ALPINE CITY COUNCIL MEETING AGENDA

NOTICE is hereby given that the **CITY COUNCIL** of Alpine City, Utah will hold a Public Meeting on **Tuesday, March 26, 2019 at 7:00 pm** at Alpine City Hall, 20 North Main, Alpine, Utah as follows:

I. CALL MEETING TO ORDER ***Council Members may participate electronically by phone.**

- **A. Roll Call:** Mayor Troy Stout
- **B. Prayer:** Lon Lott
- **C. Pledge of Allegiance:** By invitation

II. CONSENT CALENDAR

- **A. Minutes of the Alpine City Council Meeting held March 12, 2019**

III. PUBLIC COMMENT

IV. REPORTS and PRESENTATIONS

- **A. Chamber of Commerce - Josh Walker**
- **B. Ranked Choice Voting - Josh Daniels, Utah County Deputy Clerk/Auditor**

V. ACTION/DISCUSSION ITEMS

- **A. Montdella, Senior Housing Development - 242 S. Main St:** The proposed 55+ community will consist of 25 townhomes on 3.94 acres located in the senior housing overlay of the business commercial zone. The sizes of the townhomes will range from 2,400 to 3,500 square feet.
- **B. Legislative Review - David Church:** Council will review recently adopted legislation by the State Legislature.

VI. STAFF REPORTS

VII. COUNCIL COMMUNICATION

VIII. EXECUTIVE SESSION: Discuss litigation, property acquisition or the professional character, conduct or competency of personnel.

ADJOURN

Mayor Troy Stout
March 22, 2019

THE PUBLIC IS INVITED TO PARTICIPATE IN ALL CITY COUNCIL MEETINGS. If you need a special accommodation to participate, please call the City Recorder's Office at (801) 756-6347 x 4.
CERTIFICATE OF POSTING. The undersigned duly appointed recorder does hereby certify that the above agenda notice was on the bulletin board located inside City Hall at 20 North Main and sent by e-mail to The Daily Herald located in Provo, UT, a local newspaper circulated in Alpine, UT. This agenda is also available on our web site at www.alpinecity.org and on the Utah Public Meeting Notices website at www.utah.gov/pmn/index.html

PUBLIC MEETING AND PUBLIC HEARING ETIQUETTE

Please remember all public meetings and public hearings are now recorded.

- All comments **must** be recognized by the Chairperson and addressed through the microphone.
- When speaking to the Planning Commission/City Council, please stand, speak slowly and clearly into the microphone, and state your name and address for the recorded record.
- Be respectful to others and refrain from disruptions during the meeting. Please refrain from conversation with others in the audience as the microphones are very sensitive and can pick up whispers in the back of the room.
- Keep comments constructive and not disruptive.
- Avoid verbal approval or dissatisfaction of the ongoing discussion (i.e., booing or applauding).
- Exhibits (photos, petitions, etc.) given to the City become the property of the City.
- Please silence all cellular phones, beepers, pagers or other noise making devices.
- Be considerate of others who wish to speak by limiting your comments to a reasonable length, and avoiding repetition of what has already been said. Individuals may be limited to two minutes and group representatives may be limited to five minutes.
- Refrain from congregating near the doors or in the lobby area outside the council room to talk as it can be very noisy and disruptive. If you must carry on conversation in this area, please be as quiet as possible. (The doors must remain open during a public meeting/hearing.)

Public Hearing vs. Public Meeting

If the meeting is a **public hearing**, the public may participate during that time and may present opinions and evidence for the issue for which the hearing is being held. In a public hearing there may be some restrictions on participation such as time limits.

Anyone can observe a **public meeting**, but there is no right to speak or be heard there - the public participates in presenting opinions and evidence at the pleasure of the body conducting the meeting.

ALPINE CITY COUNCIL MEETING
Alpine City Hall, 20 N. Main, Alpine, UT
March 12, 2019

I. CALL MEETING TO ORDER

A. Roll Call: The following were present and constituted a quorum

Mayor Troy Stout
Council Members: Jason Thelin, Carla Merrill, Lon Lott
Council Members not present: Ramon Beck and Kimberly Bryant were excused.
Staff: Shane Sorensen, Charmayne Warnock, David Church, Austin Roy, Chief Brian Gwilliam
Others: Will Jones, Sylvia Christiansen, Bob Pollan, Lonny Layton, Rachel Layton, Paul Anderson

B. Prayer: Jason Thelin
C. Pledge of Allegiance: Brian Gwilliam

Mayor Stout said he was grateful for the emergency personnel that Alpine has, and their quick response time. When he was in Mexico, he witnessed a serious accident and it took thirty minutes for the emergency service to arrive.

II. CONSENT CALENDAR

A. Minutes of the Alpine City Council meeting held February 12, 2019
B. Alpine View Estates Bond Release #2 - $162,149.01
C. Alpine View Estates Bond Release #3 - $289,081.59

MOTION: Lon Lott moved to approve the Consent Calendar. Carla Merrill seconded. Ayes: 3 Nays: 0. Motion passed.

Ayes	**Nays**
Jason Thelin	None
Carla Merrill	
Lon Lott	

III. PUBLIC COMMENT

There were no comments.

IV. REPORTS AND PRESENTATIONS

There were no reports or presentations.

V. ACTION ITEMS

Mayor Stout stated that Agenda Items C (zoning ordinance amendment regarding dwelling clusters) and D (zoning ordinance amendment regarding flag lots) would be postponed.

A. North Point View Subdivision, Plat D – Final Plat Approval – Marcus Watkins: The proposed subdivision consisted of 7 lots on 3.96 acres and was located at approximately 1120 N. on East View Lane. The North Point View subdivision had received preliminary approval in 2004 with no expiration date on the approval because of a development agreement. Plats A, B and C had been approved since that time.

Austin Roy said the Planning Commission had reviewed the proposed Plat D and recommended final approval. The development met the requirements of the zoning ordinance. However, there were existing structures on the property that would need to be removed or bonded for. North Field ditch crossed the property and would need to be piped according to Alpine City ordinances. The proposed development contained a portion of Lehi's irrigation system so

Lehi would need to approve it. Lot 29 had an existing well on it which would need to be appropriately sealed to prevent contamination of ground water. The developer still needed to meet the water policy.

Lon Lott asked about the proximity of the development and a barn on adjoining property. Marcus Watkins said there was some elevation in that location; he expected they would probably be putting in a high fence.

Jason Thelin what kind of street lights the development would have. Mr. Watkins indicated the lights had already been ordered.

MOTION: Jason Thelin moved to approve the final plat of North Point View Plat D with the following conditions:

1. The Developer submit plans for a piped ditch system, to be approved by Engineering, and show a corresponding 20-foot wide easement on the plat for the alignment of said pipe;
2. The Developer seal the existing well on lot 29 during construction;
3. The Developer address the redlines on the plat and plans;
4. The Developer meet the water policy;
5. The Developer remove all the buildings that will conflict with future property lines or provide a bond to do so prior to recording the plat.

Carla Merrill seconded Ayes: 3 Nays: 0. Motion passed.

Ayes	**Nays**
Jason Thelin	None
Carla Merrill	
Lon Lott	

B. Car Dealership - Proposed use in the Business Commercial Zone - Lonny Layton: Austin Roy said Mr. Layton was proposing a car dealership at 235 S. Main just north of the roundabout and south of the school. The property consisted of 0.53 acres and was vacant except for a shop building. Austin Roy said the ordinance did not specifically permit or prohibit commercial car lots in the business commercial zone, but Mr. Layton had read the zoning ordinance and felt that a car lot would qualify as a permitted use based on the following sections in the code:

Section 3.07.020 (1) stated that retail stores and shops providing good and services were permitted provided that all storage and sales activity was contained within a building along with all manufacturing and processing activities which were an integral or incidental part of the retail establishment.

Section 3.07.080 (1) stated that all commercial activities and storage shall be conducted entirely within a fully enclosed building except for uses deemed by the City to be customarily and appropriately conduced in the open.

The Planning Commission had spent two meetings discussing the request and finally voted unanimously to recommend that the City Council approve it.

Lonny Layton said the business wouldn't really a dealership. He did not intend to fill up the lot with used cars and the existing building would be a personal office for him. He just wanted to obtain a dealer's license. He would have a maximum of three parking stalls and the cars wouldn't even be seen from the road. He planned to renovate the building and improve the streetscape. He did not intend to hire employees and the lot would actually be closed most of the time. He would only go there to take delivery of a vehicle or meet someone. It would be more of an appointment-only business. That area was already crippled with traffic from the Mountainville Charter School so he would not be there during school drop off and pick up times. He did not intend to do anything at the site outside of 9 am to 5 pm.

Mr. Layton said the business was really an extension of a hobby and was not something he would do for a living because he already had a career. In order to obtain a dealer's license he would have to meet the requirements of the state. One of those was to have a sign that was a minimum of 24 square feet and visible from the road.

Members of the Council said their main concern was not Mr. Layton's specific business but the fact that it would open the door for other car lots to spring up in the area that would be more unsightly. The Council discussed the possibility of defining certain parameters that would give the City more discretion on what they allowed or did not allow.

Paul Anderson owned the property adjacent to the proposed car lot and was invited to comment. Mr. Anderson said he felt a little sideswiped by the whole thing. He'd had no idea what was going on. He said he had spent time and money cleaning up the lot and had an interest in purchasing it. If the car lot went in, he wanted to know what would be done to ensure privacy for adjoining residents.

There was further discussion on the request. Mayor Stout said he would prefer to clearly define what could or could not be done rather than leaving the door open.

David Church said that if they denied the request, Mr. Layton had a couple of options. He could petition the City to change the zoning ordinance or he could formally appeal the Council's decision and say the Council was interpreting the ordinance inaccurately, or he could do nothing.

MOTION: Jason Thelin moved to deny the proposed car lot because it did not meet the requirements of Section 3.07.020 Permitted Uses in the Business Commercial Zone. Carla Merrill seconded. Ayes: 3 Nays: 0. Motion passed.

Ayes	**Nays**
Jason Thelin	None
Carla Merrill	
Lon Lott	

C. Security Upgrades for the Highland Justice Center Lobby: Shane Sorensen said the Highland City Council had approved security upgrades to the Justice Center lobby which included the installation of bulletproof glass for both the police department and the court. When the Highland City Council made the motion to approve the upgrades, they included the condition that Alpine City would be asked to pay one-third of the cost of the upgrade. They estimated a cost of around $150,000 for materials and installation so Alpine's third would be about $50,000. Shane Sorensen provided a copy of the proposed upgrades along with a copy of the Alpine and Highland's Lone Peak Public Safety District Buildings and Grounds Maintenance Policy. It stated that repair and maintenance would be the responsibility of the city in which the building was located. Mr. Sorensen stated that he wanted to be clear that they were concerned about the safety of their employees and all city employees, but the maintenance agreement did not require the cities to participate in repairs to buildings in the other city's jurisdiction. He said there were a few directions the Council could go with the request.

Chief Brian Gwilliam showed a rendering of the Justice Center and where the ballistic glass would be installed. He said that in the last six months, individuals and come into the building that were upset with staff or the court staff. They had threatened the judge and the court clerk and the women working at the counter in the police department. Most police stations were secure in that visitors could not access people behind the counter, but their station was not secure. He said the total cost was actually $100,000 which included material and labor.

Mayor Stout said they were concerned about the safety of all the staff and they would like to help but Alpine was facing some heavy, unexpected costs.

MOTION: Lon Lott moved to regretfully say Alpine City would not be able to help them with the security upgrades in the Highland Justice Center based on the Lone Peak PSD Buildings and Grounds Maintenance Policy. Jason Thelin seconded. Ayes: 3 Nays: 0 Motion passed

Ayes	**Nays**
Jason Thelin	None
Carla Merrill	
Lon Lott	

VI. STAFF REPORTS

Austin Roy reported on the following:

- Moderate Income Housing. The biannual report from cities on their moderate income housing was due this year. David Church said there would be changes in the legislature regarding the issue. Municipalities were required to have a Moderate Income Housing Element in their General Plan. The new legislation would expand on that and provide specific requirements or recommendations. Moderate income housing was defined as housing that was priced at 80% or less than the median income in the county. In Utah County that would be housing which was less than $300,000 or about $280,000. The cities would have to file a report on what they had to meet this requirement.
- Municipal Recreation Grant. He said he would be applying for the grant for 2019. The City needed to identify the project for which the funds would be used. Last year they had used it for the Dry Creek Corridor Trail. The project could be a continuation of an existing project.
- General Plan Update. The Planning Commission had completed their work on updating the General Plan at the end of 2017. The City Council needed to determine when they wanted to discuss it.

Charmayne Warnock reported that the County Election Officials were preparing to run the 2019 Election. The estimated cost to the cities would be $1.80 per active registered voter per election. Alpine City had just over 6,000 registered voters in the last election. If cities chose to have RVC (Ranked Choice Voting), it would eliminate the primary election, which would cut the cost of the election in half. The state had moved the deadline for cities to decide if they wanted to have RCV to April 15th, at which time the city would need to notify the Lt. Governor's office that they were intending to have RCV.

Mayor Stout said he would be interested in hearing a presentation on RCV at the meeting on March 26th if someone was available to make a presentation. Charmayne Warnock said she see if that was possible.

Shane Sorensen reported on the following:

- PI Meter Integration. Staff would begin integrating the pressurized irrigation meters into the computer system. Once that was done, the utility bills would reflect actual water use so customer's bills would change monthly. Staff planned to send residents a mailer on how the system worked and how they could sign up to check their usage on a regular basis. The new meters would enable both the residents and the city to know immediately when someone had a potential leak rather than waiting six months until the next meter read.
- ULCT Conference. There would be a midyear conference in St. George. If anyone on the Council wanted to attend, they needed to let him know.
- Radar Speed Signs. After a question from Jason Thelin about the accuracy of the posted speeds on the signs, he had looked into it and was told the posted speed fell close to the allowed tolerance. If someone didn't feel the posted speed was correct, they could send the sign to have it tested but there was a cost associated with it. Chief Brian Gwilliam said the police department had the equipment to test the radar speed signs.
- Draper City Master Transportation Plan Amendment. He said he had Jed Muhlestein look at it who reported that he didn't see anything that would impact Alpine City. The plan still showed residential zoning next to the boundary Alpine but he didn't see any new roads. Austin Roy said he submitted some comment on behalf of Alpine City stating they agreed with the plan as long as it didn't show a road connection with Alpine.
- Deer Control: DNR was having a meeting on March 19th to discuss the nonlethal part of the program. Alpine was the only city whose program did not include lethal control as a solution.
- Easter Egg Hunt. Kimberly Bryant had asked to increase the budget for the Easter Egg Hunt from $1,000 to $1,500. It was generally taken from the Discretionary Fund. Also, they would like to use Jason Thelin's sound system again if the was possible since it worked so much better.

VII. COUNCIL COMMUNICATION

Lon Lott said he'd met with the American Fork Chamber of Commerce. They were working with mayors to create a Lone Peak Business Alliance. They were working to create an alliance between Alpine, Highland and Cedar Hills and would like to meet with the Council. It was similar to what Judy Pickell had done to try and pull the businesses together. If the Council was interested, he would contact them and have them come and present their program.

Troy Stout said he they had candidate for the Parks and Rec position which included responsibility for Alpine Days. Melanie Ewing had agreed to act as a consultant to the new hire for a fee. Shane Sorensen said the candidate recently graduated from BYU in recreation management and had web experience.

Jason Thelin asked David Church about approval of permitted uses. He understood that according to the ordinance they couldn't put conditions on a permitted use. David Church said Alpine's ordinance needed a lot of work. It was written in 1995 and a lot of things had changed. Ambiguities were construed in favor of the property owner. If something was not specifically prohibited, a property owner could do it.

VIII. EXECUTIVE SESSION

MOTION: Lon Lott moved to go into Executive Session to discuss litigation and personnel. Carla Merrill seconded. Ayes: 3 Nays: 0 Motion passed.

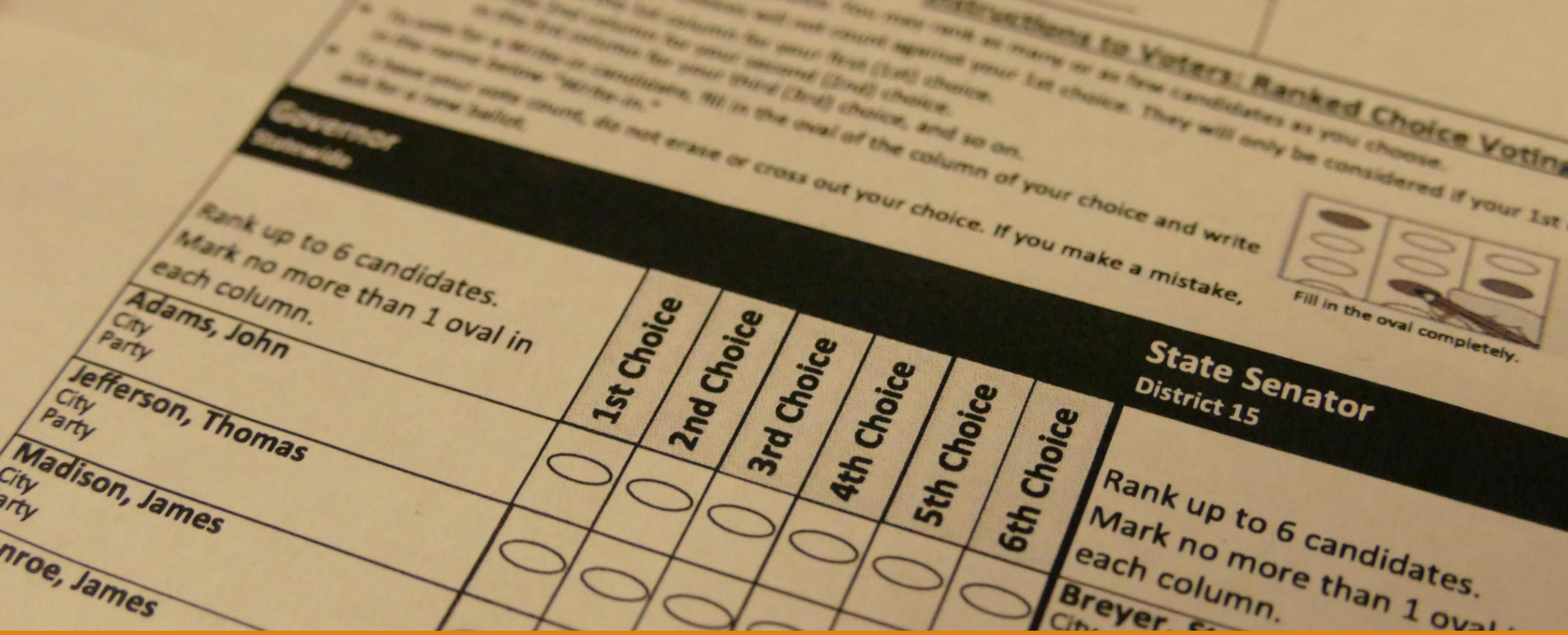
Ayes	**Nays**
Jason Thelin	None
Carla Merrill	
Lon Lott	

The Council went into closed session at 8:50 pm.
The Council returned to open session at 9:40 pm.

MOTION: Carla Merrill moved to adjourn. Jason Thelin seconded. Ayes: 3 Nays: 0. Motion passed.

Ayes	**Nays**
Jason Thelin	None
Carla Merrill	
Lon Lott	

The meeting was adjourned at 9:40 pm.



HB 35: MUNICIPAL ALTERNATE VOTING METHODS PILOT PROGRAM

How To Implement Ranked Choice Voting In Your Municipality

HB 35: *Municipal Alternate Voting Methods Pilot Program*

- Creates a pilot program (beginning 1/1/2019) to permit a municipality to conduct nonpartisan races using instant runoff voting (ranked choice voting)
- Establishes opt in process
- Establishes requirements and procedures, including counting of votes, recounts, resolution of ties, and canvassing
- Provides a sunset date (1/1/2026)

About HB 35

Bi-partisan bill

- Bill Sponsor: Representative Marc Roberts
- Floor Sponsor: Senator Howard Stephenson
- Co-Sponsors: P. Arent, R. Chavez-Houck, J. Fawson, B. Greene, B. King, A. Robertson, M. Winder

Overwhelming support in both chambers

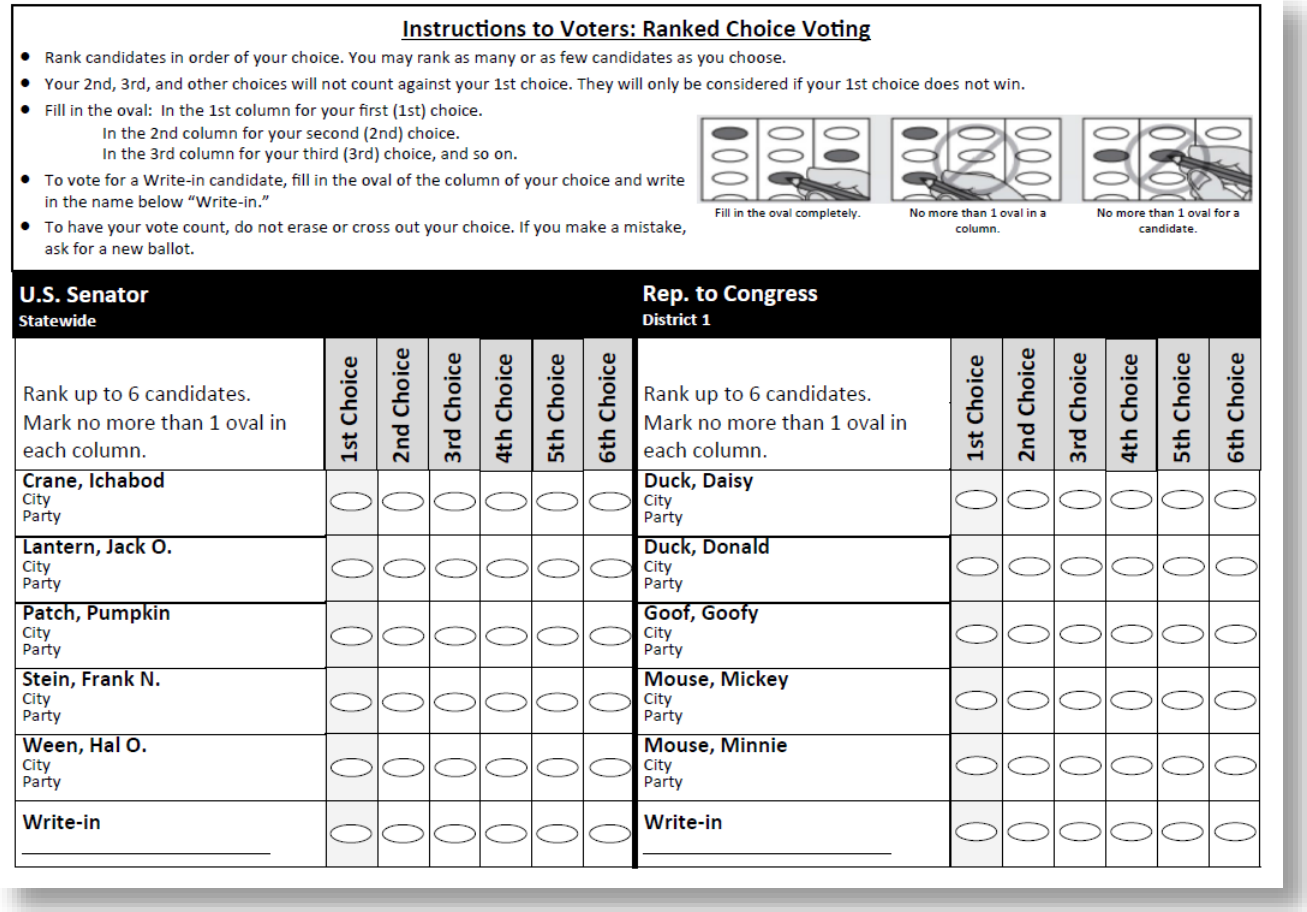
- House: 64-2-9 passed 2/20/2018
- Senate: 22-0-7 passed 3/8/2018
- House concurs w/Senate amendment 67-3-5 on 3/8/2018

Benefits

- **Greater voter engagement** – issues become the focus; voters become more informed; voters only have to go to the polls once
- **More civil campaigns –** Candidates seek to be first choice, but if not then second choice
- **Cost savings –** Save taxpayers' dollars by eliminating cost of an entire election; candidates only campaign for one election

How It Works: Ballot Example

- Single-winner and Multi-winner contests are presented in the same ballot format.
- Voters rank their choices in order of preference.
- Visual and written instructions voters better understand the ballot.



Instructions to Voters: Ranked Choice Voting

- Rank candidates in order of your choice. You may rank as many or as few candidates as you choose.
- Your 2nd, 3rd, and other choices will not count against your 1st choice. They will only be considered if your 1st choice does not win.
- Fill in the oval: In the 1st column for your first (1st) choice.
  In the 2nd column for your second (2nd) choice.
  In the 3rd column for your third (3rd) choice, and so on.
- To vote for a Write-in candidate, fill in the oval of the column of your choice and write in the name below "Write-in."
- To have your vote count, do not erase or cross out your choice. If you make a mistake, ask for a new ballot.

U.S. Senator
Statewide

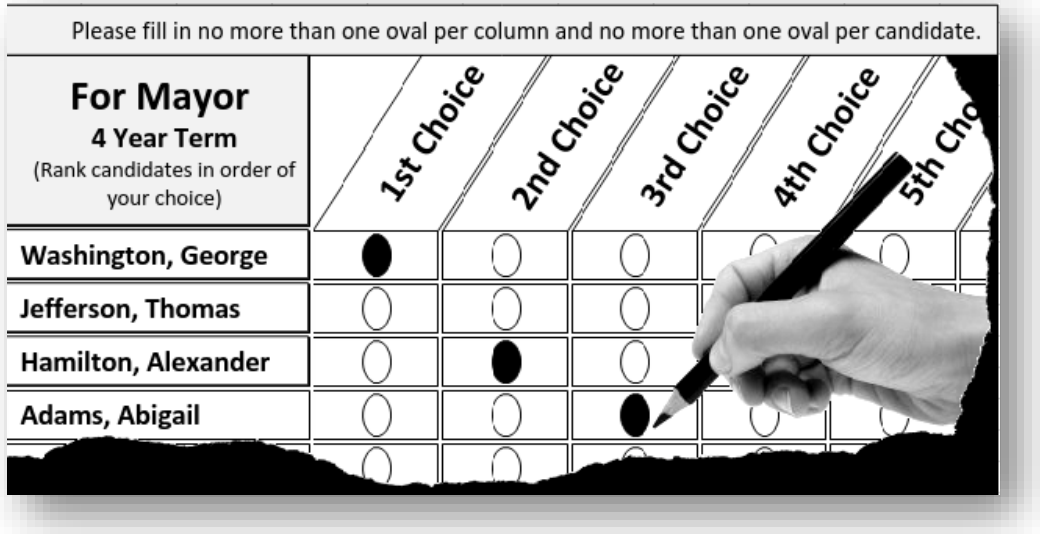
Rank up to 6 candidates. Mark no more than 1 oval in each column.	1st Choice	2nd Choice	3rd Choice	4th Choice	5th Choice	6th Choice
Crane, Ichabod City Party	⬭	⬭	⬭	⬭	⬭	⬭
Lantern, Jack O. City Party	⬭	⬭	⬭	⬭	⬭	⬭
Patch, Pumpkin City Party	⬭	⬭	⬭	⬭	⬭	⬭
Stein, Frank N. City Party	⬭	⬭	⬭	⬭	⬭	⬭
Ween, Hal O. City Party	⬭	⬭	⬭	⬭	⬭	⬭
Write-in _____	⬭	⬭	⬭	⬭	⬭	⬭

Rep. to Congress
District 1

Rank up to 6 candidates. Mark no more than 1 oval in each column.	1st Choice	2nd Choice	3rd Choice	4th Choice	5th Choice	6th Choice
Duck, Daisy City Party	⬭	⬭	⬭	⬭	⬭	⬭
Duck, Donald City Party	⬭	⬭	⬭	⬭	⬭	⬭
Goof, Goofy City Party	⬭	⬭	⬭	⬭	⬭	⬭
Mouse, Mickey City Party	⬭	⬭	⬭	⬭	⬭	⬭
Mouse, Minnie City Party	⬭	⬭	⬭	⬭	⬭	⬭
Write-in _____	⬭	⬭	⬭	⬭	⬭	⬭

How It Works

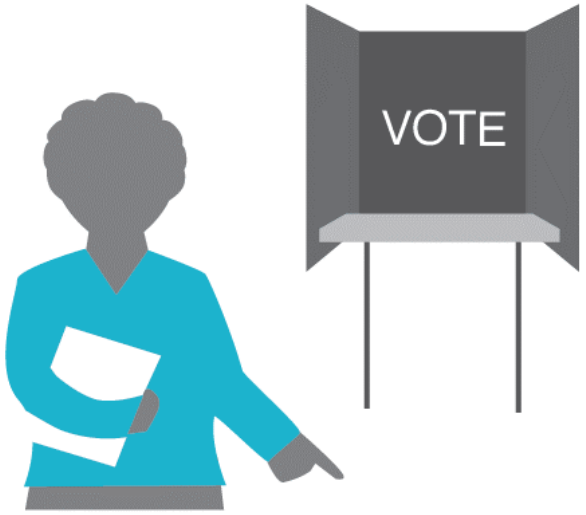
- Candidates are ranked according to the voter's preference.
- If a candidate receives more than 50% of the first choice votes, the candidate is elected.
- If not, lowest vote getter is eliminated and their voters' ballots are counted for their next choice.
- Same process for At-Large seats.



Implementing RCV

- RCV ready equipment
  - Recommended system, ES&S, used in Maine (June 2018)
  - Other systems have RCV capability
  - Legacy equipment with cast vote records can be tabulated with third-party software
  - May require additional module (small, one-time cost)

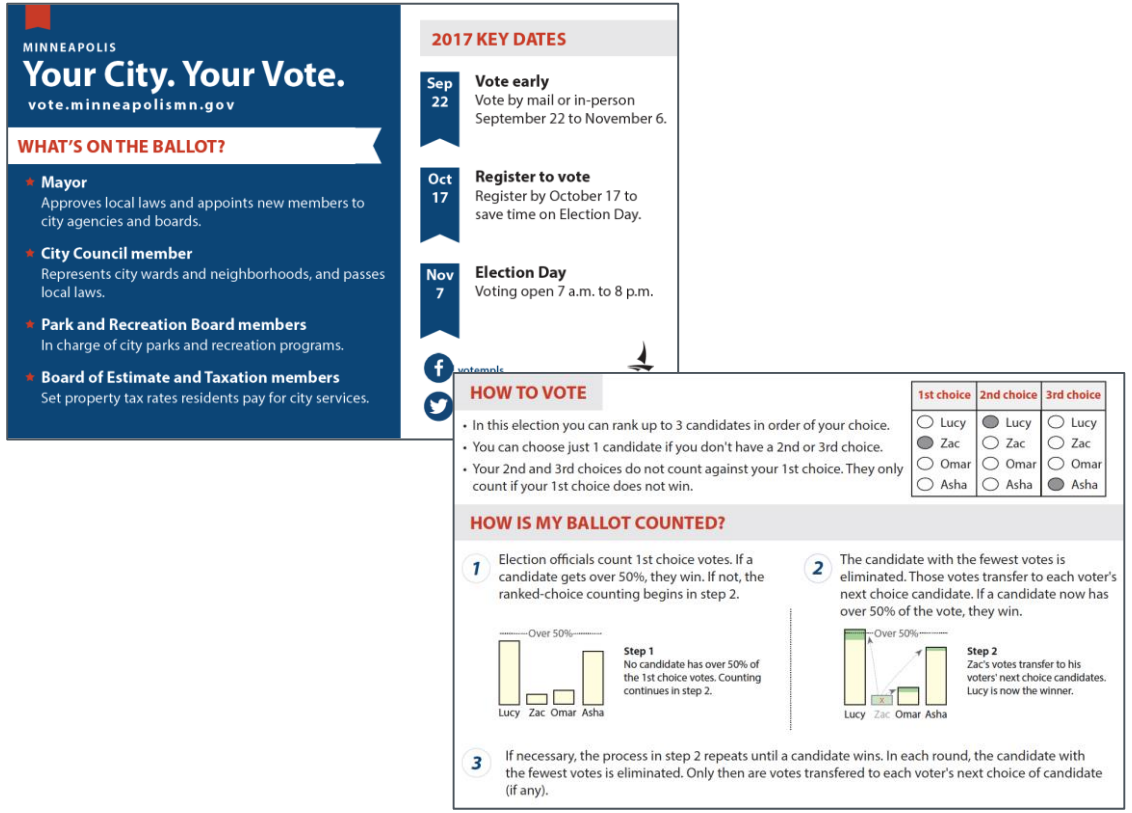
- Complements vote-by-mail
  - RCV yields issue oriented campaigns; voters have more time to review
  - Proven through use for military and overseas citizens



Implementing RCV

- Eliminates Primary Elections
  - Significant cost savings
  - Some allocation for voter education

- Voter education campaigns can be scaled to meet the municipality
    - Water bill inserts
    - Civic club presentations
    - Social media
  - Partner with other organizations
    - League of Women Voters



Implementing RCV

Sample voter education videos

Maine

Minneapolis

Santa Fe

Next Steps

- Provide notice to Lt. Governor's Office
  - Before January 1 of odd-numbered year
  - State intent to participate and election year
  - Signed by election officer of municipality stating the municipality has the resources and capability necessary

Contact Us

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STAN LOCKHART

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ALPINE CITY COUNCIL AGENDA

SUBJECT: Major Subdivision Preliminary Plan Review – Montdella

FOR CONSIDERATION ON: 26 March 2019

PETITIONER: Alan Cottle

ACTION REQUESTED BY PETITIONER: None – item is for information only

BACKGROUND INFORMATION:
The developer is seeking approval of the preliminary plat and plans for the proposed Montdella Subdivision, a 55+ Community, which consists of 25 dwelling units on 3.94 acres. Dwelling units range in size from approximately 2,400 square feet to 3,500 square feet. The property is located in the Business/Commercial Zone and Senior Housing Overlay.

Planning Commission has reviewed the proposed plat and plans for Gateway/Historic, Business/Commercial zone, and Senior Housing Overlay requirements. Preliminary Plans were approved with conditions through the following motion:

RECOMMENDED ACTION:

This item is for City Council information only – no action needed.

ALPINE CITY
STAFF REPORT
March 14, 2019

To: Alpine City Planning Commission

From: Staff

Prepared By: Austin Roy, City Planner
Planning & Zoning Department

Jed Muhlestein, City Engineer
Engineering & Public Works Department

Re: **Montdella Subdivision, 55+ Residential Community - Preliminary**

Applicant:	Alan Cottle, Cottle Capital Group
Project Location:	242 S. Main Street
Zoning:	Business/Commercial Zone; Senior Housing Overlay
Acreage:	Approximately 3.94 Acres
Lot Size:	Townhomes range in size from approx. 2,400-3,500 sq. ft.
Request:	Recommend and approve preliminary plans

SUMMARY

The developer is seeking approval of the preliminary plat and plans for the proposed Montdella Subdivision, a 55+ Community, which consists of 25 dwelling units on 3.94 acres. Dwelling units range in size from approximately 2,400 square feet to 3,500 square feet. The property is located in the Business/Commercial Zone and Senior Housing Overlay.

BACKGROUND

On August 28, 2018 a concept plan was brought before City Council seeking approval of a Senior Housing Overlay. The City Council reviewed and approved the request for the Senior Housing Overlay.

The developer is now returning seeking approval for preliminary plans. Business/Commercial Zone, Senior Housing Overlay, and Gateway/Historic requirements should all be taken into consideration when reviewing the preliminary plat and plans for approval.

ANALYSIS

Lot Area and Width
A Senior Housing Project shall be at least 2 acres in size, but no more than 6 acres in size. A maximum of 8 dwelling units is allowed per acre, with an overall project cap of 32 units (Article 3.18.070). The proposed plans meet these criteria.

Setbacks
Plans show setbacks of 30 feet off of Main Street, 20 feet on side rear setbacks, and 25 feet from the high water mark of Dry Creek. Dwellings structures are spaced at least 10 feet apart. All proposed setbacks meet the requirements of the underlying zone.

Use
The development is proposed as a 55+ community, with combination of single and attached dwellings. The proposed use is permitted in the Business/Commercial Zone within a Senior Housing Overlay (Article 3.07 and 3.18).

Sensitive Lands (Wildland Urban Interface, etc.)
The property contains a flood plain area. Flood Damage Prevention Overlay requirements will need to be met. See the below Engineering Review for further details.

Trails
The Alpine City Trail Master Plan shows a proposed trail that runs through this property along the northern boundary, from the northeast corner to the southwest corner of the property. This proposed trail is an extension of the existing Dry Creek Corridor Trail. The developer has included this trail in the plans as a proposed 8-foot-wide walking/jogging trail, which will follow the existing creek and connect to Main Street. Trail is shown on all plans but not on the subdivision plat. However, the **trail must be shown on the plat** before it can be recorded. Trail requirement has been included with other minor redlines for the plat and plans.

Gateway/Historic
The Gateway Historic District Design Guidelines state that new developments should:

a) Mimic details of older buildings
b) Use similar materials
c) Make mundane uses look good
d) Include design features on blank walls

Colored perspectives and architectural renderings have been submitted for the project. Building materials appear to be primarily brick and other masonry. The design appears to have taken into consideration all criteria from the Gateway Historic District Design Guidelines. Staff has no concerns with the overall design.

General Plan
The plat and plans as proposed are compatible with the General Plan.

REVIEWS

PLANNING AND ZONING DEPARTMENT REVIEW
The analysis section in the body of this report serves as the Planning and Zoning Department review.

ENGINEERING AND PUBLIC WORKS DEPARTMENT REVIEW

Streets
All site plans must adhere to the Off-Street Parking Ordinance (Article 3.24). The applicant has submitted a parking plan which appears to be in compliance with the ordinance. Parking stalls are dimensioned correctly and not located in a setback area, an all-weather surface of asphalt is proposed, a lighting plan was submitted and approved, and it is graded to retain all storm water onsite. Storm drain calculations and plans were submitted and approved for the design of the parking lot.

The application shows a 24-foot wide private street through the development that will connect to an existing parking area to the south. This design provides more than one access to the development. The Fire Chief will review the plans and comment on street width.

The applicant provided a traffic study with the application. The study shows very low traffic volumes generated from the development; 140 trips per day and only 12 trips during the peak hours of the day. Though volumes were very low, the study recognizes the current traffic problem during peak hour traffic due to the charter school. The study offered ideas for restricting how traffic turns in and out of the development. The two optional ideas would not allow left hand turns coming in or out of the development. Staff does not feel that any restrictions should be imposed on the development in terms of traffic flow due to the following:

1. the overall daily low volume;
2. the low volume expected during peak hours;
3. restricting north-bound, left hand turns would force northbound vehicles more northward into the areas of congestion already created by the charter school;
4. there is more than one exit within the development, residents will have more than one northbound option if traffic is congested on main street;
5. A traffic study was recently done specifically for the charter school. One of the remedies for congestion was to re-stripe main street and add a center turn lane. **If the new center turn lane was painted from the round-a-bout to approximately 100 South, a safer area would exist for left hand turning in and out of the development. This would be Engineering's recommendation.**

The street master plan requires a landscaping plan along arterial and collector roads (of which Main Street is). The applicant has turned in a landscaping plan along with architectural renderings for review by the Planning Commission. There are some tree species that have large shallow root systems which can damage sidewalks, which is one reason why the City adopted a tree guideline recently. Engineering verified the trees proposed closest to the sidewalk met the City's tree guideline and were safe trees to plant near a sidewalk.

The applicant shows the location of proposed street lights which is accepted.

Utilities
Culinary water is proposed to "loop" through the development and connect to existing lines on both the Main Street side and west side. There is an existing 8-inch main in Main Street and a 10-inch main on the west side which the plans show connection to. New service laterals are shown for each unit. Horrocks Engineer's reviewed the development; their review shows the development is in compliance with the water master plan and should have plentiful flows for fire flows. There are two existing water service laterals that are shown to be removed and capped at the main, which is the standard for disconnecting services that will no longer be in use.

Pressurized irrigation will connect to an existing lateral for the development. All common areas will be irrigated via this connection.

A new sewer line will be extended from an existing manhole on the west side of the development to serve the units. New sewer laterals are shown for each unit.

As mentioned in the streets section, a storm drain design was submitted and approved. The storm drain system collects water from the development and stores it in a detention pond on the south west corner of the property. The water is pre-treated through an oil/water/trash separator prior to entering the detention pond. The pond was sized correctly for the 100-yr event and releases water at pre-development flow rates back in to Dry Creek.

Other
A flood plain exists on the property. No homes, structures, or even the proposed trail are in the flood plain. The plan appears to be in compliance with the City's flood plain ordinance (3.12.08).

Retaining walls are shown on the plan. Retaining walls require a separate permit and are regulated during the construction period (Article 3.32).

A Land Disturbance Permit would be required prior to construction which ensures a Storm Water Pollution Prevention Plan (SWPPP) is followed. All disturbed areas of the site are required to be revegetated after construction.

A condition of approval should be to fix some minor redlines on the plat and plans.

LONE PEAK FIRE DEPARTMENT REVIEW
See the attached review from the Lone Peak Fire Department.

HORROCKS ENGINEERING REVIEW
See the attached review from Horrocks Engineers.

NOTICING
Notice has been properly issued in the manner outlined in City and State Code

STAFF RECOMMENDATION

Review staff report and findings and make a recommendation to City Council to either approve or deny the proposed subdivision. Findings are outlined below.

Findings for a Positive Motion:

A. Plans follow and meet Planning and Zoning requirements.
B. Plans follow and meet Engineering requirements.

Findings for Negative Motion:

A. None.

MODEL MOTIONS

SAMPLE MOTION TO APPROVE

I motion to recommend approval of the proposed Montdella Subdivision Preliminary Plans with the following conditions:

- The Developer address redlines on the plat and plans;
- The Developer address all concerns from the Fire Department.

SAMPLE MOTION TO DENY

I motion to recommend that the proposed Montdella Subdivision Preliminary Plans be denied based on the following:

- ***Insert Finding***

VICINITY MAP
N.T.S.

Sheet List Table	
Sheet Number	Sheet Title
C1	COVER SHEET
C2	FINAL PLAT
C3	SITE PLAN
C4	GRADING & DRAINAGE PLAN
C5	SEWER & WATER PLAN
L1	LANDSCAPE PLAN
PP01	ALI COURT
PP02	ALI COURT
PP03	ALI COURT
PP04	SEWER OUTFALL
PP05	STORM DRAIN OUTFALL

MONTDELLA

PREPARED FOR:
ALAN COTTLE
LOCATED IN:
ALPINE, UTAH

SITE MAP

N
S

GRAPHIC SCALE
(IN FEET)

CONTACTS

ENGINEER & SURVEYOR
FOCUS ENGINEERING & SURVEYING LLC
32 WEST CENTER STREET
MIDVALE, UTAH 84047
(801) 352-0075
PROJECT MANAGER: BRANDON PARR
SURVEY MANAGER: SPENCER LLEWELYN

OWNER/DEVELOPER
ALAN COTTLE
COTTLE CAPITAL GROUP, LLC
801 NORTH 500 WEST, SUITE 103
BOUNTIFUL, UTAH 84010
801-617-2100
ACOTTLE@COTTLEHOMES.COM

GENERAL NOTES

1. CONTRACTOR TO FIELD VERIFY HORIZONTAL AND VERTICAL LOCATIONS OF ALL EXISTING UTILITIES PRIOR TO COMMENCEMENT OF CONSTRUCTION, AND REPORT ANY DISCREPANCIES TO THE ENGINEER.

2. ANY AND ALL DISCREPANCIES IN THESE PLANS ARE TO BE BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO COMMENCEMENT OF CONSTRUCTION.

3. ALL CONSTRUCTION SHALL ADHERE TO ALPINE CITY STANDARD PLANS AND SPECIFICATIONS.

4. ALL UTILITIES AND ROAD IMPROVEMENTS SHOWN ON THE PLANS HEREIN SHALL BE CONSTRUCTED USING REFERENCE TO SURVEY CONSTRUCTION STAKES PLACED UNDER THE SUPERVISION OF A PROFESSIONAL LICENSED SURVEYOR WITH A CURRENT LICENSE ISSUED BY THE STATE OF UTAH. ANY IMPROVEMENTS INSTALLED BY ANY OTHER VERTICAL OR HORIZONTAL REFERENCE WILL NOT BE ACCEPTED OR CERTIFIED BY THE ENGINEER OF RECORD.

5. THIS DRAWING SET IS SCALED TO BE PRINTED ON A 24" X 36" SIZE OF PAPER (ARCH D). IF PRINTED ON A SMALLER PAPER SIZE, THE DRAWING WILL NOT BE TO SCALE AND SHOULD NOT BE USED TO SCALE MEASUREMENTS FROM THE PAPER DRAWING. ALSO USE CAUTION, AS THERE MAY BE TEXT OR DETAIL THAT MAY BE OVERLOOKED DUE TO THE SMALL SIZE OF THE DRAWING.

NOTICE

BEFORE PROCEEDING WITH THIS WORK, THE CONTRACTOR SHALL CAREFULLY CHECK AND VERIFY ALL CONDITIONS, QUANTITIES, DIMENSIONS, AND GRADE ELEVATIONS, AND SHALL REPORT ALL DISCREPANCIES TO THE ENGINEER.

ENGINEER'S NOTES TO CONTRACTOR

1. THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITY PIPES, CONDUITS OR STRUCTURES SHOWN ON THESE PLANS WERE OBTAINED BY A SEARCH OF THE AVAILABLE RECORDS. TO THE BEST OF OUR KNOWLEDGE, THERE ARE NO EXISTING UTILITIES EXCEPT AS SHOWN ON THESE PLANS. THE CONTRACTOR IS REQUIRED TO TAKE DUE PRECAUTIONARY MEASURES TO PROTECT THE UTILITY LINES SHOWN ON THESE DRAWINGS. THE CONTRACTOR FURTHER ASSUMES ALL LIABILITY AND RESPONSIBILITY FOR THE UTILITY PIPES, CONDUITS OR STRUCTURES SHOWN OR NOT SHOWN ON THESE DRAWINGS. IF UTILITY LINES ARE ENCOUNTERED DURING CONSTRUCTION THAT ARE NOT IDENTIFIED BY THESE PLANS, CONTRACTOR SHALL NOTIFY ENGINEER IMMEDIATELY.

2. CONTRACTOR AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS, AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE CITY, THE OWNER, AND THE ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR THE ENGINEER.

3. UNAUTHORIZED CHANGES & USES: THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE FOR, OR LIABLE FOR, UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THE PLANS MUST BE IN WRITING AND MUST BE APPROVED BY THE PREPARER OF THESE PLANS.

4. ALL CONTOUR LINES SHOWN ON THE PLANS ARE AN INTERPRETATION BY CAD SOFTWARE OF FIELD SURVEY WORK PERFORMED BY A LICENSED SURVEYOR. DUE TO THE POTENTIAL DIFFERENCES IN INTERPRETATION OF CONTOURS BY VARIOUS TYPES OF GRADING SOFTWARE BY OTHER ENGINEERS OR CONTRACTORS, FOCUS DOES NOT GUARANTEE OR WARRANTY THE ACCURACY OF SUCH LINEWORK. FOR THIS REASON, FOCUS WILL NOT PROVIDE ANY GRADING CONTOURS IN CAD FOR ANY TYPE OF USE BY THE CONTRACTOR. SPOT ELEVATIONS AND PROFILE ELEVATIONS SHOWN IN THE DESIGN DRAWINGS GOVERN ALL DESIGN INFORMATION ILLUSTRATED ON THE APPROVED CONSTRUCTION SET. CONSTRUCTION EXPERTISE AND JUDGMENT BY THE CONTRACTOR IS ANTICIPATED BY THE ENGINEER TO COMPLETE BUILD-OUT OF THE INTENDED IMPROVEMENTS.

FOCUS ENGINEERING AND SURVEYING, LLC
32 WEST CENTER STREET
MIDVALE, UTAH 84047 PH (801) 352-0075
www.focusutah.com

MONTDELLA
ALPINE, UTAH
COVER SHEET

REVISION BLOCK		
#	DATE	DESCRIPTION
1	—	—
2	—	—
3	—	—
4	—	—
5	—	—
6	—	—
7	—	—

COVER SHEET

Scale: 1"=30' Drawn: AWS
C1

VICINITY MAP
N.T.S.

LEGEND

AREA TABULATIONS

OPEN SPACE AREA
BUILDING PAD/DRIVEWAY AREA
ROW AREA
TOTAL AREA

FEMA NOTES

- THIS PROPERTY IS ASSOCIATED WITH TWO FEMA FLOOD ZONES: ZONE A AND ZONE C. THIS INFORMATION COMES FROM COMMUNITY PANEL [illegible] WITH AN EFFECTIVE DATE OF APRIL [illegible] REVISED SEPTEMBER [illegible]
- ZONE A IS DEFINED AS: AREAS OF 100-YEAR FLOOD, BASE FLOOD ELEVATIONS AND FLOOD HAZARD FACTORS NOT DETERMINED. THE PROPERTY LOCATED ALONG DRY CREEK IS WITHIN ZONE A.
- ZONE C IS DEFINED AS: AREAS OF MINIMAL FLOODING. THE MAJORITY OF THIS PROPERTY IS WITHIN ZONE C.

GENERAL NOTES

- THE ROADWAY AND ALL COMMON AND LIMITED COMMON AREAS WILL ALSO ACT AS A PUBLIC UTILITY AND DRAINAGE EASEMENT.

ROCKY MOUNTAIN POWER

1. PURSUANT TO UTAH CODE ANN. 54-3-27 THIS PLAT CONVEYS TO THE OWNER(S) OR OPERATORS OF UTILITY FACILITIES A PUBLIC UTILITY EASEMENT ALONG WITH ALL THE RIGHTS AND DUTIES DESCRIBED THEREIN.
2. PURSUANT TO UTAH CODE ANN. 17-27a-603(4)(c)(ii) ROCKY MOUNTAIN POWER ACCEPTS DELIVERY OF THE PUE AS DESCRIBED IN THIS PLAT AND APPROVES THIS PLAT SOLELY FOR THE PURPOSE OF CONFIRMING THAT THE PLAT CONTAINS PUBLIC UTILITY EASEMENTS AND APPROXIMATES THE LOCATION OF THE PUBLIC UTILITY EASEMENTS, BUT DOES NOT WARRANT THEIR PRECISE LOCATION. ROCKY MOUNTAIN POWER MAY REQUIRE OTHER EASEMENTS IN ORDER TO SERVE THIS DEVELOPMENT. THIS APPROVAL DOES NOT AFFECT ANY RIGHT THAT ROCKY MOUNTAIN POWER HAS UNDER:
   a. A RECORDED EASEMENT OR RIGHT-OF-WAY
   b. THE LAW APPLICABLE TO PRESCRIPTIVE RIGHTS
   c. TITLE 54, CHAPTER 8a, DAMAGE TO UNDERGROUND UTILITY FACILITIES OR
   d. ANY OTHER PROVISION OF LAW

APPROVED THIS ____ DAY OF ________ 20__

ROCKY MOUNTAIN POWER

DOMINION ENERGY UTAH

[illegible] INFORMATION CONTACT DOMINION ENERGY UTAH'S [illegible] DEPARTMENT AT 801-366-8532

QUESTAR GAS COMPANY
dba DOMINION ENERGY UTAH

APPROVED THIS ____ DAY OF ________ 20__

BY ________

TITLE ________

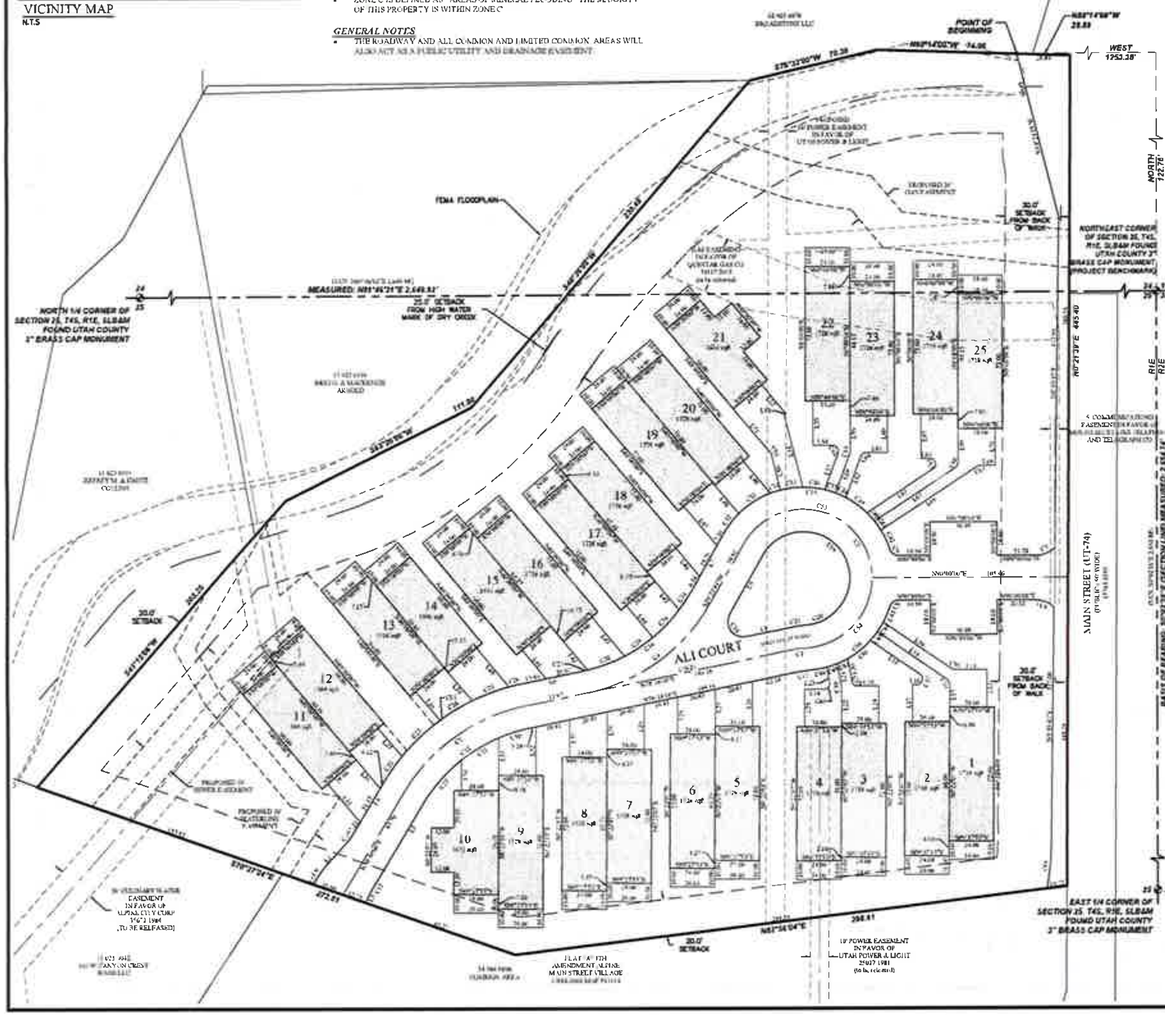
PRELIMINARY
MONTDELLA
SUBDIVISION
LOCATED IN THE NE1/4 OF SECTION 25 AND
THE SE1/4 OF SECTION 24, T 4 S, R 1 E, SALT LAKE BASE & MERIDIAN
ALPINE CITY, UTAH COUNTY, UTAH

N
S

GRAPHIC SCALE
(IN FEET)
1 inch = 30 ft.

Line Table		
LINE	DIRECTION	LENGTH
[illegible]	[illegible]	[illegible]

Curve Table					
CURVE	RADIUS	DELTA	LENGTH	CHORD DIRECTION	CHORD LENGTH
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]



SURVEYOR'S CERTIFICATE

I, Evan J. Wood, do hereby certify that I am a Professional Land Surveyor, and that I hold Certificate No. 183395 in accordance with Title 58, Chapter 22 of Utah State Code. I further certify by authority of the owner(s) that I have completed a Survey of the property described on this Plat in accordance with Section 17-23-17 of said Code, and have subdivided said tract of land into lots, streets, and easements, and the same has or will be correctly surveyed, staked and monumented on the ground as shown on this Plat, and that this Plat is true and correct.

Evan J. Wood
Professional Land Surveyor
Certificate No. 183395

Date

BOUNDARY DESCRIPTION

Located in the NE1/4 of Section 25 and the SE1/4 of Section 24 of Township 4 South, Range 1 East, Salt Lake Base and Meridian. Comprised of three (3) parcels identified by Utah County Tax Id. Numbers 11:023:0029, 11:023:0109 & 11:023:0110, being more particularly described as follows:

BEGINNING AT A POINT NORTH 122.76 FEET AND WEST 1253.38 FEET FROM THE NORTHEAST CORNER OF SECTION 25, TOWNSHIP 4 SOUTH, RANGE 1 EAST, SALT LAKE BASE AND MERIDIAN; THENCE ALONG THE SOUTH BOUNDARY LINE OF THE L. ROSS AND JOANNE C. BECK TITLE LINE (ENTRY 89736:2015) THE FOLLOWING 2 (TWO) COURSES: 1) NORTH 88°14' WEST 74.96 FEET, THENCE 2) SOUTH 76°12' WEST 70.38 FEET; THENCE SOUTH 40°36'05" WEST 230.49 FEET; THENCE SOUTH 63°26'06" WEST 111.80 FEET; THENCE SOUTH 41°15'00" WEST 203.25 FEET; THENCE TO AND ALONG ALPINE MAIN STREET VILLAGE 4TH AMENDED PLAT "A" THE FOLLOWING 2 (TWO) COURSES: 1) SOUTH 70°27'24" EAST 272.51 FEET, THENCE 2) NORTH 82°56'01" EAST 298.91 FEET TO THE WESTERLY RIGHT OF WAY OF MAIN STREET AS ESTABLISHED BY THE WARRANTY DEED TO THE STATE ROAD COMMISSION OF UTAH (ENTRY 1576:1959); THENCE NORTH 00°21'39" EAST 415.40 FEET ALONG AND BEYOND SAID WARRANTY DEED; THENCE NORTH 88°14'00" WEST 28.89 FEET TO THE POINT OF BEGINNING.

CONTAINS: 171,558 square feet or 3.94 acres+/-
of which 4,142 square feet or 0.01 acres+/-
lies inside the existing right of way of Main Street

OWNER'S DEDICATION

KNOW ALL MEN BY THESE PRESENT THAT WE, ALL OF THE UNDERSIGNED OWNERS OF ALL OF THE PROPERTY DESCRIBED IN THE SURVEYOR'S CERTIFICATE HEREON AND SHOWN ON THIS MAP, HAVE CAUSED THE SAME TO BE SUBDIVIDED INTO LOTS, STREETS AND EASEMENTS AND DO HEREBY DEDICATE ANY PUBLIC STREETS AND OTHER PUBLIC AREAS AS INDICATED HEREON FOR PERPETUAL USE OF THE PUBLIC.

IN WITNESS WHEREOF WE HAVE HEREUNTO SET OUR HANDS THIS ______ DAY OF __________ A.D. 20___

BY ________
(PRINTED NAME)

ITS ________

LIMITED LIABILITY ACKNOWLEDGMENT

STATE OF UTAH
S.S.
COUNTY OF ________

ON THE ____ DAY OF __________ A.D. 20___ PERSONALLY APPEARED BEFORE ME, THE UNDERSIGNED NOTARY PUBLIC IN AND FOR THE COUNTY OF __________ IN SAID STATE OF UTAH, __________ WHO AFTER BEING DULY SWORN, ACKNOWLEDGED TO ME THAT HE/SHE IS THE __________ OF __________ L.L.C., A UTAH L.L.C. AND THAT HE/SHE SIGNED THE OWNER'S DEDICATION FREELY AND VOLUNTARILY FOR AND IN BEHALF OF SAID LIMITED LIABILITY COMPANY FOR THE PURPOSES THEREIN MENTIONED.

MY COMMISSION EXPIRES ________

A NOTARY PUBLIC COMMISSIONED IN UTAH RESIDING IN ________ COUNTY

MY COMMISSION No. ________

PRINTED FULL NAME OF NOTARY

ACCEPTANCE BY LEGISLATIVE BODY

THE CITY COUNCIL OF ALPINE CITY, COUNTY OF UTAH, APPROVES THIS SUBDIVISION AND HEREBY ACCEPTS THE DEDICATION OF ALL STREETS, EASEMENTS AND OTHER PARCELS OF LAND INTENDED FOR PUBLIC PURPOSES FOR THE PERPETUAL USE OF THE PUBLIC THIS _____ DAY OF __________, A.D. 20___

APPROVED BY MAYOR

ATTEST: CITY RECORDER

APPROVED BY CITY ENGINEER

PLANNING COMMISSION APPROVAL

APPROVED THIS ____ DAY OF __________ A.D. 20___ BY THE ALPINE CITY PLANNING COMMISSION

DIRECTOR - SECRETARY

CHAIRMAN, PLANNING COMMISSION

APPROVAL AS TO FORM

APPROVED AS TO FORM THIS ____ DAY OF __________, A.D. 20___

CITY ATTORNEY

PRELIMINARY
MONTDELLA
SUBDIVISION
LOCATED IN THE NE1/4 OF SECTION 25 AND THE SE1/4 OF SECTION 24, T 4 S, R 1 E,
SALT LAKE BASE & MERIDIAN
ALPINE CITY, UTAH COUNTY, UTAH

SURVEYOR'S SEAL	NOTARY PUBLIC SEAL	ALPINE CITY ENGINEER SEAL	ALPINE CITY RECORDER SEAL
PROFESSIONAL LAND SURVEYOR No. 183395 EVAN J. WOOD STATE OF UTAH			

FOCUS
ENGINEERING AND SURVEYING, LLC
32 WEST CENTER STREET
MIDVALE, UTAH 84047 PH: (801) 352-0075
www.focusutah.com

Gmail

Austin Roy <aroy.alpinecity@gmail.com>

Re: Montdella Development

1 message

Reed Thompson <rthompson@lonepeakfire.com> Wed, Mar 13, 2019 at 6:56 PM
To: Brandon Parr <bparr@focusutah.com>
Cc: Alan Cottle <acottle@cottlecapital.com>, aroy@alpinecity.org

Brandon,

I apologize as I was out of the office yesterday with training, and today I was out sick.

In reviewing the plans I had three comments to be addressed.

1. The road width will need to be 26' to accommodate an aerial fire apparatus. The plans show 24' including the rolled curb.
2. The round about island will need to be reduced to accommodate placement of fire apparatus in that area during a fire and address the turning radius negotiation of apparatus travel.
3. Due to the close proximity of the housing units and the risk of fire exposure spread, at least one additional fire hydrant will be required midway through the private street.
4. Based on limited access to the rear of the structures on the north side, we will likely restrict the use of barbecue grills on floor two rear patios.

Please let me know if you have any questions.

Thanks,

Reed M. Thompson
Fire Chief
Lone Peak Fire District
rthompson@lonepeakfire.com
801-330-4380

On Mar 13, 2019, at 5:10 PM, Brandon Parr <bparr@focusutah.com> wrote:

> Hello Reed,
>
> I am working on the Montdella Development in Alpine with Alan Cottle. He mentioned you had some concerns with the development. I am going to be addressing some minor comments from planning and engineering in the next few days and would love to get any of your comments addressed at the same time. Can you please let me know what your concerns/comments are as soon as possible so that we can get everything addressed at the same time. Feel free to give me a call if you have any questions.
>
> Thanks,
>
> Brandon

BRANDON PARR
PROJECT MANAGER

FOCUS ENGINEERING & SURVEYING, LLC
GRIT

O: 801-352-0075

M: 801-910-2066

BPARR@FOCUSUTAH.COM

FOCUSUTAH.COM

32 W. CENTER STREET
MIDVALE, UT 84047

Gateway Historic District Design Guidelines

Adopted by Resolution 2015-11

Purpose and Intent

Gateway Historic District will become a village of mixed uses, promoting a pedestrian friendly atmosphere and providing excellence in landscaping and architecture, in a setting which honors and preserves the past while promoting the future.

1. In the interest of preserving the character of the Gateway-Historic District, it is necessary to regulate to a certain extent the new construction that is built there. New structures should only affect the district in a positive manner, and not in detrimental ways.

2. Respecting the heritage of Alpine associated with the historical structures in the district.

3. Utilize approaches that have been shown to encourage the sustainability of historic districts and neighborhoods.

The guidelines for the following elements are intended to encourage compatible new construction. In the event that these guidelines conflict with the Alpine City Zoning Ordinance, the Zoning Ordinance will be followed.

Guidelines

1. New developments should:

    a. Mimic details of older buildings
    b. Use similar materials
    c. Make mundane uses look good
    d. Include design features on blank walls

2. All new development projects should achieve a determination of design appropriateness from the Planning Commission.

3. New construction should respect and build upon the historical legacy of downtown Alpine and borrow historic features from the area. It should be

designed for its specific context. Elements that should influence the design of new development include building form, massing, scale, materials and colors.

Gateway Historic District Design Criteria

1. Relation to the Surrounding Area (Massing, Scale, Orientation)
2. Height
3. Exterior Walls and Surfaces
4. Windows and Doors
5. Exterior Trim and Decorative Detailing
6. Roofing
7. Materials (Texture, Color, Finishes)
8. Streetscaping

1

Relation to the Surrounding Area

(Massing, Scale, Orientation)

New construction that utilizes appropriate massing and scale can affect historic districts in a positive manner. New structures should take their own place in time.

Design Standards

- New structures should relate to the fundamental characteristics of the district, but may use their own style and method of construction.
- Orientation of new construction should be to the street to establish a pedestrian-friendly quality.
- One major entrance should orient to each street to which the building abuts for easy access by pedestrians from the street and sidewalk.
- Corner entrances may be used for buildings orienting to two streets at an intersection.
- New construction should not be dramatically greater in scale than surrounding structures in the district.
- The perceived width of new construction should be visually compatible with adjacent structures. Wider buildings should be divided into modules to convey a sense of traditional construction.
- The building form of new construction should be similar to surrounding structures but should not necessarily a direct imitation.

2

Height

New construction should respect the overall height limits established in the city code for the underlying zone.

Design Standards

- The height of buildings should be compatible with adjacent historic structures.
- Creative historic design elements fitting for the area can be considered.

3

Exterior Walls and Surfaces

The type of materials used for new construction can greatly enhance the relationship to surrounding historical structures while maintaining individual identity.

Design Standards

- The use of stone, brick, wood, or stucco is encouraged for use as the primary exterior material.
- Plastics, vinyl and CMU (concrete masonry unit) are prohibited.
- Innovative use of other materials may be considered.

4

Windows and Doors

Windows and doors of new construction should relate to the general character of the area.

Design Standards

- Windows with a vertical emphasis shall be encouraged over a horizontal orientation.
- Scale, proportion, and character of windows and doors should be carefully considered and should relate to the intended general character of the area.
- The simple shape of windows is encouraged.
- If new construction is built to the sidewalk, the use of awnings or canopies should be considered for providing protection to the pedestrian.
- The ground floor of the primary façade should include transparency at the pedestrian level.

5

Exterior Trim and Decorative Detailing

New construction can be enhanced by the wise use of exterior trim and decorative detailing. Using these details to break up uninspiring solid surfaces can help avoid the box-like appearance often seen in new construction.

Design Standards

- Trim and detailing should be simple in material and design.
- Materials that are compatible to the primary exterior material should be used.
- Excessive ornamentation is not recommended.
- The following factors should be considered in determining whether or not a particular finishing material is acceptable:

    1. Durability and low maintenance characteristics.
    2. Consistency with the overall design goals.
    3. Location on the building.
    4. Potential shielding by landscaping or other feature.
    5. The visibility of the site from public streets and neighboring uses.
    6. A mansard roof is prohibited

6

Roofing

The style and form of the roof on new construction can contribute to the success of blending in with surrounding historic structures.

Design Standards

- Traditional rooflines are preferred.
- Smaller structures should use a hip, gable, or shed roof.
- Flat roofs may be considered for use on structures where the context is appropriate.
- Flat roofs shall provide a cornice or other decorative treatment.
- The character or design of the front and rear façades of all buildings shall demonstrate a variety in depth, relief, rhythm and roof line height, with changes occurring in all of these areas at least every forty feet.
- Mechanical equipment shall not be visible from the street.

7

Materials – Texture, Color, Finishes

Good attention to design and color is expected in the Gateway Historic District to help all buildings become more complimentary to each other and assist the creation of a unique and cohesive environment. The materials used for the finish of the exterior surface of new construction should be compatible with the nature of the surrounding area.

Design Standards

- The use of color schemes should be compatible with the surrounding area. Simplicity is encouraged – excessive amounts of different colors should not be used.
- Avoid pure white as a façade color, and if masonry must be painted, it should be done in a natural hue.
- The natural colors of brick masonry, stone, or other existing building materials should dominate the color scheme of the building. Other colors should be respectful of adjacent buildings.
- A predominant color should be used with one or two other accent colors.
- The texture and finish of new construction should attempt to convey a modern building while still respecting the historic character of the area.
- The cornice, window frames, ornamental details, signs and storefronts should all blend in as an attractive harmonious unit.

8

Streetscaping

Streetscapes should be incorporated in sidewalk areas adjacent to Main Street.

Design Standards

- At least one streetscape feature should be installed and maintained every thirty (30) linear feet along sidewalks, nearest to the curb.
- Acceptable streetscape features include, but are not limited to, the following: trees, planters, benches, drinking fountains, decorative garbage canisters, outdoor clocks, bike racks, and water features.
- Businesses are encouraged to coordinate the installation of streetscape elements with surrounding properties.
- Installation of plazas and gathering spaces where people may linger is encouraged.
- Installation of planters with trees and shrubs to create areas to sit are encouraged.
- Providing benches in strategic areas to encourage mingling and gathering is encouraged.

3.11.010 Purpose And Intent

The purpose of this chapter is to maintain a high character of community development, to protect and preserve property, to promote the stability of property values and to protect real estate from impairment or destruction of value for the general community welfare by regulating the exterior architectural characteristics of structures and preservation and protection of buildings of architectural or historical significance throughout the hereinafter defined Gateway/Historic District.

It is the further purpose of this Title to recognize and preserve the historical and architectural character of this community, which has been greatly influenced by the architecture of an earlier period in this community's history. It is also the intent of the district to allow for a mixture of commercial and residential uses. These purposes shall be served by the regulation of exterior design, use of materials, the finish grade line, landscaping and orientation of all commercial structures hereinafter altered, constructed, reconstructed, erected, enlarged or remodeled, removed or demolished for commercial purposes in the hereinafter defined Gateway/Historic District.

(Ord. No. 2002-06, 07/09/2002; Amended by Ord. No. 2010-19, 11/09/10)

3.11.020 District Boundaries

There is hereby established a Gateway-Historic District Overlay Zone which shall include the area shown as Business Commercial (BC) on the Alpine City Zoning Map.

(Ord. No. 2002-06, 07/09/2002; Amended by Ord. No. 2010-19, 11/09/10)

3.11.030 Applicability

An application for a site plan shall be filed with the City Planner whenever:

1. A commercial structure, as defined by this Zoning Ordinance, whether public or private, within the above describe district is proposed to be constructed or erected; or
2. An existing commercial structure is proposed to be altered, reconstructed, enlarged, or remodeled if such alteration, reconstruction, enlargement, or remodeling involves the exterior design, material, finish grade line, landscaping or orientation of the structure; or
3. An existing structure is proposed to be altered, reconstructed, enlarged or remodeled into a commercial structure, if such alteration, reconstruction, enlargement or remodeling involves the exterior design, material, finish grade line, landscaping or orientation of the structure.

(Ord. No. 2002-06, 07/09/2002; Amended by Ord. No. 2010-19, 11/09/10)

3.11.040 Site Plan Process

1. During the review process, the City Planner and City Engineer, the Planning Commission, and the City Council may request reasonable additional information from the applicant from time to time; and may ask other advisors to review the plan if, in the opinion of the City, it may contribute to a decision in the best interest of the City.

   After submittal of the required application materials, no excavation or alteration of the property may be undertaken prior to written final approval by the City Council of the site plan. Excavation or alteration of the property prior to approval may be cause for disapproval. Additionally, work on existing structures prior to final approval is not permitted.

2. **City Planner and City Engineer**

   a. The applicant shall meet with the City Planner and City Engineer to review the proposed site plan before submitting an application.

   b. The applicant shall prepare a concept site plan, properly and accurately drawn to scale.

   c. The City Planner and City Engineer shall review the site plan to determine compliance with the Alpine City General Plan and applicable City ordinances.

   d. When the City Planner and City Engineer determines that the site plan is ready for Planning Commission review, the City Planner, in consultation with the Planning Commission Chairperson, shall establish a review date. The applicant may prepare a site plan that incorporates all changes recommended by City Planner and City Engineer.

3. **Planning Commission**

   a. The applicant shall submit the following to the City Planner at least fourteen (14) days before the scheduled Planning Commission meeting:

      i. the site plan application;

      ii. pay the associated fee(s) in accordance with the current fee schedule (payable to Alpine City);

      iii. four (4) D size (22" x 34") copies of the site plan;

      iv. ten (10) 11" x 17" copies of the site plan drawn to scale;

      v. building elevations including building height;

      vi. a landscape plan including a list of plant types; and

      vii. an electronic copy of the site plan and building elevations in a compatible format as specified by City Staff.

      In addition, the application shall be accompanied by a detailed narrative description of the proposed design or change of design, use of materials, finish grade line, landscaping. In addition, the Planning Commission may require submission of colored perspectives or architectural renderings in applications where the Planning Commission feels it is required.

   b. The site plan will not be presented to the Planning Commission until the application is complete, including submitting all required information and paying all fees. The application must be complete and accepted in writing by the City Planner.

   c. The Planning Commission shall give guidance to the applicant to assist in meeting the requirements and constraints for development within Alpine City.

   d. The Planning Commission shall determine whether the site plan promotes, preserves and enhances the distinctive historical village character of the community and would not be at variance with existing structures within that portion of the district in which the site plan is or is proposed to be located as to be detrimental to the interests of the District as set forth in DCA 3.11.010. In conducting its review, the Planning Commission shall make examination of and give consideration to the elements of the Gateway Historic District Design Guidelines.

   e. The Planning Commission may recommend exceptions to the Business Commercial Zone requirements regarding parking, building height, signage, setbacks and use if it finds that the plans proposed better implement the design guidelines to the City Council for approval.

   f. If the Planning Commission finds that the proposed site plan complies with all applicable requirements, it shall recommend approval to the City Council. If the Planning Commission finds that the proposed site plan does not meet the requirements, it shall recommend disapproval of the site plan.

4. **City Council**

   a. Following the recommendation of approval or disapproval of the site plan by the Planning Commission, the City Council shall consider the site plan at a public meeting. If the City Council determines that the site plan is in conformity with all applicable requirements and any reasonable conditions as recommended by City Staff, the Planning Commission, or on its own initiative, it shall approve the site plan.

   b. If the City Council determines that the site plan is not in conformity with all applicable requirements or any reasonable conditions imposed, it shall disapprove the site plan specifying the reasons for such disapproval.

(Ord. No. 2002-06, 07/09/2002; Amended by Ord. No. 2010-19, 11/09/10)

3.11.050 Plan Requirements

The site plan shall include the following items:

1. Address of the site plan
2. A vicinity map
3. The property boundaries of the proposed site plan and the names of all adjacent property owners
4. The location of all existing and proposed easements
5. Lot dimensions
6. Location and orientation of all structures on the lot
7. Setbacks of all structures on the lot
8. Location of garbage dumpster
9. Location of all existing and proposed utilities
10. Parking plan
11. Lighting plan
12. Other information which may allow the City Planner, City Engineer, Planning Commission, and City Council to evaluate the proposed site plan.

(Ord. No. 2002-06, 07/09/2002; Amended by Ord. No. 2010-19, 11/09/10)

3.11.060 Repair Or Maintenance Exception

Nothing in this Chapter shall be construed to prevent any ordinary repair or maintenance of an exterior architectural feature or any ordinary planting and landscaping now in the District.

(Ord. No. 2002-06, 07/09/2002; Amended by Ord. No. 2010-19, 11/09/10)

3.11.070 Permitted Uses

The permitted uses listed in the Business Commercial Zone shall be permitted in the Gateway/Historic Zone.

(Ord. No. 2002-06, 07/09/2002; Amended by Ord. No. 2010-19, 11/09/10)

3.11.080 Conditional Uses

The conditional uses listed in the Business Commercial Zone shall be conditional uses in the Gateway/Historic Zone.

(Ord. No. 2002-06, 07/09/2002; Amended by Ord. No. 2010-19, 11/09/10)

3.11.090 Water Rights Requirements

Developments occurring under the provisions of this Chapter must comply with the water rights requirements of Alpine City.

(Ord. No. 2002-06, 07/09/2002; Amended by Ord. No. 2010-19, 11/09/10)


MONTDELLA


N88°14'00"W
28.89
N88°14'00"W 74.96
S76°32'00"W 70.38
PROPOSED LOCATION FOR PAVILION
S63°26'06"W
203.25
S41°15'06"W
N0°21'39"E 445.40
MAIN STREET
ALI COURT
(PRIVATE 24' WIDE)
S70°27'24"E
272.51
N82°56'04"E
298.91
1
1728 sqft
2
1728 sqft
3
1728 sqft
4
1728 sqft
5
1728 sqft
6
1728 sqft
7
1728 sqft
8
1728 sqft
9
1728 sqft
10
1632 sqft
11
1584 sqft
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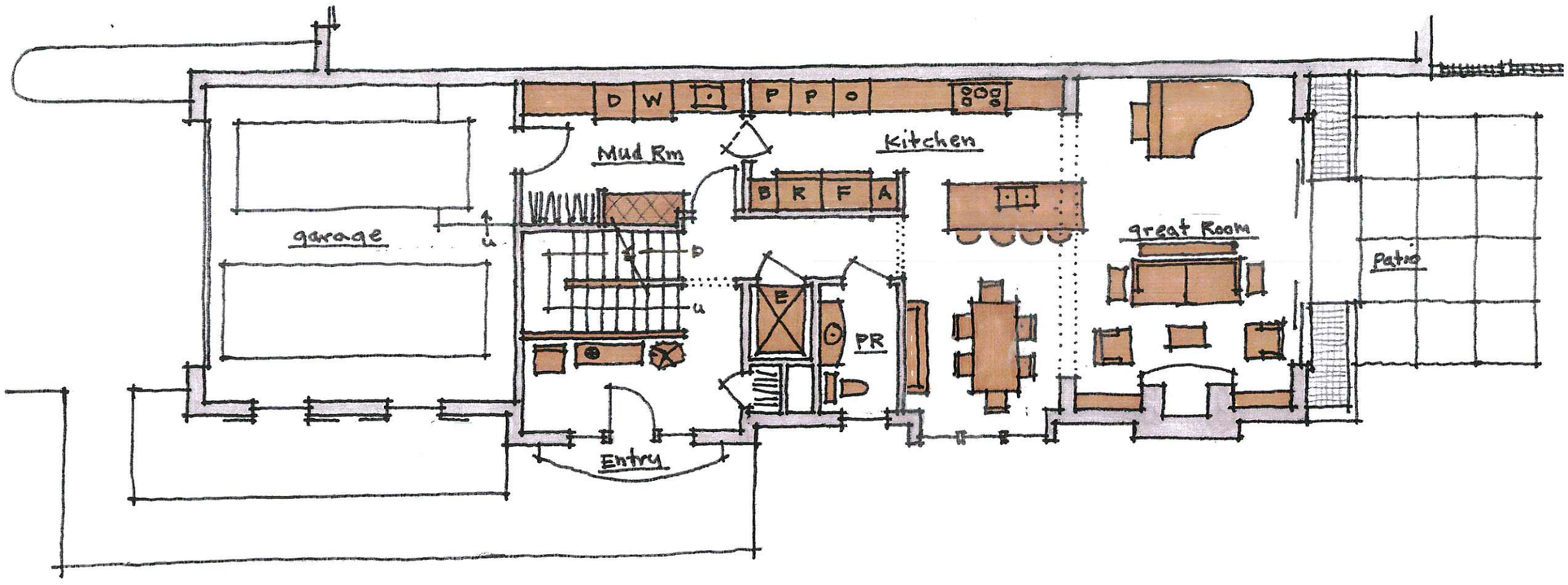
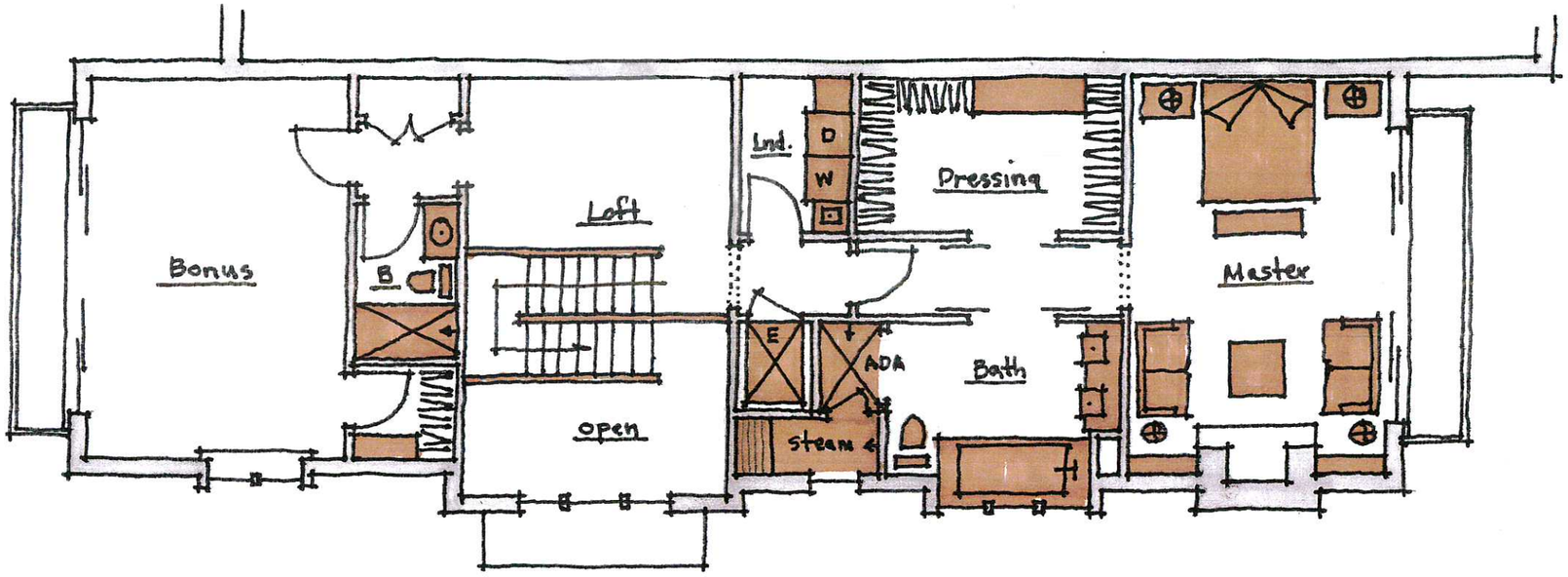


Main Floor Plan

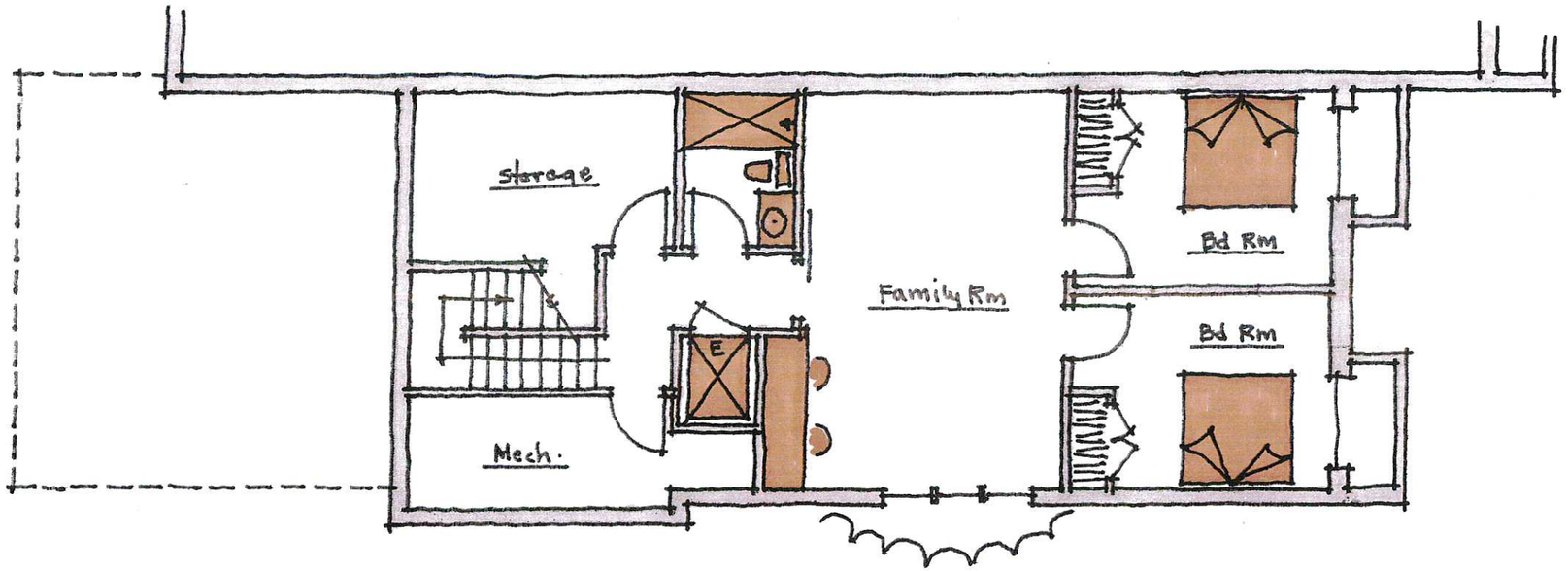
MF = 1200 SF
UF = 1652 SF
LF = 1200 SF
T = 4052 SF

garage 451 SF



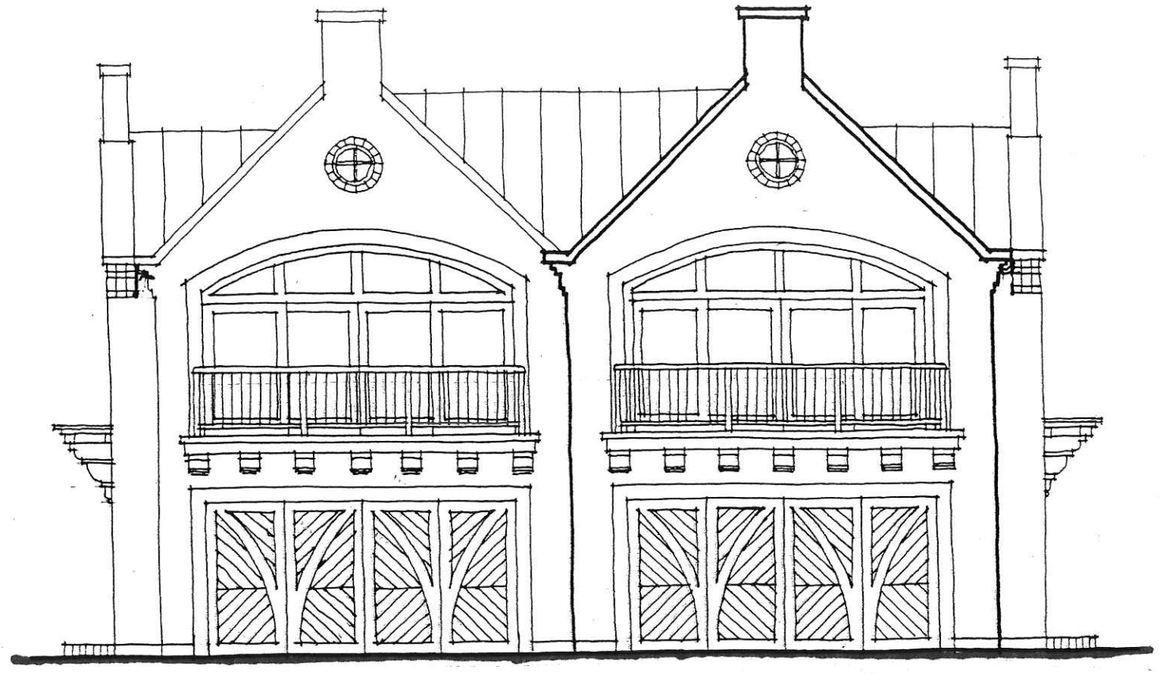
Upper Floor Plan

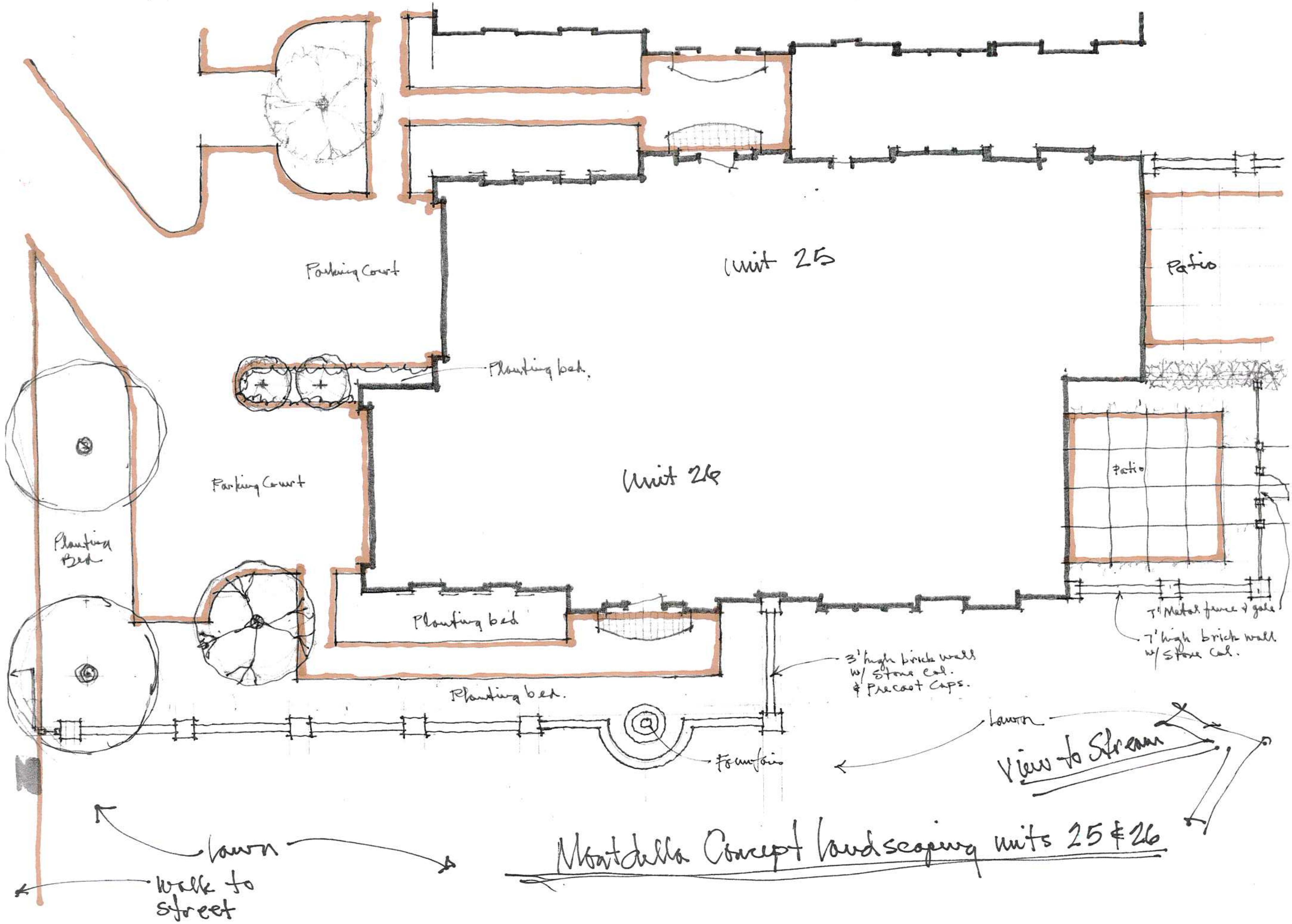
UF 1,652 SF



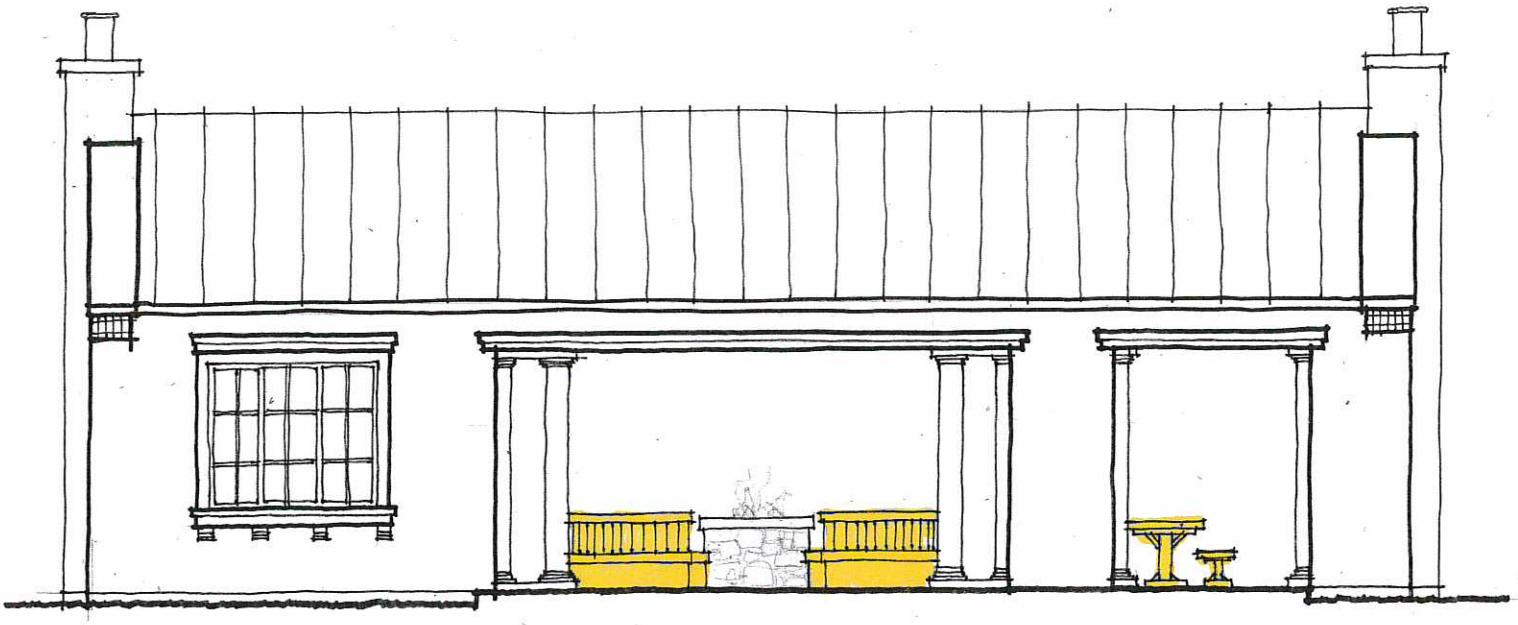
Lower Floor Plan

LF 1200 SF





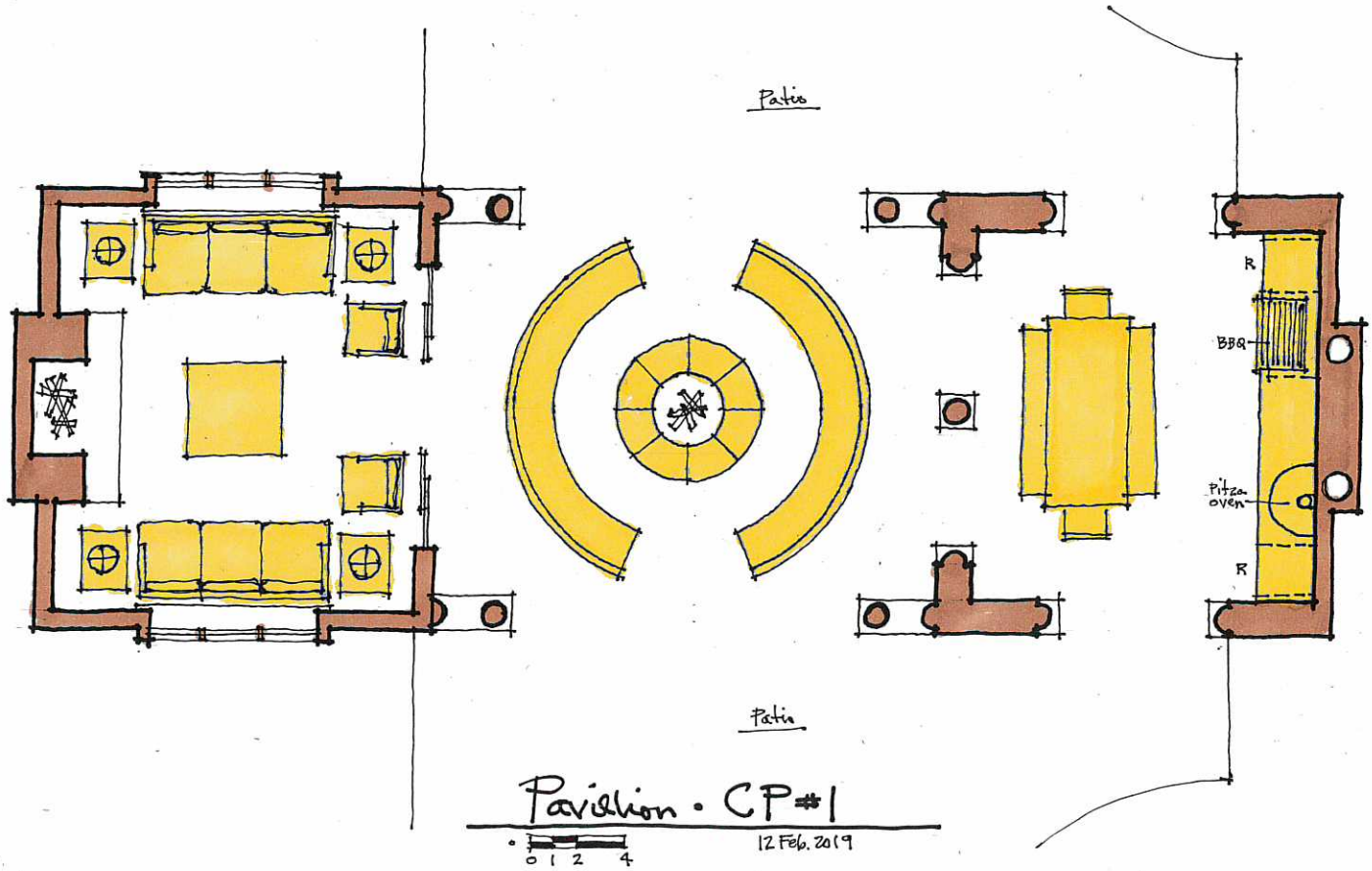
Montclello Concept landscaping units 25 & 26



Pavillion · CFE #1

0 1 2 4

12 Feb. 2019



Pavillion · CP #1

0 1 2 4

12 Feb. 2019

MEMORANDUM

Date: February 14, 2019

To: Cottle Capital Group

From: Hales Engineering

Subject: Alpine City Alpine Townhomes TGS

UT19-1392

This memorandum discusses the trip generation study completed for the proposed Alpine Townhomes. A vicinity map of the proposed development is shown in Figure 1.

Figure 1: Vicinity map of the proposed development in Alpine, Utah

Background

The proposed Alpine Townhomes are located west of Main Street and just north of the Alpine Main Street Village. The project includes 26 townhomes that are anticipated to be a +55 community. It is anticipated that the project will have one access to Main Street and one that will cut through the Alpine Main Street Village to the south and access Canyon Creek Road. A site plan for the proposed development is included in Appendix A.

The proposed land use for the development has been identified as follows:

- Multifamily Housing (Mid-Rise) - Townhomes 26 units

Trip Generation

Trip generation for the development was calculated using trip generation rates published in the Institute of Transportation Engineers (ITE) *Trip Generation (10th Edition, 2017)*. Trip generation for the proposed project is included in Table 1.

As shown in Table 1, it is anticipated that the proposed townhomes will generate approximately 140 trips on an average weekday, including 10 trips during the morning peak hour, and 12 trips during the evening peak hour.

Table 3
Alpine - Alpine Townhomes TGS
Trip Generation

Weekday Daily Land Use[1]	# of Units	Unit Type	Trip Generation	% Entering	% Exiting	Trips Entering	Trips Exiting	**Total Daily Trips**
Multifamily Housing (Mid-Rise) (221)	26	Dwelling Units	140	50%	50%	70	70	**140**
Project Total Daily Trips						**70**	**70**	**140**
Morning Peak Hour Land Use[1]	# of Units	Unit Type	Trip Generation	% Entering	% Exiting	Trips Entering	Trips Exiting	**Total a.m. Trips**
Multifamily Housing (Mid-Rise) (221)	26	Dwelling Units	10	26%	74%	3	7	**10**
Project Total a.m. Peak Hour Trips						**3**	**7**	**10**
Evening Peak Hour Land Use[1]	# of Units	Unit Type	Trip Generation	% Entering	% Exiting	Trips Entering	Trips Exiting	**Total p.m. Trips**
Multifamily Housing (Mid-Rise) (221)	26	Dwelling Units	12	61%	39%	7	5	**12**
Project Total p.m. Peak Hour Trips						**7**	**5**	**12**

1. Land Use Code from the Institute of Transportation Engineers (ITE) *Trip Generation*, 10th Edition, 2017.

SOURCE: Hales Engineering, February 2019

Trip Assignment

Project traffic is assigned to the roadway network based on the type of trip and the proximity of project access points to major streets, high population densities, and regional trip attractions. Existing travel patterns observed during data collection also provide helpful guidance to establishing the trip assignment. These assumptions were used to assign the morning peak hour trips for the development as shown in Figure 2.

Project Access

The proposed project is planned to have an access out to Main Street and one that heads south through the Alpine Main Street Village. Main Street is a busy roadway with over 10,000 vehicles traveling it a day. During the morning peak hour, the near-by Mountainville Academy bring a lot of traffic into the area. This traffic would make left-turns out of the project access very difficult and dangerous. There are over 1,000 vehicles passing the proposed access during the peak hour.

The northbound traffic during the morning peak hour is expected to have many vehicles heading north towards on the school on Main Street. Turning left into he site will hold up northbound traffic while a gap in the southbound direction becomes available. There are currently 650 vehicles heading north past this access with approximately 550 vehicles heading southbound past the access.

There are three potential options for the Main Street Access with Main Street:

Option 1 - Full-movement access.

Pros

- Allows all movements to use this access
- Reduces the amount of circuitous travel
- Limited number of seniors traveling during peak hours (low volume access)

Cons

- Can cause queueing in the northbound direction as a northbound left-turning vehicle will cause delay for vehicles headed northbound
- Left-turns out of the access may be difficult and dangerous
- Left-turns across travel lanes can be dangerous

Alpine - Alpine Townhomes TGS
Trip Assignment

Morning Peak Hour
Figure 2

Hales Engineering
120 North 500 West Ste 202, Lehi, UT, 84043

801.766.4343
02/12/2019

Option 2 – 3/4-movement access.

- A ¾ access with right-in right-out (RIRO) and an eastbound to northbound left turn out would not be geometrically feasible as a raised median controlling access followed by and acceleration lane and a merge area would impact the school traffic negatively.
- A ¾ access with a RIRO and a northbound to westbound left-turn lane in would be feasible with a small raised island limiting egress movements to right-out only. In this scenario, the left-turn in would need to be initiated from the northbound through travel lane, therefore, vehicles behind the left-turning vehicle would need to wait and incur delay. Although this is not an idea scenario, it is one that would be consistent with the recommendations for the Mountainville Academy traffic study, e.g., providing should storage for parent drop off and pick up.

Option 3 – Right-in, Right-out only access.

Pros

- Allows only right-turns into and out of this access which is more safe than full movement or ¾ accesses
- Left-turns eliminated, reducing conflict points and further increasing safety.
- Northbound left-turn delay is eliminated

Cons

- All left-turn movements will need to be completed at Canyon Creek Road
- There will be a slight increase to traffic on Canyon Creek Road

Each of these alternatives are anticipated to function adequately due to the low volume of traffic expected to be generated by the site, except the ¾ access out of the project site. As the access becomes more restricted, e.g., full to ¾, to RIRO, the access will become safer.

Conclusions

The findings of this study are as follows:

- The proposed development is planned to have a total of 26 townhomes that are anticipated to be a 55+ community.
- It is anticipated that the proposed project will generate approximately 140 trips on an average weekday, including 10 trips during the morning peak hour, and 12 trips during the evening peak hour.
- Four access alternatives have been provided for Main Street
    - Full-movement access
    - ¾ access (RIRO + left out, or RIRO + left in)
    - Right-in, right-out only access (RIRO)

- The City and Developer should meet and discuss the Main Street access and come to an agreement between safety and accessibility for the site.

APPENDIX A

Site Plan

ALPINE TOWNHOMES

PREPARED FOR:
ALAN COTTLE
LOCATED IN:
ALPINE, UT


VICINITY MAP

Sheet List Table	
Sheet Number	Sheet Title
C1	COVER SHEET
C2	PRELIMINARY PLAT
C3	SITE & UTILITY PLAN
C4	GRADING & DRAINAGE PLAN
PP01	STREET A
PP02	STREET A
PP03	STREET B
PP04	PROPOSED SEWER

SITE MAP

CONTACTS

ENGINEER & SURVEYOR
FOCUS ENGINEERING & SURVEYING, LLC
32 WEST CENTER STREET
MIDVALE, UTAH 84047
(801) 352-0075
PROJECT MANAGER, BRANDON PARR
SURVEY MANAGER SPENCER LLEWELYN

OWNER/DEVELOPER
ALAN COTTLE
COTTLE CAPITAL GROUP, LLC
801 NORTH 500 WEST, SUITE 101
BOUNTIFUL, UTAH 84010

GENERAL NOTES

1. CONTRACTOR TO FIELD VERIFY HORIZONTAL AND VERTICAL LOCATIONS OF ALL EXISTING UTILITIES PRIOR TO COMMENCEMENT OF CONSTRUCTION AND REPORT ANY DISCREPANCIES TO THE ENGINEER.

2. ANY AND ALL DISCREPANCIES IN THESE PLANS ARE TO BE BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO COMMENCEMENT OF CONSTRUCTION

3. ALL CONSTRUCTION SHALL ADHERE TO ALPINE CITY STANDARD PLANS AND SPECIFICATIONS

4. ALL UTILITIES AND ROAD IMPROVEMENTS SHOWN ON THE PLANS HEREIN SHALL BE CONSTRUCTED USING REFERENCE TO SURVEY CONSTRUCTION STAKES PLACED UNDER THE SUPERVISION OF A PROFESSIONAL LICENSED SURVEYOR WITH A CURRENT LICENSE ISSUED BY THE STATE OF UTAH. ANY IMPROVEMENTS INSTALLED BY ANY OTHER VERTICAL OR HORIZONTAL REFERENCE WILL NOT BE ACCEPTED OR CERTIFIED BY THE ENGINEER OF RECORD

5. THIS DRAWING SET IS SCALED TO BE PRINTED ON A 24" X 36" SIZE OF PAPER (ARCH D) IF PRINTED ON A SMALLER PAPER SIZE, THE DRAWING WILL NOT BE TO SCALE AND SHOULD NOT BE USED TO SCALE MEASUREMENTS FROM THE PAPER DRAWING. ALSO USE CAUTION AS THERE MAY BE TEXT OR DETAIL THAT MAY BE OVERLOOKED DUE TO THE SMALL SIZE OF THE DRAWINGS.

NOTICE

BEFORE PROCEEDING WITH THIS WORK, THE CONTRACTOR SHALL CAREFULLY CHECK AND VERIFY ALL CONDITIONS, QUANTITIES, DIMENSIONS AND GRADE ELEVATIONS, AND SHALL REPORT ALL DISCREPANCIES TO THE ENGINEER.

ENGINEER'S NOTES TO CONTRACTOR

1. THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITY PIPES, CONDUITS OR STRUCTURES SHOWN ON THESE PLANS WERE OBTAINED BY A SEARCH OF THE AVAILABLE RECORDS. TO THE BEST OF OUR KNOWLEDGE, THERE ARE NO EXISTING UTILITIES EXCEPT AS SHOWN ON THESE PLANS. THE CONTRACTOR IS REQUIRED TO TAKE DUE PRECAUTIONARY MEASURES TO PROTECT THE UTILITY LINES SHOWN ON THESE DRAWINGS. THE CONTRACTOR FURTHER ASSUMES ALL LIABILITY AND RESPONSIBILITY FOR THE UTILITY PIPES, CONDUITS OR STRUCTURES SHOWN OR NOT SHOWN ON THESE DRAWINGS. IF UTILITY LINES ARE ENCOUNTERED DURING CONSTRUCTION THAT ARE NOT IDENTIFIED BY THESE PLANS, CONTRACTOR SHALL NOTIFY ENGINEER IMMEDIATELY

2. CONTRACTOR AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY, THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS, AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE CITY, THE OWNER, AND THE ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR THE ENGINEER

3. UNAUTHORIZED CHANGES & USES: THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE FOR, OR LIABLE FOR, UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THE PLANS MUST BE IN WRITING AND MUST BE APPROVED BY THE PREPARER OF THESE PLANS

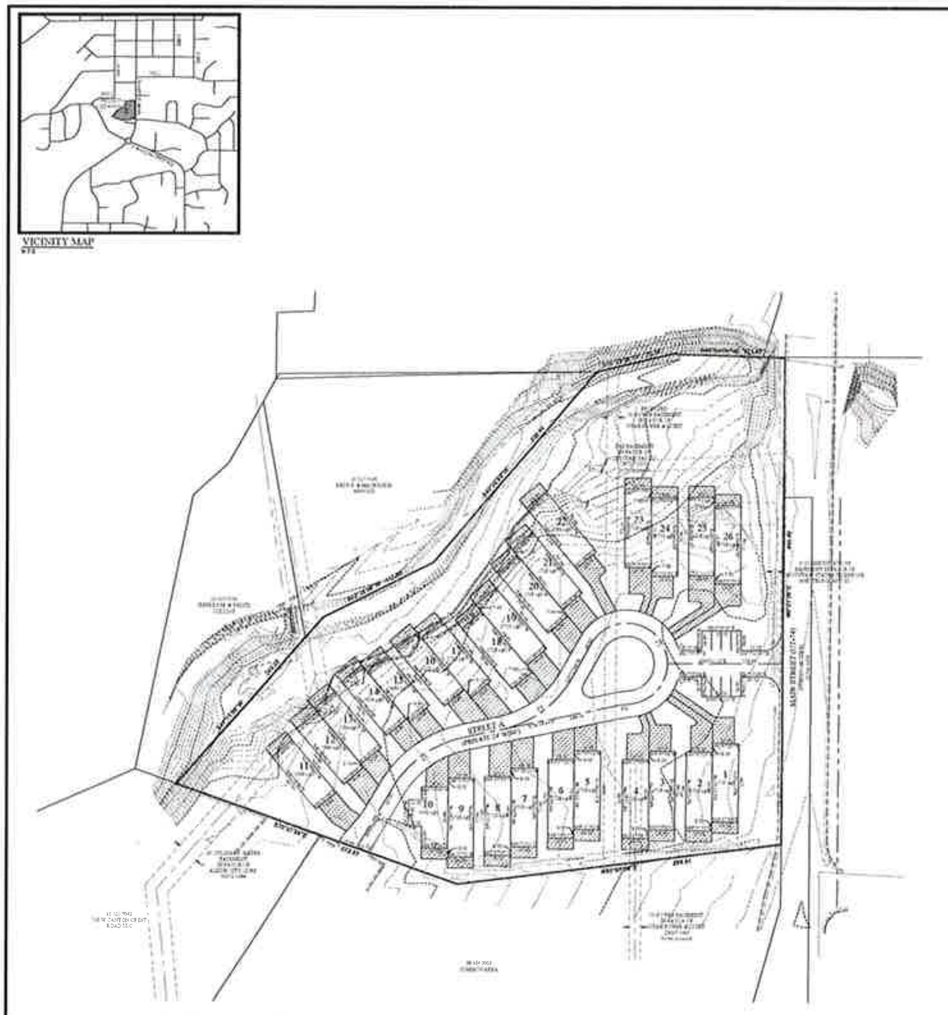
4. ALL CONTOUR LINES SHOWN ON THE PLANS ARE AN INTERPRETATION BY CAD SOFTWARE OF FIELD SURVEY WORK PERFORMED BY A LICENSED SURVEYOR. DUE TO THE POTENTIAL DIFFERENCES IN INTERPRETATION OF CONTOURS BY VARIOUS TYPES OF GRADING SOFTWARE BY OTHER ENGINEERS OR CONTRACTORS, FOCUS DOES NOT GUARANTEE OR WARRANTY THE ACCURACY OF SUCH LOW-WORK. FOR THIS REASON, FOCUS WILL NOT PROVIDE ANY GRADING CONTOURS IN CAD FOR ANY TYPE OF USE BY THE CONTRACTOR. SPOT ELEVATIONS AND PROFILE ELEVATIONS SHOWN ON THE DESIGN DRAWINGS GOVERN ALL DESIGN INFORMATION ILLUSTRATED ON THE APPROVED CONSTRUCTION SET. CONSTRUCTION EXPERTISE AND JUDGMENT BY THE CONTRACTOR IS ANTICIPATED BY THE ENGINEER TO COMPLETE BUILD-OUT OF THE INTENDED IMPROVEMENTS

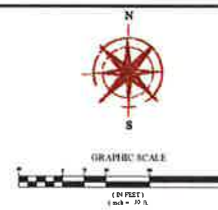
FOCUS ENGINEERING AND SURVEYING, LLC

ALPINE TOWNHOMES
ALPINE, UT
COVER SHEET

COVER SHEET

C1





LEGEND

Curve Table

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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

AREA TABULATIONS

OPEN SPACE AREA	[illegible]
BUILDING PAD/DRIVEWAY AREA	[illegible]
ROW AREA	[illegible]
TOTAL AREA	[illegible]

FEMA NOTES

- THIS PROPERTY IS ASSOCIATED WITH TWO FEMA FLOOD ZONES. ZONE A AND ZONE C. THIS INFORMATION COMES FROM COMMUNITY PANEL #490230 0005 A, WITH AN EFFECTIVE DATE OF APRIL 4, 1983
- ZONE A IS DEFINED AS "AREAS OF 100-YEAR FLOOD; BASE FLOOD ELEVATIONS AND FLOOD HAZARD FACTORS NOT DETERMINED." THE PROPERTY LOCATED ALONG DRY CREEK IS WITHIN ZONE A.
- ZONE C IS DEFINED AS "AREAS OF MINIMAL FLOODING." THE MAJORITY OF THIS PROPERTY IS WITHIN ZONE C

FOCUS ENGINEERING AND SURVEYING, LLC

SURVEYOR'S CERTIFICATE

I, Evan Wood, do hereby certify that I am a Professional Land Surveyor, and that I hold Certificate No. 183395 in accordance with Title 58, Chapter 22 of Utah State Code. I further certify by authority of the owners(s) that I have completed a Survey of the property described on this Plat in accordance with Section 17-23-17 of said Code, and have subdivided said tract of land into lots, blocks, streets, and easements, and the same has, or will be correctly surveyed, staked and monumented on the ground as shown on this Plat, and that this Plat is true and correct.

Evan Wood
Professional Land Surveyor
Certificate No. 183395 ____________ Date ____________

BOUNDARY DESCRIPTION

Located in the NE1/4 of Section 23 and the SE1/4 of Section 14 of Township 4 South, Range 1 East, Salt Lake Base and Meridian. Comprised of three (3) parcels identified by Utah County Tax Id. Numbers 11:023:0010, 11:023:0109 & 11:023:0110, being more particularly described as follows:

BEGINNING AT A POINT NORTH 132.76 FEET AND WEST 1151.10 FEET FROM THE NORTHEAST CORNER OF SECTION 23, TOWNSHIP 4 SOUTH, RANGE 1 EAST, SALT LAKE BASE AND MERIDIAN; THENCE ALONG THE SOUTH BOUNDARY LINE OF THE L. ROSS AND JOANNE C. BECK TITLE LINE (ENTRY 89316:2015) THE FOLLOWING 2 (TWO) COURSES: 1) NORTH 89°10' WEST 74.06 FEET, THENCE 2) SOUTH 74°32' WEST 70.38 FEET; THENCE SOUTH 40°16'05" WEST 330.40 FEET; THENCE SOUTH 69°56'06" WEST 111.80 FEET; THENCE SOUTH 41°15'06" WEST 203.23 FEET; THENCE TO AND ALONG ALPINE MAIN STREET VILLAGE 4TH AMENDED PLAT "A" THE FOLLOWING 2 (TWO) COURSES: 1) SOUTH 70°27'24" EAST 372.11 FEET; THENCE 2) NORTH 82°26'04" EAST 301.91 FEET TO THE WESTERLY RIGHT OF WAY OF MAIN STREET AS ESTABLISHED BY THE WARRANTY DEED TO THE STATE ROAD COMMISSION OF UTAH (ENTRY 11764:1959); THENCE NORTH 00°21'10" EAST 440.40 FEET ALONG AND BEYOND SAID WARRANTY DEED; THENCE NORTH 59°11'00" WEST 23.80 FEET TO THE POINT OF BEGINNING.

CONTAINS 171,310 square feet or 3.94 acres+/-
of which 5,141 square feet of 0.01 acres+/-
lies inside the existing right of way of Main Street

OWNER'S DEDICATION

KNOW ALL MEN BY THESE PRESENT THAT WE, ALL OF THE UNDERSIGNED OWNERS OF ALL OF THE PROPERTY DESCRIBED IN THE SURVEYOR'S CERTIFICATE HEREON AND SHOWN ON THIS MAP, HAVE CAUSED THE SAME TO BE SUBDIVIDED INTO LOTS, BLOCKS, STREETS AND EASEMENTS AND DO HEREBY DEDICATE ANY PUBLIC STREETS AND OTHER PUBLIC AREAS AS INDICATED HEREON FOR PERPETUAL USE OF THE PUBLIC.

IN WITNESS WHEREOF WE HAVE HEREUNTO SET OUR HANDS THIS ______ DAY OF ____________ A.D. 20___

BY ____________
(PRINTED NAME)
ITS ____________

LIMITED LIABILITY ACKNOWLEDGMENT

STATE OF UTAH
S.S.
COUNTY OF ________

ON THE ___ DAY OF ____________ A.D. 20___ PERSONALLY APPEARED BEFORE ME, THE UNDERSIGNED NOTARY PUBLIC, IN AND FOR THE COUNTY OF ____________ IN SAID STATE OF UTAH, ____________ WHO AFTER BEING DULY SWORN, ACKNOWLEDGED TO ME THAT HE/SHE IS THE ____________ OF ____________ L.L.C., A UTAH L.L.C. AND THAT HE/SHE SIGNED THE OWNER'S DEDICATION FREELY AND VOLUNTARILY FOR AND IN BEHALF OF SAID LIMITED LIABILITY COMPANY FOR THE PURPOSES THEREIN MENTIONED.

MY COMMISSION EXPIRES ____________

A NOTARY PUBLIC COMMISSIONED IN UTAH RESIDING IN ____________ COUNTY

MY COMMISSION No. ____________

PRINTED FULL NAME OF NOTARY

ACCEPTANCE BY LEGISLATIVE BODY

THE CITY COUNCIL OF ALPINE CITY, COUNTY OF UTAH, APPROVES THIS SUBDIVISION AND HEREBY ACCEPTS THE DEDICATION OF ALL STREETS, EASEMENTS AND OTHER PARCELS OF LAND INTENDED FOR PUBLIC PURPOSES FOR THE PERPETUAL USE OF THE PUBLIC THIS ____ DAY OF ____________ A.D. 20___

APPROVED BY MAYOR ____________ ATTEST: CITY RECORDER ____________

APPROVED BY CITY ENGINEER ____________

PLANNING COMMISSION APPROVAL

APPROVED THIS ____ DAY OF ____________ A.D. 20___ BY THE ALPINE CITY PLANNING COMMISSION

DIRECTOR - SECRETARY ____________ CHAIRMAN, PLANNING COMMISSION ____________

APPROVAL AS TO FORM

APPROVED AS TO FORM THIS ___ DAY OF ____________ A.D. 20___

CITY ATTORNEY ____________

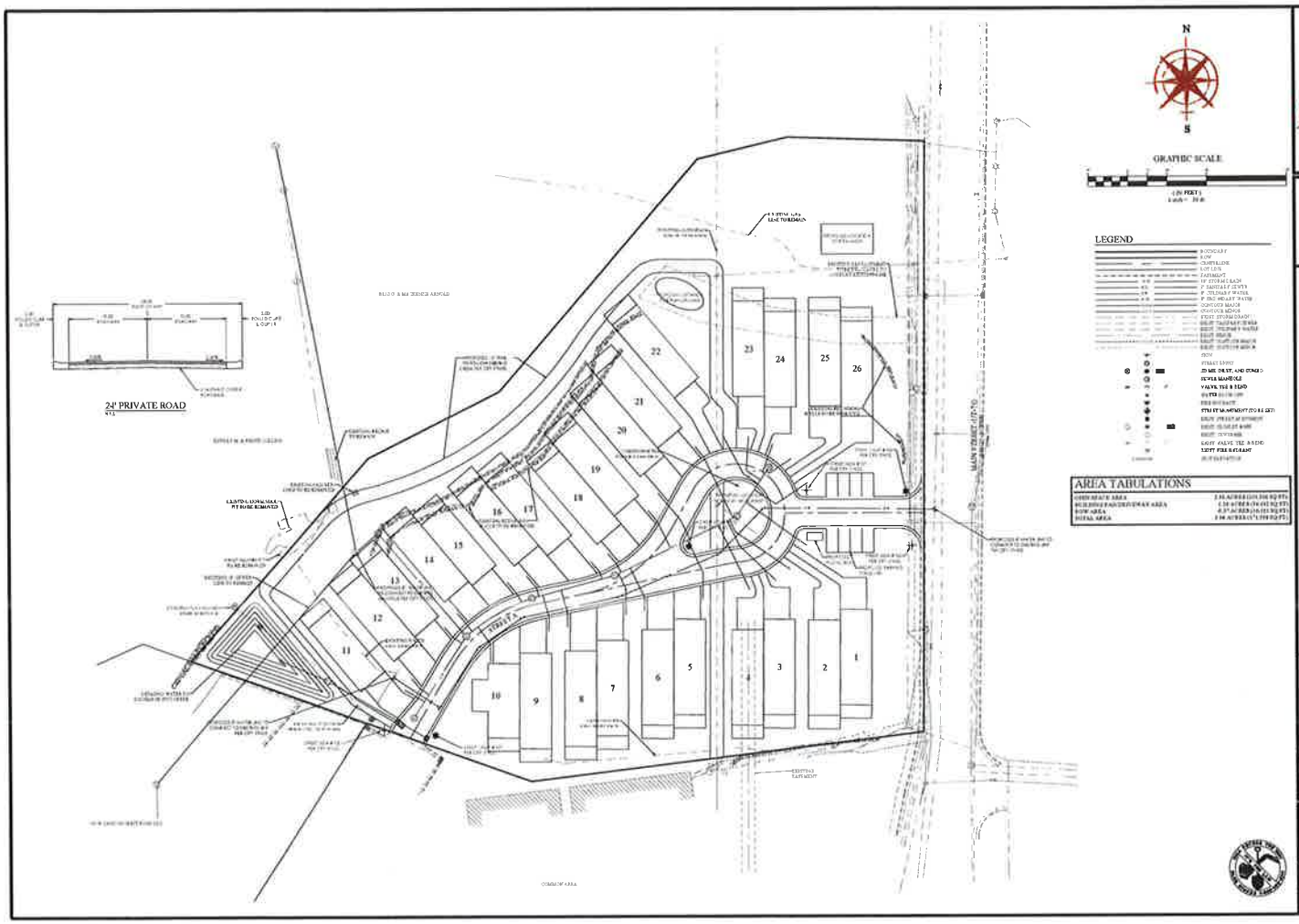
PRELIMINARY

ALPINE TOWNHOMES

SUBDIVISION

LOCATED IN THE NE1/4 OF SECTION 23 AND THE SE1/4 OF SECTION 14, T.4 S., R.1 E.
SALT LAKE BASE & MERIDIAN
ALPINE CITY, UTAH COUNTY, UTAH

SURVEYOR'S SEAL	NOTARY PUBLIC SEAL	ALPINE CITY ENGINEER SEAL	ALPINE CITY RECORDER SEAL
No. 183395 EVAN A WOOD			



FOCUS
ENGINEERING AND SURVEYING, LLC

ALPINE TOWNHOMES

ALPINE, UT

SITE & UTILITY PLAN

SITE & UTILITY PLAN

C3

Detention Pond

Project: Alpine Townhomes
Location: Alpine, Utah
Date: 11/29/2018
Designer: Alex Stewart

F*CUS

100 Year Detention Sizing

Design Criteria

Intensity Source: Per NOAA Atlas 14
Return Period: 100 years
Allowable Discharge: 0.20 cfs/acre Per Eagle Mountain City Standards

Allowable Discharges

Storm Drain Discharge: 0.79 cfs
Other Discharge: 0.00 cfs Source:
Total Discharge: 0.790 cfs

Weighted "C" Value

Surface Type	Area (sf)	"C" Value	C*A
Building	[illegible]	[illegible]	[illegible]
Drive	[illegible]	[illegible]	[illegible]
Roadway and Sidewalk	16,021	0.85	13,618
Landscape	101,506	0.15	15,226
Totals	171,538		74,771
Weighted "C" Value		**0.44**	

Drainage Calculations

Duration	Intensity	Runoff C	Area	Runoff	Accumulated Flow	Allowable Discharge	Discharged	Required Storage
min	in/hr		Ac	cfs	cf	cfs	cf	cf
[illegible]	[illegible]	0.44	[illegible]	[illegible]	[illegible]	0.79	[illegible]	[illegible]
[illegible]	[illegible]	0.44	[illegible]	[illegible]	[illegible]	0.79	[illegible]	[illegible]
[illegible]	[illegible]	0.44	[illegible]	[illegible]	[illegible]	0.79	[illegible]	[illegible]
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[illegible]	[illegible]	0.44	[illegible]	[illegible]	[illegible]	0.79	[illegible]	[illegible]

Maximum Storage Requirement 7,978
Maximum Storage Requirement (ac-ft) 0.18

Detention Basin Design

Storage Requirement: 7,978 cf
Allowable Depth: 1.0 ft
Detention Pond Volume: 8,590 cf
Roadway Sump Storage: 0 cf

Total Storage 8,590 ***DETENTION ADEQUATE***

FOCUS ENGINEERING AND SURVEYING, LLC

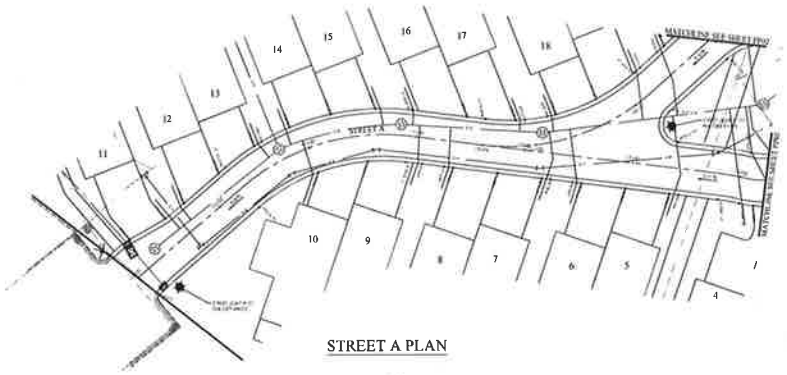
ALPINE TOWNHOMES

ALPINE, UT

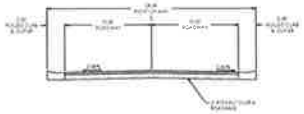
GRADING & DRAINAGE PLAN

GRADING & DRAINAGE PLAN

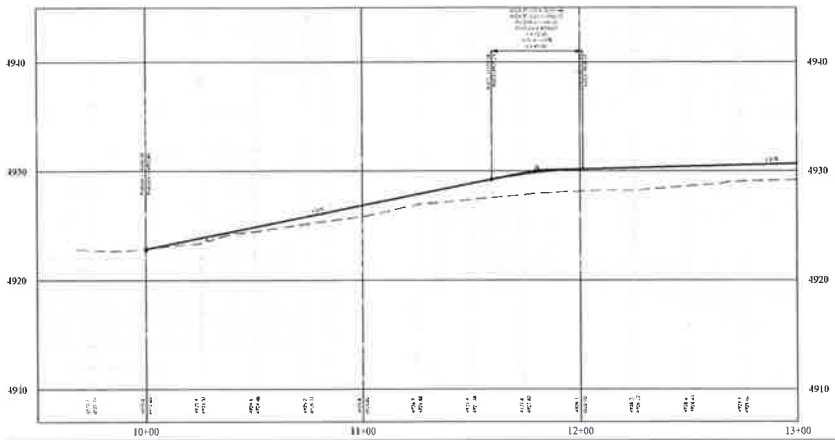
C4



STREET A PLAN



24' PRIVATE ROAD

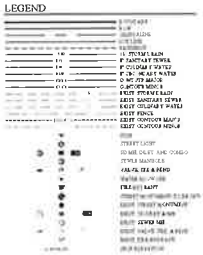


STREET A PROFILE

GRAPHIC SCALE

(IN FEET)
1 inch = 10 ft

LEGEND



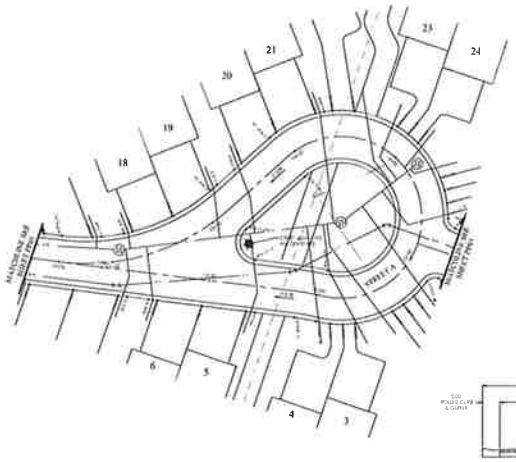
BENCHMARK

FOCUS
ENGINEERING AND SURVEYING, LLC

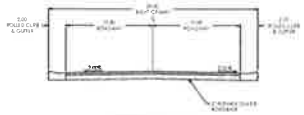
ALPINE TOWNHOMES
ALPINE, UT
STREET A

STREET A

PP01



STREET A PLAN



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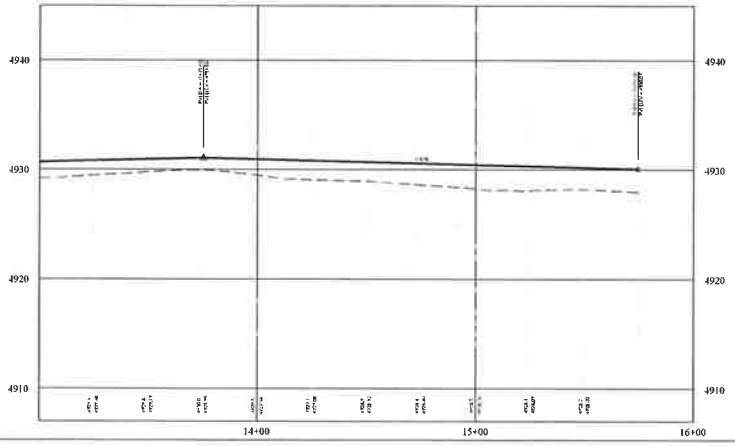
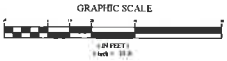


STREET A PROFILE

GRAPHIC SCALE



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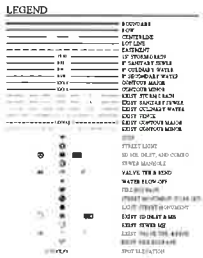


BENCHMARK

FOCUS ENGINEERING & SURVEYING, LLC

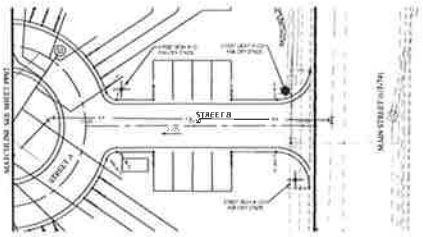
ALPINE TOWNHOMES

ALPINE, UT

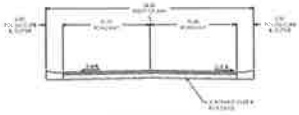
STREET A

STREET A

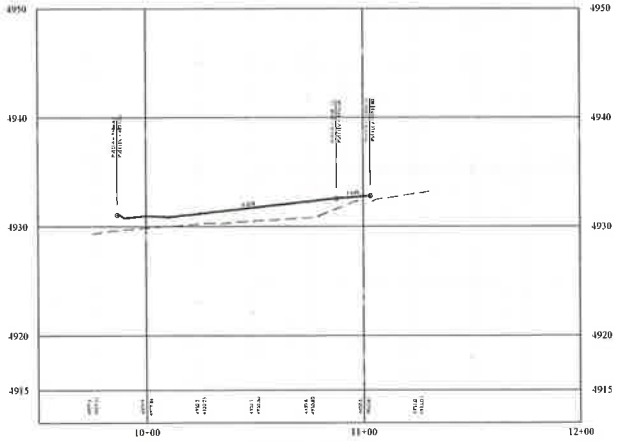
PP02



STREET B PLAN



24' PRIVATE ROAD



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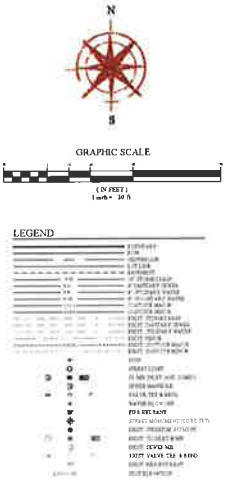
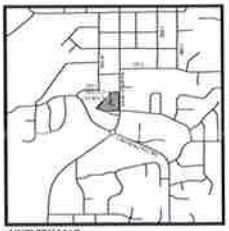




VICINITY MAP

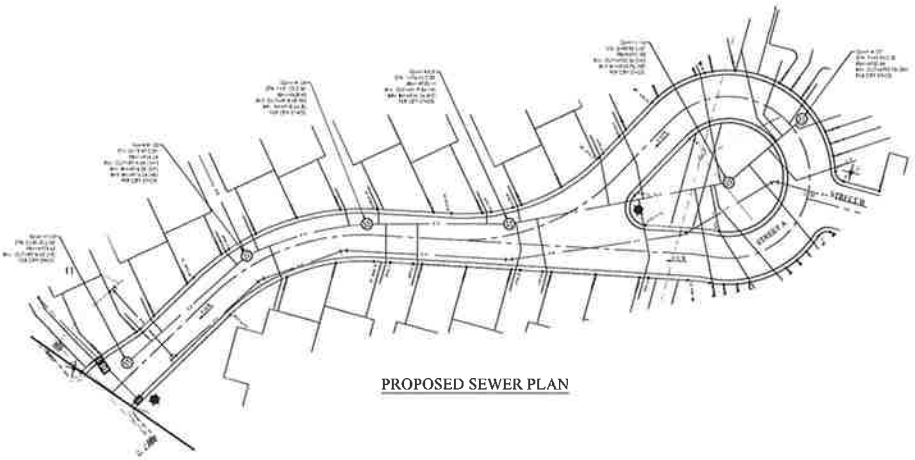
BENCHMARK

FOCUS ENGINEERING AND SURVEYING, LLC
MIDVALE, UTAH 84047 PH: (801) 352-0075
www.focusutah.com

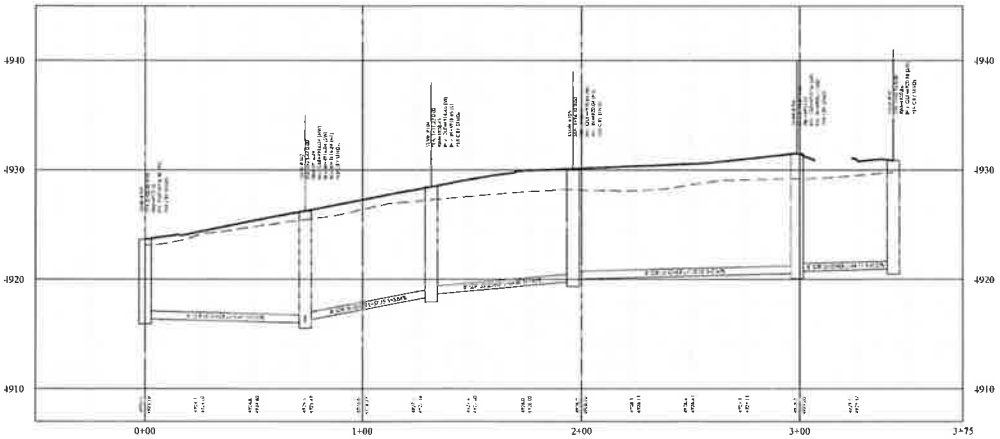
ALPINE TOWNHOMES
ALPINE, UT
STREET B

STREET B

PP03



PROPOSED SEWER PLAN



PROPOSED SEWER PROFILE

GRAPHIC SCALE

LEGEND

BENCHMARK

ALPINE TOWNHOMES

ALPINE, UT

PROPOSED SEWER

PROPOSED SEWER

PP04

HORROCKS ENGINEERS

To: **Jed Muhlestein**
Alpine City

From: **John E. Schiess, P.E.**

Date: Jan 26, 2019 **Memorandum**

Subject: **Alpine Townhomes Hydraulic Modeling Results and Recommendations**

The proposed development consists of 26 townhomes located on Main Street just south of Dry Creek.

The development proposes 26 culinary ERC's, 2.33 irrigated acres, and 26 sanitary sewer ERU's. The current master plan anticipated 20.4 culinary ERC's, 0.6 irrigated acres, and 20.4 sanitary sewer ERU's. Proposed connections are slightly higher than anticipated for this area.

The proposed culinary water improvements have been modeled in both the current and buildout models. The proposed improvements fit well within the City's culinary water master plan and modeling shows them to be adequate. The following comments and recommendations are noted for the proposed culinary water system.

The proposed pressurized irrigation improvements have been modeled in both the current and buildout models under both wet and dry year supply conditions. The proposed demands are more than the City's pressurized irrigation master plan but modeling shows them to be adequate. The following comments and recommendations are noted for the proposed pressurized irrigation system.

The proposed sanitary sewer improvements have been modeled in both the current and buildout models. The proposed improvements fit well within the City's sanitary sewer master plan and modeling shows them to be adequate. The following comments and recommendations are noted for the proposed sanitary sewer system.

Recommendations:

1. None.

Comments:

2. Fire flow available in the area surrounding the proposed improvements should be over 3000 gallons per minute at 20 psi for the proposed lines.

ALPINE TOWNHOMES

2/21/2019

Prepared for: Cottle Homes

Prepared by: Focus Engineering

FOCUS
ENGINEERING & SURVEYING

32 West Center Street
Midvale, UT 84047
Phone: 801-352-0075
Web: www.focusutah.com

Table of Contents

APPENDICES

Grading and drainage plan
Pond Calculations

INSERT DATE

I. GENERAL LOCATION AND DESCRIPTION

The proposed project is located at 250 South Main Street in Alpine Utah and is 3.94 acres, with approximately 100% being disturbed with construction. The current use is a vacant field and the proposed use will be multi-family residential (townhomes). The property slopes from east to west at 1-5%

Dry Creek runs along the western boundary of the property.

A preliminary soils letter has been provided by Earthtec Engineering dated December 5, 2018 and the soil consists of clay, sand, and gravel below the fill material that has been placed on the site.

II. DRAINAGE BASIN

Existing storm water flows predominantly from east to west across the property and is collected naturally in Dry Creek, located on the western boundary of the property.

The property resides within two flood zones, Zone A and Zone C, per FEMA Community panel number 490228 0005 A, with an effective date of April 4, 1983. Zone A is defined as: Areas of 100-year flood; base flood elevations and flood hazard factors not determined. The property within Dry Creek and immediately adjacent to the creek are contained in Zone A. Zone C is defined as: Areas of minimal flooding. The majority of this property in contained within Zone C.

III. PROPOSED DRAINAGE PLAN

A drainage plan has been developed per Alpine City standards. The onsite system will consist of buried pipes, curb inlets, manholes, potential underground storage (if needed), and a detention pond. Roof drainage will be directed toward the front of the units and into the streets. Non-point sources of discharge include the rear landscaped areas of the units along Dry Creek. This runoff will be cleaned by the landscaping before naturally discharging into Dry Creek. Pipes have been sized to hold the 10-year storm event, and the detention pond has been sized to hold the 100-year storm event. The point source of discharge is the detention pond. After

leaving the detention pond the storm drain will outfall into Dry Creek at the required detained rate.

The rational method, using NOAA Atlas 14 data was used to design the drainage system for the development. A storage volume of 7,978 cubic feet is required for the development. A detention pond will be constructed at the northwest edge of the development, and sized to hold the required volume for the site.

An orifice of 4 inches will be employed at the storm drain discharge point of the project to control the discharge rate to the city standard 0.2 cfs/acre. The discharge rate for this project will be 0.788 cfs. Calculations for the pond and orifice can be found in the appendix of this report.

IV. STORMWATER QUALITY

A storm water pollution prevention plan will be developed for the construction of the project and submitted for review.

A snout and sump will be installed prior to entering the pond to clean the storm water before it is released into Dry Creek. The detention pond will be grass lined to contribute to the cleaning of the water before it enters the outlet structure.

V. ANALYSIS

Hydrology

The design storm required is the 100-year event for detention. The rainfall intensity information was obtained from the NOAA Atlas 14 website for the state of Utah. The post development storm water runoff discharge cannot exceed that of 0.2 cfs/acre. This is accomplished though the use of an orifice plate on the exit pipe of the detention system.

*The rational method (Q=CIA) was used to determine storm drain runoff flows. A weighted "C" value of 0.44, a variable rainfall intensity (from NOAA Atlas 14 data), and the project area of 3.94 acres, along with the discharge rate of 0.788 cfs, were used to size the detention pond. The runoff calculations resulted in a maximum detention volume of 7,978 cubic feet. See the appendix for detention pond sizing calculations.

The detention pond will be a grass lined pond sized to hold the required volume for the development. Once complete, the pond will be owned and maintained by the development's home owner's association (HOA).

Hydraulics:

The design storm required is the 10-year event for pipe capacity. The pipes were sized using Manning's equation for uniform flow $Q = VA = \left(\frac{1.49}{n}\right) AR^{\frac{2}{3}}S^{\frac{1}{2}}$ with a Manning's n value of 0.013.

Storm drain inlets have been placed at all low points in the road, and as needed to minimize the amount of storm water runoff that bypasses catch basins. Inlets have also been spaced no more than 400 feet apart for ease of maintenance.

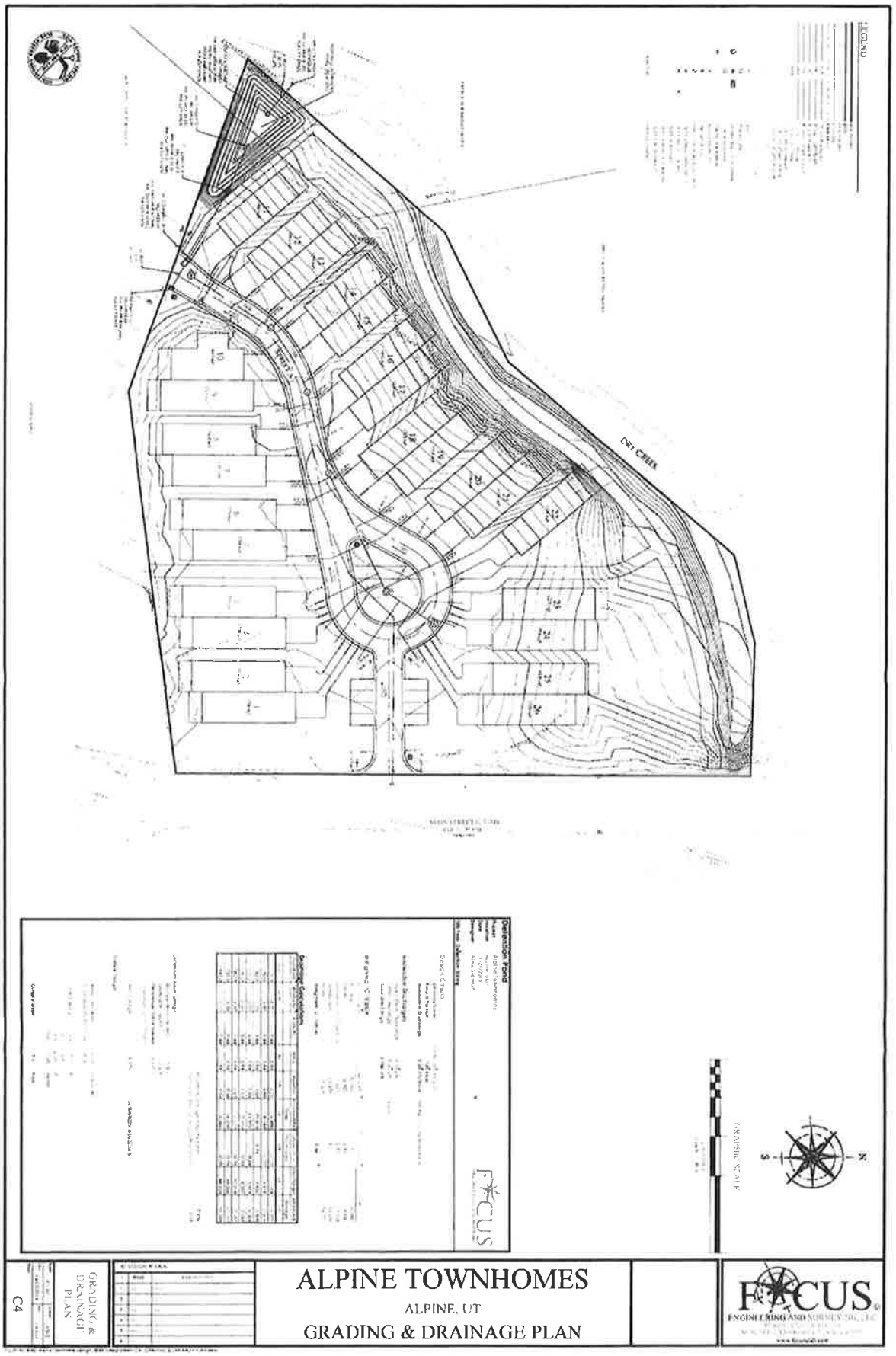
The 100-year storm overflow path directs flows to the streets, and not onto adjacent properties.

VI. CONCLUSION

It is concluded that the project is in compliance with city standards and design guidelines.

Sincerely,

Thomas Romney, P.E.
Production Manager
FOCUS Engineering & Surveying



C4

GRADING & DRAINAGE PLAN

ALPINE TOWNHOMES

ALPINE, UT

GRADING & DRAINAGE PLAN

FOCUS

ENGINEERING AND SURVEYING, LLC

Detention Pond

Project: Alpine Townhomes
Location Alpine, Utah
Date: 11/29/2018
Designer: Alex Stewart

FOCUS ENGINEERING & SURVEYING

100-Year Detention Sizing

Design Criteria

Intensity Table:	Per NOAA Atlas 14	
Return Period:	**100 year**	
Allowable Discharge:	**0.20 cfs/acre**	Per Alpine City Standards

Allowable Discharges

Storm Drain Discharge:	0.79 cfs	
Other Discharge:	0.00 cfs	Source:
Total Discharge:	**0.788 cfs**	

Weighted "C" Value

Surface Type	*Area (sf)*	*"C" Value*	*C*A*
Building	43,632	0.85	37,087
Drives	10,400	0.85	8,840
Roadway and Sidewalk	16,021	0.85	13,618
Landscape	101,506	0.15	15,226
Totals	171,558		74,771
Weighted "C" Value		**0.44**	

Drainage Calculations

Duration	Intensity	Runoff C	Area	Rainfal	Accumulated Flow	Allowable Discharge	Discharge	Required Storage
min	*in/hr*		*Ac*	*cfs*	*cf*	*cfs*	*cf*	*cf*
15.0	4.20	0.44	3.94	7.21	6,488	0.79	709	5,779
30.0	2.83	0.44	3.94	4.86	8,744	0.79	1,418	7,326
60.0	1.75	0.44	3.94	3.00	10,814	0.79	2,836	7,978
120.0	0.97	0.44	3.94	1.66	11,976	0.79	5,671	6,304
180.0	0.66	0.44	3.94	1.13	12,254	0.79	8,507	3,747
360.0	0.37	0.44	3.94	0.63	13,533	0.79	17,014	-3,481
720.0	0.22	0.44	3.94	0.38	16,239	0.79	34,028	-17,789
1440.0	0.11	0.44	3.94	0.19	16,462	0.79	68,056	-51,594

Maximum Storage Requirement: ***7,978***
Maximum Storage Requirement (ac-ft): 0.18

Detention Basin Design

Storage Requirement:	7,978 *cf*	
Allowable Depth:	5.0 *ft*	
Detention Pond Volume:	8,590 *cf*	
Roadway Sump Storage	0 *cf*	
Total Storage	**8,590**	***DETENTION ADEQUATE***

Orifice Design

Restriction Rate		0.20	CFS/ACRE
Allowable Outfall Rate Q (c		0.79	
Orifice Sizing:	h =	3.5	ft
	C =	0.6	
	A =	0.087	sf
	dia. =	4.00	inches
Orifice Size=		**4.0**	**inch**

1497 West 40 South
Lindon, Utah - 84042
Phone (801) 225-5711

840 West 1700 South #10
Salt Lake City, Utah - 84104
Phone (801) 787-9138

1596 W. 2650 S. #108
Ogden, Utah - 84401
Phone (801) 399-9516

Geotechnical Study
Alpine Townhomes
300 South Main Street
Alpine, Utah

Project No. 189260

December 14, 2018

Prepared For:

Cottle Capital Group, LLC
Attention: Ms. Sherry Fenn
801 North 500 West
Bountiful, UT 84010

Prepared By:

EARTHTEC ENGINEERING
Lindon Office

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TABLE OF CONTENTS (CONTINUED)

TABLES

ATTACHED FIGURES

APPENDIX A

1.0 EXECUTIVE SUMMARY

This entire report presents the results of Earthtec Engineering's completed geotechnical study for the Alpine Townhomes in Alpine, Utah. This executive summary provides a general synopsis of our recommendations and findings. Details of our findings, conclusions, and recommendations are provided within the body of this report.

- The subject property is approximately 3.94 acres and is proposed to be developed with the construction of new townhomes. The proposed structures will consist of conventionally framed, one- to two-story, buildings with basements. We anticipate foundation loads for the proposed structures will not exceed 4,000 pounds per linear foot for bearing wall, 30,000 pounds for column loads, and 100 pounds per square foot for floor slabs. (see Section 3)
- Our field exploration included the excavation of five (5) test pits to depths of 10 to 12 feet below the existing ground surface. Groundwater was not encountered within the excavations at the depths explored. (see Section 5)
- The native silt soils have a moderate potential for collapse (settlement) and a moderate potential for compressibility under increased moisture contents and anticipated load conditions. (see Section 6)
- The subsurface soils encountered generally consisted of fill overlying near-surface medium stiff silt, and medium dense to dense sand and gravel. All fill encountered appears to be undocumented. Fill and topsoil should be removed beneath the entire building footprints, exterior flatwork, and pavements prior to construction. (see Section 7)
- Conventional strip and spread footings may be used to support the structure, with foundations placed entirely on firm, undisturbed, uniform gravel soils that extend a minimum of 24 inches below footings, or entirely on a minimum of 18 inches of properly placed, compacted, and tested structural fill extending to undisturbed native soils. (see Section 10)
- Minimum roadway section consists of 3 inches of asphalt overlying 10 inches of road-base. Areas that are soft or deflect under construction traffic should be removed and replaced with granular material or structural fill. (see Section 13)

Based on the results of our field exploration, laboratory testing, and engineering analyses, it is our opinion that the subject site may be suitable for the proposed development, provided the recommendations presented in this report are followed and implemented during design and construction.

Failure to consult with Earthtec Engineering (Earthtec) regarding any changes made during design and/or construction of the project from those discussed herein relieves Earthtec from any liability arising from changed conditions at the site. We also strongly recommend that Earthtec observes the building excavations to verify the adequacy of our recommendations presented herein, and that Earthtec performs materials testing and special inspections for this project to

provide continuity during construction.

2.0 INTRODUCTION

The project is located at approximately 300 South Main Street in Alpine, Utah. The general location of the site is shown on Figure No. 1, *Vicinity Map* and Figure No. 2, *Aerial Photograph Showing Location of Test Pits*, at the end of this report. The purposes of this study are to:

- Evaluate the subsurface soil conditions at the site,
- Assess the engineering characteristics of the subsurface soils, and
- Provide geotechnical recommendations for general site grading and the design and construction of foundations, concrete floor slabs, miscellaneous concrete flatwork, and asphalt paved parking and drive areas.

The scope of work completed for this study included field reconnaissance, subsurface exploration, field and laboratory soil testing, geotechnical engineering analysis, and the preparation of this report.

3.0 PROPOSED CONSTRUCTION

We understand that the proposed project, as described to us by Ms. Sherry Fenn with Cottle Capital Group, consists of developing the approximately 3.94-acre existing parcel with the construction of new townhomes. The proposed structures will consist of conventionally framed, one- to two-story, buildings with basements. We have based our recommendations in this report that anticipated foundation loads for the proposed structures will not exceed 4,000 pounds per linear foot for bearing wall, 30,000 pounds for column loads, and 100 pounds per square foot for floor slabs. If structural loads will be greater Earthtec should be notified so that we may review our recommendations and make modifications, if necessary.

In addition to the construction described above, we anticipate that

- Utilities will be installed to service the proposed buildings,
- Exterior concrete flatwork will be placed in the form of curb, gutter, and sidewalks, and
- Asphalt paved parking and drive areas will be constructed.

4.0 GENERAL SITE DESCRIPTION

4.1 Site Description

At the time of our subsurface exploration the site was a developed lot vegetated with grass, weeds and trees. A two- to three- tier rock wall exists along the northern side of the property

and is approximately 8 to 12 feet in exposed height. Below the rock wall to the north is a stream bed. Earthtec Engineering was not involved in the design, construction, or evaluation of the constructed rock walls. We recommend that the rock walls and slope be evaluated if any structure is placed within 20 feet of the rock walls. The ground surface appears to be relatively flat, we anticipate less than 3 feet of cut and fill may be required for site grading. The lot was bounded on the north and west by Dry Creek, on the east by South Main Street, on the south by commercial properties.

4.2 Geologic Setting

The subject property is located in the central portion of Utah Valley near the eastern shore of Utah Lake. Utah Valley is a deep, sediment-filled basin that is part of the Basin and Range Physiographic Province. The valley was formed by extensional tectonic processes during the Tertiary and Quaternary geologic time periods. The valley is bordered by the Wasatch Mountain Range on the east and the Lake Mountains on the west. Much of northwestern Utah, including Utah Valley, was previously covered by the Pleistocene age Lake Bonneville. Utah Lake, which currently covers much of the western portion of the valley, is a remnant of this ancient fresh water lake. The surficial geology of much of the eastern margin of the valley has been mapped by Constenius, 2011[1]. The surficial geology at the location of the subject site and adjacent properties is mapped as "Fine-grained lacustrine deposits" (Map Unit Qlf) dated to upper Pleistocene. These soil or deposits are generally described in the referenced mapping as "silt and clay with some fine grained sand."

5.0 SUBSURFACE EXPLORATION

5.1 Soil Exploration

Under the direction of a qualified member of our geotechnical staff, subsurface explorations were conducted at the site on November 30, 2018 by the excavation of five (5) test pits to depths of 10 to 12 feet below the existing ground surface using a a track-mounted mini excavator. The approximate locations of the test pits are shown on Figure No. 2, *Aerial Photograph Showing Location of Test Pits*. Graphical representations and detailed descriptions of the soils encountered are shown on Figure Nos. 3 through 7, *Test Pit Log* at the end of this report. The stratification lines shown on the logs represent the approximate boundary between soil units; the actual transition may be gradual. Due to potential natural variations inherent in soil deposits, care should be taken in interpolating between and extrapolating beyond exploration points. A key to the symbols and terms on the logs is presented on Figure No. 8, *Legend*.

Disturbed bag samples and relatively undisturbed block samples were collected at various

[1] Constenius, K.N., Clark, D.L., King, J.K., Ehler, J.B., 2011, Interim Geologic Map of the Provo Quadrangle, *Utah, Wasatch and Salt Lake Counties, Utah*; U.S. Geological Survey, Open-File 586DM, Scale 1: 62,500.

depths in each test pit. The soil samples collected were classified by visual examination in the field following the guidelines of the Unified Soil Classification System (USCS). The samples were transported to our Lindon, Utah laboratory where they will be retained for 30 days following the date of this report and then discarded, unless a written request for additional holding time is received prior to the 30-day limit.

6.0 LABORATORY TESTING

Representative soil samples collected during our field exploration were tested in the laboratory to assess pertinent engineering properties and to aid in refining field classifications, if needed. Tests performed included natural moisture content, dry density tests, liquid and plastic limits determinations, mechanical (partial) gradation analyses, and one-dimensional consolidation tests. The table below summarizes the laboratory test results, which are also included on the attached *Test Pit Logs* at the respective sample depths, and on Figure Nos. 9 through 11, *Consolidation-Swell Test.*

Table 1: Laboratory Test Results

Test Pit No.	Depth (ft.)	Natural Moisture (%)	Natural Dry Density (pcf)	Atterberg Limits		Grain Size Distribution (%)			Soil Type
				Liquid Limit	Plasticity Index	Gravel (+ #4)	Sand	Silt/Clay (- #200)	
TP-1	9	16	108	21	NP*	0	26	74	ML
TP-1	11½	16	93	23	3	1	24	75	ML
TP-3	10	11	89	22	NP*	1	19	80	ML
TP-4	5	2	---	---	---	60	37	3	GP

NP* = Non-Plastic

As part of the consolidation test procedure, water was added to the samples to assess moisture sensitivity when the samples were loaded to an equivalent pressure of approximately 1,000 psf. The native silt soils have a moderate potential for collapse (settlement) and a moderate potential for compressibility under increased moisture contents and anticipated load conditions.

A water-soluble sulfate test was performed on a representative sample obtained during our field exploration which indicated a value of less than 12 parts per million. Based on this result, the risk of sulfate attack to concrete appears to be "negligible" according to American Concrete Institute standards. Therefore, any type of Portland cement may be used for concrete in contact with on-site soils. The results can be found in Appendix A.

7.0 SUBSURFACE CONDITIONS

7.1 Soil Types

On the surface of the site, we encountered fill and topsoil which is estimated to extend 12 feet or deeper at the test pit locations. Below the fill we encountered layers of silt, sand and gravel

extending to depths of 10 to 12 feet below the existing ground surface. Graphical representations and detailed descriptions of the soils encountered are shown on Figure Nos. 3 through 7, *Test Pit Log* at the end of this report. Based on our experience and observations during field exploration, the silt soils visually were medium stiff in consistency and the sand and gravel soils visually had a relative density varying from medium dense to dense.

7.2 Groundwater Conditions

Groundwater was not encountered within the excavations at the depths explored. Note that groundwater levels will fluctuate in response to the season, precipitation, snow melt, irrigation, and other on and off-site influences. Quantifying these fluctuations would require long term monitoring, which is beyond the scope of this study. The contractor should be prepared to dewater excavations as needed.

8.0 SITE GRADING

8.1 General Site Grading

All surface vegetation and unsuitable soils (such as topsoil, organic soils, undocumented fill, soft, loose, or disturbed native soils, and any other inapt materials) should be removed from below foundations, floor slabs, exterior concrete flatwork, and pavement areas. We encountered fill and topsoil on the surface of the site. The fill encountered on the site is considered undocumented (untested). The fill and topsoil (including soil with roots larger than about ¼ inch in diameter) should be completely removed, even if found to extend deeper, along with any other unsuitable soils that may be encountered. Over-excavations below footings and slabs also may be needed, as discussed in Section 10.0.

Fill placed over large areas, even if only a few feet in depth, can cause consolidation in the underlying native soils resulting in settlement of the fill. Because the site is relatively flat, we anticipate that less than 3 feet of grading fill will be placed. If more than 3 feet of grading fill will be placed above the existing surface (to raise site grades), Earthtec should be notified so that we may provide additional recommendations, if required. Such recommendations will likely include placing the fill several weeks (or possibly more) prior to construction to allow settlement to occur.

8.2 Temporary Excavations

Temporary excavations that are less than 4 feet in depth and above groundwater should have side slopes no steeper than ½H:1V (Horizontal:Vertical). Temporary excavations where water is encountered in the upper 4 feet or that extend deeper than 4 feet below site grades should be sloped or braced in accordance with OSHA[2] requirements for Type C soils.

[2] OSHA Health And Safety Standards, Final Rule, CFR 29, part 1926.

8.3 Fill Material Composition

The existing fill and native fine-grained soils are not suitable for use as placed and compacted structural fill. Excavated soils, including silt, may be stockpiled for use as fill in landscape areas.

Structural fill is defined as fill material that will ultimately be subjected to any kind of structural loading, such as those imposed by footings, floor slabs, pavements, etc. We recommend that a professional engineer or geologist verify that the structural fill to be used on this project meets the requirements, stated below. We recommend that structural fill consist of imported sandy/gravelly soils meeting the following requirements in the table below:

Table 2: Structural Fill Recommendations

Sieve Size/Other	Percent Passing (by weight)
4 inches	100
3/4 inches	70 – 100
No. 4	40 – 80
No. 40	15 – 50
No. 200	0 – 20
Liquid Limit	35 maximum
Plasticity Index	15 maximum

In some situations, particles larger than 4 inches and/or more than 30 percent coarse gravel may be acceptable but would likely make compaction more difficult and/or significantly reduce the possibility of successful compaction testing. Consequently, stricter quality control measures than normally used may be required, such as using thinner lifts and increased or full-time observation of fill placement.

We recommend that utility trenches below any structural load be backfilled using structural fill. Note that most local governments and utility companies require Type A-1-a or A-1-b (AASHTO classification) soils (which overall is stricter than our recommendations for structural fill) be used as backfill above utilities in certain areas. In other areas or situations, utility trenches may be backfilled with the native soil, but the contractor should be aware that native silt soils (as observed in the explorations) may be time consuming to compact due to potential difficulties in controlling the moisture content needed to obtain optimum compaction. All backfill soil should have a maximum particle size of 4 inches, a maximum Liquid Limit of 35 and a maximum Plasticity Index of 15.

If required (i.e. fill in submerged areas), we recommend that free draining granular material (clean sand and/or gravel) meet the following requirements in the table below:

Table 3: Free-Draining Fill Recommendations

Sieve Size/Other	Percent Passing (by weight)
3 inches	100
No. 10	0 – 25
No. 40	0 – 15
No. 200	0 – 5
Plasticity Index	Non-plastic

Three inch minus washed rock (sometimes called river rock or drain rock) and pea gravel materials usually meet these requirements and may be used as free draining fill. If free draining fill will be placed adjacent to soil containing a significant amount of sand or silt/clay, precautions should be taken to prevent the migration of fine soil into the free draining fill. Such precautions should include either placing a filter fabric between the free draining fill and the adjacent soil material, or using a well-graded, clean filtering material approved by the geotechnical engineer.

8.4 Fill Placement and Compaction

Fill should be placed on level, horizontal surfaces. Where fill will be placed on slopes steeper than 5H:1V, the existing ground should be benched prior to placing fill. We recommend bench heights of 1 to 4 feet, with the lowest bench being a minimum 3 feet below adjacent grade and at least 10 feet wide.

The thickness of each lift should be appropriate for the compaction equipment that is used. We recommend a maximum lift thickness prior to compaction of 4 inches for hand operated equipment, 6 inches for most "trench compactors" and 8 inches for larger rollers, unless it can be demonstrated by in-place density tests that the required compaction can be obtained throughout a thicker lift. The full thickness of each lift of structural fill placed should be compacted to at least the following percentages of the maximum dry density, as determined by ASTM D-1557:

- In landscape and other areas not below structurally loaded areas: 90%
- Less than 5 feet of fill below structurally loaded areas: 95%
- Greater than 5 feet of fill below structurally loaded areas: 98%

Generally, placing and compacting fill at moisture contents within ±2 percent of the optimum moisture content, as determined by ASTM D-1557, will facilitate compaction. Typically, the further the moisture content deviates from optimum the more difficult it will be to achieve the required compaction.

Fill should be tested frequently during placement and we recommend early testing to demonstrate that placement and compaction methods are achieving the required compaction. The contractor is responsible to ensure that fill materials and compaction efforts are consistent so that tested areas are representative of the entire fill.

8.5 Stabilization Recommendations

Near surface soils may rut and pump during grading and construction. The likelihood of rutting and/or pumping, and the depth of disturbance, is proportional to the moisture content in the soil, the load applied to the ground surface, and the frequency of the load. Consequently, rutting and pumping can be minimized by avoiding concentrated traffic, minimizing the load applied to the ground surface by using lighter equipment, partially loaded equipment, tracked equipment, by working in dry times of the year, and/or by providing a working surface for equipment.

During grading the soil in any obvious soft spots should be removed and replaced with granular material. If rutting or pumping occurs traffic should be stopped in the area of concern. The soil in rutted areas should be removed and replaced with granular material. In areas where pumping occurs the soil should either be allowed to sit until pore pressures dissipate (several hours to several days) and the soil firms up or be removed and replaced with granular material. Typically, we recommend removal to a minimum depth of 24 inches.

For granular material, we recommend using angular well-graded gravel, such as pit run, or crushed rock with a maximum particle size of four inches. We suggest that the initial lift be approximately 12 inches thick and be compacted with a static roller-type compactor. A finer granular material such as sand, gravelly sand, sandy gravel or road base may also be used. Materials which are more angular and coarse may require thinner lifts in order to achieve compaction. We recommend that the fines content (percent passing the No. 200 sieve) be less than 15%, the liquid limit be less than 35, and the plasticity index be less than 15.

Using a geosynthetic fabric, such as Mirafi 600X or equivalent, may also reduce the amount of material required and avoid mixing of the granular material and the subgrade. If a fabric is used, following removal of disturbed soils and water, the fabric should be placed over the bottom and up the sides of the excavation a minimum of 24 inches. The fabric should be placed in accordance with the manufacturer's recommendations, including proper overlaps. The granular material should then be placed over the fabric in compacted lifts. Again, we suggest that the initial lift be approximately 12 inches thick and be compacted with a static roller-type compactor.

9.0 SEISMIC AND GEOLOGIC CONSIDERATIONS

9.1 Seismic Design

The State of Utah has adopted the 2015 International Building Code (IBC) for seismic design and the structure should be designed in accordance with Chapter 16 of the IBC. The Site Class definitions in the IBC are based upon the soil properties in the upper 100 feet of the soil profile, according to Chapter 20 in ASCE 7. These properties are determined from sampler blow counts, undrained shear strength values, and/or shear velocity measurements. The code states, "When the soil properties are not known in sufficient detail to determine the site class, Site Class D shall be used unless the building official or geotechnical data determines that Site

Class E or F soil is likely to be present at the site." Considering our experience in the vicinity of the site and based on the results of our field exploration, we recommend using Site Class D.

The site is located at approximately 40.450 degrees latitude and -111.779 degrees longitude. Using Site Class D, the design spectral response acceleration parameters are given below.

Table 4: Design Accelerations

S_S	F_a	S_{MS}	S_{DS}
1.237 g	1.005	1.243 g	0.829 g
S_1	**F_v**	**S_{M1}**	**S_{D1}**
0.454 g	1.546	0.702 g	0.468 g

S_S = Mapped spectral acceleration for short periods
S_1 = Mapped spectral acceleration for 1-second period
$S_{DS} = \frac{2}{3}S_{MS} = \frac{2}{3}(F_a \cdot S_s)$ = 5% damped design spectral response acceleration for short periods
$S_{D1} = \frac{2}{3}S_{MS} = \frac{2}{3}(F_v \cdot S_1)$ = 5% damped design spectral response acceleration for 1-second period

9.2 Faulting

The subject property is located within the Intermountain Seismic Belt where the potential for active faulting and related earthquakes is present. Based upon published geologic maps[3], no active faults traverse through or immediately adjacent to the site and the site is not located within local fault study zones. The nearest mapped fault trace is the Wasatch Fault located about one mile south of the site.

9.3 Liquefaction Potential

According to current liquefaction maps[4] for Utah County, the site is located within an area designated as "Very Low" in liquefaction potential. Liquefaction can occur when saturated subsurface soils below groundwater lose their inter-granular strength due to an increase in soil pore water pressures during a dynamic event such as an earthquake.

Loose, saturated sands are most susceptible to liquefaction, but some loose, saturated gravels and relatively sensitive silt to low-plasticity silty clay soils can also liquefy during a seismic event. Subsurface soils were composed of silt, sand and gravel soils. The soils encountered at this project do not appear liquefiable, but the liquefaction susceptibility of underlying soils (deeper than our explorations) is not known and would require deeper explorations to quantify.

10.0 FOUNDATIONS

10.1 General

The foundation recommendations presented in this report are based on the soil conditions encountered during our field exploration, the results of laboratory testing of samples of the

[3] U.S. Geological Survey, Quaternary Fault and Fold Database of the United States, November 3, 2010
[4] Utah Geological Survey, Liquefaction-Potential Map for a Part of Utah County, Utah, Public Information Series 28, August 1994.

native soils, the site grading recommendations presented in this report, and the foundation loading conditions presented in Section 3.0, *Proposed Construction*, of this report. If loading conditions and assumptions related to foundations are significantly different, Earthtec should be notified so that we can re-evaluate our design parameters and estimates (higher loads may cause more settlement), and to provide additional recommendations if necessary.

Conventional strip and spread footings may be used to support the proposed structures after appropriate removals as outlined in Section 8.1. Foundations should not be installed on topsoil, undocumented fill, debris, combination soils, organic soils, frozen soil, or in ponded water. If foundation soils become disturbed during construction, they should be removed or compacted.

10.2 Strip/Spread Footings

We recommend that conventional strip and spread foundations be constructed entirely on firm, undisturbed, uniform gravel soils that extend a minimum of 24 inches below footings, or entirely on a minimum of 18 inches of properly placed, compacted, and tested structural fill extending to undisturbed native soils. For foundation design we recommend the following:

- Footings founded on native gravel or a minimum of 24 inches of structural fill may be designed using a maximum allowable bearing capacity of 2,000 pounds per square foot. The values for vertical foundation pressure can be increased by one-third for wind and seismic conditions per Section 1806.1 when used with the Alternative Basic Load Combinations found in Section 1605.3.2 of the 2015 International Building Code.
- Continuous and spot footings should be uniformly loaded and should have a minimum width of 20 and 30 inches, respectively.
- Exterior footings should be placed below frost depth which is determined by local building codes. In general, 30 inches of cover is adequate for most sites; however local code should be verified by the end design professional. Interior footings, not subject to frost (heated structures), should extend at least 18 inches below the lowest adjacent grade.
- Foundation walls and footings should be properly reinforced to resist all vertical and lateral loads and differential settlement.
- The bottom of footing excavations should be compacted with at least 4 passes of an approved non-vibratory roller prior to erection of forms or placement of structural fill to densify soils that may have been loosened during excavation and to identify soft spots. If soft areas are encountered, they should be stabilized as recommended in Section 8.5.
- Footing excavations should be observed by the geotechnical engineer prior to beginning footing construction to evaluate whether suitable bearing soils have been exposed and whether excavation bottoms are free of loose or disturbed soils.
- Structural fill used below foundations should extend laterally a minimum of 6 inches for every 12 vertical inches of structural fill placed. For example, if 18 inches of structural fill is required to bring the excavation to footing grade, the structural fill should extend laterally a

minimum of 9 inches beyond the edge of the footings on both sides.

10.3 Estimated Settlements

If the proposed foundations are properly designed and constructed using the parameters provided above, we estimate that total settlements should not exceed one inch and differential settlements should be one-half of the total settlement over a 25-foot length of continuous foundation, for non-earthquake conditions. Additional settlement could occur during a seismic event due to ground shaking, if more than 3 feet of grading fill is placed above the existing ground surface, if loading conditions are greater than anticipated in Section 3, and/or if foundation soils are allowed to become wetted.

10.4 Lateral Earth Pressures

Below grade walls act as soil retaining structures and should be designed to resist pressures induced by the backfill soils. The lateral pressures imposed on a retaining structure are dependent on the rigidity of the structure and its ability to resist rotation. Most retaining walls that can rotate or move slightly will develop an active lateral earth pressure condition. Structures that are not allowed to rotate or move laterally, such as subgrade basement walls, will develop an at-rest lateral earth pressure condition. Lateral pressures applied to structures may be computed by multiplying the vertical depth of backfill material by the appropriate equivalent fluid density. Any surcharge loads in excess of the soil weight applied to the backfill should be multiplied by the appropriate lateral pressure coefficient and added to the soil pressure. For static conditions the resultant forces are applied at about one-third the wall height (measured from bottom of wall). For seismic conditions, the resultant forces are applied at about two-third times the height of the wall both measured from the bottom of the wall. The lateral pressures presented in the table below are based on drained, horizontally placed native soils as backfill material using a 28° friction angle and a dry unit weight of 120 pcf.

Table 5: Lateral Earth Pressures (Static and Dynamic)

Condition	Case	Lateral Pressure Coefficient	Equivalent Fluid Pressure (pcf)
Active	Static	0.36	43
	Seismic	0.56	68
At-Rest	Static	0.53	64
	Seismic	0.75	91
Passive	Static	2.77	332
	Seismic	3.27	393

*Seismic values combine the static and dynamic values

These pressure values do not include any surcharge and are based on a relatively level ground surface at the top of the wall and drained conditions behind the wall. It is important that water is not allowed to build up (hydrostatic pressures) behind retaining structures. Retaining walls should incorporate drainage behind the walls as appropriate, and surface water should be directed away from the top and bottom of the walls.

Lateral loads are typically resisted by friction between the underlying soil and footing bottoms. Resistance to sliding may incorporate the friction acting along the base of foundations, which may be computed using a coefficient of friction of soils against concrete of 0.55 for native gravels or structural fill meeting the recommendations presented herein. For allowable stress design, the lateral resistance may be computed using Section 1807 of the 2015 International Building Code and all sections referenced therein. Retaining wall lateral resistance design should further reference Section 1807.2.3 for reference of Safety Factors. Retaining systems are assumed to be founded upon and backfilled with granular structural fill. If backfilling with clay or silt, it is required to contact Earthtec prior to construction for further review and recommendations. The values for lateral foundation pressure can be increased by one-third for wind and seismic conditions per Section 1806.1 when used with the Alternative Basic Load Combinations found in Section 1605.3.2 of the 2015 International Building Code.

The pressure and coefficient values presented above are ultimate; therefore, an appropriate factor of safety may need to be applied to these values for design purposes. The appropriate factor of safety will depend on the design condition and should be determined by the project structural engineer.

11.0 FLOOR SLABS AND FLATWORK

Concrete floor slabs and exterior flatwork may be supported on native gravel soils or 12 inches of properly placed and compacted structural fill after appropriate removals and grading as outlined in Section 8.1 are completed. We recommend placing a minimum 4 inches of free-draining fill material (see Section 8.3) beneath floor slabs to facilitate construction, act as a capillary break, and aid in distributing floor loads. For exterior flatwork, we recommend placing a minimum 4 inches of road-base material. Prior to placing the free-draining fill or road-base materials, the native sub-grade should be proof-rolled to identify soft spots, which should be stabilized as discussed above in Section 8.5.

For slab design, we recommend using a modulus of sub-grade reaction of 120 pounds per cubic inch. The thickness of slabs supported directly on the ground shall not be less than 3½ inches. A 6-mil polyethylene vapor retarder with joints lapped not less than 6 inches shall be placed between the ground surface and the concrete, as per Section 1907.1 of the 2015 International Building Code.

To help control normal shrinkage and stress cracking, we recommend that floor slabs have adequate reinforcement for the anticipated floor loads with the reinforcement continuous through interior floor joints, frequent crack control joints, and non-rigid attachment of the slabs to foundation and bearing walls. Special precautions should be taken during placement and curing of all concrete slabs and flatwork. Excessive slump (high water-cement ratios) of the concrete and/or improper finishing and curing procedures used during hot or cold weather conditions may lead to excessive shrinkage, cracking, spalling, or curling of slabs. We recommend all concrete placement and curing operations be performed in accordance with American Concrete Institute

(ACI) codes and practices.

12.0 DRAINAGE

12.1 Surface Drainage

As part of good construction practice, precautions should be taken during and after construction to reduce the potential for water to collect near foundation walls. Accordingly, we recommend the following:

- The contractor should take precautions to prevent significant wetting of the soil at the base of the excavation. Such precautions may include: grading to prevent runoff from entering the excavation, excavating during normally dry times of the year, covering the base of the excavation if significant rain or snow is forecast, backfill at the earliest possible date, frame floors and/or the roof at the earliest possible date, other precautions that might become evident during construction.
- Adequate compaction of foundation wall backfill should be provided i.e. a minimum of 90% of ASTM D-1557. Water consolidation methods should not be used.
- The ground surface should be graded to drain away from the building in all directions. We recommend a minimum fall of 8 inches in the first 10 feet.
- Roof runoff should be collected in rain gutters with down spouts designed to discharge well outside of the backfill limits, or at least 10 feet from foundations, whichever is greater.
- Sprinkler nozzles should be aimed away, and all sprinkler components kept at least 5 feet, from foundation walls. A drip irrigation system must be utilized in landscaping areas within 10 feet of foundation walls to minimize water intrusion at foundation backfill. Also, sprinklers should not be placed at the top or on the face of slopes. Sprinkler systems should be designed with proper drainage and well maintained. Over-watering should be avoided.
- Any additional precautions which may become evident during construction.

12.2 Subsurface Drainage

Walls or portions thereof that retain earth and enclose interior spaces and floors below grade shall conform to Section 1805 of the 2015 International Building Code for damp proofing and water proofing.

13.0 PAVEMENT RECOMMENDATIONS

We understand that asphalt paved parking and drive areas will be constructed as part of the project. The native soils encountered beneath the fill and topsoil during our field exploration

were predominantly composed of clay. We estimate that a California Bearing Ratio (CBR) value of 3 is appropriate for these soils. If the fill material and topsoil is left beneath concrete flatwork and pavement areas, increased maintenance costs over time should be anticipated.

We anticipate that the traffic volume will be about 500 vehicles a day or less for the parking and drive areas, consisting of mostly cars and pickup trucks, with a daily delivery truck and a weekly garbage truck. Based on these traffic parameters, the estimated CBR given above, and the procedures and typical design inputs outlined in the UDOT Pavement Design Manual (1998), we recommend the minimum asphalt pavement section presented below.

Table 6: Pavement Section Recommendations

Asphalt Thickness (in)	Compacted Roadbase Thickness (in)	Compacted Subbase Thickness (in)
3	10*	0
3	6	6*

* Stabilization may be required

If the pavement will be required to support construction traffic, more than an occasional semi-tractor or fire truck, or more traffic than listed above, our office should be notified so that we can re-evaluate the pavement section recommendations. The following also apply:

- The subgrade should be prepared by proof rolling to a firm, non-yielding surface, with any identified soft areas stabilized as discussed above in Section 8.5.
- Site grading fills below the pavements should meet structural fill composition and placement recommendations per Sections 8.3 and 8.4 herein.
- Asphaltic concrete, aggregate base and sub-base material composition should meet local, APWA or UDOT requirements.
- Aggregate base and sub-base is compacted to local, APWA, or UDOT requirements, or to at least 95 percent of maximum dry density (ASTM D 1557).
- Asphaltic concrete is compacted to local or UDOT requirements, or to at least 96 percent of the laboratory Marshall density (ASTM D 6927).

Due to high static loads imposed by at dumpster locations, we recommend that a rigid pavement section for this area of a minimum of six (6) inches of Portland Cement Concrete (PCC) over a minimum of six (6) inches of aggregate base material. The aggregate base material should meet local, APWA or UDOT requirements and should be compacted to local, APWA, or UDOT requirements, or to at least 95 percent of maximum dry density (ASTM D1557).

14.0 GENERAL CONDITIONS

The exploratory data presented in this report was collected to provide geotechnical design recommendations for this project. The explorations may not be indicative of subsurface conditions outside the study area or between points explored and thus have a limited value in depicting subsurface conditions for contractor bidding. Variations from the conditions portrayed in the explorations may occur and which may be sufficient to require modifications in the design. If during construction, conditions are different than presented in this report, Earthtec should be advised immediately so that the appropriate modifications can be made.

Earthtec Engineering was not involved in the design, construction, or evaluation of the constructed rock walls. We recommend that the rock walls and slope be evaluated if any structure is placed within 20 feet of the rock walls.

The findings and recommendations presented in this geotechnical report were prepared in accordance with generally accepted geotechnical engineering principles and practice in this area of Utah at this time. No warranty or representation is intended in our proposals, contracts, letters, or reports.

This geotechnical report is based on relatively limited subsurface explorations and laboratory testing. Subsurface conditions may differ in some locations of the site from those described herein, which may require additional analyses and possibly modified recommendations. Thus, we strongly recommend consulting with Earthtec regarding any changes made during design and construction of the project from those discussed herein. Failure to consult with Earthtec regarding any such changes relieves Earthtec from any liability arising from changed conditions at the site.

To maintain continuity, Earthtec should also perform materials testing and special inspections for this project. The recommendations presented herein are based on the assumption that an adequate program of tests and observations will be followed during construction to verify compliance with our recommendations. We also assume that we will review the project plans and specifications to verify that our conclusions and recommendations are incorporated and remain appropriate (based on the actual design). Earthtec should be retained to review the final design plans and specifications so comments can be made regarding interpretation and implementation of our geotechnical recommendations in the design and specifications. Earthtec also should be retained to provide observation and testing services during grading, excavation, foundation construction, and other earth-related construction phases of the project.

We appreciate the opportunity of providing our services on this project. If we can answer questions or be of further service, please contact Earthtec at your convenience.

Respectfully;

EARTHTEC ENGINEERING

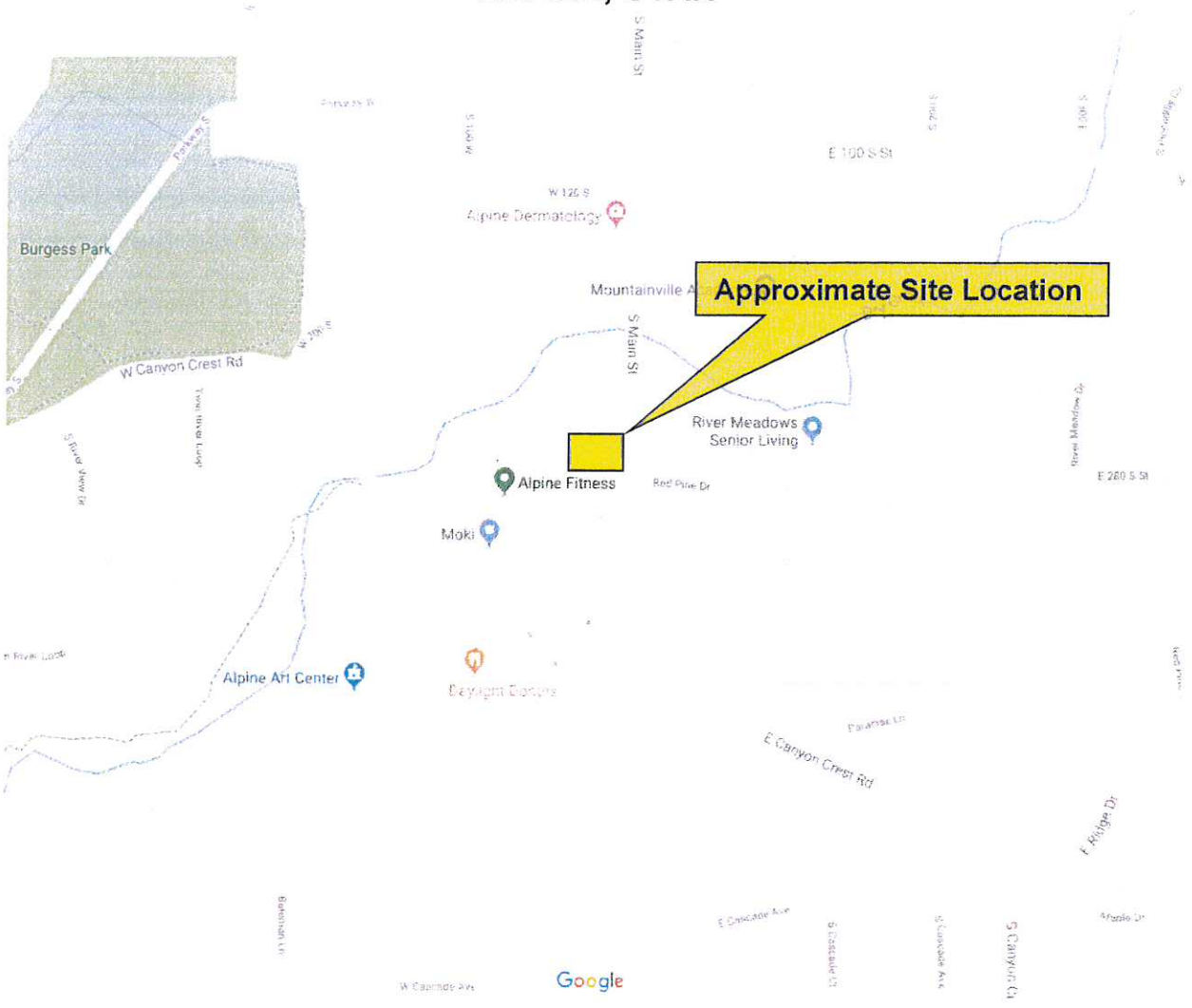
Jeremy A. Balleck, E.I.T.
Staff Engineer

PROFESSIONAL ENGINEER
No. 5567049-2202
TIMOTHY ALLAN MITCHELL
12/14/2018
STATE OF UTAH

Timothy A. Mitchell, P.E.
Geotechnical Engineer

VICINITY MAP

ALPINE TOWNHOMES
300 SOUTH MAIN STREET
ALPINE, UTAH



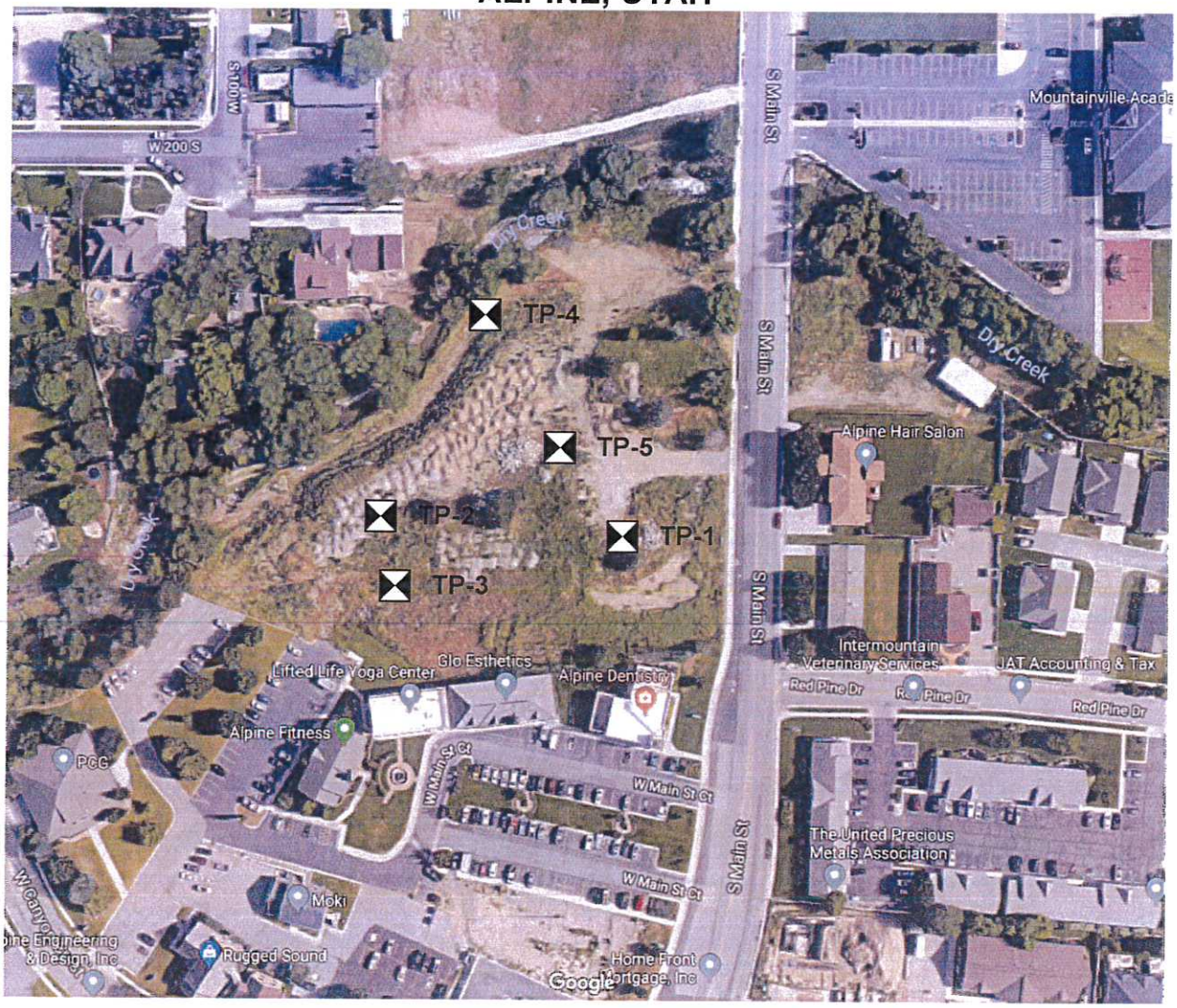
N

Not to Scale

PROJECT NO.: 189260	EARTHTEC ENGINEERING	FIGURE NO.: 1

AERIAL PHOTOGRAPH SHOWING LOCATION OF TEST PITS

ALPINE TOWNHOMES
300 SOUTH MAIN STREET
ALPINE, UTAH



☒ Approximate Test Pit Locations

N

Not to Scale

PROJECT NO.: 189260	EARTHTEC ENGINEERING INC	FIGURE NO.: 2

TEST PIT LOG
NO.: TP-1

PROJECT: Alpine Townhomes
CLIENT: Cottle Capital Group, LLC
LOCATION: See Figure 2
OPERATOR: JSI
EQUIPMENT: Mini Excavator
DEPTH TO WATER; INITIAL ▽ :

PROJECT NO.: 189260
DATE: 11/30/18
ELEVATION: Not Measured
LOGGED BY: J. Balleck
AT COMPLETION ▼ :

Depth (Ft.)	Graphic Log	USCS	Description	Samples	TEST RESULTS: Water Cont. (%)	Dry Dens. (pcf)	LL	PI	Gravel (%)	Sand (%)	Fines (%)	Other Tests
0			TOPSOIL, lean clay, moist, brown									
1												
2		CL	Lean CLAY, medium stiff (estimated), moist, brown, blocky, roots									
3												
4		GM	Silty GRAVEL with sand, medium dense (estimated), moist, brown, occasional cobbles									
5												
6		GP-GM	Poorly Graded GRAVEL with silt and sand, medium dense to dense (estimated), moist, gray, occasional cobbles									
7												
8												
9												
10		ML	SILT with sand, medium stiff (estimated), moist, brown, slightly porous		16	108	21	NP	0	26	74	C
11												
12					16	93	23	3	1	24	75	C
13			Maximum depth explored approximately 12 feet									
14												
15												

Notes: No groundwater encountered.

Tests Key
CBR = California Bearing Ratio
C = Consolidation
R = Resistivity
DS = Direct Shear
SS = Soluble Sulfates
B = Burnoff

PROJECT NO.: 189260

EARTHTEC ENGINEERING

FIGURE NO.: 3

LOG OF TESTPIT 189260 LOGS.GPJ EARTHTEC.GDT 12/13/18

TEST PIT LOG
NO.: TP-2

PROJECT: Alpine Townhomes
CLIENT: Cottle Capital Group, LLC
LOCATION: See Figure 2
OPERATOR: JSI
EQUIPMENT: Mini Excavator
DEPTH TO WATER; INITIAL ▽ :

PROJECT NO.: 189260
DATE: 11/30/18
ELEVATION: Not Measured
LOGGED BY: J. Balleck
AT COMPLETION ▼ :

Depth (Ft.)	Graphic Log	USCS	Description	Samples	TEST RESULTS: Water Cont. (%)	Dry Dens. (pcf)	LL	PI	Gravel (%)	Sand (%)	Fines (%)	Other Tests
0			FILL, silty gravel, moist, brown, debris, trash									
1												
2												
3												
4												
5												
6												
7												
8												
9												
10			Maximum depth explored approximately 10 feet									
11												
12												
13												
14												
15												

Notes: No groundwater encountered.

Tests Key
CBR = California Bearing Ratio
C = Consolidation
R = Resistivity
DS = Direct Shear
SS = Soluble Sulfates
B = Burnoff

PROJECT NO.: 189260

EARTHTEC ENGINEERING

FIGURE NO.: 4

LOG OF TESTPIT 189260 LOGS.GPJ EARTHTEC.GDT 12/13/18

TEST PIT LOG
NO.: TP-3

PROJECT: Alpine Townhomes
CLIENT: Cottle Capital Group, LLC
LOCATION: See Figure 2
OPERATOR: JSI
EQUIPMENT: Mini Excavator
DEPTH TO WATER; INITIAL ▽ :

PROJECT NO.: 189260
DATE: 11/30/18
ELEVATION: Not Measured
LOGGED BY: J. Balleck
AT COMPLETION ▼ :

Depth (Ft.)	Graphic Log	USCS	Description	Samples	TEST RESULTS: Water Cont. (%)	Dry Dens. (pcf)	LL	PI	Gravel (%)	Sand (%)	Fines (%)	Other Tests
0			FILL, silty gravel, moist, brown, debris, trash									
1												
2												
3												
4												
5												
6												
7												
8		SM	Silty SAND, medium dense (estimated), moist, light brown, slightly porous									
9												
10												
11		ML	SILT with sand, medium stiff (estimated), moist, brown, oxide stains, slightly porous		11	89	22	NP	1	19	80	C
12												
13			Maximum depth explored approximately 12 feet									
14												
15												

Notes: No groundwater encountered.

Tests Key
CBR = California Bearing Ratio
C = Consolidation
R = Resistivity
DS = Direct Shear
SS = Soluble Sulfates
B = Burnoff

PROJECT NO.: 189260

EARTHTEC ENGINEERING

FIGURE NO.: 5

LOG OF TESTPIT 189260 LOGS.GPJ EARTHTEC.GDT 12/13/18

TEST PIT LOG
NO.: TP-4

PROJECT: Alpine Townhomes
CLIENT: Cottle Capital Group, LLC
LOCATION: See Figure 2
OPERATOR: JSI
EQUIPMENT: Mini Excavator
DEPTH TO WATER; INITIAL ▽ :

PROJECT NO.: 189260
DATE: 11/30/18
ELEVATION: Not Measured
LOGGED BY: J. Balleck
AT COMPLETION ▼ :

Depth (Ft.)	Graphic Log	USCS	Description	Samples	TEST RESULTS: Water Cont. (%)	Dry Dens. (pcf)	LL	PI	Gravel (%)	Sand (%)	Fines (%)	Other Tests
0			TOPSOIL, silty sand, moist, brown									
1–11		GP	Poorly Graded GRAVEL with sand, medium dense to dense (estimated), moist, gray, some cobbles	X	2				60	37	3	
11			Maximum depth explored approximately 11 feet									
12												
13												
14												
15												

Notes: No groundwater encountered.

Tests Key
CBR = California Bearing Ratio
C = Consolidation
R = Resistivity
DS = Direct Shear
SS = Soluble Sulfates
B = Burnoff

PROJECT NO.: 189260

EARTHTEC ENGINEERING

FIGURE NO.: 6

LOG OF TESTPIT 189260 LOGS.GPJ EARTHTEC.GDT 12/13/18

TEST PIT LOG
NO.: TP-5

PROJECT: Alpine Townhomes
CLIENT: Cottle Capital Group, LLC
LOCATION: See Figure 2
OPERATOR: JSI
EQUIPMENT: Mini Excavator
DEPTH TO WATER; INITIAL ▽ :

PROJECT NO.: 189260
DATE: 11/30/18
ELEVATION: Not Measured
LOGGED BY: J. Balleck
AT COMPLETION ▼ :

Depth (Ft.)	Graphic Log	USCS	Description	Samples	TEST RESULTS: Water Cont. (%)	Dry Dens. (pcf)	LL	PI	Gravel (%)	Sand (%)	Fines (%)	Other Tests
0			FILL, silty gravel, moist, brown, debris, trash									
7		GM	Silty GRAVEL with sand, medium dense (estimated), moist, brown, occasional cobbles									
10			Maximum depth explored approximately 10 feet									
15												

Notes: No groundwater encountered.

Tests Key
CBR = California Bearing Ratio
C = Consolidation
R = Resistivity
DS = Direct Shear
SS = Soluble Sulfates
B = Burnoff

PROJECT NO.: 189260

EARTHTEC ENGINEERING

FIGURE NO.: 7

LOG OF TESTPIT 189260 LOGS.GPJ EARTHTEC.GDT 12/13/18

LEGEND

PROJECT: Alpine Townhomes **DATE:** 11/30/18
CLIENT: Cottle Capital Group, LLC **LOGGED BY:** J. Balleck

UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR SOIL DIVISIONS			USCS SYMBOL	TYPICAL SOIL DESCRIPTIONS
COARSE GRAINED SOILS (More than 50% retaining on No. 200 Sieve)	GRAVELS (More than 50% of coarse fraction retained on No. 4 Sieve)	CLEAN GRAVELS (Less than 5% fines)	GW	Well Graded Gravel, May Contain Sand, Very Little Fines
			GP	Poorly Graded Gravel, May Contain Sand, Very Little Fines
		GRAVELS WITH FINES (More than 12% fines)	GM	Silty Gravel, May Contain Sand
			GC	Clayey Gravel, May Contain Sand
	SANDS (50% or more of coarse fraction passes No. 4 Sieve)	CLEAN SANDS (Less than 5% fines)	SW	Well Graded Sand, May Contain Gravel, Very Little Fines
			SP	Poorly Graded Sand, May Contain Gravel, Very Little Fines
		SANDS WITH FINES (More than 12% fines)	SM	Silty Sand, May Contain Gravel
			SC	Clayey Sand, May Contain Gravel
FINE GRAINED SOILS (More than 50% passing No. 200 Sieve)	SILTS AND CLAYS (Liquid Limit less than 50)		CL	Lean Clay, Inorganic, May Contain Gravel and/or Sand
			ML	Silt, Inorganic, May Contain Gravel and/or Sand
			OL	Organic Silt or Clay, May Contain Gravel and/or Sand
	SILTS AND CLAYS (Liquid Limit Greater than 50)		CH	Fat Clay, Inorganic, May Contain Gravel and/or Sand
			MH	Elastic Silt, Inorganic, May Contain Gravel and/or Sand
			OH	Organic Clay or Silt, May Contain Gravel and/or Sand
HIGHLY ORGANIC SOILS			PT	Peat, Primarily Organic Matter

SAMPLER DESCRIPTIONS

- SPLIT SPOON SAMPLER (1 3/8 inch inside diameter)
- MODIFIED CALIFORNIA SAMPLER (2 inch outside diameter)
- SHELBY TUBE (3 inch outside diameter)
- BLOCK SAMPLE
- BAG/BULK SAMPLE

WATER SYMBOLS

- Water level encountered during field exploration
- Water level encountered at completion of field exploration

NOTES:
1. The logs are subject to the limitations, conclusions, and recommendations in this report.
2. Results of tests conducted on samples recovered are reported on the logs and any applicable graphs.
3. Strata lines on the logs represent approximate boundaries only. Actual transitions may be gradual.
4. In general, USCS symbols shown on the logs are based on visual methods only: actual designations (based on laboratory tests) may vary.

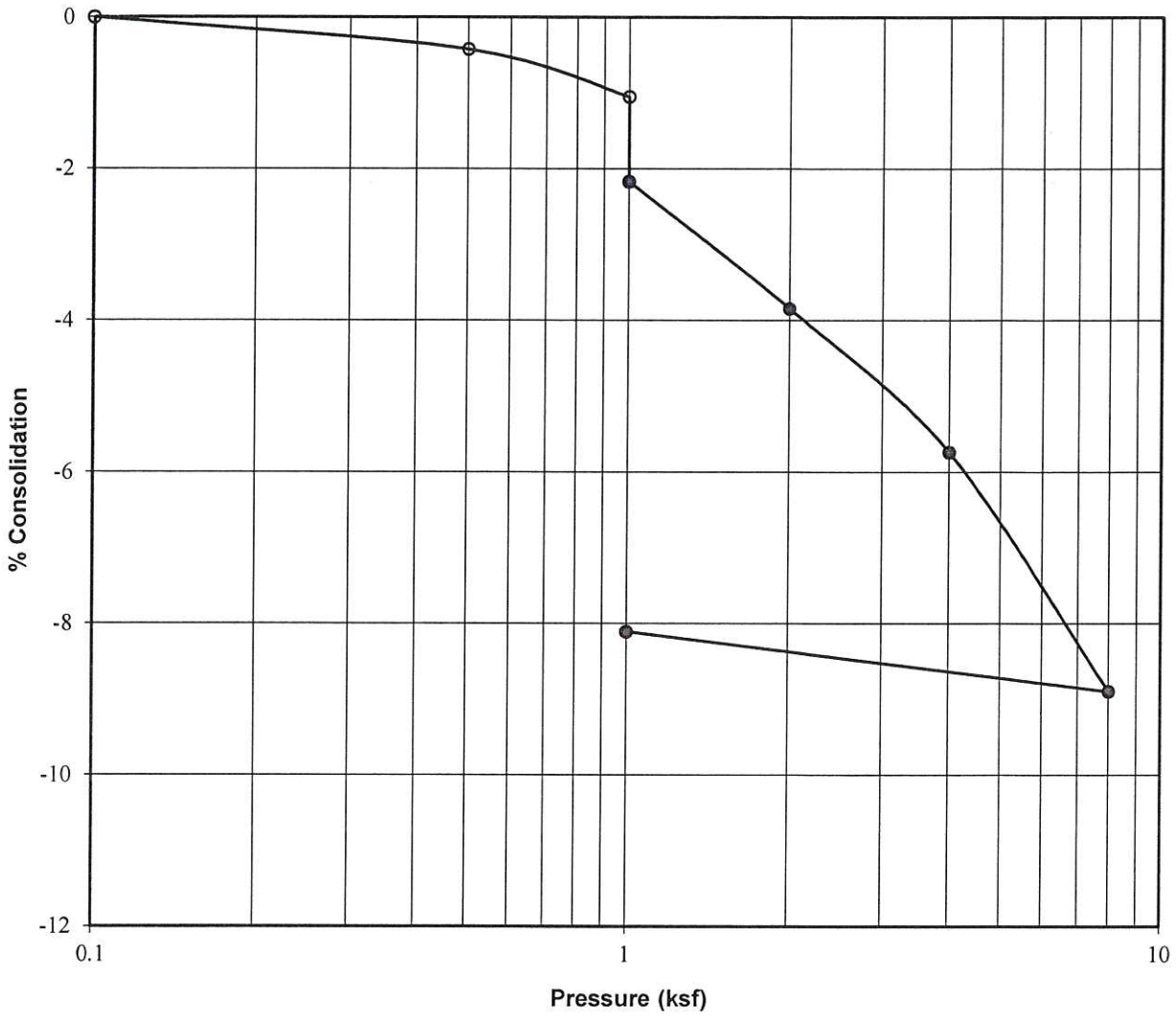
PROJECT NO.: 189260

EARTHTEC ENGINEERING

FIGURE NO.: 8

LEGEND 189260 LOGS.GPJ EARTHTEC.GDT 12/13/18

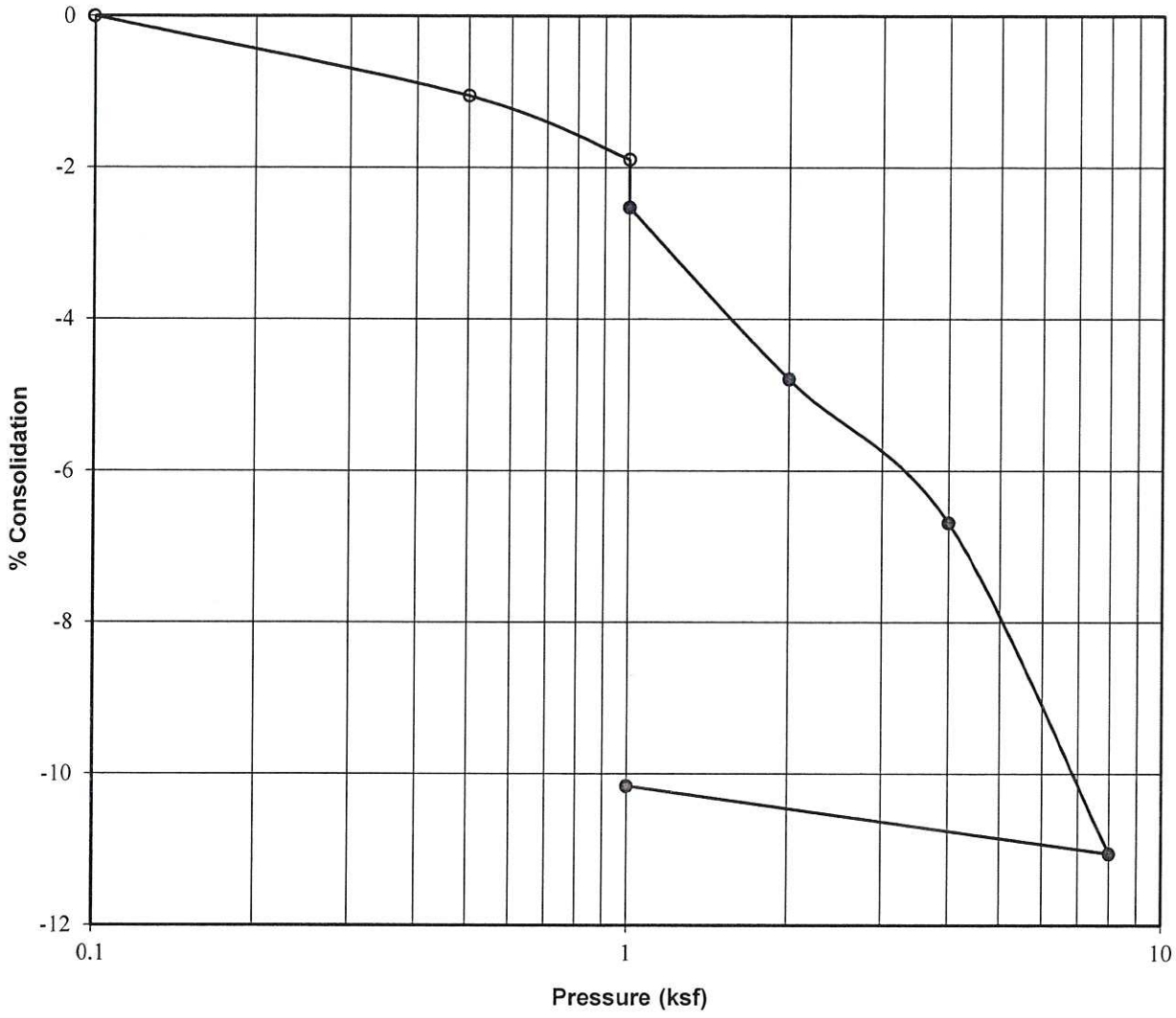
CONSOLIDATION - SWELL TEST



Project:	Alpine Townhomes
Location:	TP-1
Sample Depth, ft:	9
Description:	Block
Soil Type:	SILT with sand (ML)
Natural Moisture, %:	16
Dry Density, pcf:	108
Liquid Limit:	21
Plasticity Index:	NP
Water Added at:	1 ksf
Percent Collapse:	1.1

PROJECT NO.: 189260		**FIGURE NO.:** 9

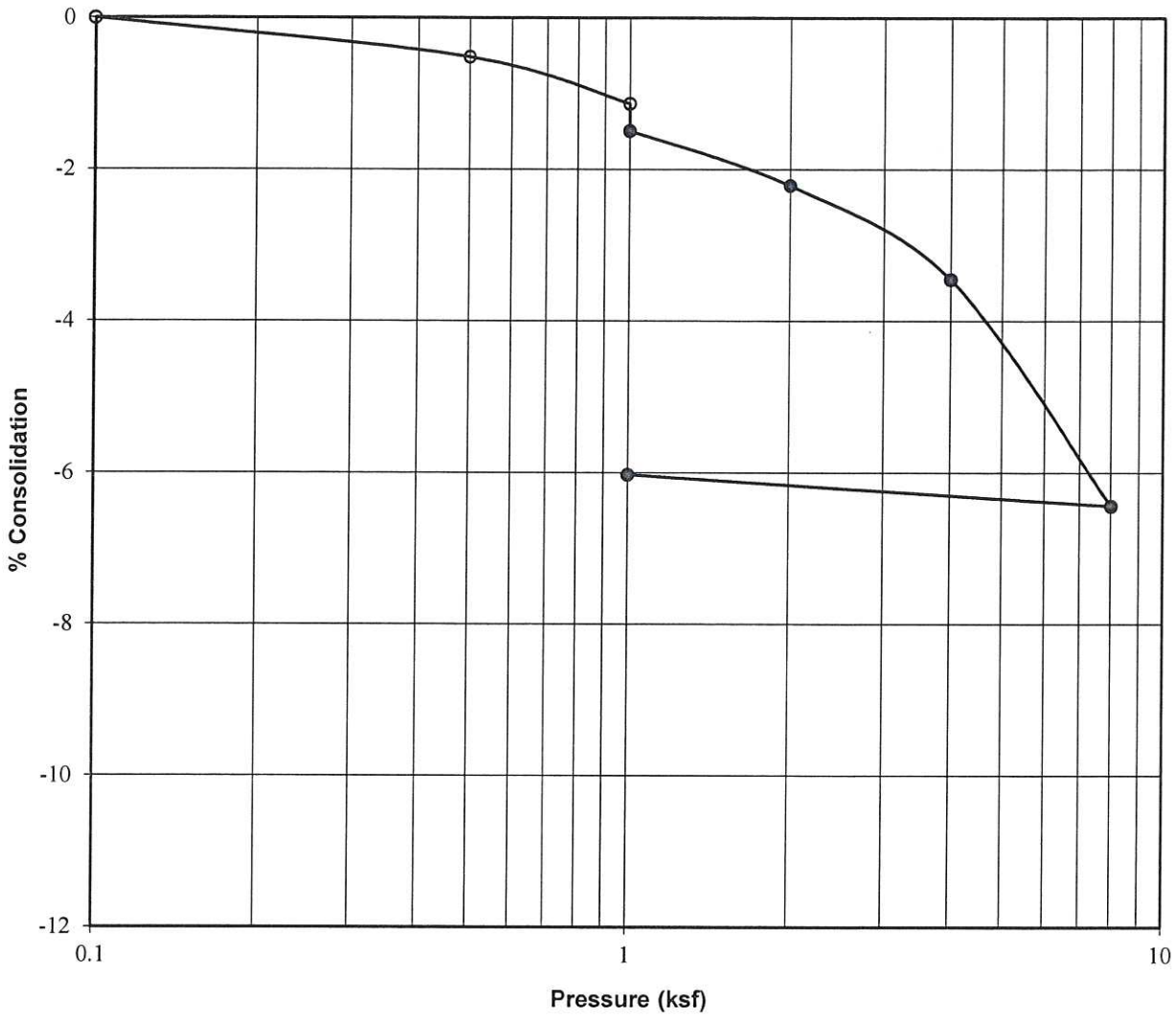
CONSOLIDATION - SWELL TEST



Project:	Alpine Townhomes
Location:	TP-1
Sample Depth, ft:	11½
Description:	Block
Soil Type:	SILT with sand (ML)
Natural Moisture, %:	16
Dry Density, pcf:	93
Liquid Limit:	23
Plasticity Index:	3
Water Added at:	1 ksf
Percent Collapse:	0.6

PROJECT NO.: 189260		**FIGURE NO.:** 10

CONSOLIDATION - SWELL TEST



Project:	Alpine Townhomes
Location:	TP-3
Sample Depth, ft:	10
Description:	Block
Soil Type:	SILT with sand (ML)
Natural Moisture, %:	11
Dry Density, pcf:	89
Liquid Limit:	22
Plasticity Index:	NP
Water Added at:	1 ksf
Percent Collapse:	0.4

PROJECT NO.: 189260		**FIGURE NO.:** 11

APPENDIX A

Timpview Analytical Laboratories
A Chemtech-Ford, Inc. Affiliate
1384 West 130 South Orem, UT 84058 (801) 229-2282

Certificate of Analysis

Earthtec Testing & Engineering
Caleb Allred
1497 W 40 S
Lindon, UT 84042
DW System # :

Work Order #: 18L0336
PO# / Project Name: 189260
Receipt: 12/6/18 12:55
Batch Temp °C: 9.1
Date Reported: 12/14/2018

Sample Name: **189260 TP-1 @ 4.5**

Collected: 11/30/18 11:00 **Matrix:** Solid **Collected By:** Client

Parameter	Lab ID #	Method	Analysis Date / Time	Result	Units	MRL	Flags
Sulfate, Soluble (IC)	18L0336-01	EPA 300.0	12/14/18	12	mg/kg dry	10	
Total Solids	18L0336-01	SM 2540G	12/10/18	98.4	%	0.1	

Comment:

Reviewed by: Joyce Applegate

Joyce Applegate, Project Manager

Analyses presented in this report were performed in accordance with the National Environmental Laboratory Accreditation Program by a Chemtech-Ford affiliate company, except where otherwise noted.

Common Area Maintenance and Management Plan

MONTDELLA TOWNHOMES

COTTLE CAPITAL GROUP

Alan Cottle, Manager
COTTLE CAPITAL GROUP, LLC
801 North 500 West, #103
Bountiful, UT 84010
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PURPOSE AND RESPONSIBILTY

As required by the Clean Water Act and resultant local regulations, including the Alpine City ordinances, those who develop land are required to build and maintain systems to minimize litter and contaminants in stormwater runoff that pollute waters of the State.

This Common Area Maintenance and Management Plan ("Plan") describes the systems, operations and the minimum standard operating procedures (SOPs) necessary to manage pollutants originating from or generated on this property. Any activities or site operations at this property that contaminate water entering the City's stormwater system and generate loose litter must be prohibited, unless SOPs are written to manage those activities or operations, and amended into this Plan.

SECTION 1: SITE DESCRIPTION, USE AND IMPACT

The site infrastructure and operations described in this Section are limited at controlling and containing pollutants and if managed improperly can contaminate the environment. The Plan includes standard operations procedures (SOP)s that are intended to compensate for the limitations of the site infrastructure.

The property manager must use good judgment and conduct operations appropriately, doing as much as possible indoors and responsibly managing operations that must be performed outdoors.

Impervious Areas, Parking, Sidewalk and Patio

The impervious infrastructure will consist of concrete drives, asphalt paved road surfaces, walkways to the home, small rear patios, curb and gutter. The road surfaces and curb and gutter are designed to funnel and collect contaminants and debris in locations as per the approved engineered construction drawings. The home owners association (the "HOA") will incorporate into its maintenance duties an SOP that such drains will be regularly inspected and cleaned by contracted maintenance or landscape maintenance company.

Storm Drain System

The storm water system will be constructed as per approved engineered construction drawings. Its presence and maintenance will positively impact water quality. HOA will use Alpine City's BMP guidelines for Storm Drain System Best Management Practices after the construction phase, such as: during snowy weather, inlet protection should be marked with a candle marker or some other effective device to warn storm plows to avoid the inlet. Storm inlet should be inspected after any snow plowing to be sure it is installed correctly.

Landscaping

The developer will have designed and installed landscaping that is sensitive to water consumption. Automatic sprinkling systems will be installed to minimize secondary water consumption. All excess water crossing landscaping will be contained within the storm drain system. HOA will adhere to BPM for landscape maintenance, which will include weekly maintenance and cleanup; all debris removed from the site by the landscape contractor. This will limit any debris flowing toward a storm drain system.

Waste Management

The HOA will contract with a qualified, licensed, insured and bonded waste management contractor for weekly off-haul of waste. Each household in the development will have an individual trash receptible for weekly off-haul. Such containment and weekly off-haul of trash will improve water quality as it will remain free of debris and pollution.

Utility System

The utility system should have little or no impact on the storm drain system. All utilities will be installed underground and maintained by the municipalities or providers to which they are dedicated. The landscape maintenance contractor will look to keep the trees maintained in size and scope so as not to interfere with utility lines.

Snow and Ice Removal Management

Snow and ice removal will be contracted with a qualified snow/ice removal management company. Snow and ice will be removed to limit debris flowing toward the storm drains.

Equipment / Outside Storage

No outside storage structures or equipment are contemplated in the development project.

Outdoor Functions; Yard Sale Events, Fund Raisers...

All such outdoor functions, such as yard sale events, fund raise5rs, etc. much comply with Alpine City ordinances. The HOA will not allow these events to generate trash or, if they do, they must be contained in receptacles that are part of the scheduled waste management program. This will help maintain good water quality and keep the storm drain systems free of debris.

Add infrastructure or operations that are unique to this site

There are no infrastructure operations unique to this site.

SECTION 2: TRAINING

The HOA will ensure that all employees and maintenance contractors know and understand the SOPs specifically written to manage and maintain the property. Maintenance contractors must use the stronger of their Company and the Plan's SOPs. File all training records in Appendix A.

SECTION 3: RECORDKEEPING

The HOA will maintain records of operation and maintenance activities in accordance with SOPs.

APPENDIX A – PLAN RECORDKEEPING DOCUMENTS

Annual SOP Training Log per Section 2

SOP	Trainer	Employee Name / Maintenance Contractor Co	Date

MAINTENANCE/INSPECTION SCHEDULE

Frequency	Site Infrastructure.
S	Snow/ice removal
W	Landscape maintenance, debris removal, storm drain inspection
W	Waste management, debris removal

Inspection Frequency Key: A=annual, Q=Quarterly, M=monthly, W=weekly, S=following appreciable storm event, U=Unique infrastructure specific (specify)

RECORD INSPECTIONS IN THE MAINTENANCE LOG

Inspection Means: Either; Traditional walk through, Awareness/Observation, and during regular maintenance operations while noting efficiencies/inefficiencies/concerns found, etc.

MAINTENANCE LOG

Date	Maintenance Performed/Spill Events. Perform Maintenance per SOPs	Observation Notes, including but not limited to; Inspection results, Observations, System Performance (effectiveness/inefficiencies), SOP Usefulness, Concerns, Necessary Changes…	Initials

Annual Summary of Plan effectiveness, inefficiencies, problems, necessary changes etc.