade Hospitality, LLC.

The applicant plans to construct up to 72 units on Tract A1 and B1 of Cascade Village Subdivision. The Master Plan approval allowed for 170 units to be constructed in Tract A1. There was no development approved for Tract B1 in part because it is primarily a wetland. The applicant has provided a Wetlands Report from SME they are working with the Army Corps of Engineers for permitting. They likely use a wetlands bank to replace any disturbed wetlands.

The proposed units will be three-story town homes similar to the units being constructed across from Purgatory. They will be approximately 2000 sq. ft. with a garage and driveway.

They plan to use colors and textures so that the units blend with the current units at Cascade Village. They are developing them to be in compliance with the new Wildfire Resilience Code that the State has adopted.

Trautner Geotech LLC has provided a Geologic Hazards Assessment for the property. There is the potential for rockfall and debris flow off the hillside behind the units and plan on constructing a rock fence.

The Durango Fire Protection District has reviewed the plans and has provided comments to the applicant. The applicant will be required to comply with the comments of the DFPD.

Access to the site will be from US Highway 550 using the current access to Cascade Village and developing a secondary access from the southern end of Cascade Village. A State Highway Access Permit Application has been submitted.

When the Master Plan was approved it was determined that the School District would be paid a fee rather than dedicating 10% of the land for public purpose. The applicant has recognized that they will need to enter into an agreement with the School District to include a per unit fee.

The Subdivision Regulations require that a Residential Subdivision designate 10% of the housing units constructed to be permanently affordable to and occupied by low and moderate income households. For purposes of this Section, a low to moderate income is defined as a household with an income not exceeding eighty percent (80%) of the San Juan County median income, adjusted by family size. Affordable housing units are required to be located within the approved subdivision unless approved by the County.

In lieu of providing the affordable housing on site the applicant, with County approval, may meet these requirements with a housing assistance fee sufficient to defray the cost of providing permanent low and moderate income housing off site. For a 72 unit subdivision the applicant would be required to develop 7 affordable units. The applicant has stated that they would prefer to pay a fee in lieu of. Based upon or most recent subdivision that would require a fee of 10% of the sale price for each Town home sold. The fee would be paid to the County at closing and would be earmarked to be used only for workforce and affordable housing.

An Improvement Permit for Road and Utility extensions has been previously submitted to the Planner as part of the original Master Plan approval.

The Planning Commission may recommend to the Board of County Commissioners that the application be approved as submitted, approved with conditions, delayed for additional information or denied. If the Planning Commission chooses to recommend approval they should do so with the following conditions:

1. All improvements to the Cascade Meadows Subdivision shall fully and completely comply with, and strictly conform to, all terms, conditions and restrictions contained in the San Juan County Zoning and Land Use Regulation and all permits issued.
2. All improvements to the Cascade Meadows Subdivision shall fully and completely comply with and strictly conform to all applicable State and Federal rules and regulations including wetlands.
3. That the applicant receives a Colorado Department of Transportation Access Permit.
4. That any disturbance to wetlands be properly permitted and adequately remedied.
5. The applicant shall fully and completely comply with the San Juan County Zoning and Land Use Regulation 4-110 Design and Development Standards for all Improvement and Use Permits.
6. That the subdivision is in compliance with Section 7-120 Air Quality as it pertains to wood burning devices. That the applicant acknowledges that emergency services will not be available in a timely manner and perhaps not at all.
7. That the applicant negotiate a per unit fee with the Silverton Public School District.

8. That the applicant enter into an agreement with San Juan County for a Fee in Lieu of for Affordable Housing



Durango Fire Protection District

Division of the Fire Marshal

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Status: General Comment set by KakavasSE on 4/12/2025 at 11:30:13 AM

Subject: Access - Grade

Author: KakavasSE

Date: 4/12/2025 11:26:57 AM

Page Label: [1] 2-1 Emergency Access Road

Color: ■

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Space:

The grade for required fire apparatus access road shall not exceed 10% unless approved by the fire code official per IFC 503.2.7, D103.2

Status: General Comment set by KakavasSE on 4/12/2025 at 11:30:16 AM

Subject: Access - Radius

Author: KakavasSE

Date: 4/12/2025 11:27:06 AM

Page Label: [1] 2-1 Emergency Access Road

Color: ■

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Space:

The turning radius for emergency apparatus roads is 30-feet inside radius as approved by the fire code official. IFC 503.2.4, D103.3

Status: General Comment set by KakavasSE on 4/12/2025 at 11:30:21 AM

Subject: Access - Templates

Author: KakavasSE

Date: 4/12/2025 11:27:22 AM

Page Label: [1] 2-1 Emergency Access Road

Color: ■

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Space:

Note: Fire District will provide turning templates upon request.

Status: General Comment set by KakavasSE on 4/12/2025 at 11:30:29 AM

Subject: Access - Width and Clearance

Author: KakavasSE

Date: 4/12/2025 11:27:43 AM

Page Label: [1] 2-1 Emergency Access Road

Color: ■

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Space:

The minimum dimensions for unobstructed access road width not less than 20 feet and a vertical clearance of not less than 13 feet 6 inches as approved by the fire code official. IFC 503.2

Status: General Comment set by KakavasSE on 4/12/2025 at 11:30:32 AM

Subject: Access road - front of hydrant

Author: KakavasSE

Date: 4/12/2025 11:27:54 AM

Page Label: [1] 2-1 Emergency Access Road

Color: ■

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Space:

Access road width with a hydrant shall be 26 ft wide exclusive of shoulders. When an approved access road is 20-feet wide there shall be a pullout section adjacent to the fire hydrant. At that point the access road shall be 26-feet wide for 30-feet on both sides of the hydrant for an overall distance of 60-feet. IFC D103.1



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Fire dept comments_Meadowview Rd 4-12-2025

General Comment (17)



Status: General Comment set by KakavasSE on 4/12/2025 at 11:30:00 AM

Subject: 1-Major Site Review - County

Author: KakavasSE

Date: 4/12/2025 11:25:56 AM

Page Label: 1

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A major site review has been conducted. The major site review of the preliminary plat is for planning, boundaries, access roads, and easements.

Any questions or comments regarding the review please contact me at 970-382-6026 or shane.kakavas@durangofire.org

We look forward to working with everyone on this project

Status: General Comment set by KakavasSE on 4/12/2025 at 11:30:36 AM

Subject: Access - All Weather

Author: KakavasSE

Date: 4/12/2025 11:28:24 AM

Page Label: [1] 2-1 Emergency Access Road

Color: ■

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Space:

Required fire apparatus access road(s) shall be an all-weather driving surface such as asphalt, concrete, chip seal, or similar materials and be able to support 75,000 lbs. IFC D102.1

Status: General Comment set by KakavasSE on 4/12/2025 at 11:30:24 AM

Subject: Access - Cul-de-sac

Author: KakavasSE

Date: 4/12/2025 11:27:33 AM

Page Label: [1] 2-1 Emergency Access Road

Color: ■

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Space:

The turn-around cul-de-sac shall have a minimum 30-foot inside radius and 96-feet in diameter. Hammerheads, Y or other designs shall be approved by the fire code official, IFC 503.2.4

Status: General Comment set by KakavasSE on 4/12/2025 at 11:30:41 AM

Subject: Access - Culvert

Author: KakavasSE

Date: 4/12/2025 11:28:51 AM

Page Label: [1] 2-1 Emergency Access Road

Color: ■

Layer:

Space:

Any culverts crossing under access roads shall support 75,000 lbs

Status: General Comment set by KakavasSE on 4/12/2025 at 11:30:09 AM

Subject: Access - Dead-end

Author: KakavasSE

Date: 4/12/2025 11:26:49 AM

Page Label: [1] 2-1 Emergency Access Road

Color: ■

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Space:

Dead-end fire apparatus access road(s) more than 150 feet in length require a turn-around approved by the fire code official. IFC D103.4



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Division of the Fire Marshal

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Status: General Comment set by KakavasSE on 4/12/2025 at

9:58:55 AM

Subject: Knox Padlock Model 3781

Author: KakavasSE

Date: 4/12/2025 9:57:30 AM

Page Label: [1] 2-1 Emergency Access Road

Color: ■

Layer:

Space:



Status: General Comment set by KakavasSE on 4/12/2025 at

9:58:49 AM

Subject: Secondary access

Author: KakavasSE

Date: 4/12/2025 9:58:38 AM

Page Label: [1] 2-1 Emergency Access Road

Color: ■

Layer:

Space:

Secondary access road to be maintained year-round. Do not pile snow in front of the gate. Secondary access gate to be equipped with property manager's lock to ensure road is clear, the other shackle lock, Model 3781 can be purchased from Knox.com for fire department use.



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Status: General Comment set by KakavasSE on 4/12/2025 at 11:31:09 AM

Subject: Existing hydrants

Author: KakavasSE

Date: 4/12/2025 11:31:04 AM

Page Label: [3] 2-3 Meadowview North Plan and Profile

Color: ■

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From what our office has been told this fire hydrant is currently out of service and has been for some time.

Please repair summer 2025, thank you.



Status: General Comment set by KakavasSE on 4/12/2025 at 11:31:17 AM

Subject: Fire Flow - Hydrants

Author: KakavasSE

Date: 4/12/2025 10:12:15 AM

Page Label: [3] 2-3 Meadowview North Plan and Profile

Color: ■

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Fire flow is required per the adopted fire code for structures and is determined by overall size and construction type of structures. Fire flow to be provided with the required amount of fire hydrants including duration as indicated within the International Fire Code.

Actual location(s) of hydrant(s) have not been finalized as part of this review.

Hydrants to be supplied with a minimum 6 inch central water supply line.



Status: General Comment set by KakavasSE on 4/12/2025 at 11:31:23 AM

Subject: Hydrant - Fire Flow

Author: KakavasSE

Date: 4/12/2025 10:12:23 AM

Page Label: [3] 2-3 Meadowview North Plan and Profile

Color: ■

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A fire flow test and report to be provided to our office of the new and surrounding fire hydrants to ensure the fire flow requirement is available prior to arrival of any combustible materials for the site including vertical construction. IFC 507 and 507.1



Status: General Comment set by KakavasSE on 4/12/2025 at 11:30:46 AM

Subject: Hydrant-Proposed

Author: KakavasSE

Date: 4/12/2025 10:01:19 AM

Page Label: [2] 2-2 Meadowview North Plan and Profile

Color: ■

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Hydrants to be "RED" and equipped with a 5" Storz and (2) 2-1/2" NHT connections and in-line with with the local water purveyor's equipment requirements. Preferred hydrants, Mueller-Super Centurion or Kennedy as it meets the fire departments requirements.



Status: General Comment set by KakavasSE on 4/12/2025 at 11:31:13 AM

Subject: Hydrants at or above 7,000 feet

Author: KakavasSE

Date: 4/12/2025 10:12:35 AM

Page Label: [3] 2-3 Meadowview North Plan and Profile

Color: ■

Layer:

Space:

Hydrants located at or above 7,000 feet requires an eighteen inch(18") extension and hydrant flag.



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Fire dept comments #2_Meadowview Rd 8-4-2025

KakavasSE (4)

Status: General Comments set by KakavasSE on 8/4/2025 at 2:25:36 PM

Subject: 1 - Preliminary Development Review

Author: KakavasSE

Date: 8/4/2025 2:25:22 PM

Page Label: [1] 1-1 Overall Grading Plan

Color: ■

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Space:

This preliminary development review does not include a complete fire code plan review for construction as the information is limited.

Any questions or comments regarding the review please contact me at 970-382-6026 or shane.kakavas@durangofire.org

We look forward to working with everyone on this project

Status: Required Element set by KakavasSE on 8/4/2025 at 2:25:40 PM

Subject: Hydrant - Fire Flow

Author: KakavasSE

Date: 8/4/2025 2:24:34 PM

Page Label: [1] 1-1 Overall Grading Plan

Color: ■

Layer:

Space:

A fire flow test and report to be provided to our office of the new and surrounding fire hydrants to ensure the fire flow requirement is available prior to arrival of any combustible materials for the site including vertical construction. IFC 507 and 507.1

Contact our office as the fire hydrants are installed so we witness the flow tests and verify actual locations of each fire hydrant.

Status: Required Element set by KakavasSE on 8/4/2025 at 2:25:44 PM

Subject: Secondary access

Author: KakavasSE

Date: 8/4/2025 2:24:39 PM

Page Label: [1] 1-1 Overall Grading Plan

Color: ■

Layer:

Space:

Secondary access road to be maintained year-round. Do not pile snow in front of the gate. Secondary access gate to be equipped with property manager's lock to ensure road is clear, the other shackle lock, Model 3781 can be purchased from Knox.com for fire department use.

Contact our office to inspect the gate location. Also contact our office when the Knox padlock arrives and is ready to be installed on the access gate.

Status: General Comments set by KakavasSE on 8/4/2025 at 2:06:40 PM

Subject: Occupancy

Author: KakavasSE

Date: 8/4/2025 2:15:36 PM

Page Label: A-102 - FLOOR PLAN

Color: ■

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Space:

The following conceptual architectural, sectional, and site plans were not reviewed or approved for construction. Should the Building Code Official determine the structure(s) are multi-family units then the structure shall be equipped with a fire suppression system.

Sheets AS-101, A-101, A-102, A-401, and A-402 only viewed, not reviewed.



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Fire dept comments #2_Meadowview Rd 8-4-2025

KakavasSE (4)

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Status: General Comments set by KakavasSE on 8/4/2025 at 2:06:40 PM

Subject: Occupancy

Author: KakavasSE

Date: 8/4/2025 2:15:36 PM

Page Label: A-102 - FLOOR PLAN

Color: ■

Layer:

Space:

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Sheets AS-101, A-101, A-102, A-401, and A-402 only viewed, not reviewed.



ARCHITECTURE & ENGINEERING

08-07-2025

CASCADE MEADOWS SUBDIVISION

To: Shane Kakavasse
Durango Fire Protection District


Shane,

See our responses to the comments in the 08-04-2025 Review of the Cascade Meadows Submittal. overall for Cascade Village, which is required per IFC and DFPD.

1. Noted.
2. Fire flow test will be performed once fire line is installed.
3. Maintenance of the road will be provided year round.
4. Noted. All residential units will be sprinklered.

Please review and let us know if you have any questions.

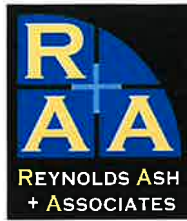
Thank you,



Lauren Davis, AIA, AICP

San Juan County, Colorado
Application for Improvement Permit

		APPROVAL CHECKLIST		Initial	Date
Applicant	Name	Lauren Davis, Architect			
	Address	564 E. 2nd Ave. Suite 201			
		Durango, CO 81301 970-259-7494	Phone		
Owner	Name	Cascade Meadows LLC			
	Address	665 Glacier Drive, Unit 5			
		Durango, CO 81301 704-362-2400	Phone		
Contractor	Name				
	Address				
			Phone		
Legal Description of Property:		Road System Relationship		LD	
See attached survey and map. Tract A-1 and Tract B-1 to be updated with a new parcel and build out. S13, T39N, R9W N.M.P.M. San Juan County Colorado Township N, Range W, Section		Zoning Compatibility		LD	
		State Mining Permit		NA	
		Owner Notification		LD	
		Avalanche Hazard		NA	
		Geologic Hazard		NA	
		Floodplain Hazard		NA	
		Wildfire Hazard		NA	
		Mineral Resource Impact		NA	
		Wildlife Impact		NA	
		Historic Site Impact		NA	
Nature of Improvement Planned:		Watershed Gearance		NA	
Proposed updated subdivision					
		County Building Inspector			
		Building Permit		NA	
		State Electrical Inspector			
Land Use Zone: PD		Electrical Permit			
Applicant Signature Lauren Davis, RA+A		San Juan Basin Health Unit			
		Sewage Disposal: Test			
		Design			
Date Application Requested			Central Sewage Collection	LD	
Date Submitted for Permit			State Division of Water Resources		
Date Permit Issued			Adequate Water Source	LD	
Date Permit Denied			Well Permit		
Reason for Denial		Central Water Distribution			
		U.S. Forest Service/BLM			
		Access Approval		NA	
		State Division of Highways			
Receipt		FEE PAYMENT		Amount	Date
	Application				
	Building Permit				
	Subdivision/PLD				
	Hearing Notice				
		Driveway Permit		LD, IP	
		Subdivision Variance			
		Subdivision Approval		LD, IP	
		PLD Approval			



ARCHITECTURE & ENGINEERING

07-20-2025

CASCADE MEADOWS SUBDIVISION
For Application for Improvement Permit

To: Willy Tookey
San Juan County Administrator
970-387-5766
San Juan County, Colorado

Willy,

Reynolds Ash and Associates (RAA) is pleased to submit a subdivision package for your review for the proposed Cascade Meadows Subdivision.

Completed Application (RAA)
Project Narrative (RAA)
Proposed Layout of Residential Units, driveways and overall improvements (RAA)
Proposed Grading Plan and Design (CHC)
Drainage Plan - pending (CHC)
Survey (Moreno)
Preliminary Plat (Moreno)
Geohazards including avalanche map and rock fall and debris flow report (CHC/Trautner)
Soils Report (Trautner)
Ownership Info (Cascade Meadows, LLC)
Statement of Utility Capacity (Dave Marsa, Grizzly Peak Water Sales and Distribution, LLC)
Wetlands Statement (SME)

Project Overview

The proposed subdivision is for the development of a maximum of 72 dwelling units along Meadow View Road. The proposed development is part of the original Master Plan for Cascade Village. The original master plan proposed approximately 170 units for Tract A1/Tract B1 on the southern end of the site.

Original Proposed
Buildout



The design team and owner have analyzed topography, wetlands, soil conditions, traffic and overall market conditions. The site presents numerous challenges with the soil conditions of the wetlands, the steep slope to the west. The proposed package will reduce overall density with a simpler layout of townhomes. The townhomes will line Meadowview Drive. Most of the units will be built on the west side of the road and into the hillside. The others will line the wetlands where the impact is minimal.

The proposed products will be three story townhomes. The design takes advantage of views across the highway and to the mountains on the east. The scale will be similar to the existing townhomes constructed across from Purgatory Resort. Each townhome is approximately 2,000 square feet with a garage and small driveway in front of the unit. The building envelope will include a mix of metal and wood siding. Overhangs, covered decks and awnings will add interest and protection to the buildings. The rooflines will be broken up to help with snow removal, but also to add interest to the envelope.

The proposed project will line the bottom of the tree line and edge of the wetlands. The colors and materials will be darker and contextual to help the proposed subdivision tie into the rest of Cascade Village. The development will not negatively impact the scenic view corridor and will be similar in scale, color and material palette to the rest of the development in this part of the Highway 550 corridor.

The required utilities for the townhomes has been designed and incorporated into the civil package. Water and sewer service lines will serve each unit and tie into an overall main line that runs along Meadowview Dr. Power to each footprint will be provided by LPEA and also run in the utility easement. Communications and fiber will also run along the street and serve each building. The design team has coordinated with the local utility provider to ensure that sewer and water capacity is adequate.

Landscaping for each dwelling unit will be required and help to soften the edges of the buildings and tie into the existing landscape. Landscaping will also include sidewalks that will connect the development back to the south and other trails in the area.

Due to the analysis of rock fall and debris flow, a rock fence is proposed along the backside of the units. The final design of the rock fence will be a deferred submittal but will protect the new townhomes and be integrated into an attractive landscape design. The rock fall fence will also help in defining defensible space on the back side of the units to further protect them and meet the new Wildfire Resilience Code.

The project will trigger a new turn lane on the highway, which will be part of the improvements. The new turn lane is currently being reviewed by CDOT and being designed by SEH Engineers. The highway work will begin when the build out triggers the threshold of trips. An easement has been established between the owner of Cascade Meadows and the adjacent property owner to the south (Ozone Cubed). This agreement was presented in the previous land use improvement application to begin the extension of Meadowview Drive. This easement and new entry off the highway will serve as the main entry to this proposed development. This will provide a second exit overall for Cascade Village, which is required per IFC and DFPD.


General Notes and Considerations for the proposed development:

1. DFPD has reviewed the plans. Comments - Pending
2. Addressing for the parcels will be approved by DFPD and SJC.
3. All improvements will comply with the design and construction recommendations of DFPD.
4. The project will comply with the Wildfire Resiliency Code, per the State of Colorado.
5. A recent survey has been provided and includes all boundary, easements, etc.
6. A map showing Wetlands has been provided. Full impact of wetlands has been calculated and an application has been submitted to the Army Corps of Engineers for Approval. The developer is proposing to mitigate the impact by land banking with the Animas River Wetlands.

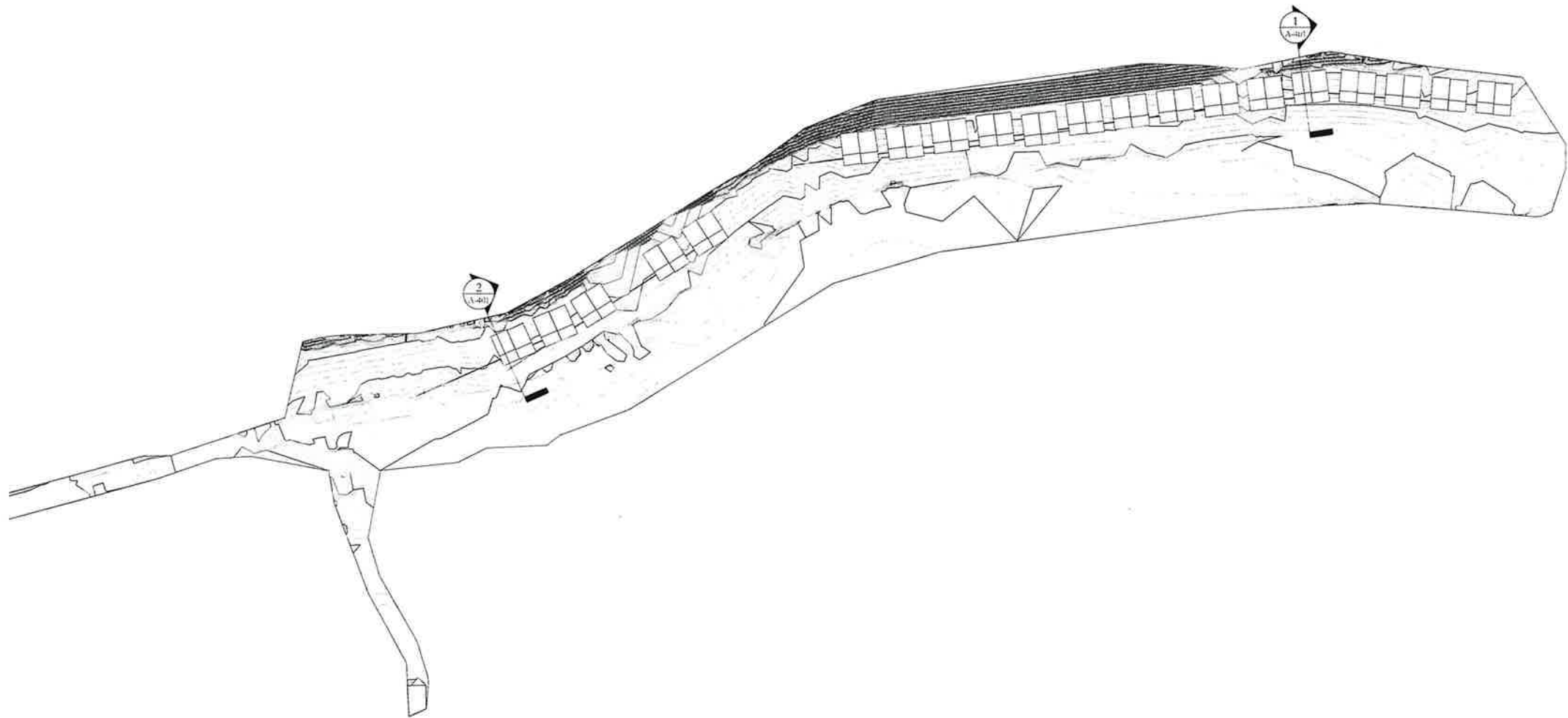
7. All work will be completed within the property lines as shown. No work will occur outside of the property lines.
8. There is not an HOA as part of this development at this time. The developer is working on a Special District. Currently, the public utility will maintain all parts of the development until the Special District is formed.
9. As part of the Building permit application, the applicant shall submit to the County Building Department, a copy of the storm water management plan/permit (SWMP), processed according to the current CDPHE regulations, and shall utilize BMP's specified on the SWMP Plan and or in compliance with CDPHE regulations.
10. A preliminary plat is included in the submittal. A licensed surveyor (Moreno) will file a final as-built plat with San Juan County once construction is complete.
11. The developer and project consultants shall comply with all Conditions of Approval including but not limited to CDPHE, OSHA, UNCC, COOT, San Juan County Land Use Regulations and the Army Corpse of Engineers.
12. The project will coordinate with LPEA for all power to the development.
13. The Applicant shall prepare/submit an agreement for County review regarding the required school fees.
14. Owner agrees to provide fee in lieu for workforce housing

Please review and let us know if you have any questions.
We look forward to working with San Juan County on this project.

Thank you,



Lauren Davis, AIA, AICP



Site Plan
SCALE 1" = 100'-0"

NOT FOR CONSTRUCTION



REYNOLDS ASH
+ ASSOCIATES
ARCHITECTURE
ENGINEERING

CASCADE VILLAGE TOWNHOMES

TBD



AS-101

JOB NO. 24029
ISSUE DATE: 7/2/2025



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+ ASSOCIATES
ARCHITECTURE
ENGINEERING

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CASCADE VILLAGE TOWNHOMES

TBD

JOB NO. 24029

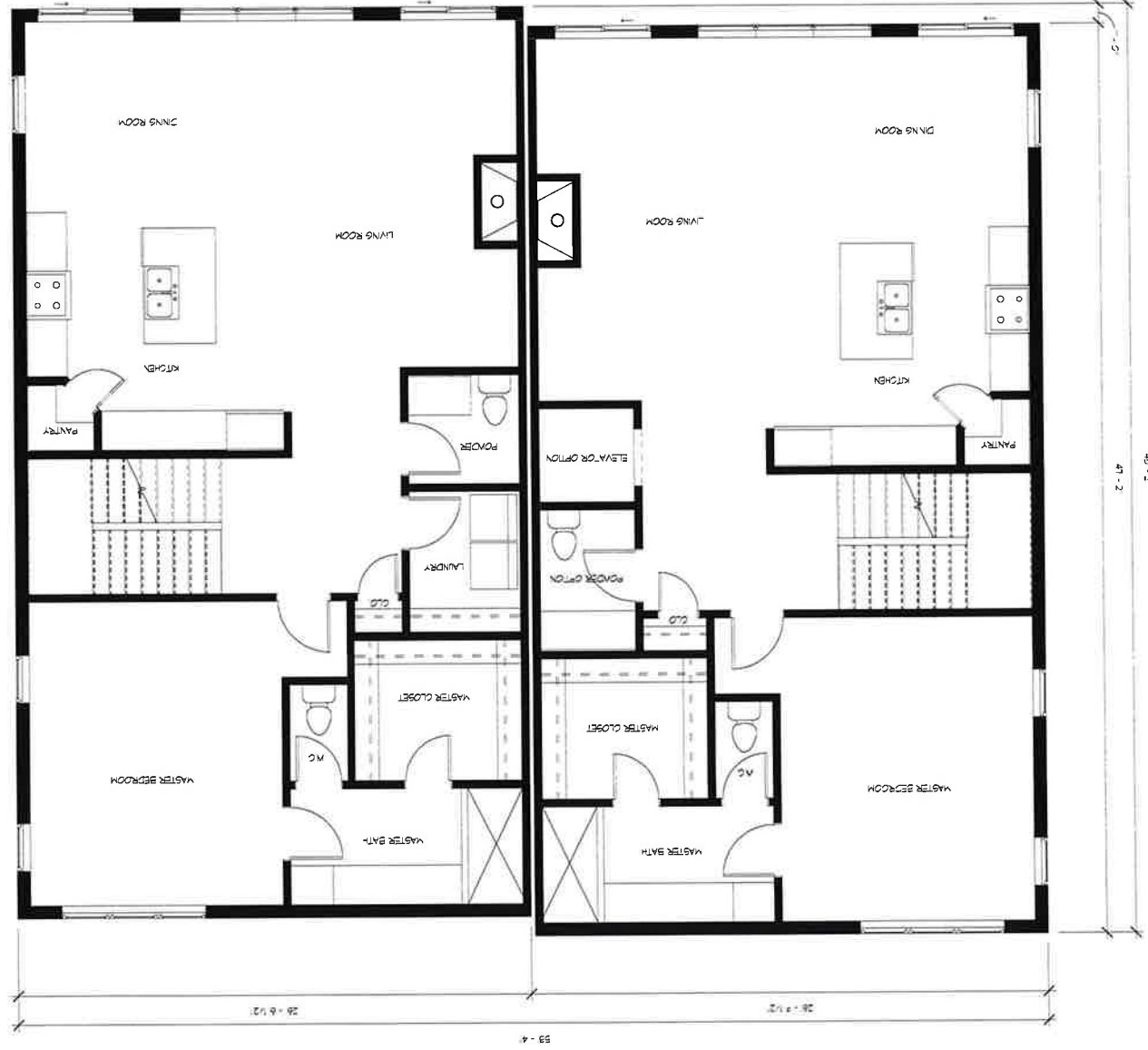
ISSUE DATE: 7/2/2025

A-101

NOT FOR CONSTRUCTION

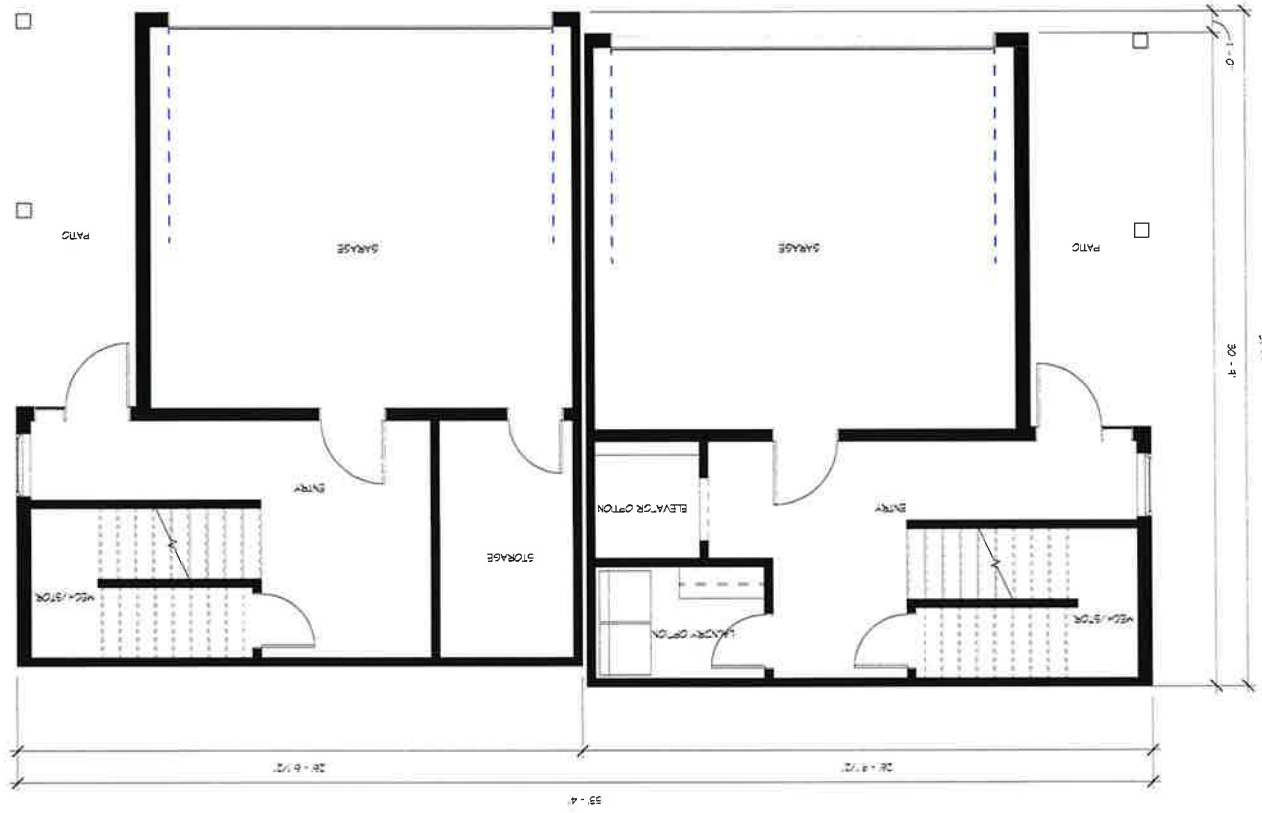
2 MAIN LEVEL

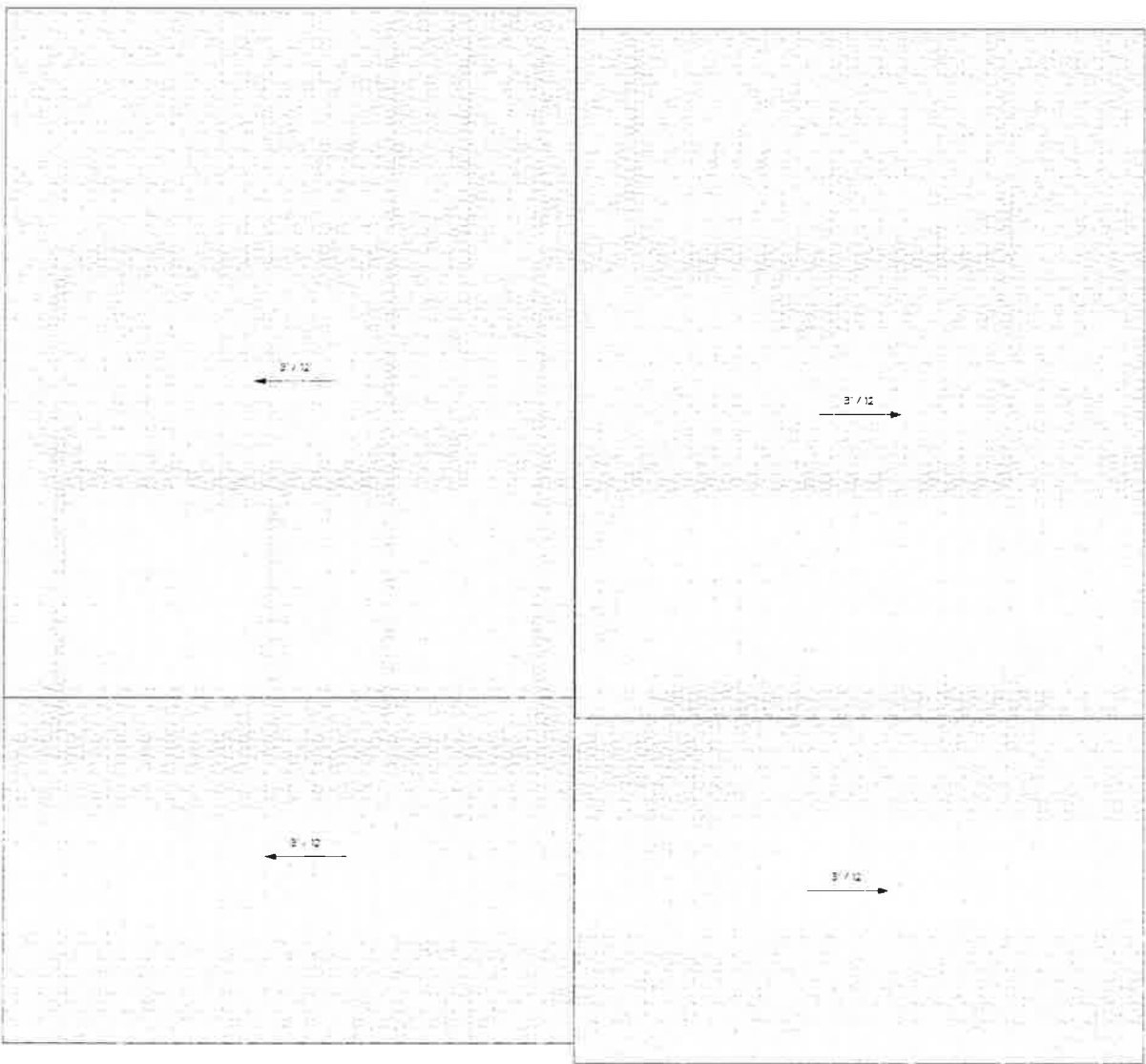
SCALE: 1/4" = 1'-0"



1 LOWER LEVEL

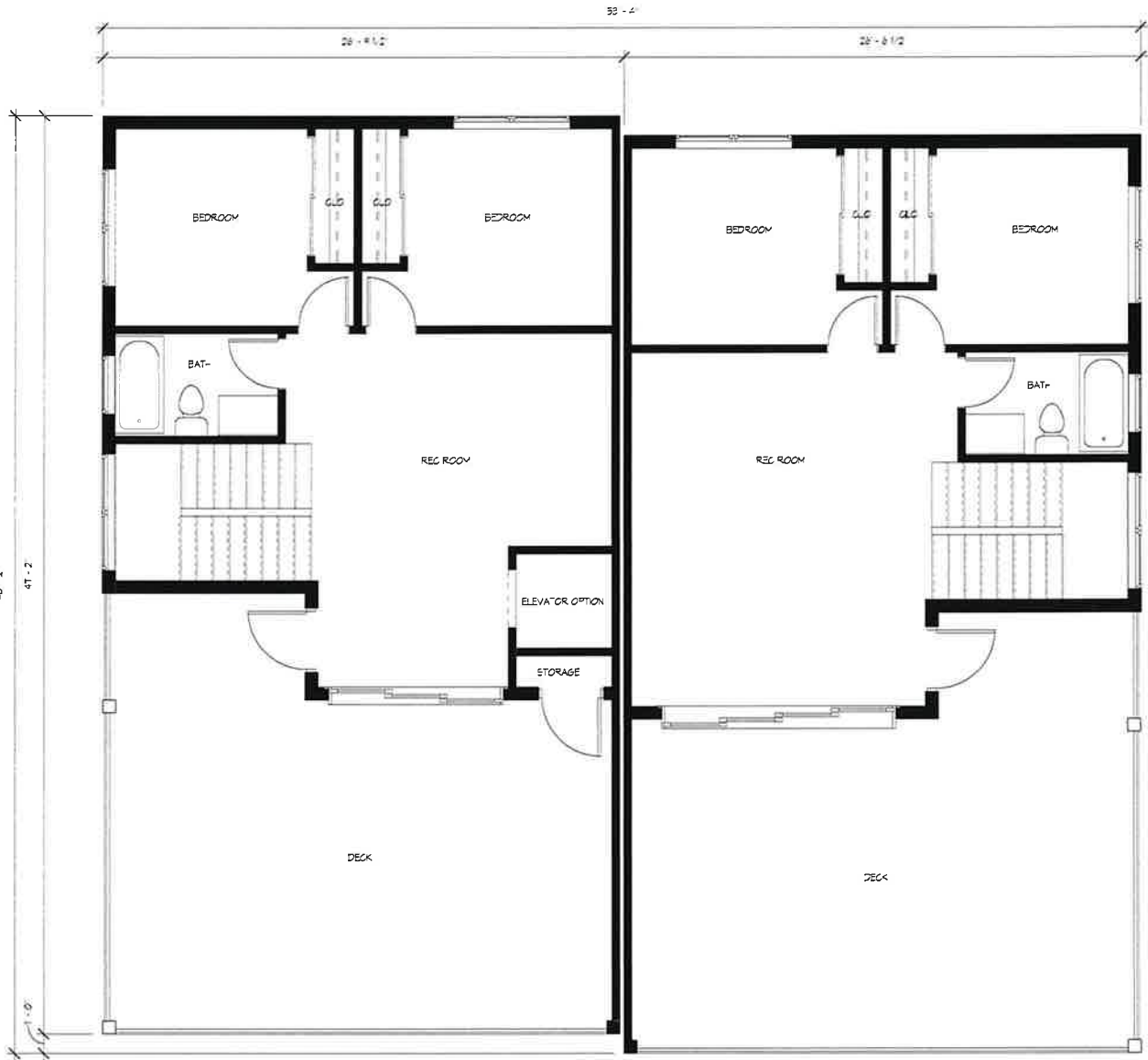
SCALE: 1/4" = 1'-0"





ROOF

SCALE: 1/4" = 1'-0"



3 UPPER LEVEL

SCALE: 1/4" = 1'-0"



NOT FOR CONSTRUCTION



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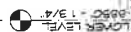
CASCADE VILLAGE TOWNHOMES

TBD

A-102

JOB NO. 24029
ISSUE DATE: 7/2/2025

SCALE 1: 1.25-1.00



SHATING MAN LEVEL
117.4
TO PLATE GARAGE
111.1
111.1 - 111.1

TO BREATHING LEVEL 2
125 - 5 1/2
TO PLATE MAN LEVEL
122 - 2 1/8

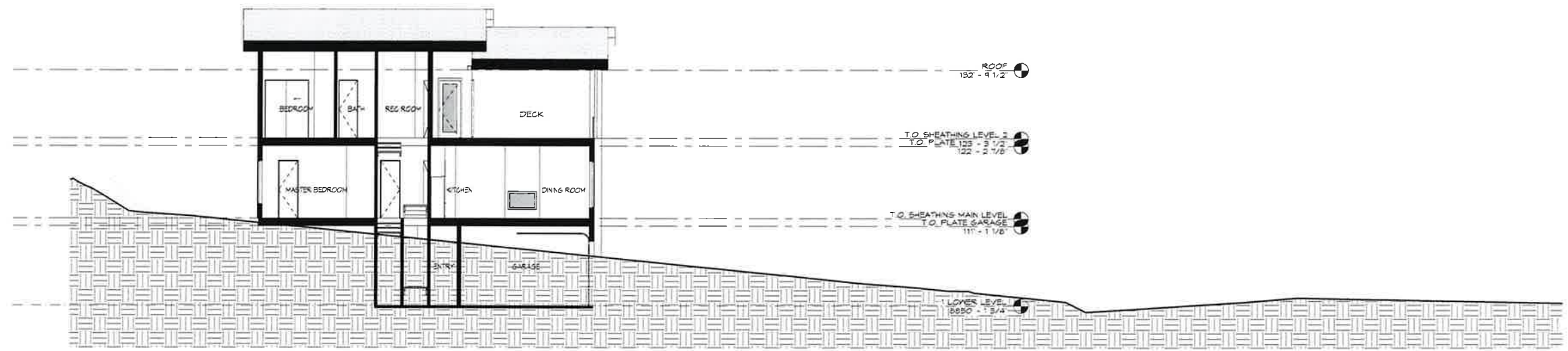
ROOF 132 - 9 1/2

SCHEMATIC OF THE STUDY



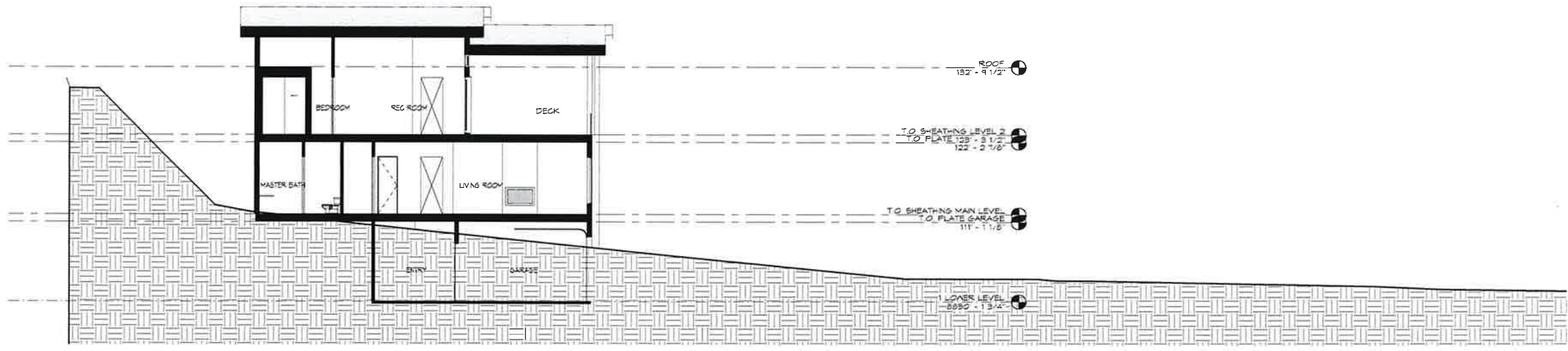
TO BREATHING MAIN LEVEL
110 - 1/2
TO PLATE GARAGE
111 - 1/2

105-LEADING LEVEL 2
123 - 3/2
105-LEADING LEVEL 2
123 - 3/2



EXAMPLE 2 SITE CONTEXT

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



EXAMPLE 1 SITE CONTEXT

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

SECTION CONSTRUCTION



REYNOLDS ASH
+ ASSOCIATES
ARCHITECTURE
ENGINEERING

CASCADE VILLAGE TOWNHOMES

A-402

TBD



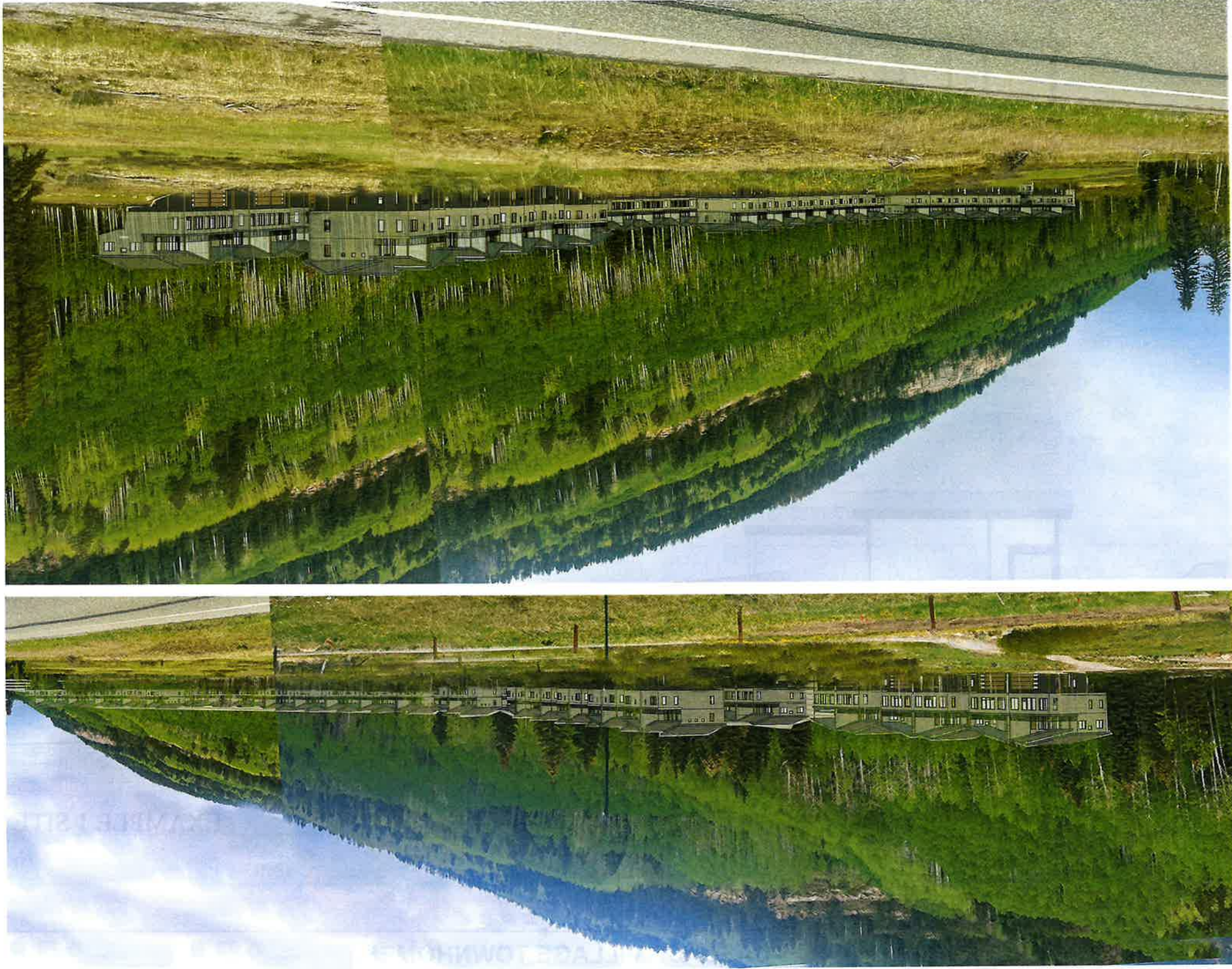
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ENGINEERING

CONCEPTUAL RENDERINGS

JOB NO. 24029
ISSUE DATE: 7/21/2025

CASCADE VILLAGE TOWNHOMES

SD 100



SCENIC CORRIDOR VIEWS

Revision Log	
1	
2	
3	
4	
5	
6	

Plot Date: 07/22/2025 - 4:27pm

Owner:
Crisculp

Project:

MEADOWVIEW DRIVE

Sheet Description:
OVERALL GRADING PLAN

for review only

Draft
Document
Not For
Construction

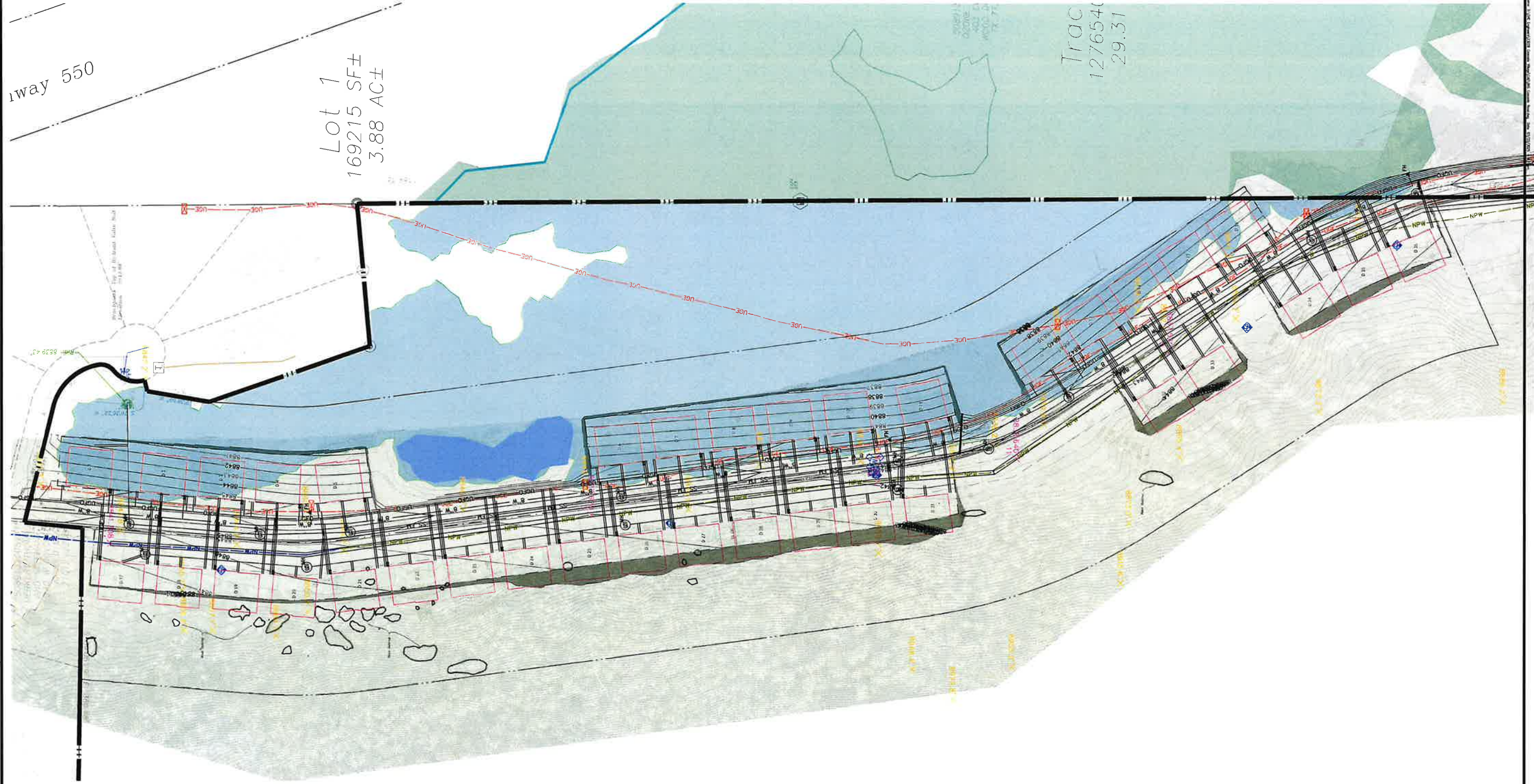
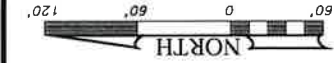


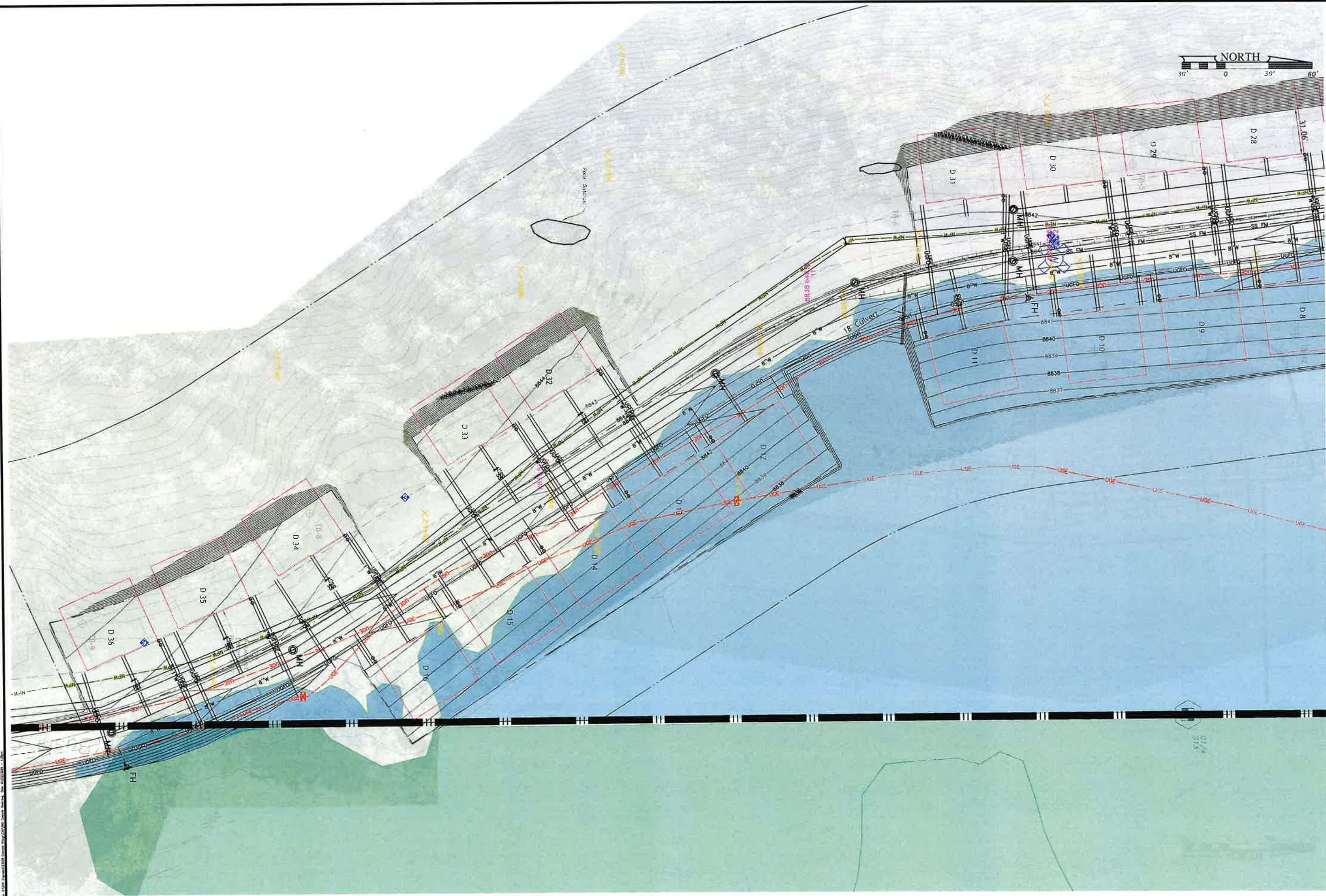
50 Valley Court
Durango, CO
970-387-8765

Project Date:
2025-07-22

Proj: 23028

1-1





Revision Log		Owner:	Project:	Sheet Description:	for review only
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2					
3					
4					
5					
6					

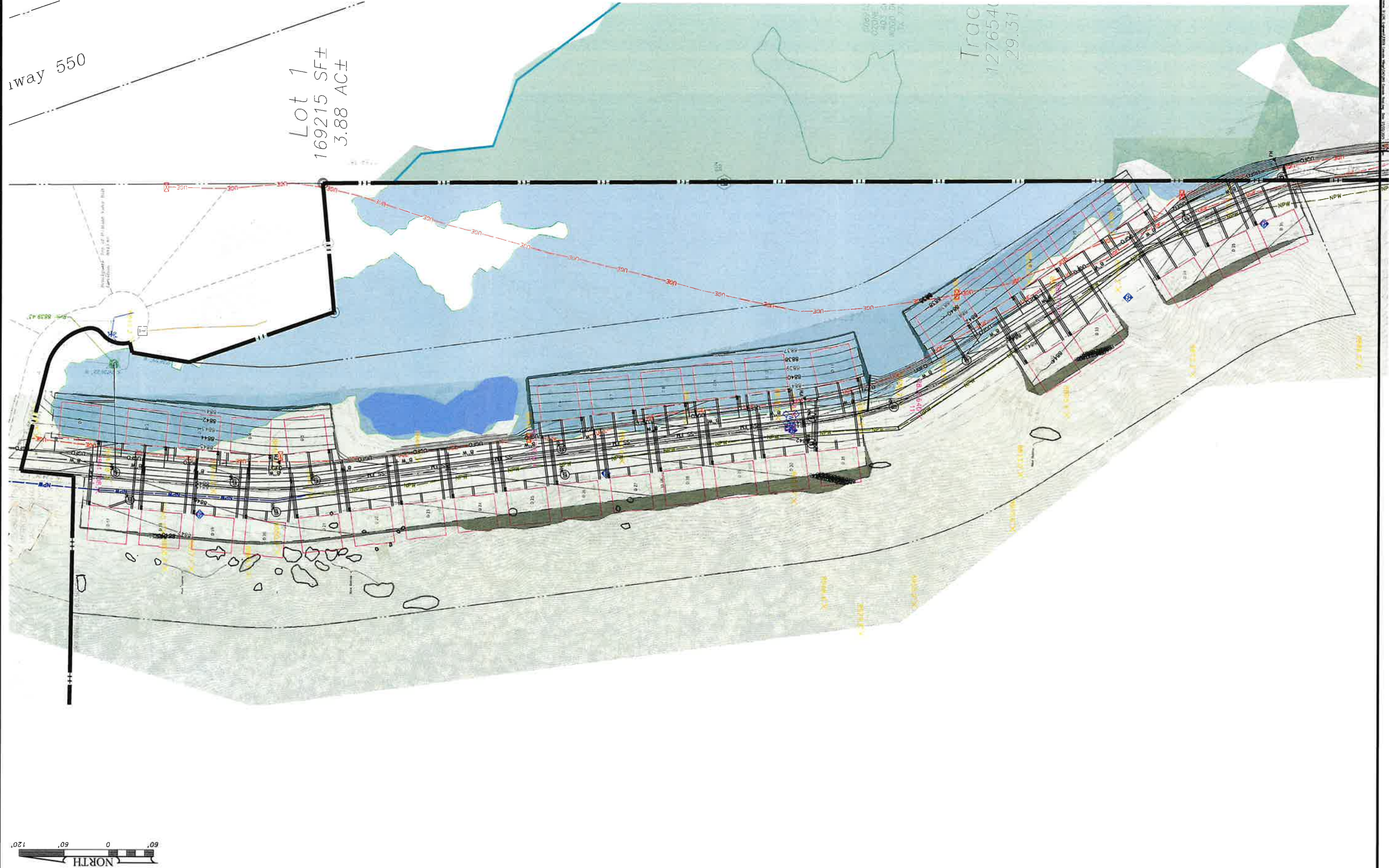
Plot Date: 07/22/2025 - 4:26pm

CHC Engineers, LLC
50 Valley Court
Durango, CO
970-387-8765

Project Date:
2025-07-22

Proj: 23028

1-2



1-2

Proj: 23028

Project Date: 2025-07-22

50 Valley Court
Durango, CO
970-387-8765
CNC Engineers, LLC

not for construction

Draft

Document Not For Construction

for review only

Sheet Description:

GRADING PLAN NORTH UNITS

Project:

MEADOWVIEW DRIVE

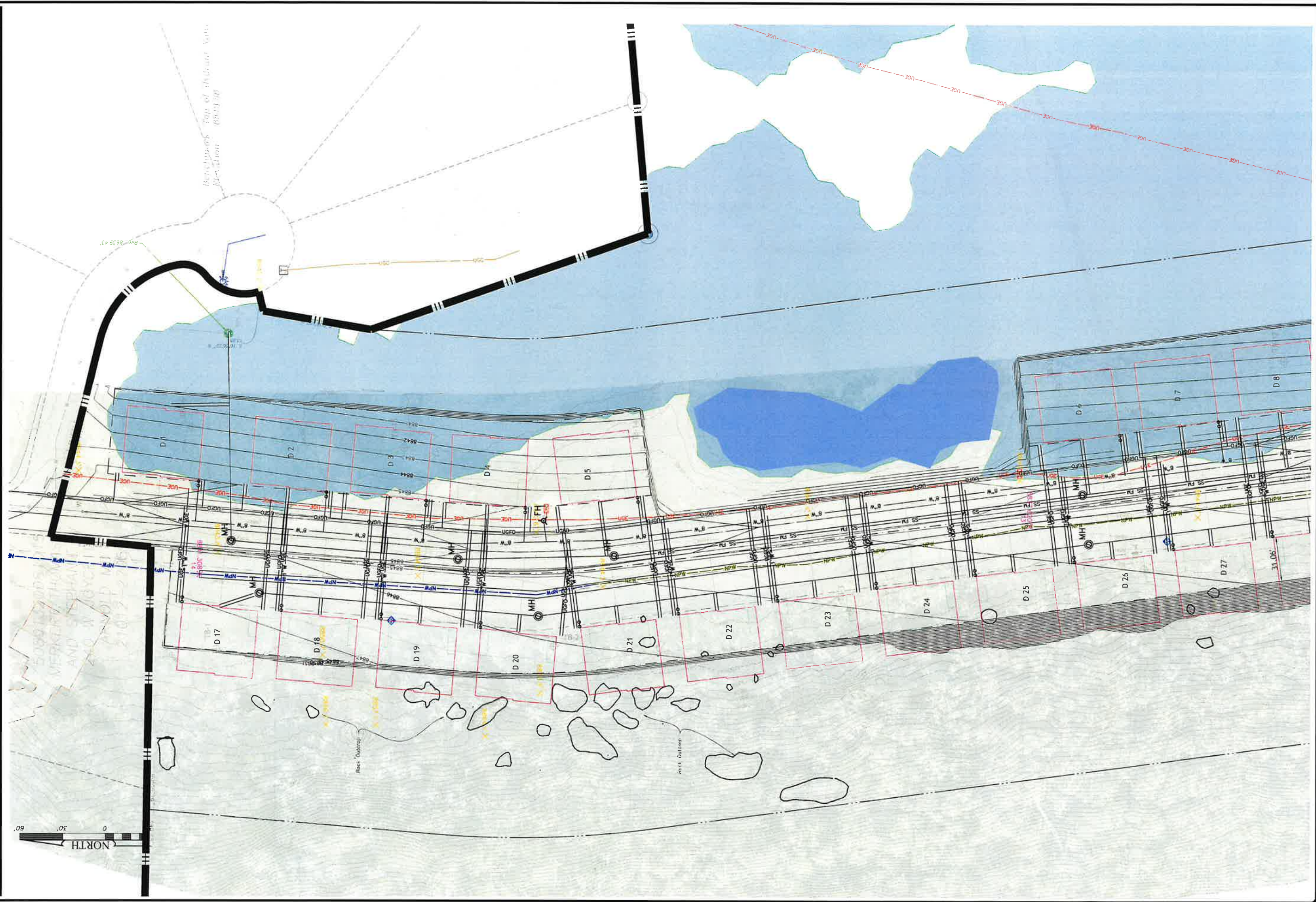
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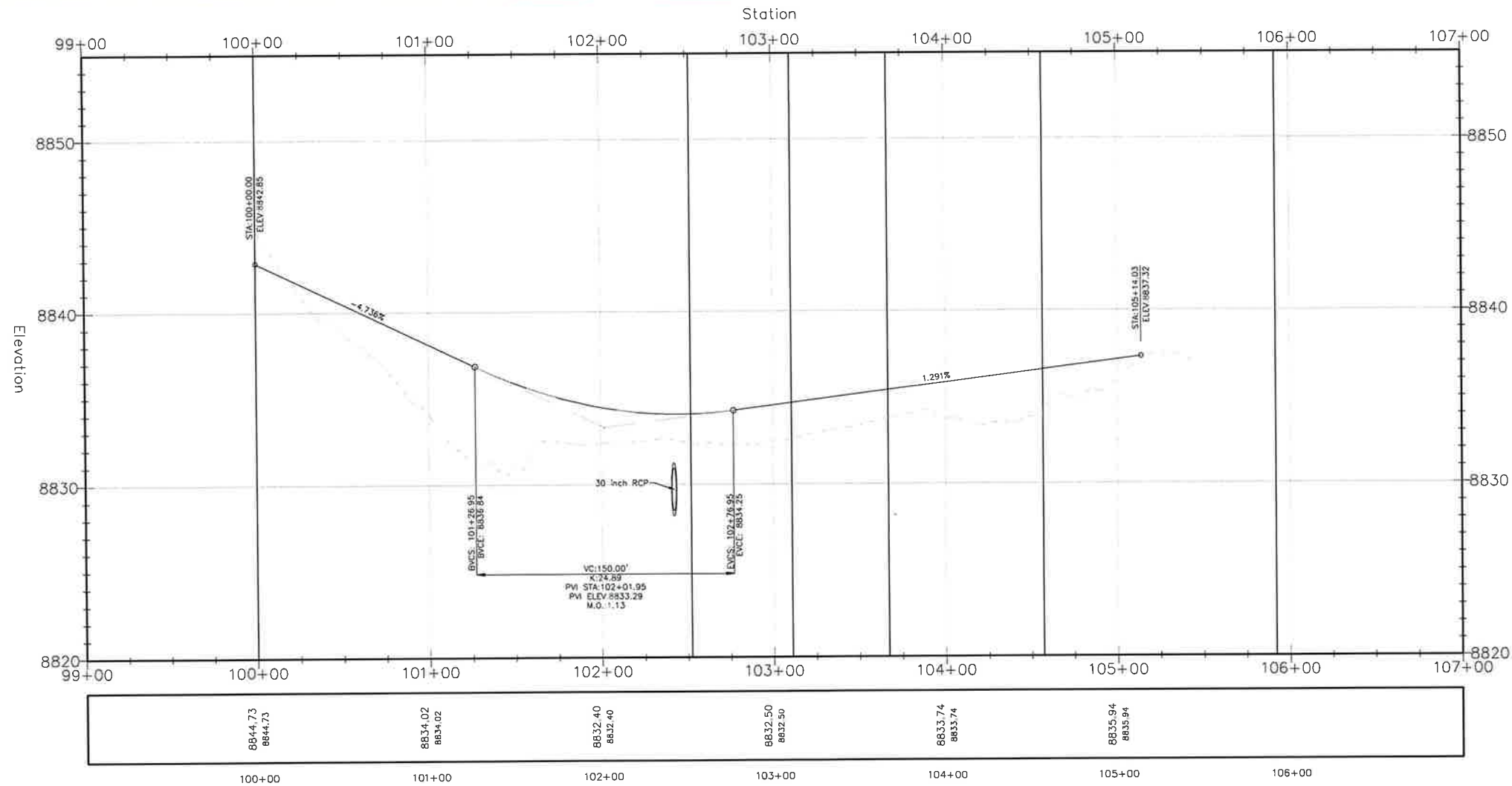
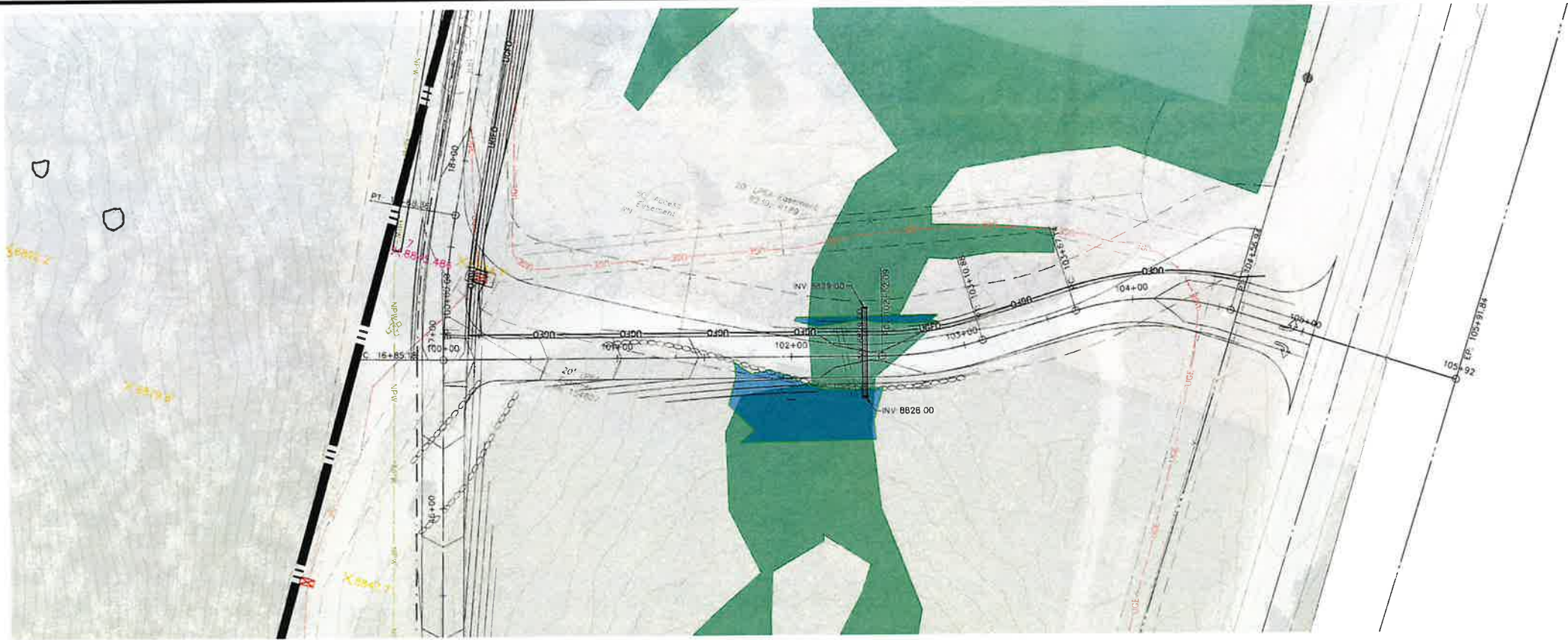
Crisclipse

Revision Log

Rev	Description	Date
1	Initial	07/22/2025
2		
3		
4		
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6		

Plan Date: 07/22/2025 - 4:28pm





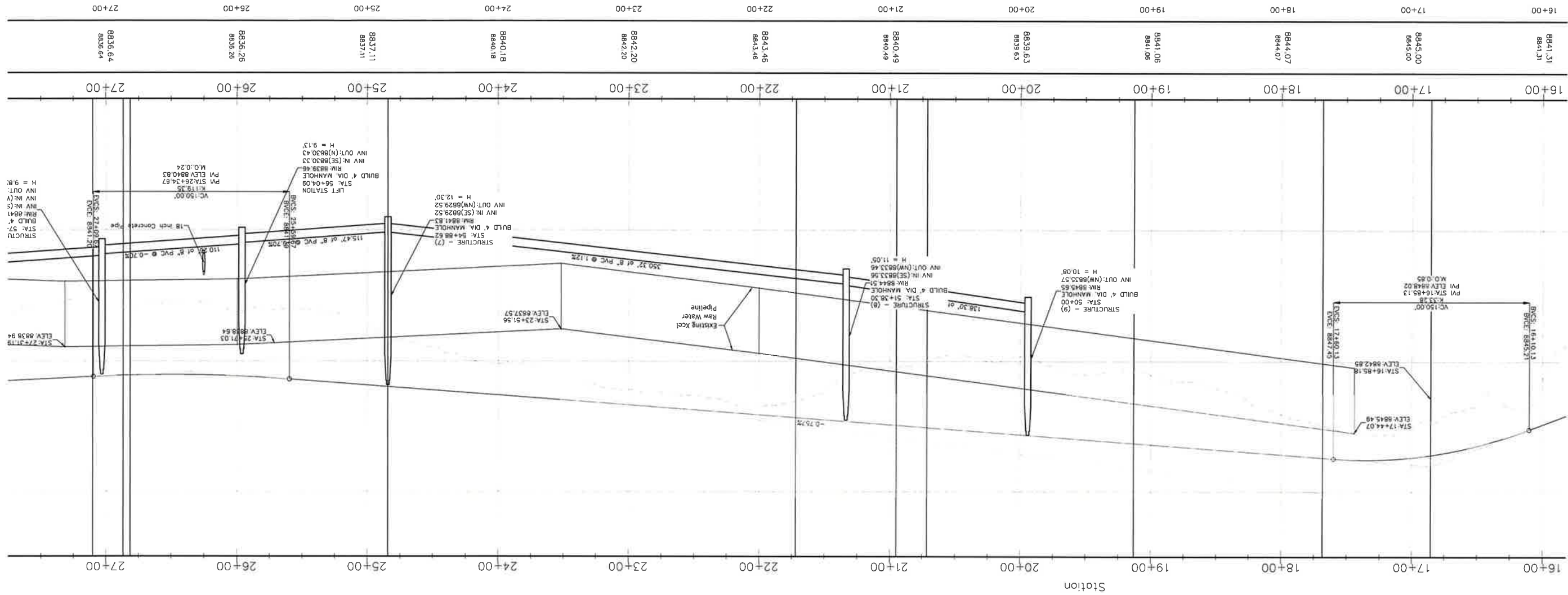
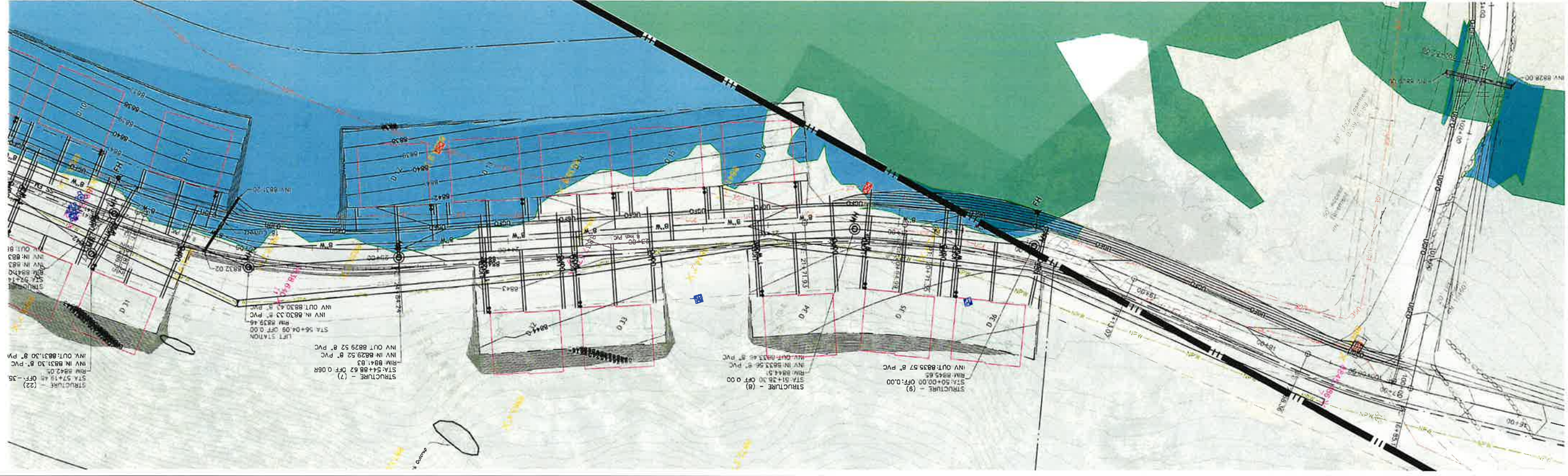
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1	2	3	4	5	6

Owner:	Project:	Sheet Description:	for review only	Draft Document Not For Construction	not for construction	Project Date:	Proj:
CitySculpt	MEADOWVIEW DRIVE	ACCESS ROAD PLAN AND PROFILE				2025-07-22	23028

CitySculpt Engineers, LLC
50 Valley Court
Durango, CO
970-387-8765

Plot Date: 07/22/2025 - 4:28pm

2-1



MEADOWVIEW NORTH PLAN AND PROFILE

MEADOWVIEW DRIVE

Citisculpt

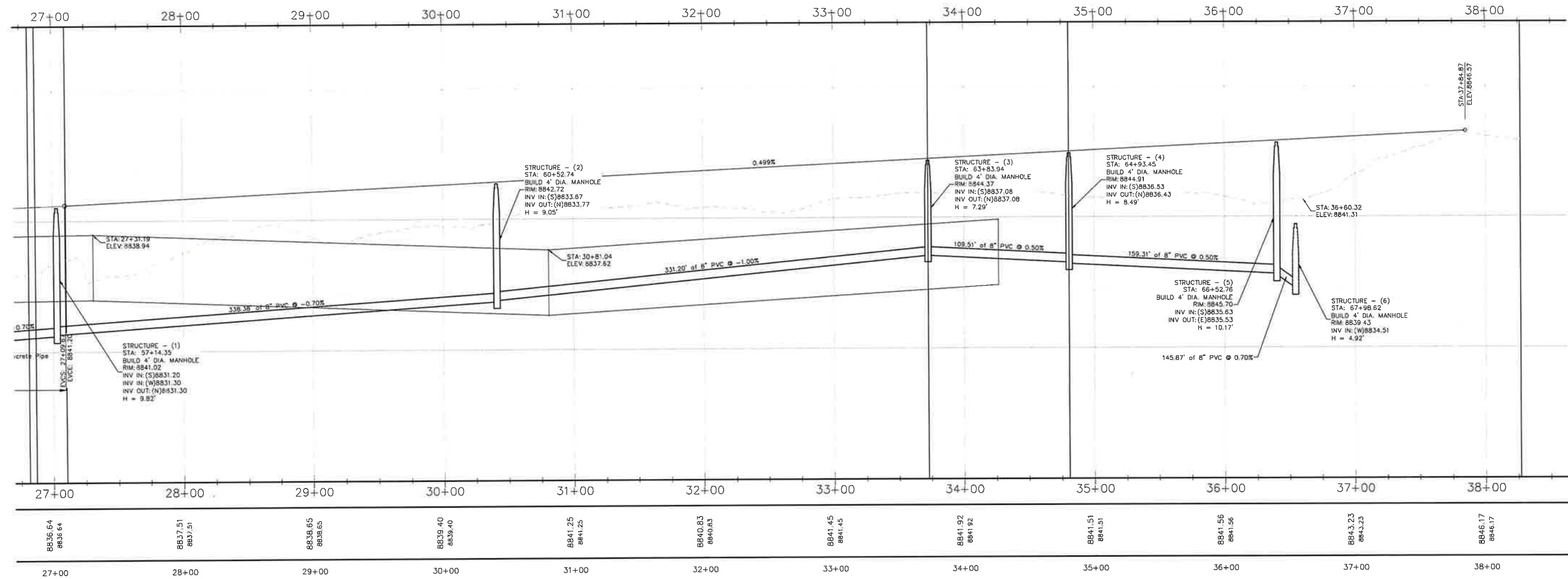
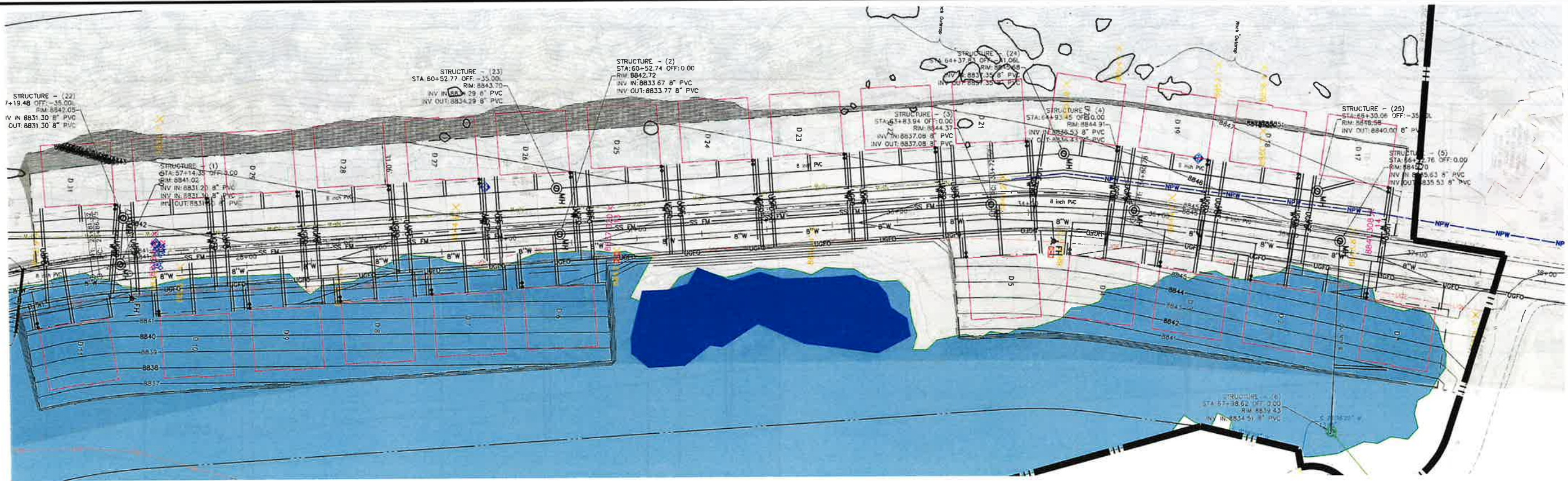
Revision Log
1
2
3
4
5
6

Plot Date: 07/22/2025 - 4:26pm

Draft
 Not For
 Construction
 (for review only)

not for construction
 HEC Engineers, LLC
 50 Valley Court
 Durango, CO
 970-387-8765
 Project Date: 2023-07-22
 Proj: 23028
 2-2

Environ Monit Assess (2015) 189:1007–1019
DOI 10.1007/s10661-015-4700-0



Revision Log					
No.	Description	Date	By	Check	Appr.
1					
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6					

Owner: Citiscript

Project: MEADOWVIEW DRIVE

Sheet Description: MEADOWVIEW NORTH PLAN AND PROFILE

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Document
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50 Valley Court
Durango, CO
970-387-8765

Project Date: 2025-07-22
Proj: 23028

2-3

The image contains two technical drawings of a hydrant system.

PLAN VIEW (Left): This diagram shows the top-down layout of the hydrant. It features a central hydrant body with a cross-shaped handle. A main line runs horizontally through the center, with a vertical branch leading to the hydrant. Labels include:

- INSULATION FOR DIRECT BURY
- TRACER WIRE TO EXISTING DIP OR CI
- BOND (CADDWELD)
- MAINS
- MAIN
- ANCHORING
- SMWEL TEE
- STREET VALVE BOX
- 6" MAIN VALVE IN
- PER SPECIFICATIONS
- EXTENSION AS NECESSARY
- 6" OR 12" (MAX)
- FINISHED GRADE
- PROVIDE EXPANSION JOINT AROUND PIPE
- FLANGE
- BREAK-AWAY
- PUMPERS NOZZLE SHALL FACE THE PUBLIC
- RIGHT-OF-WAY OR REQUIRED FIRE ACCESS ROADWAY
- 5' STORTZ FITTING CONNECTION
- MUELLER SUPER CENTURION 250
- AS REQUIRED
- LENGTH
- hydrants located at or above 7,000 feet require an extension (18")
- hydrant flag
- (ONE EACH SIDE)
- 2" CONNECTIONS
- MIN 18" MAX 21"
- 4" Concrete Pad
- TRACER WIRE
- MAIN GRAVEL TO BE PLACED A MIN 6" ABOVE THE LOWER DRAIN PIT WITH DRAIN PIT WITH FELT SHEET.
- SHOE
- 2 3/4 CU YD MIN DRAIN GRAVEL 1 1/2 ROCK
- DO NOT BLOCK HYDRANT DRAIN

ELEVATION VIEW (Right): This diagram shows the side profile of the hydrant. It details the vertical components and their assembly. Labels include:

- INSULATION FOR DIRECT BURY
- TRACER WIRE TO EXISTING DIP OR CI
- BOND (CADDWELD)
- MAINS
- MAIN
- ANCHORING
- SMWEL TEE
- STREET VALVE BOX
- 6" MAIN VALVE IN
- PER SPECIFICATIONS
- EXTENSION AS NECESSARY
- 6" OR 12" (MAX)
- FINISHED GRADE
- PROVIDE EXPANSION JOINT AROUND PIPE
- FLANGE
- BREAK-AWAY
- PUMPERS NOZZLE SHALL FACE THE PUBLIC
- RIGHT-OF-WAY OR REQUIRED FIRE ACCESS ROADWAY
- 5' STORTZ FITTING CONNECTION
- MUELLER SUPER CENTURION 250
- AS REQUIRED
- LENGTH
- hydrants located at or above 7,000 feet require an extension (18")
- hydrant flag
- (ONE EACH SIDE)
- 2" CONNECTIONS
- MIN 18" MAX 21"
- 4" Concrete Pad
- TRACER WIRE
- MAIN GRAVEL TO BE PLACED A MIN 6" ABOVE THE LOWER DRAIN PIT WITH DRAIN PIT WITH FELT SHEET.
- SHOE
- 2 3/4 CU YD MIN DRAIN GRAVEL 1 1/2 ROCK
- DO NOT BLOCK HYDRANT DRAIN

Technical drawing of an Arv Vent Bollard Detail, showing a cross-section of the assembly. The drawing includes a concrete base, a PVC union, a PVC pipe, and a steel cap welded to the ground. Dimensions are provided for the pipe length (2'-6"), the union height (2'-0"), and the cap height (2'-0"). The drawing is labeled "ARV VENT BOLLARD DETAIL" and "NOT TO SCALE".

Labels and dimensions:

- 2'-0" (Total height)
- 2'-6" (PVC Pipe length)
- 2'-0" (PVC Union height)
- 2'-0" (Steel cap welded to ground and smooth)
- 4 - 1/2" Ø Vent Holes spaced evenly around bollard. Provide bag screen permanently attached inside pipe.
- 6' dia. Schedule 40 standard weight steel pipe guard post
- 6 Class 150 Lap Joint Flange. Provide 4 - 3/4" all-weld with nuts and epoxy drop in concrete
- PVC Union
- PVC Pipe
- 2'x2'x6" Concrete Base.
- Divide 18" Cover
- See AIR RELIEF VALVE Detail

NOT TO SCALE

ARV VENT BOLLARD DETAIL

NOTE: PAINT BOLLARD YELLOW IN COLOR

Technical drawing of a manhole assembly, showing various components and materials. The drawing includes labels for the following parts:

- 3/4" Crushed Gravel
- 2" Tapping Saddle
- MUELLER B-25000N
- MUELLER BR25 or
- ROMAC 202NS
- CORPORATION STOP
- COMBINATION Air Valve
- A.R.I. D-408 2"
- PVC Union
- 2" Schedule 40 PVC Pipe
- Seal Penetration with Dow Corning 791
- See AIR VENT BOLLARD Detail
- 24" Manhole King and Cover labeled WATER
- 4" Dia Precast Manhole with flat top
- Plastic Coated Steel Manhole Steps at 15" O.C. Set top step 24" from manhole cover
- 5" Long Concrete Footing parallel to piping with 2-#5 Rebar
- 12"

Technical drawing of a water valve assembly, showing a side elevation and a top view.

Side Elevation Labels:

- TRANSMISSION MAIN PIPE
- RESILIENT WEDGE GATE VALVE (WATER)
- OVER OPERATING NUT
- CENTER BOX & ALIGN VERT.
- BARREL SCREW-TYPE
- VALVE BOX, CAST IRON 5-1/4" MIN.
- 6"
- 3'-6" MIN.

Top View Labels:

- FINISHED GRADE
- SMOOTH FINISH
- TRAFFIC DIRECTION
- 2'-0" ± 50
- COVER MARKED "WATER"
- FOR WATERLINE
- CONC. SET FLUSH WITH FINISHED GRADE
- WATER

TABLE A		LENGTH RESTRAINED (L)						
SMALL		LARGE						
		3"	4"	6"	8"	10"	12"	
3"								
4"								
6"								
8"								
10"								

TABLE A NOTES:

- 1) FLOW FROM LARGE SIZE TO SMALL SIZE PIPE.

TABLE C		LENGTH RESTRAINED (L)						
RUN		BRANCH (RESTRAINED)						
		3"	4"	6"	8"	10"	12"	
3"								
4"								
6"								
8"								
10"								
12"								

TABLE C NOTES:

- 1) SHORTEST DISTANCE ALLOWABLE BETWEEN TEE END AND FIRST PIPE JOINT ON MAIN RUN IS 5 FEET.
- 2) FLOW DIRECTION THROUGH TEE DOES NOT AFFECT LENGTH OR JOINT TO BE RESTRAINED.

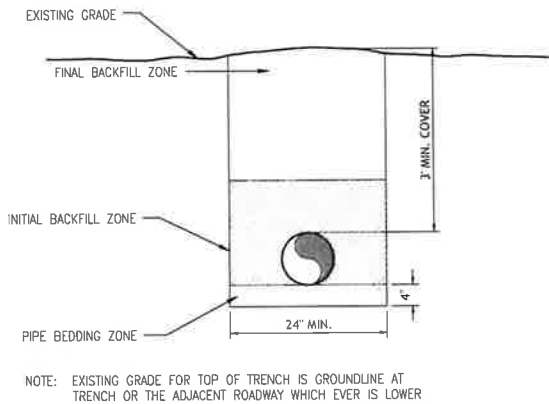
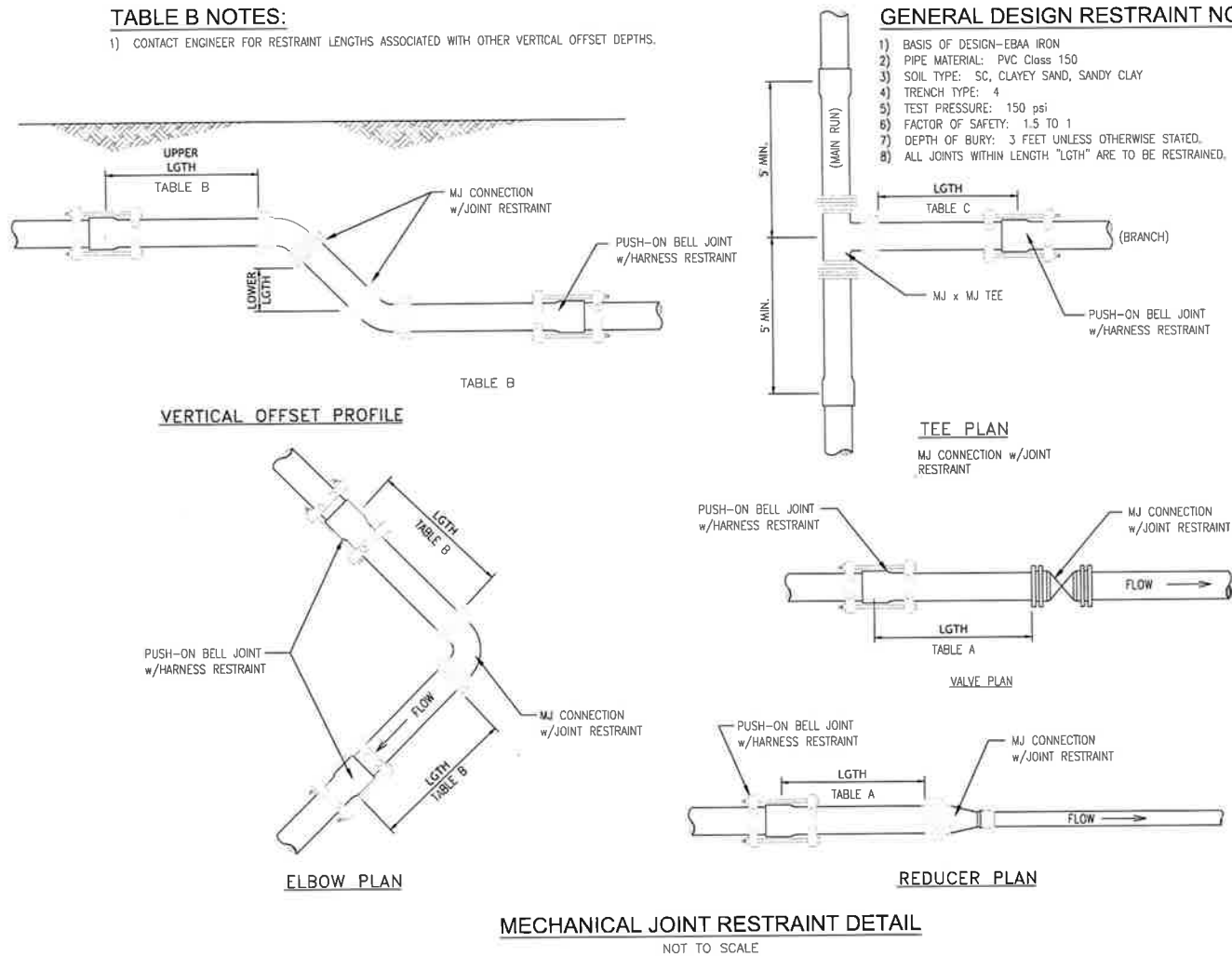
TABLE B									
LENGTH TO BE RESTRAINED (L)									
	90° HORIZ. ELBOW	45° HORIZ. ELBOW	22½° HORIZ. ELBOW	11¼° HORIZ. ELBOW	45° VERT. OFFSET 3.5' TO 5.0'	22½° VERT. OFFSET 3.5' TO 5.0'	11¼° VERT. OFFSET 3.5' TO 5.0'	DEAD END/ IN-LINE VALVE	
3"	10'	5'	5'	5'	UPPER - 20' LOWER - 10'	UPPER - 10' LOWER - 5'	UPPER - 10' LOWER - 5'	30'	
4"	20'	10'	5'	5'	UPPER - 20' LOWER - 10'	UPPER - 10' LOWER - 5'	UPPER - 10' LOWER - 5'	40'	
6"	20'	10'	5'	5'	UPPER - 30' LOWER - 10'	UPPER - 20' LOWER - 10'	UPPER - 10' LOWER - 5'	50'	
8"	30'	10'	10'	5'	UPPER - 40' LOWER - 10'	UPPER - 20' LOWER - 10'	UPPER - 10' LOWER - 5'	70'	
10"	30'	20'	10'	5'	UPPER - 50' LOWER - 20'	UPPER - 30' LOWER - 10'	UPPER - 10' LOWER - 5'	80'	
12"	30'	20'	10'	5'	UPPER - 50' LOWER - 25'	UPPER - 30' LOWER - 15'	UPPER - 15' LOWER - 10'	90'	

TABLE B NOTES:

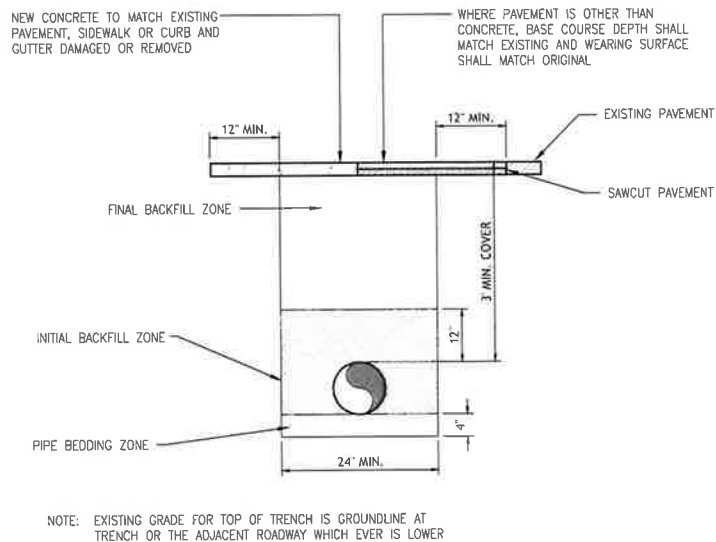
- 1) CONTACT ENGINEER FOR RESTRAINT LENGTHS ASSOCIATED WITH OTHER VERTICAL OFFSET DEPTHS.

GENERAL DESIGN RESTRAINT NOTES:

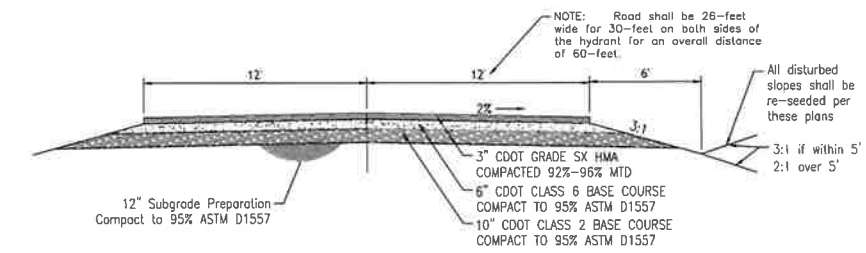
- 1) BASIS OF DESIGN-EBAA IRON
- 2) PIPE MATERIAL: PVC Class 150
- 3) SOIL TYPE: SC, CLAYEY SAND, SANDY CLAY
- 4) TRENCH TYPE: 4
- 5) TEST PRESSURE: 150 psi
- 6) FACTOR OF SAFETY: 1.5 TO 1
- 7) DEPTH OF BURY: 3 FEET UNLESS OTHERWISE STATED.
- 8) ALL JOINTS WITHIN LENGTH "LGTH" ARE TO BE RESTRAINED.



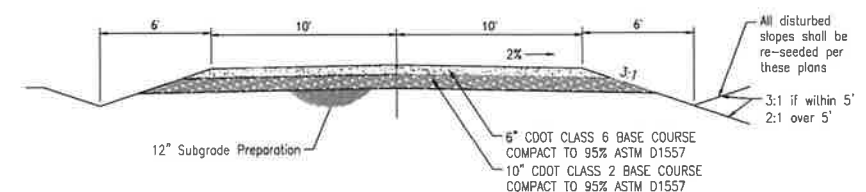
TYPICAL TRENCH SECTION
UNSURFACED AREAS
NOT TO SCALE



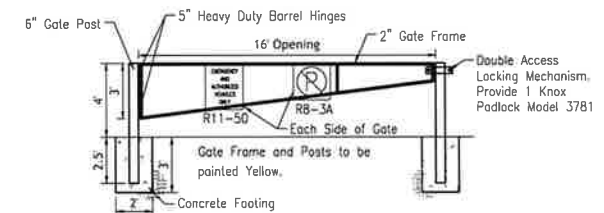
TYPICAL TRENCH SECTION
PAVED AREAS
NOT TO SCALE



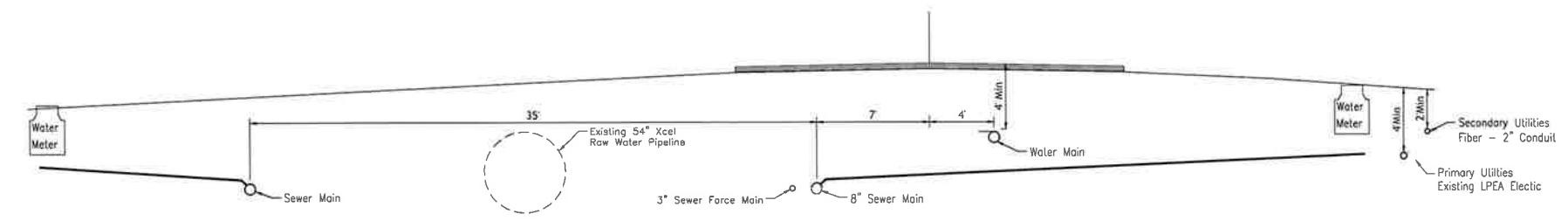
Typical Road Section
Scale: NTS



Typical Emergency Access Road Section
Scale: NTS
Morris Way



Emergency Access Gate
Scale: NTS



Typical Utility Layout
Scale: NTS

Revision Log	1	2	3	4	5	6

Owner: Citisculpt

Project: MEADOWVIEW DRIVE

Sheet Description: DETAILS

for review only

Draft Document Not For Construction

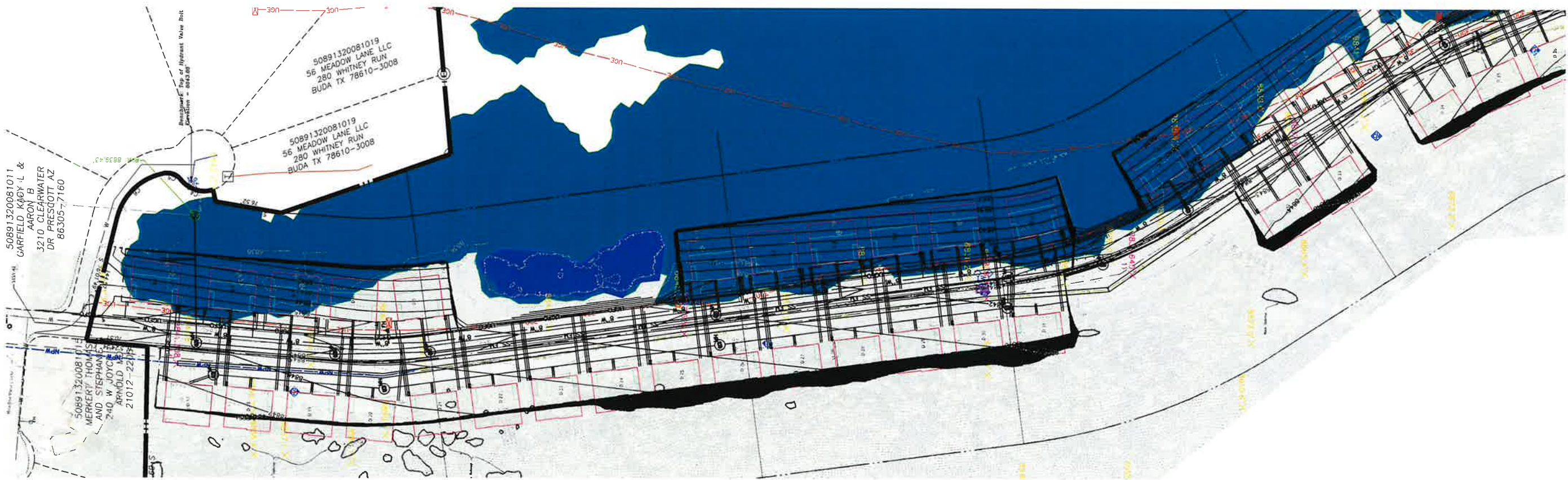
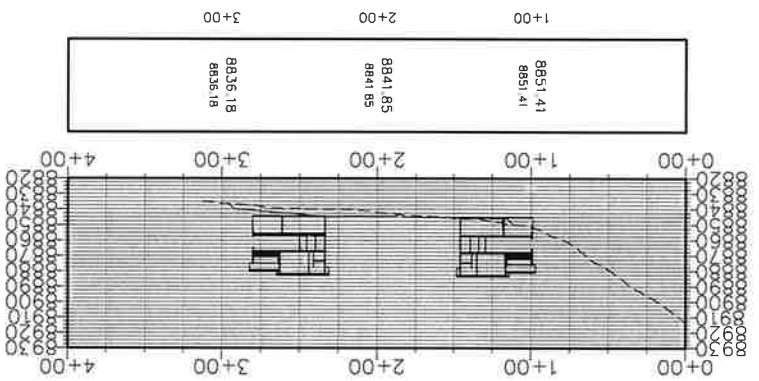
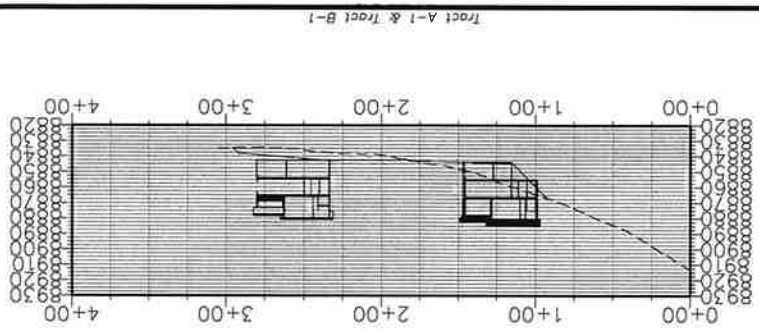
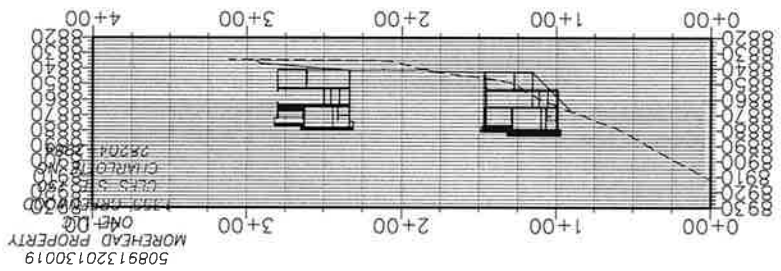
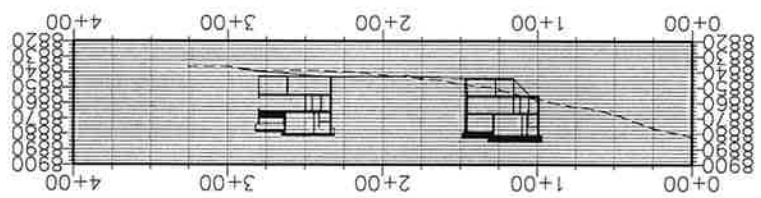
not for construction

CHC Engineers, LLC

50 Valley Court
Durango, CO
970-387-8765

Project Date: 2025-07-22

Proj: 23028



Shell Description:

BUILDING SECTIONS

MEADOWVIEW DRIVE

CitriSculpt®

Owner:

Projects

Draft
Document
Not for
Construction

C&G Engineers, LLC
50 Valley Court
Durango, CO
970-387-8765
Project Date:
2025-07-22
Proj: 23028
5-1



50 Valley Court
Durango, CO
970-387-8765

Project Date:	2025-07-22
Proj:	23028

5-1

Revision	Log
1	
2	
3	
4	
5	
6	

Pilot Date: 07/22/2025 - 4:29pm

Plot Date: 07/22/2025 - 4:29pm

CASCADE MEADOWS
SUBDIVISION
CASCADE VILLAGE
TRACT A-1 & TRACT B-1
S13, T39N, R9W, N.M.P.M.
SAN JUAN COUNTY, COLORADO

Land Use Table			
Lot	Acres (R)	Acres (M)	
Tract A-1 & B-1	79.3	79.35	
Subdivided			
	Acres (M)		
Lot 1	13.47 Acres		
Lot 2	62.22 Acres		
Lot 3	3.664 Acres		



CERTIFICATE OF OWNERS KNOW BY ALL THESE PRESENTS

That Cascade Meadows, LLC, whose address is 666 Glacier Club Drive #6 Durango, CO 81301, being the legal and record owners of a Tract of land located within S1/2 of Section 12, T39N, R9W, N.M.P.M., in San Juan County, Colorado more particularly described as follows:

That portion of the SE1/4SW1/4 of Section 12, the E1/2NW1/4 and NE1/4SW1/4 Section 13, Township 39 North, Range 9 West, N.M.P.M., San Juan County, Colorado, lying and being Westerly of the Westerly right of way of U.S. Highway 550 and Southerly of the following:

Cascade Village Phase 1 Plat recorded May 7, 1981 in Book 222 at Pages 125, 126 and 127. at Page 368.

The Twilight Meadow Subdivision at Cascade Village Plat recorded August 6, 1985 in Book 230 at Page 368.

First Amendment of the Twilight Meadow Subdivision at Cascade Village Plat recorded June 10, 1994 in Book 243 at Pages 110 and 111.

The Twilight Meadow Subdivision Phase II at Cascade Village Final Plat recorded July 27, 1999 under Receipt for record February 12, 1996 as Reception No. 137955 in No. 140023.

NOTE: The above described tract is commonly known as Tracts "A-1" and "B-1" of the Cascade Village Amended Master Plan according to the plat thereof file

I hereby state that this survey and plat was prepared by me or under my direct responsibility, supervision and checking, and that, in my professional opinion, they are true and correct to the best of my knowledge, belief and information based on the applicable standards of practice of Professional Land Surveyors in the State of Colorado. I also state that this survey and plat is not a warranty or warranty, either expressed or implied.

Has caused the same to be subdivided and platted under the name and style of Cascade Meadows Subdivision, as shown hereon, consisting of 3 lots named

Lot 1, Lot 2, Lot 3.

THIS PLAT IS HEREBY EXECUTED BY THE FOLLOWING PARTIES:

By Charles Lindsey McAlpine, Manager, Cascade Meadows, LLC

STATE OF COLORADO
COUNTY OF SAN JUAN

The foregoing instrument was acknowledged before me by Charles Lindsey McAlpine, Manager, Cascade Meadows, LLC on this _____ day of _____, 2025 for the aforementioned purposes.

My commission Expires _____ Notary Public

CERTIFICATE OF SURVEYOR

I hereby state that this survey and plat was prepared by me or under my direct responsibility, supervision and checking, and that, in my professional opinion, they are true and correct to the best of my knowledge, belief and information based on the applicable standards of practice of Professional Land Surveyors in the State of Colorado. I also state that this survey and plat is not a warranty or warranty, either expressed or implied.

Joshua J. Casselberry, P.L.S.
Colorado Registration No. 37903

Notice: Title Research - Title, easement and Right-of-Way research was conducted by Colorado Title & Closing Services, LLC, order No. SJ22105593-A effective December 5, 2021 at 5:00 P.M. and no further research conducted by Moreno Surveying & Geographics, Inc. Any and all parties having interest in subject tracts of land are hereby referred to said title commitments and any title policies issued at a later date.

Notice: According to Colorado law you must commence any legal action based upon any defect in this survey within three (3) years after you first discovered such defect. In no event may any action based upon any defect in this survey be commenced more than ten (10) years from the date of the certification shown hereon.

Notice: Any encroachment of fences across property may indicate that possessory rights are accruing.

CERTIFICATE OF APPROVAL

This plat is hereby approved by the Board of County Commissioners of San Juan County, Colorado, on this _____ day of _____, 2025 for the aforementioned purposes.

BOARD OF COUNTY COMMISSIONERS
OF SAN JUAN COUNTY, COLORADO

By _____ Attest: _____
Chairman Clerk of Record

STATE OF COLORADO
COUNTY OF SAN JUAN
I hereby state that this instrument was filed for record at _____ O'clock _____ day of _____, 2025 and duly filed.
By _____ Notary Number _____ Fee \$ _____
Deputy

PRELIMINARY

Joshua J. Casselberry, P.L.S.
Colorado Registration No. 37903

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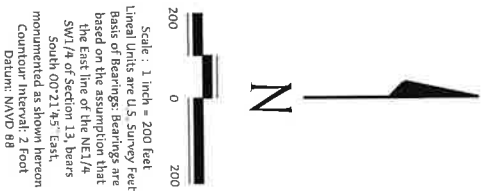
Notice: According to Colorado law you must commence any legal action based upon any defect in this survey within three (3) years after you first discovered such defect. In no event may any action based upon any defect in this survey be commenced more than ten (10) years from the date of the certification shown hereon.

Notice: Any encroachment of fences across property may indicate that possessory rights are accruing.

CASCADE MEADOWS
SUBDIVISION
CASCADE VILLAGE
TRACT A-1 & TRACT B-1

Moreno
SURVEYING
GEOGRAPHICS

1050 MAIN AVENUE, DURANGO, CO 81301-3854
DATE: 7/10/2025 SCALE: 1 INCH = 1000 FEET
DRAWN BY: JLM CHECKED BY: JLM JOB NO: 2024-029

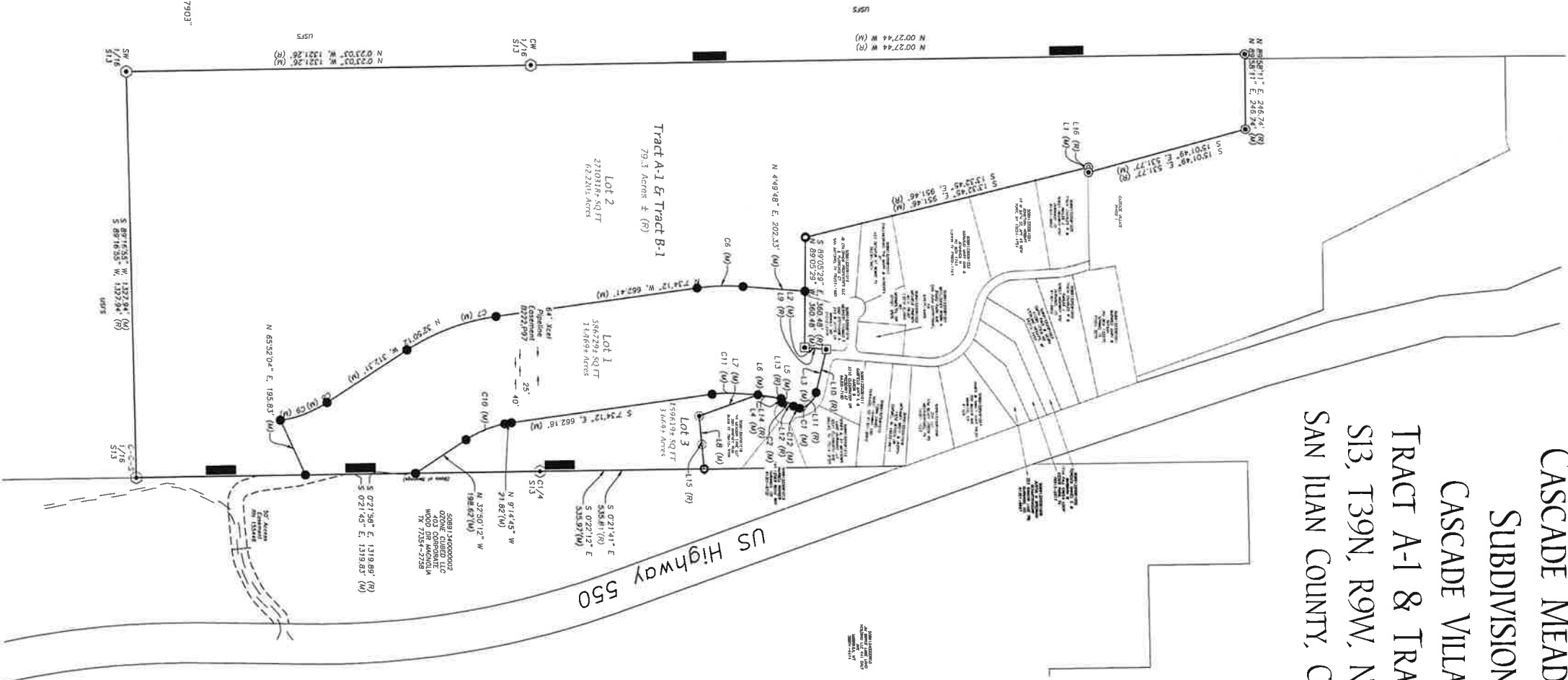


Line Table			Line Table		
L#	Direction	Length	L#	Direction	Length
L1 (M)	N 89°58.53' E	16.73'	L9 (R)	N 5°24.34' E	70.51'
L2 (M)	N 5°24.34' E	70.51'	L10 (R)	S 76°01'49" E	144.57'
L3 (M)	S 76°01'49" E	144.57'	L11 (R)	S 43°34.59' E	74.09'
L4 (M)	N 76°36.22' E	13.85'	L12 (R)	S 17°17'17" W	39.17'
L5 (M)	N 76°36.22' E	13.85'	L13 (R)	S 76°36.22' W	13.85'
L6 (M)	N 9°38.59' E	76.52'	L14 (R)	S 9°38.58' W	76.52'
L7 (M)	N 19°12.22' W	205.27'	L15 (R)	N 84°58.11' E	172.74'
L8 (M)	S 84°56.42' W	172.65'			

Curve Table				
C#	Length	Radius	Chord	Chord Bearing
C1 (M)	78.20'	69.05'	64°53'22"	N 43°34'59" W
C2 (M)	41.57'	35.00'	68°03'08"	N 17°17'17" E
C6 (M)	151.49'	700.00'	12°24'00"	S 1°22'12" E
C7 (M)	314.02'	721.94'	24°55'17"	S 20°01'51" E
C8 (M)	46.16'	300.00'	8°49'00"	S 28°25'42" E
C9 (M)	118.65'	321.38'	21°09'11"	S 16°45'42" E
C10 (M)	137.95'	350.00'	22°35'00"	N 21°32'42" W
C11 (M)	70.08'	350.00'	11°28'22"	N 1°50'01" W

Legend

- Found: Bureau of Land Management 3-1/4 inch pipe monument stamped as noted
- Found: 5/8 inch rebar with 1-1/2 inch aluminum cap stamped "PLS 16399"
- Found: 5/8 inch rebar with 1-1/2 inch aluminum cap stamped "PLS 22574"
- Found: 5/8 inch rebar with 1-1/2 inch aluminum cap stamped "PLS 29026"
- Found: 5/8 inch rebar with 1-1/2 inch aluminum cap stamped "PLS 25963"
- Set: 1-1/2 inch aluminum cap on 5/8 x 24 inch rebar stamped "CASSELLBERRY PLS 37903"
- Record Dimension RN 141
- Measured
- Property Line
- Kel Pipeline Easement
- Access Easement



CASCADE MEADOWS
SUBDIVISION
CASCADE VILLAGE
TRACT A-1 & TRACT B-1
S13, T39N, R9W, N.M.P.M.
SAN JUAN COUNTY, COLORADO

SURVEYOR STATEMENT:
This topographic survey of a portion of Cascade Village, Tracts A-1 & B-1, as shown on the Cascade Village Results of Survey plat recorded on October 19, 2005 at Recreation No. 141 in the San Juan County Surveyor's Land Survey Plat was actual surveyed by Geospatial Applications, LLC on May 19, 2025 under the direct responsibility, supervision and checking of Joshua J. Casellberry, of Moreno Surveying and Geographics, Inc., being a Colorado Licensed Surveyor. It does not constitute a Land Survey Plat or Improvement Survey Plat as defined by section 38-51-102, C.R.S.

Joshua J. Casellberry, P.L.S.
Colorado Registration No. 37903

- BENCHMARK: PT# 4376, top of hydrant valve bolt with elevation of 8883.88' as shown hereon.
- SURVEY CONTROL NOTE: Location of improvements is based upon found survey monuments as shown hereon.
- UNDERGROUND UTILITIES: Utilities as shown are from individual utility companies field locations and not by Moreno Surveying and Geographics.
- TITLE RESEARCH: Title, statement and right-of-way research was conducted by Colorado Title and Closing Services, LLC per Order No. S122103593-A (AMENDED) effective date December 5, 2021 at 5:00 PM, and not from research conducted by Moreno Surveying and Geographics, Inc. Any and all parties having interest in the subject tracts of land are hereby referred to said title commitments and any title policies issued at a later date.
- According to Colorado law you must commence any legal action based upon any defect in this survey within three (3) years after you first discovered such defect. In no event may any action based upon any defect in this survey be commenced more than ten (10) years from the date of the certification shown hereon.

PRELIMINARY

CASCADE MEADOWS
SUBDIVISION
CASCADE VILLAGE
TRACT A-1 & TRACT B-1
S13, T39N, R9W, N.M.P.M.
SAN JUAN COUNTY, COLORADO

Moreno
SURVEYING
GEOGRAPHICS

1850 MAIN AVENUE, DURANGO, CO 81301-8515
DATE: 7/16/2025 SCALE: 1 INCH = 200 FEET
DRAWN BY: DML CHECKED BY: JL JOB NO.: 0241400

TOPOGRAPHIC SURVEY
A PORTION OF
CASCADE VILLAGE
TRACT A-1 & TRACT B-1
S13, T39N, R9W, N.M.P.M.
SAN JUAN COUNTY, COLORADO



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Joshua J. Casselberry, P.L.S.
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- TITLE RESEARCH:** Title, easement and right-of-way research was conducted by Colorado Title and Closing Services, LLC per Order No. SJ22103593-4 (AMENDED), effective date December 5, 2021 at 5:00 PM, and not from research conducted by Moreno Surveying and Geographics, Inc. Any and all parties having interest in the subject tracts of land are hereby referred to said title commitments and any title policies issued at a later date.
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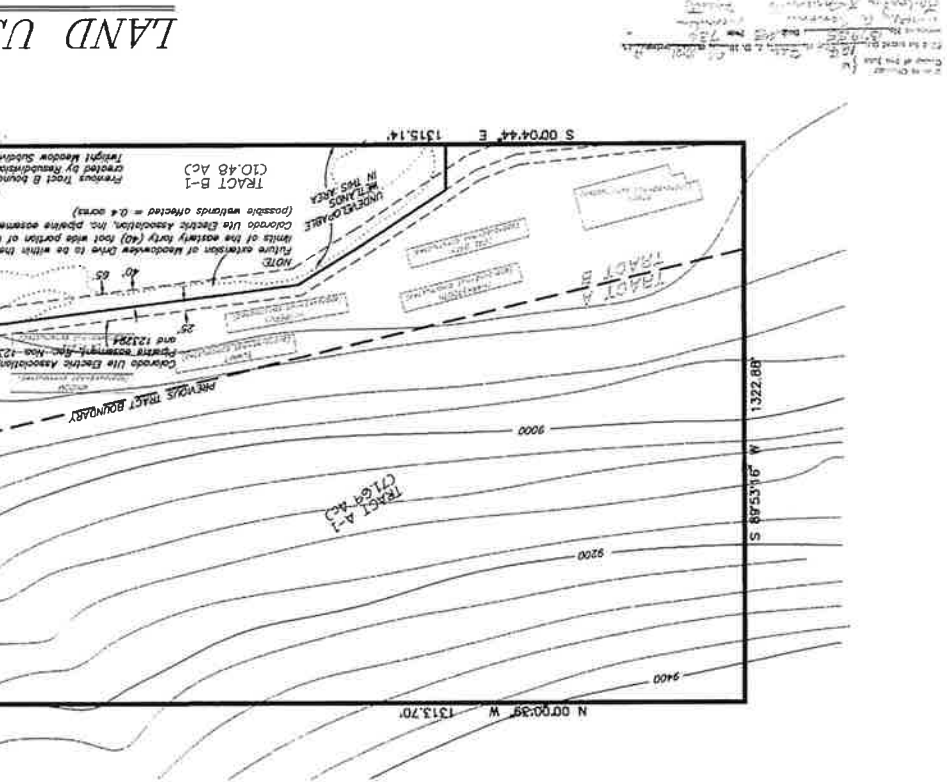
PRELIMINARY

TOPOGRAPHIC SURVEY
A PORTION OF
CASCADE VILLAGE
TRACT A-1 & TRACT B-1

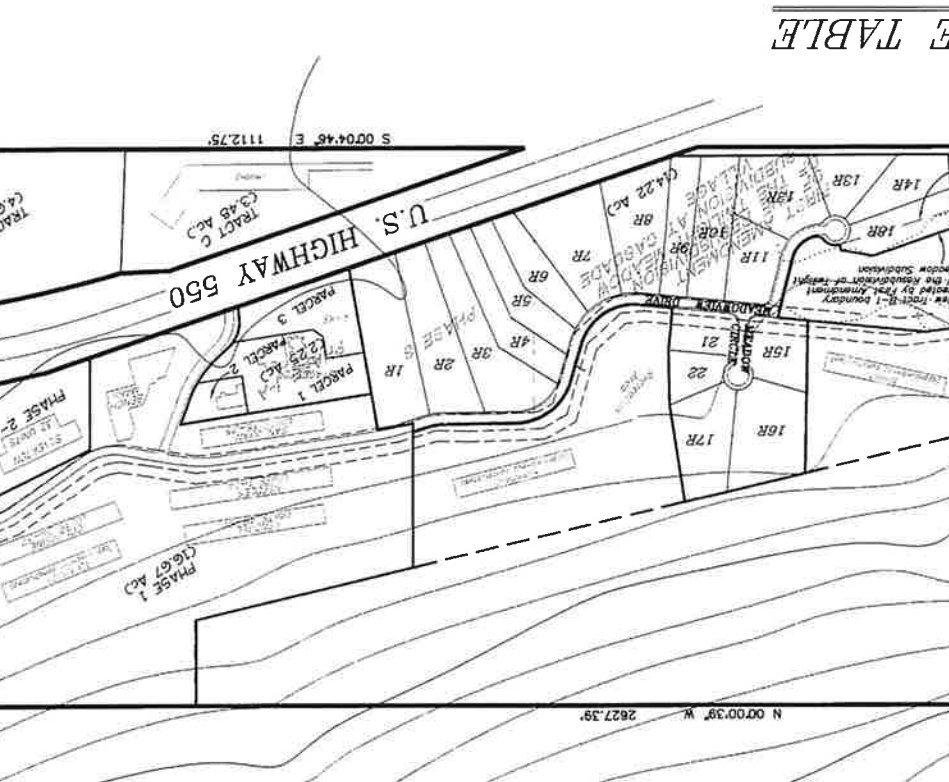
Moreno
SURVEYING
GEOGRAPHICS

3140 MAIN AVENUE, DURANGO, CO 81301 885-8535
DATE: 05.19.2024 SCALE: 1 INCH = 100 FEET
DRAWN BY: JM CHECKED BY: JL JOB NO.: 2024020

TRACT	UNITS	AREA	DENSITY	TRACT	UNITS	AREA	DENSITY
TRACT A	0	52.91 AC.	6.05 UNITS/AC.	TRACT A-1	177	71.69 AC.	2.47 UNITS/AC.
TRACT B (and previous phases)	177	29.26 AC.	1.83 UNITS/AC.	TRACT B-1	26	14.22 AC.	1.83 UNITS/AC.
TRACT B-1	26	14.22 AC.	1.83 UNITS/AC.	TRACT B-2	0	0 AC.	0 UNITS/AC.
TRACT C	0	0 AC.	0 UNITS/AC.	TRACT C-1	0	0 AC.	0 UNITS/AC.
TRACT D	75	9.17 AC.	8.18 UNITS/AC.	TRACT D-1	0	0 AC.	0 UNITS/AC.
TRACT E	0	0 AC.	0 UNITS/AC.	TRACT E-1	0	0 AC.	0 UNITS/AC.
TRACT F	0	0 AC.	0 UNITS/AC.	TRACT F-1	0	0 AC.	0 UNITS/AC.
TRACT G	0	0 AC.	0 UNITS/AC.	TRACT G-1	0	0 AC.	0 UNITS/AC.
TOTALS	485	148.44 AC.	3.27 UNITS/AC.	TOTALS	485	148.44 AC.	3.27 UNITS/AC.



TRACT	UNITS	AREA	DENSITY	TRACT	UNITS	AREA	DENSITY
TRACT A	177	71.69 AC.	2.47 UNITS/AC.	TRACT A-1	26	14.22 AC.	1.83 UNITS/AC.
TRACT B	26	14.22 AC.	1.83 UNITS/AC.	TRACT B-1	0	0 AC.	0 UNITS/AC.
TRACT C	0	0 AC.	0 UNITS/AC.	TRACT C-1	0	0 AC.	0 UNITS/AC.
TRACT D	75	9.17 AC.	8.18 UNITS/AC.	TRACT D-1	0	0 AC.	0 UNITS/AC.
TRACT E	0	0 AC.	0 UNITS/AC.	TRACT E-1	0	0 AC.	0 UNITS/AC.
TRACT F	0	0 AC.	0 UNITS/AC.	TRACT F-1	0	0 AC.	0 UNITS/AC.
TRACT G	0	0 AC.	0 UNITS/AC.	TRACT G-1	0	0 AC.	0 UNITS/AC.
TOTALS	485	148.44 AC.	3.27 UNITS/AC.	TOTALS	485	148.44 AC.	3.27 UNITS/AC.



CASCADE VILLAGE AMENDED MASTER PLAN LOCATED IN SECTION 13, T 39 N, R 9 W, N.M.P.M. SAN JUAN COUNTY, COLORADO

DEVELOPED BY:
CASCADE VILLAGE INVESTMENT VENTURE
50827 U.S. HIGHWAY 550
DURANGO, COLORADO 81301
(970) 259-3500
ENGINEER AND SURVEYOR:
GOFF ENGINEERING AND SURVEYING, INC.
P.O. BOX 97
DURANGO, COLORADO 81302
(970) 247-1705

GOFF
ENGINEERING & SURVEYING
555 SOUTH CAMINO DEL RIO
P.O. BOX 97
DURANGO, COLORADO 81302
(303) 247-1705

**CASCADE VILLAGE
MASTER PLAN**
CASCADE VILLAGE INVESTMENT VENTURE
CHECKED BY: T. WHITE
DATE: OCTOBER 25, 1995
SCALE: 1" = 200 FEET
PREPARED BY: D. COSTER

San Juan County, Colorado, on this 23 day of January, 1996.
This project was approved by the Board of County Commissioners of San Juan County, Colorado, on this 23 day of January, 1996.
Attest: *[Signature]* Secretary
By: *[Signature]* Chairman
BOARD OF COUNTY COMMISSIONERS
OF SAN JUAN COUNTY, COLORADO
Attest: *[Signature]* County Clerk



Traffic Impact Study –Draft Report

Cascade Village

Durango, Colorado

January 20, 2025



Building a Better World
for All of Us®

Engineers | Architects | Planners | Scientists



Building a Better World
for All of Us[®]

Contents

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Figure 8 – Long-Term (Year 2046) Background Traffic Conditions

Figure 9 – Long-Term (Year 2046) Background + Site Generated Traffic Conditions

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Appendix A – Traffic Count Data

Appendix B – LOS Calculation Worksheets

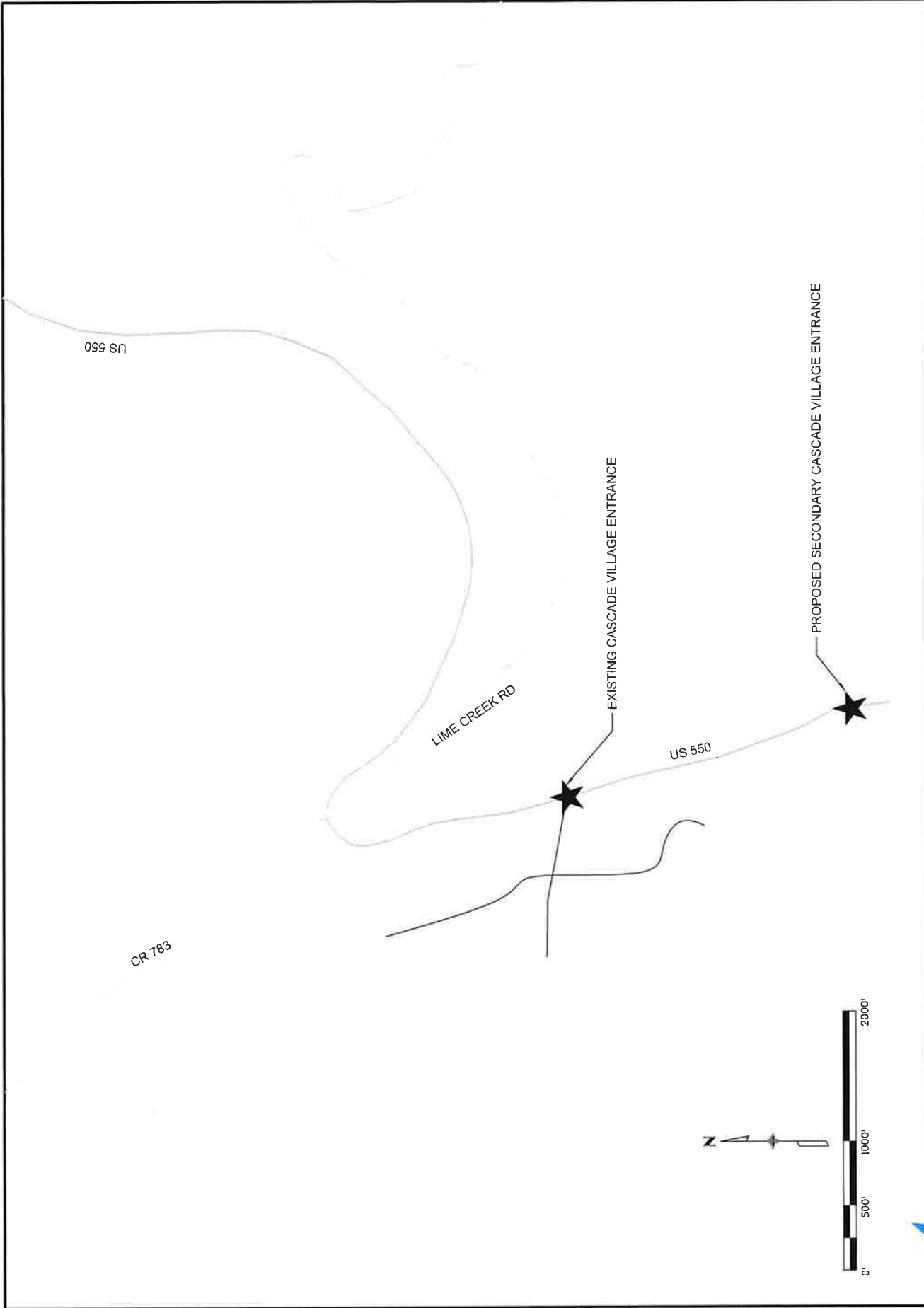
Traffic Impact Study – Draft Report

Prepared for Reynolds Ash & Associates

1 Introduction

Short Elliott Hendrickson Inc. (SEH) is pleased to provide this traffic impact study for the proposed Cascade Village development in Durango, Colorado at 50827 US 550. The development is located adjacent to the existing Cascade Village development approximately a mile north of Purgatory Ski Resort.

The purpose of this study is to identify traffic impacts and recommend mitigation measures associated with the proposed development of the site. This study examines intersection operations for existing, short-term (Year 2026), and long-term (Year 2046) traffic conditions. Typical weekday morning and evening peak periods were analyzed for site-specific impacts. A vicinity map showing the site location in relation to the surrounding roadway network is provided in **Figure 1**.



Traffic Impact Study - Cascade Village
VICINITY MAP

Scale	1" = 1000'	Date	01/02/2025	Drawn By	MJW	Job #	REYAS-181787	Figure	1
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2 Project Description

2.1 Proposed Development

The proposed Cascade Village is located on two separate sites. The first site (Site 1) includes Tract C and is located directly across the existing entrance to Cascade Village along US 550. Tract C is proposed to include 24 townhomes. **Figure 2** displays the proposed site plan.

The second site (Site 2) includes Tracts A and B and is displayed in the attached site plan. The site plan calls out 92 townhomes, 9 cabins, 5 single family homes, 10 condos townhomes, and two commercial properties that will include a small deli and retail space. **Figure 3** displays the proposed site plan.

2.2 Site Access

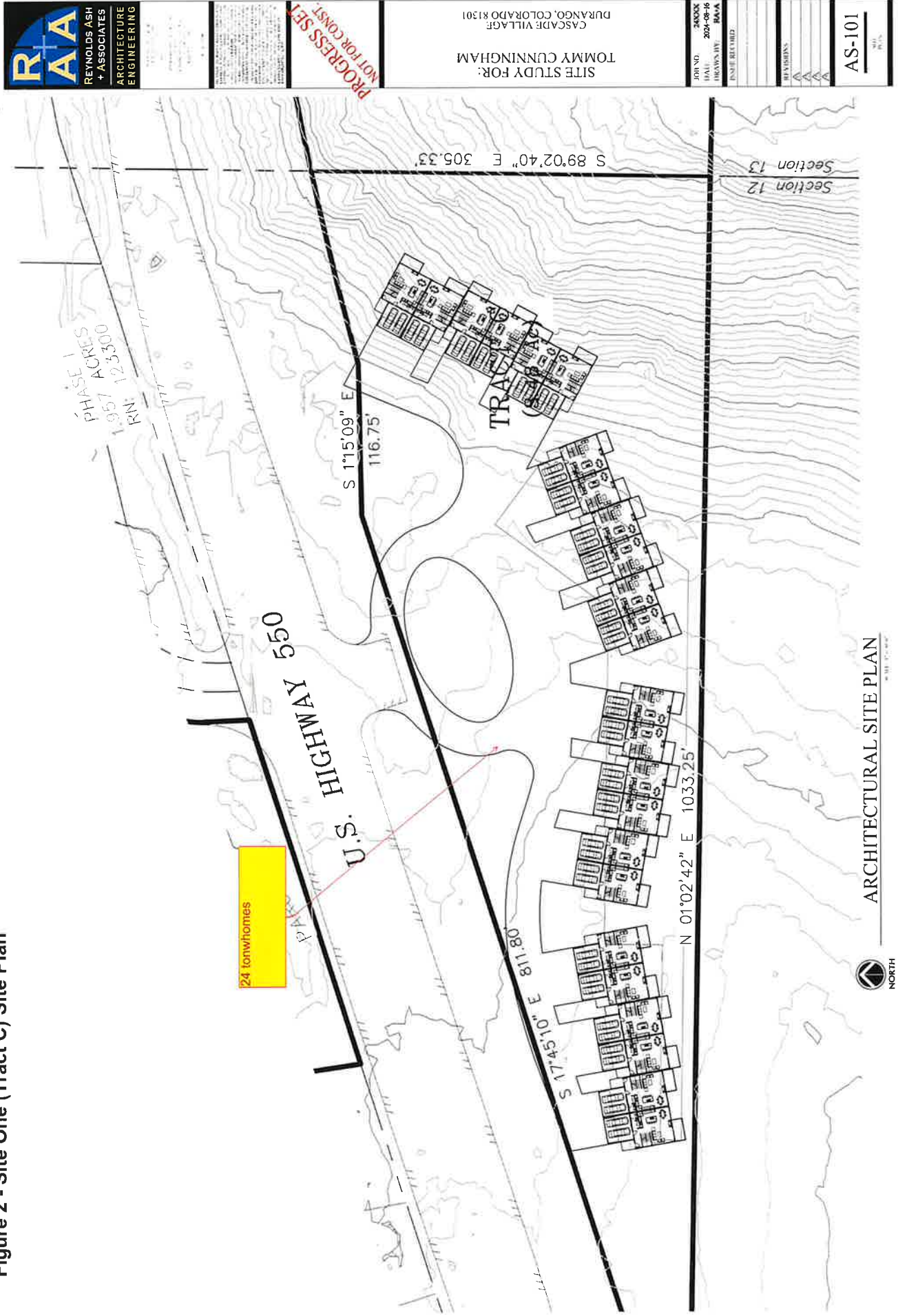
Two site accesses to the Cascade Village development are proposed. The first is a full movement access to US 550 at Site 1. The access will be adding an east leg onto the existing intersection that currently serves the existing Cascade Village property. **Figure 2** displays the proposed access point for Site 1.

The second proposed site access is located at Site 2 that includes Tracts A and B. The proposed access is approximately 3,000 feet south of the existing Cascade Village intersection. **Figure 3** displays the proposed access point for Site 2.

2.3 Study Area and Evaluation Parameters

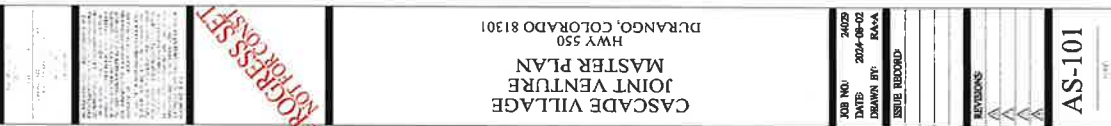
The project study area includes the two site accesses. Per the direction of the client, the anticipated opening date for the development is 2026. Average weekday morning and evening peak hour operations were evaluated for the existing year, short-term (Year 2026), and long-term (Year 2046) scenarios.

Figure 2 - Site One (Tract C) Site Plan





REYNOLDS ASH
+ ASSOCIATES
ARCHITECTURE
ENGINEERING



3 Existing Background Conditions

3.1 Roadway Network

US 550

US 550 is a two-lane highway with a posted speed limit of 45 miles per hour (mph) near the existing Cascade Village intersection and 55 mph near the proposed access to Site 2. The CDOT highway classification is R-A: Regional Highway.

3.2 Existing Background Traffic Volumes

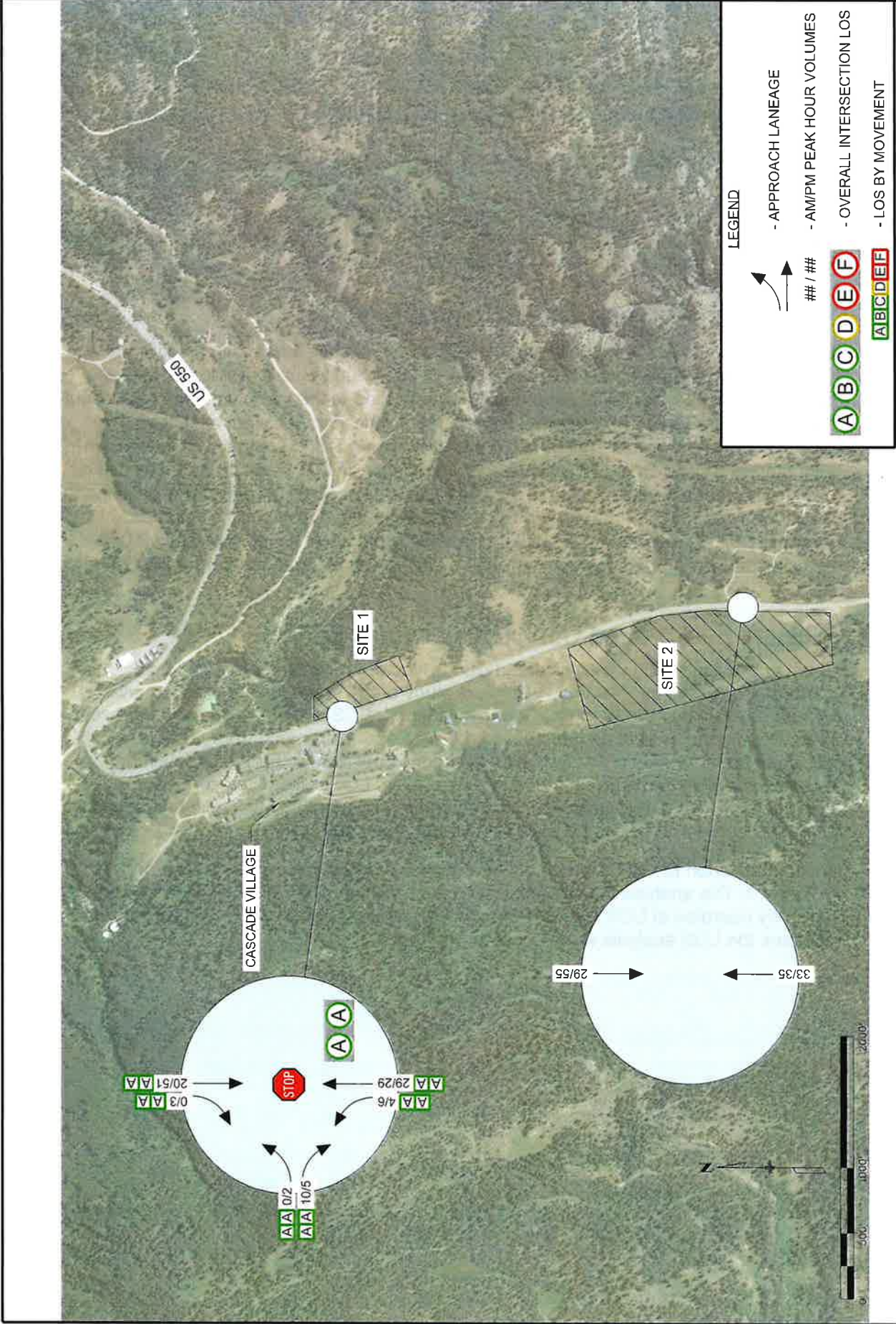
Existing traffic counts were collected by SEH at the existing intersection at US 550 and Cascade Village on Wednesday, December 4, 2024 during the morning and evening peak hours. A seasonal adjustment factor was applied to the traffic volumes to account for the lower traffic observed during time of year traffic volumes were collected. The nearest continuous count station to the site is Station 104809 along US 160 between mile marker 83 and 84 in Durango. A seasonal factor of 1.07 was calculated for the month of December and applied to the collected traffic counts. **Appendix A** contains the turning movement count data and **Figure 4** displays the existing traffic volumes. Average Daily Traffic (ADT) for US 550 near the project site is approximately 2,000 vehicles per day (vpd) displayed in CDOT's Online Transportation Information System (OTIS).

3.3 Existing Background Conditions Level of Service

Level of Service (LOS) was calculated using Synchro 11 software to evaluate the performance of the intersections within the study area. This software package utilizes criteria described in the Highway Capacity Manual¹. LOS is a measure used to describe operational conditions at an intersection. LOS categories ranging from A to F are assigned based on the predicted delay in seconds per vehicle for the intersection overall, as well as for individual turning movements. LOS A indicates very good operations, while LOS F indicates poor, congested operations. Overall intersection LOS D is considered acceptable by CDOT and most municipalities.

A summarization of the results of the intersection LOS calculations is displayed in **Table 1**. The analysis indicates that the intersection at US 550 / Cascade Village currently operates at LOS A with all movements also operating at LOS A. **Appendix B** contains the LOS analysis worksheets for reference.

¹ *HCM 6th: Highway Capacity Manual 6th Edition: A Guide for Multimodal Mobility Analysis* Washington, D.C.: Transportation Research Board, 2016. Print.



Traffic Impact Study - Cascade Village **EXISTING CONDITIONS**

Scale	1" = 1000'	Date	01/02/2025	Drawn By	MJW	Job #	REYAS-181787	Figure	4
-------	------------	------	------------	----------	-----	-------	--------------	--------	---

Table 1. LOS Results - Cascade Village TIS

Intersection and Critical Movements	Year 2024 Traffic						Year 2026 Traffic						Year 2046 Traffic					
	AM Peak Hour		PM Peak Hour		LOS		AM Peak Hour		PM Peak Hour		LOS		AM Peak Hour		PM Peak Hour		LOS	
	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
	Existing Background Traffic						2026 Background Traffic						2026 Background + Site Generated Traffic					
	2.8	A	1.9	A	2.8	A	1.9	A	2.8	A	1.9	A	2.8	A	1.9	A	2.8	A
STOP CONTROL																		
US 550 / Cascade Village Main Access	8.6	A	9.2	A			8.6	A	9.2	A			8.6	A	9.4	A	8.6	A
Eastbound Left																		
Eastbound Through																		
Eastbound Right	0.0	A	8.7	A			0.0	A	8.7	A			0.0	A	8.8	A	0.0	A
Westbound Left													9.2	A	9.5	A	9.4	A
Westbound Through + Right													8.5	A	8.5	A	8.6	A
Northbound Left	7.4	A	7.5	A			7.4	A	7.5	A			7.4	A	7.5	A	7.4	A
Northbound Through	0.0	A	0.0	A			0.0	A	0.0	A			0.0	A	0.0	A	0.0	A
Northbound Right													0.0	A	0.0	A	0.0	A
Southbound Left													7.3	A	7.3	A	7.3	A
Southbound Through	0.0	A	0.0	A			0.0	A	0.0	A			0.0	A	0.0	A	0.0	A
Southbound Right	0.0	A	0.0	A			0.0	A	0.0	A			0.0	A	0.0	A	0.0	A
US 550 / Cascade Village Site 2 Access																		
Eastbound Left													4.1	A	3.5	A	3.8	A
Eastbound Right													9.2	A	9.9	A	9.3	A
Northbound Left													8.7	A	8.8	A	8.7	A
Northbound Through													7.3	A	7.4	A	7.3	A
Northbound Right													0.0	A	0.0	A	0.0	A
Southbound Through + Right													0.0	A	0.0	A	0.0	A

Note: Site 2 Access not analyzed for Background Traffic scenarios due to the traffic being through movements only.

3.4 Trip Generation

To determine the traffic impacts associated with the Cascade Village development, the amount of traffic generated by the proposed development was estimated using trip generation rates contained in the Trip Generation Manual². For Site 1, 24 townhomes are proposed. ITE Code 215-Single-Family Attached determine trip generation rates for Site 1 during the morning and evening peak hour. Site 1 is projected to generate 172 total vpd with 12 vehicles per hour (vph) in the morning peak hour and 14 vph in the evening peak hour.

For Site 2, 5 single family homes, 9 cabins, 92 townhomes, 10 condos, a small deli, and retail store are proposed.

- ITE Code 210-Single-Family Detached Housing was used for the single family homes and cabins
- ITE Code 215-Single-Family Attached Housing was used for the townhomes
- ITE Code 220-Multifamily Housing (Low-Rise) was used for the condos
- ITE Code 932-High-Turnover (Sit-Down) Restaurant was used for the deli
- ITE Code 875-Department Store was used for the retail property.

Site 2 is projected to generate 542 total vpd with 72 vehicles per hour (vph) in the morning peak hour and 89 vph in the evening peak hour.

The estimated weekday, morning peak hour, and evening peak trip generation for the proposed development is contained in **Table 2**.

3.5 Trip Distribution and Assignment

Trip distribution percentages for site generated traffic are based on current traffic patterns in the study area and how traffic will access the site. 90% of the traffic is projected to access the site from the south and 10% from the north. The overall distribution of trips to and from the site are illustrated in **Figure 5**.

² Trip Generation. Institute of Transportation Engineers. 11th Edition. 2021.

Table 2. Weekday Trip Generation Estimate - Cascade Village

Land Use	ITE Code	Size	Unit	Weekday Trips				AM Peak Hour Trips				PM Peak Hour Trips			
				Rate	Total	In	Out	Rate	Total	In	Out	Rate	Total	In	Out
Townhomes ²	215	24	Dwelling Units	7.20	172	86	86	0.48	12	3	9	0.57	14	8	6
Site 1 (Tract C) Total Trips					172	86	86		12	3	9		14	8	6
Single Family Homes ¹	210	5	Dwelling Units	9.43	48	24	24	0.70	4	1	3	0.94	5	3	2
Cabins ¹	210	9	Dwelling Units	9.43	85	43	43	0.70	7	2	5	0.94	8	5	3
Townhomes ²	215	92	Dwelling Units	7.20	662	331	331	0.48	44	11	33	0.57	52	31	21
Condos ³	220	10	Dwelling Units	6.74	67	34	34	0.40	4	1	4	0.51	5	3	2
Small Restaurant/Deli ⁴	932	1	1000 Sq. Ft GFA	107.20	108	54	54	9.57	10	6	4	9.05	9	5	4
Retail Store ⁵	875	5	1000 Sq. Ft GFA	22.88	114	57	57	0.58	3	2	1	1.95	10	5	5
Site 2 (Tract A & B) Total Trips					1,084	542	542		72	23	50		89	52	37
Total Trips					1,256	628	628		84	26	59		103	60	43

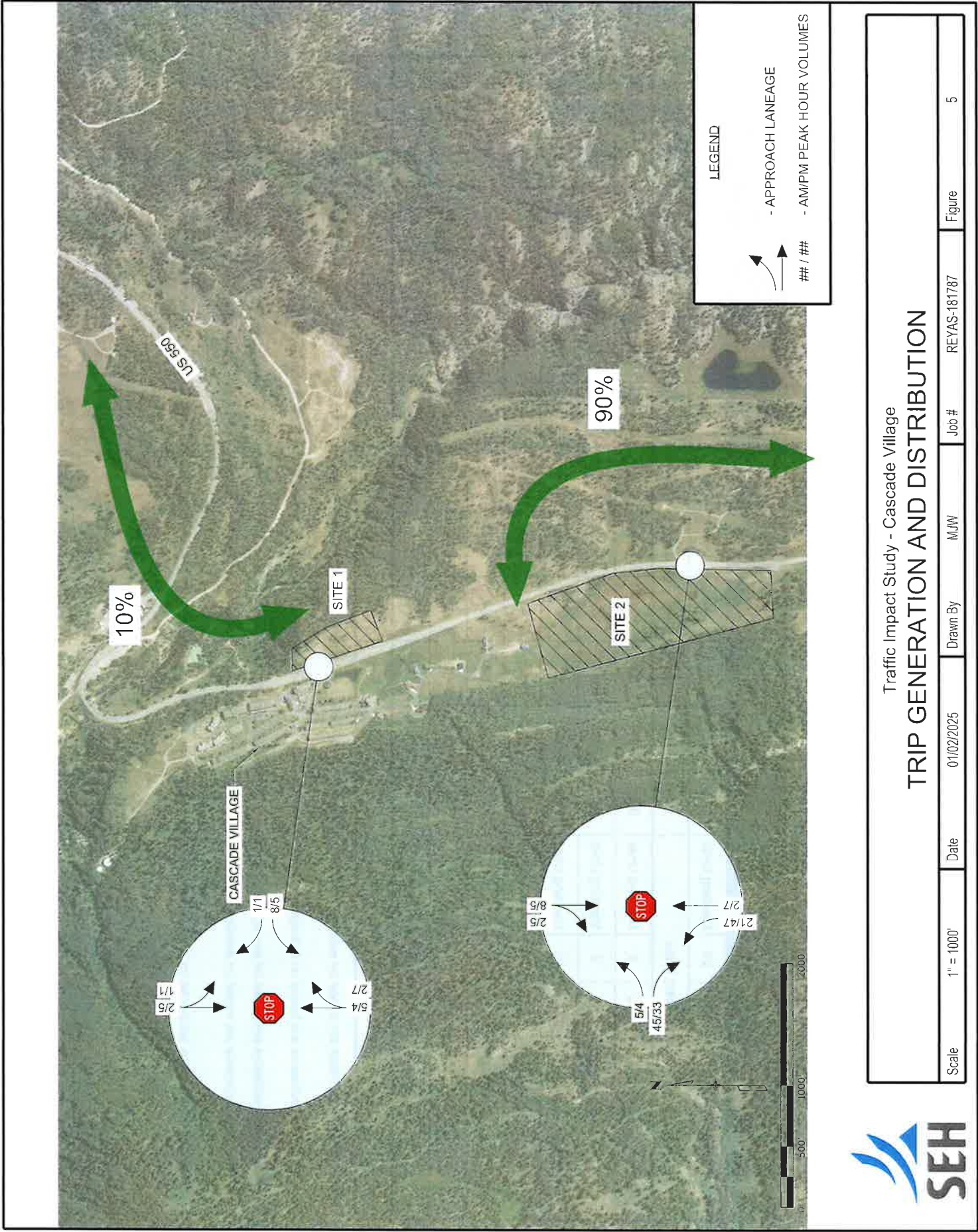
¹ Trip Generation estimates are based on average rates for 210 -Single-Family Detached Housing contained in *Trip Generation, 11th Edition (Institute of Transportation Engineers, 2021)*.

² Trip Generation estimates are based on average rates for 215 - Single-Family Attached Housing contained in *Trip Generation, 11th Edition (Institute of Transportation Engineers, 2021)*.

³ Trip Generation estimates are based on average rates for 220 - Multifamily Housing (Low-Rise) contained in *Trip Generation, 11th Edition (Institute of Transportation Engineers, 2021)*.

⁴ Trip Generation estimates are based on average rates for 932 - High-Turnover (Sit-Down) Restaurant contained in *Trip Generation, 11th Edition (Institute of Transportation Engineers, 2021)*.

⁵ Trip Generation estimates are based on average rates for 875 - Department Store contained in *Trip Generation, 11th Edition (Institute of Transportation Engineers, 2021)*.



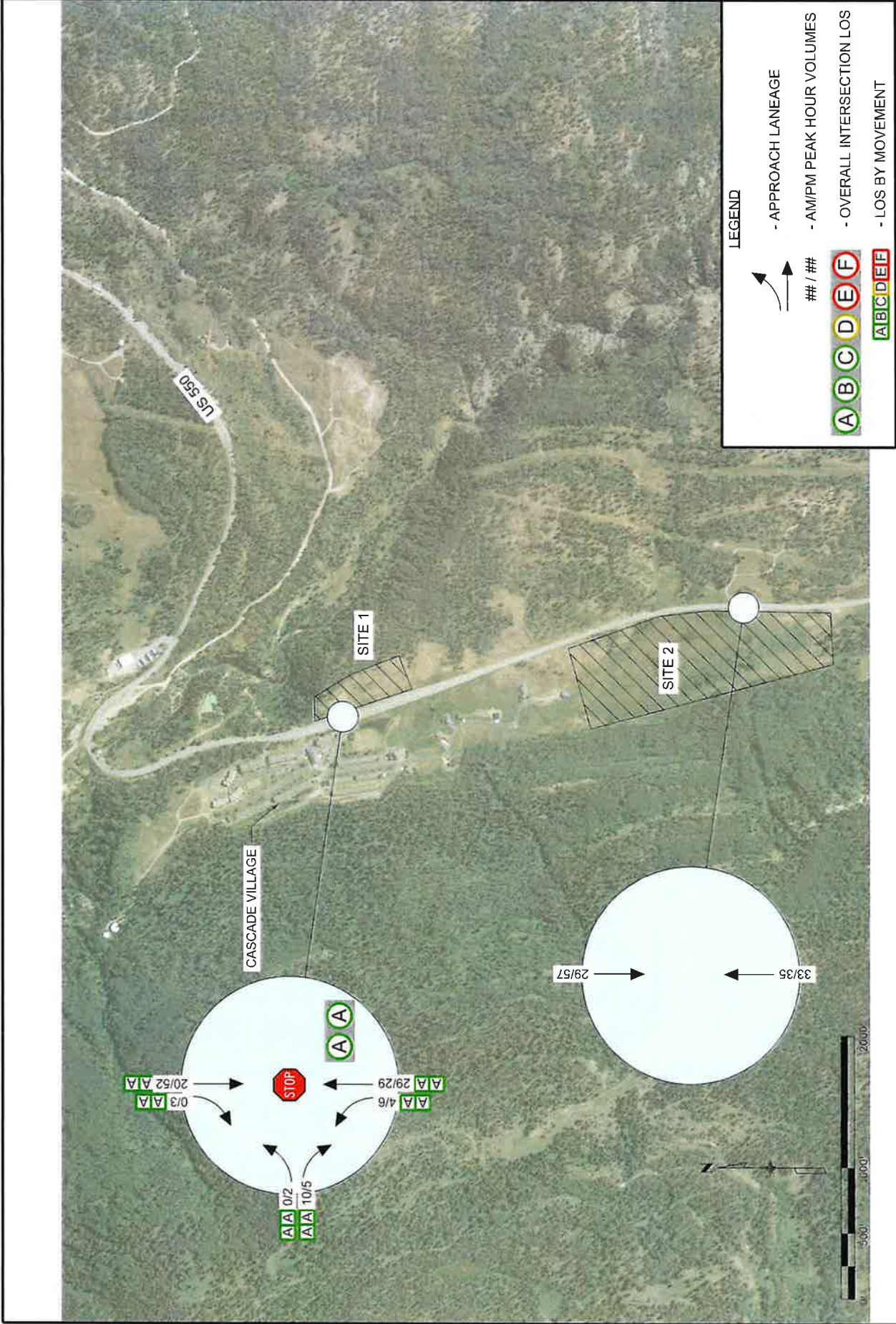
4 Short-Term (Year 2026) Background Analysis

4.1 Short-Term Background Traffic Volumes

Year 2026 is identified as the “open year” for the Cascade Village development and is used as the short-term scenario. OTIS reports a 20-factor of 1.16 near the project site corresponding to 0.8% growth per year. Existing volumes were grown by 1.6 to grow to year 2026 background volumes. The projected short-term background traffic volumes are contained in **Figure 6**.

4.2 Short-Term Background Level of Service

Year 2026 background traffic volumes were analyzed to determine future operations and capacity constraints. A summarization of the results of the intersection LOS calculations is displayed in **Table 1**. The analysis indicates that the intersection at US 550 / Cascade Village currently operates at LOS A with all movements also operating at LOS A. **Appendix B** contains the LOS analysis worksheets for reference.



Traffic Impact Study - Cascade Village

SHORT-TERM (YEAR 2026) BACKGROUND CONDITIONS

Scale	1" = 1000'	Date	01/02/2025	Drawn By	MJW	Job #	REYAS-181787	Figure	6
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5 Short-Term (Year 2026) Background plus Site Generated Traffic Analysis

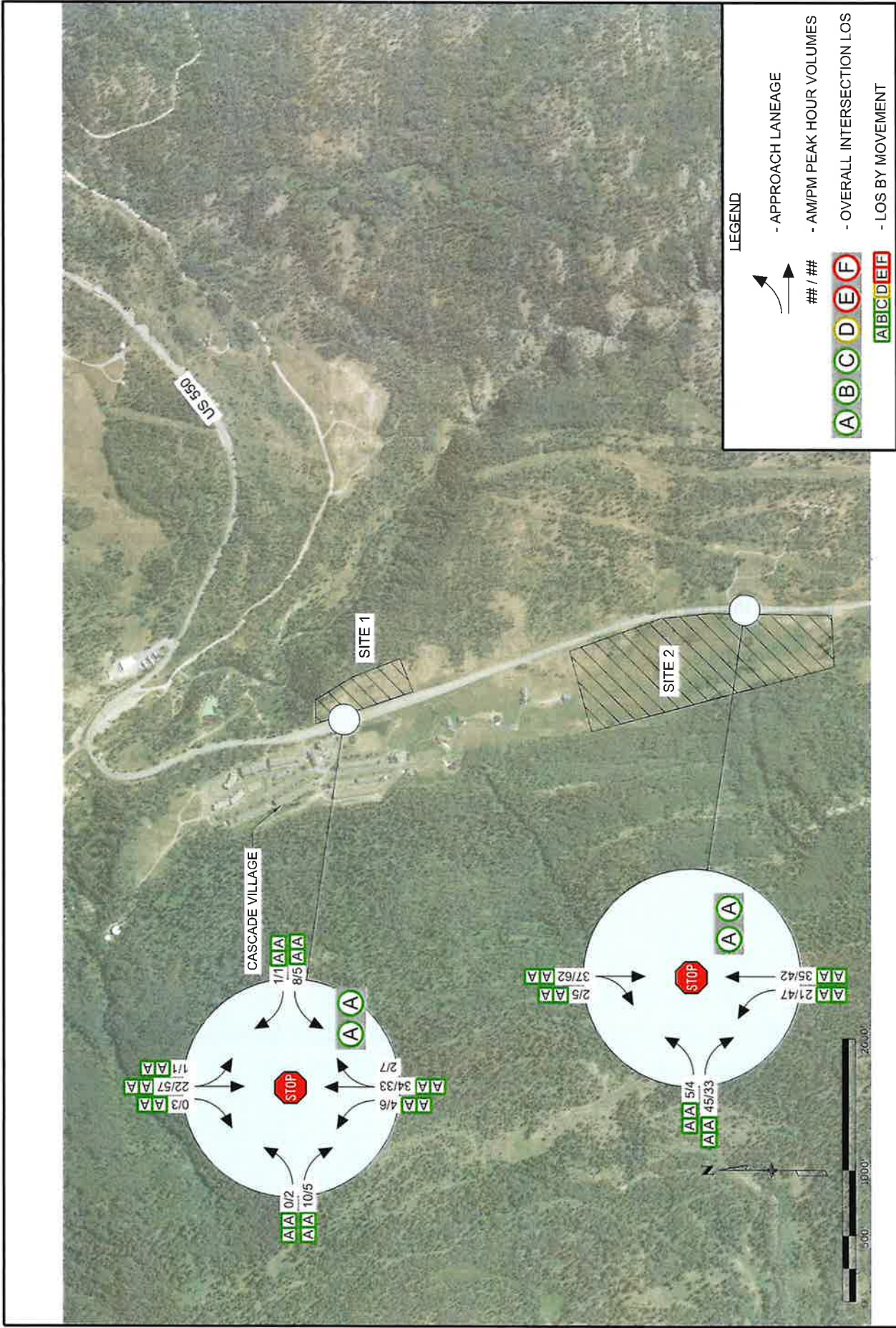
5.1 Short-Term Background plus Site Generated Traffic Volumes

The Cascade Village site generated traffic volumes (**Table 2**) were combined with the short-term background volumes to produce the total short-term traffic volumes. The resulting total traffic volumes are presented in **Figure 7**.

5.2 Short-Term Background plus Site Generated Traffic Level of Service

The Year 2026 background plus site generated traffic volumes were analyzed to determine short-term operations and potential capacity constraints caused by the addition of site traffic from the Cascade Village development.

The analysis of the intersections US 550 / Cascade Village and US 550 / Cascade Village Site 2 Access indicates that the addition of the site generated traffic is projected to have a minimal impact on overall intersection operations and travel time delay with no impact to either overall intersection LOS or LOS by movement. A summarization of the results of the intersection LOS calculations is displayed in **Table 1**. The analysis indicates that the intersection at US 550 / Cascade Village and US 550 / Cascade Village Site 2 Access is projected to continue operating at LOS A with all movements also operating at LOS A. **Appendix B** contains the LOS analysis worksheets for reference.



Traffic Impact Study - Cascade Village

SHORT-TERM (YEAR 2026) BACKGROUND + SITE GENERATED TRAFFIC CONDITIONS

Scale	1" = 1000'	Date	01/02/2025	Drawn By	MJW	Job #	REYAS-181787	Figure	7
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6 Long-Term (Year 2046) Background Analysis

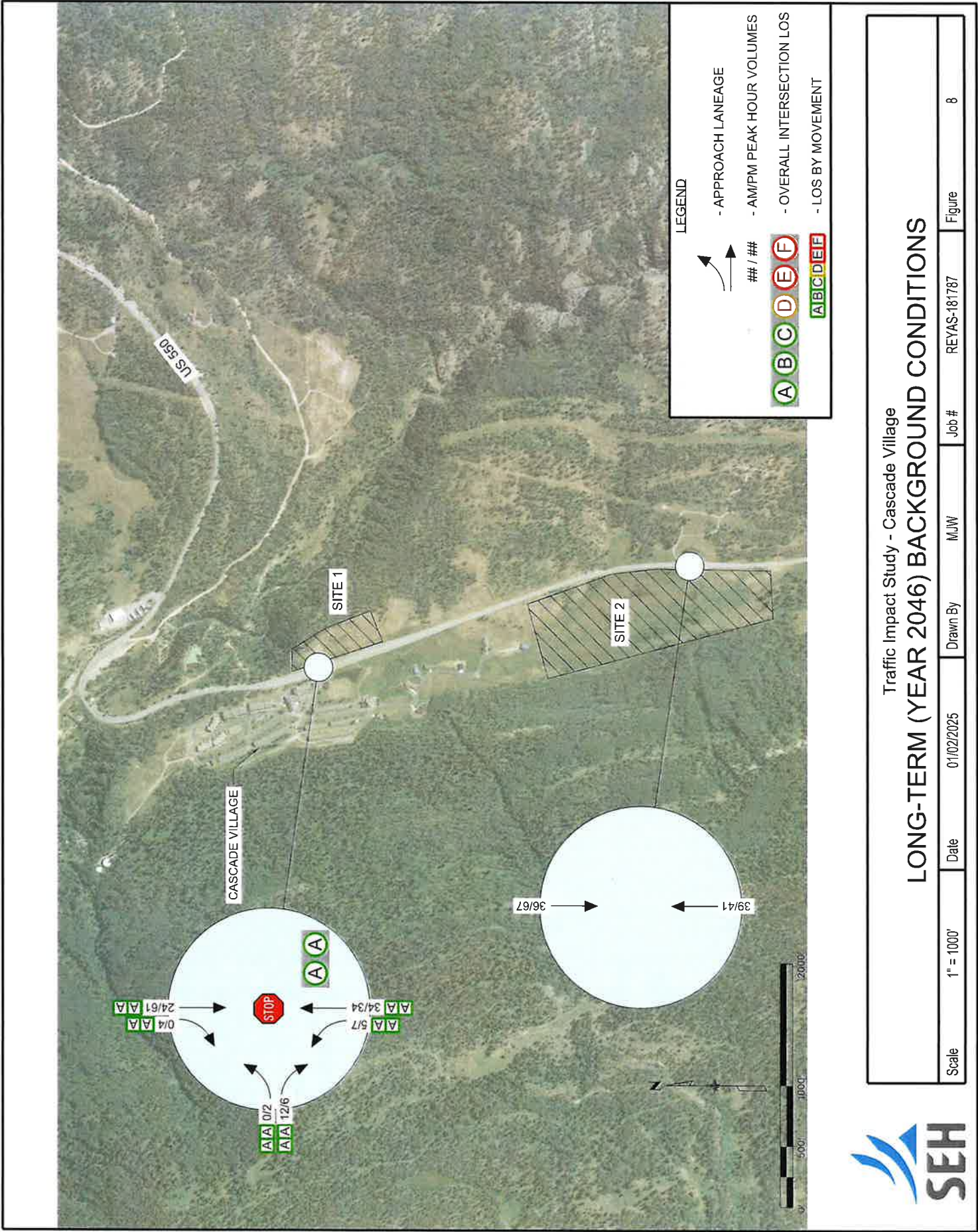
6.1 Long-Term Background Traffic Volumes

Year 2046 is identified as the long-term horizon year for this study and is 20 years post “open year”. Similar to the short-term, background traffic volumes were grown using a 20-factor of 1.16 (0.8% per year growth) outlined in OTIS for the station nearest the site. The projected long-term background traffic volumes are contained in **Figure 8**.

6.2 Long-Term Background Level of Service

Year 2046 background traffic volumes were analyzed to determine future operations and capacity constraints. A summarization of the results of the intersection LOS calculations is displayed in **Table 1**. The analysis indicates that the intersection at US 550 / Cascade Village currently operates at LOS A with all movements also operating at LOS A.

Appendix B contains the LOS analysis worksheets for reference.



7 Long-Term (Year 2046) Background plus Site Generated Traffic Analysis

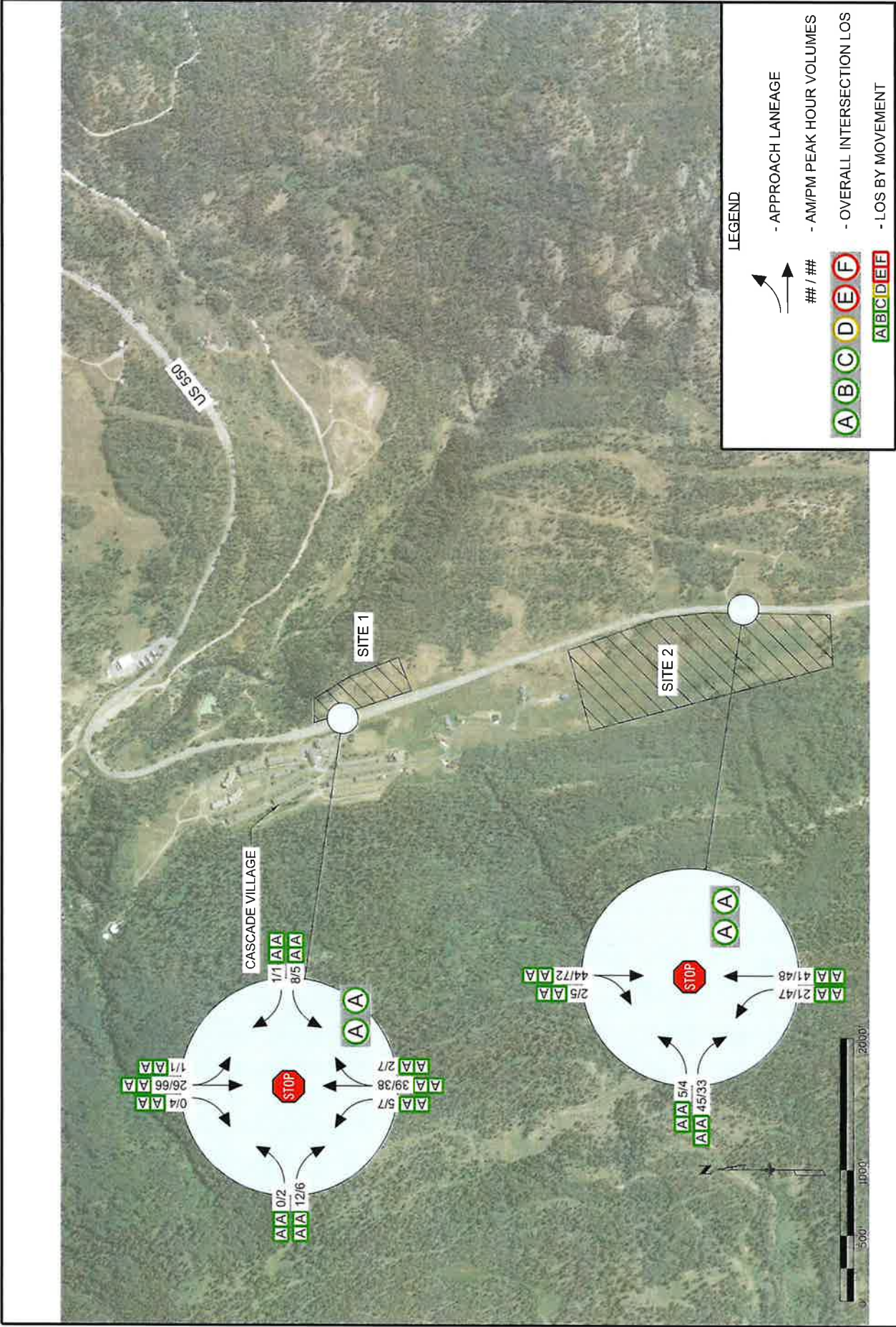
7.1 Long-Term Background plus Site Generated Traffic Volumes

The Cascade Village site generated traffic volumes (**Table 2**) were combined with the long-term background volumes to produce the total long-term traffic volumes. The resulting total traffic volumes are presented in **Figure 9**.

7.2 Long-Term Background plus Site Generated Traffic Level of Service

The Year 2046 background plus site generated traffic volumes were analyzed to determine long-term operations and potential capacity constraints caused by the addition of site traffic from the Cascade Village development.

The analysis of the intersections US 550 / Cascade Village and US 550 / Cascade Village Site 2 Access indicates that the addition of the site generated traffic is projected to have a minimal impact on overall intersection operations and travel time delay with no impact to either overall intersection LOS or LOS by movement. A summarization of the results of the intersection LOS calculations is displayed in **Table 1**. The analysis indicates that the intersection at US 550 / Cascade Village and US 550 / Cascade Village Site 2 Access is projected to continue operating at LOS A with all movements also operating at LOS A. **Appendix B** contains the LOS analysis worksheets for reference.



Traffic Impact Study - Cascade Village

LONG-TERM (YEAR 2046) BACKGROUND + SITE GENERATED TRAFFIC CONDITIONS

Scale	1" = 1000'	Date	01/02/2025	Drawn By	MJW	Job #	REYAS-181787	Figure	9
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8 Additional Roadway Analysis

8.1 Auxiliary Lane Analysis

US 550 is classified as R-A: Regional Highway and has a speed limit of 45 mph posted near the existing US 550 / Cascade Village Access / Site 1 Access intersection and 55 mph near the intersection US 550 / Site 2 Access. According to section 3.8 of the State of Colorado State Highway Access Code, (Volume 2, March 2002), the following criteria require the construction of auxiliary lanes:

- Left turn deceleration lane: 10 vph
- Right turn deceleration lane: 25 vph
- Right turn acceleration lane: 50 vph

An auxiliary lane analysis was conducted for both proposed accesses to the Cascade Village development. The evening peak hour represents the largest amount of site generated traffic with 14 vph at Site 1 (8 vph entering and 6 mph out) and 89 vph at Site 2 (52 vph entering and 37 vph exiting). The proposed development includes a full movement access to/from US 550 at both Site 1 and Site 2. **Figure 5** displays the trip generation.

According to the criteria outlined in the Access Code, a left turn deceleration lane is warranted for the intersection at US 550 / Site 2. According to section 4.8 of the Access Code, a deceleration length of 600' is required for a 55 mph roadway and a storage length of 50' is required for the turn lane resulting in an effective length of 650'. No other auxiliary lanes are warranted along US 550 at either of the sites.

8.2 Sight Distance Analysis

According to section 4.3 of the Access Code entering sight distance for a two-lane 45 mph roadway is 450 feet and 550 feet for a 55 mph roadway. SEH conducted a site visit to confirm the sight distance at the proposed Site 1 and Site 2 access. Approximate sight distances measured were:

- US 550 / Site 1 Access (Southbound, looking right): 1,100'
- US 550 / Site 1 Access (Northbound, looking left): 1,320'
- US 550 / Site 2 Access (Southbound, looking left): 840'
- US 550 / Site 2 Access (Northbound, looking right): 1,110'

Sight distance is sufficient for both proposed accesses, exceeding the criteria outlined in section 4.3 of the Access Code.

9 Conclusions and Mitigation Considerations

Based on the analysis described in the sections above, the following conclusions have been drawn regarding the traffic impacts resulting from the Cascade Village development:

- The anticipated traffic volume generated by the Cascade Village development is not expected to significantly impact the surrounding roadway network.
- Traffic analysis results for the Short-Term and Long-Term scenarios are projected to be similar to the Existing Conditions with very minor changes in travel time delay. Both study intersections are projected to operate at overall LOS A all movements projected to operate at LOS A.
- A left-turn deceleration lane is warranted for the US 550 / Site 2 Access intersection. No auxiliary lanes are required US 550 to accommodate the site generated traffic.
- Sight distance is sufficient in all directions at both Site 1 and Site 2 accesses.
- Due to the minimal projected impact of site generated traffic to the study intersections, no additional mitigation measures for the site or surrounding area are proposed at this time.

Tables

Table 1 – LOS Results – Cascade Village TIS (In Report)

Table 2 – Trip Generation Estimate – Cascade Village TIS (In Report)

Figures

Figure 1 – Vicinity Map (In Report)

Figure 2 – Site One (Tract C) Site Plan (In Report)

Figure 3 – Site 2 (Tract A & B) Site Plan (In Report)

Figure 4 – Existing Conditions (In Report)

Figure 5 – Site Generated Traffic and Distribution (In Report)

Figure 6 – Short-Term (Year 2026) Background Traffic Conditions (In Report)

Figure 7 – Short-Term (Year 2026) Background + Site Generated Traffic Conditions (In Report)

Figure 8 – Long-Term (Year 2046) Background Traffic Conditions (In Report)

Figure 9 – Long-Term (Year 2046) Background + Site Generated Traffic Conditions (In Report)

Appendix A

Traffic Count Data

US 550 & Meadowview Dr. Durango, CO near Purgatory Ski Resort
0 0

Wednesday, December 4, 2024

Time	Southbound 0						Westbound 0						Northbound 0						Eastbound 0						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	4	0	0	4	0	0	0	0	0	0	0	2	3	0	0	0	0	0	0	0	0	0	9
7:15 AM	0	0	3	0	0	3	0	0	0	0	0	0	0	1	8	0	0	0	0	0	0	0	0	0	12
7:30 AM	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	1	0	1	6
7:45 AM	0	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	2	0	2	12
Hourly Total	0	0	14	0	0	14	0	0	0	0	0	0	0	3	19	0	3	0	0	0	0	3	0	3	39

00

Wednesday, December 4, 2024

Time	Southbound 0						Westbound 0						Northbound 0						Eastbound 0				VEHICLE TOTAL			
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns		Crosswalk Crossings	Vehicle Approach Total	
8:00 AM	0	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	5	
8:15 AM	0	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	16	
8:30 AM	0	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	
8:45 AM	0	0	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	10	
Hourly Total	0	0	19	0	0	19	0	0	0	0	0	0	0	3	24	0	0	0	9	0	0	0	9	0	9	55
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

US 550 & Meadowview Dr. Durango, CO near Purgatory Ski Resort

0 0
Wednesday, December 4, 2024

Time	Southbound					Westbound					Northbound					Eastbound					VEHICLE TOTAL					
	0					0					0					0										
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns		Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	
4:00 PM	0	0	13	1	0	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	24	
4:15 PM	0	0	11	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2	20	
4:30 PM	0	0	16	1	0	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	28	
4:45 PM	0	0	7	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14	
Hourly Total	0	0	47	2	0	49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	4	0	5	86
5:00 PM	0	0	3	1	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	10
5:15 PM	0	0	9	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	17
5:30 PM	0	0	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	14
5:45 PM	0	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	12
Hourly Total	0	0	23	1	0	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	6	53
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DAILY TOTAL	0	0	103	3	0	106	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22	0	23	233	
Cars	0	0	95	3	0	98	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	0	21	215	
Heavy Vehicles	0	0	8	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	18	
Heavy Vehicle %	0.00%	0.00%	7.77%	0.00%	0.00%	7.55%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	9.09%	0.00%	8.70%	7.73%		

US 550 & Meadowview Dr. Durango, CO near Purgatory Ski Resort

0 0

Wednesday, December 4, 2024

AM Peak Hour

Time	Southbound			Westbound			Northbound			Eastbound			VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	U Turns	Left Turns	Straight Through	U Turns	Left Turns	Straight Through	U Turns	Left Turns	Straight Through	
7:45 AM	0	0	5	0	0	0	0	0	5	0	0	2	12
8:00 AM	0	0	5	0	0	0	0	2	8	0	0	5	20
8:15 AM	0	0	4	0	0	0	0	1	10	0	0	1	16
8:30 AM	0	0	0	0	0	0	0	0	27	0	0	0	9
Peak Hour Total	0.000	0.000	0.900	0.000	0.000	0.000	0.000	0.375	0.675	0.000	0.000	0.450	0.713
PHF													

PM Peak Hour

Time	Southbound			Westbound			Northbound			Eastbound			VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	U Turns	Left Turns	Straight Through	U Turns	Left Turns	Straight Through	U Turns	Left Turns	Straight Through	
4:00 PM	0	0	13	0	0	0	0	1	7	0	0	2	24
4:15 PM	0	0	11	0	0	0	0	1	6	0	1	0	20
4:30 PM	0	0	16	0	0	0	0	3	7	0	0	1	28
4:45 PM	0	0	7	0	0	0	0	0	7	0	0	0	14
Peak Hour Total	0.000	0.000	0.734	0.000	0.000	0.000	0.000	0.417	0.964	0.000	0.250	0.500	0.768
PHF													

Total Vehicles On Leg		197	
Vehicles Entering Intersection		Vehicles Exiting Intersection	
Southbound			
Cars	3	95	0
Heavy	0	8	0
Total	3	103	0

Eastbound			Westbound		
Vehicles Entering Intersection	Cars	Heavy	Total	Vehicles Entering Intersection	Total Vehicles on Leg
23	0	0	0	0	0
17	1	0	1	0	0
	0	0	0	0	0
	20	2	22		



Daily Volumes

0-71		125		229	
Cars	0	0	12	84	0
Heavy	0	0	2	6	0
Total	0	0	14	90	0
Northbound					
Vehicles Entering Intersection			Vehicles Exiting Intersection		
104			125		
Total Vehicles On Leg			229		



Appendix B







LOS Calculation Worksheets

HCM 6th TWSC
3: US 550 & Cascade Village Existing Access

AM Peak Hour
Existing Conditions

Intersection

Int Delay, s/veh 2.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	10	4	29	20	0
Future Vol, veh/h	0	10	4	29	20	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	25	0	420	-	-	280
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	45	38	68	90	92
Heavy Vehicles, %	0	9	14	7	8	2
Mvmt Flow	0	22	11	43	22	0

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	87	22	22
Stage 1	22	-	-
Stage 2	65	-	-
Critical Hdwy	6.4	6.29	4.24
Critical Hdwy Stg 1	5.4	-	-
Critical Hdwy Stg 2	5.4	-	-
Follow-up Hdwy	3.5	3.381	2.326
Pot Cap-1 Maneuver	919	1035	1519
Stage 1	1006	-	-
Stage 2	963	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	913	1035	1519
Mov Cap-2 Maneuver	913	-	-
Stage 1	999	-	-
Stage 2	963	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.6	1.5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1519	-	-	1035	-	-
HCM Lane V/C Ratio	0.007	-	-	0.021	-	-
HCM Control Delay (s)	7.4	-	0	8.6	-	-
HCM Lane LOS	A	-	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	-	-

HCM 6th TWSC
3: US 550 & Cascade Village Existing Access

PM Peak Hour
Existing Conditions

Intersection						
Int Delay, s/veh	1.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖	↗	↖	↗	↗	↗
Traffic Vol, veh/h	2	5	6	29	51	3
Future Vol, veh/h	2	5	6	29	51	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	25	0	420	-	-	280
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	25	50	42	96	73	50
Heavy Vehicles, %	0	9	14	7	8	2
Mvmt Flow	8	10	14	30	70	6
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	128	70	76	0	-	0
Stage 1	70	-	-	-	-	-
Stage 2	58	-	-	-	-	-
Critical Hdwy	6.4	6.29	4.24	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.381	2.326	-	-	-
Pot Cap-1 Maneuver	871	974	1450	-	-	-
Stage 1	958	-	-	-	-	-
Stage 2	970	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	862	974	1450	-	-	-
Mov Cap-2 Maneuver	862	-	-	-	-	-
Stage 1	948	-	-	-	-	-
Stage 2	970	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	8.9	2.4		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1450	-	862	974	-	-
HCM Lane V/C Ratio	0.01	-	0.009	0.01	-	-
HCM Control Delay (s)	7.5	-	9.2	8.7	-	-
HCM Lane LOS	A	-	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	0	-	-

HCM 6th TWSC
3: US 550 & Cascade Village Existing Access

AM Peak Hour
Short-Term (2026) Conditions

Intersection

Int Delay, s/veh 2.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↰	↰	↱	↱	↰
Traffic Vol, veh/h	0	10	4	29	20	0
Future Vol, veh/h	0	10	4	29	20	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	25	0	420	-	-	280
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	45	38	68	90	92
Heavy Vehicles, %	0	9	14	7	8	2
Mvmt Flow	0	22	11	43	22	0

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	87	22	22
Stage 1	22	-	-
Stage 2	65	-	-
Critical Hdwy	6.4	6.29	4.24
Critical Hdwy Stg 1	5.4	-	-
Critical Hdwy Stg 2	5.4	-	-
Follow-up Hdwy	3.5	3.381	2.326
Pot Cap-1 Maneuver	919	1035	1519
Stage 1	1006	-	-
Stage 2	963	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	913	1035	1519
Mov Cap-2 Maneuver	913	-	-
Stage 1	999	-	-
Stage 2	963	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.6	1.5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1519	-	-	1035	-	-
HCM Lane V/C Ratio	0.007	-	-	0.021	-	-
HCM Control Delay (s)	7.4	-	0	8.6	-	-
HCM Lane LOS	A	-	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	-	-










HCM 6th TWSC
3: US 550 & Cascade Village Existing Access

PM Peak Hour
Short-Term (2026) Conditions

Intersection						
Int Delay, s/veh	1.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖	↗	↖	↗	↗	↖
Traffic Vol, veh/h	2	5	6	29	52	3
Future Vol, veh/h	2	5	6	29	52	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	25	0	420	-	-	280
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	25	50	42	96	73	50
Heavy Vehicles, %	0	9	14	7	8	2
Mvmt Flow	8	10	14	30	71	6
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	129	71	77	0	-	0
Stage 1	71	-	-	-	-	-
Stage 2	58	-	-	-	-	-
Critical Hdwy	6.4	6.29	4.24	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.381	2.326	-	-	-
Pot Cap-1 Maneuver	870	972	1449	-	-	-
Stage 1	957	-	-	-	-	-
Stage 2	970	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	861	972	1449	-	-	-
Mov Cap-2 Maneuver	861	-	-	-	-	-
Stage 1	947	-	-	-	-	-
Stage 2	970	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	8.9	2.4		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1449	-	861	972	-	-
HCM Lane V/C Ratio	0.01	-	0.009	0.01	-	-
HCM Control Delay (s)	7.5	-	9.2	8.7	-	-
HCM Lane LOS	A	-	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	0	-	-

Intersection

Int Delay, s/veh 3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	10	8	0	1	4	34	2	1	22	0
Future Vol, veh/h	0	0	10	8	0	1	4	34	2	1	22	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Stop	-	-	None	-	-	None	-	-	None
Storage Length	25	-	0	0	-	0	420	-	-	-	-	280
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	45	92	92	92	38	68	92	92	90	92
Heavy Vehicles, %	0	2	9	2	2	2	14	7	2	2	8	2
Mvmt Flow	0	0	22	9	0	1	11	50	2	1	24	0

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	100	-	24	99	-	51	24	0	0	52	0	0
Stage 1	26	-	-	73	-	-	-	-	-	-	-	-
Stage 2	74	-	-	26	-	-	-	-	-	-	-	-
Critical Hdwy	7.1	-	6.29	7.12	-	6.22	4.24	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	-	-	6.12	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	-	-	6.12	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	-	3.381	3.518	-	3.318	2.326	-	-	2.218	-	-
Pot Cap-1 Maneuver	886	0	1033	883	0	1017	1516	-	-	1554	-	-
Stage 1	997	0	-	937	0	-	-	-	-	-	-	-
Stage 2	940	0	-	992	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	880	-	1033	858	-	1017	1516	-	-	1554	-	-
Mov Cap-2 Maneuver	880	-	-	858	-	-	-	-	-	-	-	-
Stage 1	990	-	-	930	-	-	-	-	-	-	-	-
Stage 2	932	-	-	970	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.6	9.1	1.2	0.3
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1516	-	-	-	1033	858	1017	1554	-	-
HCM Lane V/C Ratio	0.007	-	-	-	0.022	0.01	0.001	0.001	-	-
HCM Control Delay (s)	7.4	-	-	0	8.6	9.2	8.5	7.3	0	-
HCM Lane LOS	A	-	-	A	A	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0	0	0	-	-










HCM 6th TWSC
5: US 550 & Site 2 Access

AM Peak Hour
Short-Term (2026) Background + Site Generated Traffic

Intersection						
Int Delay, s/veh	4.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱	↰	↱	↰	↱
Traffic Vol, veh/h	5	45	21	35	37	2
Future Vol, veh/h	5	45	21	35	37	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	49	23	38	40	2
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	125	41	42	0	-	0
Stage 1	41	-	-	-	-	-
Stage 2	84	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	870	1030	1567	-	-	-
Stage 1	981	-	-	-	-	-
Stage 2	939	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	857	1030	1567	-	-	-
Mov Cap-2 Maneuver	857	-	-	-	-	-
Stage 1	966	-	-	-	-	-
Stage 2	939	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	8.8	2.7		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1567	-	857	1030	-	-
HCM Lane V/C Ratio	0.015	-	0.006	0.047	-	-
HCM Control Delay (s)	7.3	-	9.2	8.7	-	-
HCM Lane LOS	A	-	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	0.1	-	-

Intersection

Int Delay, s/veh 2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	0	5	5	0	1	6	33	7	1	57	3
Future Vol, veh/h	2	0	5	5	0	1	6	33	7	1	57	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Stop	-	-	None	-	-	None	-	-	None
Storage Length	25	-	0	0	-	0	420	-	-	-	-	280
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	25	92	50	92	92	92	42	96	92	92	73	50
Heavy Vehicles, %	0	2	9	2	2	2	14	7	2	2	8	2
Mvmt Flow	8	0	10	5	0	1	14	34	8	1	78	6

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	147	-	78	149	-	38	84	0	0	42	0	0
Stage 1	80	-	-	66	-	-	-	-	-	-	-	-
Stage 2	67	-	-	83	-	-	-	-	-	-	-	-
Critical Hdwy	7.1	-	6.29	7.12	-	6.22	4.24	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	-	-	6.12	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	-	-	6.12	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	-	3.381	3.518	-	3.318	2.326	-	-	2.218	-	-
Pot Cap-1 Maneuver	826	0	964	819	0	1034	1440	-	-	1567	-	-
Stage 1	934	0	-	945	0	-	-	-	-	-	-	-
Stage 2	948	0	-	925	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	819	-	964	804	-	1034	1440	-	-	1567	-	-
Mov Cap-2 Maneuver	819	-	-	804	-	-	-	-	-	-	-	-
Stage 1	925	-	-	936	-	-	-	-	-	-	-	-
Stage 2	938	-	-	914	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.1	9.3	1.9	0.1
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1440	-	-	819	964	804	1034	1567	-	-
HCM Lane V/C Ratio	0.01	-	-	0.01	0.01	0.007	0.001	0.001	-	-
HCM Control Delay (s)	7.5	-	-	9.4	8.8	9.5	8.5	7.3	0	-
HCM Lane LOS	A	-	-	A	A	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	0	0	-	-

HCM 6th TWSC
3: US 550 & Cascade Village Existing Access

AM Peak Hour
Long-Term (2046) Conditions

Intersection						
Int Delay, s/veh	2.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱	↰	↱	↱	↱
Traffic Vol, veh/h	0	12	5	34	24	0
Future Vol, veh/h	0	12	5	34	24	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	25	0	420	-	-	280
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	45	38	68	90	92
Heavy Vehicles, %	0	9	14	7	8	2
Mvmt Flow	0	27	13	50	27	0
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	103	27	27	0	-	0
Stage 1	27	-	-	-	-	-
Stage 2	76	-	-	-	-	-
Critical Hdwy	6.4	6.29	4.24	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.381	2.326	-	-	-
Pot Cap-1 Maneuver	900	1029	1512	-	-	-
Stage 1	1001	-	-	-	-	-
Stage 2	952	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	892	1029	1512	-	-	-
Mov Cap-2 Maneuver	892	-	-	-	-	-
Stage 1	992	-	-	-	-	-
Stage 2	952	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	8.6	1.5		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1512	-	-	1029	-	-
HCM Lane V/C Ratio	0.009	-	-	0.026	-	-
HCM Control Delay (s)	7.4	-	0	8.6	-	-
HCM Lane LOS	A	-	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	-	-

HCM 6th TWSC
3: US 550 & Cascade Village Existing Access

PM Peak Hour
Long-Term (2046) Conditions

Intersection						
Int Delay, s/veh	1.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↰	↰	↱	↱	↰
Traffic Vol, veh/h	2	6	7	34	61	4
Future Vol, veh/h	2	6	7	34	61	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	25	0	420	-	-	280
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	25	50	42	96	73	50
Heavy Vehicles, %	0	9	14	7	8	2
Mvmt Flow	8	12	17	35	84	8
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	153	84	92	0	-	0
Stage 1	84	-	-	-	-	-
Stage 2	69	-	-	-	-	-
Critical Hdwy	6.4	6.29	4.24	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.381	2.326	-	-	-
Pot Cap-1 Maneuver	843	956	1430	-	-	-
Stage 1	944	-	-	-	-	-
Stage 2	959	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	833	956	1430	-	-	-
Mov Cap-2 Maneuver	833	-	-	-	-	-
Stage 1	933	-	-	-	-	-
Stage 2	959	-	-	-	-	-
Approach	EB	NB	SB			
HCM Control Delay, s	9	2.4	0			
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1430	-	833	956	-	-
HCM Lane V/C Ratio	0.012	-	0.01	0.013	-	-
HCM Control Delay (s)	7.5	-	9.4	8.8	-	-
HCM Lane LOS	A	-	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	0	-	-

Intersection												
Int Delay, s/veh	3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖		↖	↖		↖	↖	↖			↖	↖
Traffic Vol, veh/h	0	0	12	8	0	1	5	39	2	1	26	0
Future Vol, veh/h	0	0	12	8	0	1	5	39	2	1	26	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Stop	-	-	None	-	-	None	-	-	None
Storage Length	25	-	0	0	-	0	420	-	-	-	-	280
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	45	92	92	92	38	68	92	92	90	92
Heavy Vehicles, %	0	2	9	2	2	2	14	7	2	2	8	2
Mvmt Flow	0	0	27	9	0	1	13	57	2	1	29	0

Major/Minor	Minor2	Minor1	Major1	Major2
Conflicting Flow All	116	- 29	115	- 58 29 0 0 59 0 0
Stage 1	31	- -	84	- - - - - - -
Stage 2	85	- -	31	- - - - - - -
Critical Hdwy	7.1	- 6.29	7.12	- 6.22 4.24 - - 4.12 - -
Critical Hdwy Stg 1	6.1	- -	6.12	- - - - - - -
Critical Hdwy Stg 2	6.1	- -	6.12	- - - - - - -
Follow-up Hdwy	3.5	- 3.381	3.518	- 3.318 2.326 - - 2.218 - -
Pot Cap-1 Maneuver	865	0 1026	862	0 1008 1510 - - 1545 - -
Stage 1	991	0 -	924	0 - - - - - -
Stage 2	928	0 -	986	0 - - - - - -
Platoon blocked, %				- - - - - - -
Mov Cap-1 Maneuver	858	- 1026	834	- 1008 1510 - - 1545 - -
Mov Cap-2 Maneuver	858	- -	834	- - - - - - -
Stage 1	982	- -	916	- - - - - - -
Stage 2	919	- -	959	- - - - - - -

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.6	9.3	1.3	0.3
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1510	-	-	-	1026	834	1008	1545	-	-
HCM Lane V/C Ratio	0.009	-	-	-	0.026	0.01	0.001	0.001	-	-
HCM Control Delay (s)	7.4	-	-	0	8.6	9.4	8.6	7.3	0	-
HCM Lane LOS	A	-	-	A	A	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0	0	0	-	-

Intersection

Int Delay, s/veh 3.8

Movement EBL EBR NBL NBT SBT SBR

Lane Configurations	↰	↱	↰	↱	↰	↱
Traffic Vol, veh/h	5	45	21	41	44	2
Future Vol, veh/h	5	45	21	41	44	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	49	23	45	48	2

Major/Minor Minor2 Major1 Major2

Conflicting Flow All	140	49	50	0	-	0
Stage 1	49	-	-	-	-	-
Stage 2	91	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	853	1020	1557	-	-	-
Stage 1	973	-	-	-	-	-
Stage 2	933	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	840	1020	1557	-	-	-
Mov Cap-2 Maneuver	840	-	-	-	-	-
Stage 1	958	-	-	-	-	-
Stage 2	933	-	-	-	-	-

Approach EB NB SB

HCM Control Delay, s	8.8	2.5	0
HCM LOS	A		

Minor Lane/Major Mvmt NBL NBT EBLn1 EBLn2 SBT SBR

Capacity (veh/h)	1557	-	840	1020	-	-
HCM Lane V/C Ratio	0.015	-	0.006	0.048	-	-
HCM Control Delay (s)	7.3	-	9.3	8.7	-	-
HCM Lane LOS	A	-	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	0.2	-	-

Intersection												
Int Delay, s/veh	2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰		↰	↰		↰	↰	↰			↰	↰
Traffic Vol, veh/h	2	0	6	5	0	1	7	38	7	1	66	4
Future Vol, veh/h	2	0	6	5	0	1	7	38	7	1	66	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Stop	-	-	None	-	-	None	-	-	None
Storage Length	25	-	0	0	-	0	420	-	-	-	-	280
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	25	92	50	92	92	92	42	96	92	92	73	50
Heavy Vehicles, %	0	2	9	2	2	2	14	7	2	2	8	2
Mvmt Flow	8	0	12	5	0	1	17	40	8	1	90	8

Major/Minor	Minor2		Minor1		Major1				Major2			
Conflicting Flow All	171	-	90	174	-	44	98	0	0	48	0	0
Stage 1	92	-	-	78	-	-	-	-	-	-	-	-
Stage 2	79	-	-	96	-	-	-	-	-	-	-	-
Critical Hdwy	7.1	-	6.29	7.12	-	6.22	4.24	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	-	-	6.12	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	-	-	6.12	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	-	3.381	3.518	-	3.318	2.326	-	-	2.218	-	-
Pot Cap-1 Maneuver	797	0	949	789	0	1026	1423	-	-	1559	-	-
Stage 1	920	0	-	931	0	-	-	-	-	-	-	-
Stage 2	935	0	-	911	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	788	-	949	772	-	1026	1423	-	-	1559	-	-
Mov Cap-2 Maneuver	788	-	-	772	-	-	-	-	-	-	-	-
Stage 1	909	-	-	920	-	-	-	-	-	-	-	-
Stage 2	923	-	-	899	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.1	9.5	2	0.1
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1423	-	-	788	949	772	1026	1559	-	-
HCM Lane V/C Ratio	0.012	-	-	0.01	0.013	0.007	0.001	0.001	-	-
HCM Control Delay (s)	7.6	-	-	9.6	8.8	9.7	8.5	7.3	0	-
HCM Lane LOS	A	-	-	A	A	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	0	0	-	-

HCM 6th TWSC
5: US 550 & Site 2 Access

PM Peak Hour
Long-Term (2046) Background + Site Generated Traffic

Intersection						
Int Delay, s/veh	3.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↰	↰	↱	↱	↱
Traffic Vol, veh/h	4	33	47	48	72	5
Future Vol, veh/h	4	33	47	48	72	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	36	51	52	78	5
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	235	81	83	0	-	0
Stage 1	81	-	-	-	-	-
Stage 2	154	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	753	979	1514	-	-	-
Stage 1	942	-	-	-	-	-
Stage 2	874	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	727	979	1514	-	-	-
Mov Cap-2 Maneuver	727	-	-	-	-	-
Stage 1	910	-	-	-	-	-
Stage 2	874	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	8.9	3.7		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1514	-	727	979	-	-
HCM Lane V/C Ratio	0.034	-	0.006	0.037	-	-
HCM Control Delay (s)	7.5	-	10	8.8	-	-
HCM Lane LOS	A	-	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0	0.1	-	-



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COLORADO DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ACCESS PERMIT APPLICATION

Issuing authority application
acceptance date:

- Instructions:
- Contact the Colorado Department of Transportation (CDOT) or your local government to determine your issuing authority.
 - Contact the issuing authority to determine what plans and other documents are required to be submitted with your application.
 - Complete this form (some questions may not apply to you) and attach all necessary documents and Submit it to the issuing authority.
 - Submit an application for each access affected.
 - If you have any questions, contact the issuing authority.
 - For additional information, see CDOT's Access Management website at <http://www.codot.gov/business/permits/accesspermits>.
- Please print or type**
- *Indicates required field*

1) Property Owner (Permittee)* Cascade Hospitality		2) Applicant or Agent for Permittee (if different from property owner) SEH Inc. - Paul O'Neil	
Street Address* PO Box 34781		Mailing Address 934 Main Ave, Unit C	
City, State & Zip* Charlotte, NC 28234	Phone #	City, State & Zip Durango, CO 81301	Phone # 970.459.4259
E-mail Address*		E-mail Address (if available) poneil@sehinc.com	
3) Address of property to be served by permit* 50221 Highway 550, Durango CO			
county San Juan	subdivision 3	block	lot
			section 13
			township 39N
			range 9W
5) What State Highway are you requesting access from?*		6) What side of the highway?*	
US 550		<input type="checkbox"/> N <input type="checkbox"/> S <input type="checkbox"/> E <input checked="" type="checkbox"/> W	
7) How many feet is the proposed access from the nearest milepost (or cross street if mile post unknown)?*			
970 feet (<input checked="" type="checkbox"/> N <input type="checkbox"/> S <input type="checkbox"/> E <input type="checkbox"/> W) from: MP 50			
8) What is the approximate date you intend to begin construction? 08/01/2025			
9) Check here if you are requesting a:*			
<input checked="" type="checkbox"/> New Access <input type="checkbox"/> Temporary Access (duration anticipated: _____) <input type="checkbox"/> Improvement to Existing Access <input type="checkbox"/> Change in Access Use <input type="checkbox"/> Removal of Access <input type="checkbox"/> Relocation of an Existing Access (provide detail)			
10) Provide existing property use Vacant			
11) Do you have knowledge of any State Highway access permits serving this property, or adjacent properties in which you have a property interest?*			
<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes, if yes – what are the permit number(s) and provide copies: _____ and/or, permit date: _____			
12) Does the property owner own or have any interests in any adjacent property?*			
<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes, if yes – please describe: Property is part of Cascade Village overall development			
13) Are there other existing or dedicated public streets, roads, highways or access easements bordering or within the property?*			
<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes, if yes – list them on your plans and indicate the proposed and existing access points.			
14) If you are requesting agriculture field access – how many acres will the access serve?			
15) If you are requesting commercial or industrial access, please indicate the types and number of businesses and provide the floor area square footage of each.			
Business/Land Use	Square Footage	Business/Land Use	Square Footage
16) If you are requesting residential development access, what is the type (single family, apartment, townhouse) and number of units?			
Type	Number of Units	Type	Number of Units
Townhomes/Condos	102	Restaraunt	1000
Single Family/Cabins	14	Retail	5000
17) Provide the following vehicle count estimates for vehicles that will use the access. Leaving the property then returning is two counts.*			
Indicate if your counts are <input checked="" type="checkbox"/> peak hour volumes or <input type="checkbox"/> average daily volumes.	# of passenger cars and light trucks at peak hour volumes 89	# of multi-unit trucks at peak hour volumes	
# of single unit vehicles in excess of 30 ft.	# of farm vehicles (field equipment)	Total count of all vehicles 89	

18) Check with the issuing authority to determine which of the following documents are required to complete the review of your application.

- | | |
|--|---|
| a) Property map indicating other access, bordering roads and streets. | e) Subdivision, zoning, or development plan. |
| b) Highway and driveway plan profile. | f) Proposed access design. |
| c) Drainage plan showing impact to the highway right-of-way. | g) Parcel and ownership maps including easements. |
| d) Map and letters detailing utility locations before and after development in and along the right-of-way. | h) Traffic studies. |
| | i) Proof of ownership. |

1- It is the applicant's responsibility to contact appropriate agencies and obtain all environmental clearances that apply to their activities. Such clearances may include Corps of Engineers 404 Permits or Colorado Discharge Permit System permits, or ecological, archeological, historical or cultural resource clearances. The COOT Environmental Clearances Information Summary presents contact information for agencies administering certain clearances, information about prohibited discharges, and may be obtained from Regional COOT Utility/Special Use Permit offices or accessed via the COOT Planning/Construction-Environmental-Guidance webpage: <https://www.codot.gov/programs/environmental/resources/guidance-standards/environmental-clearances-info-summary-august-2017/view>.

2- All workers within the State Highway right of way shall comply with their employer's safety and health policies/ procedures, and all applicable U.S. Occupational Safety and Health Administration (OSHA) regulations -including, but not limited to the applicable sections of 29 CFR Part 1910 -Occupational Safety and Health Standards and 29 CFR Part 1926

- Safety and Health Regulations for Construction.

Personal protective equipment (e.g. head protection, footwear, high visibility apparel, safety glasses, hearing protection, respirators, gloves, etc.) shall be worn as appropriate for the work being performed, and as specified in regulation. At a minimum, all workers in the State Highway right of way, except when in their vehicles, shall wear the following personal protective equipment: High visibility apparel as specified in the Traffic Control provisions of the documentation accompanying the Notice to Proceed related to this permit (at a minimum, ANSI/ISEA 107-1999, class 2); head protection that complies with the ANSI Z89.1-1997 standard; and at all construction sites or whenever there is danger of injury to feet, workers shall comply with OSHA's PPE requirements for foot protection per 29 CFR 1910.136, 1926.95, and 1926.96. If required, such footwear shall meet the requirements of ANSI Z41-1999.

Where any of the above-referenced ANSI standards have been revised, the most recent version of the standard shall apply.

3- The Permittee is responsible for complying with the Revised Guidelines that have been adopted by the Access Board under the American Disabilities Act (ADA). These guidelines define traversable slope requirements and prescribe the use of a defined pattern of truncated domes as detectable warnings at street crossings. The new Standards Plans and can be found on the Design and Construction Project Support web page at: <https://www.codot.gov/business/civilrights/ada/resources-engineers>.

If an access permit is issued to you, it will state the terms and conditions for its use. Any changes in the use of the permitted access not consistent with the terms and conditions listed on the permit may be considered a violation of the permit.

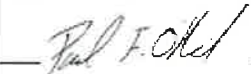
The applicant declares under penalty of perjury in the second degree, and any other applicable state or federal laws, that all information provided on this form and submitted attachments are to the best of their knowledge true and complete.

I understand receipt of an access permit does not constitute permission to start access construction work.

Applicant or Agent for Permittee Signature

Print Name

Date



Paul O'Neil

04/15/2025

If the applicant is not the owner of the property, we require this application also to be signed by the property owner or their legally authorized representative (or other acceptable written evidence). This signature shall constitute agreement with this application by all owners-of-interest unless stated in writing. If a permit is issued, the property owner, in most cases, will be listed as the permittee.

Property Owner Signature

Print Name

Date

**INSTRUCTIONS FOR COMPLETING APPLICATION FOR ACCESS PERMIT
(CDOT FORM NO. 137)
December 2018**

To construct, relocate, close, or modify access(es) to a State Highway or when there are changes in use of such access point(s), an application for access permit must be submitted to the Colorado Department of Transportation (CDOT) or the local jurisdiction serving as the issuing authority for State Highway Access Permits. Contact the CDOT Regional Access Unit in which the subject property is located to determine where the application must be submitted. The following link will help you determine which CDOT Region office to contact:

<https://www.codot.gov/business/permits/accesspermits/regional-offices.html>

All applications are processed and access permits are issued in accordance to the requirements and procedures found in the most current version of the State Highway Access Code (Access Code). Code and the application form are also available from CDOT's web site at:

<https://www.codot.gov/business/permits/accesspermits>

Please complete all information requested accurately. Access permits granted based on applications found to contain false information may be revoked. An incomplete application will not be accepted. If additional information, plans and documents are required, attach them to the application. Keep a copy of your submittal for your records. Please note that only the original signed copy of the application will be accepted. Do not send or enclose any permit fee at this time. A permit fee will be collected if an access permit is issued. The following is a brief description of the information to be provided on each enumerated space on the application form (CDOT Form 137, 2010).

- 1. Property Owner (Permittee):** Please provide the full name, mailing address and telephone number and the E-mail address (if available) of the legal property owner (owner of the surface rights). Please provide a telephone number where the Permittee can be reached during business hours (8:00 a.m. to 5:00 p.m.). Having a contract on the property is not a sufficient legal right to that property for purposes of this application. If the access is to be on or across an access easement, then a copy of the easement MUST accompany this application. If federal land is involved, provide the name of the relevant federal agency AND attach copy of federal authorization for property use.
- 2. Agent for permittee:** If the applicant (person completing this application) is different than the property owner (Permittee), provide entity name (if applicable), the full name of the person serving as the Agent, mailing address, telephone number, and the E-mail address (if available). Please provide a telephone number where the Agent can be reached during business hours (8:00 a.m. to 5:00 p.m.). Joint applications such as owner/lessee may be submitted. Corporations must be licensed to do business in Colorado: All corporations serving as, or providing, an Agent as the applicant must be licensed to do business in Colorado.

3. **Address of Property to be Served:** Provide if property to be served has an official street address. If the access is a public road, note the name (or future name) of the road.
4. **Legal Description of Property:** Fill in this item to the extent it applies. This information is available at your local County Courthouse, or on your ownership deed(s). A copy of the deed may be required as part of this application in some situations. To determine applicability, check with the CDOT's Regional Access Manager or issuing authority staff.
5. **State Highway:** Provide the State Highway number from which the access is requested.
6. **Highway Side:** Mark the appropriate box to indicate what side of the highway the requested access is located.
7. **Access Mile Point:** Without complete information, we may not be able to locate the proposed access. To obtain the distance in feet, drive the length between the mile point and the proposed access, rounding the distance on the odometer to the nearest tenth of a mile; multiply the distance by 5,280 feet to obtain the number of feet from the mile point. Then enter the direction (i.e. north, south, east, west) from the mile point to the proposed access. Finally, enter the mile point number. It is helpful in rural or undeveloped areas if some flagging is tied to the right-of-way fence at the desired location of the access. If the mile post is unknown, note the distance in feet (using the same procedures noted above) from that cross street or road closest to the proposed access.
8. **Access Construction Date:** Fill in the date on which construction of the access is planned to begin.
9. **Access Request:** Mark items that apply. More than one item may be checked.
10. **Existing property use:** Describe how the property is currently being used. For example, common uses are Single Family Residential, Commercial or Agricultural.
11. **Existing Access:** Does the property have *any other legal alternatives to reach a public road* other than the access requested in this application? Note the access permit number(s) for any existing state highway access point(s) along with their issue date(s). If there are no existing access point(s), mark the "no" box.
12. **Adjacent Property:** Please mark the appropriate box. If the "yes" box is marked, provide a brief description of the property (location of the property in relation to the property for which this access application is being made).
13. **Abutting Streets:** If there are any other existing or proposed public roads or easements abutting the property, they should be shown on a map or plan attached to this application.
14. **Agricultural Acres:** Provide number of acres to be served.

15. Access Use: List the land uses and square footage of the site as it will be when it is fully developed. The planned land uses as they will be when the site is fully developed are used to project the amount of traffic that the site will generate, peak hour traffic levels and the type of vehicles that can be expected as a result of the planned land uses. There may be exceptional circumstances that would allow phased installation of access requirements. This is at the discretion of the CDOT Regional Access Unit or issuing authority staff.

16. Estimated Traffic Count: Provide a reasonable estimate of the traffic volume expected to use the access. Note the type of vehicles that will use the access along with the volume (number of vehicles in and out at either the peak hour or average daily rates) for each type of vehicle. A vehicle leaving the property and then returning counts as two trips. If 40 customers are expected to visit the business daily, there would be 80 trips in addition to the trips made by all employees and other visitors (such as delivery and trash removal vehicles). If the PDF on-line version of this application is being used, the fields for each type of vehicle will automatically be added together to populate the last field on the page.

17. Documents and Plans: The CDOT Regional Access Manager or issuing authority staff will determine which of these items must be provided to make the application complete. Incomplete applications will not be accepted. If an incomplete application is received via U.S. mail or through means other than in the hand of the Access Manager or issuing authority staff, it will not be processed. *It is the responsibility of the applicant to verify with the CDOT Regional Access Manager or issuing authority staff whether the application is complete at the time of submission.*

Signature: Generally, if the applicant is not the property owner, then the property owner or a legally authorized representative must sign the application. With narrow exceptions, proof of the property owner's consent is required to be submitted with the application (proof may be a power of attorney or a similar consent instrument). The CDOT Regional Access Manager or issuing authority staff will determine if the exception provided in the Access Code (2.3 (3) (b)) is applicable.

If CDOT is the issuing authority for this application, direct your questions to the CDOT Regional Access Manager or the issuing authority staff serving the subject property.

<https://www.codot.gov/business/permits/accesspermits/regional-offices.html>

If the application is accepted, it will be reviewed by the CDOT Regional Access Manager or the issuing authority staff. If an Access Permit is issued, be sure to read all of the attached Terms and Conditions before signing and returning the Access Permit. The Terms and Conditions may require that additional information be provided prior to issuance of the Notice to Proceed.

The CDOT Regional Access Manager (or issuing authority staff) **MUST** be contacted prior to commencing work on any Access Permit project. *A Notice to Proceed that authorizes the Permittee to begin access related construction MUST be issued prior to working on the access in the State Highway right-of-way.* The Notice to Proceed may also have Terms and Conditions that must be fulfilled before work may begin on the permitted access.



Memo

To: William Tookey, San Juan County Administrator
From: Sean Moore (SME Environmental, Inc.)
Date: July 18, 2025
Re: Status of 404 permitting for the Cascade Village Tracts A1-B1 project

Introduction

The purpose of this memorandum is to summarize the status of Clean Water Act Section 404 Permitting for the Cascade Village Tracts A1-B1 project which is located west of US Highway 550 just north of the San Juan/La Plata County boundary. As summarized in the attached letter from Reynolds Ash + Associates (Attachment A), for a couple of reasons, the project proponent plans to phase the construction of the development. Phase I will entail the construction of the access road from the southern end of the existing Cascade Village development to a shared access point on US 550 with the landowner due south of the subject property. Subsequent phases of the Cascade Village Tracts A1-B1 project will entail the build out of residential units served by the access road constructed in Phase I.

Phased 404 Permitting

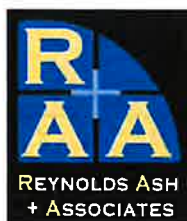
Since the construction of Phase I will incur an impact of 0.18 acre of wetland impact, SME has prepared a Pre-construction Notification for Nationwide Permit (NWP) #14 (Linear Transportation Crossings) that will be submitted to the US Army Corps of Engineers (USACE) in the coming weeks. If necessary, subsequent phases of the development would be permitted under either NWP #39 (Commercial and Institutional Developments) or an Individual 404 Permit, per confirmation from the USACE.

Pending Revision to Jurisdictional Limits of Waters of the US

In March of 2025 the US Environmental Protection Agency released a memo summarizing forthcoming new guidance on adjacent (currently jurisdictional) wetlands (Attachment C). Implementation of the new guidance is expected sometime in the next 18 months. Should the details on implementation include the second bullet in the attached memo: **wetlands separated from local perennial or intermittent streams by "berms, dikes, uplands or indirect hydrologic features (ditches, swales, pipes, etc.) no longer qualify as adjacent"**. The wetland complex in the Cascade Village Tracts A1-B1 project area is such a wetland as it is connected to Cascade Creek/the Animas River through culverts under US 550 on the Durango Mountain Resort/Purgatory property. Should these culverts serve as a disconnect of USACE jurisdiction when the new guidance becomes official, impacts to the wetland complex

resulting from Phase II (and beyond) of the Cascade Village Tracts A1-B1 project would not require a 404 Permit. This is another reason the project proponent feels it is important to phase implementation of the project as completion of the residential component of the project without the need for 4094 Permitting and required mitigation will realize a significant cost savings.

ATTACHMENT A
Project Phasing Letter (from RA+A)



ARCHITECTURE & ENGINEERING

06-21-2025

CASCADE MEADOWVIEW DRIVE

Application for a 404 Permit

To: The Army Corps of Engineers
SME Environmental, Inc.

To Whom it May Concern,

Reynolds Ash and Associates (RA+A) has been working diligently with the owner and San Juan County on building out the southern portion of the master plan for Cascade Village in Durango, Colorado. The south side of the original master plan includes about 79 acres of land including what is referred to as Tract A-1/Tract B-1. The Cascade Village master plan is approved for additional residential and multi-family units that extend from the current edge of development to the southern boundary. The long term build out is anticipating about 50-60 residential units that will be part of the full build out. The master plan requires an extension of Meadowview Road, which will connect the existing road to a south entry off of Highway 550. However, the residential units will take more time to get fully approved, entitled and permitted through San Juan County.

Recently, Xcel impacted the site in question, to install a new pipeline that follows the proposed path of Meadowview Drive. The installation of the pipeline disturbed the soil and presumably touched the existing wetlands.

The design team, working with the Owner, has designed the completion of the road to include full grading, specs for paved driving surface, rough in for utilities to serve future build out. The design meets best practices, follows the easement established by the Xcel pipeline and to the best of our abilities, has minimal impact to the wetlands. Our civil engineer has kept all grading as tight as possible.

However, due to the short building season and the potential for the Corps to modify how wetlands are defined, the owner wishes only to build out the road in the first phase of construction. Following the road installation, the Owner will submit additional land use applications to San Juan County for the building pads and residential improvements. Since the road has a small impact to the wetlands, and since there could be a shift in jurisdictional wetlands, we believe that phasing the permits for this project are best.

Once the Corps comes out with new guidance on jurisdiction, the design team can better plan for and adjust as necessary the plan for build out.

Thank you,

Lauren Davis, AIA, AICP

APPENDIX B**Pre-Construction Notification for NWP 14 for Phase I**

NAME, LOCATION, AND DESCRIPTION OF PROJECT OR ACTIVITY			
13. NAME OF WATERBODY, IF KNOWN (<i>if applicable</i>)		14. PROPOSED ACTIVITY STREET ADDRESS (<i>if applicable</i>) South of and adjacent to 56 Meadowview Dr	
15. LOCATION OF PROPOSED ACTIVITY (<i>see instructions</i>) Latitude °N Longitude °W 37.647453 -107.810142		City: Durango	State: Zip: CO 81301
16. OTHER LOCATION DESCRIPTIONS, IF KNOWN (<i>see instructions</i>) State Tax Parcel ID Municipality Durango Section Township Range 13 39N 9W			
17. DIRECTIONS TO THE SITE The project site is located west of U.S. Highway 550, north of Purgatory Resort by about .8 mile, and just south of the Cascade Village development in San Juan County, Colorado. Exit west off U.S. Highway 550 on Meadowview Drive and proceed left (south) on Meadowview Drive. Continue south on Meadowview Drive until the road ends at a cul-de-sac. The project site is located south and west of the end of the cul-de-sac. A road map is provided as Figure '1' and a topographic map is provided as Figure'2' in the Aquatic Resources Delineation Report (Appendix 'A' of Attachment '2').			
18. IDENTIFY THE SPECIFIC NATIONWIDE PERMIT(S) YOU PROPOSE TO USE Nationwide Permit 14 - Linear Transportation Projects			
19. DESCRIPTION OF PROPOSED NATIONWIDE PERMIT ACTIVITY (<i>see instructions</i>) The proposed project involves the installation of the extension of Meadowview Road, which will connect the existing road to a south entry off of Highway 550. The design of the road includes full grading, specs for paved driving surface, and rough in for utilities to serve future build out. The road is the first phase of this project and the subject of this PCN. The second phase includes the development and building of additional residential and multi family units and will be permitted under a future 404 Permit action if necessary.			
20. DESCRIPTION OF PROPOSED MITIGATION MEASURES (<i>see instructions</i>) Mitigation will occur through the Animas River Wetlands Bank. Additionally, standard construction practices would be implemented on-site (as applicable) to minimize impacts to aquatic resources to the maximum extent practicable during construction. BMPs would be used to prevent erosion and sediment runoff prior to, during and after construction (as necessary and applicable) to minimize impacts to important natural resources. Any exposed slopes or areas of disturbed soil would be stabilized and revegetated as soon as possible upon completion of construction. All temporary impact areas will be restored to pre-construction conditions.			
21. PURPOSE OF NATIONWIDE PERMIT ACTIVITY (<i>Describe the reason or purpose of the project, see instructions</i>) The purpose of the Nation Wide permit is to construct an access road to that eventually provide access to the Cascade Village Tracts A1 - B1 development.			
22. QUANTITY OF WETLANDS, STREAMS, OR OTHER TYPES OF WATERS DIRECTLY AFFECTED BY PROPOSED NATIONWIDE PERMIT ACTIVITY (<i>see instructions</i>) Acres Linear Feet Cubic Yards Dredged or Discharged 0.184 (8,021 sq ft) see Figure 1 N/A N/A			
Each PCN must include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial, intermittent, and ephemeral streams, on the project site.			
23. List any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity. (<i>see instructions</i>)			
24. If the proposed activity will result in the loss of greater than 1/10-acre of wetlands and requires pre-construction notification, explain how the compensatory mitigation requirement in paragraph (c) of general condition 23 will be satisfied, or explain why the adverse environmental effects are no more than minimal and why compensatory mitigation should not be required for the proposed activity. The proposed project would result in the loss of greater than 1/10 acre of wetlands. Total impacts equal to 0.181 acres of PEM wetland.			

Control measures/BMPs will be used to prevent erosion and sediment runoff prior to, during and after construction. These BMPs would be installed before construction begins and would remain in place until construction is completed, with removal as appropriate. Following completion of construction activities, temporary impact areas would be restored to pre-construction conditions and revegetated, as appropriate.

25. Is any portion of the nationwide permit activity already complete? ☐ Yes ☒ No If Yes, describe the completed work:

26. List the name(s) of any species listed as endangered or threatened under the Endangered Species Act that might be affected by the proposed NWP activity or utilize the designated critical habitat that might be affected by the proposed NWP activity. (see instructions)

27. List any historic properties that have the potential to be affected by the proposed NWP activity or include a vicinity map indicating the location of the historic property or properties. (see instructions)

The following information is provided in accordance with General Condition 20 Historic Properties. SME contacted the Colorado Office of Archaeology and Historic Preservation (OAHP) to request a database search for the proposed project area on June 30, 2025. The Colorado OAHP usually provides results within 20 business days from the request. SME will provide cultural results when they are received.

28. For a proposed NWP activity that will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, identify the Wild and Scenic River or the "study river":
N/A

29. If the proposed NWP activity also requires permission from the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers federally authorized civil works project, have you submitted a written request for section 408 permission from the Corps district having jurisdiction over that project? ☐ Yes ☒ No

If "yes", please provide the date your request was submitted to the Corps district: N/A

30. If the terms of the NWP(s) you want to use require additional information to be included in the PCN, please include that information in this space or provide it on an additional sheet of paper marked Block 30. (see instructions)
N/A

31. Pre-construction notification is hereby made for one or more nationwide permit(s) to authorize the work described in this notification. I certify that the information in this pre-construction notification is complete and accurate. I further certify that I possess the authority to undertake the work described herein or am acting as the duly authorized agent of the applicant.

SIGNATURE OF APPLICANT

DATE

SIGNATURE OF AGENT

DATE

The pre-construction notification must be signed by the person who desires to undertake the proposed activity (applicant) and, if the statement in Block 11 has been filled out and signed, the authorized agent.

18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more than \$10,000 or imprisoned not more than five years or both.

ATTACHMENT 1

Impacts Figures

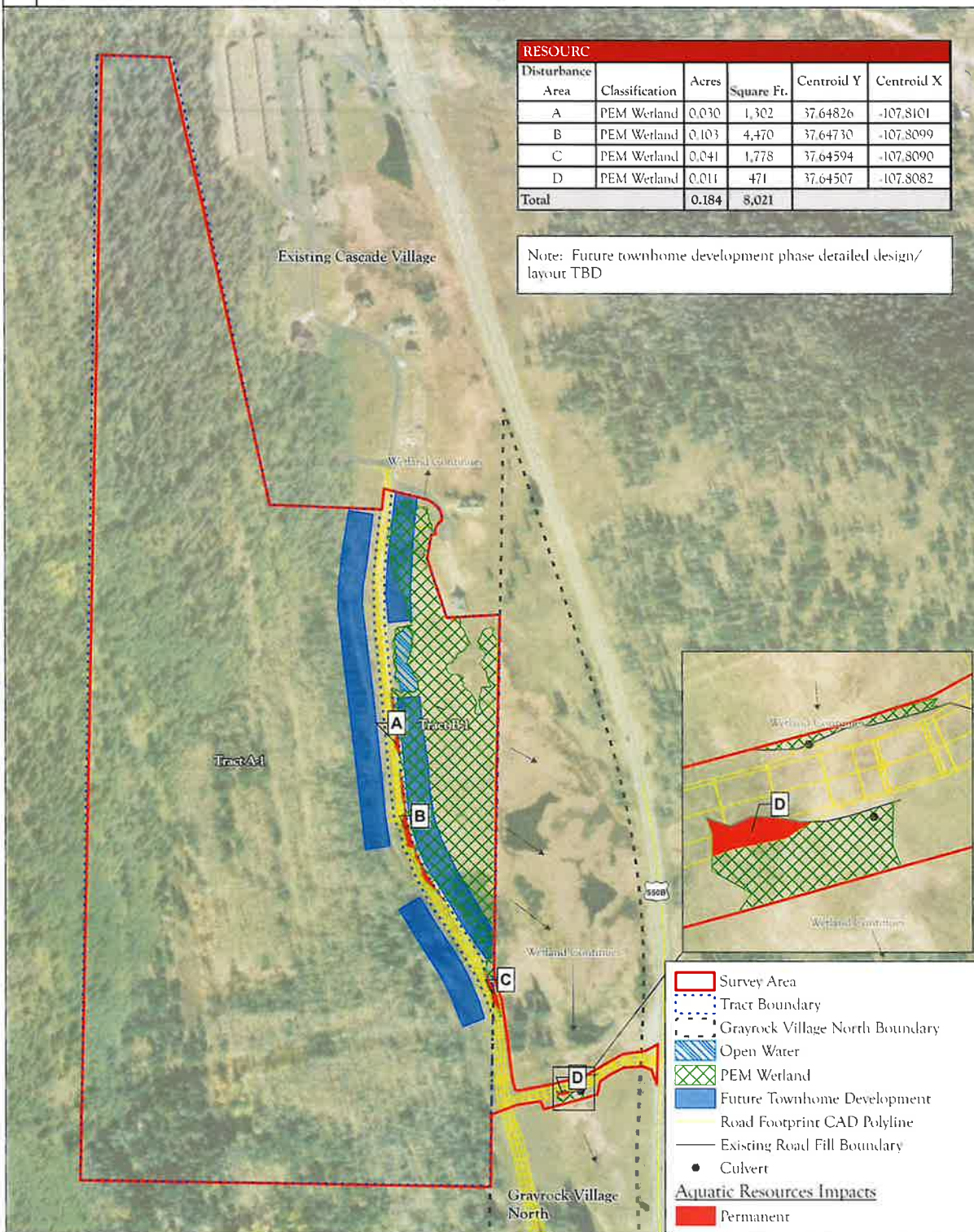
GENERAL NOTES

1. Survey area boundaries created by SME, based on CAD data provided CHC Engineering.
2. SME Environmental, Inc. (SME) staff visited the site on June 12, 2025 to assess and delineate the boundaries of wetlands and other waters of the U.S. (WOWS) in the area of interest using the methodology defined in the Routine Determination procedure set forth in the U.S. Army Corps of Engineers Wetlands Delineation Manual (USACE, 1987).
3. Areas which likely satisfy the USACE criteria for WOWS are labeled. Note that WOWS continue beyond the survey area boundary.
4. The boundaries of WOWS were surveyed using a Trimble RTK GNSS Receiver with real time kinematic correction.
5. Areas which likely satisfy the USACE criteria for WOWS are labeled. Note that WOWS continue beyond the survey area boundary.
6. Wetland boundaries, depicted hereon, are subject to modification until jurisdictional verification has been completed by the U.S. Army Corps of Engineers.
7. Please be aware that impacts to WOWS may require authorization from local, state and/or federal regulatory agencies.
8. Aquatic resources delineation table represents acreages, linear footages, square footages and centroid locations.

RESOURCE

Disturbance Area	Classification	Acre	Square Ft.	Centroid Y	Centroid X
A	PEM Wetland	0.030	1,302	37,64826	-107,8101
B	PEM Wetland	0.103	4,470	37,64730	-107,8099
C	PEM Wetland	0.041	1,778	37,64594	-107,8090
D	PEM Wetland	0.011	471	37,64507	-107,8082
Total		0.184	8,021		

Note: Future townhome development phase detailed design/layout TBD



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Drawn By:	Rwvd. By:	Proj. No.:
SB	SM	240008
Date:	Rvrd. Date:	Scale:
7/2/2025	NA	1 in = 317 ft



0 240 480
Feet

AQUATIC RESOURCES IMPACTS MAP

AQUATIC RESOURCES DELINEATION
CASCADE VILLAGE TRACTS A1-B1
SAN JUAN COUNTY, CO

FIGURE

1

ATTACHMENT 2
Aquatic Resources Delineation Report

Aquatic Resources Delineation Report

Cascade Village Tracts A1-B1

San Juan County, CO



Prepared for:

Prepared by:

CitiSculpt
1355 Greenwood Cliff, #150
Charlotte, North Carolina, 28204



ENVIRONMENTAL CONSULTANTS
679 East 2nd Avenue, Unit E2
Durango, Colorado 81301

July 2025

EXECUTIVE SUMMARY

Wetlands and other Waters of the U.S. (WOUS) in Cascade Village Tracts A1-B1 survey area were identified by SME Environmental, Inc. (SME) on June 16th, 2025 using the methodology defined in the Routine Determination procedure set forth in the *U.S. Army Corps of Engineers Wetlands Delineation Manual* (USACE 1987) and *the Regional Supplement: Western Mountains, Valleys, and Coast Region (Version 2.0)*. Aquatic resources boundaries were surveyed based on presence of hydrophytic vegetation, hydric soils, and hydrologic indicators that under normal conditions would indicate wetland conditions. Additionally, SME surveyed for the presence of an ordinary high-water mark (OHWM) in accordance with the *National Ordinary High Water Mark Field Delineation Manual for Rivers and Streams: Final Version* (USACE 2025).

The Cascade Village Tracts A1-B1 Project survey area is 79.50 acres. Based on the site investigation, approximately 7.36 acre (320,679 sq. feet) of aquatic resources exist in the survey area. The survey area is located west of U.S. Highway 550, north of Purgatory resort about 0.8 mile, and just south of Cascade Village Condos in Durango, CO within San Juan County. SME prepared this report for Charles McAlpine of CitiSculpt to document the boundaries of aquatic resources within the survey area of Cascade Village Tracts A1-B1 project.

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4.0	EXISTING CONDITIONS	2
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4.3	Vegetation	3
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Appendix C:	Plant List
Appendix D:	Wetland Determination Data Sheets
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ACRONYMS AND ABBREVIATIONS

CR	County Road
HUC	Hydrologic Unit Code
NAD	North American Datum
NRCS	Natural Resources Conservation Service
NWI	National Wetland Inventory
NWPL	National Wetland Plant List
OHWM	Ordinary high-water mark
PEM	Palustrine emergent
ROW	Right-of-way
R4SB	Riverine Intermittent Streambed
RPW	Relatively Permanent Water
SME	SME Environmental, Inc.
TNW	Traditional Navigable Water
US 550	U.S. Highway 550
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey
USFWS	U.S. Fish and Wildlife Service

1.0 INTRODUCTION

Project Name: Cascade Village Tracts A1-B1

USACE File #: N/A, initial submittal

SME #: 240008

Applicant:

CitiSculpt

1355 Greenwood Cliff #150, Charlotte, NC 28204

Phone: Office (704) 361-3758

Contact: Mr. Charles Lindsey McAlpine; Email: Lmcalpine@citisculpt.com Transportation

Agent/Consultant:

SME Environmental, Inc. (SME)

679 East 2nd Avenue, Unit E2, Durango, CO 81301

Phone: (970) 259-9595; Fax: (970) 259-0050

Contact: Mr. Sean Moore, Principal; Email: smoore@sme-env.com

Survey Area Description: The area surveyed by SME in support of the project is west of US 550. The eastern portion of the survey area wetland areas. The western portion of the survey area is undeveloped forested land on an east facing slope. The area surrounding the survey area is low density residential buildings and Purgatory Resort.

Purpose: The purpose of this report is to identify and describe aquatic resources within the survey area for due diligence of Clean Water Act Section 404.

2.0 PROJECT LOCATION

Municipality: Durango ; **County:** San Juan County; **State:** Colorado; **Street Address:** South of and adjacent to 56 Meadowview Drive

Section, Township, Range (New Mexico Principal Meridian): Township 39 North, Range 9 West, parts of Section 13.

Lat/Long: Project area centroid (NAD 83) Lat: 37.647922° Long: -107.811529°

USGS Quad Name: Engineer Mountain, Colorado

Directions: The survey area is approximately 1.15 miles north of Purgatory Ski Resort and west of US 550. From the city of Durango head north on US 550 for approximately 25 miles. The survey can be accessed from a pullout on the west side of the highway. A Road Vicinity map is included as [Figure 1](#) and a topographic map is provided as [Figure 2 \(Appendix A\)](#).

3.0 DELINEATION METHODS

Aquatic resources in the survey area were identified on June 19, 2025 using the methodology defined in the Routine Determination procedure set forth in the *1987 U.S. Army Corps of Engineers Wetlands Delineation Manual* (USACE 1987), the *Regional Supplement to the USACE Wetland Delineation Manual: Western Mountains, Valleys, and Coast (Version 2.0)*, and *National Ordinary High Water Mark Field Delineation Manual for Rivers and Streams: Final Version* (USACE 2025). Wetland boundaries were defined based on presence of hydrophytic vegetation, hydric soils, and hydrologic indicators that under normal conditions would indicate wetland conditions. In the absence of wetland conditions, the extent of aquatic resources was determined based on the lateral extent of the OHWM.

Prior to conducting the field survey, SME conducted a desktop survey of available publications covering the survey area including U.S. Geological Survey (USGS) 7.5' topographic quadrangles, U.S. Fish and Wildlife (USFWS) National Wetlands Inventory (NWI) data, U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) soils data, and *ESRI World Layer maps* for aerial imagery. The boundaries of aquatic resources were survey-located using Trimble R1 GNSS GPS unit (sub-meter accuracy) and are depicted in [Figure 4](#).

4.0 EXISTING CONDITIONS

4.1 Landscape Setting

Size of Survey Area: Approximately 79.5 acres.

Watershed Name and Size (HUC 8): Animas Watershed, HUC 14080104, 1,371 square miles.

Elevation Range of Site: Approximately 8,850-9,710 feet above mean sea level (msl) ([Figure 2](#)).

Geographic Setting: The survey area is located in the San Juan Mountains just southwest of Coal Bank Pass. Boyce Lake is located approximately 0.3 mile east of the survey area. The survey area is surrounded primarily by undeveloped open and forested land, with scattered homes and US 550 to the east.

Geology: The underlying geology is comprised of Rico, Hermosa, and Molas Formations (U.S. Geological Survey). Rico formation consists of nonmarine red beds of shale, siltstone, arkosic sandstone, and grit. Hermosa formation west of the Los Pinos River is largely dark-gray marine shale, limestone, and sandstone. Molas formation is mostly nonmarine shale, siltstone, sandstone, conglomerate, and basal red breccia, maximum thickness about 125 feet.

Land Use: The survey area is located west of and adjacent to US 550 which receives high vehicular traffic. Purgatory Ski Resort is located south and east of the survey area which contains residential and commercial properties and is a high use recreation area during the summer and winter. The surrounding area is San Juan National Forest.

Precipitation: According to the Antecedent Precipitation Tool (USACE), the site visit was conducted during the dry season while the area was experiencing severe drought.

4.2 Aquatic Resources

The survey area contains two palustrine emergent (PEM) wetland areas. PEM Wetland Area B is north of the proposed driveway and PEM Wetland Area C is south of the proposed driveway (Figure 4). Although shrub stratum species such as shrubby cinquefoil (*Dasiphora fruticosa*) and mountain willow (*Salix monticola*) are present, the wetland areas are dominated by the herb stratum and are therefore classified as PEM. Additionally, PEM Wetland Area B has approximately 0.24 acre of open water (Area A). PEM Wetland Area B continues east of Tract B-1 and drains east under US 550 and into Cascade Creek. Cascade Creek is an (a)(3) Tributary of the Animas River (a)(1). Additionally, water is conveyed under the driveway from PEM Wetland Area B into PEM Wetland Area C towards Greyrock Village North. The boundaries of aquatic resources delineated within the survey area are depicted in [Figure 4](#). [Appendix B](#) contains photographs of the aquatic resources within the survey area.

Table 1. Cowardin Classification, Acreage, and Linear Footage of Aquatic Resources within the Survey Area.

Waters of the U.S.	Square Feet	Acres	Linear Feet
Open Water (Area A)	10,440	0.240	N/A
Palustrine Emergent (PEM) Wetland (Area B)	307,189	7.052	N/A
Palustrine Emergent (PEM) Wetland (Area C)	3,051	0.070	N/A
TOTAL	320,679	7.36	N/A

Table 2. Characteristics of Aquatic Resources within the Survey Area.

Name	Flow Frequency	Flows to	Rationale
Open Water (Area A)	Seasonally Saturated	Cascade Creek	(a)(4) Adjacent Wetlands
PEM Wetland (Area B)	Seasonally Saturated	Cascade Creek	(a)(4) Adjacent Wetlands
PEM Wetland (Area C)	Seasonally Saturated	Cascade Creek	(a)(4) Adjacent Wetlands

4.3 Vegetation

The wetlands in the survey area are dominated by mountain willow (*Salix monticola*), reed canary grass (*Agrostis stolonifera*), carex species (*Carex spp.*), and white marsh marigold (*Caltha leptosepala*). The uplands of the survey area are dominated by smooth brome (*Bromus inermis*), orchard grass (*Dactylis glomerata*), and common snowberry (*Symphoricarpos albus*). [Appendix C](#) provides a list of plant species observed during the field investigation. Wetland Determination Data forms for the Western Mountains, Valleys, and Coast Region are included with this report as [Appendix D](#) and include detailed information about the vegetation observed at each data point location.

4.4 Soils

Soil data for the survey area was obtained from the USDA NRCS. A soil map is included in [Figure 3](#) and a complete description of the soil map series is included as [Appendix E](#). The survey area is

located within the mapped *Cryaquolls-Typic Cryaquents complex 1 to 5 percent slopes*, *Needleton stony loam, 15 to 30 percent slopes*, *Clayburn-Hourglass complex, 5 to 25 percent slopes* and *Needleton-Snowdon-Rock outcrop complex, 30 to 80 percent slopes* soil units. The *Cryaquolls-Typic Cryaquents complex* soil map unit is listed on the State Soil Data Access (SDA) Hydric Soils List (NRCS 2018). Data collected from soil transects during the field investigation revealed primarily silty clay loam soils. The primary hydric soil indicator observed at the soil boring locations within the wetland areas was redoximorphic features (i.e., mottles) located within a dark soil matrix. Data from specific soil bores is presented on the data sheets in [Appendix D](#).

4.5 Hydrology

The hydrology in survey area is sourced by two intermittent waterways that flow down the east facing slope into the valley where Tract B-1 is located. The topography to the west supports higher elevation slopes that carry stormwater and snowpack along the two unnamed intermittent channels from west to east, through the survey area and eventually flow to the Cascade Creek corridor. The unnamed waterways that support delineated wetlands are identified on the USGS Engineer Mountain, Colo. 7.5-minute Topographic Quadrangle 1:24,000 map as intermittent aquatic resources. The hydrology of these wetland areas is anticipated to primarily be the referenced unnamed intermittent channels.

4.7 Limitations

Field indicators can change with variations in hydrology and other factors. This report assesses the potential for aquatic resources at the site at the time of our review and does not address conditions at a given time in the future. Accordingly, on behalf of our client, SME reserves the right to revisit the jurisdictional status of boundaries of aquatic resources as presented herein, should any of this information warrant modifications. We make no other warranties, either expressed or implied, and our report is not a recommendation to buy, sell or develop the property. This report does not constitute a Jurisdictional Determination of Waters of the United States since such determinations must be verified by the USACE or the NRCS (as applicable) and are subject to review by the U.S. Environmental Protection Agency (USEPA).

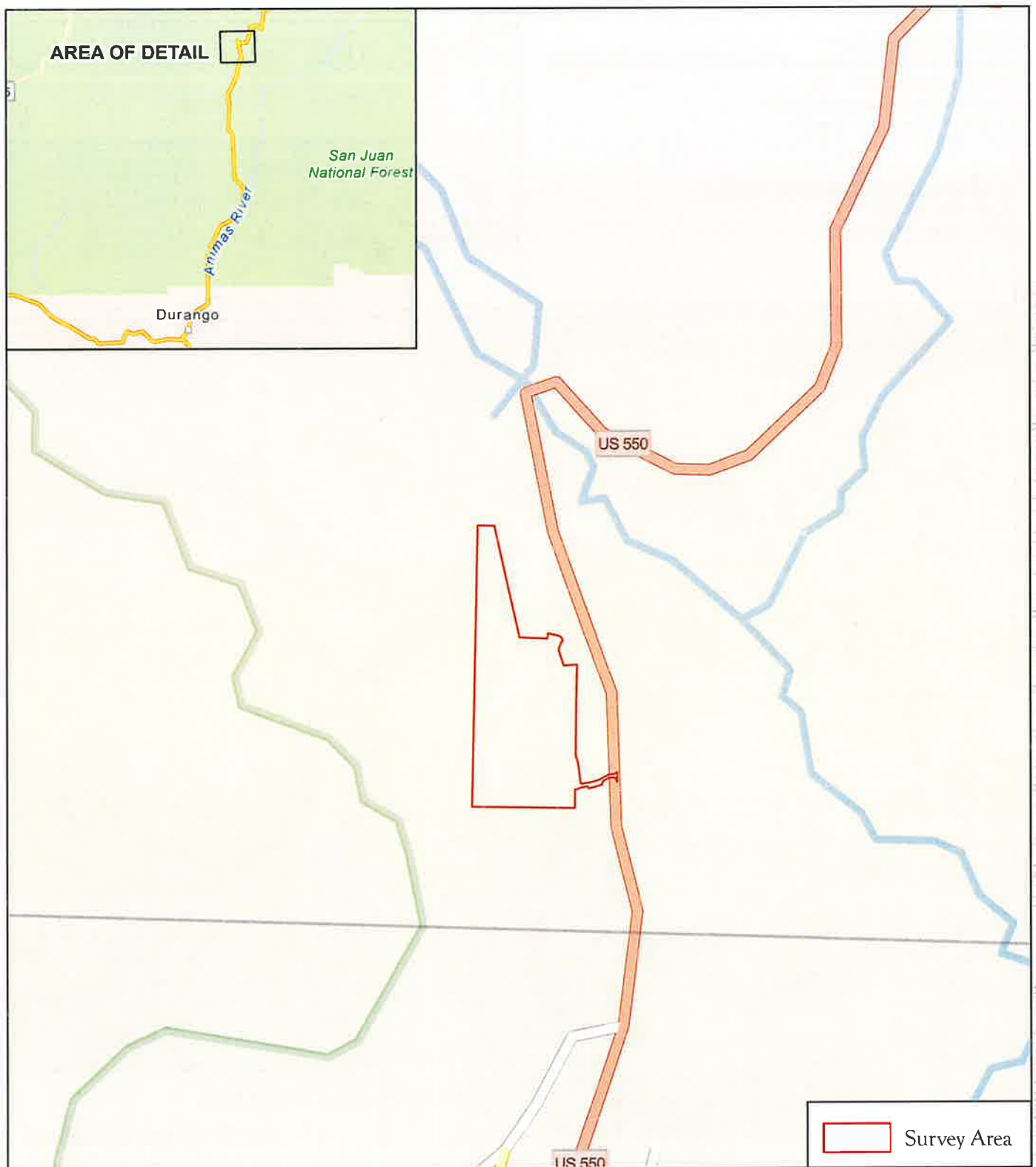
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APPENDIX A

Figures 1-4



 <p>SME ENVIRONMENTAL CONSULTANTS</p> <p>679 East 2nd Ave. Unit E2, Durango, Colorado 81301 www.sme-env.com (970) 259-9595</p>	Drawn by:	Rvwd. by:	Project No.:	ROAD VICINITY MAP	
	SB	SM	240008		
	Date:	Rvwd. Date:	Scale:	AQUATIC RESOURCES DELINEATION CASCADE VILLAGE TRACTS A1-B1 SAN JUAN COUNTY, CO	
	6/30/2025	NA	1:21,000		
		0 825 1,650 Feet		FIGURE 1	

SURVEY LOCATION:

Township 39 North, Range 9 West, NENW, SENW, NESW,
and NWSE of Section 13;
New Mexico Principal Meridian
San Juan County, Colorado.

SURVEY AREA CENTROID (NAD83):

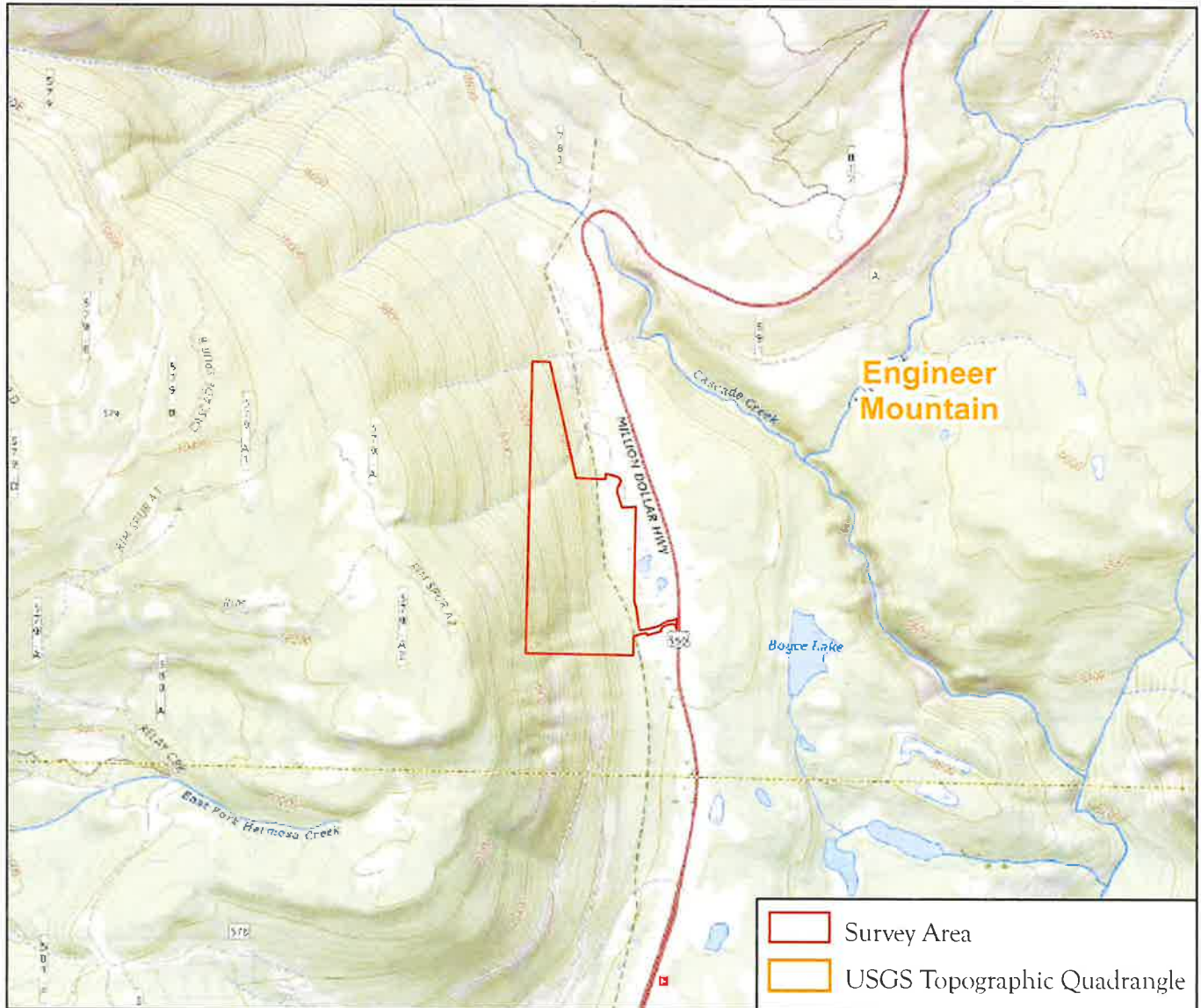
Latitude: 37.64793°

Longitude: -107.81153°

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Drawn by:	Rvwd. by:	Project No.:
SB	SM	240008
Date:	Rvsd. Date:	Scale:
6/30/2025	NA	1:24,000

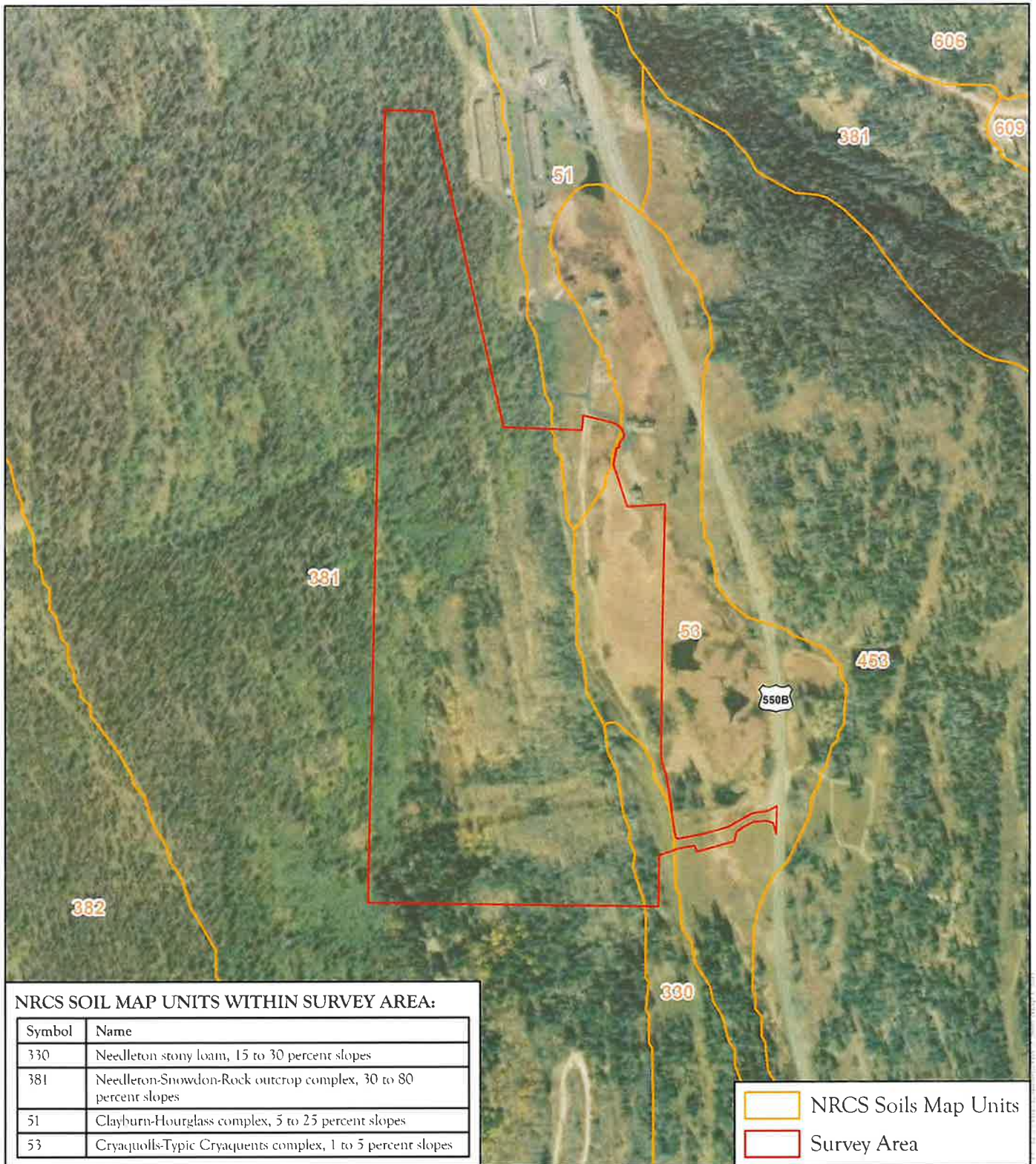




0 1,000 2,000
Feet

TOPOGRAPHIC LOCATION MAP

AQUATIC RESOURCES
DELINEATION
CASCADE VILLAGE TRACTS A1-B1
SAN JUAN COUNTY, CO

**FIGURE
2**

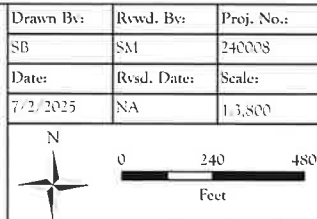
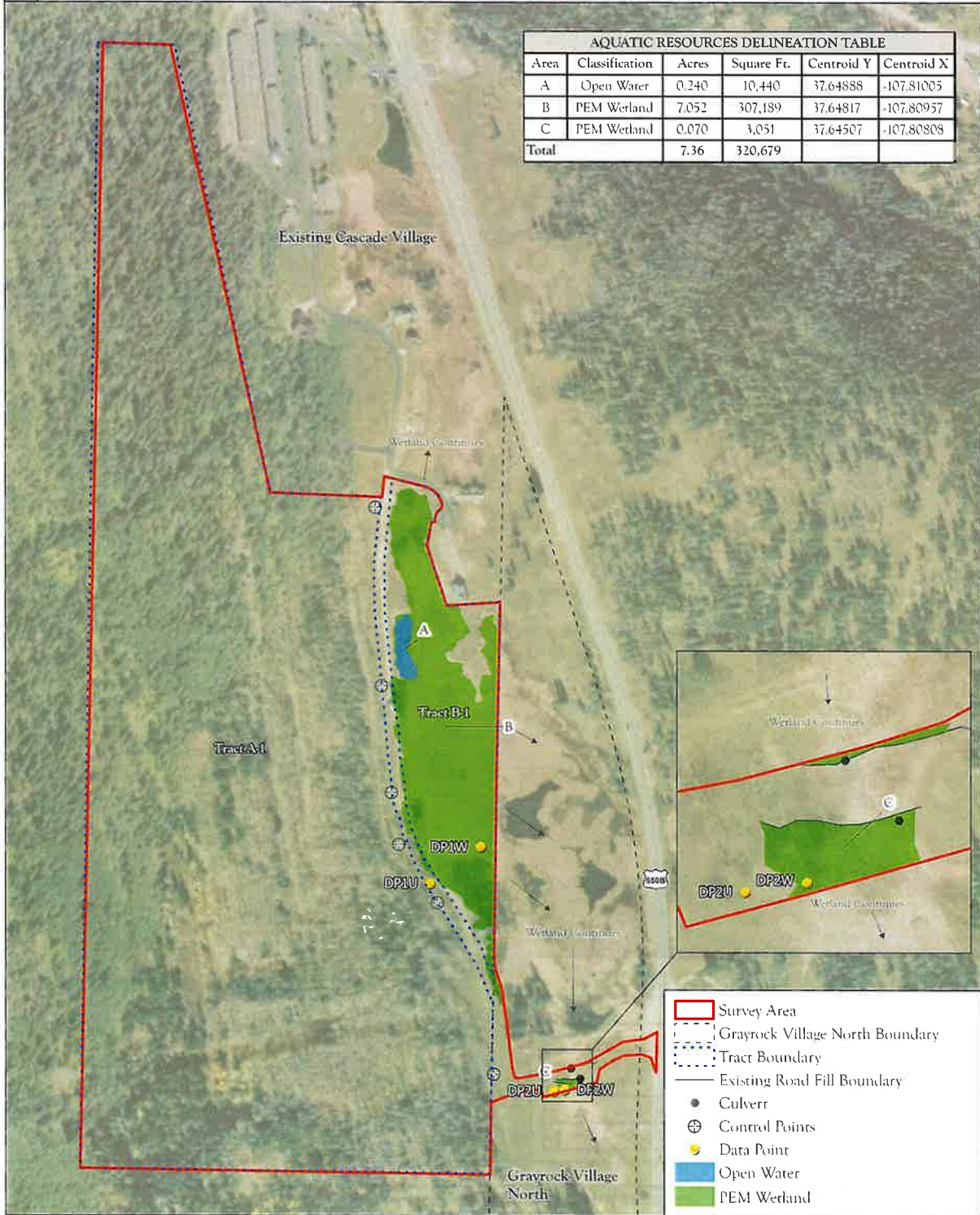


 ENVIRONMENTAL CONSULTANTS 679 East 2nd Ave. Unit E2, Durango, Colorado 81301 www.sme-env.com (970) 259-9595	Drawn by:	Rvwd. by:	Project No.:	SOILS MAP		FIGURE 3
	SB	SM	240008			
	Date:	Rvsd. Date:	Scale:			
	6/30/2025	NA	1:7,500			
	 0 310 620 Feet			AQUATIC RESOURCES DELINEATION CASCADE VILLAGE TRACTS A1-B1 SAN JUAN COUNTY, CO		

GENERAL NOTES

1. Survey area boundary created by SME, based on CAD data provided CH2M Engineering.
 2. SME Environmental, Inc. (SME) visited the site on June 18, 2025 to assess and delineate the boundaries of wetlands and other Waters of the U.S. (WOW) in the area of interest using the methodology defined in the survey area boundary.
 3. Wetland boundaries were defined based on presence of hydrophytic vegetation, hydric soils, and hydrologic indicators that under normal conditions would indicate wetland conditions. Where wetland conditions did not occur adjacent to surface water, the jurisdictional boundary was identified based on evidence of the OHWM.
 4. The boundaries of WOWS were surveyed using a Trimble R1 GNSS Receiver (real time differential correction).
 5. Areas which include survey data are labeled. Note that WOWS continue beyond the survey area boundary.
- Routing Determination procedure set forth in the U.S. Army Corps of Engineers Wetland Delineation Manual (USACE 1987), the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western (USACE 2002), the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western (USACE 2002), A Guide to Ordinary High Water Mark (OHWM) Delineation for State 7, these be aware that impacts to WOWS may require authorization from Local, State and/or Federal regulatory agencies.
- Perennial Streams in the Western Mountains, Valleys, and Coast Region of the United States (USACE 2014), or agencies.
- the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: And West Region (USACE 2010) and the Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the And West Region of the Western United States (USACE 2008).

AQUATIC RESOURCES DELINEATION TABLE					
Area	Classification	Acres	Square Ft.	Centroid Y	Centroid X
A	Open Water	0.240	10,440	37,64888	-107,81005
B	PEM Wetland	7.052	307,189	37,64817	-107,80957
C	PEM Wetland	0.070	3,051	37,64507	-107,80808
Total		7.36	320,679		



AQUATIC RESOURCES DELINEATION MAP

AQUATIC RESOURCES DELINEATION
CASCADE VILLAGE TRACTS A1-B1
SAN JUAN COUNTY, CO

FIGURE

4

APPENDIX B

Photo Documentation



Photo 1: View of driveway looking NE



Photo 2: Southern wetland area



Photo 3: Southern wetland south of PA



Photo 4: Southern wetland connection



Photo 5: Looking North from Proposed driveway



Photo 6: Standing water in north wetland



Photo 7: Looking east across the northern wetland



Photo 8: Northern most portion of survey area



Photo 9: North end of survey area looking south



Photo 10: Upland area proposed driveway



Photo 11: Surface water connection under US 550



Photo 12: Channel east of US 550

APPENDIX C

Plant List

Appendix D: List of Dominant Plant Species Observed within the Survey Area.

Scientific Name*	Common Name	Wetland Indicator Status**
TREES		
<i>Picea pungens</i>	Blue spruce	FAC
<i>Populus tremuloides</i>	Quaking aspen	FACU
SHRUBS		
<i>Cornus sericea</i>	Redosier dogwood	NL
<i>Dasiphora fruticosa</i>	Shrubby cinquefoil	FAC
<i>Ribes montigenum</i>	Gooseberry currant	NL
<i>Salix arctica</i>	Arctic willow	NL
<i>Salix monticola</i>	Mountain willow	OBL
<i>Symphoricarpos albus</i>	Common snowberry	FACU
HERBS		
<i>Achillea millefolium</i>	Common Yarrow	FACU
<i>Actaea rubra</i>	Red baneberry	NL
<i>Carex spp.</i>	Carex species	N/A
<i>Caltha leptosepala</i>	White marsh marigold	OBL
<i>Cirsium arvense</i>	Canada Thistle	FAC
<i>Equisetum arvense</i>	Field horsetail	FAC
<i>Fragaria vesca</i>	Wild strawberry	NL
<i>Iris missouriensis</i>	Rocky mountain iris	FACW
<i>Maianthemum stellatum</i>	Starry false solomon's-seal	FAC
<i>Medicago sativa</i>	Alfalfa	UPL
<i>Taraxacum officinale</i>	Common dandelion	FACU
<i>Trifolium pratense</i>	Red clover	FACU
<i>Vicia americana</i>	American Vetch	FAC
<i>Viola nephrophylla</i>	Northern Bog Violet	FACW
GRAMINOIDS		
<i>Bromus inermis</i>	Smooth brome	FACU
<i>Dactylis glomerata</i>	Orchardgrass	FACU
<i>Juncus balticus</i>	Baltic Rush	FACW
<i>Phalaris arundinacea</i>	Reed canarygrass	FACW

• OBL: Almost always is a hydrophyte, rarely in uplands

• FAC: Commonly occurs as either a hydrophyte or non-hydrophyte

• NL (Not Listed): Generally indicates upland species

* Scientific names according to Synonymized Checklist of the Vascular Flora of the United States, Canada, and Greenland (Kartesz 2009) and National Wetland Plant List (NWPL).

** 2016 NWPL is regionalized along the 10 wetland delineation supplement regions. Wetland indicator status based on Western Mountains, Valleys, and Coast Region.

• FACW: Usually is a hydrophyte but occasionally found in uplands

• FACU: Occasionally is a hydrophyte but usually occurs in uplands

• N/A: Unable to identify to species due to time of year

APPENDIX D

Wetland Determination Data Forms

U.S. Army Corps of Engineers WETLAND DETERMINATION DATA SHEET – Western Mountains, Valleys, and Coast Region See ERDC/EL TR-10-3; the proponent agency is CECW-CO-R	OMB Control #: 0710-0024, Exp: 11/30/2024 Requirement Control Symbol EXEMPT: (Authority: AR 335-15, paragraph 5-2a)
---	---

Project/Site: Cascade Village Tracts A1-B1 City/County: San Juan Sampling Date: 6.18.25
Applicant/Owner: Charles McAlpine State: CO Sampling Point: DP2W
Investigator(s): Elijah Vargas and Sean Moore Section, Township, Range: S 13; T 39 N; R 9 W
Landform (hillside, terrace, etc.): Valley Local relief (concave, convex, none): concave Slope (%): 5
Subregion (LRR): LRR E Lat: _____ Long: _____ Datum: _____
Soil Map Unit Name: Cryaquolls-Typic Cryaquents complex, 1 to 5 percent slopes NWI classification: PEM1D

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No x (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes x No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present? Yes <u>X</u> No _____	
Wetland Hydrology Present? Yes <u>X</u> No _____	
Remarks: Area is in a severe drought	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____) 1. _____ 2. _____ 3. _____ 4. _____ =Total Cover	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)																
Sapling/Shrub Stratum (Plot size: <u>1 m</u>) 1. <u>Salix lutea</u> 10 Yes OBL 2. <u>Dasiphora fruticosa</u> 20 Yes FAC 3. _____ 4. _____ 5. _____ 30 =Total Cover	Prevalence Index worksheet: <table><tr><td>Total % Cover of:</td><td>Multiply by:</td></tr><tr><td>OBL species <u>10</u></td><td>x 1 = <u>10</u></td></tr><tr><td>FACW species <u>83</u></td><td>x 2 = <u>166</u></td></tr><tr><td>FAC species <u>20</u></td><td>x 3 = <u>60</u></td></tr><tr><td>FACU species <u>2</u></td><td>x 4 = <u>8</u></td></tr><tr><td>UPL species <u>0</u></td><td>x 5 = <u>0</u></td></tr><tr><td>Column Totals: <u>115</u> (A)</td><td><u>244</u> (B)</td></tr><tr><td colspan="2">Prevalence Index = B/A = <u>2.12</u></td></tr></table>	Total % Cover of:	Multiply by:	OBL species <u>10</u>	x 1 = <u>10</u>	FACW species <u>83</u>	x 2 = <u>166</u>	FAC species <u>20</u>	x 3 = <u>60</u>	FACU species <u>2</u>	x 4 = <u>8</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>115</u> (A)	<u>244</u> (B)	Prevalence Index = B/A = <u>2.12</u>	
Total % Cover of:	Multiply by:																
OBL species <u>10</u>	x 1 = <u>10</u>																
FACW species <u>83</u>	x 2 = <u>166</u>																
FAC species <u>20</u>	x 3 = <u>60</u>																
FACU species <u>2</u>	x 4 = <u>8</u>																
UPL species <u>0</u>	x 5 = <u>0</u>																
Column Totals: <u>115</u> (A)	<u>244</u> (B)																
Prevalence Index = B/A = <u>2.12</u>																	
Herb Stratum (Plot size: <u>1 m</u>) 1. <u>Phalaris arundinacea</u> 80 Yes FACW 2. <u>Carex sp.</u> 3 No FACW 3. <u>Taraxacum officinale</u> 2 No FACU 4. _____ 5. _____ 6. _____ 7. _____ 8. _____ 9. _____ 10. _____ 11. _____ 85 =Total Cover	Hydrophytic Vegetation Indicators: ____ 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% <u>X</u> 3 - Prevalence Index is ≤3.0 ¹ ____ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ____ 5 - Wetland Non-Vascular Plants ¹ ____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
Woody Vine Stratum (Plot size: _____) 1. _____ 2. _____ =Total Cover	Hydrophytic Vegetation Present? Yes <u>X</u> No _____																
% Bare Ground in Herb Stratum <u>0</u>																	

Remarks: _____

ENG FORM 6116-9, JUL 2018 Western Mountains, Valleys, and Coast – Version 2.0

SOIL

Sampling Point: DP2W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	10YR 2/2	100					Loamy/Clayey	
6-12	10YR 2/2	90	7.5YR 6/8	10	C	PL	Loamy/Clayey	Prominent redox concentrations
12-20	10YR 2/1	50	5YR 6/8	50	C	PL/M	Loamy/Clayey	Prominent redox concentrations

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)			Indicators for Problematic Hydric Soils ³ :	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 2 cm Muck (A10) (LRR A, E)		
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR D)		
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (F21)		
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (F22)		
<input type="checkbox"/> 1 cm Muck (A9) (LRR D, G)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)		
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.		
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)			
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)			
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G)	<input type="checkbox"/> Redox Depressions (F8)			

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: _____	

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)	
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input checked="" type="checkbox"/> Drainage Patterns (B10)	
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input checked="" type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Sediment Deposits (B2)	<input checked="" type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)			
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			

Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): 12 Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): 0 (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks: _____	

U.S. Army Corps of Engineers WETLAND DETERMINATION DATA SHEET – Western Mountains, Valleys, and Coast Region See ERDC/EL TR-10-3; the proponent agency is CECW-CO-R	OMB Control #: 0710-0024, Exp: 11/30/2024 Requirement Control Symbol EXEMPT: (Authority: AR 335-15, paragraph 5-2a)
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Project/Site: Cascade Village Tracts A1-B1 City/County: San Juan Sampling Date: 6.18.25
Applicant/Owner: Charles McAlpine State: CO Sampling Point: DP2U
Investigator(s): Elijah Vargas and Sean Moore Section, Township, Range: S 13; T 39 N; R 9 W
Landform (hillside, terrace, etc.): Valley Local relief (concave, convex, none): concave Slope (%): 5
Subregion (LRR): LRR E Lat: _____ Long: _____ Datum: _____
Soil Map Unit Name: Cryaquolls-Typic Cryaquents complex, 1 to 5 percent slopes NWI classification: PEM1D

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No x (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes x No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Remarks: Area is in a severe drought	

VEGETATION – Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: _____) 1. _____ 2. _____ 3. _____ 4. _____ _____ =Total Cover	<u>Sapling/Shrub Stratum</u> (Plot size: _____) 1. _____ 2. _____ 3. _____ 4. _____ 5. _____ _____ =Total Cover	<u>Herb Stratum</u> (Plot size: <u>1 m</u>) 1. <u>Dactylis glomerata</u> 30 Yes FACU 2. <u>Trifolium pratense</u> 5 No FACU 3. <u>Achillea millefolium</u> 5 No FACU 4. _____ 5. _____ 6. _____ 7. _____ 8. _____ 9. _____ 10. _____ 11. _____ 40 =Total Cover	<u>Woody Vine Stratum</u> (Plot size: _____) 1. _____ 2. _____ _____ =Total Cover % Bare Ground in Herb Stratum <u>60</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0.0%</u> (A/B) Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>40</u> x 4 = <u>160</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>40</u> (A) <u>160</u> (B) Prevalence Index = B/A = <u>4.00</u> Hydrophytic Vegetation Indicators: ____ 1 - Rapid Test for Hydrophytic Vegetation ____ 2 - Dominance Test is >50% ____ 3 - Prevalence Index is ≤3.0 ¹ ____ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ____ 5 - Wetland Non-Vascular Plants ¹ ____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Hydrophytic Vegetation Present? Yes _____ No <u>X</u>
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Remarks:

SOIL

Sampling Point: DP2U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-10	10YR 3/2	100						
10-20	10YR 3/2	100						

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 2 cm Muck (A10) (LRR A, E)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR D)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (F21)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> 1 cm Muck (A9) (LRR D, G)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G)	<input type="checkbox"/> Redox Depressions (F8)	

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes _____ No <u>X</u>
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Remarks: _____

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)			
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			

Field Observations: Surface Water Present? Yes _____ No _____ Depth (inches): _____ Water Table Present? Yes _____ No _____ Depth (inches): _____ Saturation Present? Yes _____ No _____ Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No <u>X</u>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: _____

Remarks: _____

U.S. Army Corps of Engineers WETLAND DETERMINATION DATA SHEET – Western Mountains, Valleys, and Coast Region See ERDC/EL TR-10-3; the proponent agency is CECW-CO-R	OMB Control #: 0710-0024, Exp: 11/30/2024 Requirement Control Symbol EXEMPT: (Authority: AR 335-15, paragraph 5-2a)
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Project/Site: Cascade Village Tracts A1-B1 City/County: San Juan Sampling Date: 6.18.25
Applicant/Owner: Charles McAlpine State: CO Sampling Point: DP1W
Investigator(s): Elijah Varas and Sean Moore Section, Township, Range: S 13; T 39 N; R 9 W
Landform (hillside, terrace, etc.): Valley Local relief (concave, convex, none): concave Slope (%): 1-4
Subregion (LRR): LRR E Lat: 37.647138 Long: -107.809159 Datum: NAD 83
Soil Map Unit Name: Cryaquolls-Typic Cryaquents complex, 1 to 5 percent slopes NWI classification: PEM1D

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No x (If no, explain in Remarks.)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes x No
Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u>
Hydric Soil Present? Yes <u>X</u> No <u> </u>	
Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	
Remarks: Area is experience a Severe drought	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u> </u> * <u> </u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>83.3%</u> (A/B)																
1. <u>Populus tremuloides</u>	<u>2</u>	<u>Yes</u>	<u>FACU</u>																	
2. <u>Picea pungens</u>	<u>3</u>	<u>Yes</u>	<u>FAC</u>																	
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>																	
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>																	
<u>5</u> =Total Cover				Prevalence Index worksheet: <table><tr><td>Total % Cover of:</td><td>Multiply by:</td></tr><tr><td>OBL species <u>29</u></td><td>x 1 = <u>29</u></td></tr><tr><td>FACW species <u>70</u></td><td>x 2 = <u>140</u></td></tr><tr><td>FAC species <u>34</u></td><td>x 3 = <u>102</u></td></tr><tr><td>FACU species <u>2</u></td><td>x 4 = <u>8</u></td></tr><tr><td>UPL species <u>0</u></td><td>x 5 = <u>0</u></td></tr><tr><td>Column Totals: <u>135</u> (A)</td><td><u>279</u> (B)</td></tr><tr><td colspan="2">Prevalence Index = B/A = <u>2.07</u></td></tr></table>	Total % Cover of:	Multiply by:	OBL species <u>29</u>	x 1 = <u>29</u>	FACW species <u>70</u>	x 2 = <u>140</u>	FAC species <u>34</u>	x 3 = <u>102</u>	FACU species <u>2</u>	x 4 = <u>8</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>135</u> (A)	<u>279</u> (B)	Prevalence Index = B/A = <u>2.07</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>29</u>	x 1 = <u>29</u>																			
FACW species <u>70</u>	x 2 = <u>140</u>																			
FAC species <u>34</u>	x 3 = <u>102</u>																			
FACU species <u>2</u>	x 4 = <u>8</u>																			
UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>135</u> (A)	<u>279</u> (B)																			
Prevalence Index = B/A = <u>2.07</u>																				
Sapling/Shrub Stratum (Plot size: <u> </u> * <u> </u>)				Hydrophytic Vegetation Indicators: <u> </u> 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% <u>X</u> 3 - Prevalence Index is ≤3.0 ¹ <u> </u> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> 5 - Wetland Non-Vascular Plants ¹ <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
1. <u>Dasiphora fruticosa</u>	<u>15</u>	<u>Yes</u>	<u>FAC</u>																	
2. <u>Salix monticola</u>	<u>25</u>	<u>Yes</u>	<u>OBL</u>																	
3. <u>Salix arctica</u>	<u>10</u>	<u>Yes</u>	<u>FAC</u>																	
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>																	
<u>50</u> =Total Cover				Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>																
Herb Stratum (Plot size: <u> </u> * <u> </u>)																				
1. <u>Phalaris arundinacea</u>	<u>60</u>	<u>Yes</u>	<u>FACW</u>																	
2. <u>Juncus balticus</u>	<u>10</u>	<u>No</u>	<u>FACW</u>																	
3. <u>Equisetum arvense</u>	<u>6</u>	<u>No</u>	<u>FAC</u>																	
4. <u>Carex sp.</u>	<u>10</u>	<u>No</u>	<u> </u>																	
5. <u>Typha latifolia</u>	<u>1</u>	<u>No</u>	<u>OBL</u>																	
6. <u>Caltha leptosepala</u>	<u>3</u>	<u>No</u>	<u>OBL</u>																	
7. <u> </u>	<u> </u>	<u> </u>	<u> </u>																	
8. <u> </u>	<u> </u>	<u> </u>	<u> </u>																	
9. <u> </u>	<u> </u>	<u> </u>	<u> </u>																	
10. <u> </u>	<u> </u>	<u> </u>	<u> </u>																	
11. <u> </u>	<u> </u>	<u> </u>	<u> </u>																	
<u>90</u> =Total Cover																				
Woody Vine Stratum (Plot size: <u> </u> * <u> </u>)																				
1. <u> </u>	<u> </u>	<u> </u>	<u> </u>																	
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>																	
<u> </u> =Total Cover																				
% Bare Ground in Herb Stratum <u>2</u>																				

Remarks:
* Sampled entire wetland plant community

SOIL

Sampling Point: DP1W

[illegible]

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one is required; check all that apply)			
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except	Secondary Indicators (2 or more required)	
<input checked="" type="checkbox"/> High Water Table (A2)	MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2	
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Salt Crust (B11)	4A, and 4B)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input checked="" type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input checked="" type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Drift Deposits (B3)	<input checked="" type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input checked="" type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)	
<input checked="" type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input type="checkbox"/> Frost-Heave Hummocks (D7)	
Field Observations:			
Surface Water Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches):	<input type="text" value="1"/>
Water Table Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches):	<input type="text" value="0"/>
Saturation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches):	<input type="text" value="0"/>
(includes capillary fringe)		Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks:			

U.S. Army Corps of Engineers WETLAND DETERMINATION DATA SHEET – Western Mountains, Valleys, and Coast Region See ERDC/EL TR-10-3; the proponent agency is CECW-CO-R	OMB Control #: 0710-0024, Exp: 11/30/2024 Requirement Control Symbol EXEMPT: (Authority: AR 335-15, paragraph 5-2a)
---	---

Project/Site: Cascade Village Tracts A1-B1 City/County: San Juan Sampling Date: 6.18.25
Applicant/Owner: Charles McAlpine State: CO Sampling Point: DP1U
Investigator(s): Elijah Varas and Sean Moore Section, Township, Range: S 13; T 39 N; R 9 W
Landform (hillside, terrace, etc.): Valley Local relief (concave, convex, none): _____ Slope (%): 5
Subregion (LRR): LRR E Lat: 37.646804 Long: -107.809708 Datum: NAD 83
Soil Map Unit Name: Cryaquolls-Typic Cryaquents complex, 1 to 5 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No x (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes x No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Remarks: Area is experience a Severe drought	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____) 1. _____ 2. _____ 3. _____ 4. _____ =Total Cover	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50.0%</u> (A/B)
Sapling/Shrub Stratum (Plot size: _____) 1. _____ 2. _____ 3. _____ 4. _____ 5. _____ =Total Cover	Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>60</u> x 3 = <u>180</u> FACU species <u>32</u> x 4 = <u>128</u> UPL species <u>8</u> x 5 = <u>40</u> Column Totals: <u>100</u> (A) <u>348</u> (B) Prevalence Index = B/A = <u>3.48</u>
Herb Stratum (Plot size: <u>1 m</u>) 1. <u>Bromus inermis</u> <u>8</u> <u>No</u> <u>UPL</u> 2. <u>Dactylis glomerata</u> <u>30</u> <u>Yes</u> <u>FACU</u> 3. <u>Equisetum arvense</u> <u>60</u> <u>Yes</u> <u>FAC</u> 4. <u>Trifolium pratense</u> <u>2</u> <u>No</u> <u>FACU</u> 5. _____ 6. _____ 7. _____ 8. _____ 9. _____ 10. _____ 11. _____ <u>100</u> =Total Cover	Hydrophytic Vegetation Indicators: ____ 1 - Rapid Test for Hydrophytic Vegetation ____ 2 - Dominance Test is >50% ____ 3 - Prevalence Index is ≤3.0 ¹ ____ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ____ 5 - Wetland Non-Vascular Plants ¹ ____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: _____) 1. _____ 2. _____ =Total Cover % Bare Ground in Herb Stratum <u>0</u>	Hydrophytic Vegetation Present? Yes _____ No <u>X</u>

Remarks:

SOIL

Sampling Point: DP1U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	10YR 5/4	100					Loamy/Clayey	
6-20	10YR 4/4	100					Loamy/Clayey	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)			Indicators for Problematic Hydric Soils ³ :	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 2 cm Muck (A10) (LRR A, E)		
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR D)		
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (F21)		
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (F22)		
<input type="checkbox"/> 1 cm Muck (A9) (LRR D, G)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)		
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.		
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)			
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)			
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G)	<input type="checkbox"/> Redox Depressions (F8)			

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes _____ No <u>X</u>
Remarks: _____	

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)			
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			

Field Observations: Surface Water Present? Yes _____ No _____ Depth (inches): _____ Water Table Present? Yes _____ No _____ Depth (inches): _____ Saturation Present? Yes _____ No _____ Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No <u>X</u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks: _____	

APPENDIX E

USDA NRSC Soils Report

Animas- Dolores Area, Colorado, Parts of Archuleta, Dolores, Hinsdale, La Plata, Montezuma, San Juan, and San Miguel Counties

Map Unit: 53—Cryaquolls-Typic Cryaquents complex, 1 to 5 percent slopes

Component: Cryaquolls (50%)

The Cryaquolls component makes up 50 percent of the map unit. Slopes are 1 to 5 percent. This component is on flood plains, valley floors. The parent material consists of alluvium derived from mixed sources. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is occasionally flooded. It is not ponded. A seasonal zone of water saturation is at 13 inches during May, June. Organic matter content in the surface horizon is about 4 percent. This component is in the R048AY241CO Mountain Meadow ecological site. Nonirrigated land capability classification is 6w. This soil meets hydric criteria.

Component: Typic Cryaquents (35%)

The Typic Cryaquents component makes up 35 percent of the map unit. Slopes are 1 to 5 percent. This component is on flood plains, valley floors. The parent material consists of alluvium derived from mixed sources. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is occasionally flooded. It is not ponded. A seasonal zone of water saturation is at 13 inches (depth from the mineral surface is 9 inches) during May, June. Organic matter content in the surface horizon is about 85 percent. Below this thin organic horizon the organic matter content is about 1 percent. This component is in the R048AY241CO Mountain Meadow ecological site. Nonirrigated land capability classification is 6w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface.

Map Unit: 330 Needleton stony loam, 15 to 30 Percent Slopes

Component: Needleton (85%)

The Needleton component makes up 85 percent of the map unit. Slopes are 15 to 30 percent. This component is on mountain slopes. The parent material consists of slope alluvium derived from rhyolite and sandstone. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 85 percent. Below this thin organic horizon the organic matter content is about 1 percent. This component is in the F048AY918CO Spruce-Fir Woodland ecological site. Nonirrigated land capability classification is 7s. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface.

Map Unit: 51 Clayburn-Hourglass complex, 5 to 25 percent slopes

Component: Clayburn (55%)

The Clayburn component makes up 55 percent of the map unit. Slopes are 5 to 25 percent. This component is on mountain slopes. The parent material consists of slope alluvium derived from sandstone and shale. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 3 percent. This component is in the R048AY250CO Subalpine Loam ecological site. Nonirrigated land capability classification is 6e. This soil does not meet hydric criteria.

Component: Hourglass (35%)

The Hourglass component makes up 35 percent of the map unit. Slopes are 5 to 25 percent. This component is on mountain slopes. The parent material consists of slope alluvium derived from sandstone, limestone, and shale. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 3 percent. This component is in the R048AY250CO Subalpine Loam ecological site. Nonirrigated land capability classification is 6e. This soil does not meet hydric criteria.

Map Unit: 338 Needleton -Snowdon-Rock outcrop complex, 30 to 80 percent slopes

Component: Needleton (45%)

The Needleton component makes up 45 percent of the map unit. Slopes are 30 to 80 percent. This component is on mountain slopes. The parent material consists of slope alluvium and colluvium derived from rhyolite, limestone and sandstone. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 85 percent. Below this thin organic horizon the organic matter content is about 1 percent. This component is in the F048AY918CO Spruce-Fir Woodland ecological site. Nonirrigated land capability classification is 7e. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface.

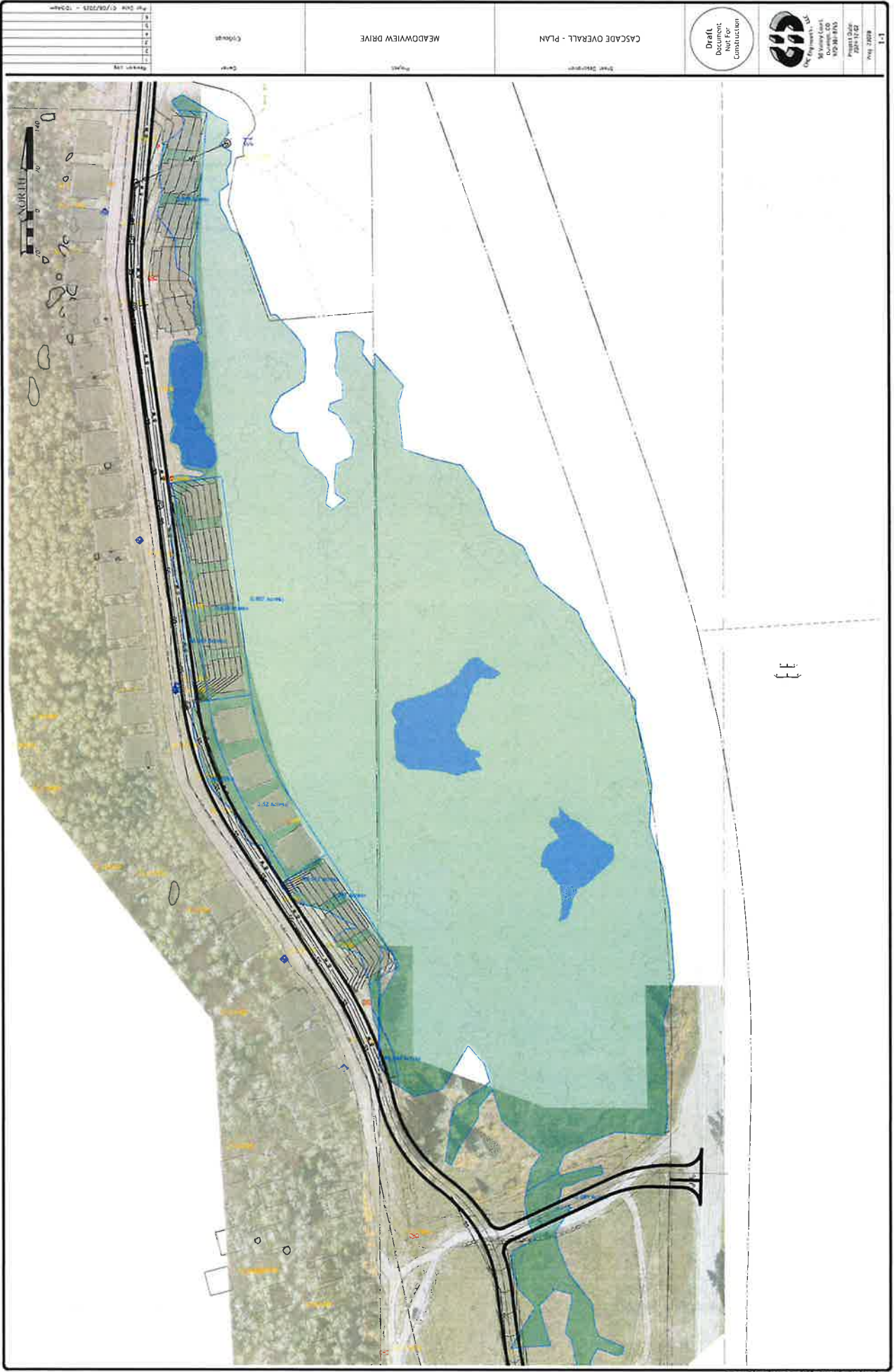
Component: Snowdon (30%)

The Snowdon component makes up 30 percent of the map unit. Slopes are 30 to 80 percent. This component is on structural benches, mountain slopes. The parent material consists of residuum and slope alluvium derived from rhyolite, limestone and sandstone. Depth to a root restrictive layer, bedrock, lithic, is 10 to 20 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is very low. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not

ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 85 percent. Below this thin organic horizon the organic matter content is about 2 percent. This component is in the F048AY918CO Spruce-Fir Woodland ecological site. Nonirrigated land capability classification is 7s. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface.

ATTACHMENT 3

Engineer Drawings



CASCADE OVERALL - PLAN

MEADOWVIEW DRIVE

Overview

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FIRST AMENDMENT OF THE RESUBDIVISION OF THE TWILIGHT MEADOW SUBDIVISION AT CASCADE VILLAGE LOCATED IN SECTION 13, T 39 N, R 9 W, N.M.P.M. SAN JUAN COUNTY, COLORADO

CHISEL TABLE

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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DESCRIPTION OF MONUMENTS

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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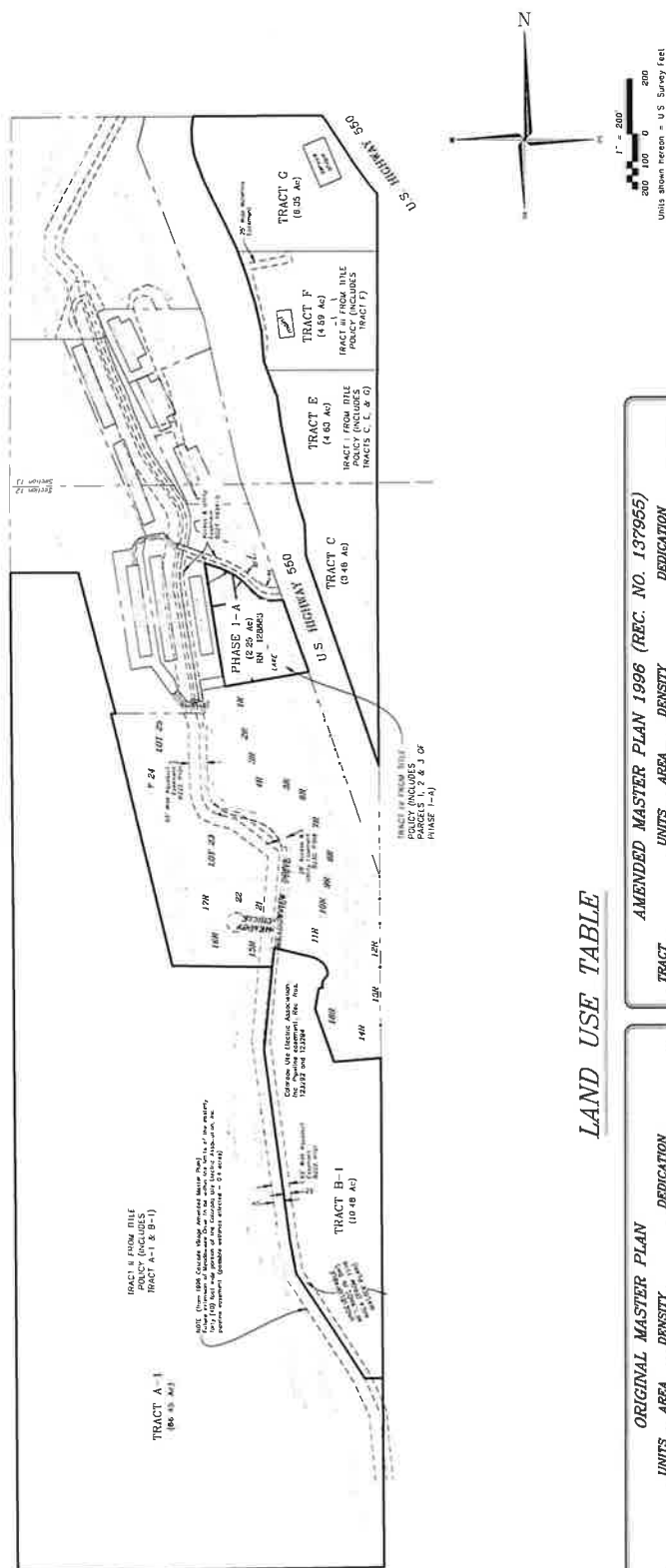
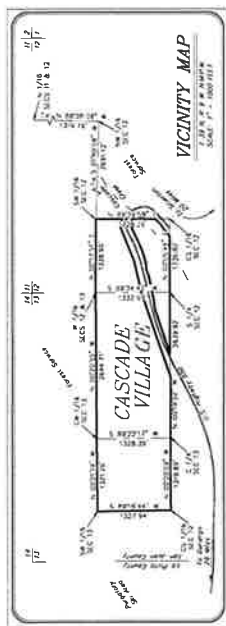
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ENGINEERING & SURVEYING

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LOCATED IN SECTION 13, T 39 N, R 9 W, N.M.P.M.
SAN JUAN COUNTY, COLORADO



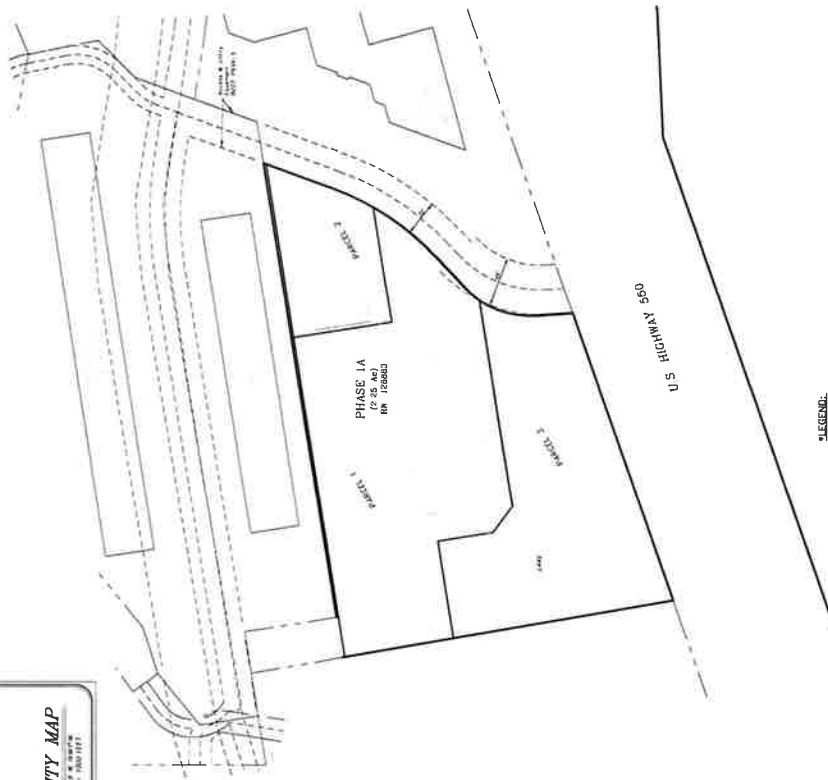
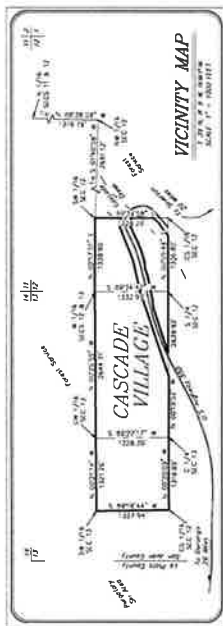
LAND USE TABLE

ORIGINAL MASTER PLAN				DEDICATION	
TRACT	UNITS	AREA	DENSITY	OPEN SPACE	RESIDENTIAL
TRACT A	0	52.91 AC.	6.05 UNITS/AC.		
TRACT B	177	29.26 AC.			
TRACT C	1,111	10.4 AC.			
TRACT D	1,111	10.4 AC.			
TRACT E	0	2.25 AC.			
TRACT F	0	3.91 AC.			
TRACT G	0	3.46 AC.			
TRACT H	0	4.63 AC.			
TRACT I	0	4.59 AC.			
TRACT J	0	6.35 AC.			
TRACT K	0	1.48 AC.			
TOTALS	485	148.44 AC.	3.27 UNITS/AC.		

TRACT	UNITS		AREA		DENSITY	RESIDENTIAL		COMMERCIAL/OPEN SPACE	
	A-1	B-1	A-1	B-1		OPEN SPACE	COMMERCIAL/OPEN SPACE	OPEN SPACE	COMMERCIAL
TRACT A-1	177	0	71.69 AC.	10.48 AC.	2.47 UNITS/AC.	0	0	0	0
TRACT B-1	0	0	0	0	0	0	0	0	0
TRACT A-1	0	0	0	0	0	0	0	0	0
TRACT B-1	0	0	0	0	0	0	0	0	0
PHASE 1-A	0	0	0	0	0	0	0	0	0
PHASE 1-B	0	0	0	0	0	0	0	0	0
PHASE 1-C	0	0	0	0	0	0	0	0	0
PHASE 1-D	0	0	0	0	0	0	0	0	0
PHASE 1-E	0	0	0	0	0	0	0	0	0
PHASE 1-F	0	0	0	0	0	0	0	0	0
PHASE 1-G	0	0	0	0	0	0	0	0	0
PHASE 1-H	0	0	0	0	0	0	0	0	0
PHASE 1-I	0	0	0	0	0	0	0	0	0
PHASE 1-J	0	0	0	0	0	0	0	0	0
PHASE 1-K	0	0	0	0	0	0	0	0	0
PHASE 1-L	0	0	0	0	0	0	0	0	0
PHASE 1-M	0	0	0	0	0	0	0	0	0
PHASE 1-N	0	0	0	0	0	0	0	0	0
PHASE 1-O	0	0	0	0	0	0	0	0	0
PHASE 1-P	0	0	0	0	0	0	0	0	0
PHASE 1-Q	0	0	0	0	0	0	0	0	0
PHASE 1-R	0	0	0	0	0	0	0	0	0
PHASE 1-S	0	0	0	0	0	0	0	0	0
PHASE 1-T	0	0	0	0	0	0	0	0	0
PHASE 1-U	0	0	0	0	0	0	0	0	0
PHASE 1-V	0	0	0	0	0	0	0	0	0
PHASE 1-W	0	0	0	0	0	0	0	0	0
PHASE 1-X	0	0	0	0	0	0	0	0	0
PHASE 1-Y	0	0	0	0	0	0	0	0	0
PHASE 1-Z	0	0	0	0	0	0	0	0	0
TOTALS	495	0	148.44 AC.	0	3.27 UNITS/AC.	0	0	0	0

 GOFF ENGINEERING & SURVEYING, INC. 100 BOULEVARD CENTRE FORT LAUDERDALE, FL 33304 (305) 466-1000 FAX (305) 466-1001	CASCADE VILLAGE OVERALL MAP		11" x 17"
	1	1	1
	1	1	1
	1	1	1

PHASE 1A, CASCADE VILLAGE MAP LOCATED IN SECTION 13, T. 39 N., R. 9 W., N.M.P.M. SAN JUAN COUNTY, COLORADO



LEGEND:

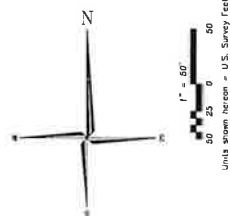
BUILDING USE & SIZE

PARKING 1: Retail Office, Sales, Public Restrooms
 Size: Net - 5,000 Sq. Ft.
 Gross - 6,000 Sq. Ft.

PARKING 2: Retail Office, Sales, Restroom
 Size: Net - 250 Sq. Ft.
 Gross - 300 Sq. Ft.

PARKING 3: Lot, Open Space

Total Max Building Use For Phase 1a = 7,000 Sq. Ft. - Net
 *This Land Use Total is from the "Cascade Village Phase 1A" a
 "Certificate of Intent" recorded at San Juan County Clerk's Office
 October 16, 1994 under Recording No. 12083.

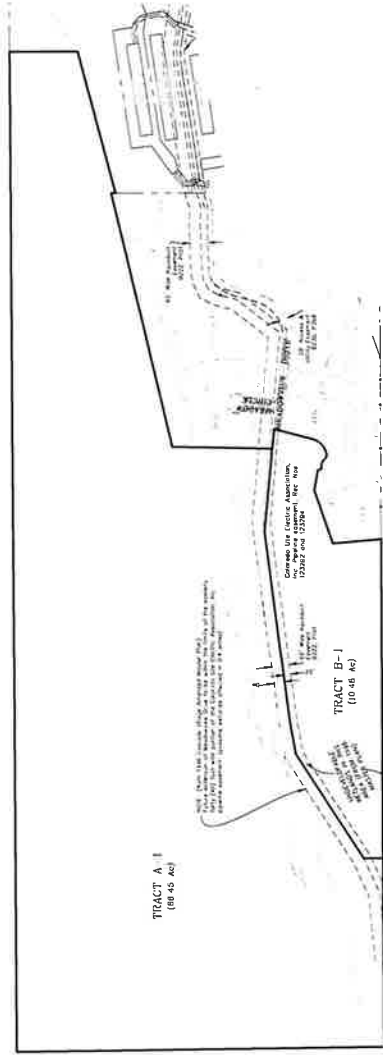
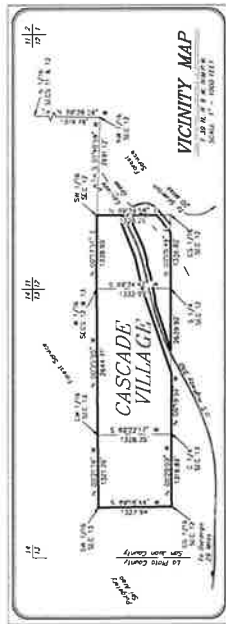


GOFF
 ENGINEERING & SURVEYING INC.
 200 WEST 10TH AVENUE
 DENVER, COLORADO 80202
 (303) 733-1100

PHASE 1A, CASCADE
 VILLAGE MAP

2 4

TRACT A-1 & B-1, CASCADE VILLAGE MAP LOCATED IN SECTION 13, T. 39 N., R. 9 W., N.M.P.M. SAN JUAN COUNTY, COLORADO



1" = 200'
200 100 0 200
Units shown herein = U.S. Survey Feet

GOFF
ENGINEERING & SURVEYING, INC.
100 N. 1000 E.
DURANGO, COLORADO 81301
PHONE: 348-1100

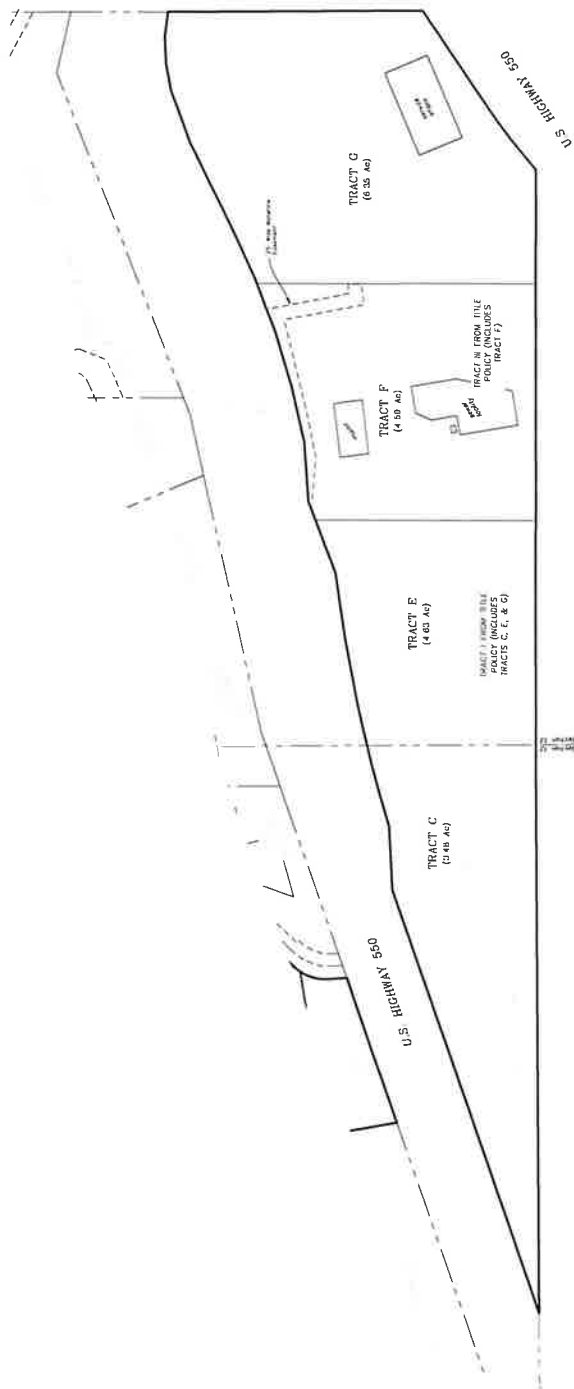
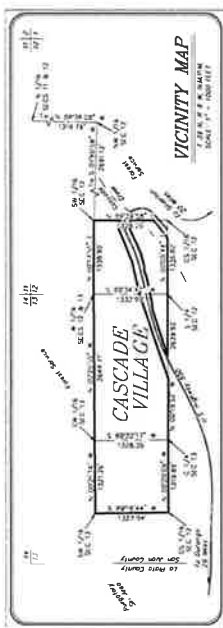
TRACT A-1 & B-1,
CASCADE VILLAGE MAP

3

4

TRACTS C, E, F & G, CASCADE VILLAGE MAP

LOCATED IN SECTION 13, T. 39 N., R. 9 W., N.M.P.M.
SAN JUAN COUNTY, COLORADO



GOFF
ENGINEERING & SURVEYING, INC.
SAN JUAN COUNTY, COLORADO
DANIELA COLOMBO, P.E.
REGISTERED PROFESSIONAL ENGINEER

TRACTS C, E, F & G, CASCADE VILLAGE MAP	4	4
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ATTACHMENT 4

Species List- IPaC



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Western Colorado Ecological Services Field Office
445 West Gunnison Avenue, Suite 240
Grand Junction, CO 81501-5711
Phone: (970) 628-7180 Fax: (970) 245-6933



In Reply Refer To:
Project Code: 2025-0117716
Project Name: Cascade Village Condo

07/03/2025 16:43:53 UTC

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat ([Colorado Ecological Services Field Office](#)). Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the ESA, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the [IPaC](#) website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the ESA is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the ESA and its implementing regulations ([50 CFR 402 et seq.](#)), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR

402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at: <https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf>.

Projects and activities without a Federal nexus (e.g., without Federal funding, permit, or authorization) should be evaluated for the potential to "take" listed wildlife. Take does not apply to listed plants and to designated critical habitat. The term "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct ([ESA Section 3, Definitions](#)). Harm in the definition of "take" in the ESA means an act which actually kills or injures wildlife. Such act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering ([50 CFR 17.3](#)).

Gray Wolf: On November 8, 2023, the Service promulgated an ESA section 10(j) (i.e., experimental population) rule (10(j) rule) for gray wolf (*Canis lupus*) within the State of Colorado ([88 FR 77014](#)). For purposes of ESA section 7 consultation, we treat experimental populations as if they are proposed for listing, except on National Park Service and Service lands, where they are treated as threatened. Evaluations for proposed species are completed under the regulations for conferencing ([50 CFR 402.10](#)). Conferencing for species that are proposed for Federal listing, or for proposed critical habitat, is only required if a proposed action is likely to jeopardize the continued existence of a species or will result in destruction or adverse modification of proposed critical habitat. If an action agency determines that their action would not jeopardize the continued existence of the species, and/or would not result in the destruction or adverse modification of critical habitat, and the Service concurs, the conferencing requirement is fulfilled.

Colorado River Fish/Depletions: Formal interagency consultation under section 7 of the ESA is required for projects that may lead to depletions of water from any system that is a tributary to the Colorado River. Federal agency actions resulting in water depletions to the Colorado River system may affect the endangered bonytail (*Gila elegans*), Colorado pikeminnow (*Ptychocheilus lucius*), razorback sucker (*Xyrauchen texanus*), and the threatened humpback chub (*Gila cypha*), and their designated critical habitats.

Water depletions include evaporative losses and consumptive use of surface or groundwater within the affected basin, often characterized as diversion minus return flows. Project elements that could be associated with depletions include, but are not limited to: ponds, lakes, and reservoirs (e.g., detention, recreation, irrigation, storage, stock watering, municipal storage, and power generation); drilling, hydraulic fracturing and completion of oil and gas wells; hydrostatic testing of pipelines; water wells; dust abatement; diversion structures; and water treatment facilities. Any actions that may result in water depletions should be identified. An analysis of the water depletion should include: an estimate of the amount and timing of the average annual water use (both historic and new uses) and methods of arriving at such estimates; location of water use or where diversion occurs, as specifically as possible; if and when the water will be returned to the system; and the intended use of the water. Depending on Project details, the Service may have more specific questions regarding the potential consumptive use of the water.

The Service, in accordance with the Upper Colorado River Endangered Fish Recovery Program (<https://coloradoriverrecovery.org/uc/>), adopted a [de minimis policy](#), which states that water-related activities in the Upper Colorado River Basin that result in less than 10 acre-foot per year of depletions in flow have no effect on the Colorado River endangered fish species and their critical habitat, and thus do not require consultation for potential effects on those species and critical habitat. While no section 7 consultation is needed, the Service requests Federal agencies notify the Upper Colorado Fishes Coordinator of depletions between 0.1 and 10 acre-feet per year with the approximate location of the project (e.g., reference to the most proximate surface water or tributary), the water use (e.g., agricultural, oil and gas, energy), and the timing of and depletion

amount. Detention basins designed to detain runoff for less than 72 hours, and temporary withdrawals of water outside of critical habitat (e.g., for hydrostatic pipeline testing) that return all the water to the same drainage basin within 30 days, are considered to have no effect and do not require consultation.

Suckley's Cuckoo Bumble Bee: On December 17, 2024, Suckley's cuckoo bumble bee (*Bombus suckleyi*) (Suckley's) was proposed for listing as an endangered species (89 FR 102074). Suckley's is an obligate social parasite of social bumble bees in the genus *Bombus*. Suckley's cannot successfully reproduce without the availability of suitable host colonies. It is a semi-specialist parasite and confirmed to usurp nests of Western bumble bee (*Bombus occidentalis*) and Nevada bumble bees (*Bombus nevadensis*) (Service 2024).

Based on the best available information, no Suckley's have been observed in Colorado since 2014 despite ongoing surveys. The Species Status Assessment (SSA) shows observations since 2018 occur only in northern latitudes, primarily in Canada ([Service 2024](#)), but the species may persist in high quality upper elevation habitats in western States. While Suckley's is proposed for listing, there is no prohibition of "take" under Section 9 of the ESA; therefore, projects without a federal nexus, do not need to engage with the Service to exempt take under the ESA. However, we encourage including conservation measures benefiting pollinators and pollinator habitat into projects. Examples include retaining suitable foraging (diversity and abundance of native floral resources), nesting (suitable host colony above or below ground), and overwintering habitat (loose substrates such as leaf litter, duff, rotting logs); maintaining habitat for host bumble bees by avoiding impacts to abandoned underground holes (rodent burrows); and revegetation efforts that include native seed mixes to promote an abundance and diversity of native floral resources. Additionally, we recommend supporting and conducting general bumble bee and pollinator surveys.

While the species is not currently known to occur in Colorado, we encourage proactive conservation actions to protect and conserve pollinators and pollinator habitat. Examples include retaining suitable foraging (diversity and abundance of native floral resources), nesting (suitable host colony above or below ground), and overwintering habitat (loose substrates such as leaf litter, duff, rotting logs); maintaining habitat for host bumble bees by avoiding impacts to abandoned underground holes (rodent burrows); and revegetation efforts that include native seed mixes to promote an abundance and diversity of native floral resources. Additionally, we recommend supporting and conducting general bumble bee and pollinator surveys.

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see <https://www.fws.gov/program/migratory-bird-permit/what-we-do>.

It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see <https://www.fws.gov/library/collections/threats-birds>.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit <https://www.fws.gov/partner/council-conservation-migratory-birds>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Bald & Golden Eagles
- Migratory Birds
- Wetlands

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Western Colorado Ecological Services Field Office
445 West Gunnison Avenue, Suite 240
Grand Junction, CO 81501-5711
(970) 628-7180

PROJECT SUMMARY

Project Code: 2025-0117716
Project Name: Cascade Village Condo
Project Type: Residential Construction
Project Description: condo
Project Location:

The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@37.64857995,-107.81129202247925,14z>



Counties: San Juan County, Colorado

ENDANGERED SPECIES ACT SPECIES

There is a total of 10 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 2 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Canada Lynx <i>Lynx canadensis</i> Population: Wherever Found in Contiguous U.S. There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3652	Threatened
Gray Wolf <i>Canis lupus</i> Population: CO No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4488	Experimental Population, Non- Essential
New Mexico Meadow Jumping Mouse <i>Zapus hudsonius luteus</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/7965	Endangered

BIRDS

NAME	STATUS
Mexican Spotted Owl <i>Strix occidentalis lucida</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8196	Threatened
Southwestern Willow Flycatcher <i>Empidonax traillii extimus</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6749	Endangered

FISHES

NAME	STATUS
Colorado Pikeminnow <i>Ptychocheilus lucius</i> Population: Wherever found, except where listed as an experimental population There is final critical habitat for this species. Your location does not overlap the critical habitat. This species only needs to be considered under the following conditions: <ul style="list-style-type: none"> Water depletions in the upper Colorado River basin adversely affect this species and its critical habitat. Effects of water depletions must be considered even outside of occupied range. Species profile: https://ecos.fws.gov/ecp/species/3531	Endangered
Razorback Sucker <i>Xyrauchen texanus</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. This species only needs to be considered under the following conditions: <ul style="list-style-type: none"> Water depletions in the upper Colorado River basin adversely affect this species and its critical habitat. Effects of water depletions must be considered even outside of occupied range. Species profile: https://ecos.fws.gov/ecp/species/530	Endangered

INSECTS

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> There is proposed critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9743	Proposed Threatened
Silverspot <i>Speyeria nokomis nokomis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2813	Threatened
Suckley's Cuckoo Bumble Bee <i>Bombus suckleyi</i> Population: No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10885	Proposed Endangered

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

REFUGE INFORMATION WAS NOT AVAILABLE WHEN THIS SPECIES LIST WAS GENERATED. PLEASE CONTACT THE FIELD OFFICE FOR FURTHER INFORMATION.

BALD & GOLDEN EAGLES

Bald and Golden Eagles are protected under the Bald and Golden Eagle Protection Act ² and the Migratory Bird Treaty Act (MBTA) ¹. Any person or organization who plans or conducts activities that may result in impacts to Bald or Golden Eagles, or their habitats, should follow appropriate regulations and consider implementing appropriate avoidance and minimization measures, as described in the various links on this page.

-
1. The [Bald and Golden Eagle Protection Act](#) of 1940.
 2. The [Migratory Birds Treaty Act](#) of 1918.
 3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

There are Bald Eagles and/or Golden Eagles in your [project](#) area.

Measures for Proactively Minimizing Eagle Impacts

For information on how to best avoid and minimize disturbance to nesting bald eagles, please review the [National Bald Eagle Management Guidelines](#). You may employ the timing and activity-specific distance recommendations in this document when designing your project/activity to avoid and minimize eagle impacts. For bald eagle information specific to Alaska, please refer to [Bald Eagle Nesting and Sensitivity to Human Activity](#).

The FWS does not currently have guidelines for avoiding and minimizing disturbance to nesting Golden Eagles. For site-specific recommendations regarding nesting Golden Eagles, please consult with the appropriate Regional [Migratory Bird Office](#) or [Ecological Services Field Office](#).

If disturbance or take of eagles cannot be avoided, an [incidental take permit](#) may be available to authorize any take that results from, but is not the purpose of, an otherwise lawful activity. For assistance making this determination for Bald Eagles, visit the [Do I Need A Permit Tool](#). For assistance making this determination for golden eagles, please consult with the appropriate Regional [Migratory Bird Office](#) or [Ecological Services Field Office](#).

Ensure Your Eagle List is Accurate and Complete

If your project area is in a poorly surveyed area in IPaC, your list may not be complete and you may need to rely on other resources to determine what species may be present (e.g. your local FWS field office, state surveys, your own surveys). Please review the [Supplemental Information on Migratory Birds and Eagles](#), to help you properly interpret the report for your specified location, including determining if there is sufficient data to ensure your list is accurate.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to bald or golden eagles on your list, see the "Probability of Presence Summary" below to see when these bald or golden eagles are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Golden Eagle <i>Aquila chrysaetos</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Dec 1 to Aug 31

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read ["Supplemental Information on Migratory Birds and Eagles"](#), specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (0)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

Breeding Season (■)

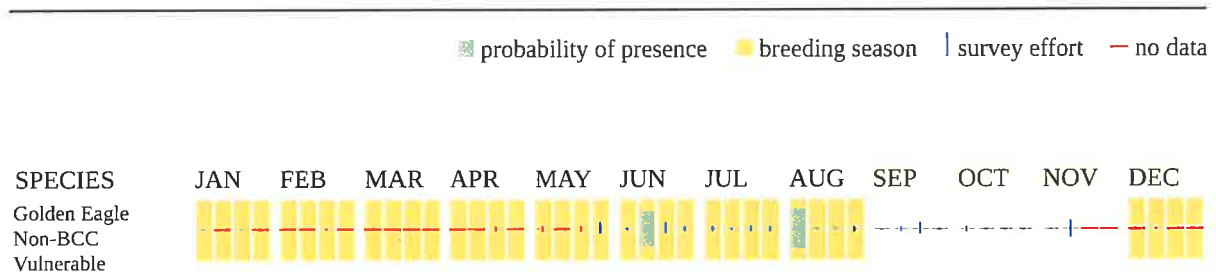
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

Survey Effort (|)

Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (-)

A week is marked as having no data if there were no survey events for that week.



Additional information can be found using the following links:

- Eagle Management <https://www.fws.gov/program/eagle-management>
- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds>
- Nationwide avoidance and minimization measures for birds <https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>
- Supplemental Information for Migratory Birds and Eagles in IPaC <https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action>

MIGRATORY BIRDS

The Migratory Bird Treaty Act (MBTA) ¹ prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the Department of Interior U.S. Fish and Wildlife Service (Service).

-
1. The [Migratory Birds Treaty Act](#) of 1918.
 2. The [Bald and Golden Eagle Protection Act](#) of 1940.
 3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the "Probability of Presence Summary" below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Black Swift <i>Cypseloides niger</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8878	Breeds Jun 15 to Sep 10
Broad-tailed Hummingbird <i>Selasphorus platycercus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/11935	Breeds May 25 to Aug 21
Cassin's Finch <i>Haemorhous cassinii</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9462	Breeds May 15 to Jul 15
Clark's Nutcracker <i>Nucifraga columbiana</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9421	Breeds Jan 15 to Jul 15
Evening Grosbeak <i>Coccothraustes vespertinus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9465	Breeds May 15 to Aug 10
Flammulated Owl <i>Psiloscopus flammeolus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/7728	Breeds May 10 to Aug 15
Golden Eagle <i>Aquila chrysaetos</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Dec 1 to Aug 31
Olive-sided Flycatcher <i>Contopus cooperi</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3914	Breeds May 20 to Aug 31
Pinyon Jay <i>Gymnorhinus cyanocephalus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9420	Breeds Feb 15 to Jul 15

NAME

Virginia's Warbler *Leiothlypis virginiae*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/9441>

BREEDING SEASON

Breeds May 1 to
Jul 31

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "[Supplemental Information on Migratory Birds and Eagles](#)", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

Breeding Season (■)

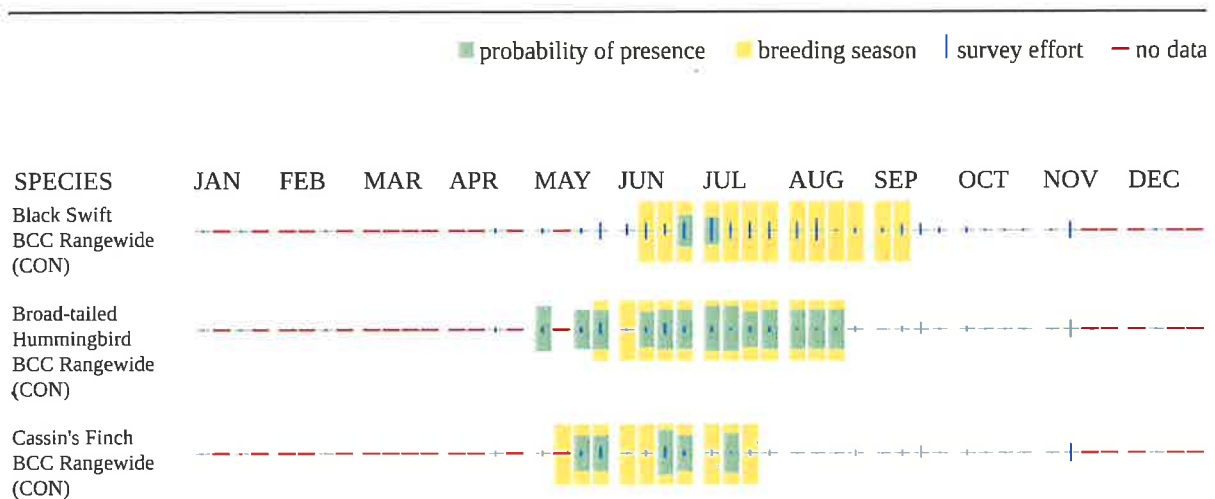
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

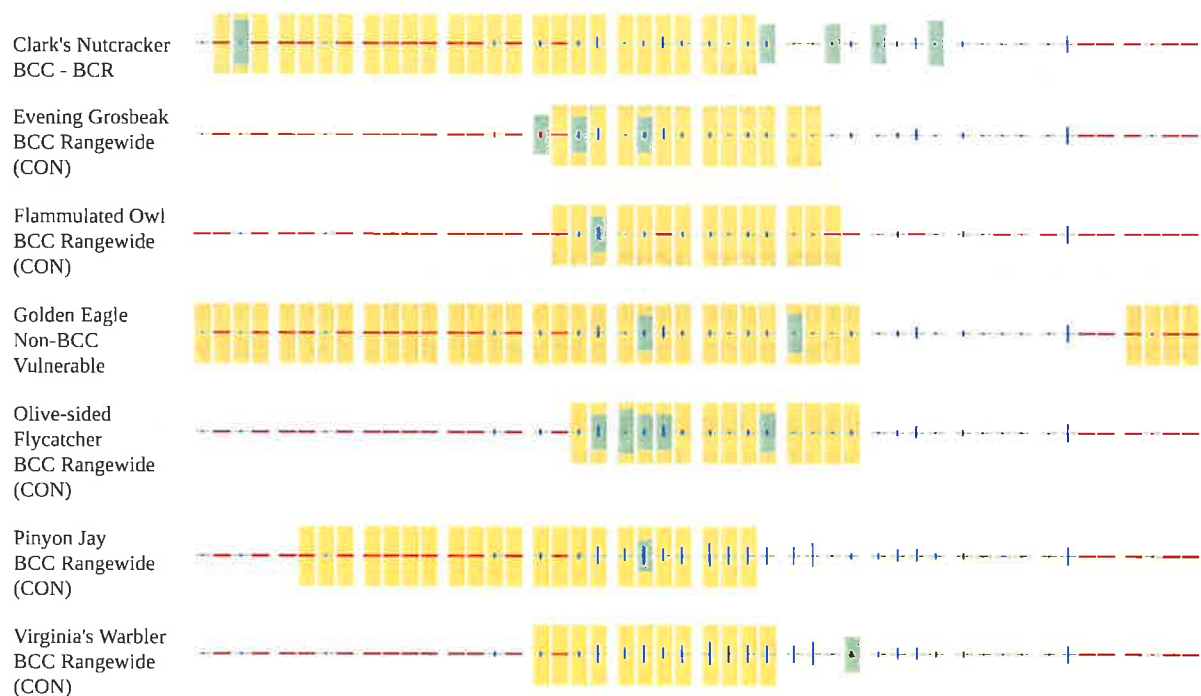
Survey Effort (|)

Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (—)

A week is marked as having no data if there were no survey events for that week.





Additional information can be found using the following links:

- Eagle Management <https://www.fws.gov/program/eagle-management>
- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds>
- Nationwide avoidance and minimization measures for birds
- Supplemental Information for Migratory Birds and Eagles in IPaC <https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action>

WETLANDS

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

FRESHWATER EMERGENT WETLAND

- PEM1C

- PEM1D

RIVERINE

- R4SBC

IPAC USER CONTACT INFORMATION

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Name: Nathan Kirker

Address: 679 East 2nd Ave

City: Durango

State: CO

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Email nkirker@sme-env.com

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ATTACHMENT 5

Cultural Memo

Thank you for submitting a request to the Office of Archaeology and Historic Preservation!

If you have requested a cost estimate, we will be in touch once we review the details of your request. Otherwise, we will be in touch as soon as the your request has been completed. If you need to make changes to your request, please reply to this email. The details of your submission are below.

Select a Service	File Search
Project Reference	Cascade Village Tracts A1-B1
Do you need a cost estimate for this service?	No
Submission Date	06/30/2025
Select a Search Method	Search based on a mapped area
Upload the Search Area	SurveyArea.kmz
Select a Processing Option	Standard processing: 20 business days
Requestor Name	SANDER APLET
Organization or Agency	SME Environmental
Email	sander@sme-env.com
Phone Number	(720) 217-1694
Address	No change to address

Select your qualifications.

None of the above applies to me, I understand I will only receive non-sensitive data.

What is the reason for this request?

Background research for a SHPO consultation, federal or state permitting activity, or a due diligence project

Terms and Conditions

Accepted

Accounts Payable

The billing contact is different.

Billing Contact

Sean Moore

Billing email

smoore@sme-env.com

Billing phone

(970) 259-9595

Billing address

679 2ND AVE Unit 8, DURANGO, Colorado, 81301

Terms and Conditions

Accepted

Submission number

S-999

APPENDIX C**March 2025 USEPA Memo regarding "Adjacent Wetlands"**



New Guidance on Adjacent Wetlands Under the Clean Water Act

Today the EPA and U.S. Army Corps of Engineers issued a [memorandum](#) that clarifies the definition of “adjacent wetlands” under the Clean Water Act (CWA) following the Supreme Court’s ruling in *Sackett v. EPA* (2023). The March 12, 2025 guidance emphasizes that wetlands must have a “continuous surface connection” to a jurisdictional water to be considered adjacent and thus fall under CWA protection.

Key points include:

- **Legal Basis:** *Sackett v. EPA* (2023) reaffirmed that wetlands must physically abut a jurisdictional water, rejecting broader interpretations based on hydrologic or intermittent connections.
- **New Definition:** Wetlands separated by berms, dikes, uplands, or indirect hydrologic features (ditches, swales, pipes, etc.) no longer qualify as adjacent.
- **Practical Implications:** Field assessments must confirm direct physical contact between a wetland and a jurisdictional water. Previous guidance allowing broader interpretations is rescinded.
- **Public Input & Future Steps:** The agencies plan to open a public docket titled “WOTUS Notice: The Final Response to SCOTUS” for feedback and may issue further guidance.

Overall, the memorandum narrows the definition of adjacent wetlands, aligning with Supreme Court precedent and limiting CWA jurisdiction to wetlands that are physically indistinguishable from abutting waters. Click the link below to learn more about this important memorandum.

Grizzly Peak Water Sales and Distribution, LLC

1424 CR 223

Durango, CO 81301

970 759 1609

swwastewater@yahoo.com

June 20, 2025

To Whom It May Concern:

I am writing in my capacity as the Manager and ORC of Grizzly Peak Water Sales and Distribution, LLC, to confirm that our utility system has the capacity to serve an additional 66 new residential dwelling units, with significant capacity available beyond that number.

Grizzly Peak owns and operates the central water PWSID # CO0156300 and wastewater facilities Discharge permit # CO0039691 serving the Cascade development area. Our infrastructure was originally designed to support a substantially larger number of units than are currently in service, and the system continues to operate well within its engineered design parameters. Our storage, treatment, and distribution systems all have ample reserve capacity.

Grizzly Peak Water Sales and Distribution, LLC is a regulated utility in good standing with the State of Colorado Public Utilities Commission (PUC). We operate in compliance with applicable state regulations and utility service standards. Our facilities are subject to State inspections, and we submit to and pass all required regulatory reviews and inspections as mandated by the PUC.

If you have any questions or require additional documentation, please feel free to contact me directly.

Sincerely,

A handwritten signature in blue ink, appearing to read "David Marsa", with a stylized flourish at the end.

David Marsa

Manager and ORC

Grizzly Peak Water Sales and Distribution, LLC

swwastewater@yahoo.com

GEOLOGIC HAZARDS ASSESSMENT
PROPOSED CASCADE VILLAGE SOUTH TOWNHOME PROJECT
DURANGO, SAN JUAN COUNTY, COLORADO

May 16, 2025

PREPARED FOR:

Lauren Davis, AIA, AICP
Reynolds, Ash + Associates
ldavis@ra-ae.com
PROJECT NO. 58565GH

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ATTACHMENT

Geotechnical Engineering Study, Proposed Cascade Village Townhomes South Project, January
27, 2025, Project No. 58656GE

1.0 REPORT INTRODUCTION

This report presents our Geologic Hazards Assessment for the proposed townhome development north of Purgatory Resort in the Cascade area near Durango in San Juan County, Colorado. This report was requested by Lauen Davis of Reynolds, Ash + Associates and was prepared in accordance with our proposal dated November 4, 2024, Proposal No. 24419P.

As outlined within our proposal for services for this project the client is responsible for appropriate distribution of this report to other design professionals and/or governmental agencies unless specific arrangements have been made with us for distribution.

The following outline provides a synopsis of the various portions of this report;

- ❖ Section 1.0 provides an introduction, background and statute and the scope of the proposed development.
- ❖ Section 2.0 provides a geologic setting overview.
- ❖ Section 3.0 provides our geologic hazard discussion.
- ❖ Sections 4.0 and 5.0 presents our conclusions and limitations.

This geologic hazard study presents our interpretation of the surface characteristics and geologic exposures at the project site. Our hazard assessment is based on our surface observations, a review of available literature, geologic mapping for the area, and on our experience in the area.

1.1 Background and Statute

There are three statutes that were adopted by the Colorado Legislature that are pertinent to geologic hazards and land use. “The Land Use Act” of 1970 established the basis for which later bills could be enforced. The Land Use Act mandated that decisions and authority to develop and enforce land use planning regulations should be conducted at local government levels. Senate Bill 35 was passed in 1972. This bill required that local county governments either adopt a land use planning regulations for subdivisions or follow a model set of regulations developed by the state. In 1974 the Colorado House amended the Land Use Act by adopting House Bill 1041.

House Bill 1041 provided legal definition of natural and geologic hazards. A natural hazard is considered any hazard from geologic conditions, wildfire, or flooding. A geologic hazard is defined as “a geologic phenomenon which is so averse to past, current, or foreseeable construction or land use as to constitute a significant hazard to public health and safety or to property”. The geologic hazards identified and defined in HB 1041 include; avalanche, landslide, rockfall, mudflow and debris fans, unstable or potentially unstable slopes, seismic effects, radioactivity and ground subsidence. We have provided excerpts from “Guidelines and Criteria for Identification and Land Use Controls of Geologic Hazard and Mineral Resource Areas”, 1974, Rogers, W.P. et al., Special Publication 6, Colorado Geological Survey, in Appendix A which provided legal and descriptive definitions of the geologic hazards outlined in House Bill 1041.

1.2 Current Scope of Development

The project area generally encompasses an approximate 10.5-acre parcel of land acres north of

Project No. 58565GH
May 16, 2025

Purgatory Resort in San Juan County, Colorado. The approximate coordinates of the site are 37.647462°, -107.809476°. The site location is shown on Figure 1.1 below.

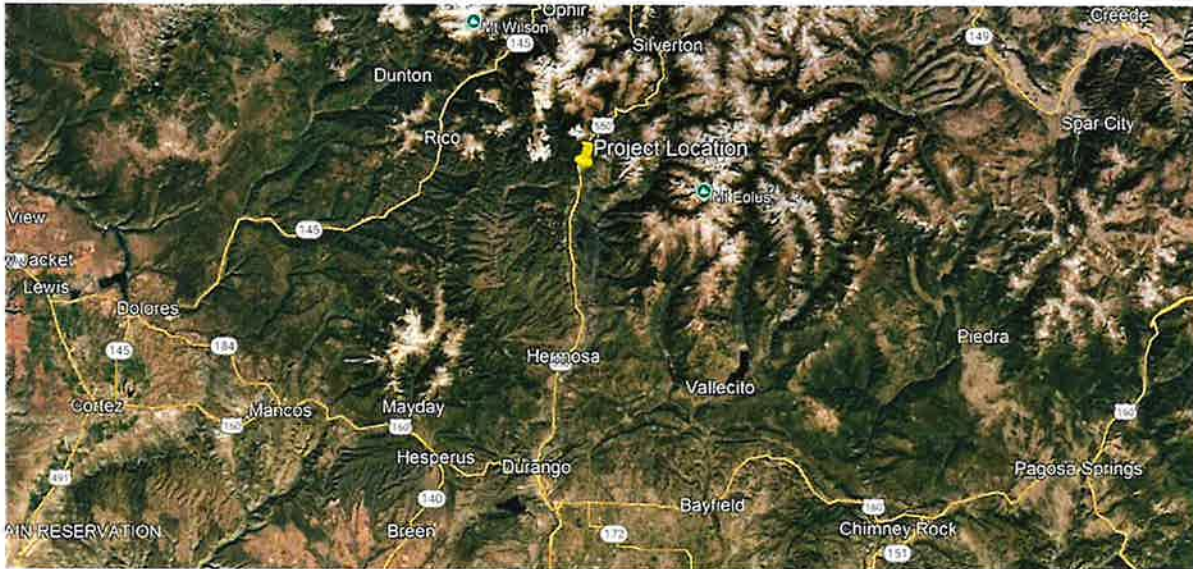


Figure 1.1: Site Location Schematic. Adapted from Google Earth (Image Date 12/31/2020).

We understand conceptual plans include 33 to 37 residential townhomes on the site. A conceptual schematic prepared by CHC Engineers, LLC is provided below as Figure 1.2.

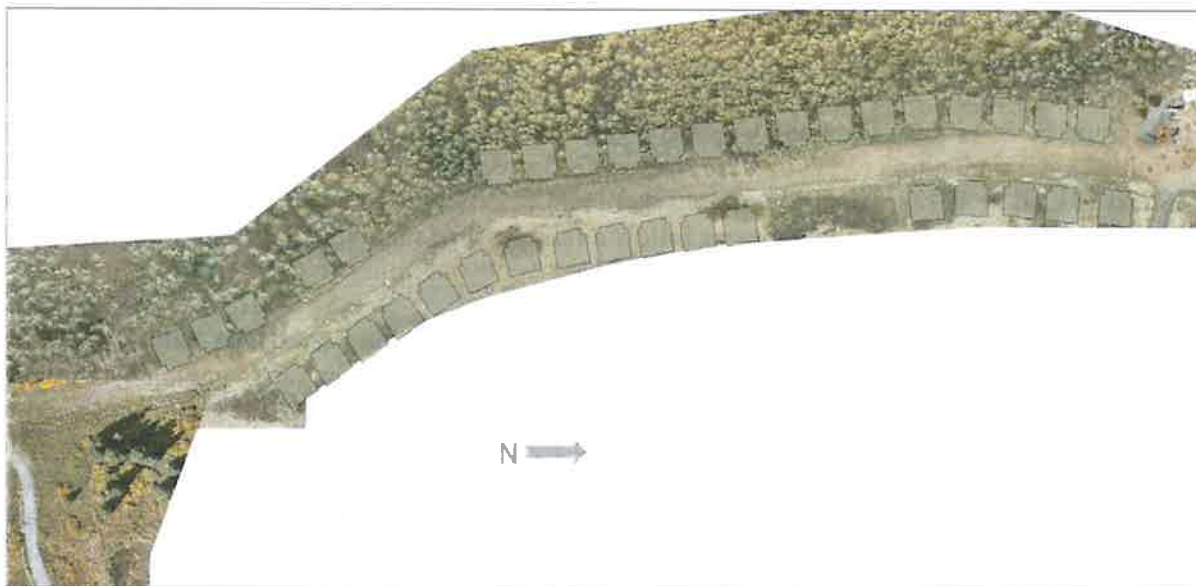


Figure 1.2: Conceptual Site Plan prepared by CHC Engineers, LLC.

2.0 GEOLOGIC OVERVIEW

This section provides an overview of our site reconnaissance and literature research for the project site. A description of the site assessment methodology is provided, followed by a discussion of

the regional, local and site-specific geology.

2.1 Scope of Assessment

We performed a geologic field reconnaissance of the site on November 17, 2021. The geologic reconnaissance included detailed observations of the site to evaluate the existence and potential significance of geologic hazards that may influence the proposed development. The general scope of our study included the following;

- Literature and map review of the site.
- Geologic field observations and measurements including a description of the site topography, geologic character and geomorphology.
- Identification and analysis of geologic hazards that may influence the project development and proposed lot layout.

This study focused on the following geologic hazards (these are the hazards defined by HB 1041):

- **Avalanche**; an evaluation and discussion of the site exposure to avalanche hazards.
- **Landslides**; identification of landslides in the site vicinity including recommendations for analysis of these features if they exist in areas that will influence the proposed development.
- **Rockfall**; observations of potential rockfall source areas and identification of areas which may be influenced by rockfall. Computer modeling analysis was performed to quantify hazard potential.
- **Expansive soil and rock**; an evaluation of the potential for expansive soil and rock was performed based solely on surface observations. A geotechnical engineering study is required to evaluate the extent of the site expansive soil conditions.
- **Mudflow and debris fans**; identification of areas of the site which may be influenced by debris flow activity.
- **Unstable and potentially unstable slopes**; identification of potentially unstable and unstable slope areas based on our geologic field reconnaissance and available maps. This is also based on surface observations and is more completely analyzed as part of a geotechnical engineering study.
- **Radioactivity**; literature review regarding the potential for hazards associated with radiation.
- **Seismic effects**; identification of local faults and recent activity based on the available literature and field observations.
- **Ground subsidence**; identification of subsidence prone areas and recent activity based on the available literature and field observations.

A discussion of the hazards as they pertain to the project is included in Section 10.5 of this report.

2.2 Geologic Observations

We have provided a brief discussion of the regional and local geology followed by a more specific discussion of the site geology below to provide background information prior to discussing the site-specific geologic hazard considerations.

2.2.1 Regional Geology Discussion

The site is located in the San Juan Mountains of southwestern Colorado. There are diverse geologic conditions in the area, all of which may have an influence on geologic hazard considerations and land use.

Geologic rock units in the area range from Pre-Cambrian Granite and Gneiss to late Cretaceous to early Tertiary sedimentary shale and sandstone units. Middle to late tertiary volcanic units are common in the Alpine regions of the area. Later quaternary glacial, eolian soils and soil deposits produced by weathering overlying the rock units are common. The shale and sandstone rock units and associated soils produced from weathering of these materials are commonly encountered in developed areas.

During the middle to late Cretaceous approximately 80 to 66 million years ago a mountain building episode termed the “Laramide Orogeny” caused regional uplift of the area. The San Juan Dome was formed, the erosional remnant of which exists under the mountainous areas in the region. The San Juan Basin which has since filled with sediment was formed in the area south of the San Juan Mountains. This activity caused upwarping and deformation of the geologic units in the area. This uplift is evidenced nearly everywhere in the region. The sedimentary unit bedding planes all dip (tilt) generally toward the south, and the center of the San Juan Basin. The numerous hogback ridges and cuestas in the area are formed by steeply dipping sedimentary units.

There have been several glacial episodes which have occurred in the area. Glacial moraine and outwash terrace deposits are common in the area. The U-shaped valleys in the region are a testament to the erosional forces imposed by the glaciers.

The steeply dipping geologic units forming the ridges in the area are associated with numerous areas of active landslides and unstable slope areas. In areas where the bedding planes parallel the slope inclinations; translational landslide activity is common. In areas north of Durango, in the north Animas Valley, there are several rotational and multi-unit landslide complex areas where movement was initiated during glacial melt and saturated soil conditions. Many of these areas are located within and immediately adjacent to highly developed areas.

The soils produced by weathering of the sedimentary units in the area often have expansive characteristics, as do many of the eolian deposits. The glacial outwash and alluvial soil deposits are relatively benign, from a development and foundation design perspective. Historic floodplain deposits and wetland areas that are common in the river valleys often contain fine-grained sands and silts that may be unstable and have settlement concerns under foundation loading.

2.2.2 Local Geology Discussion

The Purgatory area is located along the west margin of the Animas River glacio-fluvial valley. Cascade Creek flows from the northwest toward the Animas River and captures Lime Creek on the way. Each of these three drainages were once glaciated. The area north and east of the project site was the confluence of these three glaciers. There are numerous steep gullies in these glacial valleys that flow into the creeks and rivers.

Geologic units in the area consists of Precambrian metasedimentary and igneous units as well as Paleozoic and Mesozoic sedimentary layers of sandstone, limestone, shale and conglomerate. The sedimentary units exposed in the area include the Permian Cutler Formation (Pc), the Permian-Pennsylvanian Hermosa/Rico/Molas Formations undifferentiated (PIPrm) and the Mississippian-Cambrian Leadville Limestone/Ouray Limestone/Elbert Formation/Ignacio Formation undifferentiated (MCLi*). These units are generally south dipping and cliff forming. Precambrian Irving Formation (pCi), Twilight Gneiss/Schist (pCtw) and Electra Lake Gabbro (pCel) outcrop east of the site in the West Needle Mountains and along the Animas River. Tertiary volcanics cap the mountains to the north and west of the site. Rock units in the area are often overlain by Quaternary sediments from glacial, fluvial, eolian, mass wasting and colluvial processes that continue to shape the landscape. Quaternary surficial deposits in the site vicinity are mapped as Glacial Drift (Qd) and Alluvium (Qa). A vicinity geologic map is presented in Figure 3.

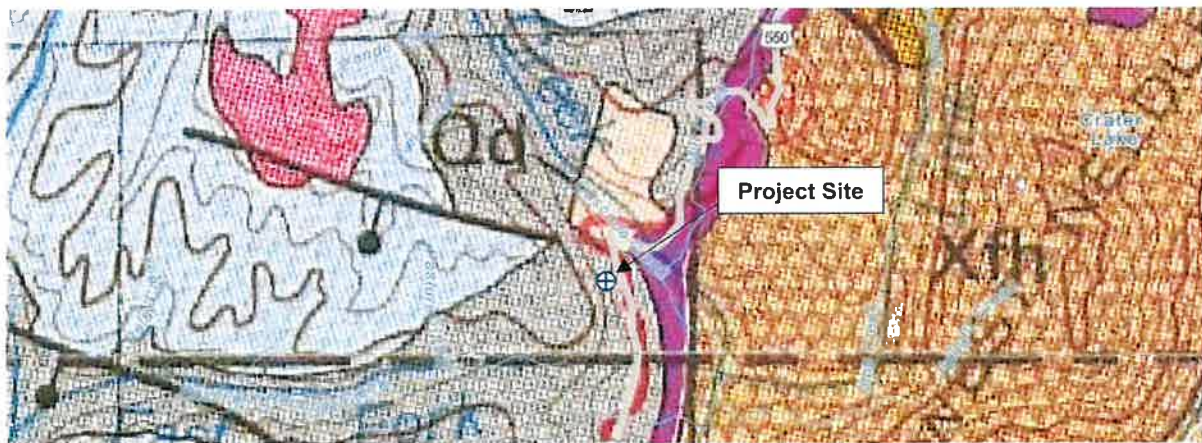


Figure 2.1: Steven, T.A., Lipman, P.W., Hail, W.J., Barker, Fred, and Luedke, R.G. Geologic map of the Durango quadrangle, southwestern Colorado. United States Geological Survey, Miscellaneous Investigations Series Map I-764, 1974. Map Scale 1:250,000.

2.2.3 Site Geology Discussion

The subject property is a generally north to south trending parcel that encroaches on a relatively steep hillside up to the west down to the Tacoma Flowline and into a relatively flat wetland area on the east side of the parcel. The site is mapped as Hermosa Group; however, within the site boundary we did not observe any formational outcrops. The site is primarily covered by colluvial, debris flow and likely glacially transported deposits in the flatter portion of the site. There are outcrops of Hermosa Group limestone and sandstone above the site, which are a source of potential rockfall debris. We completed a Geotechnical Engineering Study for the site in our report dated January 27, 2025, Project No. 58656GE. We encountered formational sandstone, shale and limestone throughout the site at depths ranging from about 4½ to 32½ feet. Based on these results, the depth to formational material should be assumed to be variable throughout the site. The overburden material on the west side of the site is primarily a mix of clay, sand, gravel, cobbles and boulder that a colluvial and debris flow related. The debris flow deposition is related to a drainage feature at the southwest corner of the project area and is discussed in greater detail in Section 3.5. The east side of the site has wetland soils that likely result from infill of the glacially carved site.

3.0 GEOLOGIC HAZARD DISCUSSION

This geologic hazard study presents our interpretation of the surface characteristics and geologic exposures at the project site. Our hazard assessment is based on our surface observations, a review of available literature, geologic mapping for the area, and on our experience in the area.

As discussed in the scope of service section above, we investigated for evidence that the following geologic hazards may influence the proposed project development;

- Avalanches
- Landslides
- Rockfall
- Expansive Soil and Rock
- Mudflows and Debris Fans
- Unstable or Potentially Unstable Slopes
- Radioactivity
- Seismic Effects
- Ground Subsidence

We have provided a brief discussion of the potential hazards, followed by the observed and predicted conditions.

3.1 Avalanches

Avalanches typically occur on slopes between 30 and 45 degrees in gradient where there is enough snow to cover low-lying vegetation. Avalanche paths generally consist of three parts:

- **the starting zone;** where avalanches initiate,
- **the track;** where avalanches reach maximum velocity, and
- **the runout zone;** where avalanches decelerate and deposit snow and debris.

Avalanche paths can be unconfined, channelized, or a combination of both. In Colorado many avalanche paths are confined by gullies and with the limits of regular/recent activity being defined by the forested areas adjacent to the path.

Trautner Geotech does not provide detailed avalanche studies or mitigation recommendations. We have provided the information above to aid the reader in a general understanding of avalanche hazards. Our commentary below is based on our general geologic hazard experience and on our review of literature that is locally available in regard to avalanche hazards.

Basic avalanche hazard mapping is available from San Juan County and is provided below showing the approximate project extents in red.

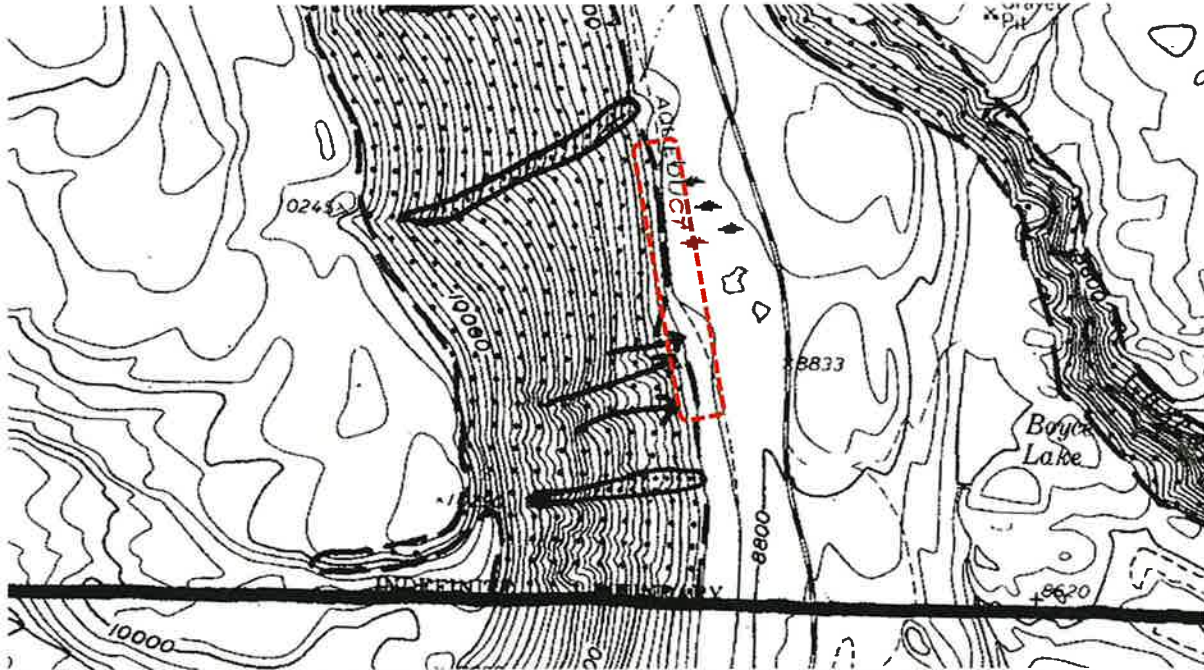


Figure 3.1: San Juan County Avalanche Hazard Map, Engineer Mountain, Colorado, U.S. Geological Survey, June 2, 1976. Arrows represent avalanche pathways. Approximate project area outlined in red.

Based on review of the available mapping there is a potential avalanche path on the south end of the site that may affect some of the southern units. This is consistent with our field observations. We did not observe any recent evidence of large-scale avalanche activity; however, the central drainage feature in this area has relatively sparse tree cover which could be the result of periodic avalanche activity. A photograph of this feature from N. US Highway 550 is provided below.



Photograph 1: View of potential avalanche slide path at south end of site looking west from N. US Highway 550.

Based on our review of available mapping and our site reconnaissance, a conceptual hazard zone may result in impacts to the southern 8 to 10 proposed townhome units as shown below.



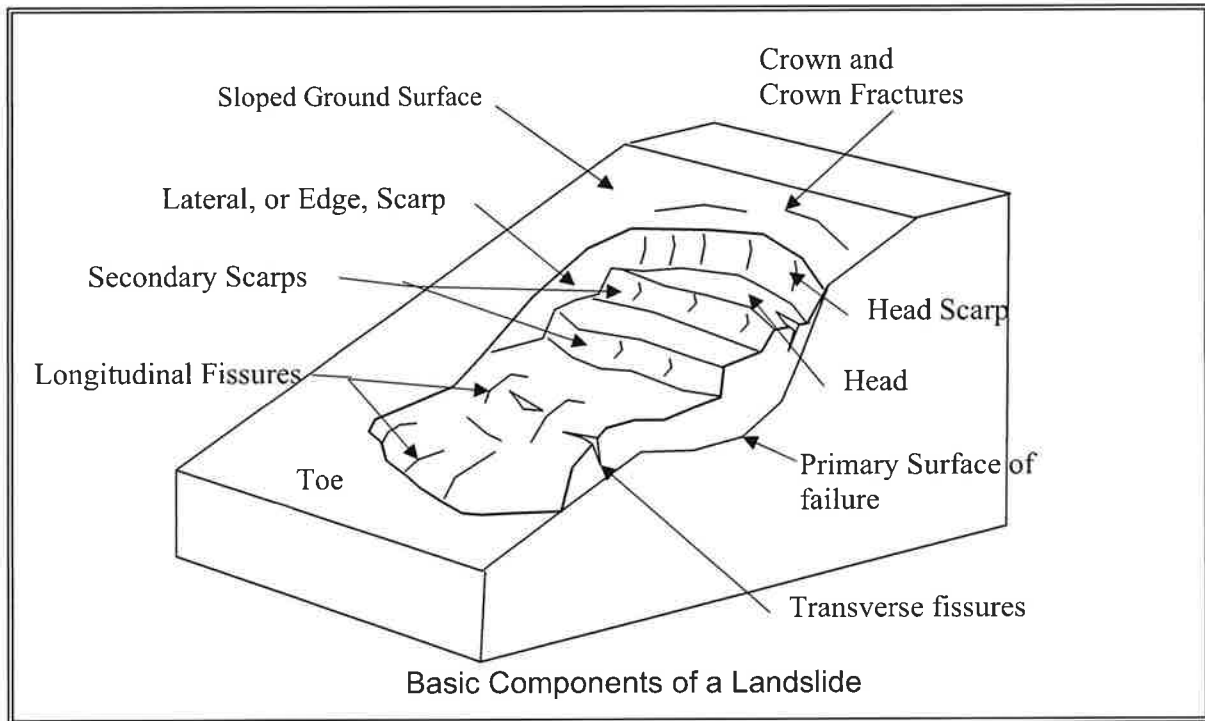
Figure 3.2: Conceptuel avalanche hazard zone schematic. Limits of avalanche area should be considered approximately and for general reference purposes only.

The schematic above should be considered approximate and is not suitable for design purposes. This schematic should only be used for conceptual planning purposes. We do not provide detailed avalanche hazard mapping including deposition depths, velocities and runout zones. If the owner is concerned about avalanche risk at the project site and is considering development at the southern

end of the project area, we recommend that an avalanche consultant be contacted.

3.2 Landslides

“Landslide” is a term to describe active slope movement. It is often used in a broad sense to describe any unstable slope or soil movement. A generalized depiction of a typical landslide is shown below.



Landslides may be relatively small slumps or may be larger scale slope failures. Mitigation of active landslides is often difficult and always costly. Evaluation of active landslide areas must include detailed subsurface investigation, laboratory analysis of the soils and detailed engineering analysis/computer modeling as the basis for mitigation design. The subsurface investigation typically includes placement of monitor well (piezometers) and often inclinometers at select locations on the project site.

We performed a site reconnaissance of the project area to identify potential mass movements within or adjacent to the project area. No evidence of large mass movement events in recent history were observed within the project area; however, we did observe suspected shallow surface creep evidenced by geotropism within trees throughout site slopes.



Photograph 2: Typical geotropism (aka tree pistol-butting) along slopes above the site.

We anticipate significant excavations on steeper slopes throughout the site for home sites and infrastructure. Our Geotechnical Engineering Study, which is included as an attachment to this report, provided a limited slope stability analysis along multiple cross sections at the site and may be referenced for slope stability concerns.

Concentrated or poor drainage resulting in saturated soils conditions could reduce the soil strength over the overburden colluvial debris throughout the development. This could increase the risk of future slope failures in steeper slopes. Additional analysis and recommendations are provided below in the Unstable or Potentially Unstable Slopes section of this report.

3.2 Unstable and Potentially Unstable Slopes

As a general standard, any slope with a gradient of 30 degrees or greater is considered potentially unstable, although flatter slopes can be potentially unstable depending on the soil characteristics and subsurface water conditions. Any slope that exhibits evidence of prior movement is considered unstable. Mechanisms of movement in unstable slopes include falls, topples, slides, spreads, and flows. These mechanisms can all be categorized as other hazards discussed in this report. We previously discussed slides and spreads as “landslides” (Section 3.2), falls and topples as “rockfall” (Section 3.4) and flows as “mudflow, debris flow, and debris fans” (Section 3.5). Unstable slope areas may be distinguished from other geologic hazards by the lack of associated

definable features; however, the physical processes are analogous. As discussed in Section 3.2 it is a critical concern for construction in potentially unstable and unstable slope areas not to alter the landscape in a way which will increase the potential for movement.

Based on schematic plans, we anticipate cuts into slopes that are greater than 30 percent. Our Geotechnical Engineering Study provided a limited slope stability analysis for existing slope and conceptual cut slopes at the site. Based on the results of the limited analysis, we anticipate marginally stable to stable natural slopes and marginally stable to potentially unstable cut slopes will be encountered across the site. Temporary or permanent excavation shoring will likely be necessary in some locations. We recommend site-specific stability analyses for individual cuts once grading plans have been established.

3.4 Rockfall

Rockfall hazard exists wherever rock has the potential to dislodge and move downhill by forces of gravity. This process is usually associated with a weathering of formational material. Freeze-thaw cycles and availability of free water promote rockfall; therefore, spring is the most active season for rockfall. The steep topography and fractured rock outcrops that are common to this region make rockfall a common hazard.

Rockfall can occur without warning and can be destructive to both life and property. Rockfall frequency is very difficult to predict, but modeling techniques allow us to estimate the trajectory and intensity of rockfall events. Simulation of rockfall events to provide an analysis of the potential destructive properties are typically performed using field mapping and observations in addition to computer modeling analysis.

Outcrops of the Hermosa Group sandstone and limestone above the site are potential source areas for rockfall hazard into the proposed development areas. Two main source areas were identified, one at the north end of the site and one at the south end of the site. The general source areas are identified below.



Figure 3.2: Location of Rockfall Source Areas.

3.4.1 Source Area 1 Rockfall Hazard Evaluation

The source area at the north end of the site consists of an approximate 50 foot tall cliff exposure of the Hermosa Group sandstone. The source area is roughly 300 to 350 feet up slope from the proposed northern townhome units. The source area was observed to be highly fractured. Evidence of recent rockfall activity along the slope below the source area was observed during our site reconnaissance. A photograph of the source area is provided below.



Photograph 1: View of Source Area 1.

We conducted our rockfall analysis using the RocScience RocFall® 2020 (RocFall) rockfall modeling software to predict rockfall behavior at the subject property. The RocFall program is a tool to predict rockfall behavior and to assist in the design of rockfall protection measures. We created a topographic profile using field measurements with a Brunton compass, GPS, range finder and measuring tape. The topographic profile was input into the RocFall model. We utilized RocFall to simulate the existing conditions at the subject property. The RocFall model's input parameters such as surface roughness, vegetation, tangential and normal and dynamic and rolling friction coefficients were manipulated to approximate the existing conditions. Once we were satisfied that we had simulated the existing conditions, we performed numerous iterations of theoretical rockfall with the program while varying sizes and shapes of rocks to model the rockfall behavior at the proposed development. The approximate analysis profile is shown in Figure 3.3

below which also includes the approximate hazard zone. We have also included our RocFall analysis profile as Figure 3.4.



Figure 3.3: Approximate Location of Rockfall Analysis Profile and approximate hazard zone.

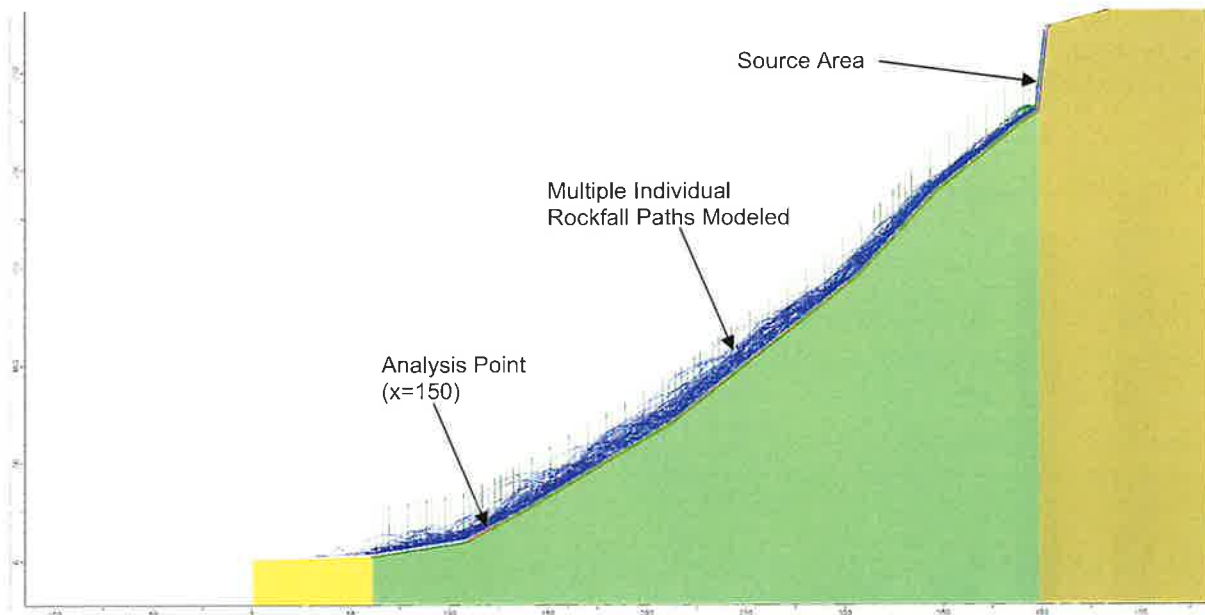


Figure 3.4: Topographic profile used in RocFall analysis.

Based on our site observations and analysis, rocks have the potential to move from the source area down to the assumed edge of building sites ($X = 150$ feet). The approximate hazard zone includes the northern eight townhome units on the current site development plan. This location was chosen as a likely location for rockfall mitigation fencing; however, it must be understood that rockfall impact energy and bounce height will vary at different locations along the slope profile. Below, we have provided graphical representation of the estimated bounce heights and total kinetic energy values for various sizes and shapes of rocks observed calculated along the slope. As shown, bounce heights and energy values vary greatly at different points along the slope; however, most rocks were shown reach the development area as shown below on the Distribution of Rock Path End Locations, Figure 3.5.

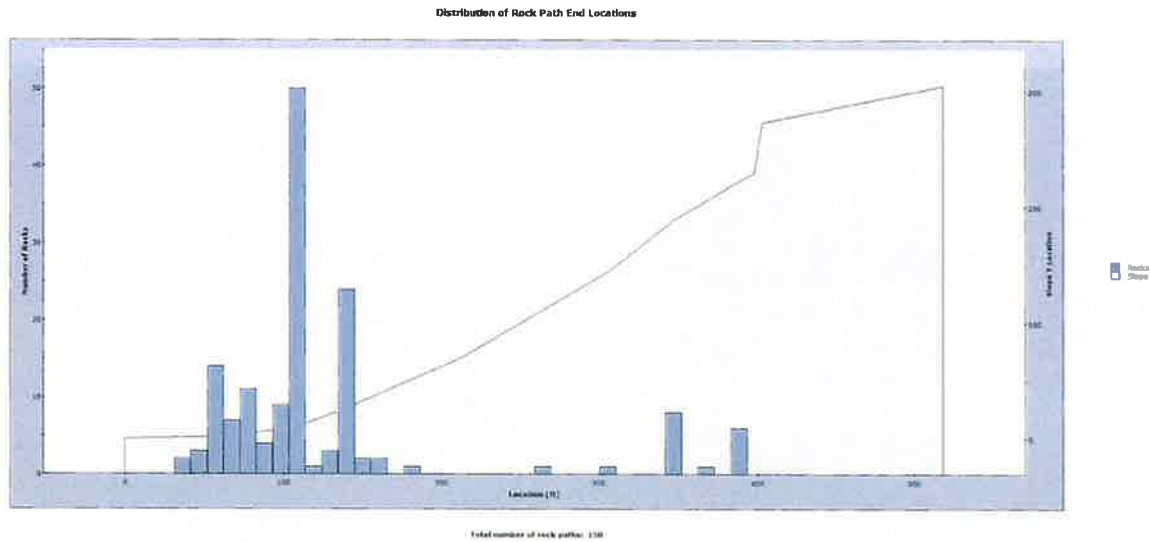


Figure 3.5: Distribution of Rock Path End Locations.

At the analysis point, we estimated total kinetic energy of about 200,000 foot-pounds (approximately 270 kilojoules). Bounce heights were highly variable in the model which is fairly typical. Highest values were up to about 19 feet; however of the 130 rocks analyzed that reach the analysis point, 117 (90%) of those rocks have a bounce height of 10 feet or less with the majority (79 rocks) with a bounce height of 1 foot or less.

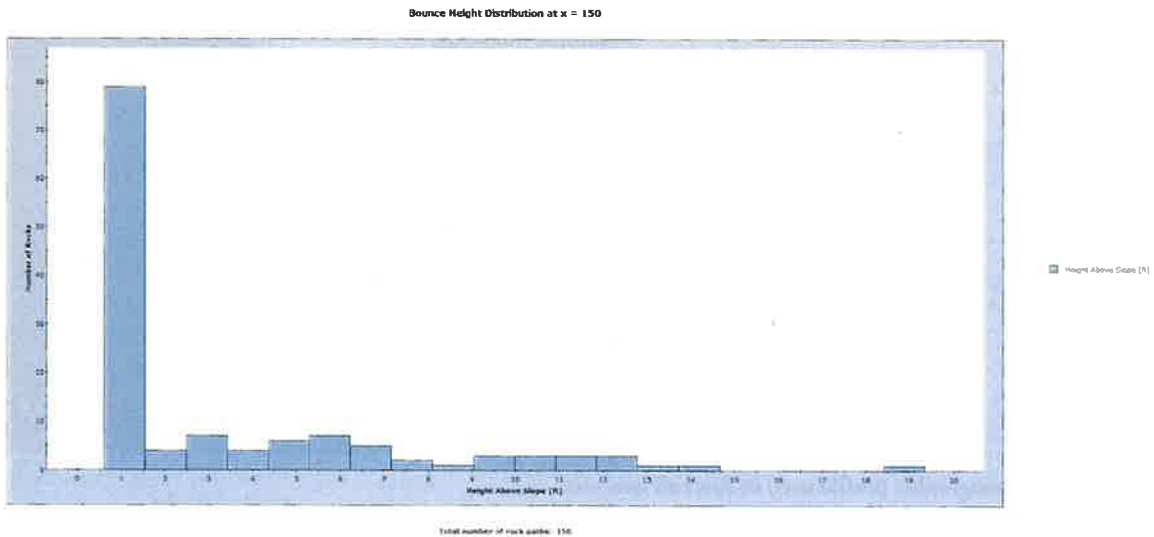


Figure 3.6: Bounce Height distribution table at analysis point (X=150)

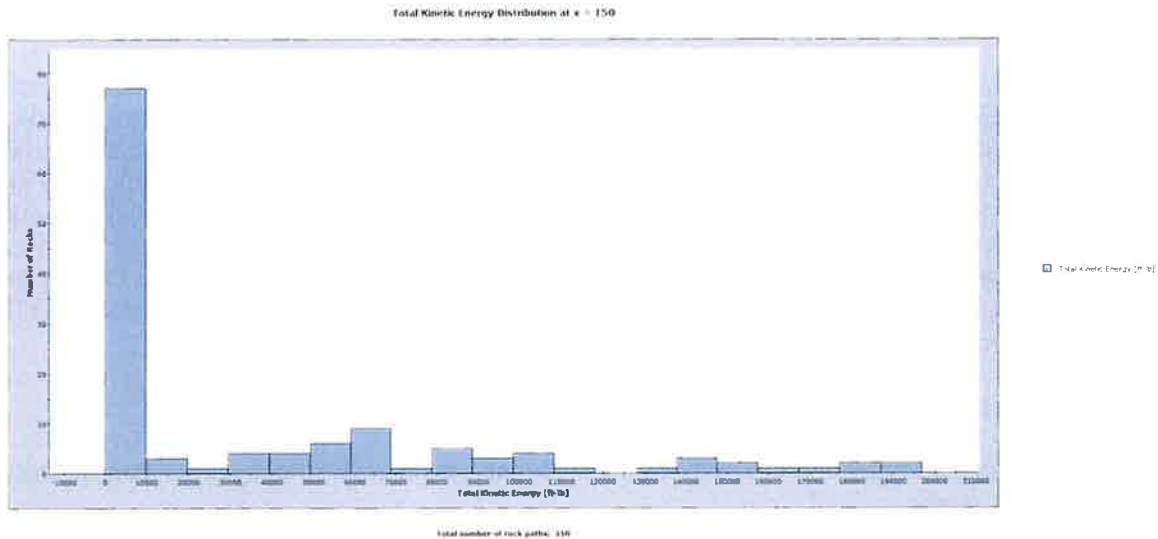


Figure 3.7: Total Kinetic Energy distribution table at analysis point (X=150)

Our rockfall analysis included “typical” design rocks based on our site observations of recent rockfall debris and fracture patterns within the source area rock. These rocks represent most typical or likely rockfall debris within the hazard zone. However, larger rocks outside of the normal range are possible. One rock over 10 feet in diameter was observed at the base of the slope; however, it is unclear whether this rock was related to a rockfall event or transported by other means. Our analysis does not include non-typical rocks as these are considered to be very rare and unlikely events. However, it should be noted that larger atypical rocks may not be mitigatable by conventional mitigation methods discussed later in this report.

3.4.2 Rockfall Mitigation Concepts

Based on the evaluation above, the proposed townhomes below Source Area 1 are within a potential rockfall hazard zone and additional mitigation is warranted. This section provides mitigation concepts and alternatives for hazard reduction at the site. Typical mitigation concepts include:

- Avoidance of the areas influenced by the hazard,
- Scaling or in-place stabilization of rocks prone to movement, and,
- Design and construction of arrest barriers, typically:
 - Rockfall mitigation fencing, and/or
 - Earthen trough and berms
 - Rigid Architectural Barriers

Often a select combination of one or more of these types of mitigation are included in rockfall hazard mitigation. We have provided a brief discussion of these concepts including how they pertain to this project.

Avoidance - Although avoidance of a particular hazard, such as rockfall is always the best option, this is not always possible due to property boundary, topographic, or other constraints imposed by a particular project site. Often slight changes in structure location, orientation, and/or elevation can influence the exposure to or severity of rockfall hazards. It must be understood that there are many variables that go into rockfall hazard prediction and relatively small changes in the model input parameters can alter the results;

therefore, the owner/developer should consider what, if any, factors of safety to consider in structure placement.

Scaling or In-place Stabilization of Rocks Prone to Movement - A relatively common mitigation for rockfall includes scaling, movement of rocks downslope prior to construction, and/or in-place stabilization. These efforts are largely conducted with hand labor and hand tools. Some in-place stabilization can be developed by the use of rock bolts or other aggressive means requiring the use of pneumatic drilling equipment and other techniques. Blasting is also a form of scaling. Often larger rocks may be blasted, with hand-scaling or in-place stabilization performed on the smaller rocks produced from the blasting effort. Due to the magnitude of rock source areas above the site, scaling and/or in-place stabilization is not likely a feasible alternative for the project site.

Rockfall Mitigation Arrest Barriers

There are numerous types of arrest barriers commonly included in rockfall mitigation. Perhaps the most common types being;

- Earthen trough and berm configurations, and
- Flexible rockfall mitigation fencing
- Architectural Design Strategies

Earthen Trough and Berm Configurations

Earthen trough and berms and flexible rockfall mitigation fencing are common mitigation strategies utilized in the area. However, due to the steepness of the slope above the site and limited property line setbacks, these strategies were determined not to be feasible alternatives for the site. We can provide more details regarding an earthen berm/trough upon request.

Flexible Rockfall Mitigation Fencing

Rockfall mitigation fencing has been used successfully within the Southwest Colorado area for many projects. Rockfall mitigation fencing is typically designed by an engineer or contractor with experience in rockfall mitigation. Many manufacturers of rockfall fencing have design capabilities and may utilize information provided in reports such as this to develop a design that is based on the impact energies estimated through the use of computer modeling, such as our RocFall analysis. Rockfall fence design is typically based on an impact energy, or total kinetic energy, and a maximum bounce height. The energy from a rockfall event and the bounce height can vary greatly based on the size of rock and location along the slope. For the purposes of this investigation, we have assumed a rockfall mitigation fence will likely be located along the slope at a location on the west property boundary (x=150). Based on our analysis, maximum impact energies at this location will be approximately 270 kilojoules for the typical rocks analyzed. Typical bounce heights were 10 feet or less; however, less common higher bounce heights were also modelled.

However, anisotropies in the model and variations in the slope can alter the estimated impact energies and bounce heights. Larger rocks are possible with higher impact energies. Appropriate factors of safety should be added by the designer, as necessary. We recommend a minimum fence design of 500 kilojoules with a minimum height to 10 feet to accommodate typical rockfall events. If higher factors of safety are desired to accommodate less typical, but still possible, events a more robust fence system may be considered. Further, our estimated energy and bounce height only applies to one location along the slope and variations will occur at different locations. Once the final residence and fence location has been chosen, we should be contacted to re-evaluate our analysis.

Flexible rockfall fencing is available from two main manufacturers, Geobrugg and Maccaferri. Fence heights and impact energy ratings vary per the manufacturer and necessary design configurations. We do not provide design of rockfall mitigation fencing systems; however, we are available to assist the design team, as necessary.

Architectural Design Strategies

Architectural design strategies are commonly included on structures that are located within rockfall hazard area of low to moderate probability or as an additional protective measure against potential rockfall events. Typical design concepts include locating high occupancy rooms with the structure away from the up-slope side of the proposed structure where rockfall impacts are likely to occur. Low occupancy rooms such as laundry, utility or storage areas, and hallways are best located on the side of the structure where impacts associated with rockfall activity are likely to occur. Windows on the upslope side should be avoided, if possible. Windows should be generally of smaller size, where necessary, and they should be placed as high as possible. Architectural design strategies may be prudent for this project; however, due to the impact energies and bounce heights calculated, these strategies are not likely feasible as a first defense against rockfall impacts.

Rigid Concrete Barriers

Rigid concrete barriers can be utilized successfully in some cases; however, there are some limitations. The impact energies associated with rockfall events are often too great to accommodate reasonable structural design strategies relative to rigid barriers. Rigid barriers can also propagate much of the impact energy into the structure resulting in potential for severe structural damage to both the interior and exterior of the structure. Separation of the barrier can result in less damage propagated to the habitable portion of the structure. The owner, designer and structural engineer should evaluate the feasibility of a rigid barrier for the impact energies and bounce heights associated with potential rockfall events at the site.

3.4.3 Source Area 2 Rockfall Hazard Evaluation

The southern source area (Source Area 2) is located nearly twice as high on the slope as Source Area 1 and is located above the southern portion of the of the project area as shown on Figure 3.2 above. The approximate analysis profile is shown in Figure 3.8 below. We have also provided our RocFall profile which is provided below as Figure 3.9.



Figure 3.8: Approximate RocFall Analysis Profile.

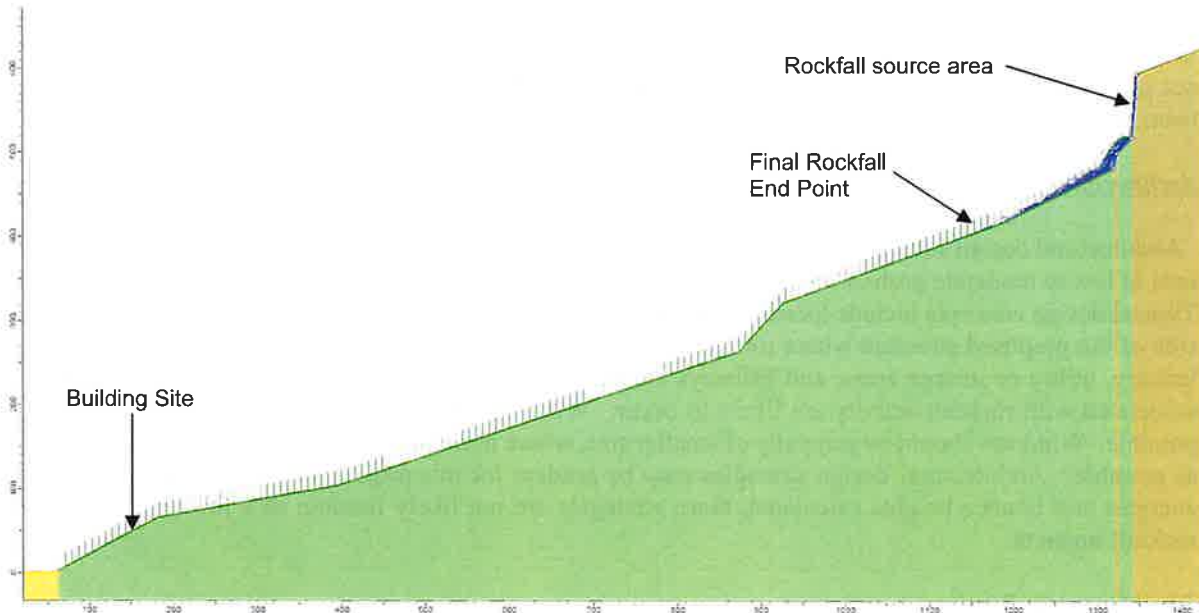


Figure 3.9: Topographic profile used in RocFall analysis.

Based on our site observations and analysis, rocks have the potential to move from the source area down the slope; however, no rocks were modeled to impact the building sites. This analysis is consistent with the observed conditions in the field. Based on our observations and analysis, it is our opinion that the site is not located within a rockfall hazard zone and no mitigation or additional analysis is considered warranted at this time below Source Area 2.

3.4 Expansive Soil and Rock

Uplift associated with swelling soils typically occurs only where the foundation support soils have been exposed to water; therefore, the uplift may impose shear stresses in the foundation system. The magnitude of the imposed shear stress is related to the swell pressure of the support soil, but is difficult to estimate. Properly designed and constructed foundation systems have the ability to distribute the forces associated with swelling of the support soil. We performed a Geotechnical Engineering Study concurrently with this geologic hazard assessment. Geotechnical considerations related to expansive soils can be found under our attached Geotechnical Engineering Study.

3.5 Mud Flows, Debris Flows, Debris Fans and Flood

Mud flows and debris flows initiate in drainage basins during significant precipitation when large concentrations of sediment become entrained and flow down-slope, often carrying boulders and organic debris within a matrix of clay and water. Debris fans are areas where debris flows or mud flows deposit material that spreads out in a fan-like shape at the mouth of channels where the smaller, steeper channels meet larger, low gradient stream valleys. Debris flows and mud flows contain larger concentrations of entrained solids than floods and move with high energy down steep slopes, thus they can be very destructive. Historically, debris flows are more threatening to property than to life. Debris flows differ from mud flows in that they contain larger material (debris) the size and weight of which is mostly limited by availability and channel size, not the

ability of the flow to transport. Because of this they tend to be more destructive and so debris flows will be the focus of this report.

Debris flows have return periods similar to floods, and often flooding occurs in conjunction with debris flow events. There are four conditions that must be present within a basin in order for it to be susceptible to debris flow (Mears, 1977).

- Sufficient loose sediment/debris
- Sufficient clay content of sediment
- Sufficient gradient of the channel and slopes
- Low ratio of available water to available debris

If all of these conditions are met, a precipitation event of sufficient intensity and/or duration can trigger a debris flow. Processes of damming and pooling can serve to increase the likelihood and/or magnitude of a debris flow event relative to the precipitation event that triggers it. Stream drainage basins that have been denuded of vegetation due to fire are particularly prone to debris flow activity. When present, these conditions combine to facilitate debris flows by increasing viscosity, strength, entrainment, and energy of captured precipitation. Otherwise, if the conditions are not met, the same precipitation event would instead trigger a flood.

Debris flows transport boulders and debris along the upper surfaces of flow (Mears, 1977). This means that the greatest impacts from debris flows occur along this upper surface elevation which can be several feet above ground level. Channelization of debris flows is not always a given, particularly at the debris fan below the mouth of the drainage. Debris flows can vacate a channel by a process known as avulsion, in which a previous debris deposit can block and divert subsequent flow. Debris flows also exhibit confined flow on unconfined surfaces due to shearing off of material from the margins leaving behind lateral levee deposits and thereby creating its own channel as it flows. These factors dictate that the entirety of a debris fan surface is susceptible to flow hazards that can exist several feet above the ground. Often development and proposed development that is affected by debris flow hazard is located on these debris fans.

Based on our site reconnaissance, and review of available literature, the southern portion of the site is located within a potential debris flow hazard area. The hazard area is generally located in the same drainage feature as the avalanche hazard risk area identified in Section 3.1 above which is not uncommon. Basic geologic hazard mapping is available from San Juan County and is provided below showing the approximate project extents in red.

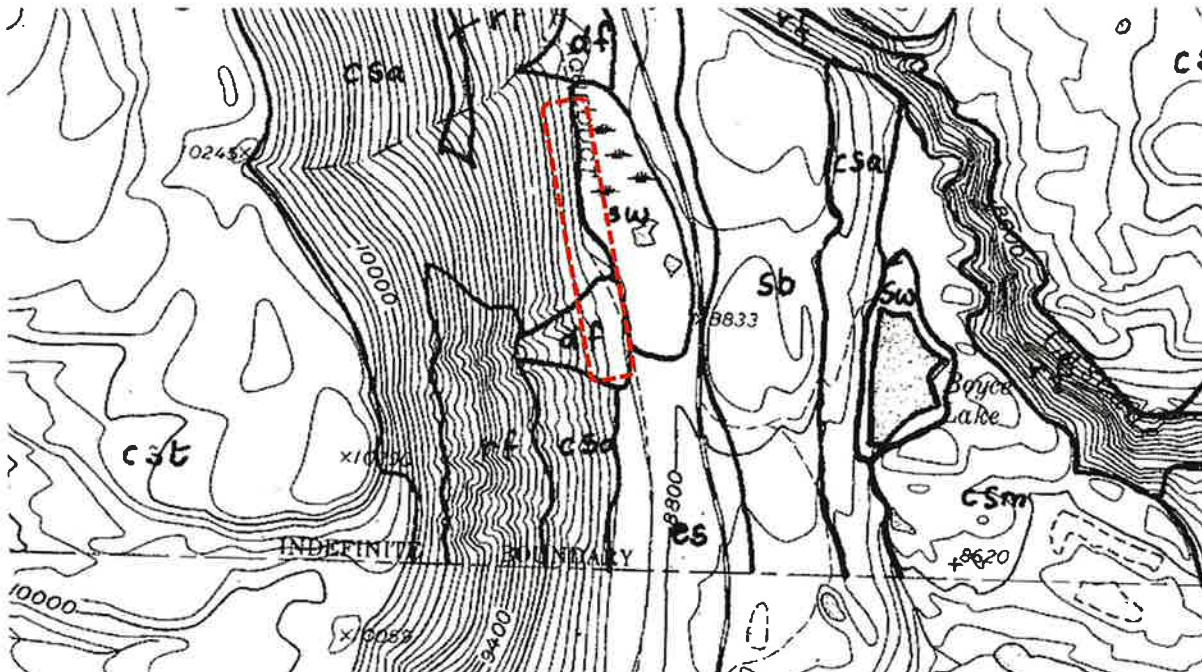


Figure 3.10: San Juan County Geologic Hazard Map Instaar, Engineer Mountain, Colorado, U.S. Geological Survey, June 2, 1976. Approximate project area outlined in red.

We performed a site reconnaissance of the potential debris flow area and outlined some approximate boundaries of the potential hazard zone. It must be noted that the schematic provided below should be considered appropriate and does not constitute a full engineering debris flow analysis including extent, deposition depths and flow velocities, which may be required for development in this area. There are engineering firms who specialize in these analyses.

We did not observe any recent debris flow activity within the hazard zone; however, the site represents a classic debris flow zone with debris fan. The hazard zone originates within a channel up slope, just north of another cliff band south of the site. The channel flows into a wide debris fan with hummocky terrain characterized by abundant boulders that are imbedded in the historic deposition area. A schematic showing the approximate extent of the debris fan is provided below. A similar number of units are potentially affected by the debris flow hazard as was affected by the avalanche hazard. Roughly the southern 10 units are affected. If development is planned in this area a debris flow specialist should be consulted.



Figure 3.11: Debris flow and fan hazard area outlined on the site schematic.

3.7 Radioactivity (Radon Issues)

Many soils and formational materials in western Colorado produce radon gas. Radon is a radioactive gas that forms from the natural breakdown of uranium in soil, rock and water. There are no known sources of radioactivity on the site. However, according to the San Juan Basin Public Health Department, the average radon level in La Plata County homes exceed 4pCi/L. The Environmental Protection Agency recommends radon mitigation in homes with levels higher than 4 pCi/L. Radon tends to accumulate in poorly ventilated areas below ground level; however, radon may accumulate inside any above- or below-grade construction. According to the EPA, elevated radon levels in buildings can be reduced by several methods, including pressurization of the building using a heating, ventilating and air-conditioning system, sealing of cracks in foundation walls and floor slabs which may allow entry of radon, and using active soil depressurization (ASD) systems. If radon gas is a concern in the completed structures, as specialist in radon mitigation should be consulted.

3.8 Seismic Effects

Seismic effects manifest in the form of earthquakes and volcanic activity. Seismic effects are evidenced in the geologic record by faulting and jointing of formational materials. Earthquakes experienced by humans in recent history have been monitored, recorded, and compiled in databases; locally the "Colorado Geological Survey's Colorado Late Cenozoic Fault, Fold and Earthquake Database". Earthquakes cause damage by ground shaking, surface rupture and other deformation, liquefaction, and Tsunamis. The orogenic history of the region (refer to Section 3) was accompanied with a multitude of seismic effects. These seismic effects have since largely subdued. Colorado is considered to be outside of the high risk area of the western US (Nuhfer et al., 1993). The modern seismic environment in the region is relatively benign, however not insignificant. Several formidable events have been recorded in the Dulce, New Mexico area south

of Pagosa Springs. Mitigation of seismic effects is typically included in the structural design and requirements are based on zoning.

The most recent earthquake activity in the region of the project site occurred along the Ridgway Fault on November 21, 2006 with a magnitude of 3.3 on the Richter scale and a Modified Mercalli Intensity of III. The Ridgway fault is defined by a 1,500 foot high fault-line scarp, but there is no observable surface rupture in middle to late Quaternary deposits indicating no recent activity that has manifested at the ground surface. Although this fault is considered to be potentially active, the recent activity on the fault, such as the 2006 event mentioned above as well as the November 19, 1989 event with a magnitude of 3.0, are low intensity, non-destructive

events. Other seismic activity in the region occurred in Ouray, CO on November 22, 1989 with a magnitude of 2.9 on the Richter scale, and in the Telluride vicinity in 1894. Based on newspaper accounts from this time it was rated as IV on the Modified Mercalli Scale. This information was obtained from the Colorado Geologic Survey, Earthquake and Late Cenozoic Map Server.

Although seismic activity has occurred in recent history, the low magnitude and lack of proximity to plate boundaries indicate that there is a low hazard related to seismicity at the project site. Due to the low seismic effect hazard at this site we do not feel that mitigation practices outside of that which is required by building codes is necessary.

3.9 Ground Subsidence

Ground subsidence is the process by which ground level rapidly drops. This drop is often related to an undermining of the material present at the surface, but may also occur from tectonic processes and hydrocompaction (a process related to increased water content of soils). Undermining of material is caused by solubility, karst topography, fluid withdrawal, and mining. Subsidence due to undermining is often termed a “sinkhole”; descriptive of the manifestation of the subsidence at the surface as the once overlying material collapses into a void beneath. Mined localities are particularly susceptible to ground subsidence because of the unnatural state in which they are fashioned (Coduto, 1999).

Mine sites in the region likely present the highest risk areas for ground subsidence. No known mine adits or subsidence prone materials exist at or under the project site. There is no evidence of ground subsidence at the project site. Very low strength wetland soils encountered at the site may also pose a risk of ground subsidence specifically in the vicinity of Borings TB-10, -11 and -12 in our Geotechnical Engineering Study as shown below.

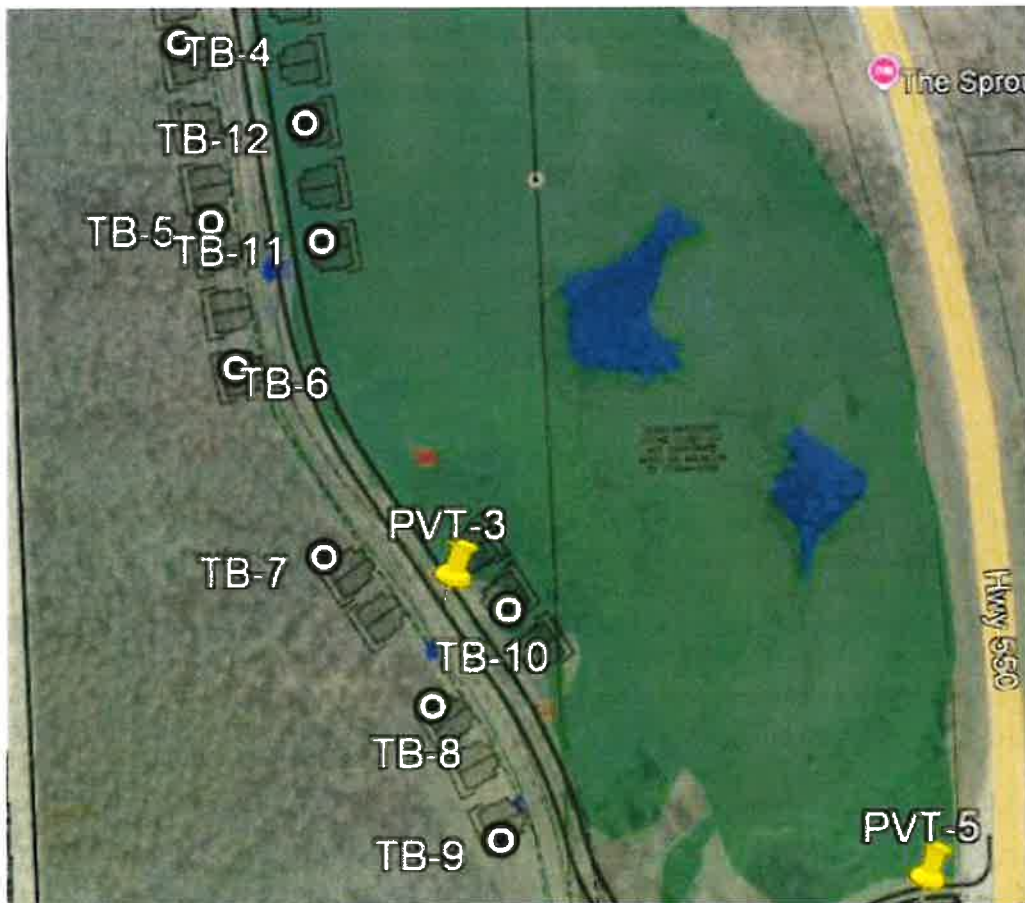


Figure 3.10: Locations of Exploratory Borings.

Structures located in wetland areas on the east side of the main access road have low strength soils which are prone to settlement under foundation loads. Therefore, as noted our earlier study, these structures should be supported with deep foundation systems supported by the underlying formational materials. Typical shallow foundation systems are not suitable for support in these areas.

4.0 CONCLUSIONS

Based on our site observations and analysis, geologic hazards should be considered a major driving factor as to the feasibility of the proposed development. As discussed in Section 3, there are multiple considerations regarding geologic hazards, specifically avalanche, rockfall, potentially unstable slopes, and debris flow characterization. Additional analysis will likely be required regarding avalanche and debris flow unless development can be avoided in the southern portion of the site.

5.0 LIMITATIONS

This study has been conducted based on the engineering geology standards of care in this area at the time this report was prepared. We make no warranty as to the analysis contained in this report,

Project No. 58565GH
May 16, 2025

either expressed or implied. The information presented in this report is based on our understanding of the proposed subdivision that was provided to us and on the data obtained from our field study.

The analysis presented above are intended to be used only for this project site and the proposed construction which was provided to us. The analysis presented above are not suitable for adjacent project sites, or for proposed construction that is different than that outlined for this study.

This report does not provide an environmental assessment nor does it provide environmental recommendations such as those relating to Radon or mold considerations. If recommendation relative to these or other environmental topics are needed and environmental specialist should be contacted.

The findings of this report are valid as of the present date. However, changes in the conditions of the property can occur with the passage of time. The changes may be due to natural processes or to the works of man, on the project site or adjacent properties. In addition, changes in applicable or appropriate standards can occur, whether they result from legislation or the broadening of knowledge. Therefore, the recommendations presented in this report should not be relied upon after a period of two years from the issue date without our review.

We are available to review and tailor our recommendations as the project progresses and additional information which may influence our recommendations becomes available.

Please contact us if you have any questions, or if we may be of additional service.

Respectfully,
TRAUTNER GEOTECH

A handwritten signature in blue ink, appearing to read 'J.A. Deem', with a horizontal line extending to the right.

Jason A. Deem, P.G.
Principal Engineering Geologist

Reviewed by: TRH

ATTACHMENT

Geotechnical Engineering Study, Proposed Cascade Village Townhomes South Project

January 27, 2025

Project No. 58656GE

GEOTECHNICAL ENGINEERING STUDY
PROPOSED
CASCADE VILLAGE TOWNHOMES SOUTH PROJECT
SAN JUAN COUNTY, COLORADO

January 27, 2025

PREPARED FOR:

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PROJECT NO. 58656GE

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1.0 REPORT INTRODUCTION

This report presents our geotechnical engineering recommendations for the proposed Cascade Village Townhomes South project located south of Cascade Village in San Juan County, Colorado. This report was requested by Ms. Lauren Davis, AIA, AICP, Reynolds, Ash, and Associates and was prepared in accordance with our proposal dated November 4, 2024, Proposal No. 24419P.

As outlined within our proposal for services for this project the client is responsible for appropriate distribution of this report to other design professionals and/or governmental agencies unless specific arrangements have been made with us for distribution.

Geotechnical engineering is a discipline which provides insight into natural conditions and site characteristics such as; subsurface soil and water conditions, soil strength, swell (expansion) potential, consolidation (settlement) potential, and often slope stability considerations. The information provided by the geotechnical engineer is utilized by many people including the project owner, architect or designer, structural engineer, civil engineer, the project builder and others. The information is used to help develop a design and subsequently implement construction strategies that are appropriate for the subsurface soil and water conditions, and slope stability considerations. We are available to discuss any aspect of this report with those who are unfamiliar with the recommendations, concepts, and techniques provided below.

This geotechnical engineering report is the beginning of a process involving the geotechnical engineering consultant on any project. It is imperative that the geotechnical engineer be consulted throughout the design and construction process to verify the implementation of the geotechnical engineering recommendations provided in this report. Often the design has not been started or has only been initiated at the time of the preparation of the geotechnical engineering study. Changes in the proposed design must be communicated to the geotechnical engineer so that we have the opportunity to tailor our recommendations as needed based on the proposed site development and structure design.

The following outline provides a synopsis of the various portions of this report;

- ❖ Sections 1.0 provides an introduction and an establishment of our scope of service.
- ❖ Sections 2.0 and 3.0 of this report present our geotechnical engineering field and laboratory studies
- ❖ Sections 4.0 and 5.0 presents our geotechnical engineering design parameters and recommendations which are based on our engineering analysis of the data obtained.
- ❖ Section 6.0 presents our limited slope stability study.
- ❖ Section 7.0 presents our subsurface foundation drain recommendations.
- ❖ Section 8.0 presents our concrete flatwork recommendations.
- ❖ Section 9.0 presents our pavement section thickness design.
- ❖ Section 10.0 provides a brief discussion of construction sequencing and strategies which may influence the geotechnical engineering characteristics of the site. Ancillary information such as some background information regarding soil corrosion and radon considerations is also presented as general reference.
- ❖ Section 11.0 provides our general construction monitoring and testing recommendations.
- ❖ Sections 12.0 and 13.0 provides our conclusions and limitations.

The data used to generate our recommendations are presented throughout this report and in the attached figures.

All recommendations provided within this report must be followed in order to achieve the intended performance of the foundation system and other components that are supported by the site soil.

1.1 Proposed Construction

We reviewed a conceptual site plan prepared by CHC Engineers, LLC, at the time of this report. We understand that the proposed project will consist of designing and constructing 33 duplex townhome structures that are supported by steel reinforced concrete foundation systems. We assume relatively light foundation loadings, typical of the proposed type of construction.

We anticipate grading for some of the structures along the western portion of the site will need to include up to 15-foot restrained excavation cuts, and the grading for the remaining structures are assumed to be relatively minor with cuts of approximately 5 to 6 feet below the adjacent ground surface.

As discussed in our proposal for services, the project will require temporary and/or permanent shoring. Trautner Geotech does not provide shoring design or observations of shoring systems. A shoring design engineer will need to be consulted to provide a stamped/sealed engineering design for the project shoring needs. The selected shoring design engineer will need to perform their own slope stability analyses based on the project excavations in conjunction with their shoring design. The selected shoring design engineer will need to take the appropriate steps to verify that the actual exposed subsurface conditions including soil strength characteristics, subsurface water characteristics and fracture patterns within the formational materials are consistent with their shoring design. It is imperative that the selected shoring design engineer and structural engineer work closely to coordinate the shoring design with the structural design of the project.

When final building locations, grading and loading information have been developed, we should be notified to re-evaluate the recommendations presented in this report.

2.0 FIELD STUDY

2.1 Site Description and Initial Geological Hazard Discussion

The project site is located at the south end of Cascade Village. The ground surface ranges from relatively steep slopes down to the east along the western portion of the property to relatively flat ground on the eastern portion of the site. The Tacoma Water Line running north to south bisects the property.

Due to the approximately 2 to 3 feet of snow on the ground at the time of our field study, we could not perform our geological hazard study for the site. We will need to wait until spring or early summer once the snow melts to further assess the geological hazards potentially impacting the site. Based on our initial observations, we feel the following geological hazards may exist;

- Debris flow/alluvial fan deposits in the southern portion of the site.
- Rockfall potential along portions of the western side of the site.
- Avalanche potential along portions of the western side of the site.
- Ground subsidence in wetland areas of the eastern side of the site.

Our geological hazard study will not provide detailed debris flow or avalanche hydrologic calculations and mapping. If required, we can provide recommendations for additional assessment.

2.2 Subsurface Soil and Water Conditions

We advanced sixteen test borings in the vicinity of the proposed structures and five shallow test borings in the vicinity of the proposed roadways. A schematic showing the approximate boring locations is provided below as Figure 1. The logs of the soils encountered in our test borings are presented in Appendix A.

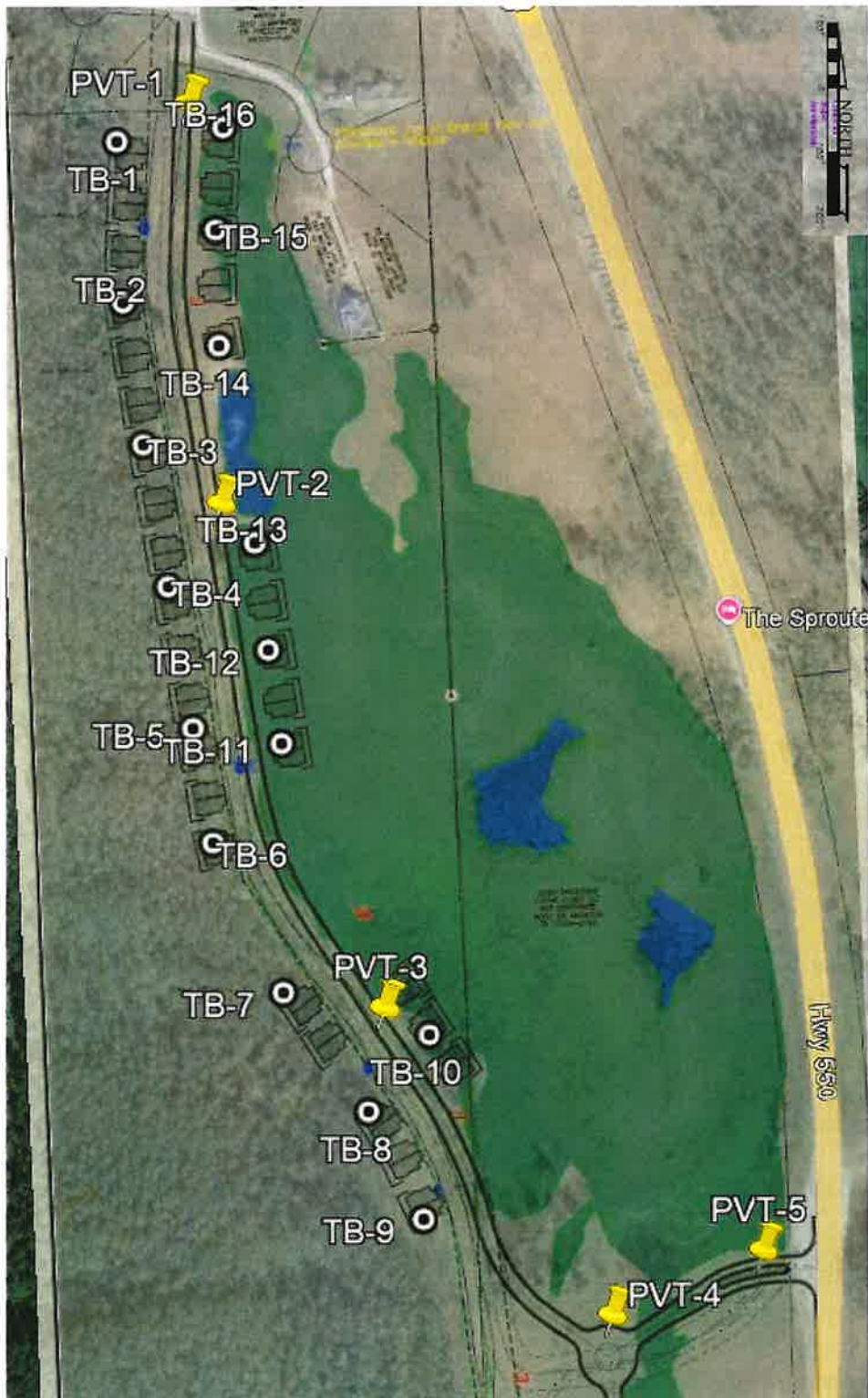


Figure 1: Locations of Exploratory Borings. Adapted from a site plan prepared by CHC Engineers LLC.

The schematic presented above was prepared using notes and field measurements obtained during our field exploration and is intended to show the approximate test boring locations for reference purposes only.

The subsurface conditions encountered in our test borings consisted of various combinations of silty, sandy, lean clay with organics, (CL), clayey gravel and cobbles with boulders (GC), and formational material encountered at various depths. Formational shale, sandstone or limestone was encountered at depths that ranged from 6.5 to 32.5 feet. Practical auger refusal or termination of the test borings occurred within 2 to 3 feet into the formational material.

We encountered high organic content soils/peat to depths of 21.5 feet in TB-11, 8 feet in TB-12, and 4.5 feet in TB-13. Based on the laboratory consolidation, we suspect this area will experience high consolidation under any new loading from either structures or man-placed fill.

We encountered free subsurface water in some of our test borings at the time of the advancement. The ground water depths are tabulated below.

Test Boring Number	Ground Water Depth (feet)
TB-8	16
TB-9	18
TB-10	10
TB-11	2
TB-12	2
TB-13	2
TB-16	4

We suspect that the subsurface water elevation and soil moisture conditions will be influenced by snow melt and/or precipitation and local irrigation.

The logs of the subsurface soil conditions encountered in our test borings are presented in Appendix A. The logs present our interpretation of the subsurface conditions encountered in the test borings at the time of our field work. Subsurface soil and water conditions are often variable across relatively short distances. It is likely that variable subsurface soil and water conditions will be encountered during construction. Laboratory soil classifications of samples obtained may differ from field classifications.

3.0 LABORATORY STUDY

The laboratory study included tests to estimate the strength, swell and consolidation potential of the soils tested. We performed the following tests on select samples obtained from the test borings. The laboratory test results are provided in Appendix B.

- Moisture Content and Dry Density
- Sieve Analysis (Gradation)
- Atterberg Limits, Liquid Limit, Plastic Limit and Plasticity Index
- Swell Consolidation Tests
- Direct Shear Strength Test

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- Moisture Content Dry Density Relationship Test
- California Bearing Ratio Test

A synopsis of some of our laboratory data for some of the samples tested is tabulated below.

Sample Designation	Percent Passing #200 Sieve	Atterberg Limits LL/PI	Moisture Content (percent)	Dry Density (PCF)	Measured Swell Pressure (PSF)	Swell or Consolidation Potential	Phi (°)	Cohesion (PSF)
TB-1 @ 3'	-	-	8.2	112.7	4,000*	6.0 (% under 100 psf load)	-	-
TB-2 @ 2'	-	-	12.9	86.8	3,370*	6.0 (% under 100 psf load)	-	-
TB-2 @ 5-9'	30.8	23/10	6.1	-	-	-	-	-
TB-3 @ 3.5'	-	-	10.0	112.8	5,000*	7.6 (% under 100 psf load)	-	-
TB-4 @ 5-9'	-	-	9.2	-	-	-	30	100
TB-5 @ 3.5-8.5'	31.2	22/8	6.3	-	-	-	-	-
TB-6 @ 8.5'	-	-	6.4	140.7	0	-0.8 (% under 500 psf load)	-	-
TB-7 @ 2'	-	-	12.7	125.7	350	0.3 (% under 100 psf load)	-	-
TB-8 @ 3.5'	-	-	5.4	128.6	720	1.2 (% under 100 psf load)	-	-
TB-8 @ 14-19'	-	-	8.3	-	-	-	30	85
TB-9 @ 3.5'	-	-	7.8	119.8	1,860*	0.8 (% under 500 psf load)	-	-
TB-9 @ 5-9'	46.5	32/13	15.8	-	-	-	-	-
TB-10 @ 3.5'	-	-	10.7	111.0	360	1.1 (% under 100 psf load)	-	-
TB-10 @ 4.5-8.5'	40.7	38/16	26.0	-	-	-	-	-
TB-11 @ 4'	-	-	93**	7.0**	0	-0.1** (% under 100 psf load)	-	-
TB-14 @ 3.5'	-	-	5.3	127.0	270	0.2 (% under 100 psf load)	-	-
TB-15 @ 0-3.5'	63.4	42/22	33.7	-	-	-	-	-
TB-15 @ 3.5'	-	-	23.4	103.2	0	-0.2 (% under 100 psf load)	-	-
TB-16 @ 3.5'	-	-	26.0	99.3	0	-0.1 (% under 100 psf load)	-	-