



PUBLIC NOTICE
WOODLAND PARK PLANNING COMMISSION
Thursday, May 12, 2022, 6:30 P.M.
Council Chambers – 220 W. South Avenue
AGENDA – Revised 4/26/2022

Zoom link from the calendar at the bottom of the front page of the City website (www.city-woodlandpark.org). Public input is important to the Planning Commission and comments are encouraged in writing in advance.

- 1. CALL TO ORDER & ROLL**
- 2. PLEDGE OF ALLEGIANCE**
- 3. APPROVE MINUTES:** April 28, 2022
- 4. PUBLIC HEARINGS**

A. CUP/SPR2022-01 Fred's Towing CUP: A request by M.V.E., Inc. (Applicant) and Gino LLC, A Colorado LLC (Property Owner) for approval of a Conditional Use Permit and Site Plan Review for Fred's Towing, a commercial building with vehicle storage area on Lot 1, Sunny Glen Retreat Subdivision Filing No. 2 (2730 Mountain Glen Court) in the Community Commercial (CC) zone. **(QJ)**

The City Council Public Hearing is currently scheduled for Thursday, June 16, 2022, 7:00 P.M.

B. SUB2022-02 Extension of The Haven at Paradise Preliminary Plat: A request by Frankie Valenzuela (Applicant) and Johnathan James of Ventus (Property Owner) for a 2-year extension of the Preliminary Plat approved for a 35.77 acre parcel north of Kings Crown Road for 24 residential lots in the Suburban Residential (SR) zone. **(QJ)**

C. CUP/SPR2022-02 The Grove at Spruce Haven CUP: Consider a request by Joe Kent of 920 Spruce Haven LLC (Applicant and Owner) for a Conditional Use Permit (CUP) for construction of six (6) 2-unit attached single family dwellings on 2.18 acres in a portion of the W1/2 of the NW1/4 of Section 24, Township 12 South, Range 69 West of the 6th Principal Meridian, also known as part of the Kowitz Tracts, with an address of 920 Spruce Haven Drive in the Multi-Family Residential Suburban (MFS) zone. **(QJ)**

The City Council Public Hearing is currently scheduled for Thursday, June 16, 2022, 7:00 P.M.

- 5. REPORTS**
- 6. ADJOURN**

For more information, please contact the Planning Department 719.687.5283

WOODLAND PARK PLANNING COMMISSION

MEETING MINUTES for April 28, 2022

Council Chambers, 220 W South Avenue, Woodland Park

This meeting was a hybrid meeting with in-person and virtual attendance. The Zoom meeting link is in the calendar on the City website front page. Public input is very important to the Planning Commission. Comments were encouraged in writing in advance of the meeting to be submitted by mail to the Planning Department at PO Box 9007, Woodland Park, CO, 80866 or email to kschminke@city-woodlandpark.org.

1. CALL TO ORDER & ROLL:

Chair Ken Hartsfield called the meeting to order at 6:30 pm.

Present	Commissioner Hartsfield
Present	Commissioner Lee Brown
Present	Commissioner Carrol Harvey
Present	Commissioner Kenneth Kennedy
Present	Commissioner Larry Larsen
Present	Commissioner Shawn Nielsen

Staff Present: Planning Director Karen Schminke and Planner 1 David Burgess

Commissioner Al Bunge was absent.

2. PLEDGE OF ALLEGIANCE

3. APPROVE MINUTES: The April 14, 2022 were approved with corrections.

Note – There was approximately a 20 minute window at the start of this item with no business conducted due to technical difficulties with virtual connection.

4. PUBLIC HEARINGS

A. Continued from March 10, 2022 and April 14, 2022: CUP#2021-03 – Tamarac Contractor Services: consider a request by Skip Howes (Applicant) and the Tamarac Land Company (Property Owner) for a Conditional Use Permit (CUP) pursuant to §18.09.090.G.1. Contractors & Construction Services use on 4.22 acres in a portion of the W1/2 of the SW1/4 of Section 12, Township 12 South, Range 69 West of the 6th Principal Meridian, lying SW of “Tamarac Tech Park Filing No. 2” and lying NW of “Tamarac Tech Park Filing No. 1” with an address of 1010 Research Drive. (QJ)

Chair Hartsfield reopened the hearing and Planning Director Schminke presented a PowerPoint presentation summarizing the supplemental staff report and the coordination with the applicant that had occurred since March 10, 2022. She recapped that the purpose of this item is to bring a non-conforming use into compliance and incorporate site improvements requested by the applicant (second driveway and surface improvements) as well as address the impacts of the development by requiring storm water improvements to address existing site conditions as well as changes and screening along the road. She also noted the recommendation that all site improvements (i.e. water quality detention, surface changes with the addition of millings, the second driveway, and the fence screening) be included under one multi-use Zoning Development Permit (ZDP) which allows the applicant to concurrently and efficiently address all desired and necessary improvements. The presentation concluded with the Staff recommendation that the Planning Commission recommend to City Council approval of this application with the following conditions:

1. Prior to November 1, 2022, the property owner must clean all litter and debris from the site (i.e. old truck, concrete, debris).

2. The final drainage report must be approved by the City Engineer before a grading permit or Zoning Development Permit (ZDP) can be issued.
3. A grading permit is required for surface changes or disturbances that exceed 7,500 SF in area.
4. A single multi-use ZDP is required for the site improvements (including water quality detention, surface changes with the addition of millings, the second driveway, and the fence screening). A final concept plan for the site is necessary in order to issue this ZDP.
5. All applicable fees are to be paid (i.e. storm water fees based upon impervious area at the time the ZDP is issued).
6. Final concept plans for the site shall be submitted that show location and dimensions for:
 - a. material storage areas and drive areas
 - b. equipment parking areas for rolling stock
 - c. water quality detention facilities
 - d. screening and fencing details compliant with MC §18.42
 - e. 25% landscaping
 - f. 10% snow storage areas
7. Hours of operation shall be limited to dawn (no earlier than 7 am) to dusk (no later than 9 pm) Monday through Friday. After hours emergency operations are permitted subject to emergency requirements.
8. All exterior lighting, if any, shall be downcast and shielded with a temperature of 3,000 K or warmer and shall not exceed the twenty-five feet in height.
9. Uses shall not include any activity involving the use or storage of flammable or explosive material unless protected by adequate fire-fighting and fire suppression equipment and by such safety devices as are normally used in handling any such material as approved by the Northeast Teller County Fire Protection District.
10. No smoke, odor, vibration, glare or particulate emissions shall be permitted which can cause damage to health, animals, vegetation, or affect properties beyond the parcel boundaries.
11. Notwithstanding any conditions herein, this CUP does not grant a noise relief permit and the use/business shall at all times be subject to *MC 9.41 Noise*.
12. Pursuant to *MC 18.33.180*, at least 15% of parcel shall remain as open space.
13. Pursuant to *MC 18.33.180.D*, healthy existing significant trees shall be preserved to the extent reasonably feasible and may be used to satisfy landscaping and open space requirements.

Commissioner Kennedy questioned the landscaping percentage requirement compared to the overall site. Staff clarified that the landscaping requirement can overlap with the open space requirement. Mr. Howes also added that open space had to be useable so the floodplain area could not be used to meet that requirement. Staff also provided

explanation for the recommended hours of operation for the business as well as explaining the timing review of construction documents and issuance of a zoning development permit (ZDP).

Chair Hartsfield next turned to the applicant, Skip Howes, for his presentation. Mr. Howes reviewed the revised site plans that he submitted including the location of natural features, uses, improvements on the site and other notations. He then addressed drainage improvements saying those will be based on a maximum impervious site coverage of 70% and they will consist of more linear shaped detention features. He also acknowledged the need for a grading permit since they will be disturbing over 7,500 SF of land area. He then asked for the Commission's direction for the appropriate placement of the 6-foot fence.

There was a discussion between the applicant and the Commission regarding the fence placement, the need for screening and site security. Staff provided clarification of the required standard from MC §18.42.030. The Commission also looked at MC §18.42.100 which allows the City Administrator or their designee to authorize an alternate fence location.

Next Mr. Howes then went through the list of conditions and provided clarification on each one. He was okay with conditions 1, 3, 5 through 13. With condition #2 he requested language that requires the City Engineer to provide comments within two weeks of when the final report is submitted; and asked to pull the driveway out of the multi-use ZDP in condition #4. The Commission responded that they were not comfortable, nor was it within their purview, to specify a time limit for the city engineer to return comments.

Chair Hartsfield opened the public comment section.

Shirley Douthit who lives directly across from the subject property stated she has seen the use grow with the addition of the excavating contractor and has seen an increase in truck traffic with continuous truck noise on some days. She noted the new driveway would be a benefit if that is the one used primarily by the trucks, but still has concerns about continued future growth of this business and potential conflicts with the homes that will be added to the neighborhood.

With no one else in the audience wishing to comment, Chair Hartsfield asked if anyone in the virtual audience had questions. Virtual attendee, Craig Miller, noted there were no questions from virtual audience since they were not able to hear the presentation.

Chair Hartsfield closed the public comment and led the Commission in discussion.

Director Schminke answered Commissioner Brown's questions related to conditions #1, #2, #5, and #6. The Commission discussed the desirability of and the process for reducing the front setback for 6' fence. Municipal Code §18.42.100 provides a process to appeal to the City Manager or their designee for a reduced setback for the fence.

Commissioner Larson provided clarification that the subject property was zoned Service Commercial (SC) in 2004 and contractor services is a conditional use in this zone which means it is allowed subject to conditions. He assured Mrs. Douthit that even though her house was built in 2007 he heard her concerns.

The Commission asked staff to clarify the phrase 'concept plan for the site' and some of the conditions. Staff explained that the primary objective here is to have a non-conforming use come into compliance so a lighter touch was being used related to the site plan requirements, which then results in some conditions of approval being primarily informational so that all parties are on the same page for what is required going forward.

Commissioner Brown moved, and Commissioner Kennedy seconded, that the Planning Commission **recommend City Council** approve the Conditional Use Permit (CUP), based on the findings contained in the staff reports and as presented at public hearings, for *18.09.090.G. Contractors & Construction Services* uses on 4.22 acres in the W1/2 of the SW1/4 of Section 12, Township 12 South, Range 69 West of the 6th Principal Meridian, lying SW of “Tamarac Tech Park Filing No. 2” and lying NW of “Tamarac Tech Park Filing No. 1” (1010 Research Drive) in the Service Commercial (SC) zone subject to the following conditions:

1. Prior to November 1, 2022, the property owner must clean all litter and debris from the site (i.e. old truck, concrete, debris).
2. The final drainage report must be approved by the City Engineer before a grading permit or Zoning Development Permit (ZDP) can be issued.
3. A grading permit is required for surface changes or disturbances that exceed 7,500 SF in area.
4. A single multi-use ZDP is required for the site improvements (including water quality detention, surface changes with the addition of millings, the second driveway, and the fence screening). A final concept plan for the site is necessary in order to issue this ZDP.
5. All current applicable fees are to be paid (i.e. storm water fees based upon impervious area at the time the ZDP is issued). Other fees may apply to future development.
6. Final concept plans for the site shall be submitted that show location and dimensions for:
 - a. material storage areas and drive areas
 - b. equipment parking areas for rolling stock
 - c. water quality detention facilities
 - d. screening and fencing details compliant with MC §18.42
 - e. 25% landscaping
 - f. 10% snow storage areas
7. Hours of operation shall be limited to dawn (no earlier than 7 am) to dusk (no later than 9 pm) Monday through Friday. After hours emergency operations are permitted subject to emergency requirements.
8. All exterior lighting, if any, shall be downcast and shielded with a temperature of 3,000 K or warmer and shall not exceed the twenty-five feet in height.
9. Uses shall not include any activity involving the use or storage of flammable or explosive material unless protected by adequate fire-fighting and fire suppression equipment and by such safety devices as are normally used in handling any such material as approved by the Northeast Teller County Fire Protection District.
10. No smoke, odor, vibration, glare or particulate emissions shall be permitted which can cause damage to health, animals, vegetation, or affect properties beyond the parcel boundaries.

11. Notwithstanding any conditions herein, this CUP does not grant a noise relief permit and the use/business shall at all times be subject to *MC 9.41 Noise*.
12. Pursuant to *MC 18.33.180*, at least 15% of parcel shall remain as open space.
13. Pursuant to *MC 18.33.180.D*, healthy existing significant trees shall be preserved to the extent reasonably feasible and may be used to satisfy landscaping and open space requirements.
14. It is the view of the commission, that the front setback, as is applicable to a six (6) foot fence, should be reduced to 25 feet.

YES: Larsen, Nielsen, Hartsfield, Brown, Harvey, and Kennedy. NO: None
Motion PASSES 6-0.

5. **REPORTS:** Director announced the new Senior Planner is now on staff; Chelsea Stromberg comes to the City with prior experience in both Pueblo and Colorado Springs.

Commission Al Bunge has resigned from the Commission; suggestions for new members are welcome.

Reminded the Commission of the upcoming joint work session on short-term rentals between City Council and Planning Commission on Thursday, May 5, 2022 at 5:45 pm; please note the start time. The objective is to provide a baseline of information on this topic that informs further potential policy and possible regulation discussions.

Asked the Commission to remember to notify staff if not able to attend a meeting. The next meeting of the Commission is scheduled for May 12, 2022 at 6:30 PM.

6. **ADJOURN:** The meeting was adjourned at 8:05 pm.

Approved this _____ day of _____, 2022 by _____
Ken Hartsfield, Chair



City of Woodland Park Staff Report for Planning Commission

Meeting Date: May 12, 2022		
Agenda Item	Department	Presenter
4.A.	Planning	Chelsea Stromberg Senior Planner

ITEM

#CUP/SPR2022-01 Fred's Towing CUP: A request by M.V.E., Inc. (Applicant) and Gino LLC, A Colorado LLC (Property Owner) for approval of a Conditional Use Permit and Site Plan Review for Fred's Towing, a commercial building with vehicle storage area on Lot 1, Sunny Glen Retreat Subdivision Filing No. 2 (2730 Mountain Glen Court) in the Community Commercial (CC) zone. (Q)

Figure 1a: Vicinity Map

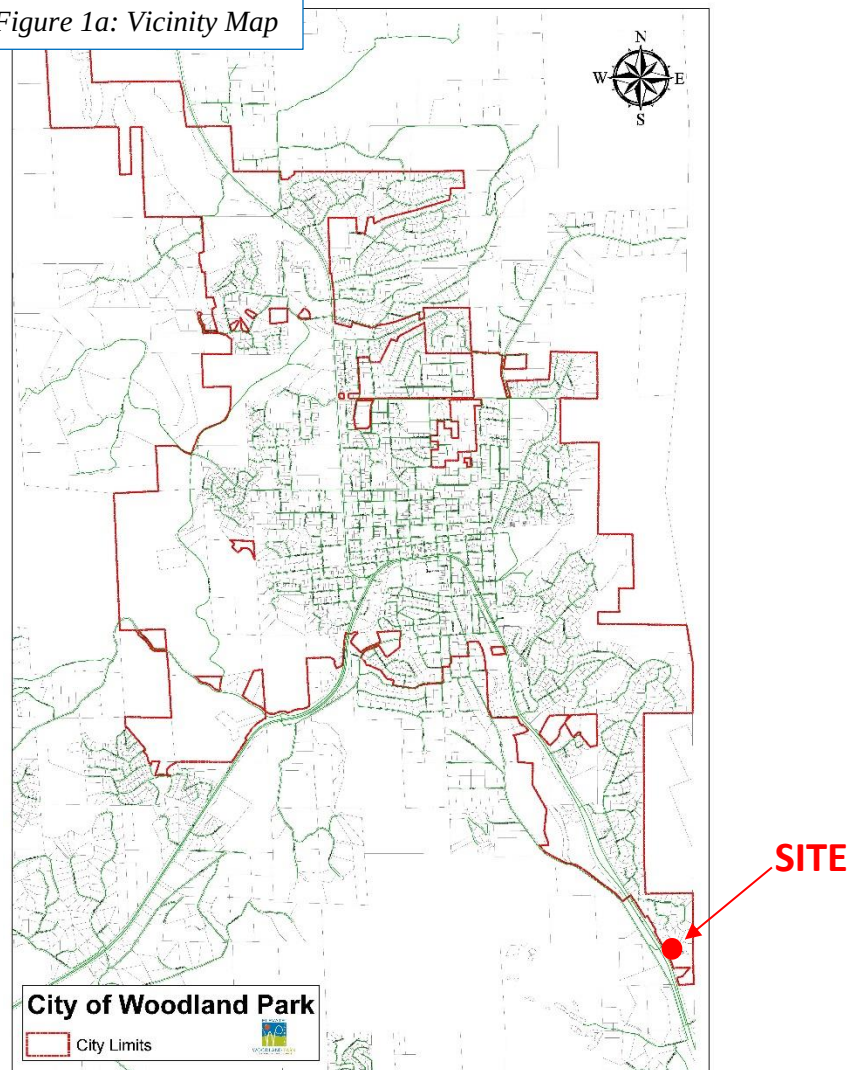


Figure 1b: Vicinity Map



BACKGROUND

This site is a 2.55-acre parcel of land east of Highway 24, south of Mountain Glen Drive in southeastern Woodland Park. Based on the Teller County Property Records Database, this property (Account No. R0050112) is undeveloped.

The property is zoned Community Commercial. Aerial photographs taken in 2007 show the existing conditions of the property with evidence of existing outdoor storage and parking. The zoning designation of Community Commercial was then adopted, however a CUP Application for the existing use was not submitted at that time.

In March 2022, the Applicant submitted a CUP Application for Contractor & Construction Services to codify the current and existing use of the property. The information submitted by the applicant with this application includes a variety of site drawings and illustrations.

SITE AND SURROUNDING PROPERTIES

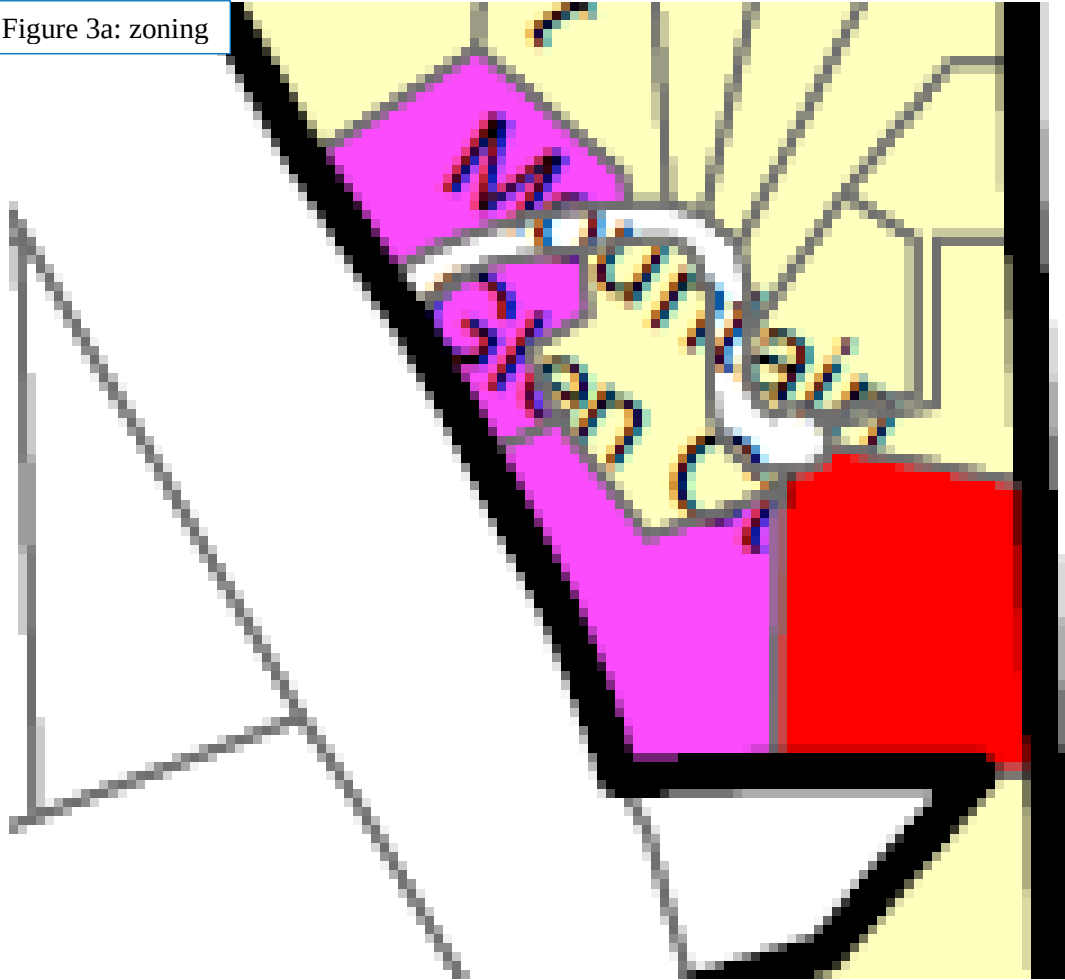
The property is located directly east of Highway 24 in the southeastern part of Woodland Park. The site is accessed via access easement from the parcel to the north, currently occupied by a gas station. Ute Pass Concrete, Sand and Gravel building, which is not inside city limits, is located to the south, while the sand and gravel yard is located to the east of the subject property and is zoned Heavy Service Commercial Light Industrial.

There are existing mature evergreen trees and steep rocky terrain located on the property's western perimeter adjacent to Highway 24. This terrain acts as a screen for the property as viewed from Highway 24.

AREA AND SITE PHOTOS



Figure 3a: zoning



City of Woodland Park - Zoning Map

Residential

- Suburban Residential (SR)
- Urban Residential (UR)
- Multi-Family Residential Suburban (MFS)
- Multi-Family Residential Urban (MFU)
- Mobile Home Park (MHP)

Commercial

- Central Business District (CBD)
- Neighborhood Commercial (NC)
- Community Commercial
- Service Commercial (SC)
- Heavy Service Commercial
Light Industrial

Other Zones

- Public / Semi-Public Land (P/SPL)
- Planned Unit Development (PUD)
- Agricultural (AG)
- City Limits

Figure 3a: Highway 24 looking northeast

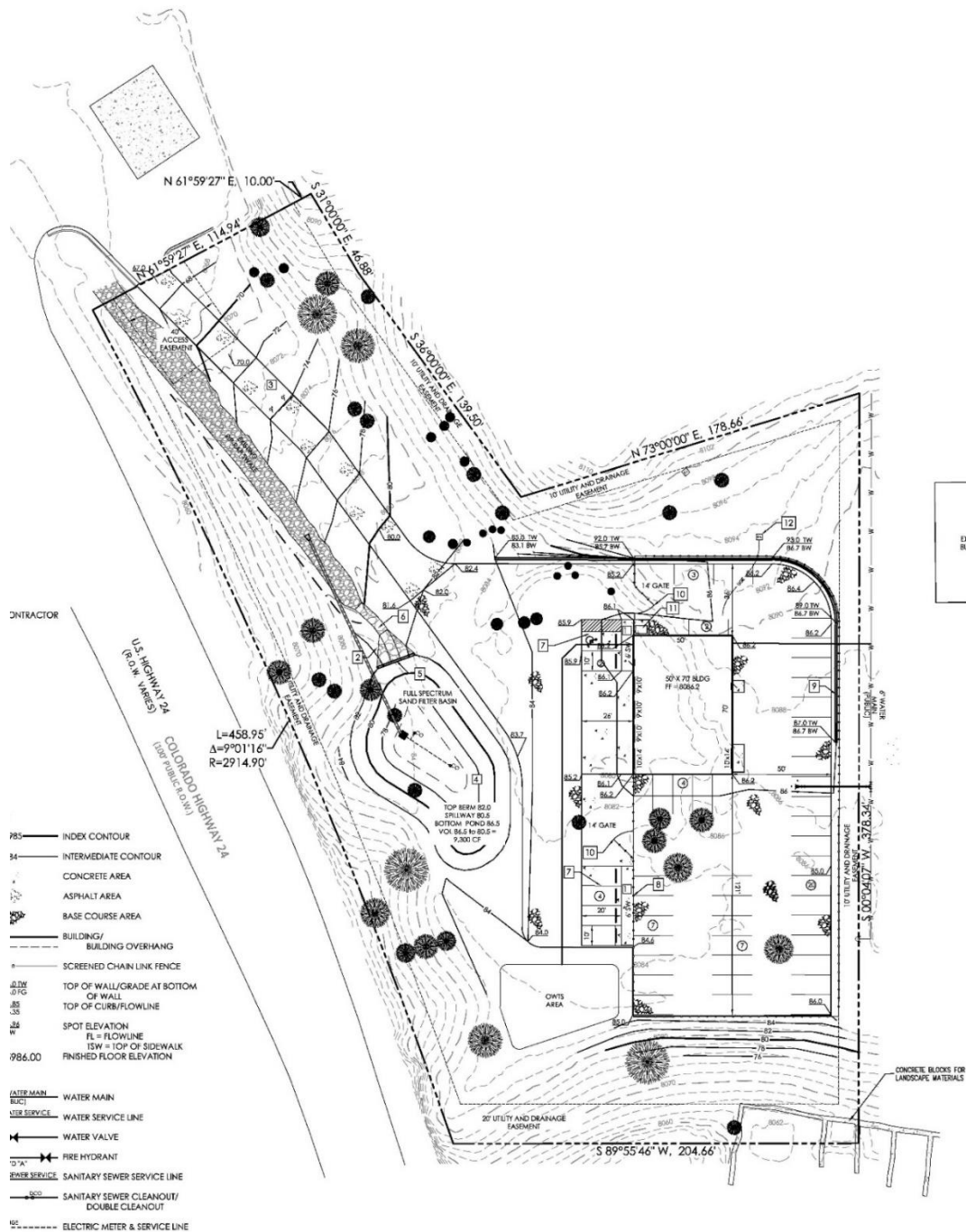


Figure 3b: Highway 24 looking southeast



PROPOSED SITE PLANS AND BUILDING ELEVATIONS

SITE PLAN 2730 MOUNTAIN GLEN COURT WOODLAND PARK, COLORADO



[illegible]

Architectural elevation drawing of the front of a house. The drawing shows a gabled roof with a green metal finish. The main body of the house is finished with a brown, textured material. The base of the house is finished with a light-colored, patterned material. The elevation includes a central entrance with a small porch, a large window on the right, and a smaller window on the left. The drawing is annotated with dimensions and material specifications.

Annotations include:

- ROOF: GREEN METAL
- WALLS: BROWN TEXTURED
- BASE: LIGHT COLORED PATTERNED
- ENTRANCE: 4'0" x 6'0"
- WINDOW: 6'0" x 8'0"
- DOOR: 3'0" x 6'0"
- FINISHES: SEE SPECIFICATIONS

[illegible]

VICINITY MAP

P	F
1	10
2	30
3	20
4	40

MVE, INC.
ENGINEERS, SURVEYORS

JANUARY 25, 2022
SHEET 5 OF 8

VICINITY MAP
N 7° 05' 20" W



MVE, INC.
ENGINEERS, SURVEYORS

4001 West 10th Avenue, Suite 300 • Denver, Colorado 80202 • Tel: 303.733.1100 • Fax: 303.733.1101 • www.mveinc.com

JANUARY 25, 2022
SHEET 4 OF 8

ANALYSIS OF CONDITIONAL USE PERMIT AND FINDINGS

Municipal code section §18.57 *Conditional Use Permit* regulates the review of conditional use permit requests. §18.57.040.A states: “The standards for conditional use permits are intended only as a minimum necessary for review. An application for a conditional use permit, even though meeting the minimal standards of this chapter and code, may be denied, if it is determined that the development and use is not in the best interest of the city.” § 18.57.040.B specifies the standards by which all conditional uses must comply in order to receive approval. The proposed use was analyzed within the CC zone district for all of the conditional uses in §18.09.090.G *Contractors and Construction Services*.

Below is a listing of the applicable CUP standards complete with staff’s analysis.

1. *The proposed development and use shall have a demonstrated direct need to be located at the location proposed and provide adequate mitigation measures to lessen all identified impacts.*

Complies. Staff agrees with the applicant that this is a suitable location for the business. The site is elevated, preventing unsightly views for travelers along Highway 24. The site plan also indicates opaque screening of outdoor storage, which will also further reduce visibility.

2. *The proposed development and use shall not endanger the public health and welfare.*

Complies. The use poses no threat to public health and welfare. Zoning of the site supports the proposed use.

3. *The proposed development and use shall not substantially injure the value of vicinity properties.*

Complies. The proposed use is adjacent to an existing industrial use and a gas station with nearby residential properties to the east of the subject property. The subject property is accessed via an access easement from Highway 24 and does not utilize any residential neighborhood rights of way

4. *The proposed development and use shall be in harmony with the area in which it is to be located.*

Complies. The proposed development is compatible with the two adjacent commercial/industrial uses. While it is typically more preferable to have lower intensity commercial uses adjacent to residential uses, the impact of the proposed development will not exceed the impact of the two existing uses.

5. *The proposed development and use shall conform to the provisions, objectives and policies of all city plans, adopted and in effect at the time of application, including but not limited to growth management, transportation, utilities, capital improvements and downtown redevelopment.*

Complies. The development is consistent with the following principles and goals as specified in the City’s 2021 Comprehensive Plan.

Land Use and Growth Goal 1: Provide opportunities for growth and development while preserving community and environmental quality.

Economic Development Objective 1.2: Retain area businesses and assist with expansion or adding complementary businesses to create clusters and critical mass.

Sustainable Environment Objective 1.1: Recommend that development minimizes its impact on the natural environment and creates a quality human environment through sustainable design and practices.

6. *The proposed development and use shall conform to the provisions, standards and requirements of all city regulations, adopted and in effect at the time of application, including but not limited to zoning, subdivision, utilities, buildings and construction, business regulations and engineering specifications.*

Complies. The proposed use complies with the above and has been reviewed by relevant departments and agencies to ensure compliance with applicable regulations.

7. *The proposed development and use shall be designed, constructed and maintained to accommodate the on-site and off-site traffic generated.*

Complies. The site is designed to be accessed from an existing access easement from the property to the north, currently occupied by a gas station. This design supports fairly direct access to the development, minimizing use of public rights of way. The applicant's traffic calculation estimates approximately 27 vehicle trips per day, including employees and customers.

8. *The proposed development and use shall be designed, constructed and maintained with appropriate regard to topography, surface drainage, soil potentials, natural and man-made hazards, streams and environmentally significant features.*

Complies. The applicant is proposing a water quality feature to maintain historic flows from the site, which will mimic a streambed along the access easement.

9. *The proposed development and use shall be designed, constructed and maintained with adequate water supply, wastewater disposal, solid waste disposal, air quality protection methods and surface water drainage.*

Complies. The proposed development will comply with all requirements related to the items above. City Utilities does not have concerns over the water system's capacity to support this development.

10. *The proposed development and use shall be designed, constructed and maintained to not unduly increase the public danger of fire, explosion and other safety hazards upon the public, and persons residing or working on the site and vicinity.*

Complies. The proposed use will not create any significant safety hazards to the general public or to persons working on the site. Storage of hazardous materials is prohibited.

11. *The development and use may be required to provide architectural design schemes and may also require amenities such as, but not limited to, fencing, landscaping, buffer areas and other aesthetic enhancement measures, as required by the city council. (Ord. 589-1993 § 6(part), 1993)*

Complies. The applicant has provided architectural design schemes as a part of the site plan review. The site plan indicates opaque screening of the outdoor storage yard. The building

meets the aesthetic requirements with brown stucco, stone veneer, and a green roof, all of which help minimize the visual impact of the building.

SITE PLAN REVIEW CRITERIA AND FINDINGS

Municipal code section §18.34 *Site Plan* regulates the review of site plan reviews. §18.34.010 states: “In order to ensure a quality development in the city, it is essential that new development meet minimum standards for the design, construction and the use of such developments to complement existing uses, to insure adequate utility and service systems, and to promote the health, safety and welfare of the city's citizens. (Ord. No. 966-2003, § 2, 4-3-2003).” § 18.34.070 specifies the standards by which all conditional uses must comply in order to receive approval. The proposed site plan was analyzed within the CC zone district.

A. *The proposed development shall conform to the provisions, objectives, and policies of all city plans, adopted and in effect at the time of application, including but not limited to: growth management, transportation, utilities, capital improvements, and downtown redevelopment.*

Complies. The development is consistent with the following principles and goals as specified in the City’s 2021 Comprehensive Plan.

Land Use and Growth Goal 1: Provide opportunities for growth and development while preserving community and environmental quality.

Economic Development Objective 1.2: Retain area businesses and assist with expansion or adding complementary businesses to create clusters and critical mass.

Sustainable Environment Objective 1.1: Recommend that development minimizes its impact on the natural environment and creates a quality human environment through sustainable design and practices.

B. *The proposed development shall conform to the provisions, standards and requirements of all city regulations, adopted and in effect at the time of application, including but not limited to: zoning, subdivision, mobile homes, utilities, buildings and construction, business regulations, and engineering specifications.*

Complies. All applicable Zoning and Building Codes, Engineering Specifications and Drainage Criteria are reviewed when the final construction drawings will be required. Zoning Development Permits (ZDPs) are required for the infrastructure (utilities and drainage) and a Grading Permit for the grading, erosion and sediment control.

C. *The proposed development shall be designed, constructed, and maintained to accommodate the traffic generated and not unduly increase congestion or traffic on the site and in the vicinity of the site.*

Complies. The site is designed to be accessed from an existing access easement from the property to the north, currently occupied by a gas station. This design supports fairly direct access to the development, minimizing use of public rights of way. The applicant’s traffic

calculation estimates approximately 27 vehicle trips per day, including employees and customers.

D. The proposed development shall be designed, constructed, and maintained with appropriate regard to topography, surface drainage, soil potentials, natural and manmade hazards, streams, and environmentally significant features.

Complies. Site grading and drainage are reviewed by the City Engineer and must be approved through a Grading Permit. The only natural hazard on the site is the rock ledge adjacent to Highway 24. The development will not impact this feature.

E. The proposed development shall be designed, constructed, and maintained with adequate water supply, wastewater disposal, solid waste disposal, air quality protection methods, and surface water drainage.

Complies. The proposed development will comply with all requirements related to the items above. City Utilities does not have concerns over the water system's capacity to support this development.

F. The proposed development shall be designed, constructed, and maintained to not unduly increase the public danger of fire, explosion, and other safety hazards upon the public, and persons residing or working on the site and vicinity.

Complies. No safety hazards are created or identified with this project. Construction shall conform to the applicable building and fire codes and construction activity is subject to the noise regulations. Hazardous materials may not be stored.

18.34.070.G. The proposed development shall be designed, constructed and maintained to not unduly diminish or impair but to become compatible with the use and enjoyment of vicinity property. To such end the development may be required to provide architectural design schemes and fixtures such as, but not limited to, fencing, landscaping, and buffer areas.

Complies. The applicant has provided architectural design schemes as a part of the site plan review. The site plan indicates opaque screening of the outdoor storage yard. The building meets the aesthetic requirements with brown stucco, stone veneer, and a green roof, all of which help minimize the visual impact of the building.

REFERRALS AND NOTIFICATIONS

Adjacent property owners within 150 feet were mailed a letter notifying them of the submittal of the application as well as all meeting dates including the scheduled Planning Commission and City Council public hearings. The site was posted with public notice posters and notice of the public hearings was published in the Pikes Peak Courier in compliance with the Municipal Code. Staff has received no written comments regarding this conditional use permit request.

Applications were referred to City departments including Utilities, Public Works, Planning and Building and external agencies including CORE and the NETCFPD. Written comments were returned and have been included with this report.

STAFF RECOMMENDATION

That the Planning Commission recommend to City Council:

Approval of Fred's Towing CUP - SPR: A request by M.V.E., Inc. (Applicant) and Gino LLC, A Colorado LLC (Property Owner) for approval of a Conditional Use Permit and Site Plan Review for Fred's Towing, a commercial building with vehicle storage area on Lot 1, Sunny Glen Retreat Subdivision Filing No. 2 (2730 Mountain Glen Court) in the Community Commercial (CC) zone. (QJ)

1. All development impact fees must be paid prior to ZDP issue including but not limited to tap fees, stormwater capital improvement fees, transportation capital fees, etc. Fees shall be calculated concurrent with the ZDP review.
2. All exterior lighting, if any, shall be downcast and shielded with a temperature of 3,000 K or warmer and shall not exceed twenty-five feet in height.
3. Pursuant to *MC 18.33.180*, at least 20% of parcel shall remain as open space.
4. Pursuant to *MC 18.33.180.D*, healthy existing significant trees shall be preserved to the extent reasonably feasible and may be used to satisfy landscaping and open space requirements.
5. Prior to the issuance of a building permit, the property owner shall submit for and receive approval of a:
 - a. Final Site Plan for a permitted use including landscaping, drainage, architectural elevations, access, etc.;
 - b. Teller County Environmental Health Department approval for a septic system with an acceptable oil separator system;
 - c. Infrastructure Zoning Development Permit, fees-in-lieu shall be submitted pursuant to *MC 18.33.170*, for the installation of curb and gutter and sidewalks along Highway 24; and
 - d. Zoning Development Permits and Building Permits for all new construction, including:
 1. All Civil/Construction drawings
 2. Final Drainage Report
 3. Final Landscaping Plan
 4. Final Site Plan
 5. Final Floor Plan and Elevations
 6. Final Grading, Sediment and Erosion Control Plan (with BMPs)
 7. Final Utility Plan (water, sewer, power, etc.)
 8. Final Photometric Plan
 9. CO Stormwater Permit/Stormwater Management Plan

6. Prior to Council Public Hearing, the Applicant shall make revisions to the site plan as indicated on the redlined plans.

7. Hours of operation shall be limited to dawn (no earlier than 7 am) to dusk (no later than 9 pm) Monday through Friday. After hours emergency operations are permitted subject to emergency requirements.

8. Uses shall not include any activity involving the use or storage of flammable or explosive material unless protected by adequate fire-fighting and fire suppression equipment and by such safety devices as are normally used in handling any such material.

9. No smoke, odor, vibration, glare or particulate emissions shall be permitted which can cause damage to health, animals, vegetation, or affect properties beyond the parcel boundaries.

10. Notwithstanding any conditions herein, this CUP does not grant a noise relief permit and the use/business shall at all times be subject to *MC 9.41 Noise*.

ATTACHMENTS

- A. CUP/SPR Application
- B. Applicant Narrative
- C. Sunny Glen Retreat Subdivision Filing No. 2 Final Plat
- D. Plans Set with City Engineer Review Comments
- E. Final Drainage Report

Planning Application Entry Form

[Print Record](#)

[Go To Development Fees Receipt Form](#)
ID Permit Number Project # EXT/Case # Development Case ☒Date Received Date Routed Date Initial Permit Approved *Date Permit Paid

*NOTE: If Non-profit enter Date Approved in Date Permit Paid field for report

Project Type Project Type Number Project Classification Non-Profit, Residential or Commercial

NOTE: Above Field required only for SINS and TUPs

Project Name Site Address Number Site Address Name Lot Number Block Number Subdivision Filing # Applicant Business Name App First Name App Last Name App Phone Number PO Box Mailing Address Street # Mailing Address Street Name City State Zip Code Owner First Name Owner Last Name Zone Class Applicant Project Value

Open Permit Comments

Date CO Requested Temp CO Auth Approved Date Temp CO Expires

UTILITIES SECTION

Tap Allocation Date Allocation Exp Date Water Tap # Sewer Tap # Tap Paid Date Tap Exp Date Taps Refunded ☐Inside/Outside User Meter Installed ☐

Filed in Area

Planning Director's Office



2021 GENERAL APPLICATION
(Revised 1/1/2021)

RECEIVED
3/28/22

Project # 202203066
Case # CUP/SPR2022-01
Fee(s): See City of Woodland Park
Fees Sheet (Plus publication/recording
fees, as applicable)
paid 3/28/22 \$854.00
CK # 4960

Type of Application (Check one or more as applicable)

- | | | |
|--|---|---|
| ☐ Site Plan Review Permitted Use | ☐ Special Use Permit | ☐ Preliminary Plat |
| ☒ Site Plan Review Conditional Use | ☐ Planned Unit Development (PUD) | ☐ Exemption Plat |
| ☐ Conditional Use Permit | ☐ PUD Amendment | ☐ Final Plat |
| ☐ Zoning Change | ☐ Appeal | ☐ Townhouse Plat |
| ☐ Extension of Development | ☐ Variance | ☐ Condominium Plat |

1. Applicant Information

- a. Applicant Name M.V.E., Inc. CHARLES CRUM (Chuck)
- b. Project Coordinator ☒ Property Owner ☐
- c. Mailing Address 1903 LELARAY STREET, CS, CO 80909
- d. E-mail Address chuckc@mvecivil.com
- e. Phone Numbers Home _____ Work 719-635-5736 Mobile 719-314-7541

2. Property Owner Information (if different from above) GND LLC, A COLORADO LLC

- a. Name MIKE CERQUOZZI Project Contact? Yes ☐ No ☒
- b. Mailing Address 67 HORSE CREEK CIRCLE, LAKE GEORGE, CO 80927
- c. E-mail Address mcercquozzi@yahoo.com
- d. Phone Numbers Home _____ Work _____ Mobile 719-433-2931

3. Site Information

- a. Site Address _____
- b. Lot 1 Block _____ Subdivision SUNNY GLEN RETREAT SUBDIVISION No. 2
- c. Property Zoning WPCC Lot Size 2.52 Ac Acres ☒ Square Feet ☐

4. Project Information

- a. Project Name CUP - 2730 MOUNTAIN GLEN COURT
- b. Brief Description of Project/Request _____
Construct Commercial building w/ vehicle storage
area.
- c. Project Narrative (On a separate sheet provide additional project details and how the proposal complies with the applicable code requirements, which can be found in Section 8 of this application.)

5. Consultant Information (if applicable)

a. Architect

- i. Project Contact Larry Matejcek, PE
- ii. Firm Name Innovative Engineering Solutions, LLC
- iii. Physical Address _____
- iv. Mailing Address P.O. Box 1595
- v. E-mail Address Colorado Springs, CO 80901
- vi. Phone Numbers: Business 719-649-4886 Mobile 719-649-0560

b. Engineer

- i. Project Contact Chuck Crum, P.E.
- ii. Firm Name M.V.E., Inc.
- iii. Physical Address 1903 LeGray Street
- iv. Mailing Address Colorado Springs CO 80909
- v. E-mail Address chuckc@mvecivil.com
- vi. Phone Numbers: Business 719-335-5736 Mobile 719-314-7541

c. ~~Planner~~ SURVEYOR

- i. Project Contact Russ Wood, PLS
- ii. Firm Name Rampart Surveys, LLC
- iii. Physical Address 1050 Tamarac Parkway
- iv. Mailing Address Woodland Park CO 80863
- v. E-mail Address Russ@rampartls.com
- vi. Phone Numbers: Business 719-687-0920 Mobile _____

d. ~~Surveyor~~ Planner

- i. Project Contact N/A
- ii. Firm Name _____
- iii. Physical Address _____
- iv. Mailing Address _____
- v. E-mail Address _____
- vi. Phone Numbers: Business _____ Mobile _____

e. Other (specify role) N/A

- i. Project Contact _____
- ii. Firm Name _____
- iii. Physical Address _____
- iv. Mailing Address _____
- v. E-mail Address _____
- vi. Phone Numbers: Business _____ Mobile _____

6. Submittal Requirements

The following items must be included at time of submittal (in addition to items on the submittal checklists) or the application will not be processed (additional copies may be requested).

Type of Application	24" x 36" Plan Set	11" x 17" Plan Set	Adobe Acrobat Portable Document Format (.pdf) electronic Plan Set on a flash drive	Warranty Deed or Title Policy	List of adjoining property owners within 150'	Copies of reports (narrative, traffic study, drainage, etc.)
All Types	1	1	1	1	1	1

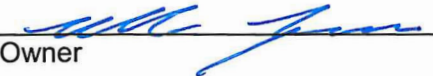
7. Applicable Code Sections

The following are the applicable code sections by type of application and are for assisting applicants in completing the required project narrative. The City of Woodland Park's Municipal Code can be found at www.city-woodlandpark.org/Charter&Code. Subdivision requirements are in Title 17 and Zoning is in Title 18 of the Municipal Code.

Type of Application	Applicable Code Sections
Site Plan Review Permitted Use	Chapters 18.34, 18.33 and 18.39
Site Plan Review Conditional Use	Chapters 18.34, 18.57, 18.33 and 18.39
Conditional Use Permit	Chapter 18.57 plus applicable site plan regulations
Zoning Change	There are no specific standards, but the applicant should provide supporting argument for a zoning change, including how it complies with the Comprehensive Plan
Special Use Permit	Chapter 18.61 plus applicable site plan regulations
Planned Unit Development	Chapters 18.30, 18.33, 18.39, Sections 17.20.070, and 17.20.080
Appeal	Chapter 18.54
Variance	Chapter 18.60
Preliminary Plat	Chapter 17.20 plus applicable subdivision sections
Exemption Plat	Section 17.52.030 plus applicable subdivision sections
Final Plat	Chapter 17.24 plus applicable subdivision sections
Townhouse Plat	Chapter 17.32 plus applicable subdivision sections
Condominium Plat	Chapter 17.32 plus applicable subdivision sections

8. Certification of Ownership

I (We) do hereby declare and affirm that I (we) am (are) the exclusive owner(s) and title holder(s) of the above described property.

Owner  Date 28 MAR 2022

Owner _____ Date _____

9. Certification: The undersigned applicant certifies under oath and under penalties of perjury that the information found in the application is true and accurate to the best of their knowledge.

I certify that I understand that the proposed development is in accordance with all provisions of the City of Woodland Park's Municipal Code and other applicable regulations.

Applicant  Date 03-25-22



Teller County Government

The Official Site For Teller County, Colorado

Property Records Database

[Teller Home](#)
[County Offices](#)
[Contributing Offices](#)
[New Search](#)
[Mapping Application](#)
[Foreclosures](#)

Property Record Database

Account Information (provided by Assessor)

Account No R0050112

Parcel Id 6031.314090010

2021 Values [A PDF of the 2021 Notice of Value](#)

Actual \$161,189

Assessed \$46,740

Tax Dist 60

Acct Type Comm Vacant

School Dist RE-2

Acres 2.5500

Map No. 3031-31

Owner Name GINO LLC, A COLORADO LLC

Mailing Address 67 HORSE CREEK CIR
LAKE GEORGE, CO 808279075

Physical Address 2730 MOUNTAIN GLEN CT

Area R C COMMERCIAL SUB

Legal Description L1 SUNNY GLEN RETREAT SUBDIVISION 2

[Show Map](#)

[Show Sales Map](#)

[Commercial Sales List](#) [Vacant Land Sales List](#)

**No
Parcel
Picture
Found**

Zoning Information (provided by City of Woodland Park for Questions call 719-687-5202)

Zoning WPCC

Land Information (provided by Assessor)

Land Type Abst Code Acres

Commercial 0200 2.5500

TOTAL 2.5500

Transfers (provided by Assessor)

[Commercial Sales List](#)

Sale Date Reception No Deed Type Sale Price

07/18/2003 552586 Warranty Deed \$100,000

06/18/2021 740187 Warranty Deed \$205,000

Property Tax History (provided by Treasurer). Delinquent taxes are not shown on this website.

[Tax detail on Treasurers Web Site \(Note: Select Public User Login Button if prompted\)](#)

Tax Year	Tax Amount
2017	\$1,707.04
2018	\$1,704.22
2019	\$1,944.82
2020	\$1,958.08
2021	\$3,773.56

E-Mail suggestions or comments to [WebDeveloper](#)

03/28/2022 01:51:41 PM





**APPLICANTS NARRATIVE
CUP CRITERIA
January 12, 2022**

APPLICANT: Mike Crequozzi

PROJECT: 2730 Mountain Glen Court

CONDITIONAL USE PERMIT REVIEW CRITERIA: Section 18.57.040.B of the Code includes standards that all conditional uses must demonstrate compliance with. Section 18.57.040.A states: *“The standards for conditional use permits are intended only as a minimum necessary for review. An application for a conditional use permit, even though meeting the minimal standards of this chapter and code, may be denied, if it is determined that the development and use is not in the best interest of the city.”*

The following criteria shall apply to all uses requiring the approval of a conditional use permit (followed by a applicant analysis of how the proposed use complies):

1. The proposed development and use shall have a demonstrated direct need to be located at the location proposed and provide adequate mitigation measures to lessen all identified impacts.
 - The proposed Vehicle Storage Yard will be developed on Lot 1, Sunny Retreat Subdivision Filing No. 2. The site is ideal for vehicle storage. The site is directly connected to Highway 24 which gives direct access and is elevated, alleviating the potential for any unsightly views. The potential increase of stormwater runoff is to be mitigated by way of a Full-Spectrum Sand Filter Basin (FS-SFB) designed to restrict the stormwater flows from the site to historic conditions. All outside storage will be screened with an opaque fence to mitigate any unsightly views. The proposed lighting will be full cut-off style lights with bulbs no brighter than 3000 kelvin to mitigate any potential light pollution.
2. The proposed development and use shall not endanger the public health and welfare.
 - The proposed development is to be constructed in accordance with the Pikes Peak Regional Building department. Any applicable ADA standards will be met. All necessary precautions will be taken to ensure the safety of the surrounding community.
3. The proposed development and use shall not substantially injure the value of vicinity properties.
 - The proposed development will not harm the value of the surrounding properties in any way. The site is to be developed in conformance with the surrounding area while providing a necessary service to the community. The building will have a stucco surface with a 4'± wainscot/stone veneer finish along its base. All outdoor storage is to be screened from the view of the general public to alleviate any unsightly views of the property. See the attached letter dated December 31, 2021 from the Realty One Group for proposed property value increase.

4. The proposed development and use shall be in harmony with the area in which it is to be located.
 - The proposed development will include a commercial building designed to conform to the surrounding area. The proposed building will feature an earth toned color scheme to match the surrounding environment. The development will not produce any noise, light or dust pollution that could disrupt the surrounding community.
5. The proposed development and use shall conform to the provisions, objectives and policies of all city plans, adopted and in effect at the time of application, including but not limited to growth management, transportation, utilities, capital improvements and downtown redevelopment.
 - The proposed development is in conformance with all city plans and its use is in conformance with the Community Commercial zone.
6. The proposed development and use shall conform to the provisions, standards and requirements of all city regulations, adopted and in effect at the time of application, including but not limited to zoning, subdivision, utilities, buildings and construction, business regulations and engineering specifications.
 - The proposed commercial building conforms with all building codes and requirements and conforms with the city regulations. According to section 18.09.090 the proposed use is permitted as a conditional use.
7. The proposed development and use shall be designed, constructed and maintained to accommodate the on-site and off-site traffic generated.
 - The proposed Vehicle Storage Yard will be developed on Lot 1, Sunny Retreat Subdivision Filing No. 2 consisting of an entrance drive, office/garage, parking stalls, and an opaque fenced car storage area. The office area is 280 square feet (SF), there are three (3) garage areas and one (1) drive thru garage, six (6) parking spaces including the one (1) handicap space, and thirty-five (35) vehicle storage spaces.

The ITE (Institute of Traffic Engineers) Trip Generation Handbook does not specifically have a Description/ITE Code for our Vehicle Storage Yard use. We have combined the daily ITE Trip Generation Rates that would reasonably represent our site use. There are 5 employees with 2 being dispatched from off-site. Area for warehousing of 600 SF for each garage area was used. Mini Warehouse Storage Unit was used for a vehicle storage space. These assumptions provide a reasonable **peak hour** use for the proposed Vehicle Storage Yard.

Business Park 3 on-site employees @ 4.04/day	=	12.12 trips/day
Warehousing 1800 SF @ 3.56/day/1000SF	=	6.41 trips/day
Mini Warehouse 35 (spaces) Storage units @ 0.25/unit	=	8.75 trips/day

The total estimated trips/day = 27.28 trips/day. This calculates to 7.55 trips in and out per peak hour which is a minimum impact on area traffic.

8. The proposed development and use shall be designed, constructed and maintained with appropriate regard to topography, surface drainage, soil potentials, natural and man-made hazards, streams and environmentally significant features.
 - The proposed site is designed to maintain the general sight topography while directing

- stormwater runoff away from the proposed building and into a proposed FS-SFB. All disturbed surfaces are to be stabilized with landscaping or rip-rap to reduce the potential for erosion. The FS-SFB is designed to limit stormwater runoff from the site to historic quantities as to not overburden any downstream facilities.
9. The proposed development and use shall be designed, constructed and maintained with adequate water supply, wastewater disposal, solid waste disposal, air quality protection methods and surface water drainage.
 - The water supply for the proposed development will be provided by the city of Woodland Park. Wastewater disposal will be provided by an onsite wastewater treatment system (OWTS) be maintained by the property owner. Solid waste is to be collected in a waste container located within the proposed opaque fence and disposed of by a local provider. Surface water drainage will be treated for water quality in the proposed FS-SFB.
 10. The proposed development and use shall be designed, constructed and maintained to not unduly increase the public danger of fire, explosion and other safety hazards upon the public, and persons residing or working on the site and vicinity.
 - Safety hazards will be minimized as much as possible to reduce the risk of fires and explosions within the proposed development. Explosive materials are not to be stored on-site and the building is to be constructed in such a manner as to reduce the risk of fire.
 11. The development and use may be required to provide architectural design schemes and may also require amenities such as, but not limited to, fencing, landscaping, buffer areas and other aesthetic enhancement measures, as required by the city council. (Ord. 589-1993 § 6(part), 1993)
 - The proposed development will include opaque screened fencing to encase any outside storage. The proposed building will feature an earth toned color scheme with a 4'± stone veneer wainscot. A minimum of twenty-five percent of the lot size shall be landscaped with one-half the requirement abutting residential zoned areas. Highway frontage will meet the standards for tree spacing/numbers.

SUNNY GLEN RETREAT SUBDIVISION FILING NO. 2

A REPLAT OF LOTS 5 AND 6, "R.C. COMMERCIAL SUBDIVISION" AND LOTS 8 AND 12, "SUNNY GLEN RETREAT SUBDIVISION", IN THE EAST 1/2 OF SECT. 31, T12S., R68W OF THE 6th P.M., IN THE CITY OF WOODLAND PARK, TELLER COUNTY, COLORADO

**KNOW ALL MEN BY THESE PRESENTS:**

THAT WOODLAND MEADOWS, L.L.C. AND CHRIS AND SUE PYLES, BEING THE OWNERS OF THE FOLLOWING DESCRIBED TRACTS OF LAND:

TO WIT:

LOTS 5 AND 6, "R.C. COMMERCIAL SUBDIVISION", AS RECORDED IN PLAT BOOK M AT PAGES 19 AND 20 OF THE RECORDS OF THE TELLER COUNTY CLERK AND RECORDER AND LOTS 8 AND 12, "SUNNY GLEN RETREAT SUBDIVISION", AS RECORDED IN PLAT BOOK M AT PAGES 19 AND 20 OF SAID COUNTY RECORDS AND LOCATED IN THE EAST ONE-HALF (1/2) OF SECTION 31, TOWNSHIP 12, SOUTH, RANGE 68 WEST OF THE 6th P.M., IN THE CITY OF WOODLAND PARK, TELLER COUNTY, COLORADO AND CONTAINING 7.64 ACRES, MORE OR LESS.

DEDICATION:

THE UNDERSIGNED OWNERS HAVE CAUSED SAID LOTS TO BE REPLATED INTO LOTS AND EASEMENTS AS SHOWN ON THE PLAT. THE UNDERSIGNED DOES HEREBY GRANT INTO THE CITY OF WOODLAND PARK THOSE EASEMENTS, RIGHTS-OF-WAY AND AREAS FOR PUBLIC USE SHOWN ON THE PLAT. THE SOLE RIGHT AND AUTHORITY TO CONVEY ALL OR ANY SUCH EASEMENT, RIGHT-OF-WAY AND AREAS FOR PUBLIC USE SHALL REMAIN EXCLUSIVELY VESTED IN THE CITY OF WOODLAND PARK. ALL STREETS ARE HEREBY DEDICATED TO THE CITY OF WOODLAND PARK FOR PUBLIC USE. ALL EASEMENTS SHALL RETAIN THE RIGHT OF INGRESS AND EGRESS FOR CONSTRUCTION AND MAINTENANCE OF IMPROVEMENTS. NO PERMANENT STRUCTURES EXCEPT FENCING SHALL BE ALLOWED ON ANY EASEMENT. THIS TRACT OF LAND AS HEREIN PLATTED SHALL BE KNOWN AS "SUNNY GLEN RETREAT SUBDIVISION FILING NO. 2" IN THE CITY OF WOODLAND PARK, TELLER COUNTY, COLORADO.

IN WITNESS WHEREOF:

THAT DEWAYNE A. LEWIS, AS MANAGER OF WOODLAND MEADOWS, L.L.C., HAS EXECUTED

THIS INSTRUMENT THIS 3rd DAY OF October, 2000, A.D.

Dewayne A. Lewis
DEWAYNE A. LEWIS, MANAGER

STATE OF COLORADO
COUNTY OF TELLER

THE ABOVE AND AFOREMENTIONED INSTRUMENT WAS ACKNOWLEDGED BEFORE ME THIS 2nd DAY OF October, 2000, A.D., BY DEWAYNE A. LEWIS, MANAGER.

WITNESS MY HAND AND OFFICIAL SEAL:

MY COMMISSION EXPIRES My Commission Expires 9-18-02

Roberta L. Carson
NOTARY PUBLIC

**IN WITNESS WHEREOF:**

THAT CHRIS PYLES AND SUE PYLES, OWNERS, HAVE EXECUTED

THIS INSTRUMENT THIS 4th DAY OF October, 2000, A.D.

Chris Pyles
OWNER

Sue Pyles
SUE PYLES, OWNER

STATE OF COLORADO
COUNTY OF TELLER

THE ABOVE AND AFOREMENTIONED INSTRUMENT WAS ACKNOWLEDGED BEFORE ME THIS 4th DAY OF October, 2000, A.D., BY CHRIS AND SUE PYLES, OWNERS.

WITNESS MY HAND AND OFFICIAL SEAL:

MY COMMISSION EXPIRES My Commission Expires 9-18-02

Roberta L. Carson
NOTARY PUBLIC

**SUBDIVIDER/OWNER:**

WOODLAND MEADOWS, L.L.C.
P.O. BOX 8027
WOODLAND PARK, COLORADO 80866
719-687-9296

CHRIS AND SUE PYLES
20375 HIGHWAY 24
WOODLAND PARK, COLORADO 80863
719-687-3111

DESIGNER OF SUBDIVISION:

WOODLAND MEADOWS, L.L.C.
P.O. BOX 8027
WOODLAND PARK, COLORADO 80866
719-687-9296

PROFESSIONAL LAND SURVEYOR:

KEVIN E. LLOYD
RAMPART SURVEYS, INC.
P.O. BOX 5101
WOODLAND PARK, COLORADO 80866
(719) 687-0920

APPROVAL BY THE PLANNING COMMISSION:

APPROVED BY THE PLANNING COMMISSION FOR THE CITY OF WOODLAND PARK, COLORADO THIS 24th

DAY OF August, 2000, A.D.

David L. Meacham
CHAIRMAN
PLANNING COMMISSION

Patricia Marone
ATTEST: RECORDING SECRETARY

APPROVAL BY THE CITY COUNCIL:

THIS PLAT AND THE DEDICATION TO THE PUBLIC OF THE STREETS AND PUBLIC WAYS SHOWN HEREON, AND THE PUBLIC UTILITY EASEMENTS AS SHOWN ARE HEREBY ACCEPTED AND APPROVED BY THE CITY COUNCIL OF THE CITY OF WOODLAND PARK, COLORADO, THIS 21st DAY OF September, 2000, A.D.

Kevin E. Lloyd
MAYOR

Chris Pyles
ATTEST: CITY CLERK

SURVEYOR'S CERTIFICATION:

THE UNDERSIGNED REGISTERED PROFESSIONAL LAND SURVEYOR IN THE STATE OF COLORADO, HEREBY CERTIFIES THAT THE ACCOMPANYING PLAT WAS SURVEYED AND DRAWN UNDER HIS DIRECT SUPERVISION AND ACCURATELY SHOWS THE DESCRIBED TRACT OF LAND AND SUBDIVISION THEREOF, AND THAT THE REQUIREMENTS OF TITLE 38 OF THE COLORADO REVISED STATUTES, 1973 AS AMENDED, HAVE BEEN MET TO THE BEST OF HIS KNOWLEDGE AND BELIEF.

NOTICE: ACCORDING TO COLORADO LAW YOU MUST COMMENCE ANY LEGAL ACTION BASED UPON ANY DEFECT IN THIS SURVEY WITHIN THREE YEARS AFTER YOU FIRST DISCOVER SUCH DEFECT. IN NO EVENT MAY ANY ACTION BASED UPON ANY DEFECT IN THIS SURVEY BE COMMENCED MORE THAN TEN YEARS FROM THE DATE OF THE CERTIFICATION SHOWN HEREON.



KEVIN E. LLOYD
COLORADO PROFESSIONAL
LAND SURVEYOR NO. 26965

DATE

COUNTY TREASURER:

ALL TAXES ASSESSED AND DUE ON THE PROPERTY DESCRIBED ABOVE HAVE BEEN PAID IN FULL.
SIGNED THIS 30th DAY OF October, 2000, A.D.

James J. Leland
TELLER COUNTY TREASURER

RECORDING:

STATE OF COLORADO
COUNTY OF TELLER

I HEREBY CERTIFY THAT THIS INSTRUMENT WAS FILED FOR RECORD IN MY OFFICE AT 9:30 O'CLOCK A. M.,

THIS 30th DAY OF OCTOBER, 2000, A.D., AND IS DULY RECORDED IN PLAT BOOK N/A AT

PAGE N/A UNDER RECEPTION NUMBER 511201 OF THE RECORDS OF

TELLER COUNTY, COLORADO.

FEES: \$20.00

BY: James M. Huber, Deputy
TELLER COUNTY CLERK AND RECORDER

NOTES:

- NO BUILDING PERMITS SHALL BE ISSUED FOR BUILDING SITES WITHIN THIS PLAT UNTIL ALL REQUIRED FEES HAVE BEEN PAID AND ALL REQUIRED PUBLIC IMPROVEMENTS AND UTILITIES HAVE BEEN INSTALLED AS SPECIFIED BY THE CITY OF WOODLAND PARK OR ALTERNATIVELY, UNTIL ACCEPTABLE ASSURANCES GUARANTEEING THE PAYMENT OF THE FEES AND THE COMPLETION OF ALL REQUIRED PUBLIC IMPROVEMENTS AND UTILITIES HAVE BEEN PLACED ON FILE WITH THE CITY OF WOODLAND PARK. ALL EXPENSES INVOLVED IN NECESSARY IMPROVEMENTS TO THE WATER SYSTEM, GAS SERVICE, ELECTRICAL SERVICE, DRAINAGE SYSTEM AND STREET SYSTEM SHALL BE FINANCED BY THE SUBDIVIDER, NOT THE CITY. THE APPROVAL OF THIS PLAT MAY BE WITHDRAWN IF ALL CONDITIONS OF APPROVAL ARE NOT MET.
- ALL BEARINGS USED HEREIN ARE BASED UPON THE MOST SOUTHERLY LINE OF "R.C. COMMERCIAL SUBDIVISION", AS RECORDED IN PLAT BOOK M AT PAGES 19 AND 20 OF THE RECORDS OF THE TELLER COUNTY CLERK AND RECORDER AND "SUNNY GLEN RETREAT SUBDIVISION" AS RECORDED IN PLAT BOOK M AT PAGES 19 AND 20 OF SAID COUNTY RECORDS AND MONUMENTED BY A REBAR AND RED CAP STAMPED "RAMPART PLS 26965" AT THE SOUTHWEST CORNER OF LOT 12, SUNNY GLEN RETREAT SUBDIVISION AND BY A 1/2" REBAR (NO CAP) AT THE SOUTHEAST CORNER OF LOT 5, R.C. COMMERCIAL SUBDIVISION AND ASSUMED TO BEAR N89°55'46"E PER THE RECORDED PLAT OF SUNNY GLEN RETREAT SUBDIVISION.
- THIS PLAT DOES NOT CONSTITUTE A TITLE SEARCH BY RAMPART SURVEYS FOR EITHER OWNERSHIP OR EASEMENTS OF RECORD. RAMPART SURVEYS RELIED ON TITLE COMMITMENT NO. K08029486, EFFECTIVE DATE OF NOVEMBER 8th, 1999 AND ISSUED BY SECURITY TITLE GUARANTY COMPANY, FOR OWNERSHIP AND EASEMENTS OF RECORD.
- ALL DIMENSIONS FOUND HEREIN REFLECT ACTUAL DIMENSIONS BETWEEN MONUMENTS AND A RETRACED OF ADJOINING BOUNDARIES BASED ON SAID MONUMENTS. THEREFORE, THOSE DIMENSIONS MAY VARY FROM PREVIOUSLY RECORDED PLATTED DIMENSIONS.
- DUE TO THE UNIQUE PROPERTIES SURROUNDING THIS SUBDIVISION, THE PLACEMENT OF ALL UTILITIES SHALL BE LOCATED WITHIN THE DESIGNATED EASEMENTS OR WITHIN THE DESIGNATED ROAD RIGHT-OF-WAY.
- THIS PLAT HEREBY DEDICATES FOR PUBLIC UTILITIES AND DRAINAGE AN EASEMENT 10 FEET ON EACH SIDE OF ALL SIDE LOT LINES AND 20 FEET ON ALL REAR LOT LINES.
- IT IS UNDERSTOOD THAT EACH LOT WILL REQUIRE AN INDIVIDUAL WASTE-WATER TREATMENT SYSTEM AND SHALL BE AN AEROBIC ENGINEERED SYSTEM PER CITY/COUNTY REQUIREMENTS.
- THE EASEMENT IDENTIFIED UPON THE PLAT SHALL BE AVAILABLE TO THE PUBLIC FOR ACCESS TO THE NATIONAL FOREST ACCESS AS SHOWN ON THE PLAT.
- THE EASEMENT SHOWN ON THIS PLAT CROSSING LOT 3 IS A COMMON INGRESS, EGRESS AND UTILITY EASEMENT FOR THE BENEFIT OF SAID LOT 3 AND FOR LOTS 7 AND 9 OF SUNNY GLEN RETREAT SUBDIVISION.

SECTION 31, T12S, R68W OF THE 6th P.M.
WOODLAND PARK, TELLER COUNTY, COLORADO

SURVEYS

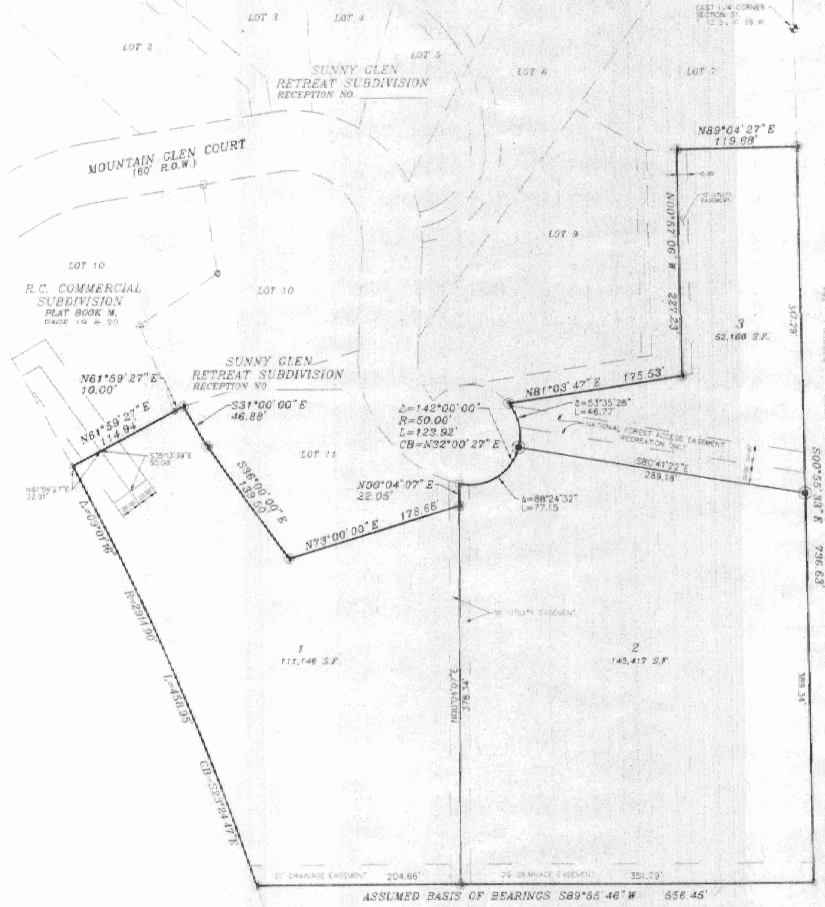
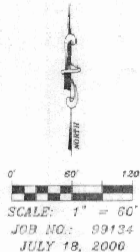
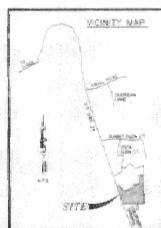
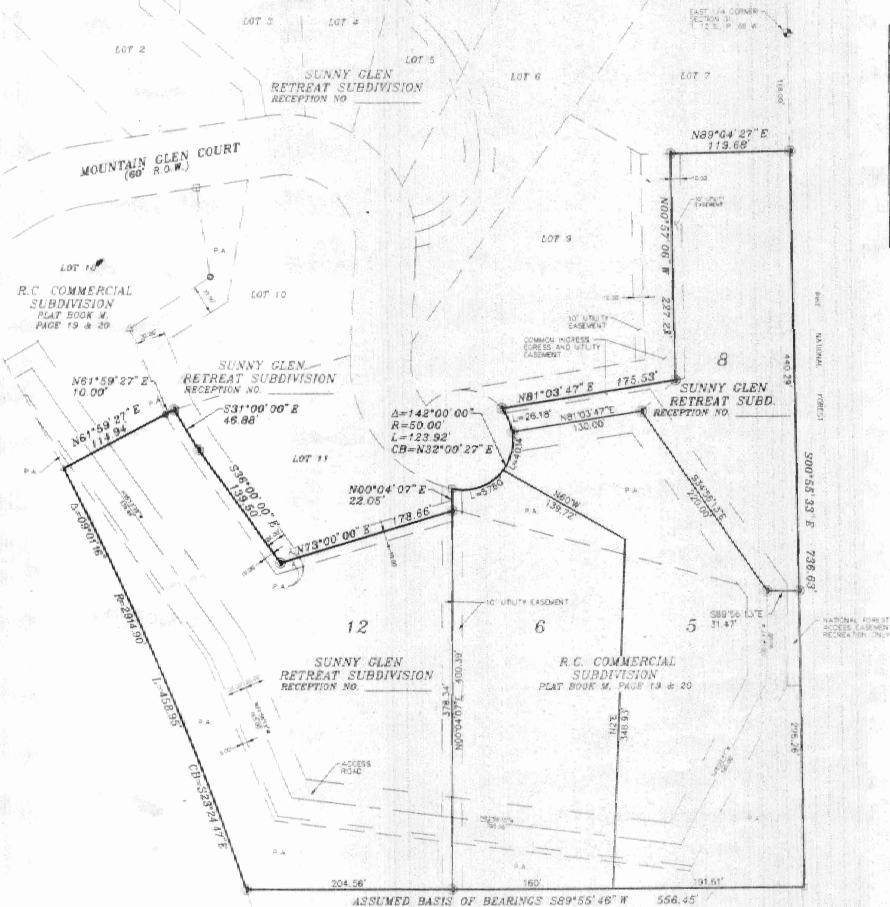
P.O. Box 5101
Woodland Park, CO 80866
(719) 687-0920



DRAWING: 9913409 PAGE 1 OF 2

SUNNY GLEN RETREAT SUBDIVISION FILING NO. 2

A REPLAT OF LOTS 5 AND 6, "R.C. COMMERCIAL SUBDIVISION" AND LOTS 8 AND 12, "SUNNY GLEN RETREAT SUBDIVISION", IN THE EAST 1/2 OF SECT. 31, T12S., R68W OF THE 6th P.M., IN THE CITY OF WOODLAND PARK, TELLER COUNTY, COLORADO



LEGEND:

- SET REBAR AND RED CAP STAMPED "RAMPART PLS 26965"
- FOUND REBAR AND RED CAP STAMPED "RAMPART PLS 26965"
- FOUND REBAR AND YELLOW CAP STAMPED "LS 12043"
- FOUND 1/2" REBAR (NO CAP)
- △ FOUND 1/2" REBAR AND ILLIGIBLE YELLOW CAP
- ◆ FOUND 2-1/2" U.S. G.L.O. BRASS CAP (1/4 CORNER)

SECTION 31, T12S., R68W OF THE 6th P.M.,
WOODLAND PARK, TELLER COUNTY, COLORADO

RAMPART
SURVEYS

P.O. Box 5101
Woodland Park, CO 80669
(719) 687-0920

DRAWING: 9913408

PAGE 2 OF 2

**NOT A
CONSTRUCTION DOCUMENT**

THIS PLAN SHALL NOT BE USED FOR CONSTRUCTION PURPOSES. IT IS PREPARED FOR THE CITY OF WOODLAND PARK DEVELOPMENT PLAN APPROVAL PROCESS ONLY. IT IS REQUIRED THAT ANY SUBSEQUENT CONSTRUCTION PLANS ADHERE TO THE APPROVED DEVELOPMENT PLAN.

ABBREVIATIONS

B.K., PG	PLAT BOOK, PAGE
B.L.D.G.	BUILDING
C.O.D.T.	COLORADO DEPARTMENT OF TRANSPORTATION
CONC	CONCRETE
C&G	CURBS & GUTTER
EW	EASEMENT
EX/PP	EXISTING/PROPOSED
FF	FINISHED FLOOR GRADE
FSFB	FULLSPECTRUM SAND FILTER BASIN
GE	GRADING & EROSION CONTROL
PCM	PERMANENT CONTROL MEASURE
P.I.E.	PUBLIC IMPROVEMENT EASEMENT
P.V.M.T.	PAVEMENT
RE	REFERENCE
R.N.	RECEPTION NUMBER
R.O.W.	RIGHT OF WAY
S.D./D.M.H.	STORM DRAIN/STORM DRAIN MANHOLE
STD	STANDARD
SW	SEWAGE
TYP	TYPICAL

SITE PLAN SPECIFIC NOTES

1. INSTALL CONCRETE SIDEWALK
2. INSTALL STORM WATER PIPE
3. INSTALL ASPHALT PAVEMENT
4. INSTALL FULL SPECTRUM SAND FILTER BASIN
5. INSTALL CONCRETE/RRAP EMERGENCY SPILLWAY
6. INSTALL RRAP (11%)
7. INSTALL PARKING LOT STRIPING
8. INSTALL CHAINLINK FENCE
9. INSTALL MASONRY BLOCK RETAINING WALL
10. INSTALL ACCESS GATE
11. TRASH RECEPTACLE
12. CAUTION: EXISTING ELECTRIC FACILITIES. PRESERVE IN PLACE. CONTRACTOR TO COORDINATE WITH UTILITY PROVIDER

LEGEND

---	PROPERTY LINE
---	EASEMENT LINE
---	LOT LINE
---	BUILDING SETBACK LINE
---	ADJACENT PROPERTY LINE

---	EXISTING INDEX CONTOUR
---	EXISTING INTERMEDIATE CONTOUR
---	CONCRETE AREA
---	ASPHALT AREA
---	CURBS AND GUTTER
---	BUILDING/ BUILDING OVERHANG
●	TREE

---	PROPOSED INDEX CONTOUR
---	PROPOSED INTERMEDIATE CONTOUR
---	CONCRETE AREA
---	ASPHALT AREA
---	BASE COURSE AREA
---	BUILDING/ BUILDING OVERHANG
---	SCREENED CHAINLINK FENCE
---	TOP OF WALL/ GRADE AT BOTTOM OF WALL
---	TOP OF CURB/ FLOWLINE
---	SPOT ELEVATION
---	FL = FLOWLINE
---	TSW = TOP OF SIDEWALK
---	FINISHED FLOOR ELEVATION

---	7" W (PVC) WATER MAIN
---	WATER SERVICE LINE
---	WATER VALVE
---	10044 FIRE HYDRANT
---	ELECTRIC TRANSFORMER/Vault
---	12" PVC WATER MAIN (PUBLIC)
---	1" HDPE WATER SERVICE LINE
---	WATER VALVE
---	1" PVC SAN SEWER SERVICE LINE
---	SANITARY SEWER CLEANOUT/ DOUBLE CLEANOUT
---	ELECTRIC METER & SERVICE LINE

SITE PLAN

2730 MOUNTAIN GLEN COURT

WOODLAND PARK, COLORADO

SITE DATA

OWNER	CURRENT ADDRESS
GNO LLC, A COLORADO LLC 67 HORSE CREEK CIRCLE LAKE GEORGE, CO 80927	2730 MOUNTAIN GLEN CT LAKE GEORGE, CO 80927
APPLICANT	ZONING
MKECERQUOZZI 67 HORSE CREEK CIRCLE LAKE GEORGE, CO 80927 (719) 438-2931	WPCG
ENGINEER	LAND USE
M.V.E. INC. CHARLES C. CRUM, P.E. 1903 LEARAY STREET COLORADO SPRINGS, CO 80909 PH (719) 635-5736 FAX (719) 635-5400 CHUCK@MVEENGINEERS.COM	COMMERCIAL
PARCEL ID	ACREAGE
6081314090010	2.502± ACRES
LEGAL DESCRIPTION	COVERAGE
LOT 1, SUNNY GLEN RETREAT SUBDIVISION 2	STRUCTURE = 3,500 SF. (3.2%) PAVEMENT = 4,000 SF. (3.7%) GRAVEL = 40,340 SF. (36.3%) LANDSCAPING = 63,136 SF. (56.8%)
	PARKING
	OFFICE USE (1 SP/ 400 SF) = 880 SF. = 3 SPACES WAREHOUSE/DISTRIBUTION USE (1 SPACE/ 1000 SF) = 2650 SF. = 3 SPACES REQUIRED SPACES = 6 SPACES PROVIDED SPACES = 6 SPACES REQUIRED ADA SPACES = 1 SPACE PROVIDED ADA SPACES = 1 SPACE

ADA NOTE

THE PARTIES RESPONSIBLE FOR THIS PLAN HAVE FAMILIARIZED THEMSELVES WITH THE CURRENT ACCESSIBILITY CRITERIA AND SPECIFICATIONS AND THE PROPOSED PLAN REFLECTS ALL THE ELEMENTS REQUIRED BY THE APPLICABLE ADA DESIGN STANDARDS AND GUIDELINES AS PUBLISHED BY THE UNITED STATES DEPARTMENT OF JUSTICE. APPROVAL OF THIS PLAN BY THE CITY OF WOODLAND PARK DOES NOT ASSURE COMPLIANCE WITH THE ADA OR ANY REGULATIONS OR GUIDELINES ENACTED OR PROMULGATED UNDER OR WITHIN RESPECT TO SUCH LAWS.

SHEET INDEX

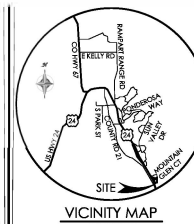
CUP1.1 (SHEET 1 OF 8)	SITE PLAN	61159-CUP-SP
CUP1.2 (SHEET 2 OF 8)	PRELIMINARY GRADING PLAN	61159-CUP-PG
CUP1.3 (SHEETS 3 OF 8)	PRELIMINARY UTILITIES PLAN	61159-CUP-PU
CUP1.4 (SHEET 4 OF 8)	ELEVATIONS	61159-CUP-EL1
CUP1.5 (SHEET 5 OF 8)	ELEVATIONS	61159-CUP-EL2
CUP1.6 (SHEET 6 OF 8)	DETAILS	61159-CUP-DS
CUP1.7 (SHEET 7 OF 8)	LANDSCAPING	61159-CUP-LS1
CUP1.8 (SHEET 8 OF 8)	LANDSCAPING	61159-CUP-LS2

FLOODPLAIN STATEMENT

NO PORTION OF THE SUBJECT PROPERTY IS LOCATED WITHIN A FEMA DESIGNATED SPECIAL FLOOD HAZARD AREA (SFHA) AS INDICATED ON THE FLOOD INSURANCE RATE MAP (FIRM) FOR TELLER COUNTY, COLORADO AND INCORPORATED AREAS - MAP NUMBER 0819C0209.D, EFFECTIVE DECEMBER 7, 2018.

NOTES

- THE PARTIES RESPONSIBLE FOR THIS PLAN HAVE FAMILIARIZED THEMSELVES WITH THE CURRENT ACCESSIBILITY CRITERIA AND SPECIFICATIONS AND THE PROPOSED PLAN REFLECTS ALL THE ELEMENTS REQUIRED BY THE APPLICABLE ADA DESIGN STANDARDS AND GUIDELINES AS PUBLISHED BY THE UNITED STATES DEPARTMENT OF JUSTICE. APPROVAL OF THIS PLAN BY THE CITY OF WOODLAND PARK DOES NOT ASSURE COMPLIANCE WITH THE ADA OR ANY REGULATIONS OR GUIDELINES ENACTED OR PROMULGATED UNDER OR WITHIN RESPECT TO SUCH LAWS. THE PARTIES RESPONSIBLE FOR THIS PLAN HAVE FAMILIARIZED THEMSELVES WITH THE CURRENT ACCESSIBILITY CRITERIA AND SPECIFICATIONS AND THE PROPOSED PLAN REFLECTS ALL THE ELEMENTS REQUIRED BY THE APPLICABLE ADA DESIGN STANDARDS AND GUIDELINES AS PUBLISHED BY THE UNITED STATES DEPARTMENT OF JUSTICE. APPROVAL OF THIS PLAN BY THE CITY OF WOODLAND PARK DOES NOT ASSURE COMPLIANCE WITH THE ADA OR ANY REGULATIONS OR GUIDELINES ENACTED OR PROMULGATED UNDER OR WITHIN RESPECT TO SUCH LAWS.
- SITE SURVEY WAS NOT APPROVED WITH THIS PLAN.
- ALL EXISTING UNDERGROUND UTILITIES SHOWN ON THIS MAP ARE FROM UTILITY MAP RECORDS AND SANITARY UTILITY SERVICE LOCATIONS HAVE BEEN LOCATED. BELOWGROUND UTILITY LOCATIONS WERE NOT PERFORMED.
- THE EXISTING TOPOGRAPHY SHOWN ON THIS PLAN WAS PREPARED BY MVE, INC. USING DATA PROVIDED BY RAMPAUT SURVEYS, LLC. (PME DESIGN, PROJECT 20).
- UNLESS OTHERWISE INDICATED, ALL ABBREVIATED ELEVATIONS ARE TO BE ADDED TO THE DISPLAYED VALUE.
- THIS DEVELOPMENT PLAN, SHEETS ARE NOT A CONSTRUCTION PLANSET. THIS PLAN SHALL NOT BE USED FOR CONSTRUCTION PURPOSES. IT IS PREPARED FOR THE CITY OF WOODLAND PARK DEVELOPMENT PLAN APPROVAL PROCESS ONLY. IT IS REQUIRED THAT ANY SUBSEQUENT CONSTRUCTION PLANS ADHERE TO THE APPROVED DEVELOPMENT PLAN.



BENCHMARK



1" = 30' 1:360

MVE, INC.
ENGINEERS & SURVEYORS
1903 LEARAY STREET, SUITE 200, COLORADO SPRINGS, CO 80909 (719) 635-5736

REVISIONS

2730 MOUNTAIN GLEN COURT

CONDITIONAL USE
SITE PLAN

CUP1.1
MVE PROJECT 61159
MVE DRAWING CUP-SP

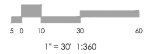
DECEMBER 28, 2021
SHEET 1 OF 8

PCD FILE NO.

 **NOT TO BE USED FOR
CONSTRUCTION**



BASIS OF BEARINGS: THE BASIS OF ALL BEARINGS SHOWN ON THIS DRAWING IS THE .



REVISIONS

DECEMBER 28, 2021
SHEET 2 OF 8

VICINITY MAP

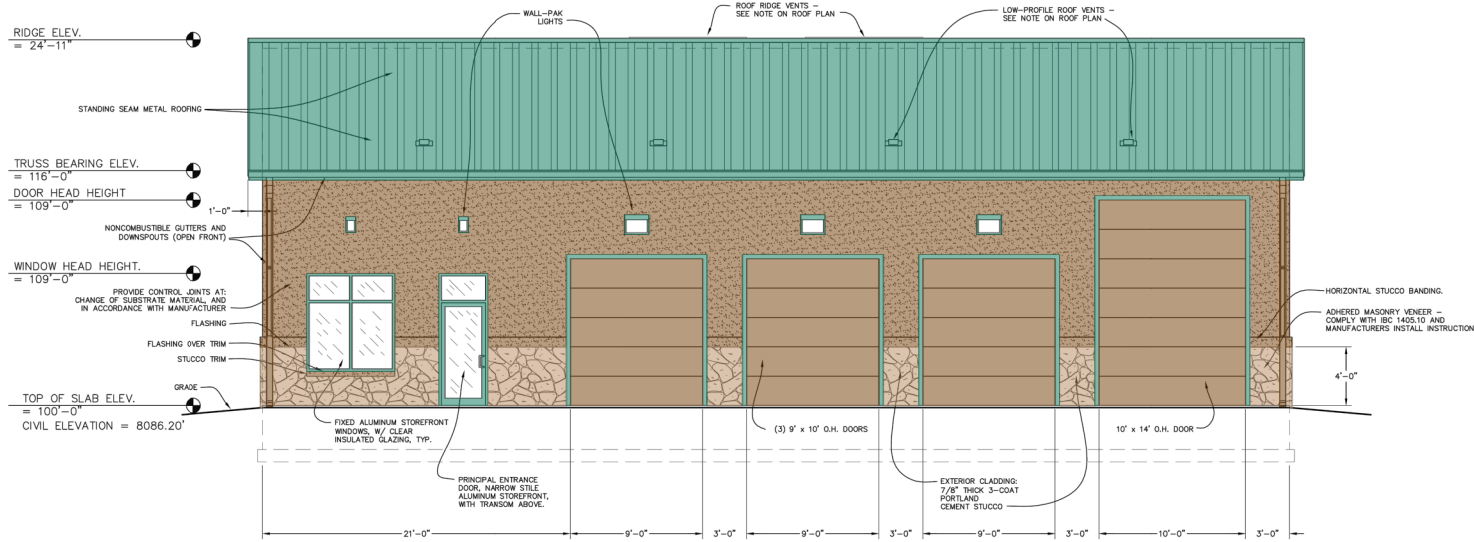
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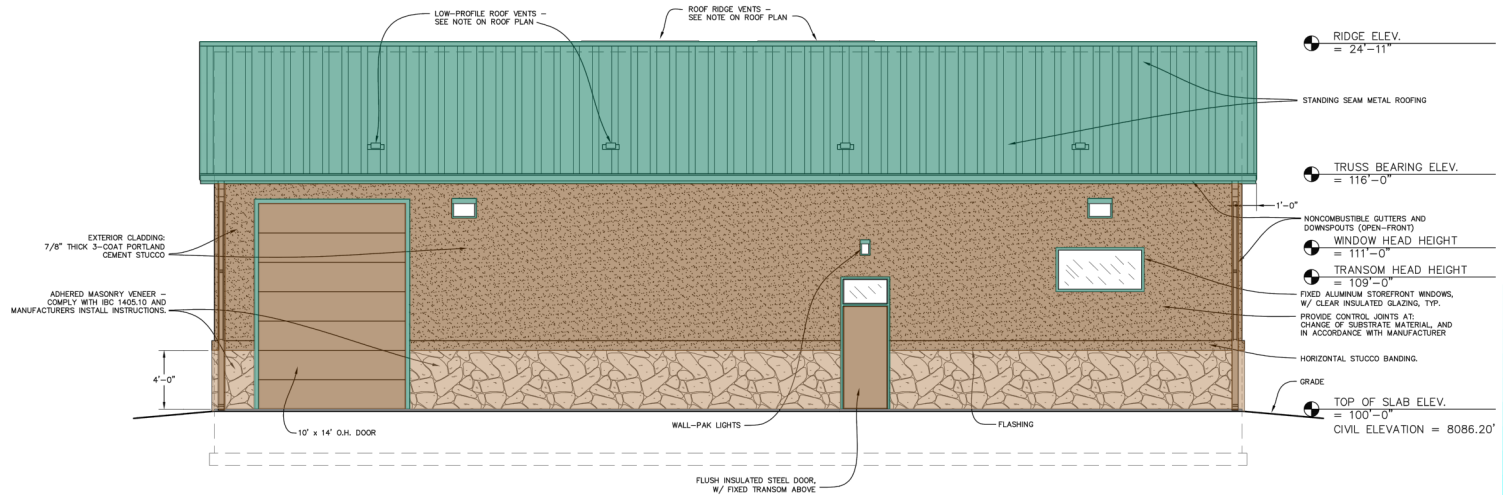
DESIGNED BY _____
 DRAWN BY _____
 CHECKED BY _____
 AS-BUILTS BY _____
 CHECKED BY _____

CUP1.3
MVE PROJECT 61159
MVE DRAWING CUP-PU

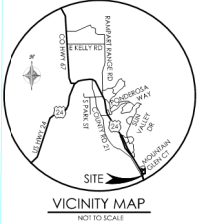
[illegible]



1
A3.01 EXTERIOR FRONT ELEVATION
1/4" = 1'-0"



1
A3.01 EXTERIOR REAR ELEVATION
1/4" = 1'-0"



BENCHMARK

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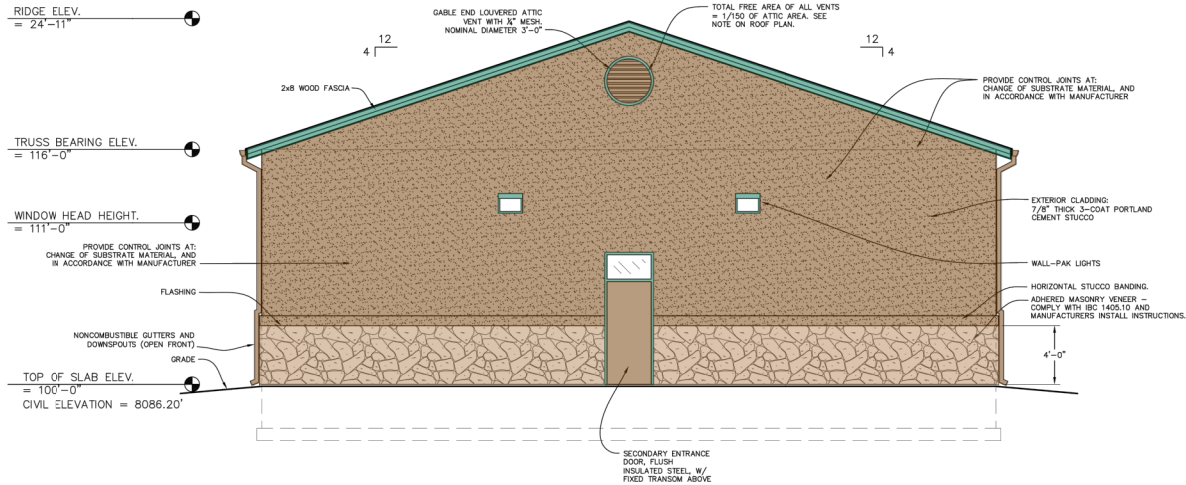
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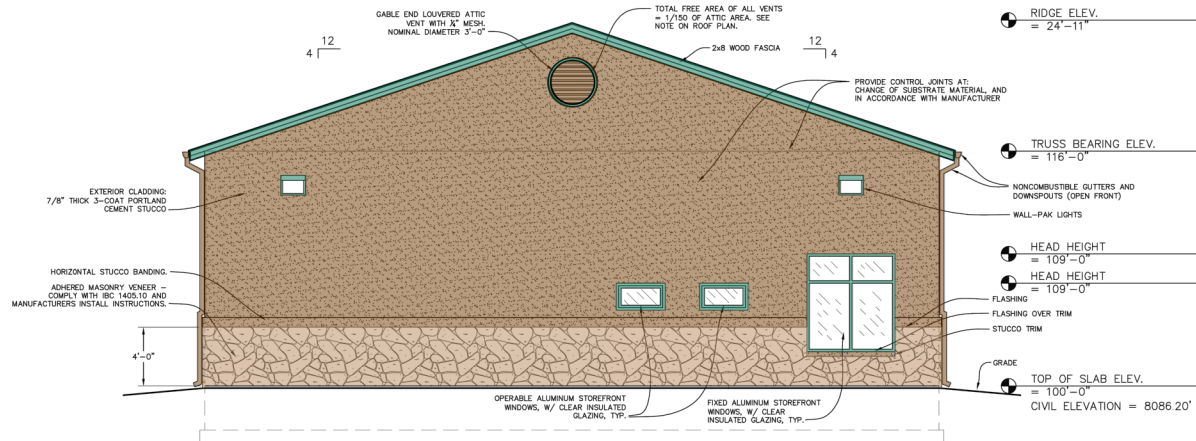
ELEVATIONS

2730 MOUNTAIN GLEN COURT

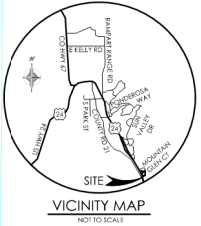
WOODLAND PARK, COLORADO



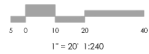
1 EXTERIOR RIGHT SIDE ELEVATION
1/4" = 1'-0"



2 EXTERIOR LEFT SIDE ELEVATION
1/4" = 1'-0"



BENCHMARK



REVISIONS

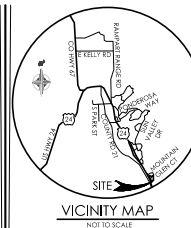
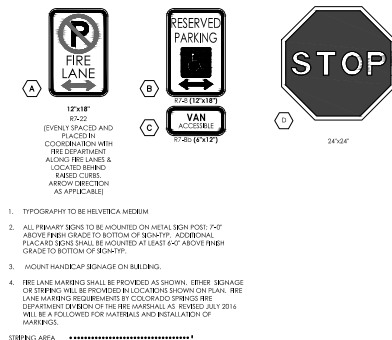
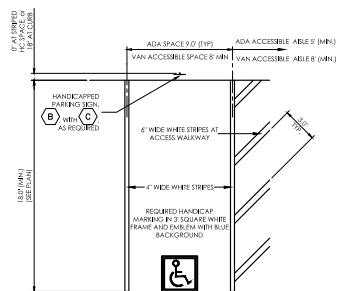
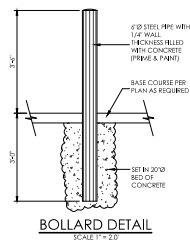
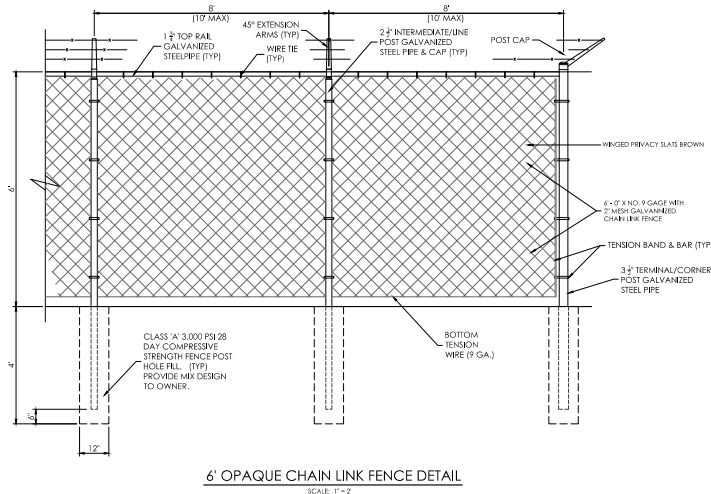
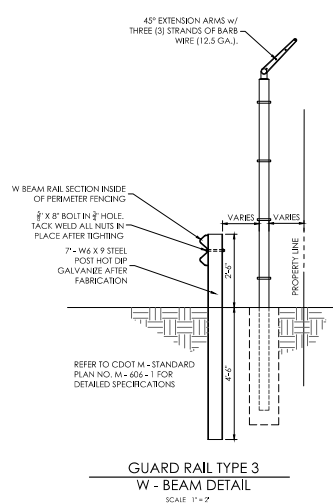
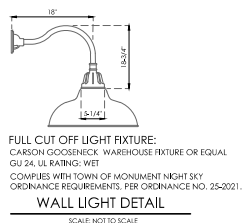
DESIGNED BY
DRAWN BY
CHECKED BY
AS-BUILT BY
CHECKED BY

2730 MOUNTAIN GLEN COURT

CONDITIONAL USE ELEVATIONS

CUP1.5
MVE PROJECT 61159
MVE DRAWING CUP-EL2

JANUARY 25, 2022
SHEET 5 OF 8



BENCHMARK

MVE, INC.
ENGINEERS, SURVEYORS

REVISIONS

DESIGNED BY _____
 DRAWN BY _____
 CHECKED BY _____
 AS-BUILTS BY _____
 CHECKED BY _____

2730 MOUNTAIN GLEN
COURT

CONDITIONAL USE
DETAIL SHEET

CUP1.6
MVE PROJECT 61159
MVE DRAWING CUP-DS

DECEMBER 28, 2021
SHEET 6 OF 8

**PRELIMINARY PLANS
SUBJECT TO REVISION**

**STOP NOT TO BE USED FOR
CONSTRUCTION STOP**

TYPICAL HANDICAP PARKING SPACE
SCALE: 1" = 5'

SITE SIGNAGE LEGEND

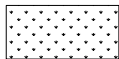
EXISTING TREE LEGEND

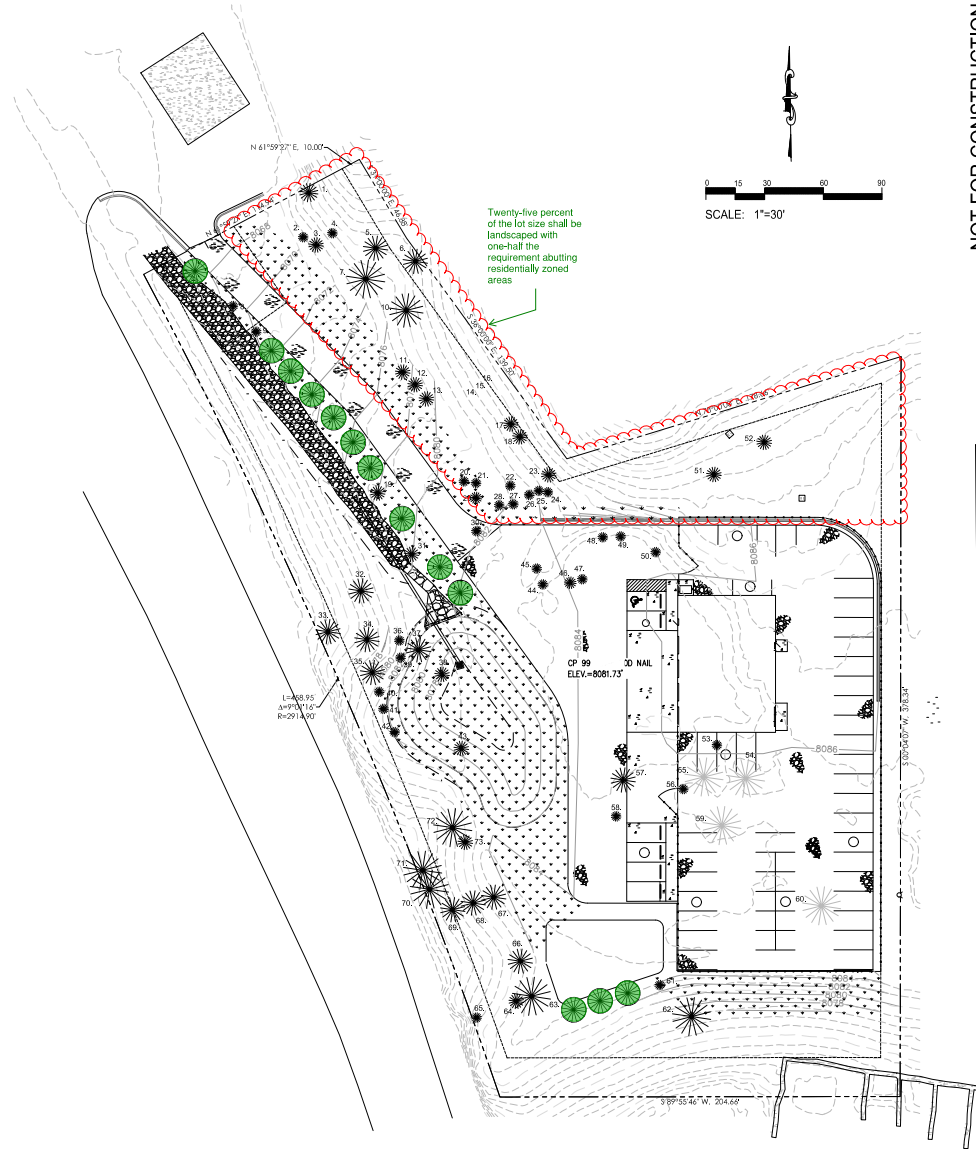
NO.	SPECIES	SIZE	CONDITION	STATUS
1.	PONDEROSA PINE	4' HT.	GOOD	TO REMAIN
2.	PONDEROSA PINE	6' HT.	GOOD	TO REMAIN
3.	PONDEROSA PINE	12' HT.	GOOD	TO REMAIN
4.	PONDEROSA PINE	6' HT.	GOOD	TO REMAIN
5.	PONDEROSA PINE	40' HT.	GOOD	TO REMAIN
6.	PONDEROSA PINE	30' HT.	GOOD	TO REMAIN
7.	PONDEROSA PINE	40' HT.	GOOD	TO REMAIN
8.	PONDEROSA PINE	4' HT.	GOOD	TO REMAIN
9.	PONDEROSA PINE	40' HT.	GOOD	TO REMAIN
10.	PONDEROSA PINE	40' HT.	GOOD	TO REMAIN
11.	PONDEROSA PINE	10' HT.	GOOD	TO REMAIN
12.	PONDEROSA PINE	10' HT.	GOOD	TO REMAIN
13.	PONDEROSA PINE	8' HT.	GOOD	TO REMAIN
14.	PONDEROSA PINE	7' HT.	GOOD	TO REMAIN
15.	PONDEROSA PINE	6' HT.	GOOD	TO REMAIN
16.	PONDEROSA PINE	7' HT.	GOOD	TO REMAIN
17.	PONDEROSA PINE	10' HT.	GOOD	TO REMAIN
18.	PONDEROSA PINE	15' HT.	GOOD	TO REMAIN
19.	PONDEROSA PINE	8' HT.	GOOD	TO REMAIN
20.	PONDEROSA PINE	5' HT.	GOOD	TO REMAIN
21.	PONDEROSA PINE	5' HT.	GOOD	TO REMAIN
22.	PONDEROSA PINE	7' HT.	GOOD	TO REMAIN
23.	PONDEROSA PINE	10' HT.	GOOD	TO REMAIN
24.	PONDEROSA PINE	8' HT.	GOOD	TO REMAIN
25.	PONDEROSA PINE	10' HT.	GOOD	TO REMAIN
26.	PONDEROSA PINE	6' HT.	GOOD	TO REMAIN
27.	PONDEROSA PINE	9' HT.	GOOD	TO REMAIN
28.	PONDEROSA PINE	9' HT.	GOOD	TO REMAIN
29.	PONDEROSA PINE	9' HT.	GOOD	TO REMAIN
30.	PONDEROSA PINE	6' HT.	GOOD	TO BE TRANSPLANTED
31.	PONDEROSA PINE	10' HT.	GOOD	TO REMAIN
32.	PONDEROSA PINE	35' HT.	GOOD	TO REMAIN
33.	PONDEROSA PINE	30' HT.	GOOD	TO REMAIN
34.	PONDEROSA PINE	30' HT.	GOOD	TO REMAIN
35.	PONDEROSA PINE	30' HT.	GOOD	TO REMAIN
36.	PONDEROSA PINE	6' HT.	GOOD	TO REMAIN
37.	PONDEROSA PINE	30' HT.	GOOD	TO REMAIN
38.	PONDEROSA PINE	8' HT.	GOOD	TO BE TRANSPLANTED
39.	PONDEROSA PINE	6' HT.	GOOD	TO REMAIN
40.	PONDEROSA PINE	15' HT.	GOOD	TO REMAIN
41.	PONDEROSA PINE	4' HT.	GOOD	TO REMAIN
42.	PONDEROSA PINE	4' HT.	GOOD	TO REMAIN
43.	PONDEROSA PINE	7' HT.	GOOD	TO BE TRANSPLANTED
44.	PONDEROSA PINE	6' HT.	GOOD	TO BE TRANSPLANTED
45.	PONDEROSA PINE	5' HT.	GOOD	TO BE TRANSPLANTED
46.	PONDEROSA PINE	10' HT.	GOOD	TO BE TRANSPLANTED
47.	PONDEROSA PINE	7' HT.	GOOD	TO BE TRANSPLANTED
48.	PONDEROSA PINE	6' HT.	GOOD	TO BE TRANSPLANTED
49.	PONDEROSA PINE	4' HT.	GOOD	TO BE TRANSPLANTED
50.	PONDEROSA PINE	5' HT.	GOOD	TO BE TRANSPLANTED
51.	PONDEROSA PINE	12' HT.	GOOD	TO REMAIN
52.	PONDEROSA PINE	14' HT.	GOOD	TO REMAIN
53.	PONDEROSA PINE	20' HT.	GOOD	TO REMAIN
54.	PONDEROSA PINE	20' HT.	GOOD	TO BE REMOVED
55.	PONDEROSA PINE	25' HT.	GOOD	TO BE REMOVED
56.	PONDEROSA PINE	6' HT.	GOOD	TO BE TRANSPLANTED
57.	PONDEROSA PINE	15' HT.	FAIR	TO BE TRANSPLANTED
58.	PONDEROSA PINE	6' HT.	GOOD	TO BE TRANSPLANTED
59.	PONDEROSA PINE	25' HT.	GOOD	TO BE REMOVED
60.	PONDEROSA PINE	40' HT.	GOOD	TO BE REMOVED
61.	PONDEROSA PINE	6' HT.	GOOD	TO REMAIN
62.	PONDEROSA PINE	30' HT.	GOOD	TO REMAIN
63.	PONDEROSA PINE	25' HT.	GOOD	TO REMAIN
64.	PONDEROSA PINE	4' HT.	GOOD	TO REMAIN
65.	PONDEROSA PINE	25' HT.	GOOD	TO REMAIN
66.	PONDEROSA PINE	20' HT.	GOOD	TO REMAIN
67.	PONDEROSA PINE	20' HT.	GOOD	TO REMAIN
68.	PONDEROSA PINE	20' HT.	GOOD	TO REMAIN
69.	PONDEROSA PINE	20' HT.	FAIR	TO REMAIN
70.	DOUGLAS FIR	25' HT.	GOOD	TO REMAIN
71.	PONDEROSA PINE	25' HT.	GOOD	TO REMAIN
72.	PONDEROSA PINE	35' HT.	GOOD	TO REMAIN
73.	PONDEROSA PINE	10' HT.	FAIR	TO REMAIN

EXISTING TREE SYMBOLS

-  EXISTING TREE TO REMAIN
-  EXISTING TREE TO BE TRANSPLANTED
-  EXISTING TREE TO BE REMOVED
-  TRANSPLANT LOCATION FOR EXISTING TREE

GROUND PLANE TREATMENT

-  NON-IRRIGATED NATIVE GRASS SEED WITH EROSION CONTROL BLANKET



NOT FOR CONSTRUCTION



P.O. Box 354
Palmer Lake, CO 80133
(719) 640-0428
jwalsharch@gmail.com
www.jwalshlandscapearchitect.com

PROJECT: 2730 Mountain Glen Court L.S.dwg

2730 Mountain Glen Court
Woodland Park, CO

PROJECT NAME

FINAL
LANDSCAPE
PLAN

SHEET TITLE

DATE

January 20, 2022

REVISION:

STAMP:

SHEET NO.

Sheet 7 of 8

CUP1.7

EXISTING TREE NOTES

1. EXISTING TREES TO REMAIN PRIOR TO AND DURING CONSTRUCTION SHALL BE MARKED WITH SURVEYOR'S RIBBON AND PROTECTED BY BARRIERS. SAID BARRIERS TO BE OF ORANGE FENCING A MINIMUM OF FOUR FEET IN HEIGHT, SECURED WITH METAL T-POSTS, NO CLOSER THAN SIX FEET OR THE OUTER DRIP LINE OF THE TREE, WHICHEVER IS GREATER.
2. WITHIN THE DRIPLINE OF ANY PROTECTED TREE, THERE SHALL BE NO CUT OR FILL OVER A FOUR-FOOT DEPTH UNLESS A QUALIFIED ARBORIST OR FORESTER HAS EVALUATED AND APPROVED THE DISTURBANCE.
3. PROTECTION OF EXISTING TREES:
WITHIN 4' OF THE DRIP LINE OF THE TREE CANOPY DO NOT:
-DO NOT OPERATE HEAVY EQUIPMENT.
-STOCKPILE CONSTRUCTION MATERIALS OR DEMOLITION DEBRIS.
-PARK VEHICLES OR EQUIPMENT.
-TRENCH FOR UTILITIES INSTALLATION OR REPAIR.
-DISPOSE OF WASTE MATERIAL SUCH AS PAINTS, OILS, SOLVENTS, ASPHALT, CONCRETE, OR ANY OTHER MATERIAL HARMFUL TO THE LIFE OF A TREE.
-DAMAGE ROOTS BY GRADING, TEARING, OR DISMOUNTING.
-COMPACT SOIL WITH EQUIPMENT, VEHICLES, AND/OR MATERIAL STORAGE.
-CONTAMINATE SOIL FROM WASHING OUT EQUIPMENT.
4. LARGE AREAS CONTAINING PROTECTED TREES AND SEPARATED FROM CONSTRUCTION OR LAND CLEARING AREAS MAY BE DESIGNATED BY SURVEYORS RIBBON AND METAL T-POST ONLY WATER THAN THE PROTECTIVE BARRIERS MENTIONED ABOVE.
5. TRANSPLANTED TREES ARE TO BE MOVED BETWEEN SEPTEMBER 1 AND APRIL 1 BY UTILIZING A MINIMUM SIX INCH TREE SPACE FOR TREES OVER 8' HEIGHT. WHERE POSSIBLE, INSTALL TREES AT NEW LOCATIONS FACING THE SAME DIRECTION AS THEIR EXISTING LOCATION.
6. EXISTING TREES TO BE TRANSPLANTED ARE TO HAVE 4" DEPTH OF WOOD MULCH, 4" DIAMETER PLACED AROUND THE BASE OF TREE ALONG WITH CREATING A 4" DIAMETER TREE WELL.
7. ALL TRANSPLANTED TREES ARE TO BE WATERED BY HAND EVERY 2 WEEKS DURING THE GROWING SEASON AND ONCE A MONTH DURING DORMANT MONTHS FOR 2 YEARS UNTIL ESTABLISHED.

EL PASO COUNTY ALL-PURPOSE MIX FOR UPLAND, TRANSITION AND PERMANENT CONTROL MEASURE AREAS

COMMON NAME	SCIENTIFIC NAME	GROWTH SEASON / FORM	% OF MIX	POUNDS PLS (PURE LIVE SEED)		
				IRRIGATED BROADCAST HYDROSEED	NON-IRRIGATED BROADCAST HYDROSEED DRILLED	NON-IRRIGATED DRILLED
BIG BLUESTEM	Buchloe dactyloides	WARM BUNCH	20%	4.4	2.2	1.1
BLUE GRAMA	Bouteloua gracilis	WARM BUNCH	10%	0.5	0.25	0.13
GREEN NEEDLEGRASS	Nassella viridula	COOL BUNCH	10%	2	1	0.5
WESTERN WHEATGRASS	Pascopyrum smithii	COOL SOO	20%	6.4	3.2	1.6
SIDE OATS GRAMA	Bouteloua curtipendula	WARM BUNCH	10%	2	1	0.5
SWITCHGRASS	Panicum virgatum	WARM BUNCH SOO	10%	0.8	0.4	0.2
PRAIRIE SANDREED	Calamovilfa longifolia	WARM BUNCH	10%	1.2	0.6	0.3
YELLOW INDIAN GRASS	Sorghastrum nutans	WARM SOO	10%	2	1	0.5
SEED RATE (LBS. PLS / ACRE)				19.3	9.7	4.8

NATIVE SEED ESTABLISHMENT

INITIAL PLANTING
STOCKPILED TOPSOIL SHOULD BE SPREAD EVENLY OVER ALL AREAS TO RECEIVE NATIVE SEED. SEED BED IS TO BE WEED-FREE. SPECIFIED SOIL AMENDMENTS SHOULD BE SPREAD AND INCORPORATED INTO TOP 6" OF SOIL. SEED BED IS TO BE RAKED SMOOTH AND FREE OF DEBRIS LARGER THAN 1" IN DIAMETER. ANY AREAS THAT THE CONTRACTOR BELIEVES TO BE SUSCEPTIBLE TO EROSION ARE TO BE BROUGHT TO THE ATTENTION OF THE OWNER AND/OR GENERAL CONTRACTOR PRIOR TO SEEDING. THE SPECIFIED SEED MIX IS TO BE APPLIED BY HYDRO-MULCHING OR BROADCAST SEEDING AT THE RATE SPECIFIED RAKING INTO TOP 1/4" TO 1/2" OF SOIL. SEED IS TO BE APPLIED BETWEEN APRIL 15 AND SEPTEMBER 15. SEED SHALL NOT BE SOWN IN GROUND IS IN A FROZEN STATE. SPECIFIED EROSION CONTROL BLANKET IS TO BE INSTALLED IMMEDIATELY AFTER SEEDING. BLANKET SHALL BE LAD AND SECURED WITH 6" METAL STAPLES AS PER MANUFACTURER'S INSTRUCTIONS. CONTRACTOR IS TO PROVIDE INCIDENTAL WATERING OF ALL SEEDED AREAS THREE TIMES A WEEK DURING GROWING SEASON FOR A MINIMUM OF 8 WEEKS, OR UNTIL ESTABLISHED AND MEETING COVERAGE REQUIREMENTS. SPECIFIED FERTILIZER IS TO BE PROVIDED 3 WEEKS AFTER SEEDLINGS EMERGE. MOWING MAY BE NECESSARY DURING THE FIRST GROWING SEASON TO KEEP INVASIVE WEEDS FROM SETTING SEEDS. CONTRACTOR IS RESPONSIBLE FOR KEEPING BROADLEAF WEEDS UNDER CONTROL FOR 12 MONTHS AFTER INITIAL SEEDING AND IS ALSO RESPONSIBLE FOR OVER SEEDING BARE AREAS UNTIL SPECIFIED NATIVE GRASSES COVER ALL AREAS AND AREAS WITHOUT SPECIFIED NATIVE GRASS DO NOT EXCEED 6" X 6".

OVER SEEDING
SIX WEEKS AFTER THE INITIAL SEEDING DURING THE FIRST GROWING SEASON AND/OR DURING THE SPRING OF THE SECOND GROWING SEASON CONTRACTOR IS TO REPAIR ANY ERODED AREAS AND OVER SEED ALL BARE NATIVE GRASS AREAS. CONTRACTOR IS TO USE SPECIFIED SEED MIX BY BROADCAST AND RAKING INTO TOP 1/4" TO 1/2" OF SOIL. INCIDENTAL WATERING IS TO BE PROVIDED TO ESTABLISH OVER-SEEDING AREAS. SPECIFIED FERTILIZER IS TO BE APPLIED 3 WEEKS AFTER SEEDLINGS EMERGE. BROADLEAF WEEDS ARE TO BE KEPT UNDER CONTROL BY MANUALLY PULLING OR CUTTING WEEDS OR SPRAYING OF BROADLEAF WEED HERBICIDE. HERBICIDE AND APPLICATION SHALL CONFORM TO ALL APPLICABLE LAWS OF THE STATE OF COLORADO AND MANUFACTURERS INSTRUCTIONS.

GENERAL NOTES

1. ALL REFERENCES TO 'CONTRACTOR' REFER TO LANDSCAPE CONTRACTOR, UNLESS OTHERWISE NOTED.
2. CONTRACTOR IS RESPONSIBLE FOR GETTING ALL UTILITY LOCATES PRIOR TO STARTING ANY WORK ON SITE AND ALSO HAVING UTILITIES RELOCATED AS NECESSARY FOR THE DURATION OF CONSTRUCTION.
3. CONTRACTOR IS RESPONSIBLE FOR INSTALLING ALL LANDSCAPE SHOWN ON THIS PLAN. ANY DEFICIENCIES OR DEVIATIONS FROM THIS PLAN ARE TO BE APPROVED BY OWNER'S REPRESENTATIVE OR LANDSCAPE ARCHITECT. ANY CHANGES FROM THE APPROVED PLANS MAY REQUIRE APPROVAL FROM THE CITY OF WOODLAND PARK PLANNING DEPARTMENT AND MAY DELAY COMPLETION OF PROJECT.
4. CONTRACTOR IS RESPONSIBLE FOR VERIFYING QUANTITIES OF MATERIALS NEEDED TO COMPLETE THIS PLAN IN THE FIELD. NOTIFY OWNER'S REPRESENTATIVE OF DISCREPANCIES BETWEEN THE DRAWINGS AND CONDITIONS IN THE FIELD. SUBSTITUTIONS OF LANDSCAPE MATERIALS ARE NOT ALLOWED WITHOUT APPROVAL FROM LANDSCAPE ARCHITECT. GAIN PRIOR TO INSTALLATION. NOTIFY LANDSCAPE ARCHITECT PRIOR TO CONSTRUCTION IF LANDSCAPE MATERIAL LOCATIONS NEED TO BE ALTERED DUE TO ON-SITE CONDITIONS.
5. THE OWNER OF THIS PROPERTY AND ANY FUTURE OWNERS SHALL BE RESPONSIBLE FOR THE PROPER LANDSCAPE AND IRRIGATION MAINTENANCE OF THIS SITE. MAINTENANCE OF THIS SITE INCLUDES, BUT IS NOT LIMITED TO WATERING TRANSPLANTED TREES, LANDSCAPE WEEDING, MOWING, SEEDING, FERTILIZATION, WOOD MULCH, REPLACEMENT, PRUNING, AND TREE REPLACEMENT.

PROJECT NOTES

1. FINE GRADING TO BE PERFORMED BY LANDSCAPE CONTRACTOR TO REFLECT FINISHED GRADES SHOWN ON THE PROJECT GRADING PLANS. ALL FINISHED GRADES ARE TO HAVE A MINIMUM 2% SLOPE. CONTRACTOR IS TO REPORT POOR DRAINAGE CONDITIONS OR ANY GRADES IN LANDSCAPE AREAS LESS THAN 2% TO GENERAL CONTRACTOR AND LANDSCAPE ARCHITECT PRIOR TO LANDSCAPE CONSTRUCTION WORK. FINISHED GRADES SHALL BE FREE OF WEEDS AND FREE OF DEBRIS AND ROCKS GREATER THAN ONE INCH.
2. CONTRACTOR IS TO PROVIDE FINAL GRADES ADJACENT TO HARDSCAPE SURFACES AT THE FOLLOWING SPECIFICATIONS:
1" BELOW TOP OF ASPHALT FOR NATIVE SEED AREAS.
CONTRACTOR IS TO COORDINATE THESE GRADING SPECIFICATIONS WITH GENERAL CONTRACTOR AND/OR WHOEVER IS PROVIDING ROUGH GRADING. FINAL GRADES IN ALL LANDSCAPE AREAS ARE TO BE ESTABLISHED USING ON-SITE STOCKPILED TOPSOIL.
3. 4" DEPTH WOOD MULCH IS TO BE PROVIDED AT A 4" DIAMETER AROUND BASE OF ALL TRANSPLANTED TREES.
4. ALL PROPOSED SEEDING AREAS ARE TO BE ROTO-TILLED TO A 6" DEPTH WITH SOIL AMENDMENTS INSTALLED ACCORDING TO SOIL PREPARATION NOTES BELOW. SEEDING AREAS ARE TO BE RAKED SMOOTH AND FINISHED GRADES ARE TO BE ESTABLISHED AND VERIFIED TO THE TOLERANCES LISTED ABOVE PRIOR TO SEEDING.
5. ALL AREAS SHOWN TO BE SEEDING WITH EL PASO COUNTY ALL-PURPOSE MIX TO BE PERFORMED BY HYDRO-MULCHING AND BROADCAST AND RAKING RATE SHOWN ON SEED TABLE. REFER TO NATIVE SEED ESTABLISHMENT SPECIFICATION FOR MORE DETAILED INSTRUCTIONS.

SOIL PREPARATION NOTES

1. **PROPOSED NON-IRRIGATED NATIVE SEED AREAS:** ALL SEEDING AREAS TO RECEIVE 3 CU. YDS. PER 1,000 SQ. FT. OF IMPORTED CLASS A TOPSOIL INCORPORATED INTO EXISTING SOIL AND ROTO-TILLED TO A 6" DEPTH.
2. LANDSCAPE CONTRACTOR IS TO VERIFY THAT ALL FINISHED GRADES COMPLY WITH GRADING PLAN PREPARED BY CIVIL ENGINEER. VERIFY THAT ALL SLOPES DRAIN AWAY FROM BUILDING(S) AND THAT DRAINAGE SWALES ARE CORRECTLY LOCATED AND CARRY WATER AS INTENDED. NOTIFY GENERAL CONTRACTOR PRIOR TO CONSTRUCTION IF STANDING WATER IS PRESENT (OTHER THAN DETENTION FACILITIES) OR IF SLOPES ARE NOT GRADED AS PER APPROVED GRADING PLAN.
3. LANDSCAPE CONTRACTOR IS TO LOCATE ALL DOWNSPOUTS AND DOWNSPOUT EXTENSIONS AND VERIFY THAT NO OBSTRUCTIONS ARE IMPEDING THE FLOW OF WATER AWAY FROM THE BUILDING.
4. LANDSCAPE CONTRACTOR IS TO PROVIDE TEMPORARY EROSION MITIGATION MEASURES FOR THE DURATION OF LANDSCAPE CONSTRUCTION AND THROUGH ESTABLISHMENT OF NATIVE GRASS. THIS INCLUDES PLACEMENT OF WATTLES AND/OR EROSION BLANKET WHEREVER DRAINAGE ERODES BARE SOIL AND RUNOFF CAN POTENTIALLY DAMAGE NEIGHBORING PROPERTIES.

GRADING / DRAINAGE NOTES

NOT FOR CONSTRUCTION

JWLA

Jon Walsh
LANDSCAPE ARCHITECT
LLC

P.O. Box 354
Palmer Lake, CO 80133
(719) 640-0429
jwalshlarch@gmail.com
www.jwalshlandscapearchitect.com

PROJECT
FILE

2730 mountain glen court L5.dwg

2730 Mountain Glen Court
Woodland Park, CO

PROJECT NAME

FINAL LANDSCAPE PLAN

SHEET TITLE

DATE

January 20, 2022

REVISIONS

STAMP

SHEET NO.

CUP1.8

Sheet 8 of 8



Final Drainage Report

**CUP – 2730
Mountain Glen
Court**

Project No. 61159

January 12, 2022

Final Drainage Report

for

**CUP – 2730 Mountain Glen Court
Woodland Park, CO**

Project No. 61159

January 12, 2022

prepared for

Mike Cerquozzi
67 Horse Creek Circle
Lake George, CO 80827

prepared by

MVE, Inc.
1903 Lelaray Street, Suite 200
Colorado Springs, CO 80909
719.635.5736

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61159-2730 Mountain Glen Court FDR.odt

Statements and Acknowledgments

Engineer's Statement

This report and plan for the drainage design of CUP – 2730 Mountain Glen Court was prepared by me (or under my direct supervision) and is correct to the best of my knowledge and belief. Said report and plan has been prepared in accordance with the City / County Drainage Report Criteria and is in conformity with the master plan of the drainage basin. I accept responsibility for any liability caused by any negligent acts, errors or omissions on my part in preparing this report.

Charles C. Crum, P.E.
For and on Behalf of MVE, Inc.

Colorado No. 13348

Date

Developer's Statement

I, the owner/developer have read and will comply with all of the requirements specified in this drainage report and plan.

Mike Cerquozzi
1903 Lelaray Street, Suite 200
Lake George, CO 80827

Date

City of Woodland Park Statement

Filed in accordance with the Code of the City of Woodland Park.

Director of Development Services
City of Woodland Park

Date

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Final Drainage Report

The purpose of this Final Drainage Report is to identify drainage patterns and quantities within and affecting the proposed CUP – 2730 Mountain Glen Court site. The report will identify specific solutions to problems on-site and off-site resulting from the proposed project. The report and included maps present results of hydrologic and drainage facilities analyses. The report will discuss the recommended drainage improvements to the site and identify drainage requirements relative to the proposed project. This report has been prepared and submitted in accordance with the requirements of the Woodland Park development approval process. An Appendix is included with this report with pertinent calculations and graphs used in the drainage analyses and design.

1 General Location and Description

1.1 Location

The proposed CUP – 2730 Mountain Glen Court site is located within the east one-half of the southeast one-quarter of Section 31, Township 12 South, Range 68 west of the 6th Principal Meridian in Teller County, Colorado. The 2.55± acre site is situated on the east side of Colorado Highway 24, north of Jet Industrial Loop, on the south side of Mountain Glen Court. The site is currently a vacant lot. The Teller County Assessor's Parcel Id. Number for the site is 6031.314090010. The site was originally platted with Sunny Glen Retreat Subdivision Filing No. 1, and was later included in the replat of Sunny Creek Subdivision Filing No. 2. A **Vicinity Map** is included in the **Appendix**. The site is located in the Upper Fountain Major Drainage Basin.

1.2 Description of Property

Sunny Retreat Subdivision Filing No. 2 is a platted subdivision in the City of Woodland Park, Colorado. The subdivision included platting of Mountain Glen Court as a public road extending east from Colorado Highway 24 to a cul-de-sac.

Sunny Retreat Subdivision Filing No. 2 reconfigured the original platted lot lines of the original subdivision. The re-plat combined lots 5, 6, 8 and 12 into three lots, lots 1, 2 and 3.

Gino LLC, A Colorado LLC is planning to construct a commercial building on Lot 1, Sunny Retreat Subdivision Filing No. 2. The site has a Teller County Parcel Id. No. of 6031.314090010. The replat of Sunny Retreat Subdivision Filing No. 2 includes the subject Lot 1.

The proposed site development plan for Lot 1 consists of a new 3,500 square-foot office / warehouse building with gravel parking areas, landscaping, and related site improvements. Access to the new commercial lot will be provided by the existing connection to Colorado Highway 24 on the north side of the site through an existing access easement that connects the site to Highway 24 through Lot 11 sunny Retreat Subdivision Filing No. 1.

The Lot 1 site is adjacent to lot 2 Sunny Retreat Subdivision Filing No. 2 to the east, and Lots 10 & 11, Sunny Retreat Subdivision Filing No. 1 to the north.

This report is intended to meet the City of Woodland Park's requirements for a Final Drainage Report in support of the proposed Development Plan for Gino LLC, A Colorado LLC on Lot 1.

The ground cover is in fair to good condition and consists of native grasses, sparse brush and coniferous trees.

The existing site topography generally slopes to the north with grades of about 3% to 8%. The site is bordered on the south and west by steep sloped terrain that drains away from the site.

The storm runoff from the site currently drains northwest into a rip-rap lined channel that directs the stormwater into the ditch that runs along Colorado Highway 24. All flows from the site eventually enter Fountain Creek.

According to the National Resource Conservation Service, there are two (2) soil types in the CUP – 2730 Mountain Glen Court site. Sphinx-Rock Outcrop Complex (map unit 46) makes up about 30% of the soil on the site. This soil is shallow and somewhat excessively drained. Permeability is moderate, surface runoff is rapid, and the hazard of erosion is severe. Sphinx-Rock Outcrop Complex is classified as being part of Hydrologic Soil Group D. Tripit Loam (map unit 51) makes up about 70% of the soil on the site. The soil is moderately deep and well drained. Permeability is moderate, surface runoff is medium, and the hazard of erosion is slight. Tripit Loam is classified as being part of Hydrologic Soil Group C. A portion of the Soil Map and data tables from the National Cooperative Soil Survey and relevant Official Soil Series Descriptions (OSD) are included in the **Appendix**.^{1 2}

2 Drainage Basins and Sub-Basins

2.1 Major Basin Descriptions

The CUP – 2730 Mountain Glen Court site is located within the Upper Fountain Drainage Basin (FOFO7600). The Upper Fountain Drainage Basin covers an area of approximately 19 square miles and drains to Fountain Creek. The Upper Fountain Drainage Basin encompasses a portion of western El Paso County, and stretches into eastern Teller County. The drainage basin drains southeasterly into Fountain Creek.

The current Flood Insurance Study of the region includes Flood Insurance Rate Maps (FIRM), effective on December 7, 2018.³ The proposed subdivision is included in the Community Panel Numbered 08119C0209 D of the Flood Insurance Rate Maps for Teller County. No part of the site is shown to be included in a 100-year flood hazard area as determined by FEMA. A portion of the current FEMA Flood Insurance Rate Maps with the site delineated is included in the **Appendix**.

2.2 Sub-Basin Description

The existing drainage patterns of the CUP – 2730 Mountain Glen Court project are described by five (5) on-site drainage basins. All of these basins are previously undisturbed or developed to a degree as described below. All existing basin delineations and data are depicted on the attached **Existing Drainage Map**.

2.2.1 Existing Drainage Patterns (On-Site)

Existing sub-basin EX-A, located in the northern portion of the site, containing a pasture/meadow area, drains northwest into an existing riprap lined channel that diverts the flows from the site. These flows continue flowing northwest in the channel which drains into the roadside ditch that runs along Highway 24.

Existing sub-basin EX-B is located along the western border of the site. The sub-basin contains steep sloped pasture/meadow areas. All flows from sub-basin EX-B exit the site to the west into the roadside ditch that runs along Highway 24.

1 WSS
2 OSD
3 FIRM

Existing sub-basin EX-C, located in the northeastern corner of the site, contains pasture/meadow. This sub-basin slopes to the southeast and drains into the adjacent property to the east. These flows continue through the adjacent property and eventually enter the ditch along Highway 24.

Existing sub-basin EX-D, located in the center of the site, contains pasture/meadow. This sub-basin slopes toward its center where it appears to collect in a shallow depression. The flows that exit this sub-basin drain into sub-basin EX-A. The flows then combine with the flows from sub-basin EX-A and exit the site through the riprap lined channel.

Existing sub-basin EX-E is located along the western border of the site just south of sub-basin EX-B. The sub-basin contains steep sloped pasture/meadow areas. All flows from sub-basin EX-E exit the site to the west into the roadside ditch that runs along Highway 24.

Existing sub-basin EX-F is located in the southern portion of the site. The sub-basin contains steep sloped pasture/meadow areas. All flows from sub-basin EX-E exit the site to the south into the adjacent property. These flows continue through the adjacent property and eventually enter the roadside ditch that runs along Highway 24.

3 Drainage Design Criteria

3.1 Development Criteria Reference

This Final Drainage Report for CUP – 2730 Mountain Glen Court has been prepared according to the report guidelines presented in the latest edition of *El Paso County Drainage Criteria Manual* (DCM)⁴. The County has also adopted portions of the City of Colorado Springs Drainage Criteria Manual Volumes 1 and 2, especially concerning the calculation of rainfall runoff flow rates.^{5 6} The hydrologic analysis is based on a collection of data from the DCM, the NRCS Web Soil Survey⁷, and existing topographic data by Polaris Surveying, Inc.

3.3 Hydrologic Criteria

For this Final Drainage Report, the Rational Method as described in the *Drainage Criteria Manual* has been used for all Storm Runoff calculations, as the development and all sub-basins are less than 130 acres in area. “Colorado Springs Rainfall Intensity Duration Frequency” curves, Figure 6-5 in the DCM, was used to obtain the design rainfall values; a copy is included in the **Appendix**. The “Overland (Initial) Flow Equation” (Eq. 6-8) in the DCM, and Manning’s equation with estimated depths were used in time of concentration calculations. “Runoff Coefficients for Rational Method”, Table 6-6 in the DCM, was utilized as a guide in estimating runoff coefficient and Percent Impervious values; a copy is included in the **Appendix**. Peak runoff discharges were calculated for each drainage sub-basin for both the 5-year storm event and the 100-year storm event with the Rational Method formula, (Eq. 6-5) in the DCM.⁸

In the case of any required stormwater quality treatment and/or stormwater detention requirements, the “Water Quality Control Volume procedure, Section 3.2.3 of the *Urban Drainage and Flood Control District Drainage Criteria Manual, Volume 3* (UDFCD)^{9 10} method was used for water quality volume calculations with the aid of the “UD-BMP_v3.06” spreadsheet developed by the Urban Drainage and Flood Control District. Storm routing calculation through the proposed water quality basin was performed using triangular hydrographs based on the rational method peak discharges and times of concentrations with the aid of the detention design spreadsheet, “DETENTION VOLUME ESTIMATING WORKBOOK_v2.35”, originally developed for Urban Drainage and Flood Control District.¹¹

4 DCM Section 4.3 and Section 4.4

5 CS DCM Vol 1

6 CS DCM Vol 2

7 WSS

8 DCM

9 UDFCD V.2

10 UDFCDV.3

11 UDFCD

4 Drainage Facility Design

4.1 General Concept

The intent of the drainage concept presented in this Final Drainage Report is to allow for the development of a 3,500 square foot commercial building while maintaining the existing drainage patterns on the site. The site will be in compliance with the City's Stormwater Management regulations. Permanent water quality treatment will be provided by a proposed Full Spectrum Sand Filter Basin (FS-SFB) sized to treat the water from the entire site. The FS-SFB was sized according to the City of Woodland Park, Colorado Engineering Specifications¹². Major and minor storm flows will continue to be safely conveyed through the site and downstream. Developed flows will be released from the site through the rip-rap lined channel and will enter the ditch along Highway 24. The flows released from the site will be limited to historic flows.

The existing and proposed drainage hydrologic conditions are described in more detail below. Input data and results for all calculations are included in the **Appendix**. Drainage maps for the hydrology are also included in the **Appendix**.

4.2 Specific Details

4.2.1 Existing Hydrologic Conditions

As shown on the enclosed Existing Drainage Plan, the existing site has been delineated with six (6) on-site sub-basins flowing towards the northern side of the property.

Storm water flows from sub-basins EX-A (0.63± acres), and EX-D (1.13± acres) both contain pasture/meadow that generally slopes to the northwest. These sub-basins drain overland to the northwest into a riprap lined channel on the northwestern side of the site at Existing Design Point 1 (EX-DP1). The flows continue south through an existing roadside ditch that runs along the eastern side of Highway 24. Sub-basin EX-A generates peak flows of $Q_5 = 0.8$ cfs and $Q_{100} = 2.2$ cfs (existing flows), and sub-basin EX-D generates peak flows of $Q_5 = 0.7$ cfs and $Q_{100} = 3.8$ cfs (existing flows). The accumulated flows from Basins EX-A & EX-D are $Q_5 = 1.1$ cfs and $Q_{100} = 5.9$ cfs (existing flows) at EX-DP1.

Existing sub-basin EX-B (0.19± acres) is located on the western border of the site. This sub-basin contains pasture meadow that slopes to the west with grades of about 30% - 40%. Sub-basin EX-B drains overland to the west into an existing roadside ditch that runs along the eastern side of Highway 24. The peak flows generated by this sub-basin are $Q_5 = 0.1$ cfs and $Q_{100} = 0.8$ cfs (existing flows).

Existing sub-basin EX-C (0.11± acres) is located on the northeastern corner of the site. This sub-basin contains pasture meadow that slopes to the west with grades of about 10% - 15%. Sub-basin EX-C drains overland to the southeast into the adjacent property. The peak flows generated by this sub-basin are $Q_5 = 0.1$ cfs and $Q_{100} = 0.5$ cfs (existing flows).

Existing sub-basin EX-E (0.17± acres) is located on the western border of the site just south of sub-basin EX-B. This sub-basin contains pasture meadow that slopes to the west with grades of about 30% - 40%. Sub-basin EX-E drains overland to the west into an existing roadside ditch that runs along the eastern side of Highway 24. The peak flows generated by this sub-basin are $Q_5 = 0.1$ cfs and $Q_{100} = 0.7$ cfs (existing flows).

Existing sub-basin EX-F (0.32± acres) is located along the southern border of the site. This sub-basin contains pasture meadow that slopes to the south with grades of about 30% - 40%. Sub-basin EX-F drains overland to the south into the adjacent property. The peak flows generated by this sub-basin are $Q_5 = 0.2$ cfs and $Q_{100} = 1.4$ cfs (existing flows).

4.2.2 Proposed Hydrologic Conditions

As shown on the enclosed Proposed Drainage Plan, the proposed site has been delineated with six (6) on-site sub-basins generally flowing towards the northwestern side of the property.

¹² WP ES

Proposed sub-basin A (0.61± acres), located in the northern portion of the site, contains a paved driveway connecting the site to the property adjacent to the north, landscaped areas, a portion of the gravel lot, and the rip-rap lined channel that diverts the flows from the site. This sub-basin drains overland to the west into the aforementioned rip-rap lined channel. Sub-basin A generates peak flow discharges of $Q_5 = 0.7$ cfs and $Q_{100} = 2.5$ cfs (proposed flows). These flows combine with the flows from the FS-SFB and exit the site to the north at design point 2 (DP2) with peak flow discharges of $Q_5 = 0.7$ cfs and $Q_{100} = 5.3$ cfs (proposed flows).

Proposed sub-basin B (0.17± acres) is located on the western border of the site. This sub-basin contains pasture meadow that slopes to the west with grades of about 30% - 40%. Sub-basin B drains overland to the west into an existing roadside ditch that runs along the eastern side of Highway 24. The peak flows generated by this sub-basin are $Q_5 = 0.1$ cfs and $Q_{100} = 0.8$ cfs (proposed flows).

Proposed sub-basin C (1.17± acres) is located along the eastern edge of the site. This sub-basin contains the proposed building with gravel and paved parking areas, and landscaped areas that slopes to the west with grades of about 2%-5%. This sub-basin drains overland to the west into the proposed Full Spectrum – Sand Filter Basin (FS-SFB) at design point 1 (DP1). Sub-basin C generates peak flow discharges of $Q_5 = 2.3$ cfs and $Q_{100} = 5.3$ cfs (proposed flows).

Proposed sub-basin D (0.13± acres) is located to the west of sub-basin C. This sub-basin contains the proposed FS-SFB. Sub-basin D generates peak flow discharges of $Q_5 = 0.1$ cfs and $Q_{100} = 0.5$ cfs (proposed flows). These flows combine with the flows from sub-basin C and exit the FS-SFB through a 15" HDPE pipe that outlets into the rip-rap lined channel to the north. The FS-SFB discharges these flows at rates of $Q_5 = 0.0$ cfs and $Q_{100} = 3.0$ cfs (proposed flows).

Proposed sub-basin E (0.19± acres) is located on the western border of the site just south of sub-basin B. This sub-basin contains pasture meadow that slopes to the west with grades of about 30% - 40%. Sub-basin E drains overland to the west into an existing roadside ditch that runs along the eastern side of Highway 24. The peak flows generated by this sub-basin are $Q_5 = 0.1$ cfs and $Q_{100} = 0.8$ cfs (proposed flows).

Existing sub-basin F (0.29± acres) is located along the southern border of the site. This sub-basin contains pasture meadow that slopes to the south with grades of about 30% - 40%. Sub-basin F drains overland to the south into the adjacent property. The peak flows generated by this sub-basin are $Q_5 = 0.2$ cfs and $Q_{100} = 1.2$ cfs (proposed flows).

The overall flows from the site will be decreased from $Q_5 = 1.6$ cfs and $Q_{100} = 9.3$ cfs (existing flows) to $Q_5 = 1.1$ cfs and $Q_{100} = 8.1$ cfs (proposed flows).

4.3 Four Step Process

The City of Colorado Springs Drainage Criteria Manual (Chapter 6, Section 7.1) requires the consideration of a "Four Step Process" for receiving water protection that focuses on reducing runoff volumes, treating the WQCV, stabilizing drainageways, and implementing long-term source controls.

- 1) Runoff Reduction Practices are employed in this project. Impervious surfaces have been reduced as much as practically possible. There is only minimal concrete or other hard surfaces proposed.
- 2) The project contains no potentially hazardous uses. WQCV will be treated in the proposed FS-SFB located on the western side of the site. This FS-SFB is sized to handle the combined low-flow, 5yr and 100yr flows from the site in accordance with the City of Woodland Park, Colorado Engineering Specifications¹³.
- 3) There are no drainage paths on the site that are required to be stabilized as they are well vegetated with no visual erosion.
- 4) The rural residential site is not anticipated to contain storage of potentially harmful substances or use of potentially harmful substances. No site specific or other source control BMPs are required.

13 WPES

5 Drainage and Bridge Fees

Drainage fees were paid at the time of the initial plat, and are therefore not due at this time.

6 Conclusion

This Final Drainage Report presents existing and proposed drainage conditions for the proposed CUP – 2730 Mountain Glen Court project. The development will have negligible and inconsequential effects on the existing site drainage and drainage conditions downstream. The proposed project will not, with respect to stormwater runoff, negatively impact the adjacent properties and downstream properties.

References

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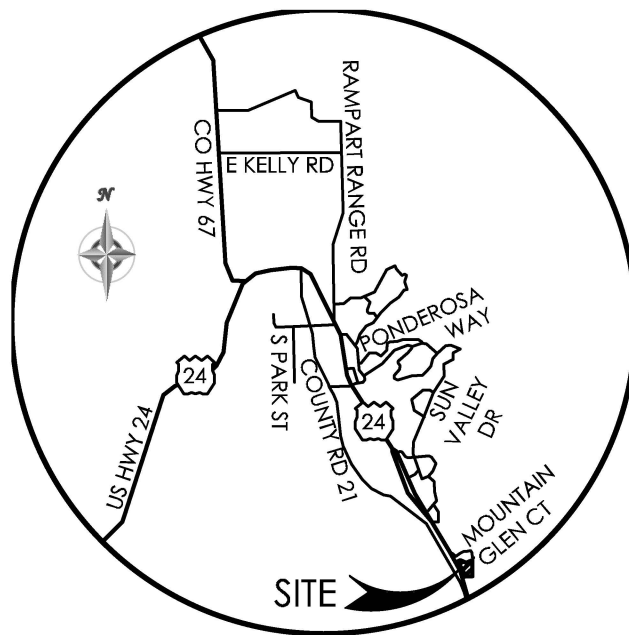
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City of Woodland Park Engineering Specifications. City of Woodland Park (: , 2011).

| Appendices

1 General Maps and Supporting Data

- Vicinity Map
- Portions of Flood Insurance Rate Map
- NRCS Soil Map and Tables
- SCS Soil Type Descriptions
- Hydrologic Soil Group Map and Tables



VICINITY MAP

NOT TO SCALE

National Flood Hazard Layer FIRMMette



105°2'3"W 38°57'58"N



0 250 500 1,000 1,500 2,000 Feet 1:6,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

105°1'26"W 38°57'30"N

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
GENERAL STRUCTURES		Area of Undetermined Flood Hazard Zone D
		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall
OTHER FEATURES		20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
		17.5 Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
		Coastal Transect Baseline
		Profile Baseline
		Hydrographic Feature
MAP PANELS		Digital Data Available
		No Digital Data Available
		Unmapped



The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 10/5/2021 at 4:26 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

Custom Soil Resource Report Soil Map



Custom Soil Resource Report

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features

 Blowout

 Borrow Pit

 Clay Spot

 Closed Depression

 Gravel Pit

 Gravelly Spot

 Landfill

 Lava Flow

 Marsh or swamp

 Mine or Quarry

 Miscellaneous Water

 Perennial Water

 Rock Outcrop

 Saline Spot

 Sandy Spot

 Severely Eroded Spot

 Sinkhole

 Slide or Slip

 Sodic Spot

 Spoil Area

 Stony Spot

 Very Stony Spot

 Wet Spot

 Other

 Special Line Features

Water Features

 Streams and Canals

Transportation

 Rails

 Interstate Highways

 US Routes

 Major Roads

 Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Pike National Forest, Eastern Part, Colorado, Parts of Douglas, El Paso, Jefferson, and Teller Counties
Survey Area Data: Version 7, Jun 5, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 18, 2020—May 21, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND

MAP INFORMATION

imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
46	Sphinx-Rock outcrop complex, 15 to 80 percent slopes	0.7	29.2%
51	Tripit loam, 5 to 15 percent slopes	1.7	70.8%
Totals for Area of Interest		2.3	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however,

onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Pike National Forest, Eastern Part, Colorado, Parts of Douglas, El Paso, Jefferson, and Teller Counties

46—Sphinx-Rock outcrop complex, 15 to 80 percent slopes

Map Unit Setting

National map unit symbol: jpyj
Elevation: 6,500 to 9,200 feet
Mean annual precipitation: 15 to 24 inches
Mean annual air temperature: 43 to 48 degrees F
Frost-free period: 70 to 125 days
Farmland classification: Not prime farmland

Map Unit Composition

Sphinx and similar soils: 60 percent
Rock outcrop: 25 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Sphinx

Setting

Landform: Mountain slopes
Landform position (three-dimensional): Mountaintop, mountainflank
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Parent material: Weathered from granite

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A - 1 to 5 inches: gravelly coarse sandy loam
AC - 5 to 13 inches: very gravelly loamy coarse sand
Cr - 13 to 61 inches: weathered bedrock

Properties and qualities

Slope: 15 to 70 percent
Depth to restrictive feature: 10 to 20 inches to paralithic bedrock
Drainage class: Somewhat excessively drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 0.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Other vegetative classification: Ponderosa pine/kinnikinnick (PIPO/ARUV)
(C1140)
Hydric soil rating: No

Description of Rock Outcrop

Setting

Landform: Mountain slopes

Landform position (three-dimensional): Mountaintop, mountainflank

Down-slope shape: Linear, convex

Across-slope shape: Linear, convex

Typical profile

R - 0 to 61 inches: bedrock

Properties and qualities

Slope: 15 to 80 percent

Depth to restrictive feature: 0 inches to lithic bedrock

Runoff class: Very high

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)

Available water supply, 0 to 60 inches: Very low (about 0.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 8

Hydrologic Soil Group: D

Hydric soil rating: No

Minor Components

Sphinx, dark surface

Percent of map unit: 10 percent

Landform: Mountain slopes

Landform position (three-dimensional): Mountainflank

Down-slope shape: Linear, convex

Across-slope shape: Linear, convex

Other vegetative classification: Ponderosa pine/kinnikinnick (PIPO/ARUV) (C1140)

Hydric soil rating: No

Garber

Percent of map unit: 5 percent

Landform: Drainageways, mountain slopes

Landform position (three-dimensional): Mountainbase

Down-slope shape: Linear, convex, concave

Across-slope shape: Linear, convex, concave

Hydric soil rating: No

51—Tripit loam, 5 to 15 percent slopes

Map Unit Setting

National map unit symbol: jpk4

Elevation: 6,500 to 9,000 feet

Mean annual precipitation: 14 to 24 inches

Custom Soil Resource Report

Mean annual air temperature: 37 to 46 degrees F

Frost-free period: 50 to 125 days

Farmland classification: Not prime farmland

Map Unit Composition

Tripit and similar soils: 80 percent

Minor components: 20 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tripit

Setting

Landform: Mountain slopes

Landform position (three-dimensional): Lower third of mountainflank, mountainbase

Down-slope shape: Linear, convex

Across-slope shape: Linear, convex

Parent material: Weathered from calcerous limestone, sandstone, and shale

Typical profile

A - 0 to 6 inches: loam

Bt1 - 6 to 11 inches: sandy clay loam

Bt2 - 11 to 19 inches: sandy clay loam

Bt3 - 19 to 32 inches: gravelly sandy clay loam

C - 32 to 38 inches: sandy clay loam

Cr - 38 to 42 inches: bedrock

Properties and qualities

Slope: 5 to 15 percent

Depth to restrictive feature: 20 to 40 inches to paralithic bedrock

Drainage class: Well drained

Runoff class: High

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Low (about 5.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6e

Hydrologic Soil Group: C

Hydric soil rating: No

Minor Components

Boyett

Percent of map unit: 10 percent

Landform: Terraces

Landform position (three-dimensional): Tread

Down-slope shape: Linear, convex

Across-slope shape: Linear, convex

Other vegetative classification: Ponderosa pine/true mountain mahogany (PIPO/CEMO2) (C1107)

Hydric soil rating: No

Sphinx

Percent of map unit: 5 percent

Landform: Mountain slopes

Landform position (three-dimensional): Mountaintop, mountainflank

Down-slope shape: Linear, convex

Across-slope shape: Linear, convex

Other vegetative classification: Ponderosa pine/kinnikinnick (PIPO/ARUV) (C1140)

Hydric soil rating: No

Rock outcrop

Percent of map unit: 5 percent

Landform: Mountain slopes

Landform position (three-dimensional): Mountaintop, mountainflank

Down-slope shape: Linear, convex

Across-slope shape: Linear, convex

Hydric soil rating: No

very low. Runoff is rapid, and the hazard of water erosion is severe.

Typically, 40 to 65 percent of the surface is covered with vegetation and forest litter. The surface layer is brown gravelly coarse sandy loam about 4 inches thick. The next layer is yellowish brown very gravelly loamy coarse sand about 8 inches thick. Highly weathered, coarse grained granite, or grus, is below a depth of about 12 inches.

About 5 percent of this unit is included areas of Garber very gravelly coarse sandy loam on mountainsides, commonly adjacent to drainageways; 10 percent is soils that have a surface layer that is darker than that of the Sphinx soil; and 5 percent is areas of outcrop of Pikes Peak granite on mountainsides and ridges. About 5 percent of this unit north of Devil's Head Mountain is included areas of Tecolote very gravelly sandy loam on mountainsides. In the part of Teller County west of Highway 67, 10 percent of this unit is included areas of Condie coarse sandy loam on foot slopes and rolling uplands where quaking aspen is the dominant vegetation.

The dominant vegetation on the Sphinx soil is ponderosa pine. The soil also supports Douglas-fir and quaking aspen and an understory of kinnikinnick, common juniper, grasses, and forbs. The average annual production of wood fiber is 25 cubic feet per acre for ponderosa pine. The average annual production of air-dry vegetation ranges from 100 to 200 pounds per acre.

This soil is best suited to wildlife habitat, watershed, and recreation. It has very limited potential for timber production and has little potential for other uses. It is very susceptible to erosion if the cover of plants and forest litter is disturbed. The major limitations affecting the production and harvest of timber are a high susceptibility to erosion, low natural fertility, the depth to bedrock, the slope, and droughtiness.

46—Sphinx-Rock outcrop complex, 15 to 80 percent slopes. This unit is on mountainsides and ridges. It is on north and east aspects. Elevations are 6,000 to 8,000 feet. The mean annual precipitation is 15 to 20 inches. The average annual air temperature is 46 degrees F. The unit is about 60 percent Sphinx gravelly coarse sandy loam, cool, and 25 percent Rock outcrop. The Rock outcrop is Pikes Peak granite.

The somewhat excessively drained, shallow Sphinx soil formed in material weathered from Pikes Peak granite. Permeability is rapid, and the available water capacity is very low. Runoff is rapid, and the hazard of water erosion is severe.

Typically, about 40 to 65 percent of the surface of the Sphinx soil is covered with vegetation and forest

litter. The surface layer is brown gravelly coarse sandy loam about 4 inches thick. The next layer is yellowish brown very gravelly loamy coarse sand about 8 inches thick. Highly weathered, coarse grained granite, or grus, is below a depth of about 12 inches.

About 5 percent of this unit is included areas of Garber very gravelly coarse sandy loam on mountainsides, commonly adjacent to drainageways; and 10 percent is soils that have a surface layer that is darker than that of the Sphinx soil.

The Rock outcrop supports no vegetation. The dominant vegetation on the Sphinx soil is ponderosa pine. The soil also supports Douglas-fir and quaking aspen and an understory of kinnikinnick, common juniper, grasses, and forbs. The potential natural vegetation is ponderosa pine. The average annual production of air-dry vegetation ranges from 150 to 300 pounds per acre.

This unit is best suited to wildlife habitat, watershed, and limited timber production. The major limitations affecting the production and harvest of timber are the slope, the Rock outcrop, and a susceptibility to erosion. Because of the aspect and climatic conditions, this Sphinx soil is more heavily vegetated than the warm phase of the Sphinx series.

47—Sphinx, warm-Rock outcrop complex, 15 to 80 percent slopes. This unit is on mountainsides and ridges. It is on south and west aspects. Elevations are 6,000 to 8,000 feet. The mean annual precipitation is 15 to 20 inches. The average annual air temperature is 46 degrees F. The unit is about 60 percent Sphinx gravelly coarse sandy loam, warm, and 25 percent Rock outcrop. The Rock outcrop is Pikes Peak granite.

The somewhat excessively drained, shallow Sphinx soil formed in material weathered from Pikes Peak granite. Permeability is rapid, and the available water capacity is very low. Runoff is rapid, and the hazard of water erosion is severe.

Typically, about 40 to 65 percent of the surface of the Sphinx soil is covered with vegetation and forest litter. The surface layer is brown gravelly coarse sandy loam about 4 inches thick. The next layer is yellowish brown very gravelly loamy coarse sand about 8 inches thick. Highly weathered, coarse grained granite, or grus, is below a depth of about 12 inches.

About 5 percent of this unit is included areas of Garber very gravelly coarse sandy loam on mountainsides, commonly adjacent to drainageways; and 10 percent is soils that have a surface layer that is darker than that of the Sphinx soil.

The Rock outcrop supports no vegetation. The dominant vegetation on the Sphinx soil is ponderosa pine. The soil also supports Douglas-fir and quaking

This well drained, deep soil formed in alluvium or in material weathered from arkose beds. Permeability is moderately rapid, and the available water capacity is moderate. Runoff is slow or medium, and the hazard of water erosion is slight.

Typically, the surface layer is dark grayish brown sandy loam about 10 inches thick. The subsurface layer is light gray coarse sand about 8 inches thick. The subsoil is brown loamy coarse sand that has many thin bands of sandy clay loam. It is about 17 inches thick. The substratum to a depth of 60 inches or more is pale brown loamy coarse sand.

About 20 percent of this unit is included areas of a soil that has a subsoil of loam or sandy clay loam.

The dominant vegetation on the Tomah soil is mountain muhly, mountain brome, blue grama, bluestem, and needleandthread. This soil is subject to invasion by Gambel oak. The most common forbs are fringed sagebrush, buckwheat, milkvetch, goldenrod, and geranium. The average annual production of air-dry vegetation ranges from 900 to 2,200 pounds per acre.

This soil is best suited to openland wildlife habitat, watershed, and recreation. Windblown sand and the moderate available water capacity are the major limitations affecting the establishment of trees and shrubs. In areas of rangeland, the wildlife population can be increased by a livestock grazing system that prevents overgrazing of the more desirable grass species and depletion of the various brush species.

51—Tripit loam, 5 to 15 percent slopes. This unit is on hills and ridges in the uplands. Elevations are about

7,800 to 8,400 feet. The mean annual precipitation is 18 to 22 inches. The average annual air temperature is 42 degrees F.

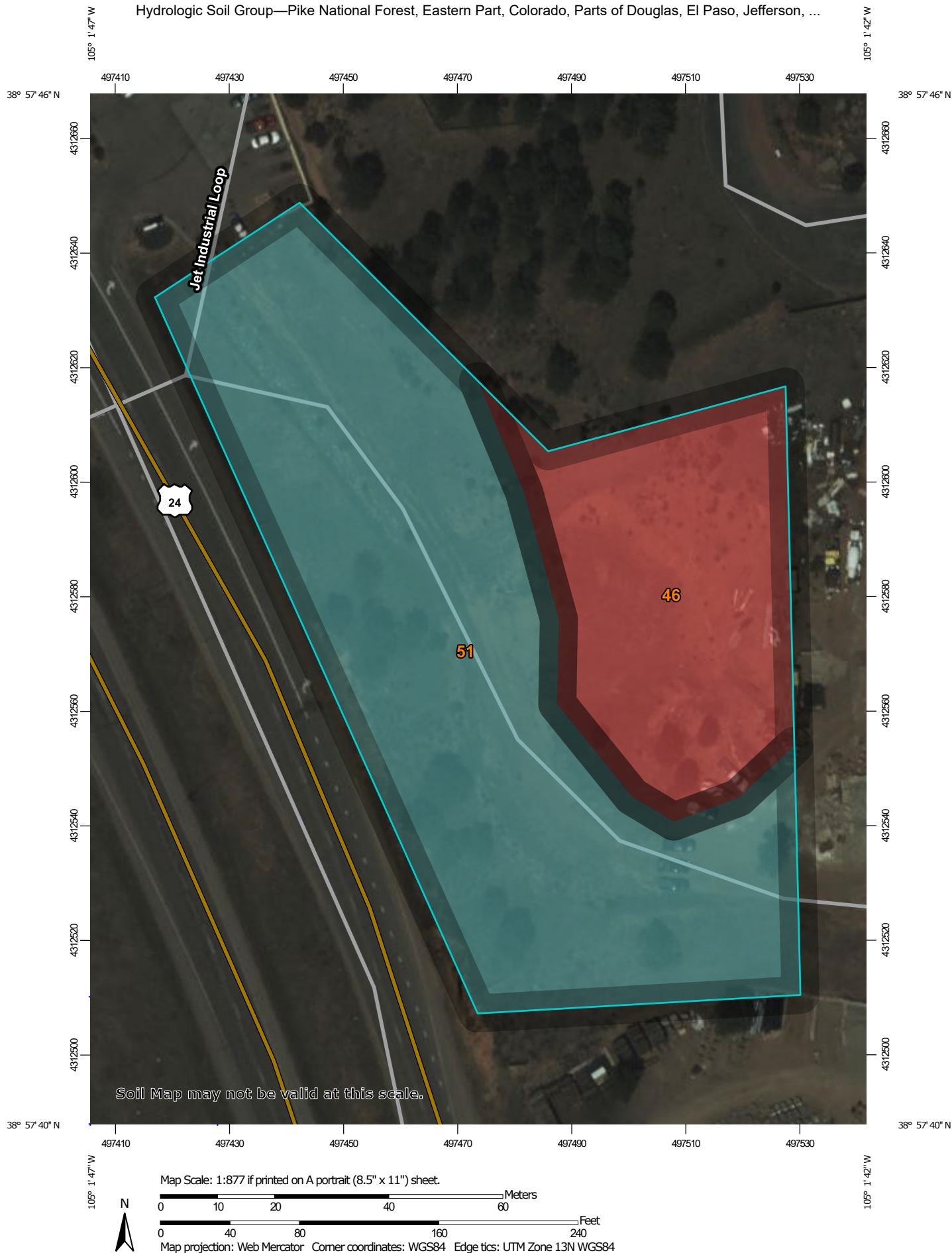
This well drained, moderately deep soil formed in calcareous sediments weathered from reddish sandstone, shale, and limestone. Permeability is moderate, and the available water capacity is low. Runoff is medium, and the hazard of water erosion is slight.

Typically, the surface layer is reddish gray loam about 6 inches thick. The upper part of the subsoil is reddish brown sandy clay loam about 13 inches thick. The lower part is reddish brown gravelly sandy clay loam about 13 inches thick. The substratum is reddish brown sandy clay loam about 6 inches thick. Soft, interbedded limestone and shale are at a depth of about 38 inches.

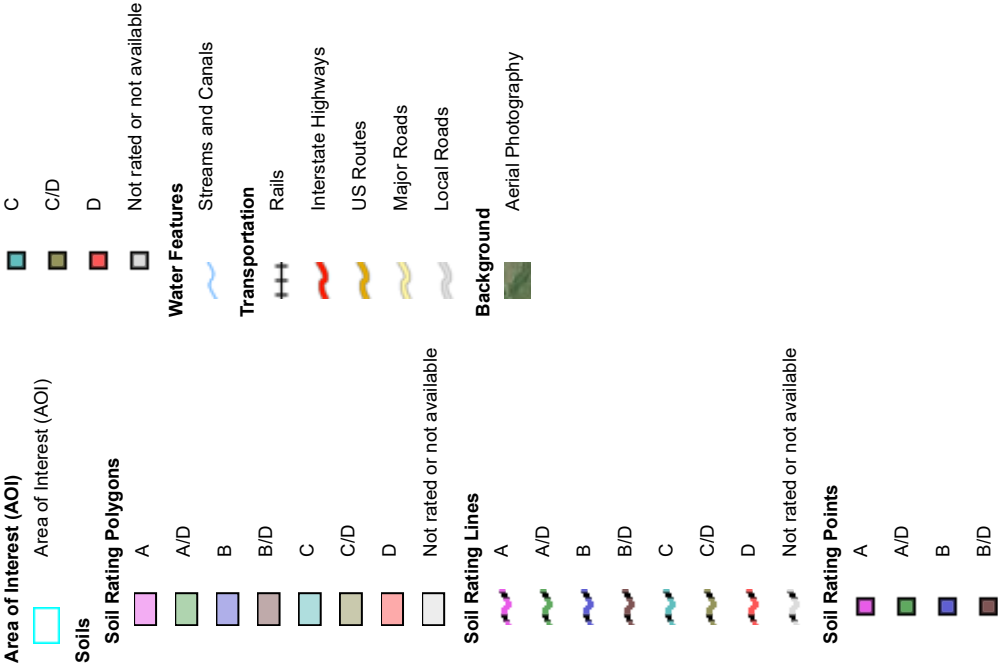
About 10 percent of this unit is included areas of Boyett sandy loam on ridges, 5 percent is Sphinx soils on mountainsides and ridges, and 5 percent is areas of rock outcrop on mountainsides and ridges.

The dominant vegetation on the Tripit soil is Arizona fescue, mountain muhly, junegrass, and ponderosa pine. The potential natural vegetation is ponderosa pine. The average annual production of wood fiber is 32 cubic feet per acre for ponderosa pine. The average annual production of air-dry vegetation ranges from 800 to 2,000 pounds per acre.

This soil is best suited to recreation, wildlife habitat, watershed, and urban development. The main limitations are the depth to bedrock and a moderate shrink-swell potential.



MAP LEGEND



MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

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Soil Survey Area: Pike National Forest, Eastern Part, Colorado, Parts of Douglas, El Paso, Jefferson, and Teller Counties
Survey Area Data: Version 7, Jun 5, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 18, 2020—May 21, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
46	Sphinx-Rock outcrop complex, 15 to 80 percent slopes	D	0.7	29.2%
51	Tripit loam, 5 to 15 percent slopes	C	1.7	70.8%
Totals for Area of Interest			2.3	100.0%

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

2 Hydrologic Calculations

Runoff Coefficients and Percent Imperviousness Table 6-6

Hydrologic Calculations Summary Form SF-1 for Existing & Developed Conditions

Hydrologic Calculations Summary 5-yr Form SF-2 for Existing & Developed Conditions

Hydrologic Calculations Summary 100-yr Form SF-2 for Existing & Developed Conditions

Table 6-6. Runoff Coefficients for Rational Method
(Source: UDFCD 2001)

Land Use or Surface Characteristics	Percent Impervious	Runoff Coefficients											
		2-year		5-year		10-year		25-year		50-year		100-year	
		HSG A&B	HSG C&D	HSG A&B	HSG C&D	HSG A&B	HSG C&D	HSG A&B	HSG C&D	HSG A&B	HSG C&D	HSG A&B	HSG C&D
Business													
Commercial Areas	95	0.79	0.80	0.81	0.82	0.83	0.84	0.85	0.87	0.87	0.88	0.88	0.89
Neighborhood Areas	70	0.45	0.49	0.49	0.53	0.53	0.57	0.58	0.62	0.60	0.65	0.62	0.68
Residential													
1/8 Acre or less	65	0.41	0.45	0.45	0.49	0.49	0.54	0.54	0.59	0.57	0.62	0.59	0.65
1/4 Acre	40	0.23	0.28	0.30	0.35	0.36	0.42	0.42	0.50	0.46	0.54	0.50	0.58
1/3 Acre	30	0.18	0.22	0.25	0.30	0.32	0.38	0.39	0.47	0.43	0.52	0.47	0.57
1/2 Acre	25	0.15	0.20	0.22	0.28	0.30	0.36	0.37	0.46	0.41	0.51	0.46	0.56
1 Acre	20	0.12	0.17	0.20	0.26	0.27	0.34	0.35	0.44	0.40	0.50	0.44	0.55
Industrial													
Light Areas	80	0.57	0.60	0.59	0.63	0.63	0.66	0.66	0.70	0.68	0.72	0.70	0.74
Heavy Areas	90	0.71	0.73	0.73	0.75	0.75	0.77	0.78	0.80	0.80	0.82	0.81	0.83
Parks and Cemeteries	7	0.05	0.09	0.12	0.19	0.20	0.29	0.30	0.40	0.34	0.46	0.39	0.52
Playgrounds	13	0.07	0.13	0.16	0.23	0.24	0.31	0.32	0.42	0.37	0.48	0.41	0.54
Railroad Yard Areas	40	0.23	0.28	0.30	0.35	0.36	0.42	0.42	0.50	0.46	0.54	0.50	0.58
Undeveloped Areas													
Historic Flow Analysis-- Greenbelts, Agriculture	2	0.03	0.05	0.09	0.16	0.17	0.26	0.26	0.38	0.31	0.45	0.36	0.51
Pasture/Meadow	0	0.02	0.04	0.08	0.15	0.15	0.25	0.25	0.37	0.30	0.44	0.35	0.50
Forest	0	0.02	0.04	0.08	0.15	0.15	0.25	0.25	0.37	0.30	0.44	0.35	0.50
Exposed Rock	100	0.89	0.89	0.90	0.90	0.92	0.92	0.94	0.94	0.95	0.95	0.96	0.96
Offsite Flow Analysis (when landuse is undefined)	45	0.26	0.31	0.32	0.37	0.38	0.44	0.44	0.51	0.48	0.55	0.51	0.59
Streets													
Paved	100	0.89	0.89	0.90	0.90	0.92	0.92	0.94	0.94	0.95	0.95	0.96	0.96
Gravel	80	0.57	0.60	0.59	0.63	0.63	0.66	0.66	0.70	0.68	0.72	0.70	0.74
Drive and Walks	100	0.89	0.89	0.90	0.90	0.92	0.92	0.94	0.94	0.95	0.95	0.96	0.96
Roofs	90	0.71	0.73	0.73	0.75	0.75	0.77	0.78	0.80	0.80	0.82	0.81	0.83
Lawns	0	0.02	0.04	0.08	0.15	0.15	0.25	0.25	0.37	0.30	0.44	0.35	0.50

Sub-Basin	Sub-Basin Data				Overland			Shallow Channel				Channelized				t _c Check		t _c (min)
	Area (Acres)	C ₅	C ₁₀₀ /CN	% Imp.	L ₀ (ft)	S ₀ (%)	t _i (min)	L _{0t} (ft)	S _{0t} (ft/ft)	V _{0sc} (ft/s)	t _t (min)	L _{0c} (ft)	S _{0c} (ft/ft)	V _{0c} (ft/s)	t _c (min)	L (min)	t _{c,alt} (min)	
EX-A	0.63	0.15	0.50	0%	100	8%	8.6	130	0.077	1.9	1.1	0	0.000	0.0	0.0	230	11.3	9.8
EX-B	0.19	0.15	0.50	0%	70	26%	4.9	0	0.000	0.0	0.0	0	0.000	0.0	0.0	70	10.4	5.0
EX-C	0.11	0.15	0.50	0%	90	13%	6.9	0	0.000	0.0	0.0	0	0.000	0.0	0.0	90	10.5	6.9
EX-D	1.13	0.15	0.50	0%	150	4%	13.3	0	0.000	0.0	0.0	0	0.000	0.0	0.0	150	10.8	10.8
EX-E	0.17	0.15	0.50	0%	70	43%	4.2	0	0.000	0.0	0.0	0	0.000	0.0	0.0	70	10.4	5.0
EX-F	0.32	0.15	0.50	0%	70	43%	4.2	0	0.000	0.0	0.0	0	0.000	0.0	0.0	70	10.4	5.0
A	0.61	0.29	0.58	19%	100	6%	8.1	170	0.071	1.9	1.5	0	0.000	0.0	0.0	270	11.5	9.7
B	0.17	0.15	0.50	0%	55	27%	4.3	0	0.000	0.0	0.0	0	0.000	0.0	0.0	55	10.3	5.0
C	1.17	0.51	0.69	57%	100	1%	10.7	150	0.013	0.8	3.1	0	0.000	0.0	0.0	250	11.4	11.4
D	0.13	0.15	0.50	0%	50	6%	6.7	0	0.000	0.0	0.0	0	0.000	0.0	0.0	50	10.3	6.7
E	0.19	0.15	0.50	0%	70	17%	5.6	0	0.000	0.0	0.0	0	0.000	0.0	0.0	70	10.4	5.6
F	0.29	0.15	0.50	0%	70	40%	4.2	0	0.000	0.0	0.0	0	0.000	0.0	0.0	70	10.4	5.0

Sub-Basin and Combined Flows (Modified from Standard Form SF-2)

DP	Sub-Basin	Area (Acres)	C5	Direct Runoff				Combined Runoff				Streetflow		Pipe Flow				Travel Time			
				t _c (min)	CA (Acres)	I5 (in/hr)	Q5 (cfs)	t _c (min)	CA (Acres)	I5 (in/hr)	Q5 (cfs)	Slope (%)	Length (ft)	Q (cfs)	Slope (%)	Mnngs n	Length (ft)	D _{Pipe} (in)	Length (ft)	V _{osc} (ft/s)	t _t (min)
EX-DP1	EX-A	0.63	0.15	9.8	0.09	4.17	0.39														
	EX-B	0.19	0.15	5.0	0.03	5.17	0.14														
	EX-C	0.11	0.15	6.9	0.02	4.68	0.08														
	EX-D	1.13	0.15	10.8	0.17	4.01	0.88														
	EX-E	0.17	0.15	5.0	0.03	5.17	0.13														
	EX-F	0.32	0.15	5.0	0.05	5.17	0.25	10.8	0.26	4.01	1.1										
DP1 DP2	A	0.61	0.29	9.7	0.17	4.18	0.73														
	B	0.17	0.15	5.0	0.03	5.17	0.13														
	C	1.17	0.51	11.4	0.59	3.93	2.34														
	D	0.13	0.15	6.7	0.02	4.73	0.09														
	E	0.19	0.15	5.6	0.03	4.99	0.14														
	F	0.29	0.15	5.0	0.04	5.17	0.22	11.6	0.61	3.91	2.4										
		1.30	0.47					11.4	0.17	3.93	0.7										
		0.61	0.29																		

DCM: I = C1 * ln (tc) + C2
C1: 1.5
C1: 7.583

Sub-Basin and Combined Flows (Modified from Standard Form SF-2)

DP	Sub-Basin	Area (Acres)	C100	Direct Runoff				Combined Runoff				Streetflow		Pipe Flow				Travel Time			
				t _c (min)	CA (Acres)	I100 (in/hr)	Q100 (cfs)	t _c (min)	CA (Acres)	I100 (in/hr)	Q100 (cfs)	Slope (%)	Length (ft)	Q (cfs)	Slope (%)	Mnngs n	Length (ft)	D _{Pipe} (in)	Length (ft)	V _{osc} (ft/s)	t _t (min)
EX-DP1	EX-A	0.63	0.50	9.8	0.31	7.00	2.20														
	EX-B	0.19	0.50	5.0	0.09	8.68	0.80														
	EX-C	0.11	0.50	6.9	0.06	7.86	0.45														
	EX-D	1.13	0.50	10.8	0.57	6.73	3.81														
	EX-E	0.17	0.50	5.0	0.09	8.68	0.74														
	EX-F	0.32	0.50	5.0	0.16	8.68	1.39	10.8	0.88	6.73	5.9										
DP1 DP2	A	0.61	0.58	9.7	0.35	7.02	2.47														
	B	0.17	0.50	5.0	0.09	8.68	0.75														
	C	1.17	0.69	11.4	0.80	6.60	5.31														
	D	0.13	0.50	6.7	0.07	7.94	0.52														
	E	0.19	0.50	5.6	0.09	8.39	0.78														
	F	0.29	0.50	5.0	0.14	8.68	1.24	11.6	0.87	6.56	5.7										
		1.30	0.67					11.4	0.35	6.60	2.3										
		0.61	0.58																		

DCM: I = C1 * ln (tc) + C2

C1: 2.52

C1: 12.735

Sub-Basin Ex-A Runoff Calculations

Job No.: **61159**

Date: **1/12/2022 13:39**

Project: **2730 Mountain Glen Court**

Calcs by: **WCG**

Jurisdiction **DCM**
Runoff Coefficient **Surface Type**

Checked by: _____

Soil Type **C**

Urbanization **Urban**

Basin Land Use Characteristics

Surface	Area		Runoff Coefficient						% Imperv.
	(SF)	(Acres)	C2	C5	C10	C25	C50	C100	
Pasture/Meadow	27,431	0.63	0.04	0.15	0.25	0.37	0.44	0.5	0%
Combined	27,431	0.63	0.04	0.15	0.25	0.37	0.44	0.50	0.0%

27431

Basin Travel Time

Shallow Channel Ground Cover		Short Pasture/Lawns					
L _{max,Overland}		300	ft	C _v		7	
L (ft)		ΔZ ₀ (ft)	S ₀ (ft/ft)	v (ft/s)	t (min)	t _{Alt} (min)	
Total	230	18	-	-	-	-	
Initial Time	100	8	0.080	-	8.6	11.3	DCM Eq. 6-8
Shallow Channel	130	10	0.077	1.9	1.1	-	DCM Eq. 6-9
Channelized			0.000	0.0	0.0	-	V-Ditch
				t _c	9.8 min.		

Rainfall Intensity & Runoff

	2-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr
Intensity (in/hr)	3.32	4.17	4.86	5.56	6.25	7.00
Runoff (cfs)	0.1	0.4	0.8	1.3	1.7	2.2
Release Rates (cfs/ac)	-	-	-	-	-	-
Allowed Release (cfs)	0.1	0.4	0.8	1.3	1.7	2.2

Notes

Sub-Basin Ex-B Runoff Calculations

Job No.: **61159**
 Project: **2730 Mountain Glen Court**
 Jurisdiction: **DCM**
 Runoff Coefficient: **Surface Type**

Date: **1/12/2022 13:39**
 Calcs by: **WCG**
 Checked by: _____
 Soil Type: **C**
 Urbanization: **Urban**

Basin Land Use Characteristics

Surface	Area		Runoff Coefficient						% Imperv.
	(SF)	(Acres)	C2	C5	C10	C25	C50	C100	
Pasture/Meadow	8,066	0.19	0.04	0.15	0.25	0.37	0.44	0.5	0%
Combined	8,066	0.19	0.04	0.15	0.25	0.37	0.44	0.50	0.0%

8066

Basin Travel Time

Shallow Channel Ground Cover		Short Pasture/Lawns					
$L_{max, Overland}$		300	ft	C_v		7	
L (ft)		ΔZ_0 (ft)	S_0 (ft/ft)	v (ft/s)	t (min)	t_{Alt} (min)	
Total	70	18	-	-	-	-	
Initial Time	70	18	0.257	-	4.9	10.4	DCM Eq. 6-8
Shallow Channel			0.000	0.0	0.0	-	DCM Eq. 6-9
Channelized			0.000	0.0	0.0	-	V-Ditch
		t_c		5.0 min.			

Rainfall Intensity & Runoff

	2-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr
Intensity (in/hr)	4.12	5.17	6.03	6.89	7.75	8.68
Runoff (cfs)	0.0	0.1	0.3	0.5	0.6	0.8
Release Rates (cfs/ac)	-	-	-	-	-	-
Allowed Release (cfs)	0.0	0.1	0.3	0.5	0.6	0.8

Notes

Sub-Basin Ex-C Runoff Calculations

Job No.: **61159**

Date: **1/12/2022 13:39**

Project: **2730 Mountain Glen Court**

Calcs by: **WCG**

Jurisdiction **DCM**
Runoff Coefficient **Surface Type**

Checked by: _____

Soil Type **D**

Urbanization **Urban**

Basin Land Use Characteristics

Surface	Area		Runoff Coefficient						% Imperv.
	(SF)	(Acres)	C2	C5	C10	C25	C50	C100	
Pasture/Meadow	4,998	0.11	0.04	0.15	0.25	0.37	0.44	0.5	0%
Combined	4,998	0.11	0.04	0.15	0.25	0.37	0.44	0.50	0.0%

4998

Basin Travel Time

Shallow Channel Ground Cover			Short Pasture/Lawns			
	$L_{\text{max, Overland}}$	300	ft		C_v	7
	L (ft)	ΔZ_0 (ft)	S_0 (ft/ft)	v (ft/s)	t (min)	t_{Alt} (min)
Total	90	12	-	-	-	-
Initial Time	90	12	0.133	-	6.9	10.5 DCM Eq. 6-8
Shallow Channel			0.000	0.0	0.0	- DCM Eq. 6-9
Channelized			0.000	0.0	0.0	- V-Ditch
			t_c		6.9 min.	

Rainfall Intensity & Runoff

	2-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr
Intensity (in/hr)	3.73	4.68	5.46	6.24	7.02	7.86
Runoff (cfs)	0.0	0.1	0.2	0.3	0.4	0.5
Release Rates (cfs/ac)	-	-	-	-	-	-
Allowed Release (cfs)	0.0	0.1	0.2	0.3	0.4	0.5

Notes

Sub-Basin Ex-D Runoff Calculations

Job No.: **61159**
 Project: **2730 Mountain Glen Court**
 Jurisdiction: **DCM**
 Runoff Coefficient: **Surface Type**

Date: **1/12/2022 13:39**
 Calcs by: **WCG**
 Checked by: _____
 Soil Type: **D**
 Urbanization: **Urban**

Basin Land Use Characteristics

Surface	Area		Runoff Coefficient						% Imperv.
	(SF)	(Acres)	C2	C5	C10	C25	C50	C100	
Pasture/Meadow	49,315	1.13	0.04	0.15	0.25	0.37	0.44	0.5	0%
Combined	49,315	1.13	0.04	0.15	0.25	0.37	0.44	0.50	0.0%

Basin Travel Time

Shallow Channel Ground Cover			Short Pasture/Lawns			
	$L_{\text{max, Overland}}$	300	ft		C_v	7
	L (ft)	ΔZ_0 (ft)	S_0 (ft/ft)	v (ft/s)	t (min)	t_{Alt} (min)
Total	150	6	-	-	-	-
Initial Time	150	6	0.040	-	13.3	10.8 DCM Eq. 6-8
Shallow Channel			0.000	0.0	0.0	- DCM Eq. 6-9
Channelized			0.000	0.0	0.0	- V-Ditch
				t_c	10.8 min.	

Rainfall Intensity & Runoff

	2-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr
Intensity (in/hr)	3.20	4.01	4.68	5.35	6.01	6.73
Runoff (cfs)	0.1	0.7	1.3	2.2	3.0	3.8
Release Rates (cfs/ac)	-	-	-	-	-	-
Allowed Release (cfs)	0.1	0.7	1.3	2.2	3.0	3.8

Notes

Sub-Basin Ex-E Runoff Calculations

Job No.: **61159**

Date: **1/12/2022 13:39**

Project: **2730 Mountain Glen Court**

Calcs by: **WCG**

Jurisdiction **DCM**
Runoff Coefficient **Surface Type**

Checked by: _____

Soil Type **C**

Urbanization **Urban**

Basin Land Use Characteristics

Surface	Area		Runoff Coefficient						% Imperv.
	(SF)	(Acres)	C2	C5	C10	C25	C50	C100	
Pasture/Meadow	7,433	0.17	0.04	0.15	0.25	0.37	0.44	0.5	0%
Combined	7,433	0.17	0.04	0.15	0.25	0.37	0.44	0.50	0.0%

7433

Basin Travel Time

Shallow Channel Ground Cover			Short Pasture/Lawns			
	L _{max,Overland}	300	ft		C _v	7
	L (ft)	ΔZ ₀ (ft)	S ₀ (ft/ft)	v (ft/s)	t (min)	t _{Alt} (min)
Total	70	30	-	-	-	-
Initial Time	70	30	0.429	-	4.2	10.4 DCM Eq. 6-8
Shallow Channel			0.000	0.0	0.0	- DCM Eq. 6-9
Channelized			0.000	0.0	0.0	- V-Ditch
				t _c	5.0 min.	

Rainfall Intensity & Runoff

	2-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr
Intensity (in/hr)	4.12	5.17	6.03	6.89	7.75	8.68
Runoff (cfs)	0.0	0.1	0.3	0.4	0.6	0.7
Release Rates (cfs/ac)	-	-	-	-	-	-
Allowed Release (cfs)	0.0	0.1	0.3	0.4	0.6	0.7

Notes

Sub-Basin Ex-F Runoff Calculations

Job No.: **61159**
 Project: **2730 Mountain Glen Court**
 Jurisdiction: **DCM**
 Runoff Coefficient: **Surface Type**

Date: **1/12/2022 13:39**
 Calcs by: **WCG**
 Checked by: _____
 Soil Type: **C**
 Urbanization: **Urban**

Basin Land Use Characteristics

Surface	Area		Runoff Coefficient						% Imperv.
	(SF)	(Acres)	C2	C5	C10	C25	C50	C100	
Pasture/Meadow	13,903	0.32	0.04	0.15	0.25	0.37	0.44	0.5	0%
Combined	13,903	0.32	0.04	0.15	0.25	0.37	0.44	0.50	0.0%

13903

Basin Travel Time

Shallow Channel Ground Cover		Short Pasture/Lawns					
L _{max,Overland}		300	ft		C _v		7
L (ft)		ΔZ ₀ (ft)	S ₀ (ft/ft)	v (ft/s)	t (min)	t _{Alt} (min)	
Total	70	30	-	-	-	-	
Initial Time	70	30	0.429	-	4.2	10.4 DCM Eq. 6-8	
Shallow Channel			0.000	0.0	0.0	- DCM Eq. 6-9	
Channelized			0.000	0.0	0.0	- V-Ditch	
					t _c	5.0 min.	

Rainfall Intensity & Runoff

	2-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr
Intensity (in/hr)	4.12	5.17	6.03	6.89	7.75	8.68
Runoff (cfs)	0.1	0.2	0.5	0.8	1.1	1.4
Release Rates (cfs/ac)	-	-	-	-	-	-
Allowed Release (cfs)	0.1	0.2	0.5	0.8	1.1	1.4

Notes

Combined Sub-Basin Runoff Calculations (EX-DP1)

Includes Basins EX-A EX-D

Job No.:	61159	Date:	1/12/2022 13:39
Project:	2730 Mountain Glen Court	Calcs by:	WCG
Jurisdiction	DCM	Checked by:	
Runoff Coefficient	Surface Type	Soil Type	D
		Urbanization	Urban

Basin Land Use Characteristics

Surface	Area		Runoff Coefficient						% Imperv.
	(SF)	(Acres)	C2	C5	C10	C25	C50	C100	
Pasture/Meadow	76,746	1.76	0.04	0.15	0.25	0.37	0.44	0.5	0%
Combined	76,746	1.76	0.04	0.15	0.25	0.37	0.44	0.50	0.0%

Basin Travel Time

	Sub-basin or Channel Type	Material Type	L (ft)	Elev. ΔZ_0 (ft)	Q_i (cfs)	Base or Dia (ft)	Sides z:1 (ft/ft)	v (ft/s)	t (min)
Furthest Reach	EX-D	-	300	6	-	-	-	-	10.8
Channelized-1									
Channelized-2									
Channelized-3									
Total			300	6					
								t_c (min)	10.8

Storage Volume

			40 -hr release time		Detention is NOT required			
EURV	0.00 (in)	a =		1	Water Quality is NOT required			
WQCV	0.00 (in)							
i (return period)	5-year	10-year	100-year	Design Volume (ft ³)				
K _i (ft)	0.0000	0.0000	0	% Storage	100-year	WQCV	Total	
V _i (acre-ft)	0.000	0.000	0	EURV	0%	0	0	
V _i (ft ³)	0	0	0	WQCV	0%	0	0	

Contributing Offsite Flows (Added to Runoff and Allowed Release, below.)

Contributing Basins/Areas	
Q _{Minor}	(cfs) - 5-year Storm
Q _{Major}	(cfs) - 100-year Storm

Rainfall Intensity & Runoff

	2-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr
Intensity (in/hr)	3.20	4.01	4.68	5.35	6.01	6.73
Site Runoff (cfs)	0.23	1.06	2.06	3.48	4.66	5.93
OffSite Runoff (cfs)	-	0.00	-	-	-	0.00
Release Rates (cfs/ac)	-	-	-	-	-	-
Allowed Release (cfs)	-	1.1	-	-	-	5.9

$$DCM: I = C1 * \ln(tc) + C2$$

C1	1.19	1.5	1.75	2	2.25	2.52
C2	6.035	7.583	8.847	10.111	11.375	12.735

Notes

Runoff from Offsite basins have been assumed constant, despite additional times of concentration.

Sub-Basin A Runoff Calculations

Job No.:	61159	Date:	1/12/2022 13:39
Project:	2730 Mountain Glen Court	Calcs by:	WCG
Jurisdiction	DCM	Checked by:	
Runoff Coefficient	Surface Type	Soil Type	C
		Urbanization	Urban

Basin Land Use Characteristics

Surface	Area		Runoff Coefficient						% Imperv.
	(SF)	(Acres)	C2	C5	C10	C25	C50	C100	
Pasture/Meadow	20,931	0.48	0.04	0.15	0.25	0.37	0.44	0.5	0%
Paved	3,653	0.08	0.89	0.9	0.92	0.94	0.95	0.96	100%
Gravel	1,793	0.04	0.6	0.63	0.66	0.7	0.72	0.74	80%
Combined	26,377	0.61	0.20	0.29	0.37	0.47	0.53	0.58	19.3%

26377

Basin Travel Time

Shallow Channel Ground Cover		Short Pasture/Lawns					
L _{max,Overland}		300	ft		C _v		7
L (ft)		ΔZ ₀ (ft)	S ₀ (ft/ft)	v (ft/s)	t (min)	t _{Alt} (min)	
Total	270	18	-	-	-	-	
Initial Time	100	6	0.060	-	8.1	11.5 DCM Eq. 6-8	
Shallow Channel	170	12	0.071	1.9	1.5	- DCM Eq. 6-9	
Channelized			0.000	0.0	0.0	- V-Ditch	
					t_c	9.7 min.	

Rainfall Intensity & Runoff

	2-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr
Intensity (in/hr)	3.34	4.18	4.88	5.58	6.27	7.02
Runoff (cfs)	0.4	0.7	1.1	1.6	2.0	2.5
Release Rates (cfs/ac)	-	-	-	-	-	-
Allowed Release (cfs)	0.4	0.7	1.1	1.6	2.0	2.5

Notes

Sub-Basin B Runoff Calculations

Job No.: **61159**
 Project: **2730 Mountain Glen Court**
 Jurisdiction: **DCM**
 Runoff Coefficient: **Surface Type**

Date: **1/12/2022 13:39**
 Calcs by: **WCG**
 Checked by: _____
 Soil Type: **C**
 Urbanization: **Urban**

Basin Land Use Characteristics

Surface	Area		Runoff Coefficient						% Imperv.
	(SF)	(Acres)	C2	C5	C10	C25	C50	C100	
Pasture/Meadow	7,570	0.17	0.04	0.15	0.25	0.37	0.44	0.5	0%
Combined	7,570	0.17	0.04	0.15	0.25	0.37	0.44	0.50	0.0%

Basin Travel Time

Shallow Channel Ground Cover			Short Pasture/Lawns			
	$L_{max, Overland}$	300	ft		C_v	7
	L (ft)	ΔZ_0 (ft)	S_0 (ft/ft)	v (ft/s)	t (min)	t_{Alt} (min)
Total	55	15	-	-	-	-
Initial Time	55	15	0.273	-	4.3	10.3 DCM Eq. 6-8
Shallow Channel			0.000	0.0	0.0	- DCM Eq. 6-9
Channelized			0.000	0.0	0.0	- V-Ditch
				t_c	5.0 min.	

Rainfall Intensity & Runoff

	2-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr
Intensity (in/hr)	4.12	5.17	6.03	6.89	7.75	8.68
Runoff (cfs)	0.0	0.1	0.3	0.4	0.6	0.8
Release Rates (cfs/ac)	-	-	-	-	-	-
Allowed Release (cfs)	0.0	0.1	0.3	0.4	0.6	0.8

Notes

Sub-Basin C Runoff Calculations

Job No.: **61159**
 Project: **2730 Mountain Glen Court**

Date: **1/12/2022 13:39**

Calcs by: **WCG**

Checked by: _____

Jurisdiction **DCM**
 Runoff Coefficient **Surface Type**

Soil Type **C**
 Urbanization **Urban**

Basin Land Use Characteristics

Surface	Area		Runoff Coefficient						% Imperv.
	(SF)	(Acres)	C2	C5	C10	C25	C50	C100	
Pasture/Meadow	16,151	0.37	0.04	0.15	0.25	0.37	0.44	0.5	0%
Paved	4,470	0.10	0.89	0.9	0.92	0.94	0.95	0.96	100%
Roofs	3,500	0.08	0.73	0.75	0.77	0.8	0.82	0.83	90%
Gravel	26,725	0.61	0.6	0.63	0.66	0.7	0.72	0.74	80%
Combined	50,846	1.17	0.46	0.51	0.56	0.62	0.66	0.69	57.0%

50846

Basin Travel Time

Shallow Channel Ground Cover		Short Pasture/Lawns					
L _{max,Overland}		300	ft		C _v		7
L (ft)		ΔZ ₀ (ft)	S ₀ (ft/ft)	v (ft/s)	t (min)	t _{Alt} (min)	
Total	250	3	-	-	-	-	
Initial Time	100	1	0.010	-	10.7	11.4 DCM Eq. 6-8	
Shallow Channel	150	2	0.013	0.8	3.1	- DCM Eq. 6-9	
Channelized			0.000	0.0	0.0	- V-Ditch	
					t_c	11.4 min.	

Rainfall Intensity & Runoff

	2-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr
Intensity (in/hr)	3.14	3.93	4.59	5.25	5.90	6.60
Runoff (cfs)	1.7	2.3	3.0	3.8	4.5	5.3
Release Rates (cfs/ac)	-	-	-	-	-	-
Allowed Release (cfs)	1.7	2.3	3.0	3.8	4.5	5.3

Notes

Sub-Basin D Runoff Calculations

Job No.: **61159**

Date: **1/12/2022 13:39**

Project: **2730 Mountain Glen Court**

Calcs by: **WCG**

Jurisdiction **DCM**
Runoff Coefficient **Surface Type**

Checked by: _____

Soil Type **C**

Urbanization **Urban**

Basin Land Use Characteristics

Surface	Area		Runoff Coefficient						% Imperv.
	(SF)	(Acres)	C2	C5	C10	C25	C50	C100	
Pasture/Meadow	5,745	0.13	0.04	0.15	0.25	0.37	0.44	0.5	0%
Combined	5,745	0.13	0.04	0.15	0.25	0.37	0.44	0.50	0.0%

5745

Basin Travel Time

Shallow Channel Ground Cover		Short Pasture/Lawns					
L _{max,Overland}		300	ft		C _v		7
L (ft)		ΔZ ₀ (ft)	S ₀ (ft/ft)	v (ft/s)	t (min)	t _{Alt} (min)	
Total	50	3	-	-	-	-	
Initial Time	50	3	0.060	-	6.7	10.3 DCM Eq. 6-8	
Shallow Channel			0.000	0.0	0.0	- DCM Eq. 6-9	
Channelized			0.000	0.0	0.0	- V-Ditch	
					t _c	6.7 min.	

Rainfall Intensity & Runoff

	2-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr
Intensity (in/hr)	3.77	4.73	5.51	6.30	7.09	7.94
Runoff (cfs)	0.0	0.1	0.2	0.3	0.4	0.5
Release Rates (cfs/ac)	-	-	-	-	-	-
Allowed Release (cfs)	0.0	0.1	0.2	0.3	0.4	0.5

Notes

Sub-Basin E Runoff Calculations

Job No.: **61159**

Date: **1/12/2022 13:39**

Project: **2730 Mountain Glen Court**

Calcs by: **WCG**

Jurisdiction **DCM**
Runoff Coefficient **Surface Type**

Checked by: _____

Soil Type **C**

Urbanization **Urban**

Basin Land Use Characteristics

Surface	Area		Runoff Coefficient						% Imperv.
	(SF)	(Acres)	C2	C5	C10	C25	C50	C100	
Pasture/Meadow	8,116	0.19	0.04	0.15	0.25	0.37	0.44	0.5	0%
Combined	8,116	0.19	0.04	0.15	0.25	0.37	0.44	0.50	0.0%

8116

Basin Travel Time

Shallow Channel Ground Cover			Short Pasture/Lawns			
	$L_{\max, \text{Overland}}$	300	ft		C_v	7
	L (ft)	ΔZ_0 (ft)	S_0 (ft/ft)	v (ft/s)	t (min)	t_{Alt} (min)
Total	70	12	-	-	-	-
Initial Time	70	12	0.171	-	5.6	10.4 DCM Eq. 6-8
Shallow Channel			0.000	0.0	0.0	- DCM Eq. 6-9
Channelized			0.000	0.0	0.0	- V-Ditch
			t_c		5.6 min.	

Rainfall Intensity & Runoff

	2-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr
Intensity (in/hr)	3.98	4.99	5.83	6.66	7.49	8.39
Runoff (cfs)	0.0	0.1	0.3	0.5	0.6	0.8
Release Rates (cfs/ac)	-	-	-	-	-	-
Allowed Release (cfs)	0.0	0.1	0.3	0.5	0.6	0.8

Notes

Sub-Basin F Runoff Calculations

Job No.: **61159**

Date: **1/12/2022 13:39**

Project: **2730 Mountain Glen Court**

Calcs by: **WCG**

Jurisdiction **DCM**
Runoff Coefficient **Surface Type**

Checked by: _____

Soil Type **C**

Urbanization **Urban**

Basin Land Use Characteristics

Surface	Area		Runoff Coefficient						% Imperv.
	(SF)	(Acres)	C2	C5	C10	C25	C50	C100	
Pasture/Meadow	12,492	0.29	0.04	0.15	0.25	0.37	0.44	0.5	0%
Combined	12,492	0.29	0.04	0.15	0.25	0.37	0.44	0.50	0.0%

12492

Basin Travel Time

Shallow Channel Ground Cover			Short Pasture/Lawns			
	L _{max,Overland}	300	ft		C _v	7
	L (ft)	ΔZ ₀ (ft)	S ₀ (ft/ft)	v (ft/s)	t (min)	t _{Alt} (min)
Total	70	28	-	-	-	-
Initial Time	70	28	0.400	-	4.2	10.4 DCM Eq. 6-8
Shallow Channel			0.000	0.0	0.0	- DCM Eq. 6-9
Channelized			0.000	0.0	0.0	- V-Ditch
				t _c	5.0 min.	

Rainfall Intensity & Runoff

	2-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr
Intensity (in/hr)	4.12	5.17	6.03	6.89	7.75	8.68
Runoff (cfs)	0.0	0.2	0.4	0.7	1.0	1.2
Release Rates (cfs/ac)	-	-	-	-	-	-
Allowed Release (cfs)	0.0	0.2	0.4	0.7	1.0	1.2

Notes

Combined Sub-Basin Runoff Calculations (DP1)

Includes Basins C D

Job No.:	61159	Date:	1/12/2022 13:39
Project:	2730 Mountain Glen Court	Calcs by:	WCG
Jurisdiction	DCM	Checked by:	
Runoff Coefficient	Surface Type	Soil Type	D
		Urbanization	Urban

Basin Land Use Characteristics

Surface	Area		Runoff Coefficient						% Imperv.
	(SF)	(Acres)	C2	C5	C10	C25	C50	C100	
Pasture/Meadow	21,896	0.50	0.04	0.15	0.25	0.37	0.44	0.5	0%
Gravel	26,725	0.61	0.6	0.63	0.66	0.7	0.72	0.74	80%
Paved	4,470	0.10	0.89	0.9	0.92	0.94	0.95	0.96	100%
Roofs	3,500	0.08	0.73	0.75	0.77	0.8	0.82	0.83	90%
Combined	56,591	1.30	0.41	0.47	0.53	0.60	0.64	0.67	51.2%

Basin Travel Time

	Sub-basin or Channel Type	Material Type	L (ft)	Elev. ΔZ_0 (ft)	Q_i (cfs)	Base or Dia (ft)	Sides z:1 (ft/ft)	v (ft/s)	t (min)
Furthest Reach	C	-	250	3	-	-	-	-	11.4
Channelized-1	V-Ditch	2	50	3	5	0	2	4.1	0.2
Channelized-2									
Channelized-3									
Total			300	6					
2 = Natural, Winding, minimal vegetation/shallow grass									
									t_c (min) 11.6

Storage Volume

			40 -hr release time		Detention is NOT required			
EURV	0.00 (in)	a =		1	Water Quality is NOT required			
WQCV	0.00 (in)							
i (return period)	5-year	10-year	100-year	Design Volume (ft ³)				
K _i (ft)	0.0000	0.0000	0	% Storage	100-year	WQCV	Total	
V _i (acre-ft)	0.000	0.000	0	EURV	0%	0	0	
V _i (ft ³)	0	0	0	WQCV	0%	0	0	

Contributing Offsite Flows (Added to Runoff and Allowed Release, below.)

Contributing Basins/Areas	
Q _{Minor}	(cfs) - 5-year Storm
Q _{Major}	(cfs) - 100-year Storm

Rainfall Intensity & Runoff

	2-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr
Intensity (in/hr)	3.12	3.91	4.56	5.21	5.86	6.56
Site Runoff (cfs)	1.68	2.40	3.13	4.04	4.84	5.71
OffSite Runoff (cfs)	-	0.00	-	-	-	0.00
Release Rates (cfs/ac)	-	-	-	-	-	-
Allowed Release (cfs)	-	2.4	-	-	-	5.7

$$DCM: I = C1 * \ln(tc) + C2$$

C1	1.19	1.5	1.75	2	2.25	2.52
C2	6.035	7.583	8.847	10.111	11.375	12.735

Notes

Runoff from Offsite basins have been assumed constant, despite additional times of concentration.

3 Hydraulic Calculations

FS-EDB design calculations

4 Report Maps

DETENTION VOLUME BY THE MODIFIED FAA METHOD

Project: _____
 Basin ID: _____

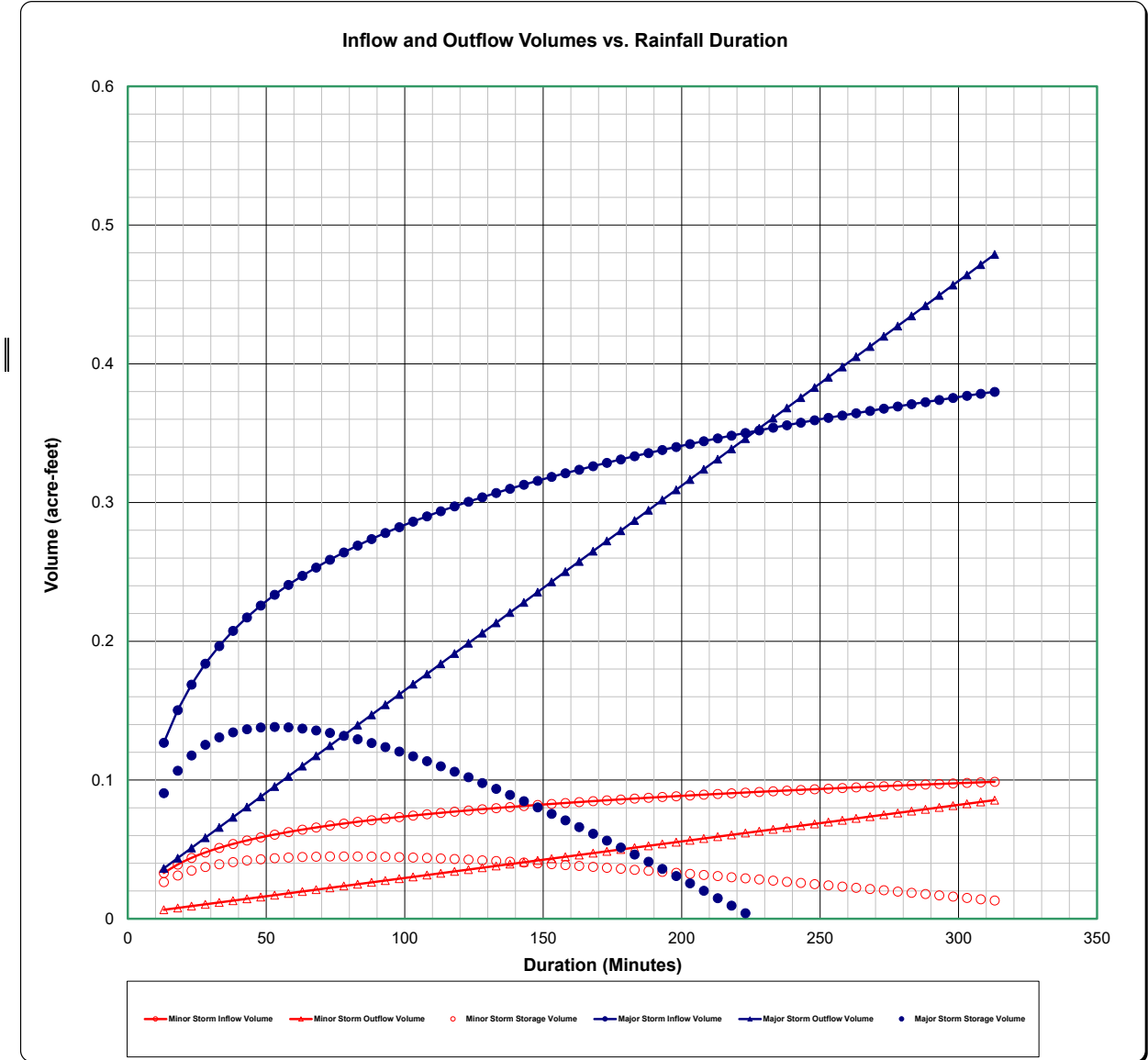
(For catchments less than 160 acres only. For larger catchments, use hydrograph routing method)
 (NOTE: for catchments larger than 90 acres, CUHP hydrograph and routing are recommended)

Determination of MINOR Detention Volume Using Modified FAA Method							Determination of MAJOR Detention Volume Using Modified FAA Method						
Design Information (Input): Catchment Drainage Imperviousness $I_a = 30.70$ percent Catchment Drainage Area $A = 2.550$ acres Predevelopment NRCS Soil Group Type = C A, B, C, or D Return Period for Detention Control $T = 5$ years (2, 5, 10, 25, 50, or 100) Time of Concentration of Watershed $T_c = 12$ minutes Allowable Unit Release Rate $q = 0.15$ cfs/acre One-hour Precipitation $P_1 = 0.97$ inches Design Rainfall IDF Formula $i = C_1 \cdot P_1 / (C_2 + T_c)^{C_3}$ Coefficient One $C_1 = 28.50$ Coefficient Two $C_2 = 10.00$ Coefficient Three $C_3 = 0.789$							Design Information (Input): Catchment Drainage Imperviousness $I_a = 30.70$ percent Catchment Drainage Area $A = 2.550$ acres Predevelopment NRCS Soil Group Type = C A, B, C, or D Return Period for Detention Control $T = 100$ years (2, 5, 10, 25, 50, or 100) Time of Concentration of Watershed $T_c = 12$ minutes Allowable Unit Release Rate $q = 0.84$ cfs/acre One-hour Precipitation $P_1 = 2.03$ inches Design Rainfall IDF Formula $i = C_1 \cdot P_1 / (C_2 + T_c)^{C_3}$ Coefficient One $C_1 = 28.50$ Coefficient Two $C_2 = 10.00$ Coefficient Three $C_3 = 0.789$						
Determination of Average Outflow from the Basin (Calculated): Runoff Coefficient $C = 0.31$ Inflow Peak Runoff $Q_{p-in} = 1.93$ cfs Allowable Peak Outflow Rate $Q_{p-out} = 0.38$ cfs Mod. FAA Minor Storage Volume = 1,961 cubic feet Mod. FAA Minor Storage Volume = 0.045 acre-ft							Determination of Average Outflow from the Basin (Calculated): Runoff Coefficient $C = 0.57$ Inflow Peak Runoff $Q_{p-in} = 7.45$ cfs Allowable Peak Outflow Rate $Q_{p-out} = 2.14$ cfs Mod. FAA Major Storage Volume = 6,023 cubic feet Mod. FAA Major Storage Volume = 0.138 acre-ft						
5 <- Enter Rainfall Duration Incremental Increase Value Here (e.g. 5 for 5-Minutes)													
Rainfall Duration minutes (input)	Rainfall Intensity inches / hr (output)	Inflow Volume acre-feet (output)	Adjustment Factor "m" (output)	Average Outflow cfs (output)	Outflow Volume acre-feet (output)	Storage Volume acre-feet (output)	Rainfall Duration minutes (input)	Rainfall Intensity inches / hr (output)	Inflow Volume acre-feet (output)	Adjustment Factor "m" (output)	Average Outflow cfs (output)	Outflow Volume acre-feet (output)	Storage Volume acre-feet (output)
13	2.33	0.033	0.95	0.36	0.006	0.026	13	4.87	0.127	0.95	2.03	0.036	0.091
18	1.99	0.039	0.82	0.31	0.008	0.031	18	4.17	0.150	0.82	1.76	0.044	0.107
23	1.75	0.044	0.75	0.29	0.009	0.035	23	3.67	0.169	0.75	1.61	0.051	0.118
28	1.57	0.048	0.71	0.27	0.010	0.037	28	3.28	0.184	0.71	1.51	0.058	0.125
33	1.42	0.051	0.68	0.26	0.012	0.039	33	2.98	0.197	0.68	1.45	0.066	0.131
38	1.30	0.054	0.65	0.25	0.013	0.041	38	2.73	0.208	0.65	1.40	0.073	0.134
43	1.21	0.056	0.63	0.24	0.014	0.042	43	2.52	0.217	0.63	1.36	0.081	0.137
48	1.12	0.059	0.62	0.24	0.016	0.043	48	2.35	0.226	0.62	1.33	0.088	0.138
53	1.05	0.061	0.61	0.23	0.017	0.044	53	2.20	0.234	0.61	1.31	0.095	0.138
58	0.99	0.063	0.60	0.23	0.018	0.044	58	2.07	0.241	0.60	1.29	0.103	0.138
63	0.94	0.064	0.59	0.23	0.020	0.045	63	1.96	0.247	0.59	1.27	0.110	0.137
68	0.89	0.066	0.59	0.22	0.021	0.045	68	1.86	0.253	0.59	1.25	0.117	0.136
73	0.85	0.067	0.58	0.22	0.022	0.045	73	1.77	0.259	0.58	1.24	0.125	0.134
78	0.81	0.069	0.57	0.22	0.024	0.045	78	1.69	0.264	0.57	1.23	0.132	0.132
83	0.77	0.070	0.57	0.22	0.025	0.045	83	1.62	0.269	0.57	1.22	0.140	0.129
88	0.74	0.071	0.57	0.22	0.026	0.045	88	1.55	0.274	0.57	1.21	0.147	0.127
93	0.71	0.072	0.56	0.22	0.028	0.045	93	1.49	0.278	0.56	1.20	0.154	0.124
98	0.69	0.073	0.56	0.21	0.029	0.044	98	1.44	0.282	0.56	1.20	0.162	0.121
103	0.66	0.074	0.56	0.21	0.030	0.044	103	1.39	0.286	0.56	1.19	0.169	0.117
108	0.64	0.075	0.55	0.21	0.032	0.044	108	1.34	0.290	0.55	1.19	0.176	0.114
113	0.62	0.076	0.55	0.21	0.033	0.044	113	1.30	0.294	0.55	1.18	0.184	0.110
118	0.60	0.077	0.55	0.21	0.034	0.043	118	1.26	0.297	0.55	1.18	0.191	0.106
123	0.58	0.078	0.55	0.21	0.035	0.043	123	1.22	0.301	0.55	1.17	0.199	0.102
128	0.57	0.079	0.55	0.21	0.037	0.042	128	1.19	0.304	0.55	1.17	0.206	0.098
133	0.55	0.080	0.54	0.21	0.038	0.042	133	1.15	0.307	0.54	1.16	0.213	0.094
138	0.54	0.081	0.54	0.21	0.039	0.041	138	1.12	0.310	0.54	1.16	0.221	0.089
143	0.52	0.081	0.54	0.21	0.041	0.041	143	1.09	0.313	0.54	1.16	0.228	0.085
148	0.51	0.082	0.54	0.21	0.042	0.040	148	1.07	0.316	0.54	1.15	0.235	0.080
153	0.50	0.083	0.54	0.21	0.043	0.039	153	1.04	0.318	0.54	1.15	0.243	0.076
158	0.49	0.083	0.54	0.21	0.045	0.039	158	1.02	0.321	0.54	1.15	0.250	0.071
163	0.47	0.084	0.54	0.20	0.046	0.038	163	0.99	0.324	0.54	1.15	0.258	0.066
168	0.46	0.085	0.53	0.20	0.047	0.037	168	0.97	0.326	0.53	1.14	0.265	0.061
173	0.45	0.085	0.53	0.20	0.049	0.037	173	0.95	0.329	0.53	1.14	0.272	0.056
178	0.44	0.086	0.53	0.20	0.050	0.036	178	0.93	0.331	0.53	1.14	0.280	0.051
183	0.43	0.087	0.53	0.20	0.051	0.035	183	0.91	0.333	0.53	1.14	0.287	0.046
188	0.43	0.087	0.53	0.20	0.053	0.035	188	0.89	0.336	0.53	1.14	0.294	0.041
193	0.42	0.088	0.53	0.20	0.054	0.034	193	0.87	0.338	0.53	1.14	0.302	0.036
198	0.41	0.088	0.53	0.20	0.055	0.033	198	0.86	0.340	0.53	1.13	0.309	0.031
203	0.40	0.089	0.53	0.20	0.057	0.032	203	0.84	0.342	0.53	1.13	0.317	0.026
208	0.39	0.089	0.53	0.20	0.058	0.032	208	0.83	0.344	0.53	1.13	0.324	0.020
213	0.39	0.090	0.53	0.20	0.059	0.031	213	0.81	0.346	0.53	1.13	0.331	0.015
218	0.38	0.090	0.53	0.20	0.060	0.030	218	0.80	0.348	0.53	1.13	0.339	0.010
223	0.37	0.091	0.53	0.20	0.062	0.029	223	0.78	0.350	0.53	1.13	0.346	0.004
228	0.37	0.091	0.53	0.20	0.063	0.028	228	0.77	0.352	0.53	1.13	0.353	-0.001
233	0.36	0.092	0.52	0.20	0.064	0.028	233	0.76	0.354	0.52	1.12	0.361	-0.007
238	0.36	0.092	0.52	0.20	0.066	0.027	238	0.75	0.356	0.52	1.12	0.368	-0.012
243	0.35	0.093	0.52	0.20	0.067	0.026	243	0.73	0.358	0.52	1.12	0.376	-0.018
248	0.35	0.093	0.52	0.20	0.068	0.025	248	0.72	0.359	0.52	1.12	0.383	-0.024
253	0.34	0.094	0.52	0.20	0.070	0.024	253	0.71	0.361	0.52	1.12	0.390	-0.029
258	0.34	0.094	0.52	0.20	0.071	0.023	258	0.70	0.363	0.52	1.12	0.398	-0.035
263	0.33	0.095	0.52	0.20	0.072	0.022	263	0.69	0.364	0.52	1.12	0.405	-0.041
268	0.33	0.095	0.52	0.20	0.074	0.021	268	0.68	0.366	0.52	1.12	0.412	-0.046
273	0.32	0.096	0.52	0.20	0.075	0.021	273	0.67	0.368	0.52	1.12	0.420	-0.052
278	0.32	0.096	0.52	0.20	0.076	0.020	278	0.66	0.369	0.52	1.12	0.427	-0.058
283	0.31	0.096	0.52	0.20	0.078	0.019	283	0.65	0.371	0.52	1.11	0.435	-0.064
288	0.31	0.097	0.52	0.20	0.079	0.018	288	0.65	0.372	0.52	1.11	0.442	-0.070
293	0.30	0.097	0.52	0.20	0.080	0.017	293	0.64	0.374	0.52	1.11	0.449	-0.075
298	0.30	0.098	0.52	0.20	0.082	0.016	298	0.63	0.375	0.52	1.11	0.457	-0.081
303	0.30	0.098	0.52	0.20	0.083	0.015	303	0.62	0.377	0.52	1.11	0.464	-0.087
308	0.29	0.098	0.52	0.20	0.084	0.014	308	0.61	0.378	0.52	1.11	0.471	-0.093
313	0.29	0.099	0.52	0.20	0.086	0.013	313	0.61	0.380	0.52	1.11	0.479	-0.099
Mod. FAA Minor Storage Volume (cubic ft.) = 1,961 Mod. FAA Minor Storage Volume (acre-ft.) = 0.0450							Mod. FAA Major Storage Volume (cubic ft.) = 6,023 Mod. FAA Major Storage Volume (acre-ft.) = 0.1383						

UDFCD DETENTION BASIN VOLUME ESTIMATING WORKBOOK Version 2.35, Released January 2015 (Modified July 2015)

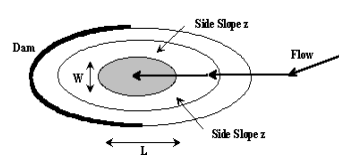
DETENTION VOLUME BY THE MODIFIED FAA METHOD

Project: _____
Basin ID: _____



STAGE-STORAGE SIZING FOR DETENTION BASINS

Project: _____
Basin ID: _____



Design Information (Input):

Width of Basin Bottom, W	=		ft
Length of Basin Bottom, L	=		ft
Dam Side-slope (H:V), Z_d	=	4.00	ft/ft

Check Basin Shape

Right Triangle		OR...
Isosceles Triangle		OR...
Rectangle		OR...
Circle / Ellipse		OR...
Irregular		(Use Override values in cells G32:G52)

Stage-Storage Relationship:

	MINOR	MAJOR	
Storage Requirement from Sheet 'Modified FAA':	0.05	0.14	acre-ft.
Storage Requirement from Sheet 'Hydrograph':			acre-ft.
Storage Requirement from Sheet 'Full-Spectrum':	0.07	0.18	acre-ft.

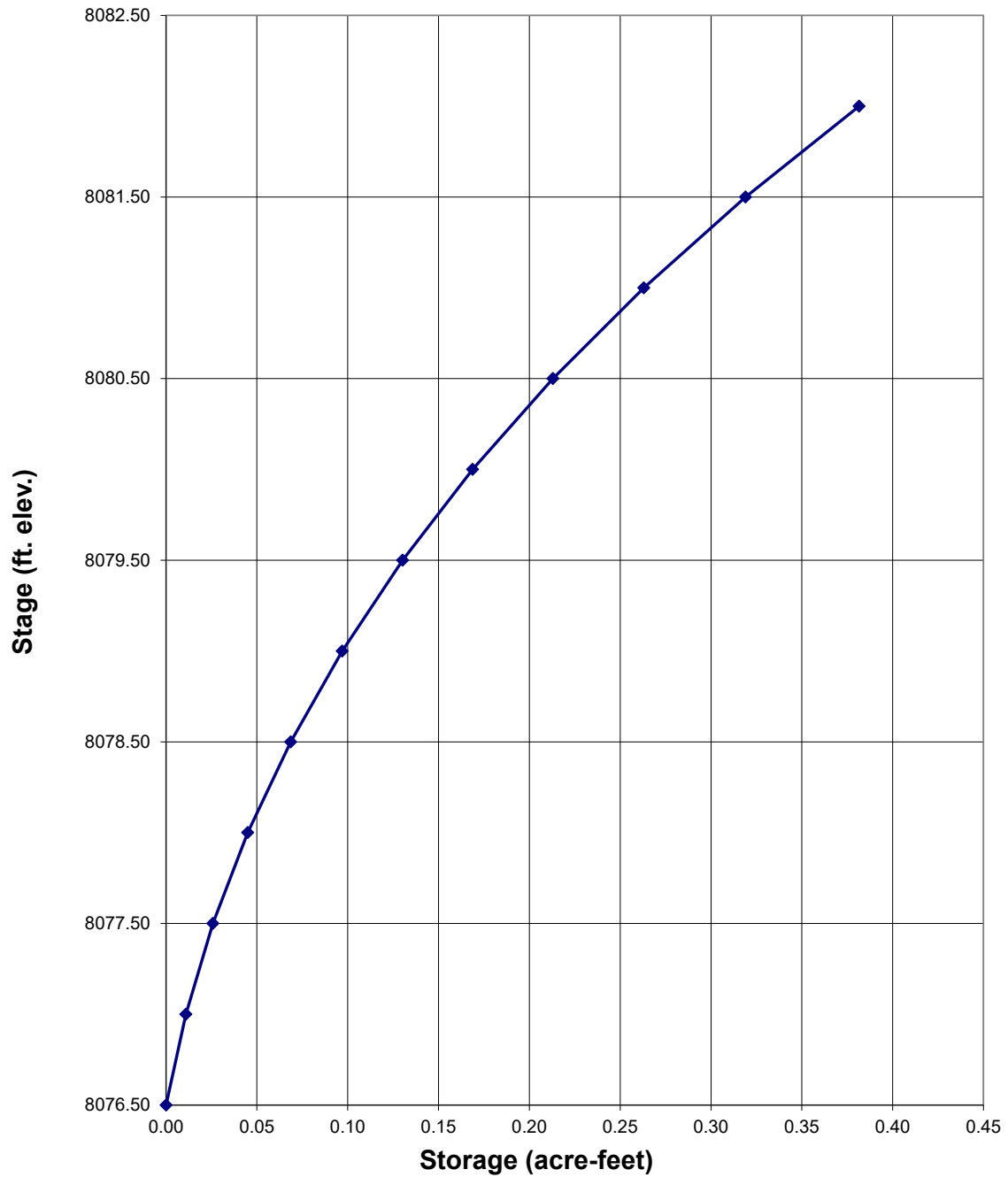
[illegible]

STAGE-STORAGE SIZING FOR DETENTION BASINS

Project: _____

Basin ID: _____

STAGE-STORAGE CURVE FOR THE POND

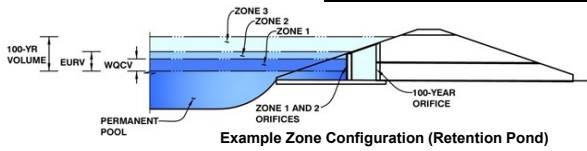


Detention Basin Outlet Structure Design

UD-Detention, Version 3.07 (February 2017)

Project: _____

Basin ID: _____



Example Zone Configuration (Retention Pond)

	Stage (ft)	Zone Volume (ac-ft)	Outlet Type
Zone 1 (User)	1.07	0.028	Filtration Media
Zone 2 (User)	2.09	0.045	Orifice Plate
Zone 3 (User)	3.98	0.138	Weir&Pipe (Restrict)
		0.211	Total

User Input: Orifice at Underdrain Outlet (typically used to drain WQCV in a Filtration BMP)

Underdrain Orifice Invert Depth =	2.00	ft (distance below the filtration media surface)
Underdrain Orifice Diameter =	0.42	inches

Calculated Parameters for Underdrain

Underdrain Orifice Area =	0.0	ft ²
Underdrain Orifice Centroid =	0.02	feet

User Input: Orifice Plate with one or more orifices or Elliptical Slot Weir (typically used to drain WQCV and/or EURV in a sedimentation BMP)

Invert of Lowest Orifice =	1.07	ft (relative to basin bottom at Stage = 0 ft)
Depth at top of Zone using Orifice Plate =	2.81	ft (relative to basin bottom at Stage = 0 ft)
Orifice Plate: Orifice Vertical Spacing =	N/A	inches
Orifice Plate: Orifice Area per Row =	N/A	inches

Calculated Parameters for Plate

WQ Orifice Area per Row =	N/A	ft ²
Elliptical Half-Width =	N/A	feet
Elliptical Slot Centroid =	N/A	feet
Elliptical Slot Area =	N/A	ft ²

User Input: Stage and Total Area of Each Orifice Row (numbered from lowest to highest)

	Row 1 (required)	Row 2 (optional)	Row 3 (optional)	Row 4 (optional)	Row 5 (optional)	Row 6 (optional)	Row 7 (optional)	Row 8 (optional)
Stage of Orifice Centroid (ft)	0.75	1.33	1.67					
Orifice Area (sq. inches)	0.22	0.22	0.22					

	Row 9 (optional)	Row 10 (optional)	Row 11 (optional)	Row 12 (optional)	Row 13 (optional)	Row 14 (optional)	Row 15 (optional)	Row 16 (optional)
Stage of Orifice Centroid (ft)								
Orifice Area (sq. inches)								

User Input: Vertical Orifice (Circular or Rectangular)

	Not Selected	Not Selected	
Invert of Vertical Orifice =	N/A	N/A	ft (relative to basin bottom at Stage = 0 ft)
Depth at top of Zone using Vertical Orifice =	N/A	N/A	ft (relative to basin bottom at Stage = 0 ft)
Vertical Orifice Diameter =	N/A	N/A	inches

Calculated Parameters for Vertical Orifice

	Not Selected	Not Selected	
Vertical Orifice Area =	N/A	N/A	ft ²
Vertical Orifice Centroid =	N/A	N/A	feet

User Input: Overflow Weir (Dropbox) and Grate (Flat or Sloped)

	Zone 3 Weir	Not Selected	
Overflow Weir Front Edge Height, H _o =	2.09	N/A	ft (relative to basin bottom at Stage = 0 ft)
Overflow Weir Front Edge Length =	2.92	N/A	feet
Overflow Weir Slope =	0.00	N/A	H:V (enter zero for flat grate)
Horiz. Length of Weir Sides =	2.92	N/A	feet
Overflow Grate Open Area % =	81%	N/A	% grate open area/total area
Debris Clogging % =	50%	N/A	%

Calculated Parameters for Overflow Weir

	Zone 3 Weir	Not Selected	
Height of Grate Upper Edge, H _u =	2.09	N/A	feet
Over Flow Weir Slope Length =	2.92	N/A	feet
Grate Open Area / 100-yr Orifice Area =	24.55	N/A	should be ≥ 4
Overflow Grate Open Area w/o Debris =	6.91	N/A	ft ²
Overflow Grate Open Area w/ Debris =	3.45	N/A	ft ²

User Input: Outlet Pipe w/ Flow Restriction Plate (Circular Orifice, Restrictor Plate, or Rectangular Orifice)

	Zone 3 Restrictor	Not Selected	
Depth to Invert of Outlet Pipe =	2.00	N/A	ft (distance below basin bottom at Stage = 0 ft)
Outlet Pipe Diameter =	15.00	N/A	inches
Restrictor Plate Height Above Pipe Invert =	4.20		inches

Calculated Parameters for Outlet Pipe w/ Flow Restriction Plate

	Zone 3 Restrictor	Not Selected	
Outlet Orifice Area =	0.28	N/A	ft ²
Outlet Orifice Centroid =	0.21	N/A	feet
Half-Central Angle of Restrictor Plate on Pipe =	1.12	N/A	radians

User Input: Emergency Spillway (Rectangular or Trapezoidal)

Spillway Invert Stage=	4.00	ft (relative to basin bottom at Stage = 0 ft)
Spillway Crest Length =	5.00	feet
Spillway End Slopes =	4.00	H:V
Freeboard above Max Water Surface =	1.00	feet

Calculated Parameters for Spillway

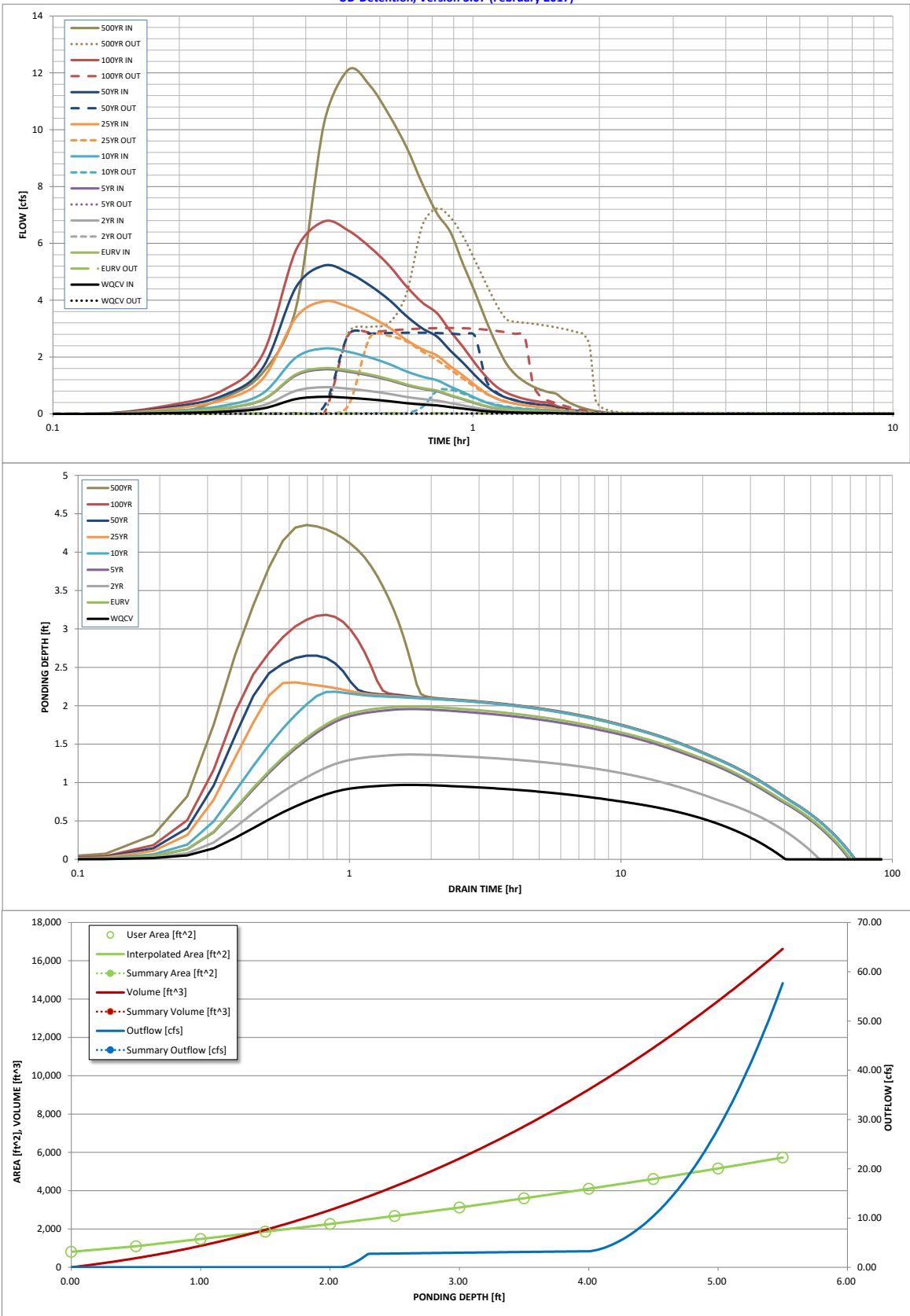
Spillway Design Flow Depth=	0.49	feet
Stage at Top of Freeboard =	5.49	feet
Basin Area at Top of Freeboard =	0.13	acres

Routed Hydrograph Results

	WQCV	EURV	2 Year	5 Year	10 Year	25 Year	50 Year	100 Year	500 Year
Design Storm Return Period =									
One-Hour Rainfall Depth (in) =	0.53	1.07	0.76	0.97	1.17	1.48	1.75	2.03	3.25
Calculated Runoff Volume (acre-ft) =	0.026	0.071	0.042	0.070	0.103	0.178	0.235	0.307	0.551
OPTIONAL Override Runoff Volume (acre-ft) =									
Inflow Hydrograph Volume (acre-ft) =	0.026	0.071	0.041	0.069	0.102	0.178	0.235	0.306	0.552
Predevelopment Unit Peak Flow, q (cfs/acre) =	0.00	0.00	0.01	0.11	0.30	0.75	1.04	1.39	2.57
Predevelopment Peak Q (cfs) =	0.0	0.0	0.0	0.3	0.8	1.9	2.6	3.5	6.6
Peak Inflow Q (cfs) =	0.6	1.6	0.9	1.6	2.3	4.0	5.2	6.8	12.1
Peak Outflow Q (cfs) =	0.0	0.0	0.0	0.0	0.8	2.7	2.9	3.0	7.2
Ratio Peak Outflow to Predevelopment Q =	N/A	N/A	N/A	0.1	1.1	1.4	1.1	0.9	1.1
Structure Controlling Flow =	Plate	Plate	Plate	Plate	Overflow Grate 1	Outlet Plate 1	Outlet Plate 1	Outlet Plate 1	Spillway
Max Velocity through Grate 1 (fps) =	N/A	N/A	N/A	N/A	0.1	0.4	0.4	0.4	0.5
Max Velocity through Grate 2 (fps) =	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Time to Drain 97% of Inflow Volume (hours) =	39	67	52	66	67	63	60	57	45
Time to Drain 99% of Inflow Volume (hours) =	40	69	53	68	71	70	69	67	63
Maximum Ponding Depth (ft) =	0.97	1.99	1.36	1.96	2.18	2.30	2.65	3.18	4.35
Area at Maximum Ponding Depth (acres) =	0.03	0.05	0.04	0.05	0.06	0.06	0.06	0.08	0.10
Maximum Volume Stored (acre-ft) =	0.024	0.068	0.039	0.066	0.078	0.085	0.106	0.143	0.247

Detention Basin Outlet Structure Design

UD-Detention, Version 3.07 (February 2017)



S-A-V-D Chart Axis Override	X-axis	Left Y-Axis	Right Y-Axis
minimum bound			
maximum bound			

Existing Condition Hydraulic Analysis Map (Map Pocket)
Proposed Condition Hydraulic Analysis Map (Map Pocket)



LEGEND

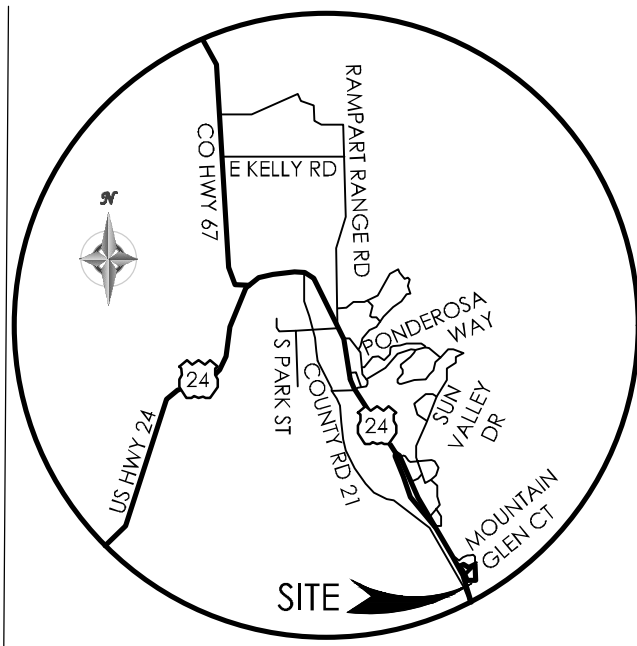
- PROPERTY LINE
EASEMENT LINE
LOT LINE
- EXISTING
INDEX CONTOUR
INTERMEDIATE CONTOUR
- PROPOSED
INDEX CONTOUR
INTERMEDIATE CONTOUR
- BASIN BOUNDARY
- GENERAL FLOW/DIRECTION
SLOPE DIRECTION AND GRADE
- BASIN LABEL
AREA IN ACRES
PERCENT IMPERVIOUS
- DESIGN POINT

EXISTING DRAINAGE SUMMARY TABLE

DESIGN POINTS	INCLUDED BASINS	AREA (AC)	Tc (MIN.)	RUNOFF	
				Q5 (CFS)	Q100 (CFS)
	EX-A	0.63	9.8	0.4	2.2
	EX-B	0.19	5.0	0.1	0.8
	EX-C	0.11	6.9	0.1	0.5
	EX-D	1.13	10.8	0.7	3.8
	EX-E	0.17	5.0	0.1	0.7
	EX-F	0.32	5.0	0.2	1.4
EX-DP1	EX-A, EX-D	1.76	10.8	1.1	5.9

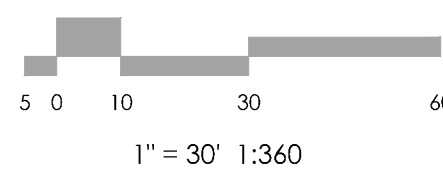
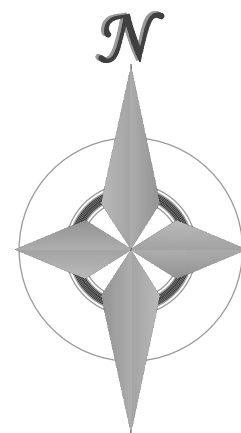
FLOODPLAIN STATEMENT

NO PORTION OF THE SUBJECT PROPERTY IS LOCATED WITHIN A FEMA DESIGNATED SPECIAL FLOOD HAZARD AREA (SFHA) AS INDICATED ON THE FLOOD INSURANCE RATE MAPS (FIRM) FOR TELLER COUNTY, COLORADO AND INCORPORATED AREAS - MAP NUMBERS 08041C0285 G, AND 08119C0209 D, EFFECTIVE DECEMBER 7, 2018.



VICINITY MAP
NOT TO SCALE

BENCHMARK



REVISIONS

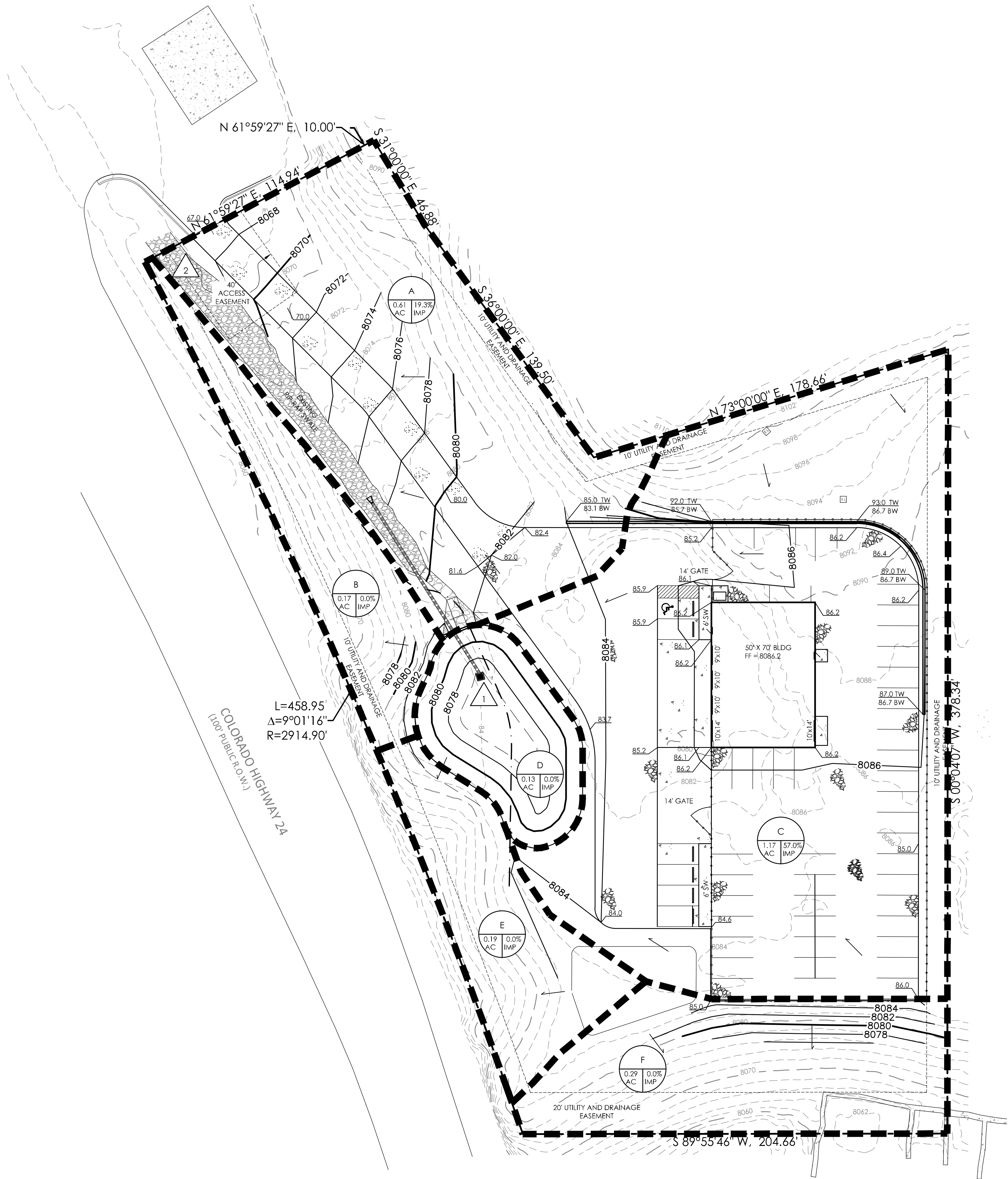
DESIGNED BY
DRAWN BY
CHECKED BY
AS-BUILT BY
CHECKED BY

2730 MOUNTAIN GLEN COURT

EXISTING DRAINAGE MAP

MVE PROJECT 61159
MVE DRAWING DRN-EX

JANUARY 12, 2022
SHEET 1 OF 1



LEGEND

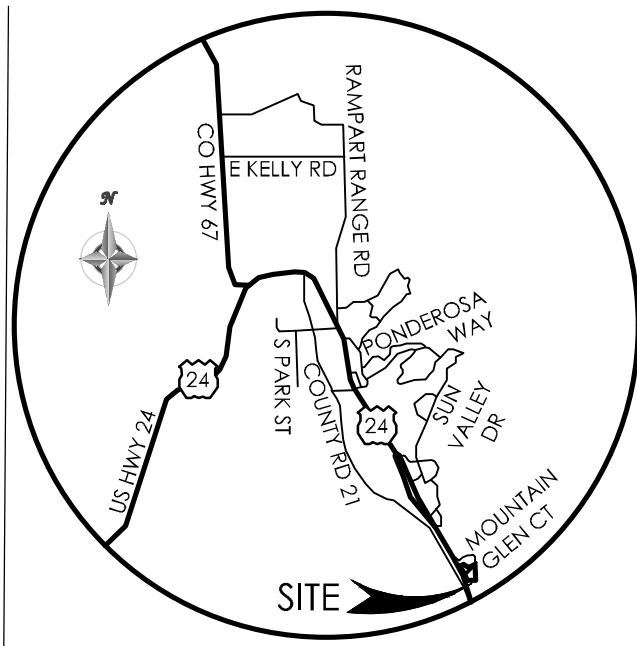
- PROPERTY LINE
EASEMENT LINE
LOT LINE
- EXISTING**
INDEX CONTOUR
INTERMEDIATE CONTOUR
- PROPOSED**
INDEX CONTOUR
INTERMEDIATE CONTOUR
- BASIN BOUNDARY
GENERAL FLOW/DIRECTION
SLOPE DIRECTION AND GRADE
BASIN LABEL
AREA IN ACRES
PERCENT IMPERVIOUS
DESIGN POINT

PROPOSED DRAINAGE SUMMARY TABLE

DESIGN POINTS	INCLUDED BASINS	AREA (AC)	Tc (MIN.)	RUNOFF	
				Q5 (CFS)	Q100 (CFS)
	A	0.61	9.7	0.7	2.5
	B	0.17	5.0	0.1	0.8
	C	1.17	11.4	2.3	5.3
	D	0.13	6.7	0.1	0.5
DP1	C, D	1.30	11.6	2.4	5.7
DP2	A, C, D	1.91	11.4	0.7	5.3
	E	0.19	5.6	0.1	0.8
	F	0.29	5.0	0.2	1.2

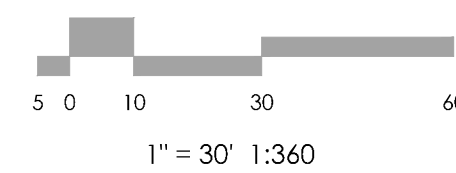
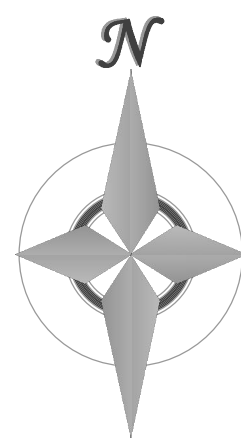
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VICINITY MAP
NOT TO SCALE

BENCHMARK



REVISIONS

DESIGNED BY _____
DRAWN BY _____
CHECKED BY _____
AS-BUILT BY _____
CHECKED BY _____

2730 MOUNTAIN GLEN COURT

PROPOSED
DRAINAGE MAP

MVE PROJECT 61159
MVE DRAWING DRN-PP

JANUARY 12, 2022
SHEET 1 OF 1

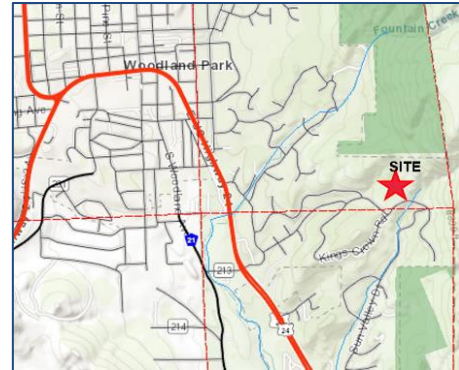


City of Woodland Park Staff Report for Planning Commission

Meeting Date: May 12, 2022		
Agenda Item	Department	Presenter
4.A.	Planning	Karen Schminke Planning Director

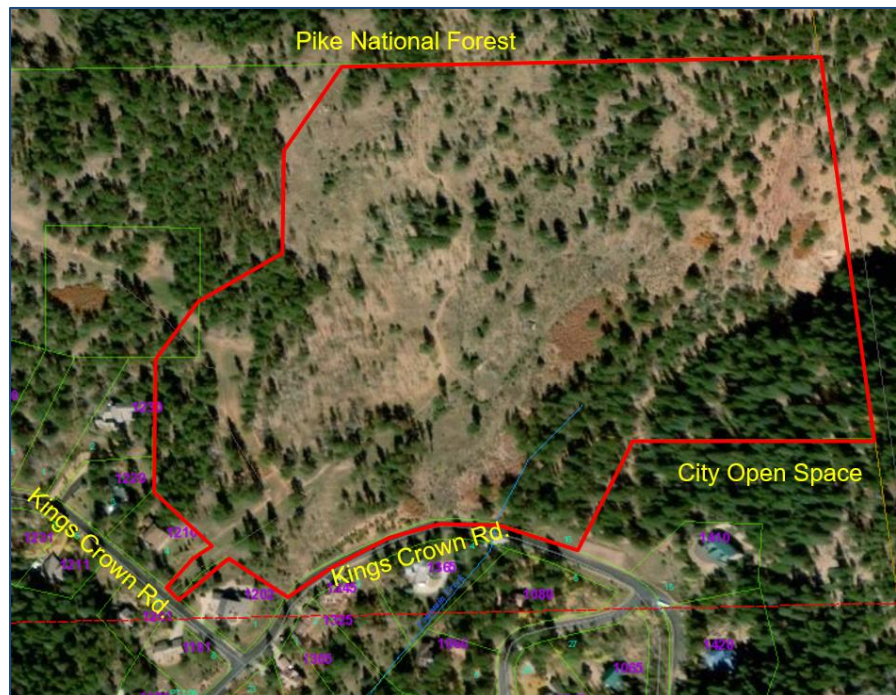
ITEM

SUB 2021-01 Extension of The Haven at Paradise Preliminary Plat: A request by Frankie Valenzuela (Applicant) and Ventus – Johnathan James (Property Owner) for a 2-year extension of the Preliminary Plat approved for a 35.77 acre parcel north of Kings Crown Road for 24 residential lots in the Suburban Residential (SR) zone. (QJ)



BACKGROUND

On **April 4, 2022**, the City received a written request to extend SUB 2022-02 (an extension of SUB 19-01) for a 24-lot detached single family residential development on 35.77 unplatted acres. The original approval granted by City Council on April 14, 2019 is attached to this staff report, as well as the first one-year extension request granted by the City Planning Commission on March 12, 2021. Pursuant to Municipal Code §17.20.090, the preliminary plat approval is valid for 24 months (two years) with one-year extensions possible as granted by the Planning Commission.



Since the last extension was granted, the ownership of the property has changed. The new owners are actively working on this project and on February 9, 2022 submitted construction drawings for the infrastructure for review and approval, as well as a grading permit application (ZDP).

STAFF FINDINGS

Municipal Code §17.20.090 allows extensions of a preliminary plat approval for one year. There have been no preliminary plat or other subdivision regulation amendments that occurred between 2019 and today that materially affect the approval or design of the preliminary plat. All of the conditions approved with the preliminary plat will also be extended and would still be in effect and apply; that engineering and construction drawings for the site work (grading, roads, drainage, etc.) have been produced and are in review. In addition, the applicant has been actively working towards submittal of the final plat, which, once submitted, extends the approval of the preliminary plat until the final plat is acted upon. Therefore, staff supports a one-year extension of the preliminary plat approval.

RECOMMENDATIONS

Move to approve a 1-year extension of SUB 19-01 to April 4, 2023.

ATTACHMENTS

- A. Application: SUB2022-02 Preliminary Plat** Extension Request
- B. Approved SUB19-01 Haven at Paradise Preliminary Plat
- C. Approved SUB2021-01 Haven at Paradise Preliminary Plat Extension

received
4/4/2022



2022 GENERAL APPLICATION
(Revised 1/1/2022)

Project # 202204070
Case # SUB2022-02
Fee(s): See City of Woodland Park
Fees Sheet (Plus publication/recording
fees, as applicable)
Pd. CHK# 6047 113.00

Type of Application (Check one or more as applicable)

- | | | |
|--|---|--|
| ☐ Site Plan Review Permitted Use | ☐ Special Use Permit | ☒ Preliminary Plat |
| ☐ Site Plan Review Conditional Use | ☐ Planned Unit Development (PUD) | ☒ Exemption Plat |
| ☐ Conditional Use Permit | ☐ PUD Amendment | ☐ Final Plat |
| ☐ Zoning Change | ☐ Appeal | ☐ Townhouse Plat |
| ☒ Extension of Development | ☐ Variance | ☐ Condominium Plat |

1. Applicant Information

- a. Applicant Name Frankie Valenzuela
- b. Project Coordinator ☒ Property Owner ☒
- c. Mailing Address 9477 Brook Lane, Lone Tree, CO 80214
- d. E-mail Address FVALENZUELA@MAIL.RU
- e. Phone Numbers Home _____ Work _____ Mobile 917-283-1506

2. Property Owner Information (if different from above)

- a. Name Ventus - Johnathan James Project Contact? Yes ☒ No ☐
- b. Mailing Address 1528 Coronado Beach Dr., Monument, CO 80132
- c. E-mail Address JWJAMES3@ICLOUD.COM
- d. Phone Numbers Home _____ Work _____ Mobile 303-748-7993

3. Site Information

- a. Site Address The Side lot of lot 1 Paradise homes filing no. 1
- b. Lot _____ Block _____ Subdivision N57°51'17"W a distance of 170.62'
- c. Property Zoning SR Lot Size _____ Acres ☐ Square Feet ☐

4. Is the property subject to covenants? Yes ☒ No ☐ If yes, then submit copy of covenants and current contact for HOA. It is the responsibility of the landowner to submit HOA approval with this application.

5. Project Information

- a. Project Name The Haven at Paradise
- b. Brief Description of Project/Request The Haven at Paradise single family development

Project Narrative (On a separate sheet provide additional project details and how the proposal complies with the applicable code requirements, which can be found in Section 8 of this application.)

5. Consultant Information (if applicable)

a. Architect

- i. Project Contact _____
- ii. Firm Name _____
- iii. Physical Address _____
- iv. Mailing Address _____
- v. E-mail Address _____
- vi. Phone Numbers: Business _____ Mobile _____

b. Engineer

- i. Project Contact Mike A. Bramlett
- ii. Firm Name JR Engineering, LLC
- iii. Physical Address 5475 Tech Center Drive, Colorado Springs, CO 80919
- iv. Mailing Address 5475 Tech Center Drive, Colorado Springs, CO
- v. E-mail Address mbramlett@jrengineering.com
- vi. Phone Numbers: Business _____ Mobile 719-659-7679

c. Planner

- i. Project Contact _____
- ii. Firm Name _____
- iii. Physical Address _____
- iv. Mailing Address _____
- v. E-mail Address _____
- vi. Phone Numbers: Business _____ Mobile _____

d. Surveyor

- i. Project Contact Chris Thompson, P.L.S.
- ii. Firm Name Rocky Mountain Land Services
- iii. Physical Address 4465 Northpark Drive, Suite 303, Colorado Springs, Colorado 80907
- iv. Mailing Address 4465 Northpark Drive, Suite 303, Colorado Springs, Colorado 80907
- v. E-mail Address clt@rmls-survey.com
- vi. Phone Numbers: Business _____ Mobile 719-502-9738

e. Other (specify role) Development Manager

- i. Project Contact Frankie Valenzuela
- ii. Firm Name Ventus
- iii. Physical Address 9477 Brook Lane, Lone Tree, CO 80124
- iv. Mailing Address 9477 Brook Lane, Lone Tree, CO 80124
- v. E-mail Address FVALENZUELA@MAIL.RU
- vi. Phone Numbers: Business _____ Mobile 917-283-1506

6. Submittal Requirements

The following items must be included at time of submittal (in addition to items on the submittal checklists) or the application will not be processed (additional copies may be requested).

Type of Application	24" x 36" Plan Set	11" x 17" Plan Set	Adobe Acrobat Portable Document Format (.pdf) electronic Plan Set on a flash drive	Warranty Deed or Title Policy	List of adjoining property owners within 150'	Copies of reports (narrative, traffic study, drainage, etc.)
All Types	1	1	1	1	1	1

7. Applicable Code Sections

The following are the applicable code sections by type of application and are for assisting applicants in completing the required project narrative. The City of Woodland Park's Municipal Code can be found at www.city-woodlandpark.org/Charter&Code. Subdivision requirements are in Title 17 and Zoning is in Title 18 of the Municipal Code.

Type of Application	Applicable Code Sections
Site Plan Review Permitted Use	Chapters 18.34, 18.33 and 18.39
Site Plan Review Conditional Use	Chapters 18.34, 18.57, 18.33 and 18.39
Conditional Use Permit	Chapter 18.57 plus applicable site plan regulations
Zoning Change	There are no specific standards, but the applicant should provide supporting argument for a zoning change, including how it complies with the Comprehensive Plan
Special Use Permit	Chapter 18.61 plus applicable site plan regulations
Planned Unit Development	Chapters 18.30, 18.33, 18.39, Sections 17.20.070, and 17.20.080
Appeal	Chapter 18.54
Variance	Chapter 18.60
Preliminary Plat	Chapter 17.20 plus applicable subdivision sections
Exemption Plat	Section 17.52.030 plus applicable subdivision sections
Final Plat	Chapter 17.24 plus applicable subdivision sections
Townhouse Plat	Chapter 17.32 plus applicable subdivision sections
Condominium Plat	Chapter 17.32 plus applicable subdivision sections

8. Certification of Ownership

I (We) do hereby declare and affirm that I (we) am (are) the exclusive owner(s) and title holder(s) of the above described property.

➡ Jonathan James 3/15/22
Owner Date
➡ [Signature] 3/31/22
Owner Date

9. Certification:

The undersigned applicant certifies under oath and under penalties of perjury that the information found in the application is true and accurate to the best of their knowledge.

I certify that I understand that the proposed development is in accordance with all provisions of the City of Woodland Park's Municipal Code and other applicable regulations.

➡ Frank Valenzuela 3/15/22
Applicant Date



Teller County Government

The Official Site For Teller County, Colorado

Property Records Database



Teller Home	County Offices	Contributing Offices	New Search	Mapping Application	Foreclosures
-----------------------------	--------------------------------	--------------------------------------	----------------------------	-------------------------------------	------------------------------

Property Record Database

Account Information (provided by Assessor)

Account No R0055193

Parcel Id 6431.194000070

2021 Values [A PDF of the 2021 Notice of Value](#)

Actual \$1,003,441

Assessed \$291,000

Tax Dist 64

Acct Type Vacant Land

School Dist RE-2

Acres 76.5800

Map No. 3031-19

Owner Name JAMES, JONATHAN

Mailing Address 1528 CORONADO BEACH DR
MONUMENT, CO 80132

**Physical
Address**

Area PARADISE ESTATES

Brief Legal Desc 19-12-68 PT SW4NE4, PT E2SW4, PT SE4 ALL LYING N AND E OF PARADISE ESTATES



Brief Legal Description is not intended for use on legal documents

[Show Map](#)

[Show Sales Map](#) [Vacant Land Sales List](#)

Zoning Information (provided by City of Woodland Park for Questions call 719-687-5202)

Zoning SR

Land Information (provided by Assessor)

Land Type	Abst Code	Acres
Vacant	0550	76.5800
TOTAL		76.5800



Account No: R0055193

Legal: 19-12-68 PT SW4NE4, PT E2SW4, PT SE4 ALL LYING N AND E OF PARADISE ESTATES

Address:

Owner: JAMES, JONATHAN

[Show Assessor Info](#)



[Zoom to](#)

April 24, 2019

Mr. William F. Brown, Jr
Ms. Andria Rodriquez
1012 South Copper Key Court
Gilbert, Arizona 85233

SENT VIA EMAIL

SUBJECT: Letter of Approval

Dear Ms. Rodriquez and Mr. Brown:

As you know, the City Council voted unanimously to approve *The Haven at Paradise Preliminary Plat* on April 4, 2019 to include their support for a variance. The variance is from §17.40.140 minimum width of right-of-way to allow for a 40' ROW with 30 foot front setbacks and subject to the following conditions:

1. Prior to certifying the Preliminary Plat, the following corrections shall be made:
 - Add a vicinity map and darken the scale, date and topo lines to make it illegible.
 - Add the adjoining land uses, road rights-of-way and subdivisions as shown on the preliminary utilities plan.
 - Add an index for all the attached sheets; grading, utilities, slope and driveways.
 - Add a location for the US Postal neighborhood box unit, complete with access.
 - Remove the setback dotted lines and replace with utility and drainage easements on each lot in compliance with §17.40.170 and minimum of 20' wide side yard easement between lots 6 and 7 and 12 and 13 for the water line loop.
 - Add the following comments to the 4-inch square box:
 - Tract A is reserved for stormwater detention and will be owned and maintained by the City
 - Tract B is reserved for private open space and will be owned and maintained by the Homeowners Association unless the developer decides to dedicate the open space to the City at the time of Final Plat review and approval
 - Add a note stating the total area of public streets of 72,214 SF or 1.657 acres
 - Add note regarding condition #2 concerning the variance and 30' front setbacks
 - Add a note regarding condition #5 concerning the water line loop to be completed in the first phase of development
2. Please revise the Letter of Intent to include the need for a ROW variance for a 40' ROW width with 30 front setbacks versus 50' ROW width.
3. Fees in lieu of park land in the amount of \$46,416 (24 lots x \$1,934 or in the amount of the adjusted annual park capital fee) shall be paid prior to recording the Final Plat with the stipulation that these park fees are used to develop Chimney Park or other recreational amenities in Paradise Estates or Thunderbird Subdivisions.
4. A wildfire mitigation plan shall be submitted to the City and NETCFPD for review and implementation by the developer prior to Final Plat approval by City Council.

5. Complete the water line loop from Red Haven to Blue Haven cul-de-sac during the first phase.

Lastly, the City Council wants to encourage Mr. Brown to consider dedicating the 12.13 acre open space tract to the City in the future. Council members expressed concerns about the capability of a Home Owners Association to manage and maintain this public space.

Please make the necessary revisions to the Preliminary Plat with the index listing the Preliminary Grading Plan, Preliminary Utilities Plan, Slope Analysis and Driveway Exhibit. We are looking forward to review of your construction drawings which will require approval before issuance of a City Grading Permit, State Erosion and Sediment Control permit and infrastructure Zoning Development Permit (ZDP).

Sincerely,

Sally Riley, AICP, Planning Director
City of Woodland Park

Cc: Mike Bramlett, PE, JR Engineering
Chris Thompson, PLS, Rocky Mountain Land Services

PONDEROSA WAY

KINGS CROWN ROAD

SITE

KINGS CROWN ROAD

VICINITY MAP

PRELIMINARY PLAT

THE HAVEN AT PARADISE

WOODLAND PARK, TELLER COUNTY, COLORADO

SUB 19-001 (# 19010018)

UNPLATTED NATIONAL
FOREST SERVICEUNPLATTED NATIONAL
FOREST SERVICEUNPLATTED
CITY OF
WOODLAND
PARKTRACT B
OPEN SPACE
12.13 ACRES**OWNER:**

PARADISE ESTATES, INC.
P.O. BOX 6566
WOODLAND PARK, CO 80833

ENGINEER

JR ENGINEERING, LLC
5475 TECH CENTER DRIVE
COLORADO SPRINGS, CO 80919
719-593-2593

DEVELOPER:

WILLIAM F. BROWN, JR.
WOODLAND PARK, CO 80833

SURVEYOR:

ROCKY MOUNTAIN LAND SERVICES
4465 NORTHPARK DRIVE SUITE 303
COLORADO SPRINGS, CO 80907
719-630-0559

LOT 2, PARADISE
ESTATES FILING NO. 4
KEITH MEYERLOT 3, PARADISE
ESTATES FILING NO. 4
MICHAEL F. BUCHERLOT 4, PARADISE
ESTATES FILING NO. 4
ROBERT F. MULLLOT 7, PARADISE
ESTATES FILING NO. 4
CHARLES L. WILLIAMSLOT 8, PARADISE
ESTATES FILING NO. 4
MICHAEL J. WIESBROOKLOT 2, PARADISE
ESTATES FILING NO. 5
NORMAN R. BROWNLOT 4, PARADISE
ESTATES FILING NO. 5
DONNA L. COTLOT 5, PARADISE
ESTATES FILING NO. 5
LAURA E. WYLLIE

APPROVAL BY THE CITY OF WOODLAND PARK PLANNING DEPARTMENT:

APPROVED BY THE PLANNING DEPARTMENT FOR THE CITY OF WOODLAND PARK, COLORADO THIS 5th DAY OF January 2021

ATTEST:

01-05-2021

CITY COMMENTS

- TRACT A IS RESERVED FOR STORMWATER DETENTION AND WILL BE OWNED AND MAINTAINED BY THE CITY OF WOODLAND PARK.
- TRACT B IS RESERVED FOR PRIVATE OPEN SPACE AND WILL BE OWNED AND MAINTAINED BY THE HOMEOWNERS' ASSOCIATION, UNLESS THE DEVELOPER DECIDES TO DEDICATE THE OPEN SPACE TO THE CITY AT THE TIME OF FINAL PLAT REVIEW AND APPROVAL.
- THE TOTAL AREA OF THE PUBLIC RIGHT OF WAY IS 72,214 SQUARE FEET OR 1.657 ACRES.
- A VARIANCE IS APPROVED TO ALLOW FOR A 40' R.O.W. WITH A 30' FRONT YARD SETBACK VERSUS A 50' R.O.W.
- THE ENTIRE WATER SYSTEM IS TO BE INSTALLED WITH THE FIRST FILING.

resolved
1/14/2021

SHEET 1 of 7

ROCKY MOUNTAIN LAND SERVICES

4465 NORTHPARK DRIVE SUITE 303
COLORADO SPRINGS, COLORADO 80907
719-630-0559

SHEET INDEX

SHEET 1	PRELIMINARY PLAT
SHEET 2	PRELIMINARY GRADING PLAN
SHEET 3	PRELIMINARY UTILITY PLAN
SHEET 4	SLOPE ANALYSIS
SHEET 5	SNOW STORAGE EXHIBIT (LOTS 3-7)
SHEET 6	SNOW STORAGE EXHIBIT (LOTS 13-17)
SHEET 7	DRIVEWAY EXHIBIT (LOTS 13-17)

L=57.63'
R=200.00
C.A.=16°30'38"
ChB=S48°44'41"W

L=32.37'
R=100.00
C.A.=9°16'20"
ChB=S61°38'10"W

L=219.23'
R=100.00
C.A.=93°56'53"
ChB=S12°21'46"E

L=163.97'
R=100.00
C.A.=9°16'20"
ChB=S12°21'46"E

L=55.59'
R=100.00
C.A.=31°51'05"
ChB=S17°04'27"E

A TRACT OF LAND LOCATED IN SECTION 19 AND SECTION 30, TOWNSHIP 12, SOUTH, RANGE 68 WEST OF THE 6th P.M., IN THE CITY OF WOODLAND PARK, TELLER COUNTY, COLORADO, SAID TRACT BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

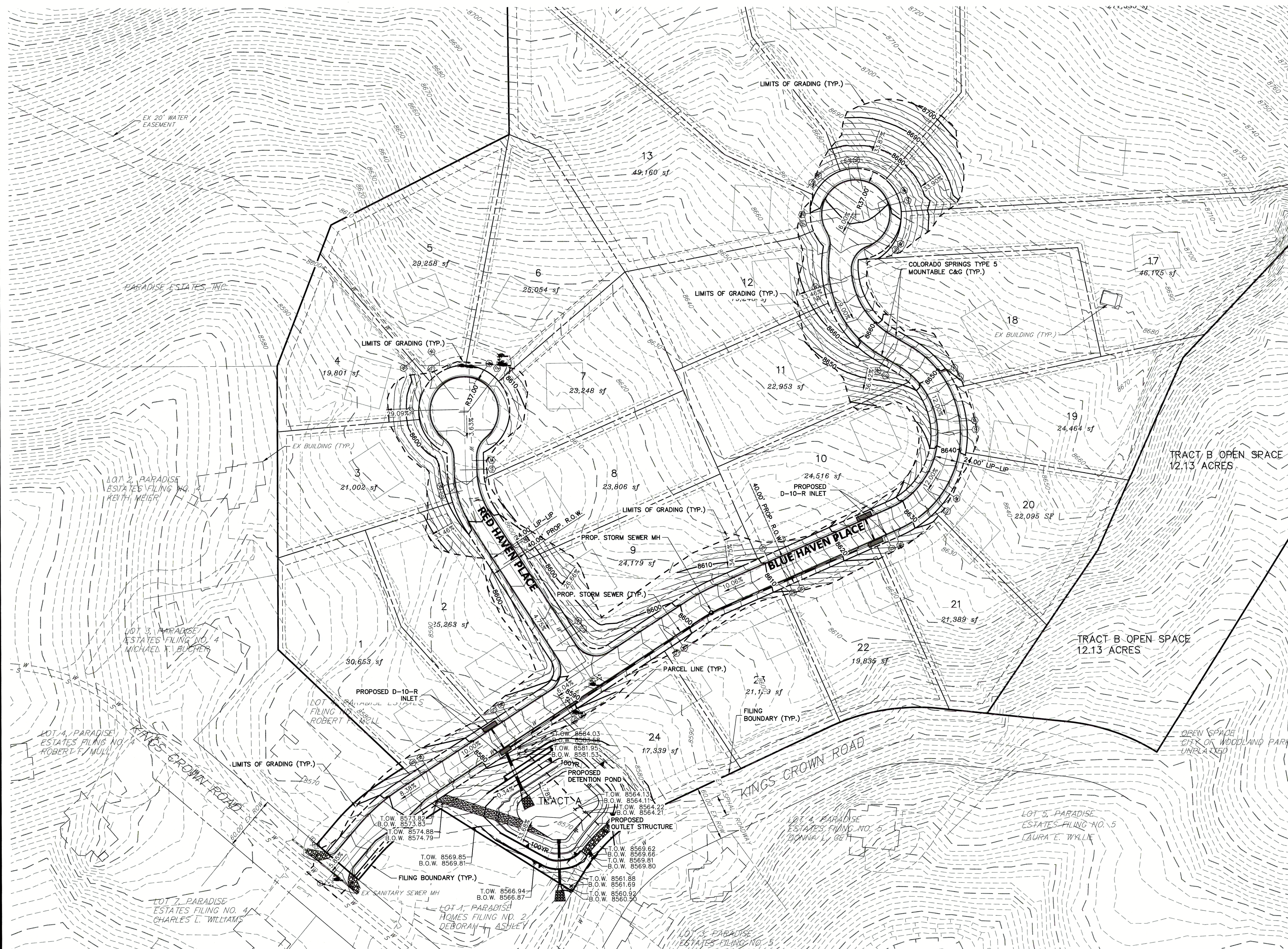
COMMENCING AT AN ANGLE POINT ON THE NORTHWESTERLY BOUNDARY OF PARADISE ESTATES FILING NO. 1 AS RECORDED IN PLAT BOOK H AT PAGE 43-44 OF SAID COUNTY RECORDS; THENCE ALONG THE BOUNDARY OF SAID SUBDIVISION, THE FOLLOWING THREE COURSES: (1) THENCE N 84° 59' 13" E, A DISTANCE OF 207.97 FEET; (2) THENCE N 77° 02' 25" E, A DISTANCE OF 349.95 FEET; (3) THENCE S 90° 00' 00" E, A DISTANCE OF 87.58 FEET TO A POINT ON THE BOUNDARY OF PARADISE ESTATES FILING NO. 3 AS RECORDED UNDER RECEPTION NUMBER 305148 OF SAID COUNTY RECORDS; THENCE ALONG THE BOUNDARY OF SAID SUBDIVISION, THE FOLLOWING THREE COURSES: (1) THENCE S 81° 34' 04" E, A DISTANCE OF 151.25 FEET; (2) THENCE S 88° 20' 39" E, A DISTANCE OF 233.85 FEET; (3) THENCE S 75° 00' 00" E, A DISTANCE OF 350.00 FEET TO A POINT ON THE BOUNDARY OF THAT TRACT OF LAND AS DESCRIBED IN INSTRUMENT RECORDED IN BOOK 352 AT PAGE 333 OF SAID COUNTY RECORDS; THENCE N 90° 00' 00" E ALONG THE BOUNDARY OF SAID TRACT, A DISTANCE OF 190.00 FEET TO A POINT ON THE BOUNDARY OF PARADISE ESTATES FILING NO. 4 AS RECORDED UNDER RECEPTION NUMBER 311899 OF SAID COUNTY RECORDS AND ALSO BEING THE POINT OF BEGINNING OF THE TRACT HEREIN DESCRIBED; THENCE ALONG THE BOUNDARY OF SAID SUBDIVISION, THE FOLLOWING FOUR COURSES: (1) THENCE S 00° 00' 00" W, A DISTANCE OF 310.00 FEET; (2) THENCE S 46° 28' 02" E, A DISTANCE OF 188.61 FEET; (3) THENCE S 57° 00' 00" W, A DISTANCE OF 30.00 FEET; (4) THENCE SOUTHWESTERLY ALONG THE ARC OF A 230.00 FOOT RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 168° 30' 38", (THE LONG CHORD OF WHICH BEARS S 48° 44' 41" W, A LONG CHORD DISTANCE OF 66.06 FEET), AN ARC LENGTH OF 66.28 FEET; (5) THENCE S 40° 28' 22" W, A DISTANCE OF 30.98 FEET TO A POINT ON THE BOUNDARY OF LOT 1, PARADISE HOMES FILING NO. 2 AS RECORDED UNDER RECEPTION NUMBER 419013 OF SAID COUNTY RECORDS; THENCE ALONG THE BOUNDARY OF SAID LOT, THE FOLLOWING FOUR COURSES: (1) THENCE N 40° 29' 22" E, A DISTANCE OF 30.98 FEET; (2) THENCE NORTHEASTERLY ALONG THE ARC OF A 170.00 FOOT RADIUS CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 168° 30' 38", (THE LONG CHORD OF WHICH BEARS N 48° 44' 41" E, A LONG CHORD DISTANCE OF 106.81 FEET), AN ARC LENGTH OF 106.81 FEET; (3) THENCE N 65° 00' 00" E, A DISTANCE OF 212.59 FEET; (4) THENCE EASTERLY ALONG THE ARC OF A 230.00 FOOT RADIUS CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 31° 00' 00", (THE LONG CHORD OF WHICH BEARS N 80° 30' 00" E, A LONG CHORD DISTANCE OF 122.93 FEET), AN ARC LENGTH OF 124.44 FEET; (5) THENCE S 84° 00' 00" E, A DISTANCE OF 142.16 FEET; (6) THENCE SOUTHEASTERLY ALONG THE ARC OF A 230.00 FOOT RADIUS CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 26° 00' 00", (THE LONG CHORD OF WHICH BEARS S 71° 00' 00" E, A LONG CHORD DISTANCE OF 103.48 FEET), AN ARC LENGTH OF 103.48 FEET; THENCE N 32° 00' 00" E, A DISTANCE OF 300.00 FEET; THENCE S 90° 00' 00" E, A DISTANCE OF 609.57 FEET TO A POINT ON THE EAST LINE OF SAID SECTION 19; THENCE N 88° 16' 56" W ALONG SAID EAST LINE, A DISTANCE OF 889.40 FEET TO THE NORTHEAST CORNER OF THE SOUTH ONE-HALF OF THE SOUTHEAST ONE-QUARTER (S1/2 SE1/4) OF SAID SECTION 19; THENCE S 89° 14' 48" W ALONG THE NORTH LINE OF SAID S1/2 SE1/4, A DISTANCE OF 1,155.79 FEET; THENCE S 48° 16' 53" W, A DISTANCE OF 267.52 FEET; THENCE S 00° 39' 27" E, A DISTANCE OF 243.82 FEET; THENCE S 63° 17' 22" W, A DISTANCE OF 219.38 FEET; THENCE S 21° 08' 20" W, A DISTANCE OF 132.05 FEET TO THE POINT OF BEGINNING.

SAID TRACT CONTAINS 35.78 ACRES, MORE OR LESS.

THE HAVEN AT PARADISE

PRELIMINARY GRADING PLAN

SUB 19-001 (#19010018)

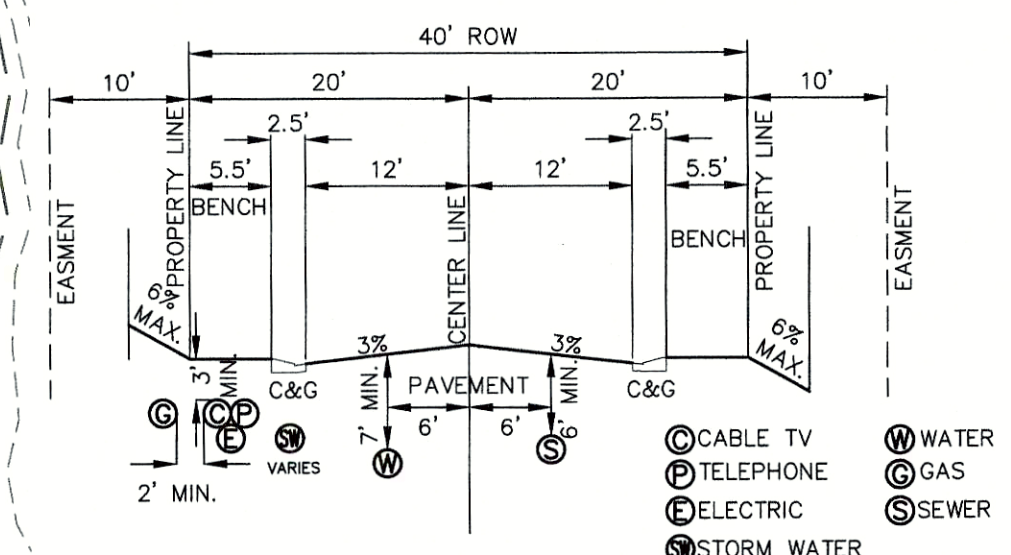


LEGEND

CONCRETE CURB & GUTTER	EXISTING CONTOUR
PROPOSED CONTOUR	PROPOSED SETBACK
EXISTING EASEMENT	EXISTING RIGHT OF WAY
PROPOSED RIGHT OF WAY	EXISTING PROPERTY LINE
PROPOSED PROPERTY LINE	TOP OF WALL / BOTTOM OF WALL
TOW / BOW	PROPOSED SPOT ELEVATION
60XX.XX	

2000 SF BUILDING PAD

N.T.S.



40' ROW STREET SECTION

N.T.S.

25131.01
THE HAVEN AT PARADISE
PRELIMINARY GRADING PLAN
12/11/2020
SHEET 2 OF 7

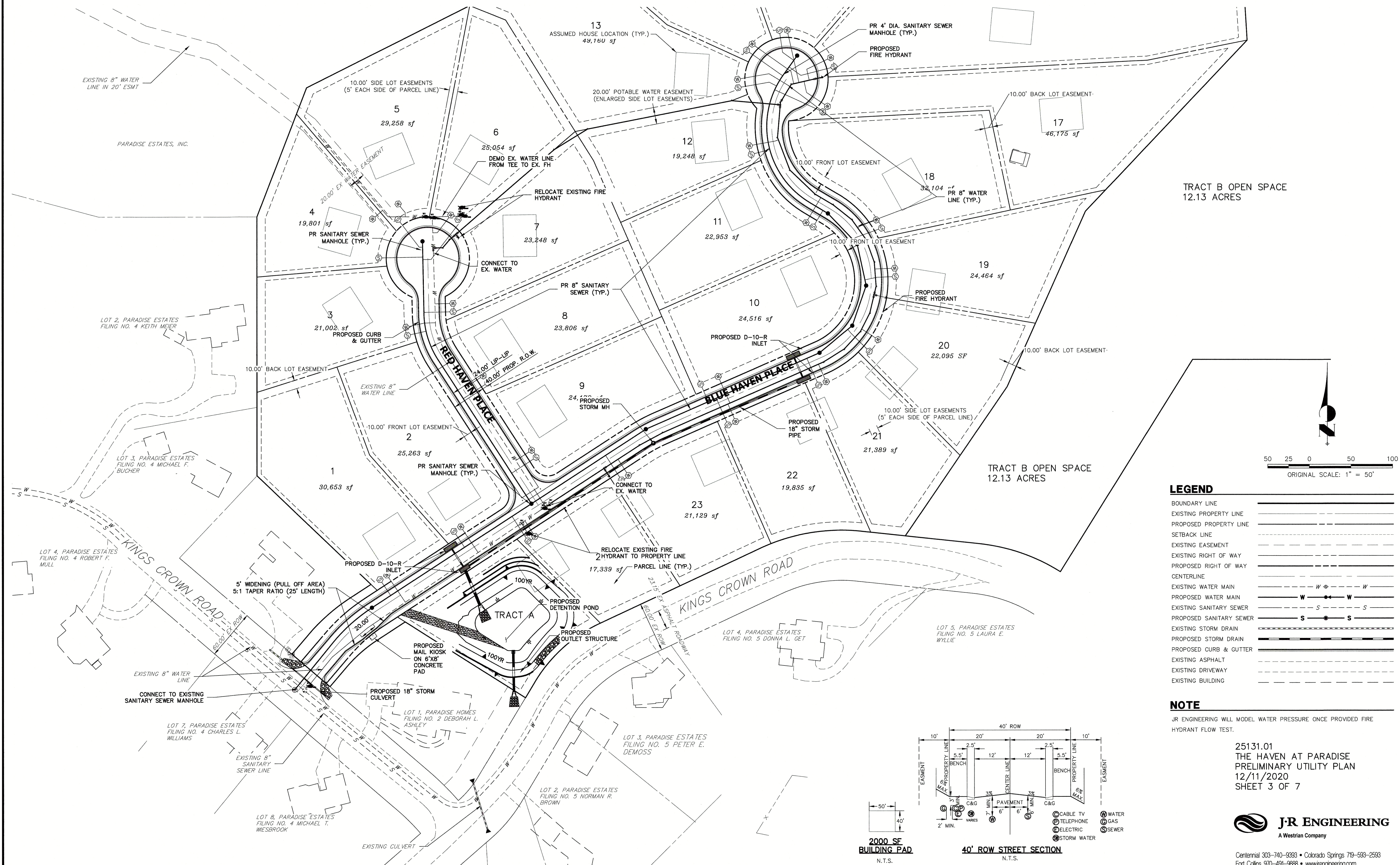
J-R ENGINEERING
A Westrian Company

Centennial 303-740-9393 • Colorado Springs 719-593-2593
Fort Collins 970-491-9888 • www.jrengineering.com

THE HAVEN AT PARADISE

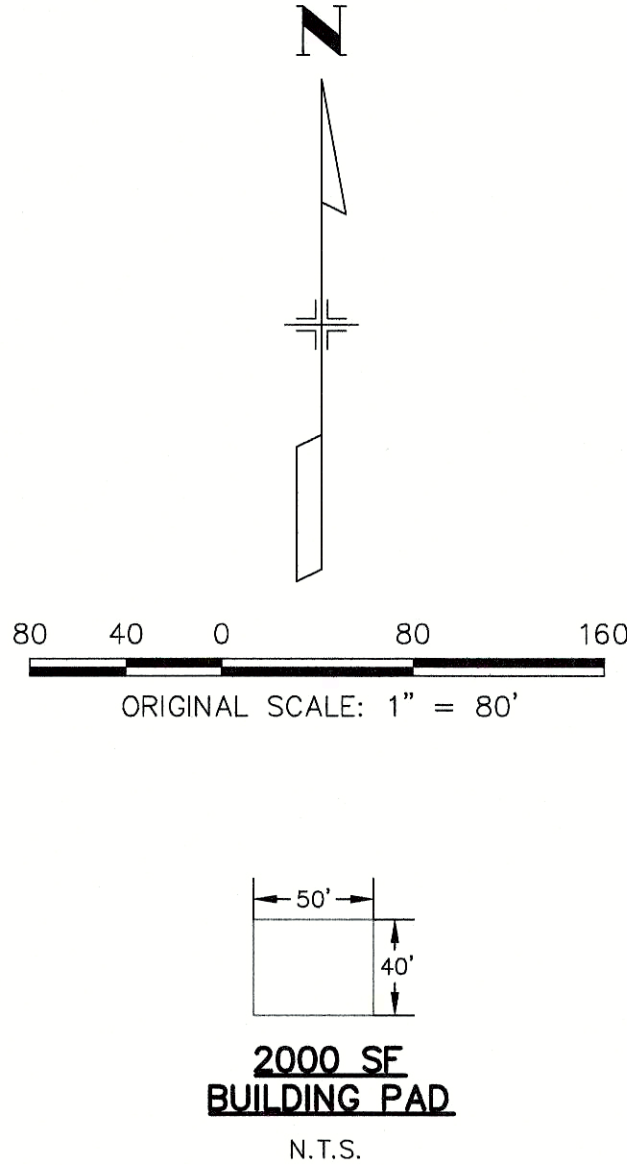
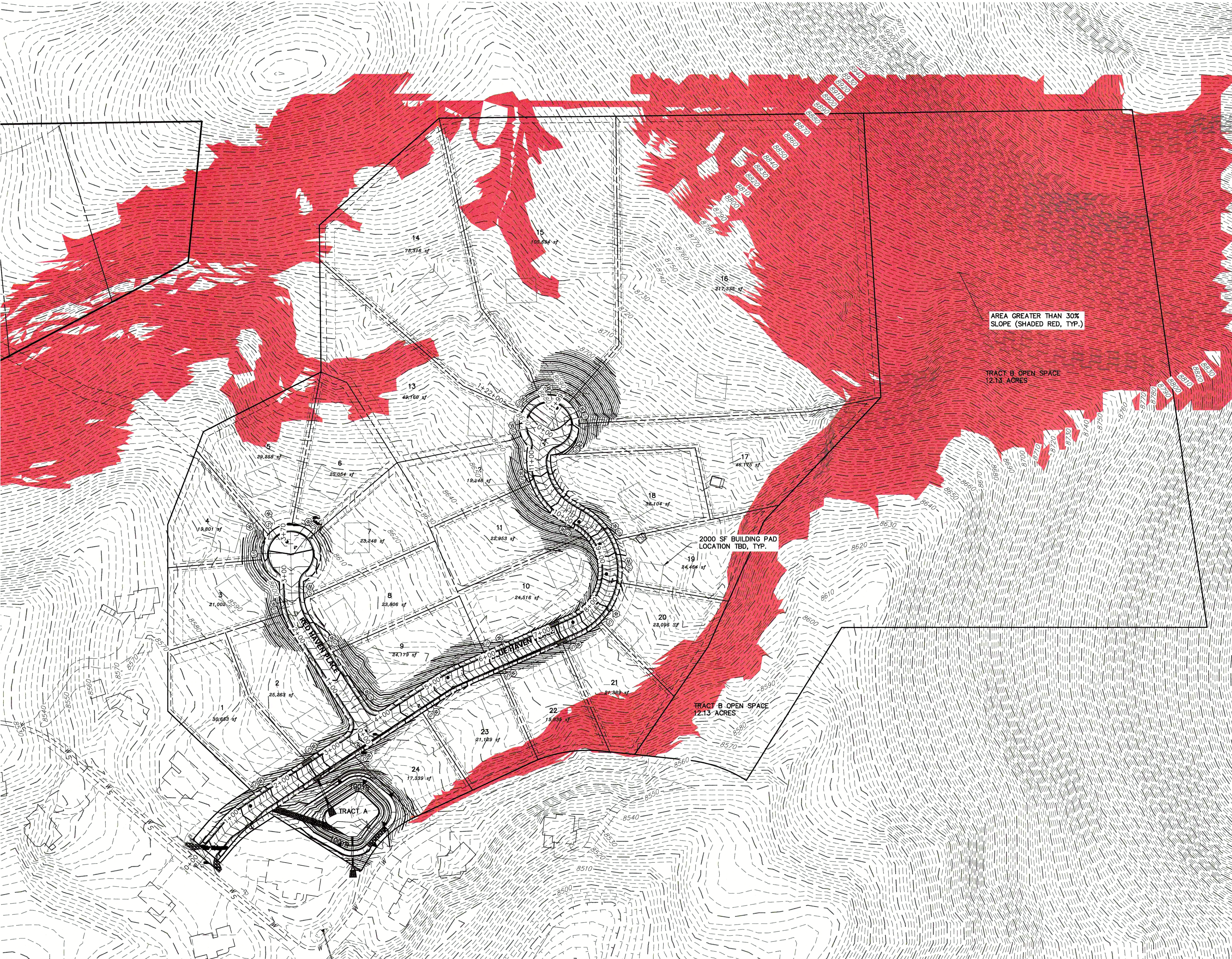
PRELIMINARY UTILITY PLAN

SUB 19-001 (#19010018)



THE HAVEN AT PARADISE
SLOPE EXHIBIT

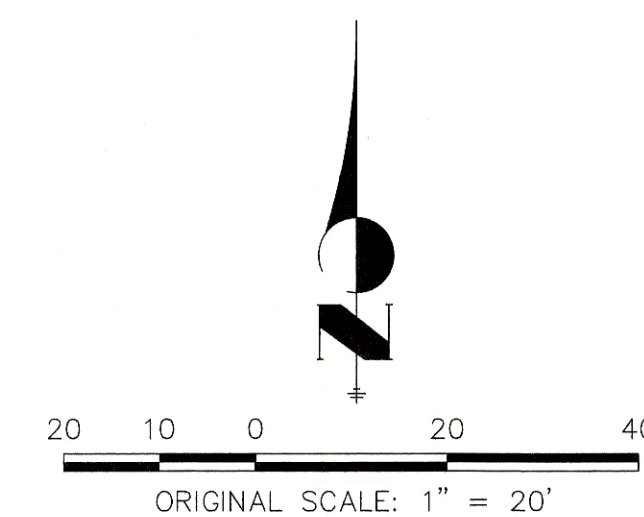
SUB 19-001 (# 19010018)



Know what's below.
Call before you dig.

THE HAVEN AT PARADISE		H-SCALE 1"=80'		No.		REVISION		BY		DATE		PREPARED FOR		UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE APPROPRIATE REVIEWING OFFICIALS, ENGINEERING APPROVES THEIR USE FOR THE PURPOSES DESIGNATED BY WRITTEN AUTHORIZATION.	
SLOPE EXHIBIT		V-SCALE N/A		DATE 12/11/20								WILL BROWN		1012 S COPPER KEY COURT GILBERT, AZ 85233 (480) 265-7129	
		DESIGNED BY MAB													
		DRAWN BY TAW													

SUB 19-001 (# 19010018)

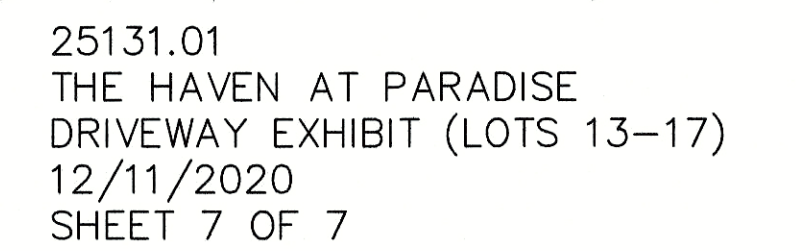


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SUB 19-001 (# 19010018)



SUB 19-001 (#19010018)





March 12, 2021

Ms. Andria Rodriguez
1012 South Copper Key Court
Gilbert, Arizona 85233
SENT VIA EMAIL

SUBJECT: The Haven at Paradise Preliminary Plat - Extension to April 4, 2022

Dear Ms. Rodriguez:

As you know, *The Haven at Paradise Preliminary Plat* was approved on April 4, 2019 (including approval of a variance from §17.40.140 to reduce the minimum ROW width from 50' to 40' with 30' front setbacks). On March 12, 2021, the Planning Commission approved a one-year extension of this preliminary plat (including the variance) to April 4, 2022. Please know that all conditions below and as imposed with the original preliminary plat remain valid and in effect for the extension as well:

1. Fees in lieu of park land in the amount of the adjusted annual park capital fee shall be paid prior to recording the Final Plat with the stipulation that these park fees are used to develop Chimney Park or other recreational amenities in Paradise Estates or Thunderbird Subdivisions. Please know that the fee increases every year and will be adjusted and the amount finalized when the zoning permits are issued.
2. A wildfire mitigation plan shall be submitted to the City and NETCFPD for review and implementation by the developer prior to Final Plat approval.
3. Complete the water line loop from Red Haven to Blue Haven cul-de-sac during the first phase.

Lastly, because Councilors expressed concern about the capability of a Home Owners Association to manage and maintain the public space, the developer was encouraged to consider dedicating the 12.13 acre open space tract to the City.

We look forward to the revised submittal of your construction drawings before issuance of a City Grading Permit, State Erosion and Sediment Control permit and infrastructure Zoning Development Permit (ZDP).

Sincerely,

Lor Pellegrino, AICP
City Planner



City of Woodland Park Staff Report for Planning Commission

Meeting Date: May 12, 2022		
Agenda Item	Department	Presenter
4.C	Planning	Chelsea Stromberg Senior Planner

ITEM

#CUP/SPR2022-02 The Grove at Spruce Haven CUP: Consider a request by Joe Kent of 920 Spruce Haven LLC (Applicant and Owner) for a Conditional Use Permit (CUP) for construction of six (6) 2-unit attached single family dwellings on 2.18 acres in a portion of the W1/2 of the NW1/4 of Section 24, Township 12 South, Range 69 West of the 6th Principal Meridian, also known as part of the Kowitz Tracts, with an address of 920 Spruce Haven Drive in the Multi-Family Residential Suburban (MFS) zone. (QJ)

BACKGROUND

This site is a 2.18-acre parcel of land on the north side of Spruce Haven Drive in central Woodland Park.

The property was annexed into the City of Woodland Park in 1969 and zoned Residential (R-1) in 1969, then Agricultural (A-1) in 1979. The zoning designation of Community Commercial was adopted in 1996. The property was rezoned to Multifamily Suburban Zone District in 2021 in preparation for the current applications. Multifamily residential is a conditional use in the MFS zone district according to Sec. 18.09.090 Table of Permitted Uses. While the current CUP application covers

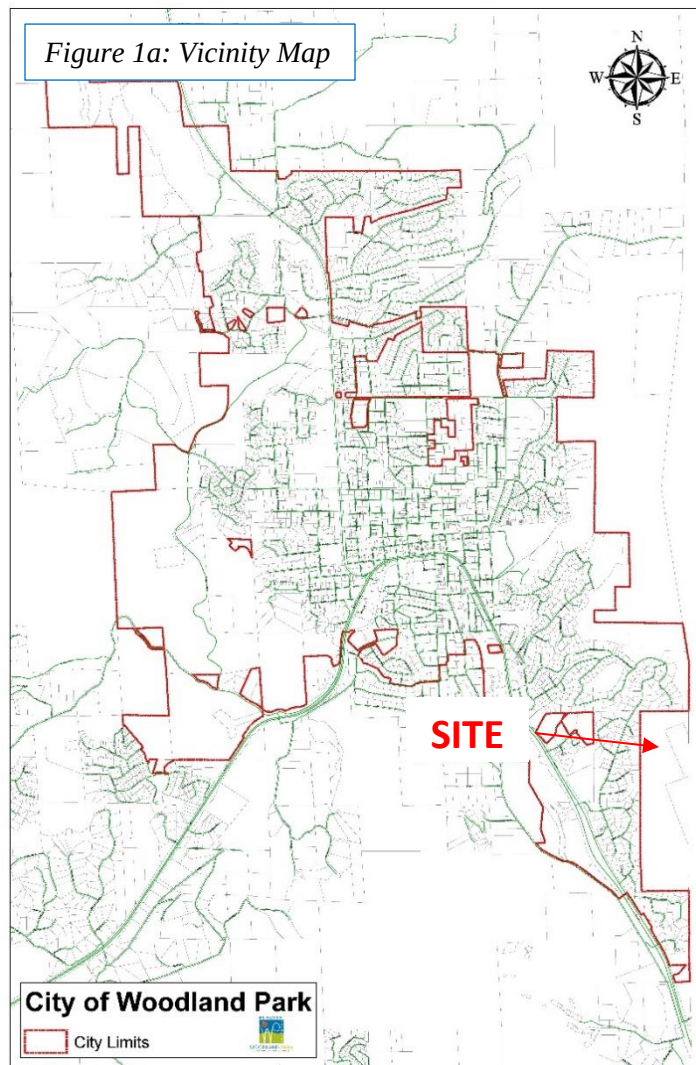


Figure 1b: Vicinity Map

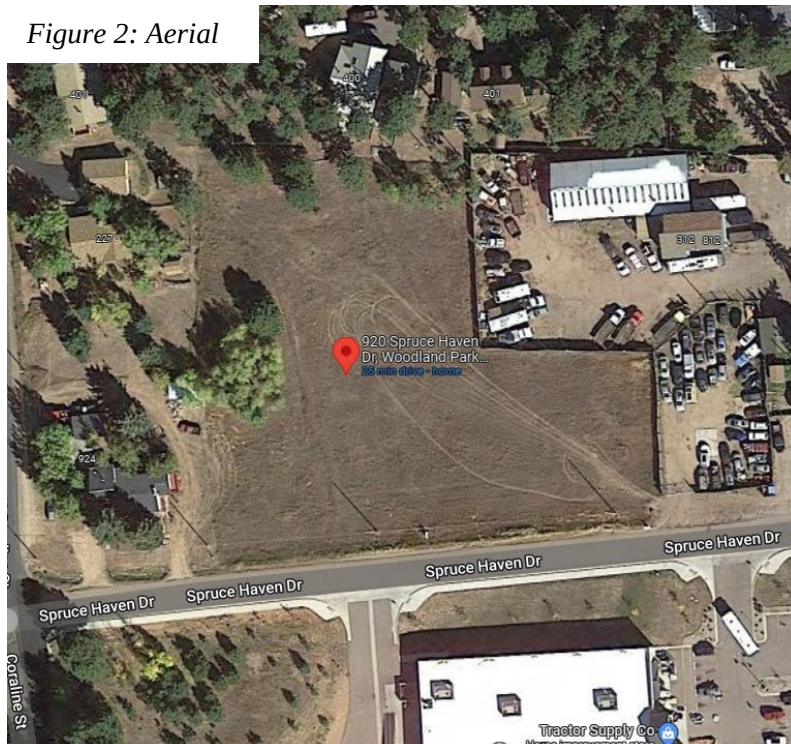


the entire parcel, the eastern portion, to be platted as Lot 13 (approximately .36 acres), is not currently proposed to be developed.

Aerial photographs taken in 2022 show the existing conditions of the property which is undeveloped. The subject property is unplatted and a plat will be required prior to the approval of a building permit.

In April 2022, the Applicant submitted a CUP Application for Multifamily Residential to facilitate development of six duplexes. The information submitted by the applicant with this application includes a variety of site drawings and illustrations.

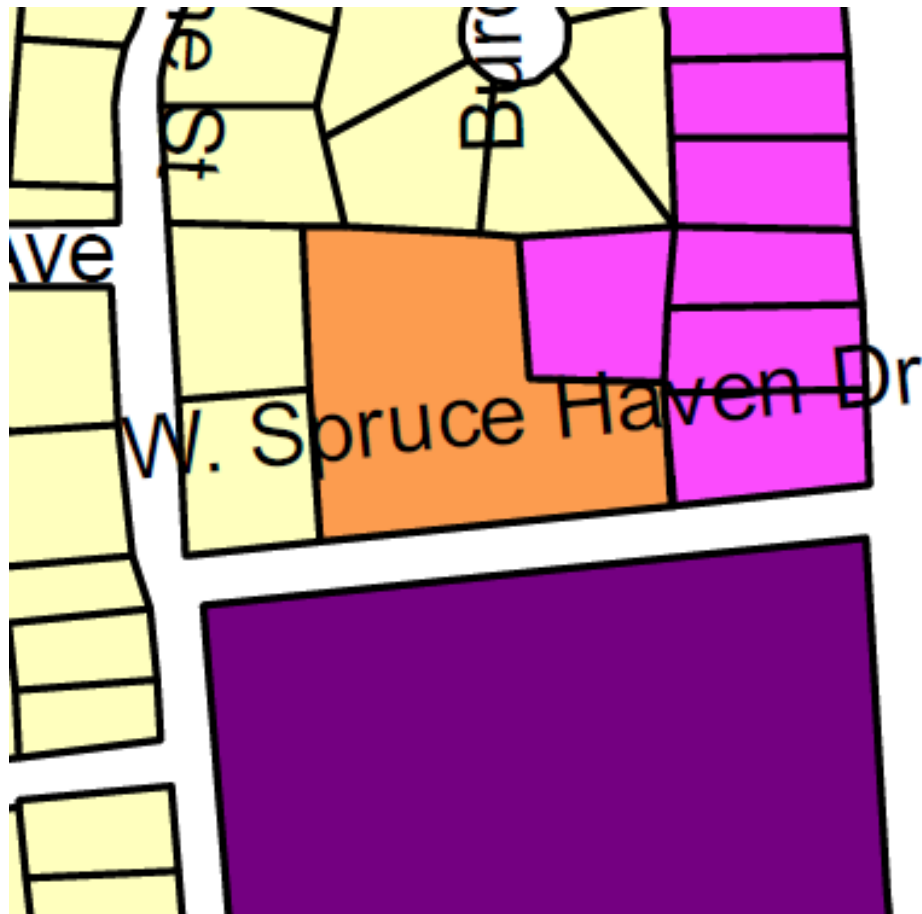
Figure 2: Aerial



SITE AND SURROUNDING PROPERTIES

The property is located directly north of Spruce Haven Drive in the central-west part of Woodland Park between Highway 67 and North Coraline Street. Adjacent to the site are single family residential to the north and west, a tow yard and outdoor storage to the east and commercial retail (Tractor Supply) to the south.

There are existing mature aspen trees and a moderate sloping terrain on the property's western perimeter. The proposed site plan shows removal of the trees.



Residential

- Suburban Residential (SR)
- Urban Residential (UR)
- Multi-Family Residential Suburban (MFS)
- Multi-Family Residential Urban (MFU)
- Mobile Home Park (MHP)

Commercial

- Central Business District (CBD)
- Neighborhood Commercial (NC)
- Community Commercial (CC)
- Service Commercial (SC)
- Heavy Service Commercial
Light Industrial (HSC/LI)

<u>DIRECTION</u>	<u>USE</u>	<u>ZONE</u>
<u>NORTH</u>	<u>Single family residential</u>	<u>Suburban Residential</u>
<u>EAST</u>	<u>Tow yard/ outdoor storage</u>	<u>Community Commercial</u>
<u>SOUTH</u>	<u>Commercial retail</u>	<u>Service Commercial</u>
<u>WEST</u>	<u>Single family residential</u>	<u>Suburban Residential</u>

AREA AND SITE PHOTOS

Figure 3a: existing site looking northeast



Figure 3b: existing site looking north



Figure 3c: Existing Site
looking northwest



Figure 4a: proposed site plan

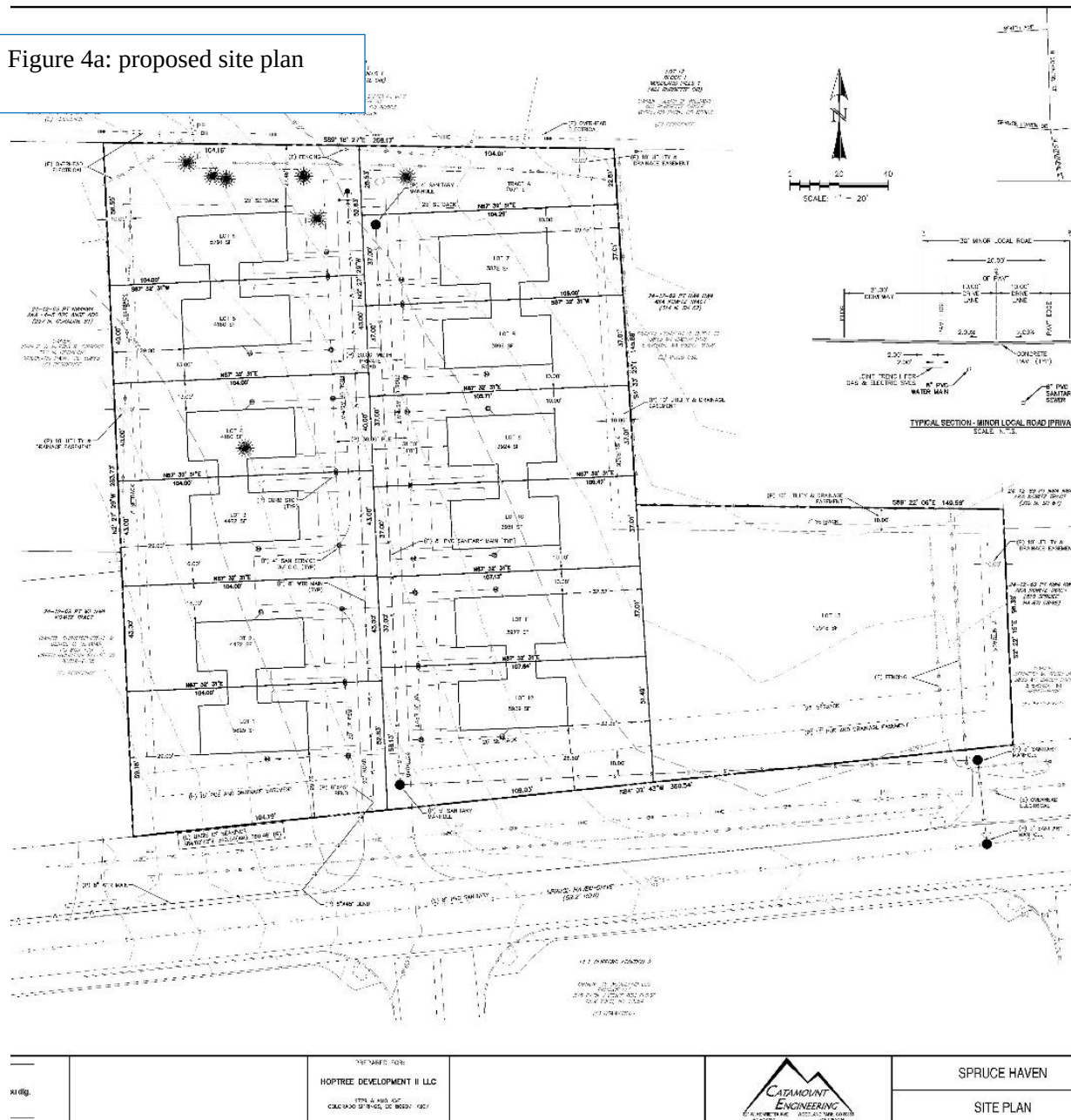
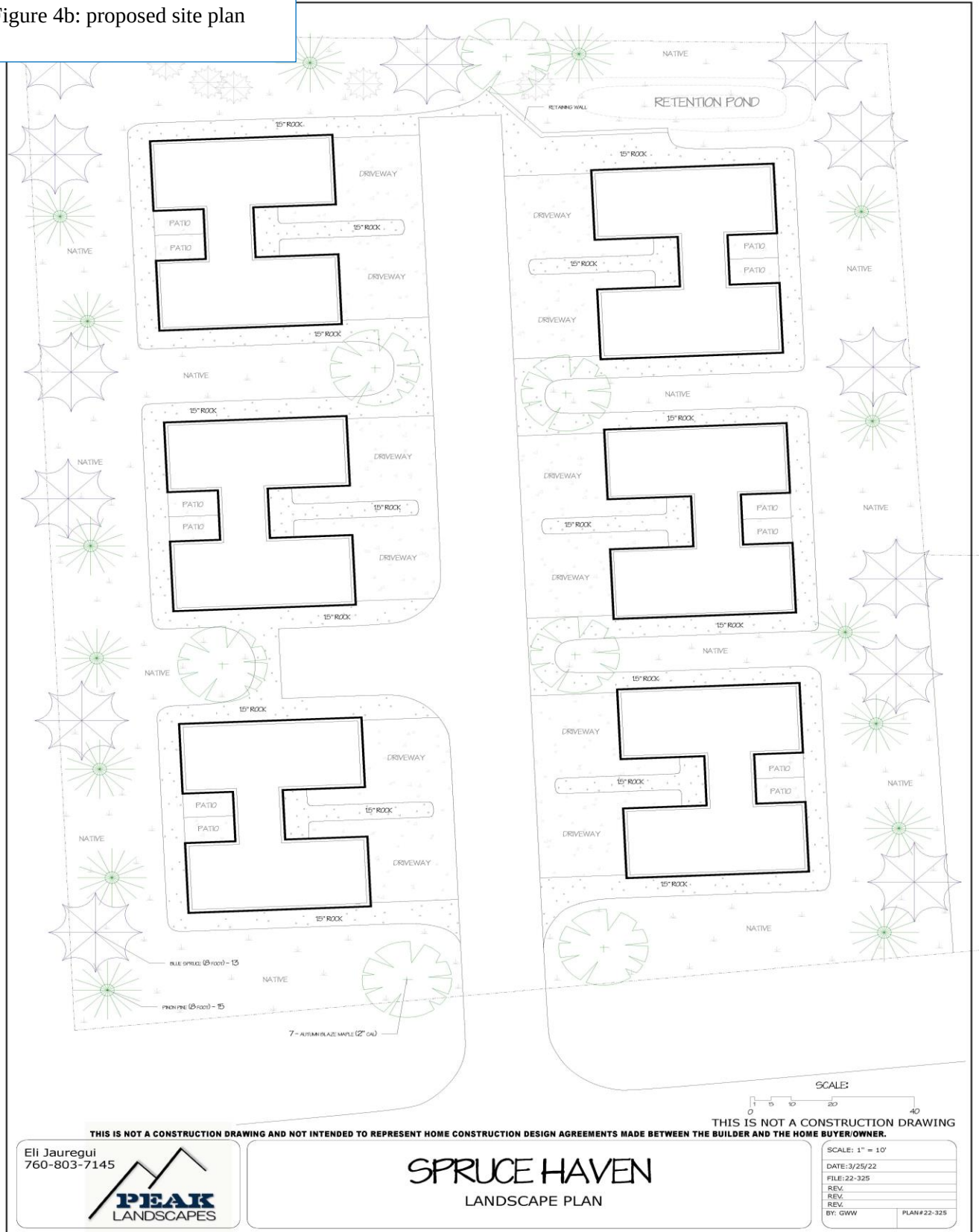


Figure 4b: proposed site plan



PROPOSED ELEVATIONS

Figure 5a: proposed front elevation

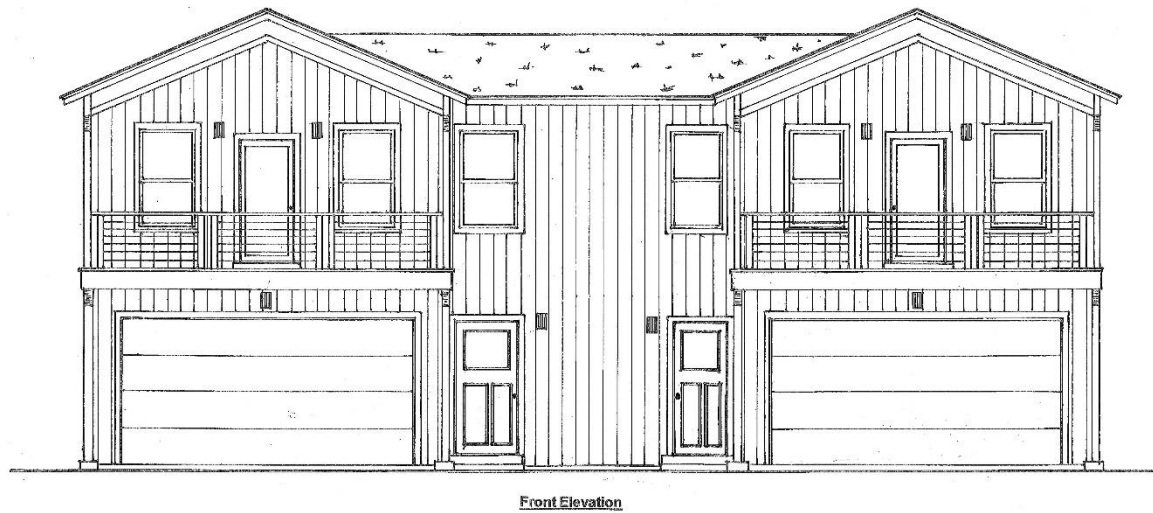


Figure 5a: proposed rear elevation

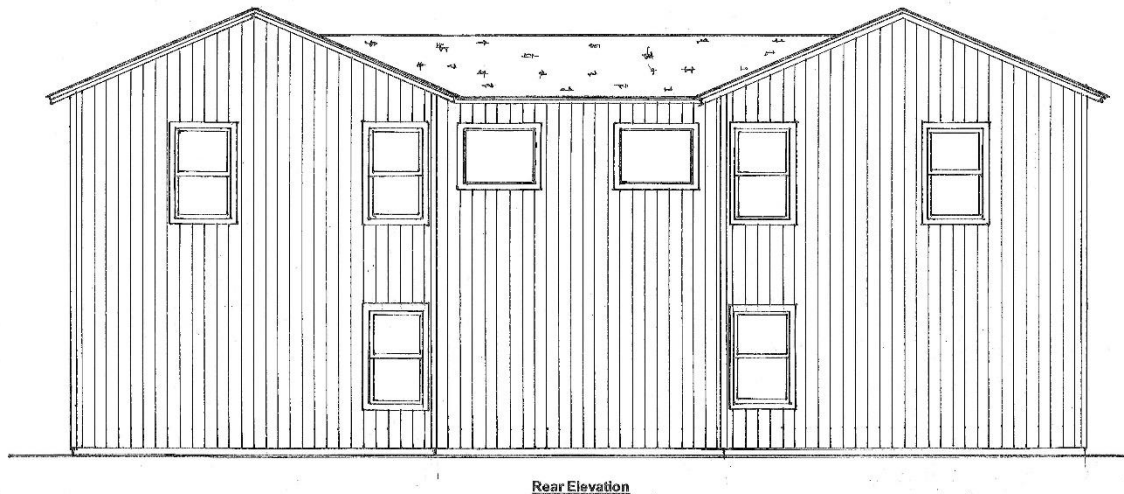


Figure 5a: proposed side elevation

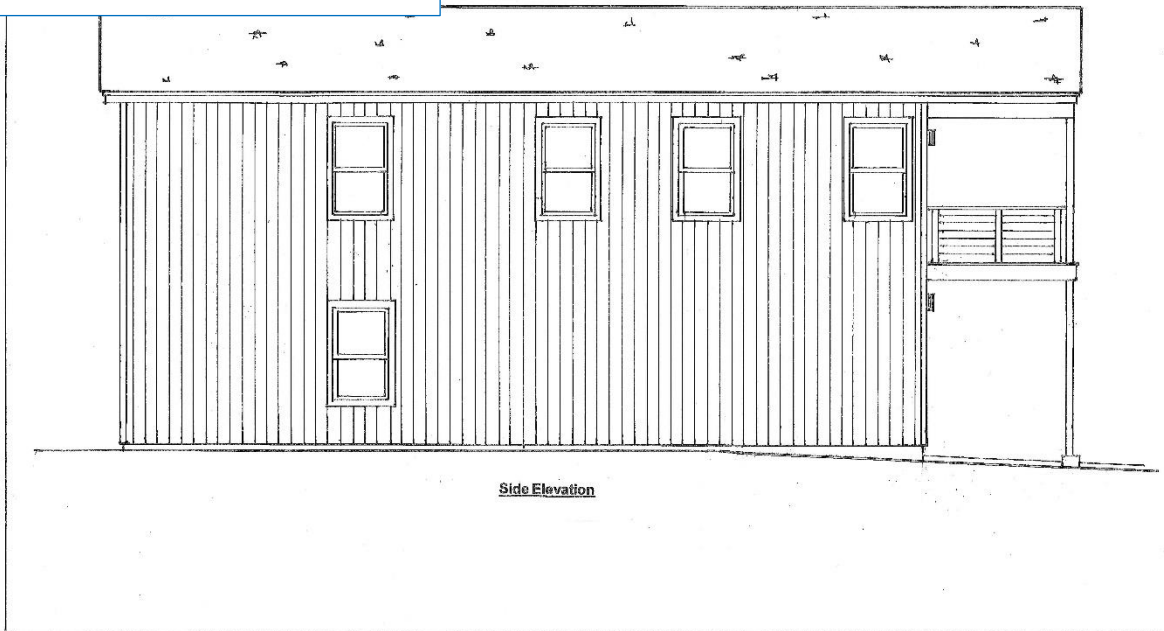
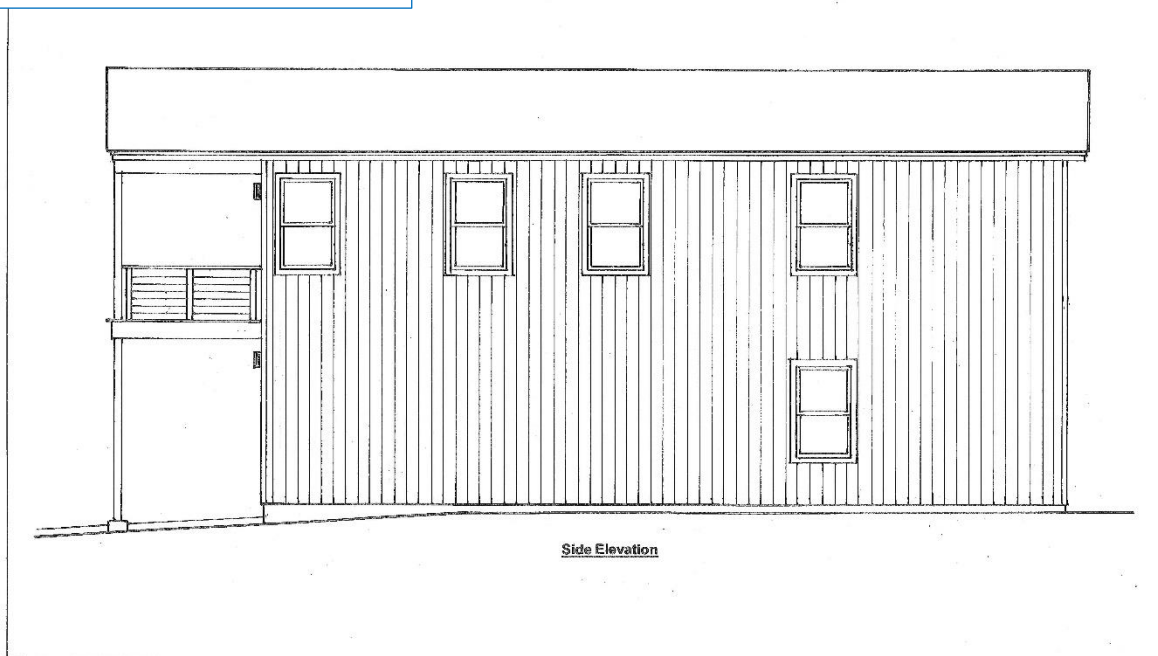


Figure 5a: proposed side elevation



ANALYSIS OF CONDITIONAL USE PERMIT AND FINDINGS

Municipal code section §18.57 *Conditional Use Permit* regulates the review of conditional use permit requests. §18.57.040.A states: “The standards for conditional use permits are intended only as a minimum necessary for review. An application for a conditional use permit, even though meeting the minimal standards of this chapter and code, may be denied, if it is determined that the development and use is not in the best interest of the city.” § 18.57.040.B specifies the standards by which all conditional uses must comply in order to receive approval. The proposed use was analyzed within the MFS zone district for all of the conditional uses in §18.09.090.G *Contractors and Construction Services*.

Below is a listing of the applicable CUP standards complete with staff’s analysis.

1. *The proposed development and use shall have a demonstrated direct need to be located at the location proposed and provide adequate mitigation measures to lessen all identified impacts.*
Complies. The request to rezone the property was approved with the intent of facilitating this proposed development. There are no identified negative impacts that require mitigation.
2. *The proposed development and use shall not endanger the public health and welfare.*
Complies. The proposed development would not endanger the public health and welfare.
3. *The proposed development and use shall not substantially injure the value of vicinity properties.*
Complies. The proposed development would not substantially affect adjacent property values.
4. *The proposed development and use shall be in harmony with the area in which it is to be located.*
Complies. The proposed development will create an appropriate transition between the lower density residential to the north and west, and the commercial and industrial uses to the south and east.
5. *The proposed development and use shall conform to the provisions, objectives and policies of all city plans, adopted and in effect at the time of application, including but not limited to growth management, transportation, utilities, capital improvements and downtown redevelopment.*
Complies. The development is consistent with the following principles and goals as specified in the City’s 2021 Comprehensive Plan.

Community Character and Design Goal 1.1.1.24: Promote designs that incorporate a variety of housing types and a mix of land uses.

Housing Objective 1.1: Promote stable, safe, diverse neighborhoods throughout Woodland Park that provide a wide range of housing options and link residents to destinations to learn, work, shop, recreate and relax.

Sustainable Environment Action 1.1.7: Encourage the redevelopment of underutilized sites to relieve pressure on undeveloped land and to promote increased density and mixed-use development.

6. *The proposed development and use shall conform to the provisions, standards and requirements of all city regulations, adopted and in effect at the time of application, including but not limited to zoning, subdivision, utilities, buildings and construction, business regulations and engineering specifications.*
Complies. The proposed use complies with the above and has been reviewed by relevant departments and agencies to ensure compliance with applicable regulations.
7. *The proposed development and use shall be designed, constructed and maintained to accommodate the on-site and off-site traffic generated.*
Complies. The site will be accessed via Spruce Haven Drive by one central private road with driveways extending from each side of the private road. The applicant estimates that the development will produce approximately 109 vehicle trips per day. The parking calculation for residential development

requires 35 parking spaces, the proposed development includes 56 parking spaces, including 28 garage spaces.

8. *The proposed development and use shall be designed, constructed and maintained with appropriate regard to topography, surface drainage, soil potentials, natural and man-made hazards, streams and environmentally significant features.*

Partially Complies. The proposed development will not substantially change the site's topography. There is a ten foot drainage and utility easement running along the perimeter of the site, however, no on-site detention is currently proposed. Stormwater design approval is suggested as a condition of approval of this application.

9. *The proposed development and use shall be designed, constructed and maintained with adequate water supply, wastewater disposal, solid waste disposal, air quality protection methods and surface water drainage.*

Complies. Utilities are available for this site and City has water available to support this development. In addition the proposed development of this property would also require the water main in Spruce Haven to be extended 275 feet to Coraline Street. Finally, the developers would need to seek City Council approval for multifamily water tap allocations.

10. *The proposed development and use shall be designed, constructed and maintained to not unduly increase the public danger of fire, explosion and other safety hazards upon the public, and persons residing or working on the site and vicinity.*

Complies. The proposed use will not create any significant safety hazards to the general public or to persons working on the site. The occupancy will be required to comply with International Fire Code standards.

11. *The development and use may be required to provide architectural design schemes and may also require amenities such as, but not limited to, fencing, landscaping, buffer areas and other aesthetic enhancement measures, as required by the city council. (Ord. 589-1993 § 6(part), 1993)*

Partially Complies. The applicant has provided architectural design schemes as a part of the site plan review. The proposed development currently complies with several of the architectural design criteria, however, the application materials do not address all criteria, in particular the color scheme. The proposed development will be required to comply with all design criteria. The site plan and application also indicate that the development will provide screening from the adjacent tow yard and outdoor storage operation.

SITE PLAN REVIEW CRITERIA AND FINDINGS

Municipal code section §18.34 *Site Plan* regulates the review of site plan reviews. §18.34.010 states: "In order to ensure a quality development in the city, it is essential that new development meet minimum standards for the design, construction and the use of such developments to complement existing uses, to insure adequate utility and service systems, and to promote the health, safety and welfare of the city's citizens. (Ord. No. 966-2003, § 2, 4-3-2003)." § 18.34.070 specifies the standards by which all conditional uses must comply in order to receive approval. The proposed site plan was analyzed within the MFS zone district.

A. *The proposed development shall conform to the provisions, objectives, and policies of all city plans, adopted and in effect at the time of application, including but not limited to: growth management, transportation, utilities, capital improvements, and downtown redevelopment.*

Complies. The development is consistent with the following principles and goals as specified in the City's 2021 Comprehensive Plan.

Community Character and Design Goal 1.1.1.24: Promote designs that incorporate a variety of housing types and a mix of land uses.

Housing Objective 1.1: Promote stable, safe, diverse neighborhoods throughout Woodland Park that provide a wide range of housing options and link residents to destinations to learn, work, shop, recreate and relax.

Sustainable Environment Action 1.1.7: Encourage the redevelopment of underutilized sites to relieve pressure on undeveloped land and to promote increased density and mixed-use development.

***B.** The proposed development shall conform to the provisions, standards and requirements of all city regulations, adopted and in effect at the time of application, including but not limited to: zoning, subdivision, mobile homes, utilities, buildings and construction, business regulations, and engineering specifications.*

Complies. All applicable Zoning and Building Codes, Engineering Specifications and Drainage Criteria are reviewed when the final construction drawings will be required. Zoning Development Permits (ZDPs) are required for the infrastructure (utilities and drainage) and a Grading Permit for the grading, erosion and sediment control, ZDPs and Building Permits are required for each dwelling unit, a Plat is required to plat the site into distinct townhome lots and ROW permits are required for any work in a public right-of-way.

***C.** The proposed development shall be designed, constructed, and maintained to accommodate the traffic generated and not unduly increase congestion or traffic on the site and in the vicinity of the site.*

Complies. Access to the individual units is from a private central drive which stems from Spruce Haven Drive public right-of-way abutting to the south. Transportation Capital Fees (at a rate established by City Council and payable with the Building ZDPs) are required and contribute to offsetting some of the traffic impact to the existing road network.

***D.** The proposed development shall be designed, constructed, and maintained with appropriate regard to topography, surface drainage, soil potentials, natural and manmade hazards, streams, and environmentally significant features.*

Complies. Site grading and drainage are reviewed by the City Engineer and must be approved through a Grading Permit. There are no on-site environmentally significant features, natural or manmade hazards or streams.

***E.** The proposed development shall be designed, constructed, and maintained with adequate water supply, wastewater disposal, solid waste disposal, air quality protection methods, and surface water drainage.*

Complies. Utilities are available for this site and City has water available to support this development. In addition the proposed development of this property would also require the water main in Spruce Haven to be extended 275 feet to Coraline Street. Finally, the developers would need to seek City Council approval for multifamily water tap allocations.

F. The proposed development shall be designed, constructed, and maintained to not unduly increase the public danger of fire, explosion, and other safety hazards upon the public, and persons residing or working on the site and vicinity.

Complies. No safety hazards are created or identified with this project. Construction shall conform to the applicable building and fire codes and construction activity is subject to the noise regulations.

G. The proposed development shall be designed, constructed and maintained to not unduly diminish or impair but to become compatible with the use and enjoyment of vicinity property. To such end the development may be required to provide architectural design schemes and fixtures such as, but not limited to, fencing, landscaping, and buffer areas.

Complies. The applicant has provided architectural design schemes as a part of the site plan review. The proposed development currently complies with several of the architectural design criteria, however, the application materials do not address all criteria, in particular the color scheme. The proposed development will be required to comply with all design criteria. The site plan and application also indicate that the development will provide screening from the adjacent tow yard and outdoor storage operation.

REFERRALS AND NOTIFICATIONS

Adjacent property owners within 150 feet were mailed a letter notifying them of the submittal of the application as well as all meeting dates including the scheduled Planning Commission and City Council public hearings. The site was posted with public notice posters and notice of the public hearings was published in the Pikes Peak Courier in compliance with the Municipal Code. Staff has received no written comments regarding this conditional use permit request.

Applications were referred to City departments including Utilities, Public Works, Planning and Building and external agencies including CORE and the NETCFPD. Written comments were returned and have been included with this report.

STAFF RECOMMENDATION

That the Planning Commission recommend to City Council:

Approval of the Conditional Use Permit (CUP), based on the findings contained in the staff report and as presented at public hearings, for a Conditional Use Permit (CUP) for construction of six (6) 2-unit attached single family dwellings on 2.18 acres in a portion of the W1/2 of the NW1/4 of Section 24, Township 12 South, Range 69 West of the 6th Principal Meridian, also known as part of the Kowitz Tracts, with an address of 920 Spruce Haven Drive in the Multi-Family Residential Suburban (MFS) zone. (Q)subject to the following conditions:

1. All development impact fees must be paid prior to ZDP issue including but not limited to tap fees, stormwater capital improvement fees, transportation capital fees, etc. Fees shall be calculated concurrent with the ZDP review.
2. All exterior lighting, if any, shall be downcast and shielded with a temperature of 3,000 K or warmer and shall not exceed twenty-five feet in height.
3. Pursuant to MC 18.33.180, at least 40% of parcel shall remain as open space.

4. Pursuant to *MC 18.33.180.D*, healthy existing significant trees shall be preserved to the extent reasonably feasible and may be used to satisfy landscaping and open space requirements.

5. Prior to the issuance of a building permit, the property owner shall submit for and receive approval of a:

- a. Final Site Plan for a permitted use including landscaping, drainage, architectural elevations, access, etc.;
- b. Final Plat
- c. Infrastructure Zoning Development Permit, pursuant to *MC 18.33.170*, for the installation of curb and gutter and sidewalks along Spruce Haven Drive or submit fees-in-lieu; and
- d. Zoning Development Permits and Building Permits for all new construction, including:
 1. All Civil/Construction drawings
 2. Final Drainage Report
 3. Final Landscaping Plan
 4. Final Site Plan
 5. Final Floor Plan and Elevations
 6. Final Grading, Sediment and Erosion Control Plan
 7. Final Utility Plan (water, sewer, power, etc.)
 8. Final Photometric Plan
 9. CO Stormwater Permit/Stormwater Management Plan

6. Prior to Council Public Hearing the Applicant shall make revisions to the site plan as indicated on the redlined plans.

7. Prior to conveyance of any dwelling unit, a Townhome Plat shall be approved by the City and recorded with the Teller County Clerk and Recorder. The Townhome Plat shall include covenants describing limits on the property and maintenance of all common areas.

a. Prior to approval of a Townhome Plat, Park Capital Fees shall be submitted and payable at the rate established when the application is submitted (2021 rate is \$2,133/per unit).

ATTACHMENTS

- A. CUP/SPR Application
- B. Applicant Statement
- C. Plan Set
- D. City Utilities Memo
- E. City Engineer Review Comments
- F. Drainage Report



2022 GENERAL APPLICATION

(Revised 1/1/2022)

Project # 202204084
 Case # CUP/SPR 2022-02
 Fee(s): See City of Woodland Park
 Fees Sheet (Plus publication/recording
 fees, as applicable)

Type of Application (Check one or more as applicable)

- | | | |
|--|---|---|
| ☐ Site Plan Review Permitted Use | ☐ Special Use Permit | ☐ Preliminary Plat |
| ☒ Site Plan Review Conditional Use | ☐ Planned Unit Development (PUD) | ☐ Exemption Plat |
| ☐ Conditional Use Permit | ☐ PUD Amendment | ☐ Final Plat |
| ☐ Zoning Change | ☐ Appeal | ☐ Townhouse Plat |
| ☐ Extension of Development | ☐ Variance | ☐ Condominium Plat |

1. Applicant Information

- a. Applicant Name 920 Spruce Haven LLC
- b. Project Coordinator ☐ Property Owner ☒
- c. Mailing Address 94B Talamine Court
- d. E-mail Address joe@hoptreedevlopment.com
- e. Phone Numbers Home 5125903752 Work _____ Mobile _____

2. Property Owner Information (if different from above)

- a. Name _____ Project Contact? Yes ☐ No ☐
- b. Mailing Address _____
- c. E-mail Address _____
- d. Phone Numbers Home _____ Work _____ Mobile _____

3. Site Information

- a. Site Address 920 Spruce Haven
- b. Lot ____ Block ____ Subdivision 24-12-69 POR W2NW4 AKA PT KOWITZ TRACTS
- c. Property Zoning MF-S Lot Size 2.18 Acres ☒ Square Feet ☐

4. Is the property subject to covenants? Yes ☐ No ☒ If yes, then submit copy of covenants and current contact for HOA. It is the responsibility of the landowner to submit HOA approval with this application.

5. Project Information

- a. Project Name The Grove at Spruce Haven
- b. Brief Description of Project/Request Construction of 6, 2-unit attached single family dev include 4-bedrooms, 2.5-bathrooms, and an attached 2-car garage.

Project Narrative (On a separate sheet provide additional project details and how the proposal complies with the applicable code requirements, which can be found in Section 8 of this application.)

5. Consultant Information (if applicable)

a. Architect

- i. Project Contact NA
- ii. Firm Name _____
- iii. Physical Address _____
- iv. Mailing Address _____
- v. E-mail Address _____
- vi. Phone Numbers: Business _____ Mobile _____

b. Engineer

- i. Project Contact David Mijares
- ii. Firm Name Catamount Engineering
- iii. Physical Address 321 W Henrietta Ave, Suite A, Woodland Park CO 80866
- iv. Mailing Address _____
- v. E-mail Address david@catamounteng.com
- vi. Phone Numbers: Business 7193378351 Mobile _____

c. Planner

- i. Project Contact _____
- ii. Firm Name _____
- iii. Physical Address _____
- iv. Mailing Address _____
- v. E-mail Address _____
- vi. Phone Numbers: Business _____ Mobile _____

d. Surveyor

- i. Project Contact Russ Wood
- ii. Firm Name Rampart Surveys, LLC
- iii. Physical Address 1050 Tamarac Parkway, Woodland Park, CO 80863
- iv. Mailing Address _____
- v. E-mail Address russ@rampartls.com
- vi. Phone Numbers: Business 7196870920 Mobile _____

e. Other (specify role) _____

- i. Project Contact _____
- ii. Firm Name _____
- iii. Physical Address _____
- iv. Mailing Address _____
- v. E-mail Address _____
- vi. Phone Numbers: Business _____ Mobile _____

6. Submittal Requirements

The following items must be included at time of submittal (in addition to items on the submittal checklists) or the application will not be processed (additional copies may be requested).

Type of Application	24" x 36" Plan Set	11" x 17" Plan Set	Adobe Acrobat Portable Document Format (.pdf) electronic Plan Set on a flash drive	Warranty Deed or Title Policy	List of adjoining property owners within 150'	Copies of reports (narrative, traffic study, drainage, etc.)
All Types	1	1	1	1	1	1

7. Applicable Code Sections

The following are the applicable code sections by type of application and are for assisting applicants in completing the required project narrative. The City of Woodland Park's Municipal Code can be found at www.city-woodlandpark.org/Charter&Code. Subdivision requirements are in Title 17 and Zoning is in Title 18 of the Municipal Code.

Type of Application	Applicable Code Sections
Site Plan Review Permitted Use	Chapters 18.34, 18.33 and 18.39
Site Plan Review Conditional Use	Chapters 18.34, 18.57, 18.33 and 18.39
Conditional Use Permit	Chapter 18.57 plus applicable site plan regulations
Zoning Change	There are no specific standards, but the applicant should provide supporting argument for a zoning change, including how it complies with the Comprehensive Plan
Special Use Permit	Chapter 18.61 plus applicable site plan regulations
Planned Unit Development	Chapters 18.30, 18.33, 18.39, Sections 17.20.070, and 17.20.080
Appeal	Chapter 18.54
Variance	Chapter 18.60
Preliminary Plat	Chapter 17.20 plus applicable subdivision sections
Exemption Plat	Section 17.52.030 plus applicable subdivision sections
Final Plat	Chapter 17.24 plus applicable subdivision sections
Townhouse Plat	Chapter 17.32 plus applicable subdivision sections
Condominium Plat	Chapter 17.32 plus applicable subdivision sections

8. Certification of Ownership

I (We) do hereby declare and affirm that I (we) am (are) the exclusive owner(s) and title holder(s) of the above described property.

Owner

Date

Owner

Date

9. Certification: The undersigned applicant certifies under oath and under penalties of perjury that the information found in the application is true and accurate to the best of their knowledge.

I certify that I understand that the proposed development is in accordance with all provisions of the City of Woodland Park's Municipal Code and other applicable regulations.

Applicant

Date



City of Woodland Park
 Development Services
 220 W South Avenue
 Woodland Park, CO 80863

Conditional Use Application

The Grove at Spruce Haven
 920 Spruce Haven Drive
 West Half of the Northwest Quarter of Section 24, Township 12 South, Range 69 West of the 6th P.M.
 Requesting Entity: 920 Spruce Haven, LLC

Project Overview

We are seeking approval of plans to construct 6, 2-unit attached single family homes on the un-platted, 2.18-acre parcel, zoned Multi-Family Residential Suburban (MFS). Each dwelling will include 4-bedrooms, 2.5-bathrooms and 2-car garage, totaling approximately 1,650 square feet of living space.

The homes are designed to be highly-efficient and low-maintenance. Proposed standard exteriors finishes will include board-and-batten and composite decking. Standard interior finishes will include vaulted ceilings, a mix of carpet and hard surface flooring, solid wood cabinets, and granite countertops.

Area Characteristics

ZONE		USE
NORTH	Suburban Residential (SR)	Woodland Hills 1 Residential Subdivision
EAST	Community Commercial (CC)	Fred's Towing and Storage Yard
SOUTH	Service Commercial (SC)	Spruce Haven Drive, Tractor Supply Retail Store
WEST	Suburban Residential (SR)	Single Family Residences, N. Coraline Street

Site Characteristics

This tract has access to/from Spruce Haven Drive, a 60 foot-wide dedicated and improved public right-of-way/local street, along the south property boundary. Public water and sewer mains are located in the Spruce Haven Drive ROW. Natural gas, electric, and data service are also available in the area.

The topography slopes from the southwest to the northeast, with the lowest elevation at 8,602 feet in the northeast corner and the highest at 8,627 feet in the southwest corner. The site is predominantly native grass with a several mature clusters of aspens and evergreen, all of which we have taken steps to maintain with our design. Additional trees will be included in the site landscape design. In addition, new privacy fencing will be erected along the east lot lines, where the existing Fred's Towing sheet metal barrier is located, which we believe will generally improve the area aesthetic.

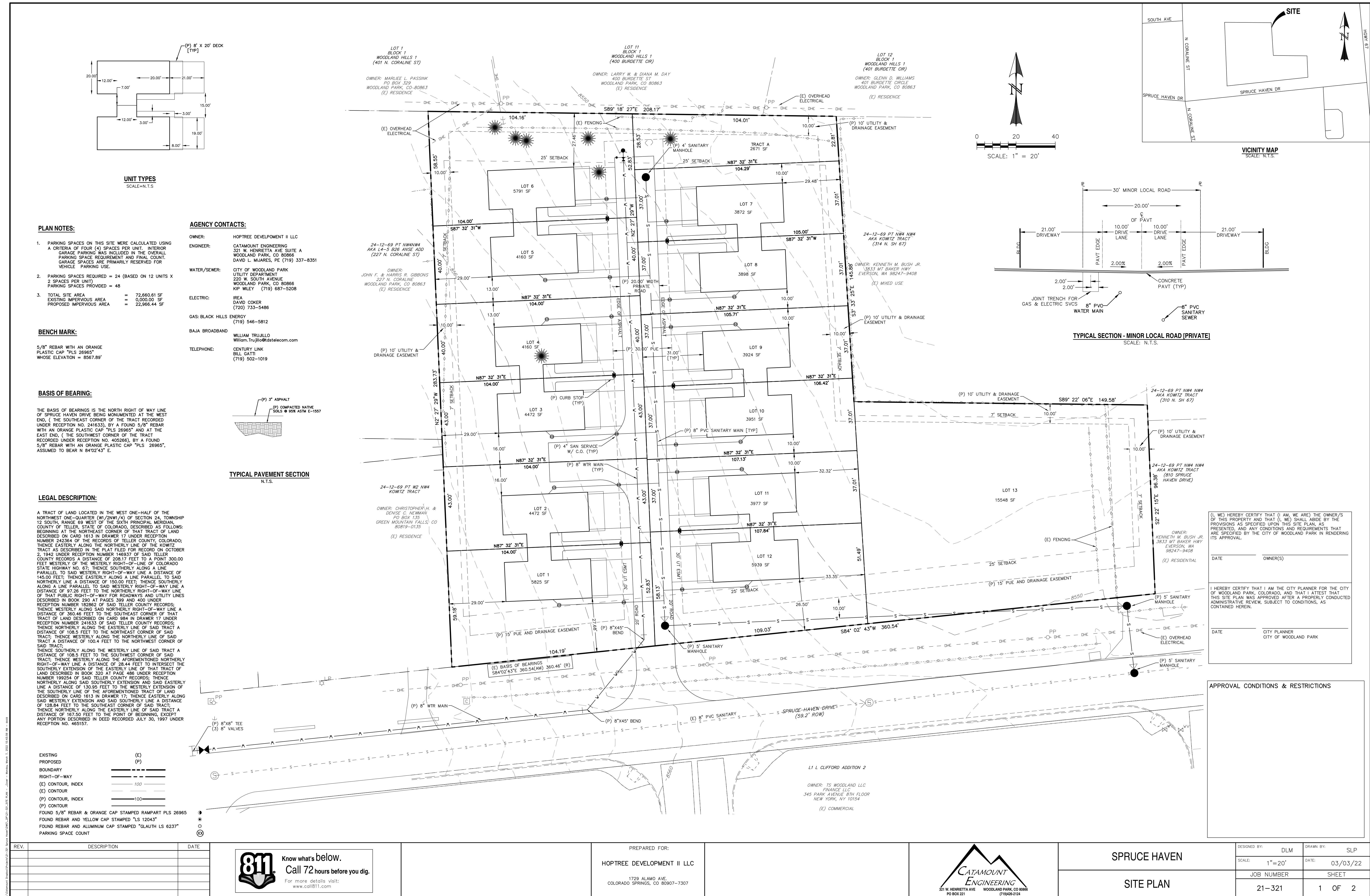


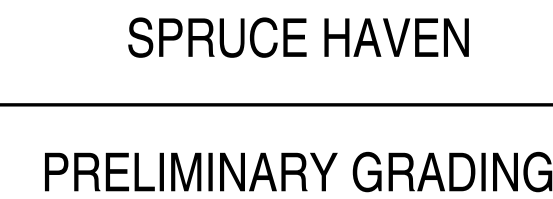
Zoning Analysis

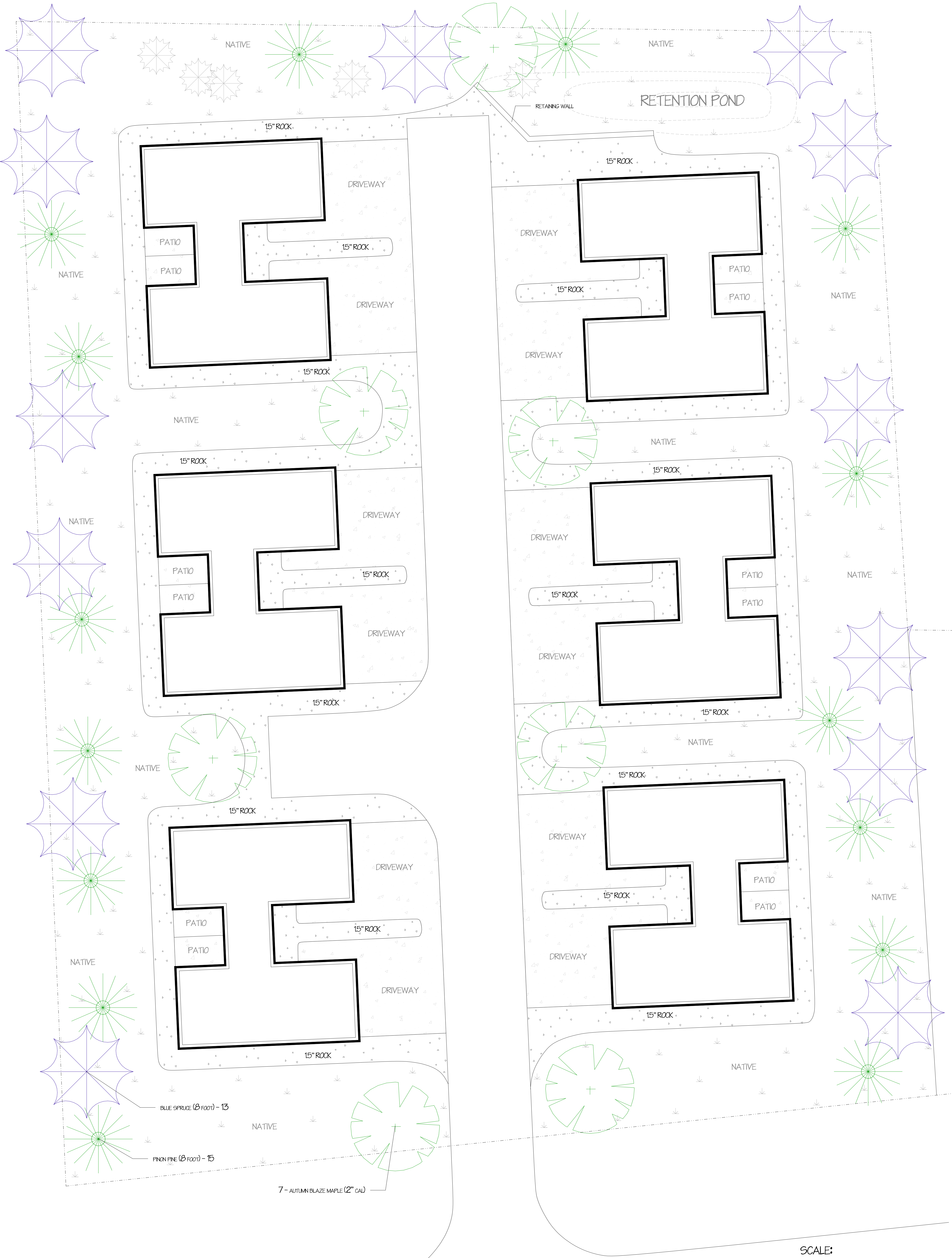
	MULTI-FAMILY RESIDENTIAL (MFS)	PROPOSED THE GROVE AT SPRUCE HAVEN
Purpose	Attached dwelling units with 2-8 dwelling units/acre	Attached dwelling units with 6 units per acre
Height	30 feet (accessory building 20 feet)	26 Feet
Setbacks	25 feet Front/Rear; 8 feet Side (4' accessory buildings)	In excess of 25 feet along all boundaries
Parking	1.5 spaces/1-bedroom unit 2 spaces/2-bedroom unit 2.5 spaces/3+-bedroom unit (35)	56 total; 28 garage and 28 outside parking spaces.
Fencing & Shrubbery	No requirement.	New privacy fencing along the eastern boundary
Signs	Entrance signs allowed by permit.	No entrance signage
Sidewalks	Construction required or fees-in-lieu.	TBD
Landscaping	No requirement	100% of property will be landscaped and revegetated
Traffic	No requirement	109 trips per day

Community Feedback

Prior to rezoning submittal, we sent letters to approximately 30 properties in the neighborhood with an overview of the project and a request for feedback and input on our proposed site plan. We received feedback from approximately 30% of the surrounding properties. We incorporated input throughout the proposal and shared the direct feedback with City Planning. Prior to this submittal, we mailed updates to the adjacent properties; no additional feedback was received.







SCALE:

0 1 5 10 20 40

THIS IS NOT A CONSTRUCTION DRAWING AND NOT INTENDED TO REPRESENT HOME CONSTRUCTION DESIGN AGREEMENTS MADE BETWEEN THE BUILDER AND THE HOME BUYER/OWNER.

Eli Jauregui
760-803-7145



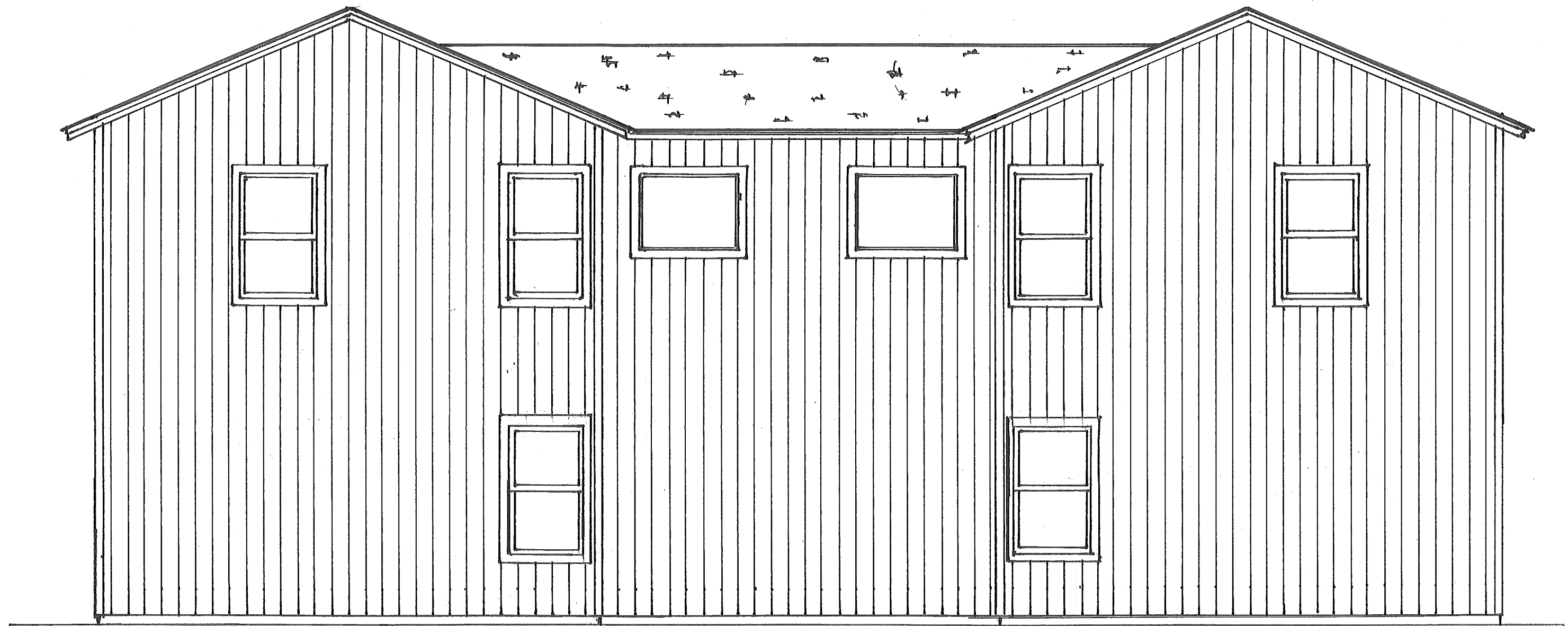
SPRUCE HAVEN

LANDSCAPE PLAN

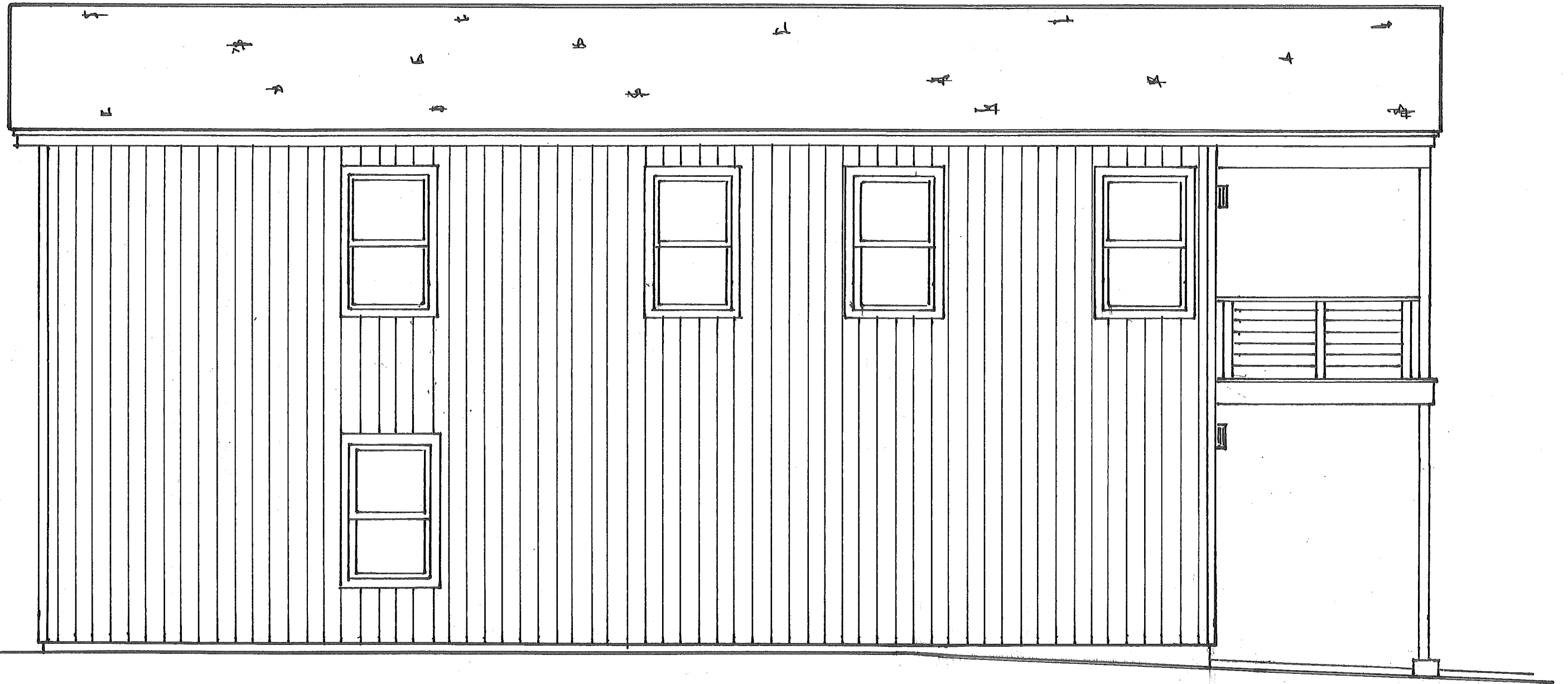
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DATE: 3/25/22	
FILE: 22-325	
REV.	
REV.	
REV.	
BY: GWW	PLAN# 22-325



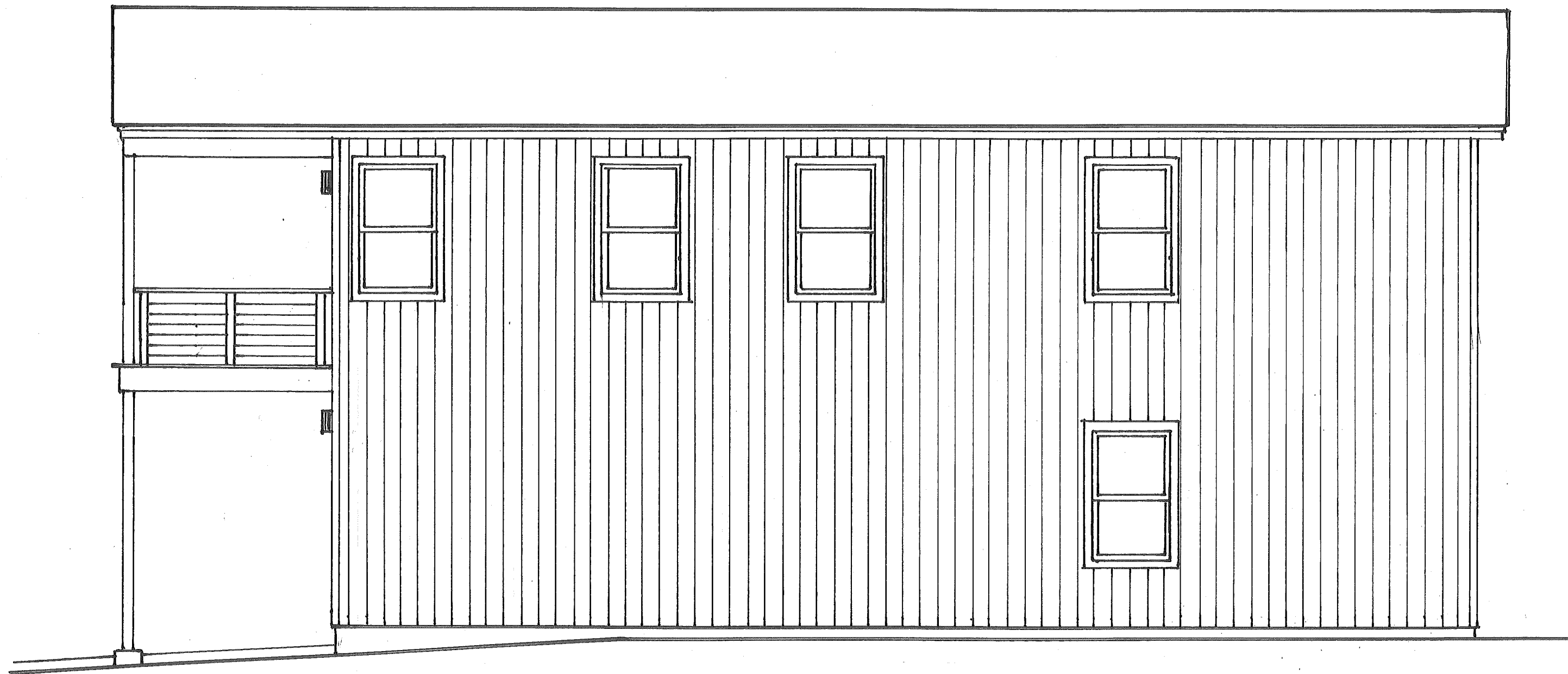
Front Elevation



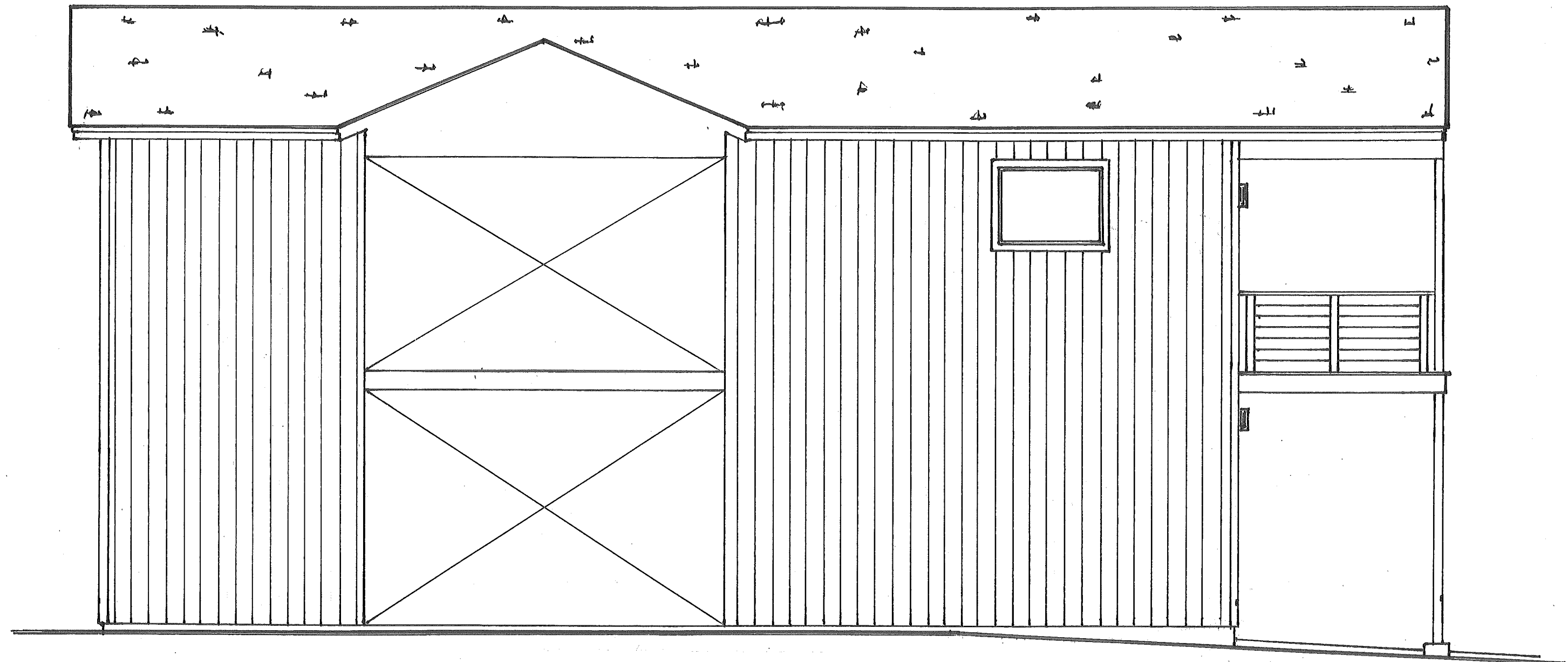
Rear Elevation



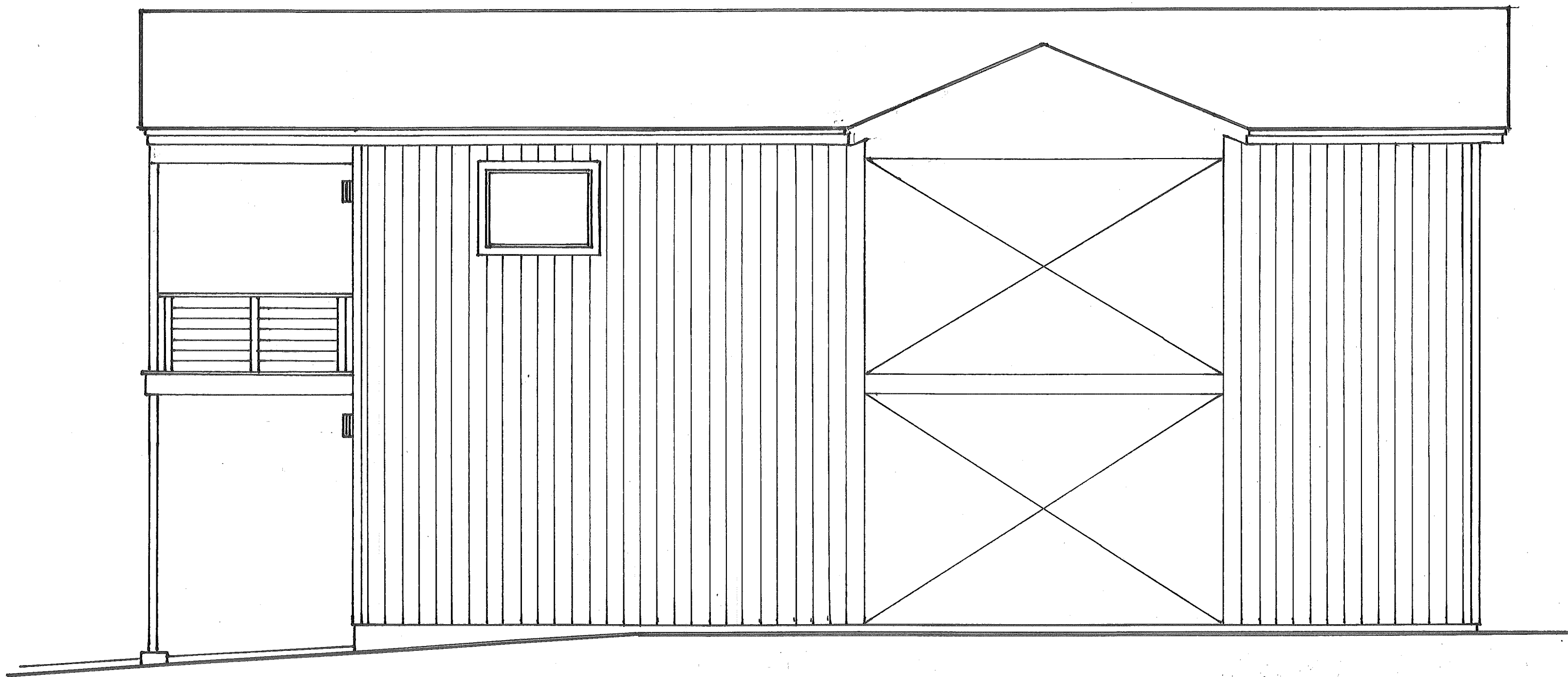
Side Elevation



Side Elevation



Interior Entry Area Elevation



Interior Entry Area Elevation

MEMO

To: Karen Schminke, Planning Director
Chelsea Stromberg, City Planner
Ben Schmitt, City Engineer
Phil Pyles, City Construction Inspector

From: Kip Wiley, Operations Director

Date: May 3, 2022

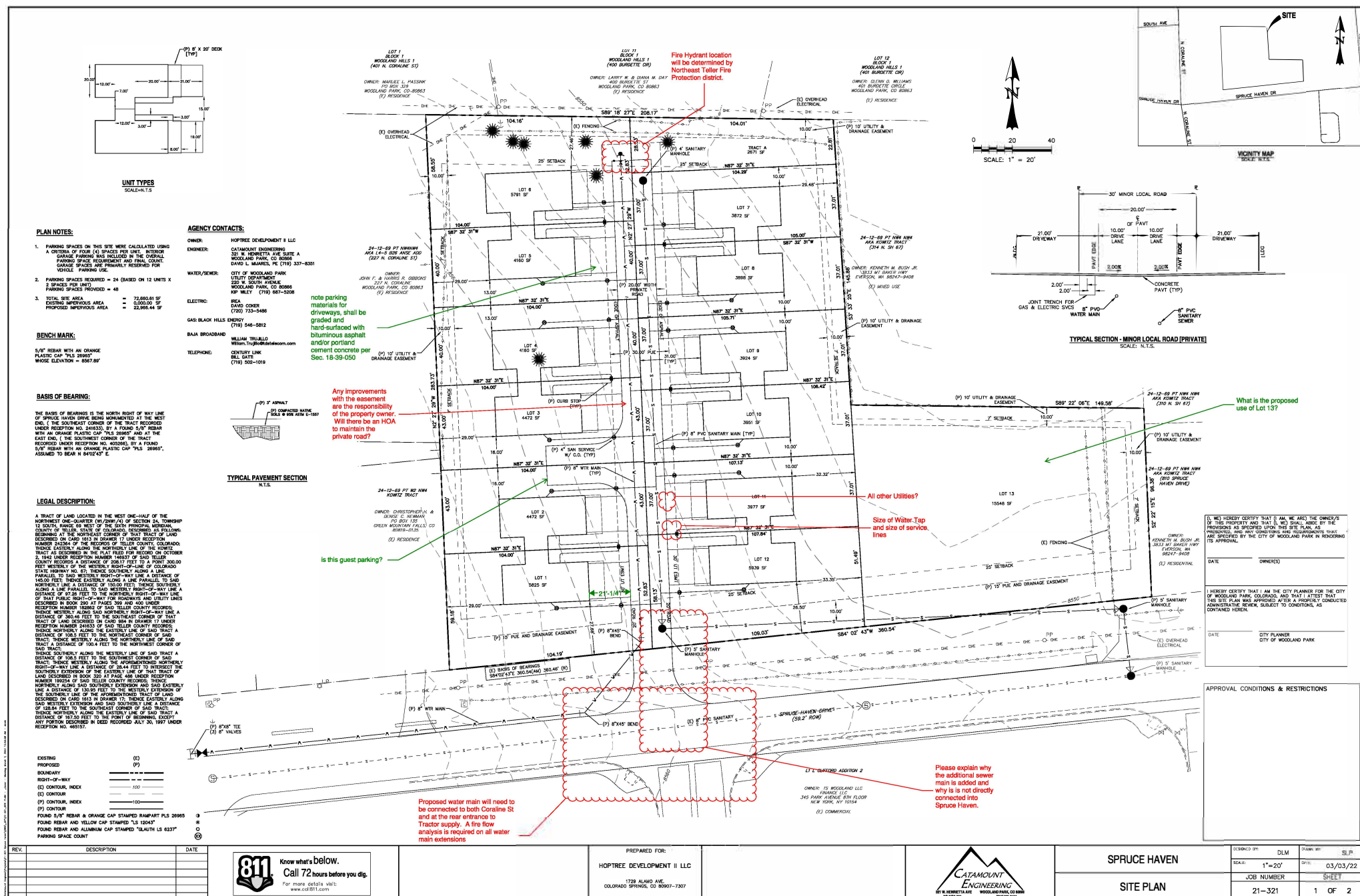
Subject: The Grove at Spruce Haven - 12 Multifamily units

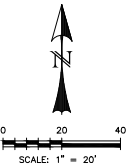
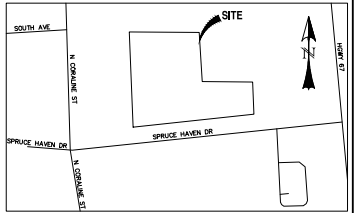
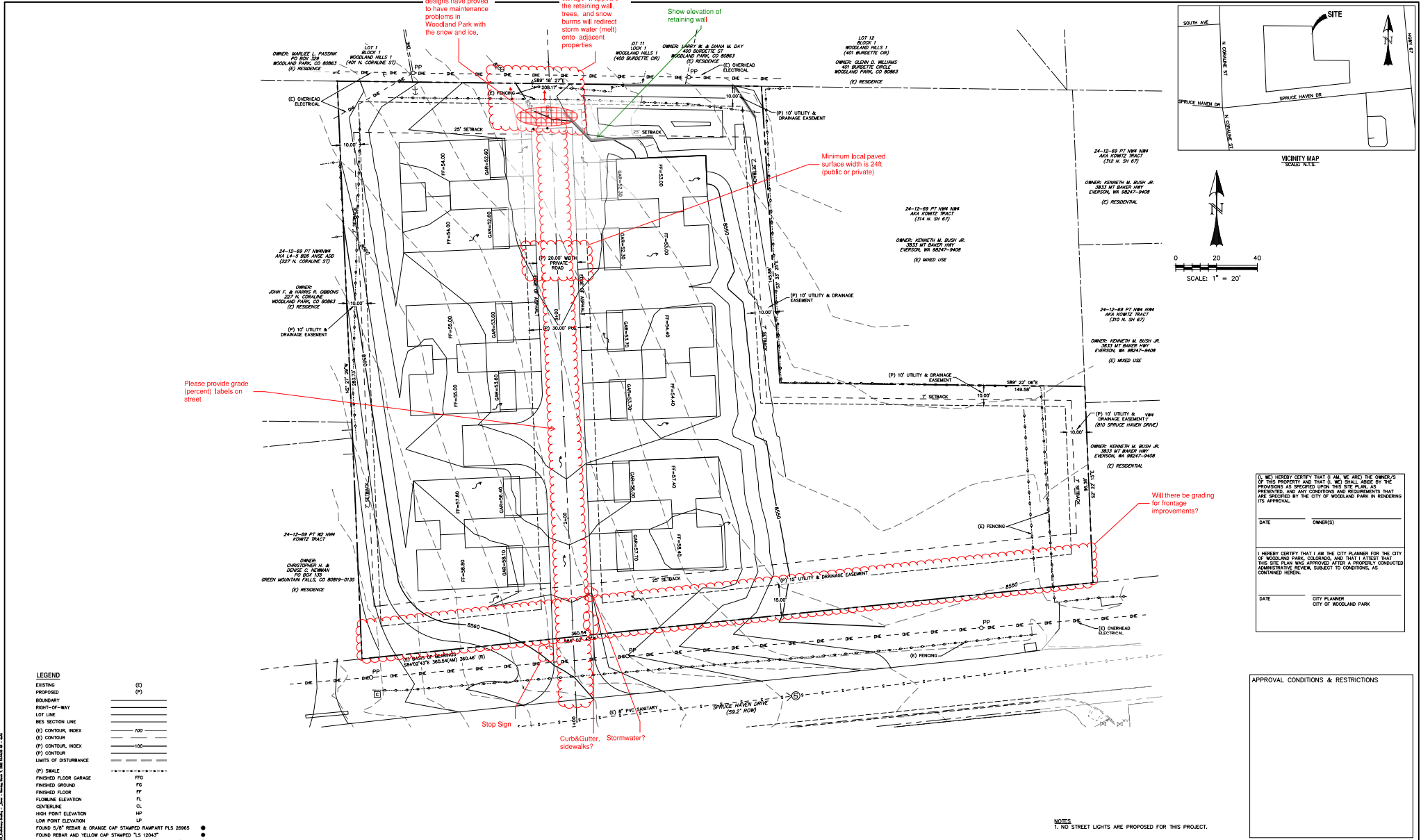
The proposed multifamily use will result in higher water usage than the currently zoned use allowed in Community Commercial District. The additional dwelling units will further expand the City's water service population above the population previously committed to 12,600 people at build-out. With a new expansion of the wastewater treatment facility the City will be able to support a population of 14,100. Therefore, wastewater needs will be met when densities are increased. Water available is based on 1,475 AF of total annual water and 0.117 AF per capita per year. The City Staff has estimated water availability based upon the build-out of residential zoned vacant lots, master planned subdivisions and estimated densities of unplatted land. The most current vacant lot study (2018) shows a built out population of 13,600 to include 400 high priority units. The additional 1,000 people or 404 units stretches our water availability. If the current vacant property does not develop as planned, meaning less density (fewer dwelling units) there could be more water available. It could also work in the opposite direction. It is difficult to precisely predict the future development of vacant property. Currently we have the physical water to support this proposal if built today. If built in the future, it will have to be decided whether or not these density increases can be supplied with water and wastewater services.

To reiterate, we have the physical water to support 12 dwelling units. What we do not know is exactly how the City will grow/develop into the future and increasing the number of dwelling units in this area will more than likely (if built out) limit the number of taps we sell in the future and potentially increase the overall build out population. The City will not be able to guarantee water to all vacant lots as density increase on those lots that were not planned for larger densities. Adding more potential dwelling units to the current planned total dwelling units will remove potential water from the vacant lots that develop in the future unless more water is legally acquired and developed/purchased (i.e. transmitted, stored and purchased). In summary, an increase in residential densities can be supported on the short term because the City currently has the water to serve additional multifamily units. However, on the long term it is difficult to predict if the City will utilize the planned water resources prior to build-out of all vacant lands. City Council will also have to allocate all multifamily unit water taps for the proposed project.

The proposed development of this property would also require the water main in Spruce Haven to be extended 275 feet to Coraline Street. The City's Engineering Specification require no more than 12 units on a dead end water line. The water main is located on the south side of Spruce Haven drive and is a dead end at the Tractor Supply Company. Sewer service may be challenging as this lot slopes toward the north and there is not a sewer main to tie into on the north side of the property. The sewer service would need to flow toward Spruce Haven Drive or Coraline Street. This may require the units to be reconfigured on the lot and the lot to be raise to acquire adequate slopes for sewer service.

All proposed multifamily taps are allocated on a project by project approval basis. All propose multifamily projects triplex or larger are review by City staff for recommendation and City Council approval. The applicant shall pay a tap fee of \$200.00 per multifamily tap allocation at the time of City Council approval.





I, WE HEREBY CERTIFY THAT I (AM, WE ARE) THE OWNER(S) OF THIS PROPERTY AND THAT I (WE) SHALL ABIDE BY THE PROVISIONS AS SPECIFIED UPON THIS SITE PLAN, AS PRESENTED, AND ANY CONDITIONS AND REQUIREMENTS THAT ARE SPECIFIED BY THE CITY OF WOODLAND PARK IN RENDERING ITS APPROVAL.

DATE _____ OWNER(S) _____

I HEREBY CERTIFY THAT I AM THE CITY PLANNER FOR THE CITY OF WOODLAND PARK, COLORADO, AND THAT I ATTEST THAT THIS SITE PLAN HAS BEEN APPROVED AFTER A PROPERLY CONDUCTED ADMINISTRATIVE REVIEW, SUBJECT TO CONDITIONS, AS CONTAINED HEREIN.

DATE _____ CITY PLANNER _____
CITY OF WOODLAND PARK

APPROVAL CONDITIONS & RESTRICTIONS

APPROVAL CONDITIONS & RESTRICTIONS

NOTES
1. NO STREET LIGHTS ARE PROPOSED FOR THIS PROJECT.

REV.	DESCRIPTION	DATE

811 Know what's below.
Call 72 hours before you dig.
For more details visit:
www.811.com

PREPARED FOR:
HOPTREE DEVELOPMENT II LLC
1729 ALAMO AVE.
COLORADO SPRINGS, CO 80907-7307



DESIGNED BY: DLM	DRAWN BY: SLP
SCALE: 1"=20'	DATE: 02/14/22
JOB NUMBER: 21-321	SHEET: 2 OF 2



1. PARKING SPACES ON THIS SITE WERE CALCULATED USING A CRITERIA OF FOUR (4) SPACES PER UNIT. INTERIOR GARAGE PARKING WAS INCLUDED IN THE OVERALL PARKING SPACE REQUIREMENT AND FINAL COUNT. GARAGE SPACES ARE PRIMARILY RESERVED FOR VEHICLE PARKING USE.
2. PARKING SPACES REQUIRED = 24 (BASED ON 12 UNITS X 2 SPACES PER UNIT)
PARKING SPACES PROVIDED = 48
3. TOTAL SITE AREA = 72,660.61 SF
EXISTING IMPERVIOUS AREA = 0,000.00 SF
PROPOSED IMPERVIOUS AREA = 22,966.44 SF

5/8" REBAR WITH AN ORANGE
PLASTIC CAP "PLS 26965"
WHOSE ELEVATION = 8567.89'

THE BASIS OF BEARINGS IS THE NORTH RIGHT OF WAY LINE OF SPRUCE HAVEN DRIVE BEING MONUMENTED AT THE WEST END, (THE SOUTHEAST CORNER OF THE TRACT RECORDED UNDER RECEPTION NO. 241633), BY A FOUND 5/8" REBAR WITH AN ORANGE PLASTIC CAP "PLS 26965" AND AT THE EAST END, (THE SOUTHWEST CORNER OF THE TRACT RECORDED UNDER RECEPTION NO. 405266), BY A FOUND 5/8" REBAR WITH AN ORANGE PLASTIC CAP "PLS 26965", ASSUMED TO BEAR N 84°02'43" E.

A TRACT OF LAND LOCATED IN THE WESTERN HALF OF SECTION 24, TOWNSHIP 36 NORTH, RANGE 107 EAST, SOUTHERLY QUARTER OF SECTION 24, TOWNSHIP 36 NORTH, RANGE 107 EAST, COUNTY OF TELLER, STATE OF COLORADO, DESCRIBED AS FOLLOWS: BEGINNING AT THE NORTHEAST CORNER OF THAT TRACT OF LAND DESCRIBED IN BOOK 2984 OF RECORDS OF TELLER COUNTY, COLORADO; NUMBER 242364 OF THE RECORDS OF TELLER COUNTY, COLORADO; THENCE EASTERLY ALONG THE NORTHERLY LINE OF THE KOWA RIVER TO THE POINT OF BEGINNING; THENCE SOUTHWESTERLY ALONG THE WESTERLY LINE OF SAID TRACT A DISTANCE OF 100.00 FEET; THENCE WESTERLY ALONG THE WESTERLY RIGHT-OF-WAY LINE OF COLORADO STATE HIGHWAY NO. 67; THENCE SOUTHERLY ALONG A LINE PERPENDICULAR TO SAID HIGHWAY TO THE INTERSECTION THEREOF WITH A DISTANCE OF 145.00 FEET; THENCE EASTERLY ALONG A LINE PARALLEL TO SAID NORTHERLY LINE A DISTANCE OF 150.00 FEET; THENCE SOUTHERLY ALONG A LINE PARALLEL TO SAID WESTERLY LINE A DISTANCE OF 97.26 FEET TO THE NORTHERLY RIGHT-OF-WAY LINE OF SAID HIGHWAY; THENCE SOUTHERLY ALONG SAID NORTHERLY LINE A DISTANCE OF 150.00 FEET TO THE SOUTHEAST CORNER OF THAT TRACT OF LAND DESCRIBED ON PAGES 399 AND 400 UNDER RECEPTION NUMBER 182862 OF SAID TELLER COUNTY RECORDS; THENCE SOUTHERLY ALONG THE SOUTHWESTERLY LINE OF SAID TRACT A DISTANCE OF 360.46 FEET TO THE SOUTHEAST CORNER OF THAT TRACT OF LAND DESCRIBED ON CARD 984 IN DRAWER 17 UNDER RECEPTION NUMBER 182862 OF SAID TELLER COUNTY RECORDS; THENCE NORTHERLY ALONG THE EASTERLY LINE OF SAID TRACT A DISTANCE OF 150.00 FEET TO THE POINT OF BEGINNING; THENCE WESTERLY ALONG THE NORTHERLY LINE OF SAID TRACT A DISTANCE OF 100.4 FEET TO THE NORTHEAST CORNER OF THAT TRACT OF LAND DESCRIBED IN BOOK 2984 OF RECORDS OF TELLER COUNTY, COLORADO; THENCE SOUTHERLY ALONG THE WESTERLY LINE OF SAID TRACT A DISTANCE OF 108.85 FEET TO THE SOUTHWEST CORNER OF SAID TRACT; THENCE SOUTHERLY ALONG THE SOUTHWESTERLY LINE OF SAID TRACT A DISTANCE OF 128.84 FEET TO THE SOUTHWEST CORNER OF SAID TRACT; THENCE WESTERLY EXTENSION AND SAID SOUTHERLY LINE A DISTANCE OF 126.84 FEET TO THE SOUTHEAST CORNER OF SAID TRACT; THENCE SOUTHERLY ALONG THE SOUTHWESTERLY LINE OF SAID TRACT A DISTANCE OF 167.50 FEET TO THE POINT OF BEGINNING, EXCEPT THE PART OF SAID TRACT NOT DEED BY RECEIPT JULY 30, 1987 UNDER RECEPTION NO. 46517.

EXISTING	(E)
PROPOSED	(P)
BOUNDARY	_____
RIGHT-OF-WAY	_____
(E) CONTOUR, INDEX	_____100_____
(E) CONTOUR	_____
(P) CONTOUR, INDEX	_____100_____
(P) CONTOUR	_____
FOUND 5/8" REBAR & ORANGE CAP STAMPED RAMPART PLS 26965 FOUND REBAR AND YELLOW CAP STAMPED "LS 12043" FOUND REBAR AND ALUMINUM CAP STAMPED "GLAUGH LS 6237" PARKING SPACE COUNT	

OWNER: HOPTREE DEVELOPMENT II LLC

ENGINEER: CATAMOUNT ENGINEERING
321 W. HENRIETTA AVE SUITE A
WOODLAND PARK, CO 80866
DAVID L. MUIRES, PE (719) 337-8351

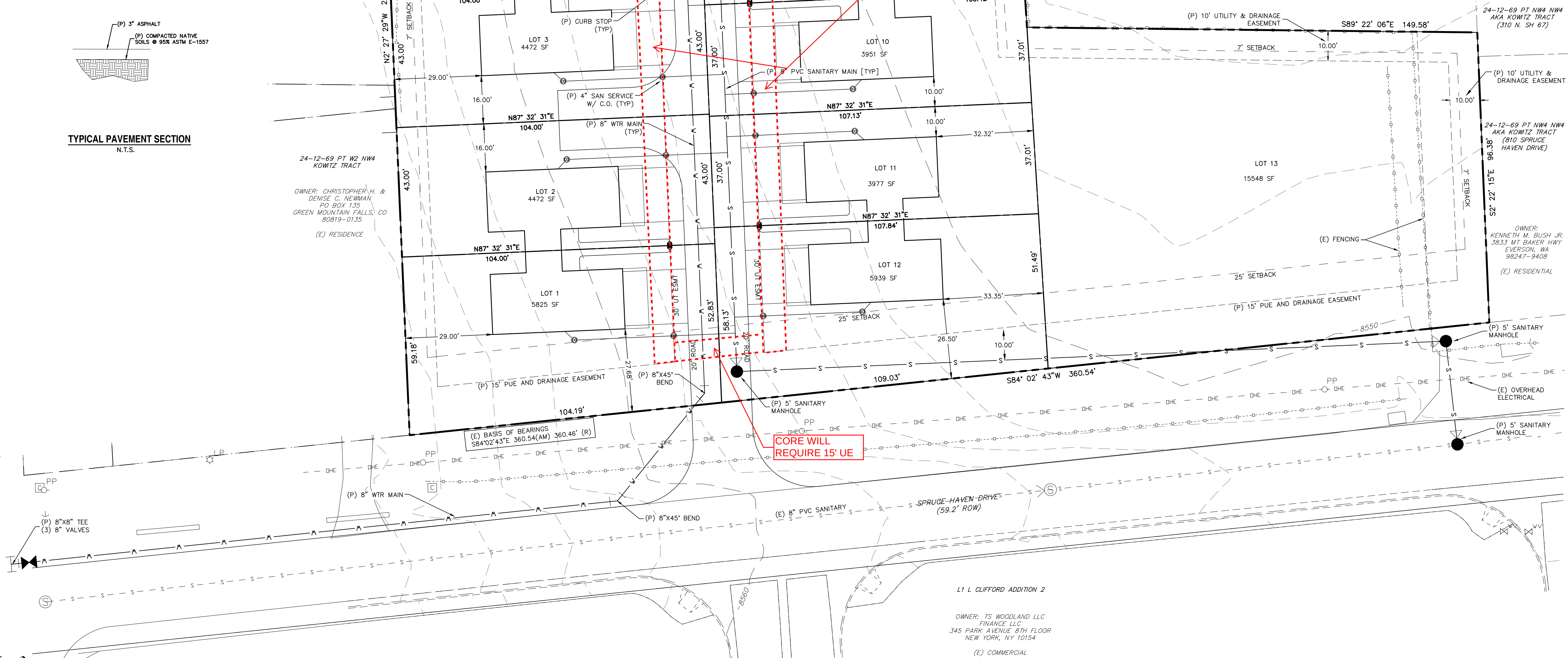
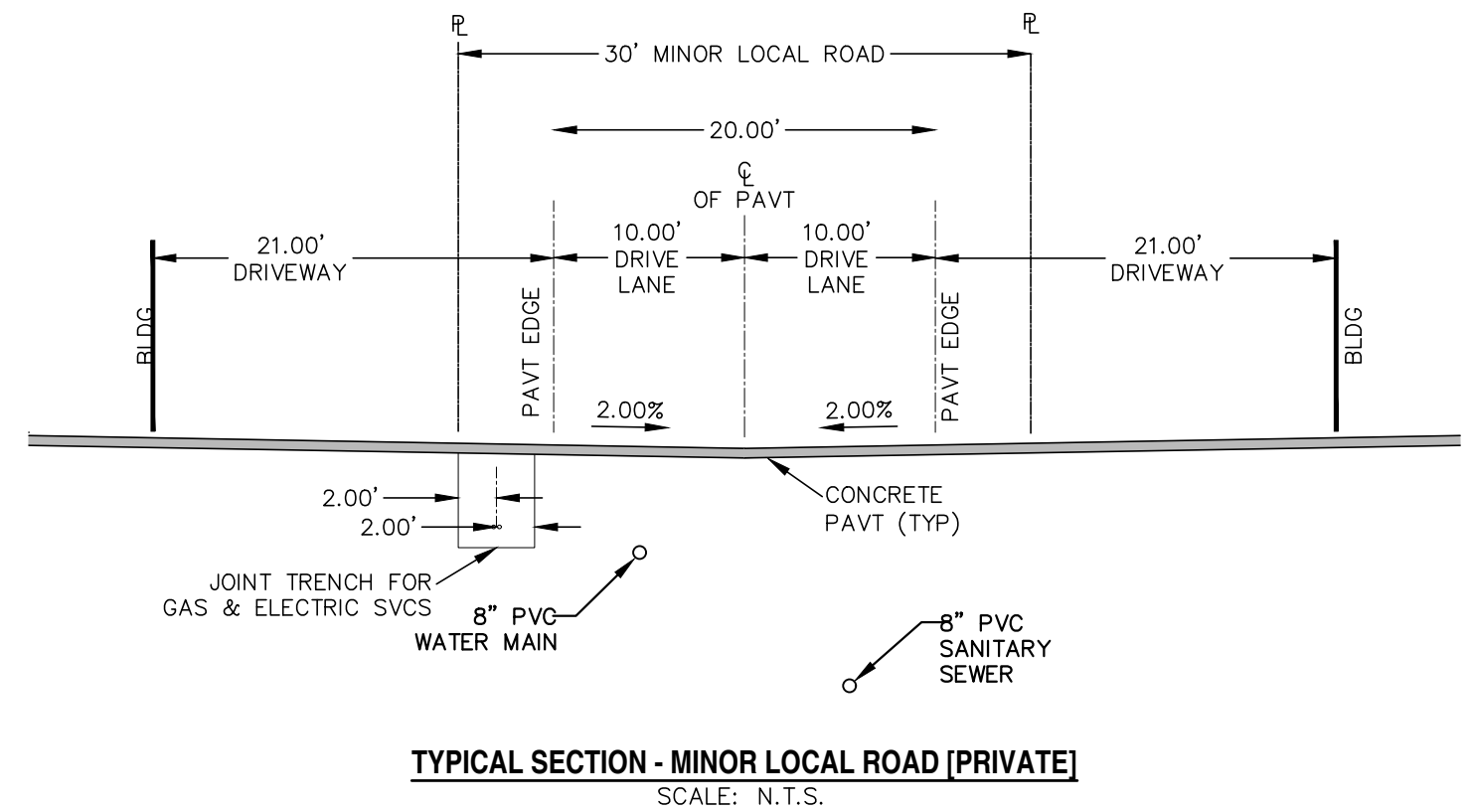
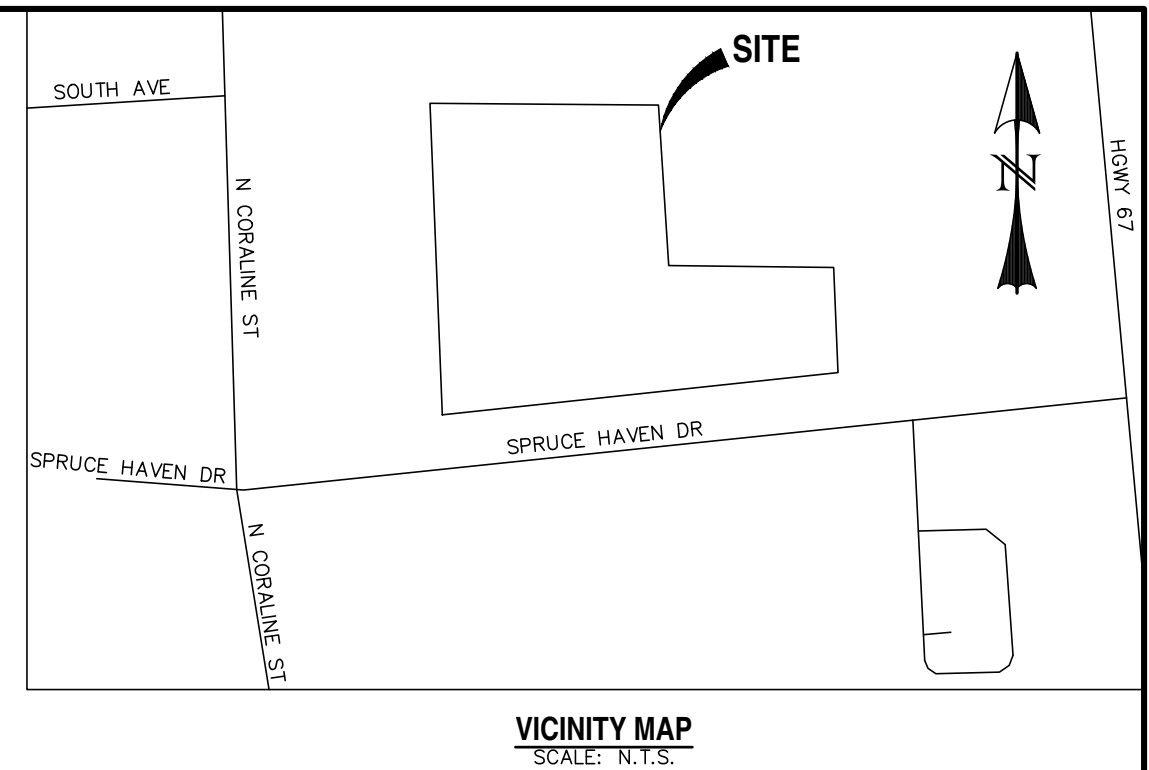
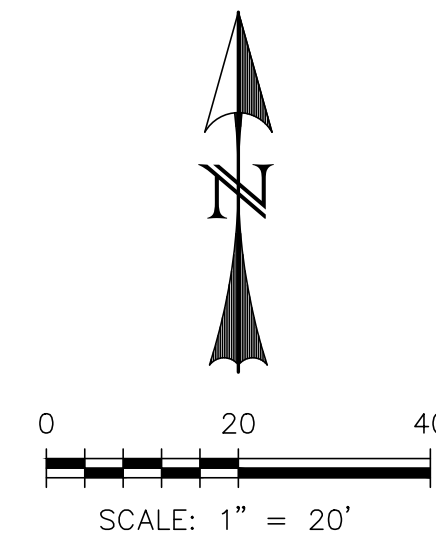
WATER/SEWER: CITY OF WOODLAND PARK
UTILITY DEPARTMENT
220 W. SOUTH AVENUE
WOODLAND PARK, CO 80866
KIP MILY (719) 687-5208

ELECTRIC: IREA
DAVID COYER
(720) 733-5486

GAS: BLACK HILLS ENERGY
(719) 546-5812

BAJA BROADBAND
WILLIAM TRUJILLO
William.Trujillo@dsattelecom.com

TELEPHONE: CENTURY LINK
BILL GATTI
(719) 502-1019



(I, WE) HEREBY CERTIFY THAT (I AM, WE ARE) THE OWNER/S OF THIS PROPERTY AND THAT (I, WE) SHALL ABIDE BY THE PROVISIONS AS SPECIFIED UPON THIS SITE PLAN, AS PRESENTED, AND ANY CONDITIONS AND REQUIREMENTS THAT ARE SPECIFIED BY THE CITY OF WOODLAND PARK IN RENDERING ITS APPROVAL.

DATE	OWNER(S)
------	----------

I HEREBY CERTIFY THAT I AM THE CITY PLANNER FOR THE CITY OF WOODLAND PARK, COLORADO, AND THAT I ATTEST THAT THIS SITE PLAN WAS APPROVED AFTER A PROPERLY CONDUCTED ADMINISTRATIVE REVIEW, SUBJECT TO CONDITIONS, AS CONTAINED HEREIN.

DATE	CITY PLANNER CITY OF WOODLAND PARK
------	---------------------------------------

APPROVAL CONDITIONS & RESTRICTIONS

REV.	DESCRIPTION	DATE



PREPARED FOR:
HOPTREE DEVELOPMENT II LLC
1729 ALAMO AVE.
COLORADO SPRINGS, CO 80907-7307



SPRUCE HAVEN

SITE PLAN

DESIGNED BY: DLM	DRAWN BY: SLP
SCALE: 1"=20'	DATE: 03/03/22
JOB NUMBER	SHEET
21-321	1 OF 2

FINAL DRAINAGE REPORT

FOR

SPRUCE HAVEN

March 2022

Prepared for:

HOPTREE DEVELOPMENT II LLC
1729 ALAMO AVE.
COLORADO SPRINGS, CO 80907-7307

Prepared By:

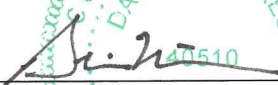


JOB NUMBER:21-321

FINAL DRAINAGE REPORT
FOR
SPRUCE HAVEN

Certification Statement:

This report and plan for the preliminary drainage design of the Spruce Haven development was prepared by me (or under my direct supervision) in accordance with the provisions of City of Woodland Park Drainage Design and Technical Criteria and was designed to comply with the provisions thereof. I understand that City of Woodland Park does not and will not assume liability for drainage facilities designed by others.



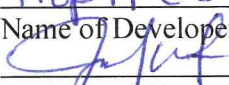
David L. Mijares, Colorado PE #40510
For and on behalf of Catamount Engineering

3.29.22

Date

Owner:

Hoptree Development

Name of Developer
 4/5/22

Authorized Signature Date
Joe Kent

Printed Name
Owner

Title
94.B Talamine Ct.
Colorado Springs CO 80907

Address

City of Woodland Park:

Filed in accordance with the Code of the City of Woodland Park, as amended.

For City Engineer

Date

CONDITIONS:

FINAL DRAINAGE REPORT

FOR

SPRUCE HAVEN

PURPOSE

The purpose of this drainage report is to identify existing drainage patterns, establish outfall scenarios from the proposed development, and confirm compliance with current City of Woodland Park Drainage Criteria. Residential development of 12 lots within the proposed Spruce Haven Townhomes development will require detention approximating historic release from the parcel.

GENERAL LOCATION AND DESCRIPTION

Spruce Haven Townhomes is located in the West ½ of the NW ¼ of Section 24, Township 12 South, Range 69 West of the 6th principal meridian. The proposed development contains approximately 1.67 acres to be developed within the City of Woodland Park. The proposed development is bounded to the north by residential development within Woodland Hills 1, to the east by mixed use development within 21-12-69 PT NW4 NW4 (AKA Kowitz Tract), to the South by Spruce Haven Drive and existing commercial development, and to the west by residential development.

The southerly adjacent ROW of Spruce Haven Drive contains public water and wastewater improvements. Access to the site is proposed from Spruce Haven Drive along the northerly half of Spruce Haven ROW.

The proposed development consists of regrading, utility infrastructure, roadway construction, and 12 residential units (6 duplex units)..

Existing soils on the site consist of Plome-Pimsby complex (Hydrologic Group 'B' soil) as determined by the Natural Resources Conservation Service Web Soil Survey. Hydrologic Group 'B' soils have been used in calculations. The parcel generally sheet flows from the southwest to east - northeast at an approximate 7% slope and into adjacent residential and mixed-use development. The parcel has been predominantly stripped of vegetative cover excepting the undisturbed scattered trees along the north and west limits of the parcel.

No portion of the development is contained within a FEMA designated floodplain per FIRM panel 08119C0202D, effective September 25, 2009.

EXISTING DRAINAGE

No previous drainage analyses of the parcel were found.

The parcel and off-site contributing basins flow across the parcel from southwest to east - northeast at an average grade of approximately 7.0% excluding localized ridges and natural swales.

Basins OS-1 (0.39 Acres, $Q_5=0.3$ cfs, $Q_{100}=1.1$ cfs), OS-2 (0.43 Acres, $Q_5=0.3$ cfs, $Q_{100}=1.2$ cfs), and OS-3 (0.10 Acres, $Q_5=0.0$ cfs, $Q_{100}=0.2$ cfs) consist of offsite residential development catchment entering the site in sheet flows and natural swales.

Basin OS-1 consists of residential development west of the site tributary to the northerly roadside ditch of Spruce Haven Drive. Basin OS-1 (0.39 Acres, $Q_5=0.3$ cfs, $Q_{100}=1.1$ cfs) is combined with Basin E1 (0.36 Acres, $Q_5=0.1$ cfs, $Q_{100}=0.9$ cfs) at DP E1 ($Q_5=0.4$ cfs, $Q_{100}=1.8$ cfs). Runoff is conveyed off-site in as existing sheet flow into adjacent mixed use parcel.

Basin OS-2 enters the east portion of the site, into Basin E2, and is conveyed in a natural drainage to DP E2. Basin OS-2 (0.43 Acres, $Q_5=0.3$ cfs, $Q_{100}=1.2$ cfs) is combined with Basin E2 (1.07 Acres, $Q_5=0.2$ cfs, $Q_{100}=2.0$ cfs) at DP E2 ($Q_5=0.5$ cfs, $Q_{100}=3.0$ cfs), and is conveyed as sheet flow into adjacent mixed use parcel.

Basin OS-3 enters the east portion of the site, travels northeast into Basin E3 and is conveyed in a natural drainage offsite to the north at DP E3. Basin OS-3 (0.10 Acres, $Q_5=0.0$ cfs, $Q_{100}=0.2$ cfs) consists of a portion of offsite residential landscape area. Basin OS-3 is combined with onsite basin E3 (0.24 Acres, $Q_5=0.1$ cfs, $Q_{100}=0.6$ cfs) at DP E3 ($Q_5=0.1$ cfs, $Q_{100}=0.8$ cfs) and is conveyed offsite in sheet flows, to the north into adjacent residential parcels.

DEVELOPED DRAINAGE BASINS

The intent of the proposed development is to follow closely to existing drainage patterns. Excess runoff generated by proposed redevelopment or changes in drainage patterns will be directed to on-site private detention basin. Proposed detention basins will release flows consistent with existing condition peak flows to downstream properties. All residential roof drainage and downspouts will be designed and oriented to discharge to the front of the proposed lots and conveyed in inverted crown roadways to the private extended detention basin at design point P.

Basin A1 (0.87 Acres, $Q_5=1.9$ cfs, $Q_{100}=5.0$ cfs) consisting of proposed impervious areas (building roofs and pavement), and portions of pervious landscape areas within the development will be collected within the curb and gutter of the proposed 20' wide private inverted crown roadway and conveyed to the private detention pond in the northeast corner of the site (Design Point P).

Basin B1 (0.15 Acres, $Q_5=0.1$ cfs, $Q_{100}=0.5$ cfs) consisting of onsite landscape area within the central southern portion of the site. Sheet flows will be collected within Basin B2 and conveyed by sheet flow to DP 1.

Basin B2 (0.36 Acres, $Q_5=0.1$ cfs, $Q_{100}=0.7$ cfs) consisting of onsite landscape area within the southeast portion of the site. Sheet flows will be collected within Basin B2 and conveyed to DP 1.

Combined flows directed to design point 1 from basins B1, B2, and OS-1; are $Q_5=0.4$ cfs and $Q_{100}=2.0$. Combined flows at DP-1 are comparable to existing flows at DP E1 of $Q_5=0.4$ cfs, $Q_{100}=1.8$ cfs.

Basin B3 (0.10 Acres, $Q_5=0.0$ cfs, $Q_{100}=0.3$ cfs) consisting of onsite landscape area within the central eastern portion of the site. Sheet flows will be conveyed offsite to the east to design point DP-2.

Basin B4 (0.111 Acres, $Q_5=0.0$ cfs, $Q_{100}=0.3$ cfs) consisting of onsite landscape area within the southeastern portion of the site. Sheet flows will be collected into a drainage swale, located on the eastern side of Basin B4 and directed north to Design Point 4.

Design Point 4 represents combined flows from Basin OS-2 and Basin B4 of $Q_5=0.3$ cfs and $Q_{100}=1.4$. Combined flows are intercepted by F.E.S and conveyed in 158 LF of 8" PVC pipe east to outfall at DP-2.

Design Point 2 represents combined flows from Basin B3 ($Q_5=0.0$ cfs, $Q_{100}=0.3$ cfs), Design Point 4 ($Q_5=0.3$ cfs and $Q_{100}=1.4$), and the Pond outfall ($Q_5=0.0$ cfs and $Q_{100}=1.1$). Combined flows directed at Design Point 2 of $Q_5=0.3$ cfs and $Q_{100}=2.7$ are less than historic flows at DP-E2 of $Q_5=0.5$ cfs, $Q_{100}=3.0$ cfs.

Basin B5 (0.091 Acres, $Q_5=0.0$ cfs, $Q_{100}=0.2$ cfs) consisting of onsite landscape area within the northwestern portion of the site. Sheet flows will be collected into a drainage swale, located on the eastern side of Basin B5 and directed north to the historic outfall location, Design Point 3.

Design Point 3 represents combined flows from basins B-5 and OS-3; are $Q_5=0.1$ cfs and $Q_{100}=0.5$ are less than historic flows at DP-E3 of $Q_5=0.1$ cfs, $Q_{100}=0.8$ cfs.

Flows directed to the proposed private detention Pond from basin A1 at Design Point P are $Q_5=1.7$ cfs and $Q_{100}=4.5$ cfs. Runoff will be conveyed within the proposed 20' wide private inverted crown roadway and to the private detention pond in the northeast corner of the site. See conveyance calculations in the appendix. Detention pond provides a storage volume of 0.113 acre-ft with 0.069 acre-ft required for full spectrum detention. The pond was modeled with the allowable discharge of $Q_5=0.0$ cfs and $Q_{100}=1.1$. per the modified FAA method. Pond outlet will consist of a modified CDOT Type 'C' inlet with orifice plate and concrete micropool. Final outlet calculations will be provided with the final pond design.

BASIN	AREA (ac)	Q_5 (cfs)	Q_{100} (cfs)
A1	0.87	1.9	5.0
B1	0.15	0.1	0.5
B2	0.36	0.1	0.7
B3	0.10	0.0	0.3
B4	0.11	0.0	0.3
B5	0.09	0.0	0.2

EXTENDED DETENTION BASIN

The parcel proposes to develop 0.87 acres tributary to the proposed detention basin at Design Point P within the Lovell Gulch Drainage requiring development of full-spectrum detention per the criteria of the City of Woodland Park Drainage Criteria Manual. The tributary basin (Basin A) contains all proposed impervious area within the development.

EDB DP-P

The proposed Extended Detention Basin located in the northeast portion of the development has 0.87 tributary acres of development with an average imperviousness of 50.60%. Full spectrum pond development requires 0.015 acre-ft of water quality capture volume, an EURV volume of 0.032-acre ft, and a total volume of 0.069 acre-ft. providing full spectrum detention including the 100-YR event.

Runoff generated within the site will be conveyed to the pond through inverted crown roadway catchment or as direct sheetflow.

The pond will be constructed with 3:1 minimum side slopes to be vegetated per the final landscape plan. Flows will be conveyed across the pond bottom to the micropool/outlet structure. The pond will outfall to a 4' long by 4' wide by 2.83' deep concrete micropool. The micropool will provide a surface area of 16 square feet and an initial surcharge volume of 5.3 cubic feet utilizing a 4" initial surcharge depth.

The outlet structure will consist of a concrete box with orifice plate and screen providing water quality outlet and weir with trash rack for larger storm outfall. The pond will outfall through a private 6" HDPE storm pipe to adjacent rip rap discharge pad at Design Point 2. Combined flows at Design Point 2 of $Q_5=0.3$ cfs and $Q_{100}=2.7$ are less than historic flows at DP-E2 of $Q_5=0.5$ cfs, $Q_{100}=3.0$ cfs.

The emergency spillway will consist of an 11.86' weir along the northeast limits of the pond. The 11.86' weir will convey developed undetained flows a depth of 0.50' and consist of 12" depth of type VL soil riprap covered with 6" depth of topsoil.

4-STEP PROCESS

RUNOFF REDUCTION

The development addresses Low Impact Development strategies primarily through the utilization of landscaped swales along the perimeter of the development within vegetated setback. See LID calculations in the appendix.

TREAT AND SLOW RELEASE

On-site flow is directed to the existing on-site private extended detention basin constructed with previous development. The extended detention basin provides Water Quality Capture Volume (WQCV) required and attenuates release of flows to approximate historic runoff rates.

CHANNEL STABILIZATION

The ultimate recipient of runoff from the site is Lovell Gulch. Flows generated within the site are tributary to the proposed full spectrum extended detention basin constructed on site.

SOURCE CONTROLS

A Grading and Erosion Control Plan will be approved by City of Woodland Park prior to any soil disturbance. The erosion control plan will include specific source control BMP's as well as defined overall site management practices for the construction period. The CDPHE Stormwater Management Plan (SWMP) narrative will address materials storage and spill containment during construction operations.

DRAINAGE METHODOLOGY

This drainage report was prepared in accordance to the criteria established in the City of Woodland Park Drainage Criteria Manual, as revised March 2014.

The rational method for drainage basin study areas of less than 130 acres was utilized in the analysis. For the Rational Method, flows were calculated for the 5 and 100-year recurrence intervals. The average runoff coefficients, 'C' values, are taken from Table 6-5 and the Intensity-Duration-Frequency curves are taken from Figure 6-2 of the City's Drainage Criteria Manual. Time of concentration for overland flow and storm drain flow are calculated per Section 4.2 of the City Drainage Criteria Manual. Calculations for the Rational Method are shown in the Appendix of this report.

SUMMARY

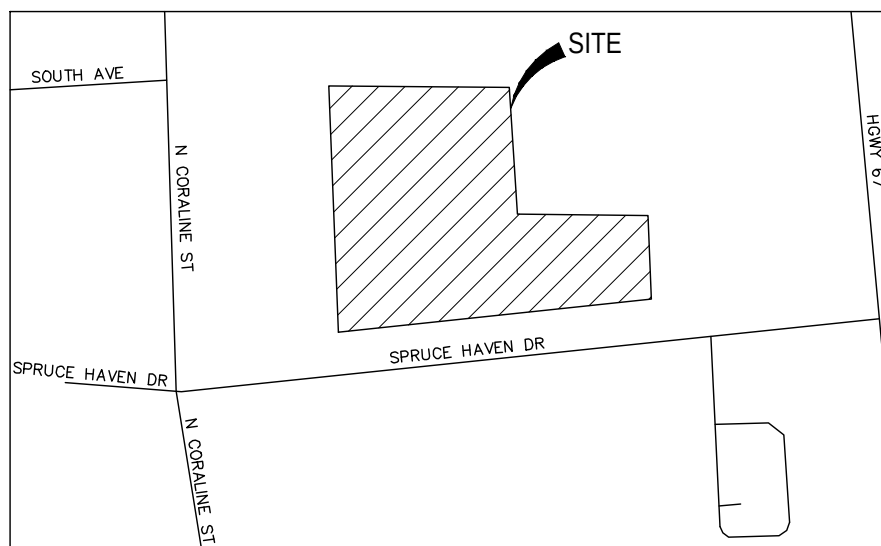
Development of Spruce Haven Townhomes with proposed detention facilities will not adversely affect the downstream and surrounding developments.

REFERENCES:

City of Woodland Park Drainage Criteria Manual, revised March 2014

Natural Resources Conservation Service Web Soil Survey

APPENDIX



VICINITY MAP
SCALE: N.T.S.



SPRUCE HAVEN DRIVE

VICINITY MAP

SCALE: N.T.S.

JOB NO.: **21-321**

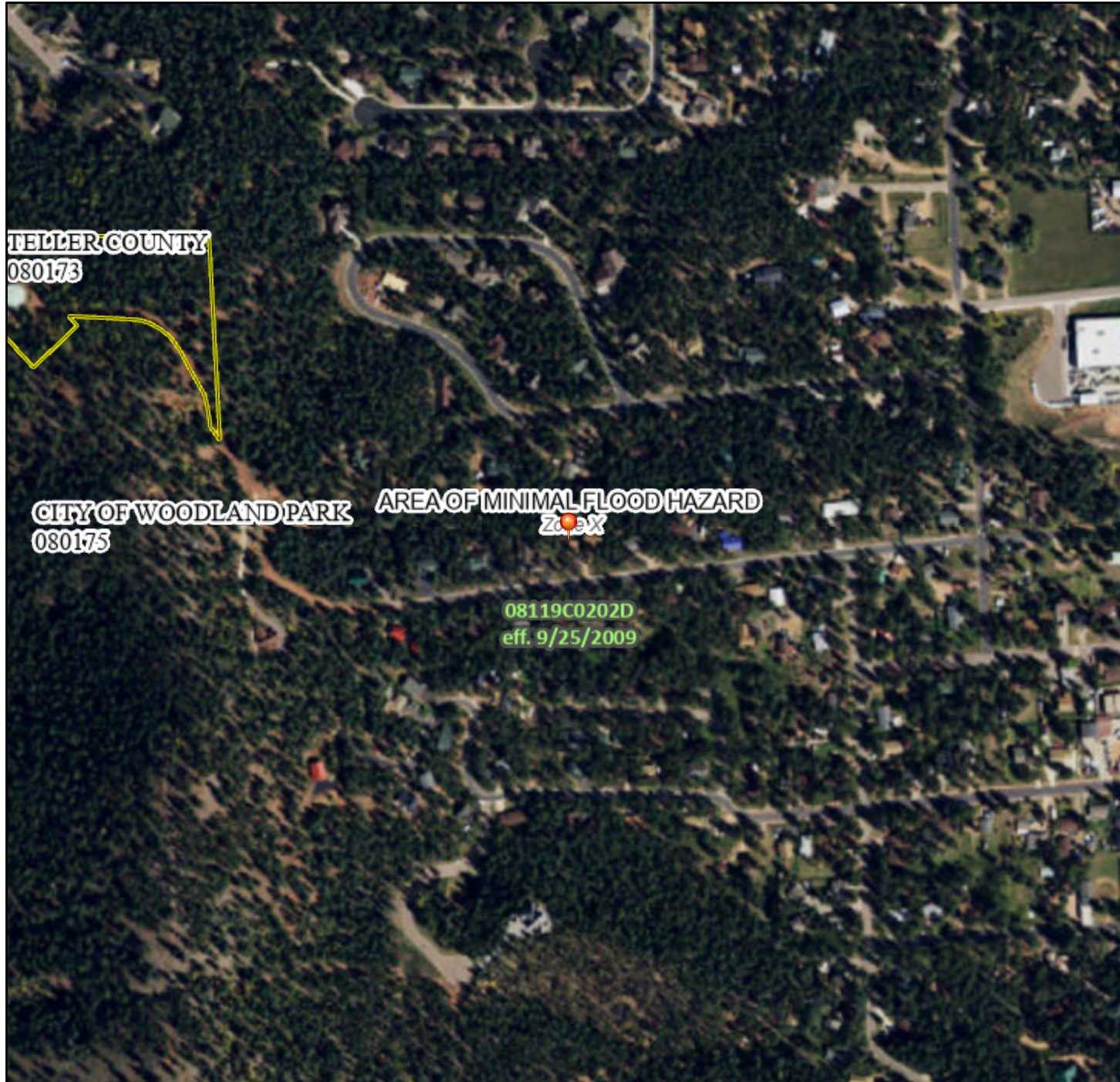
DATE: 03/23/22

SHEET: 1 OF 1

National Flood Hazard Layer FIRMette



105°4'25"W 38°59'50"N



0 250 500 1,000 1,500 2,000 Feet

1:6,000

105°3'48"W 38°59'22"N

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
		Area of Undetermined Flood Hazard Zone D
GENERAL STRUCTURES		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall
OTHER FEATURES		20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
		17.5
		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
		Coastal Transect Baseline
MAP PANELS		Digital Data Available
		No Digital Data Available
		Unmapped



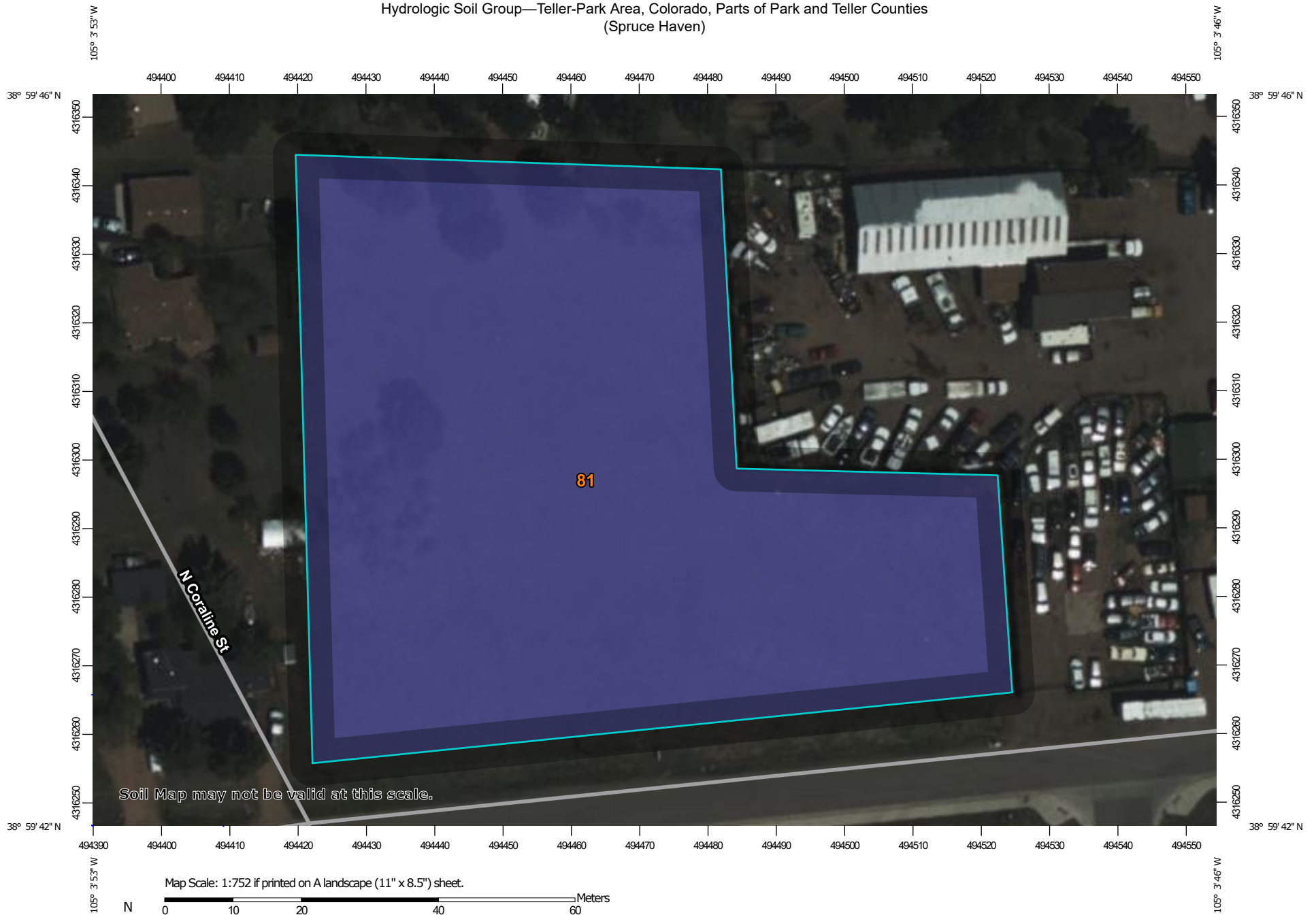
The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

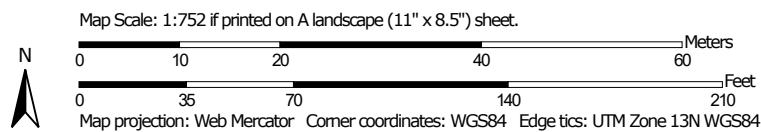
The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on **3/11/2022 at 9:59 AM** and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

Hydrologic Soil Group—Teller-Park Area, Colorado, Parts of Park and Teller Counties (Spruce Haven)



Soil Map may not be valid at this scale.



**Natural Resources
Conservation Service**

Web Soil Survey
National Cooperative Soil Survey

3/11/2022
Page 1 of 4

Hydrologic Soil Group—Teller-Park Area, Colorado, Parts of Park and Teller Counties
(Spruce Haven)

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

Soil Rating Polygons

 A
 A/D
 B
 B/D
 C
 C/D
 D
 Not rated or not available

Soil Rating Lines

 A
 A/D
 B
 B/D
 C
 C/D
 D
 Not rated or not available

Soil Rating Points

 A
 A/D
 B
 B/D

 C
 C/D
 D
 Not rated or not available

Water Features

 Streams and Canals

Transportation

 Rails
 Interstate Highways
 US Routes
 Major Roads
 Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Teller-Park Area, Colorado, Parts of Park and Teller Counties
 Survey Area Data: Version 13, Aug 31, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 18, 2020—May 21, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
81	Plome-Pimsby complex, 5 to 40 percent slopes	B	1.6	100.0%
Totals for Area of Interest			1.6	100.0%

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

CALCULATIONS

EXISTING DRAINAGE DESIGN - RATIONAL ANALYSIS

							CONVEYANCE TC						TT	INTENSITY		TOTAL FLOWS	
BASIN	AREA TOTAL (Acres)	C ₅	C ₁₀₀	Length (ft)	Height (ft)	TI (min)	Length (ft)	Height (ft)	C _v	Slope (%)	Velocity (fps)	TC (min)	TOTAL (min)	I ₅ (in/hr)	I ₁₀₀ (in/hr)	Q ₅ (c.f.s.)	Q ₁₀₀ (c.f.s.)
OS-1	0.39	0.25	0.48	74	3.5	9.5	313	21.5	10	6.9%	2.6	2.0	11.5	2.92	6.01	0.3	1.1
Pavement	0.08	0.90	0.96			DP-E1	129	6	7	4.7%	1.5	1.4					
Landscape	0.31	0.08	0.35														
Roof	0.00	0.73	0.81														
OS-2	0.43	0.21	0.45	98	6	10.0	175	13	7	7.4%	1.9	1.5	11.6	2.91	5.99	0.3	1.2
Pavement	0.03	0.90	0.96			DP-P	153	10	7	6.5%	1.8	1.4					
Landscape	0.35	0.08	0.35														
Roof	0.05	0.73	0.81														
OS-3	0.10	0.08	0.35	89	7	8.8	47	4	10	8.5%	2.9	0.3	9.1	3.37	6.96	0.0	0.2
Pavement	0.00	0.90	0.96			DP-E3	154	12	10	7.8%	2.8	0.9					
Landscape	0.10	0.08	0.35														
Roof	0.00	0.73	0.81														
E1	0.36	0.09	0.36	54	2.5	8.8	74	3	7	4.1%	1.4	0.9	9.7	3.23	6.69	0.1	0.9
Historic Flow	0.36	0.09	0.36														
E2	1.07	0.09	0.36	197	16	14.0	173	8	7	4.6%	1.5	1.9	15.9	2.51	5.17	0.2	2.0
Historic Flow	1.07	0.09	0.36														
E3	0.24	0.09	0.36	90	8	9.2	150	12	7	8.0%	2.0	1.3	10.4	2.81	6.39	0.1	0.6
Historic Flow	2.39	0.09	0.36														

Calculated by: SLP
Date: 3/23/2022

PROPOSED DRAINAGE DESIGN - RATIONAL ANALYSIS

							CONVEYANCE TC						TT	INTENSITY		TOTAL FLOWS	
BASIN	AREA TOTAL (Acres)	C ₅	C ₁₀₀	Length (ft)	Height (ft)	TI (min)	Length (ft)	Height (ft)	C _V	Slope (%)	Velocity (fps)	TC (min)	TOTAL (min)	I ₅ (in/hr)	I ₁₀₀ (in/hr)	Q ₅ (c.f.s.)	Q ₁₀₀ (c.f.s.)
A1 <i>Pavement</i> <i>Roof</i> <i>Landscape</i>	0.87 0.24 0.27 0.36	0.52 0.90 0.73 0.12	0.68 0.96 0.81 0.39	65	8	2.4 DP-P	331 175	8 13	10 7	2.4% 7.4%	1.6 1.9	3.5 1.5	5.9	4.09	8.51	1.9	5.0
B1 <i>Landscape</i>	0.15 0.15	0.12 0.12	0.39 0.39	33	5	4.7 DP-I	146 129	16 6	7 7	11.0% 4.7%	2.3 1.5	1.1 1.4	5.7	4.14	8.59	0.1	0.5
B2 <i>Landscape</i>	0.36 0.26	0.09 0.12	0.28 0.39	54	2.5	8.8	74	3	7	4.1%	1.4	0.9	9.7	3.23	6.69	0.1	0.7
B3 <i>Landscape</i>	0.10 0.10	0.12 0.12	0.39 0.39	43	1.5	8.6	41	6	7	14.6%	2.7	0.3	8.9	3.39	7.00	0.0	0.3
B4 <i>Landscape</i>	0.11 0.11	0.12 0.12	0.39 0.39	38	8	4.5	166	5	7	3.0%	1.2	2.3	6.8	3.39	7.00	0.0	0.3
B5 <i>Landscape</i>	0.09 0.09	0.12 0.12	0.39 0.39	40	8	4.7	104	1	7	1.0%	0.7	2.5	7.2	3.39	7.00	0.0	0.2

Calculated by: SLP
Date: 3/14/2022

DESIGN POINT SUMMARY- RATIONAL ANALYSIS

				TT	INTENSITY		TOTAL FLOWS	
DESIGN POINT	AREA TOTAL (Acres)	C ₅	C ₁₀₀	TOTAL (min)	I ₅ (in/hr)	I ₁₀₀ (in/hr)	Q ₅ (c.f.s.)	Q ₁₀₀ (c.f.s.)
E1	0.75	0.17	0.42	12.9	2.77	5.70	0.4	1.8
BASIN OS1	0.39	0.25	0.48	12.9				
BASIN E1	0.36	0.09	0.36	9.7				
E2	1.50	0.13	0.38	15.9	2.51	5.17	0.5	3.0
BASIN OS2	0.43	0.21	0.45	13.0				
BASIN E2	1.07	0.09	0.36	15.9				
E3	0.34	0.09	0.36	10.4	2.81	6.39	0.1	0.8
BASIN OS3	0.10	0.08	0.35	9.1				
BASIN E3	0.24	0.09	0.36	10.4				

Calculated by: DLM

Date:

DESIGN POINT SUMMARY- RATIONAL ANALYSIS

				TT	INTENSITY		TOTAL FLOWS	
DESIGN POINT	AREA TOTAL (Acres)	C ₅	C ₁₀₀	TOTAL (min)	I ₅ (in/hr)	I ₁₀₀ (in/hr)	Q ₅ (c.f.s.)	Q ₁₀₀ (c.f.s.)
1	0.90	0.16	0.39	12.9	2.77	5.70	0.4	2.0
BASIN OS1	0.39	0.25	0.48	12.9				
BASIN B1	0.15	0.12	0.39	5.7				
BASIN B2	0.36	0.09	0.28	9.7				
4	0.54	0.19	0.43	11.6	2.91	5.99	0.3	1.4
BASIN OS2	0.43	0.21	0.45	11.6				
BASIN B4	0.11	0.12	0.39	6.8				
3	0.19	0.10	0.37	10.0	3.16	6.54	0.1	0.5
BASIN OS3	0.10	0.08	0.35	10.0				
BASIN B5	0.09	0.12	0.39	7.2				
P-IN	0.87	0.52	0.68	7.4	3.80	7.70	1.7	4.5
BASIN A1	0.87	0.52	0.68	7.4				
P-OUT <i>POND ROUTED</i>	0.87						0.0	1.1
2	1.41	0.07	0.17				0.3	2.7
DP-4	0.54	0.19	0.43	11.6	2.91	5.99	0.3	1.4
P-OUT	0.87						0.0	1.1
BASIN B3	0.10	0.12	0.39	11.6	2.9	6.0	0.0	0.2

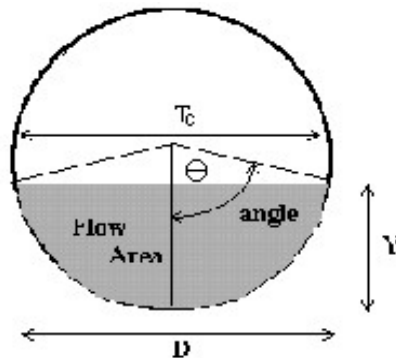
Calculated by: DLM

Date:

CIRCULAR CONDUIT FLOW (Normal & Critical Depth Computation)

Project: **Spruce Haven Townhomes**

Pipe ID: **8" PVC DESIGN POINT P4**



Design Information (Input)

Pipe Invert Slope	$S_o =$	0.0200	ft/ft
Pipe Manning's n-value	$n =$	0.0120	
Pipe Diameter	$D =$	8.00	inches
Design discharge	$Q =$	1.40	cfs

Full-flow Capacity (Calculated)

Full-flow area	$A_f =$	0.35	sq ft
Full-flow wetted perimeter	$P_f =$	2.09	ft
Half Central Angle	$\theta =$	3.14	radians
Full-flow capacity	$Q_f =$	1.86	cfs

Calculation of Normal Flow Condition

Half Central Angle ($0 < \theta < 3.14$)	$\theta =$	1.87	radians
Flow area	$A_n =$	0.24	sq ft
Top width	$T_n =$	0.64	ft
Wetted perimeter	$P_n =$	1.25	ft
Flow depth	$Y_n =$	0.43	ft
Flow velocity	$V_n =$	5.84	fps
Discharge	$Q_n =$	1.40	cfs
Percent Full Flow	$\text{Flow} =$	75.3%	of full flow
Normal Depth Froude Number	$Fr_n =$	1.68	supercritical

Calculation of Critical Flow Condition

Half Central Angle ($0 < \theta_c < 3.14$)	$\theta_c =$	2.30	radians
Critical flow area	$A_c =$	0.31	sq ft
Critical top width	$T_c =$	0.50	ft
Critical flow depth	$Y_c =$	0.56	ft
Critical flow velocity	$V_c =$	4.50	fps
Critical Depth Froude Number	$Fr_c =$	1.00	

Channel Report

<Name>

Triangular

Side Slopes (z:1) = 33.00, 33.00
Total Depth (ft) = 0.30

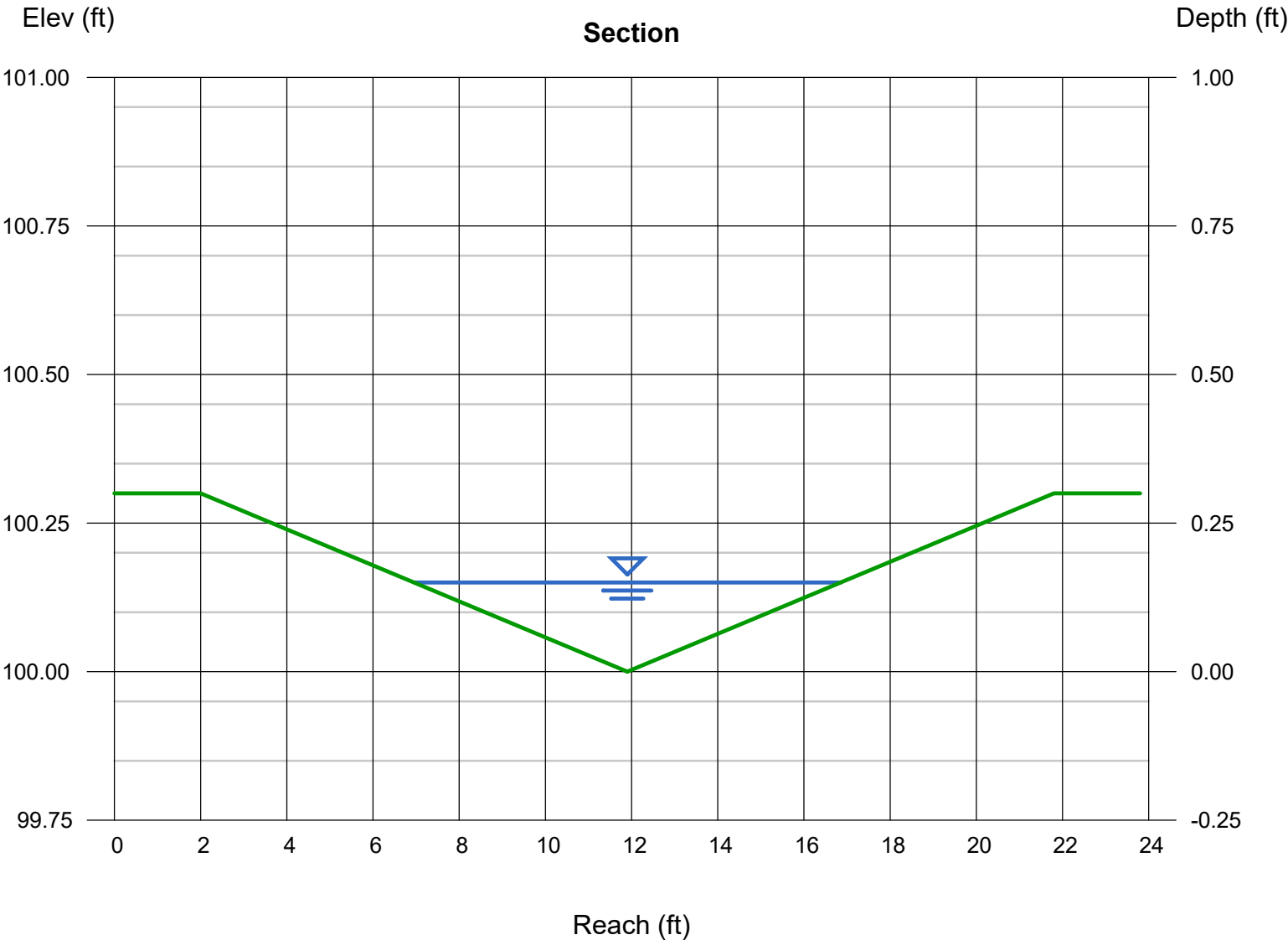
Invert Elev (ft) = 100.00
Slope (%) = 1.72
N-Value = 0.030

Calculations

Compute by: Q vs Depth
No. Increments = 10

Highlighted

Depth (ft) = 0.15
Q (cfs) = 0.857
Area (sqft) = 0.74
Velocity (ft/s) = 1.15
Wetted Perim (ft) = 9.90
Crit Depth, Yc (ft) = 0.14
Top Width (ft) = 9.90
EGL (ft) = 0.17



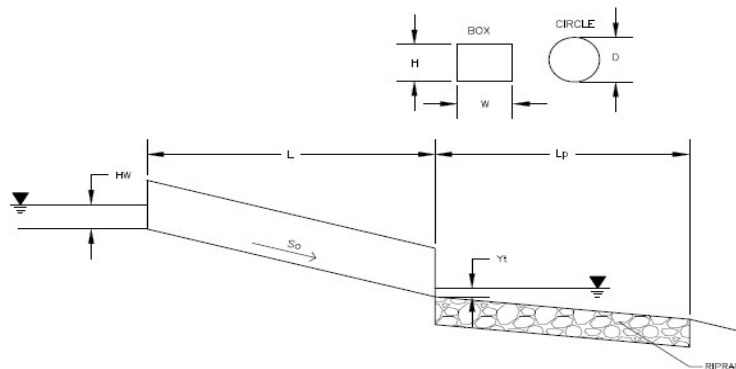
Depth	Q	Area	Veloc
(ft)	(cfs)	(sqft)	(ft/s)
0.03	0.012	0.030	0.39
0.06	0.074	0.119	0.63
0.09	0.219	0.267	0.82
0.12	0.473	0.475	0.99
0.15	0.857	0.743	1.15
0.18	1.393	1.069	1.30
0.21	2.102	1.455	1.44
0.24	3.001	1.901	1.58
0.27	4.109	2.406	1.71
0.30	5.442	2.970	1.83

Wp	Yc	TopWidth	Energy
(ft)	(ft)	(ft)	(ft)
1.98	0.03	1.98	0.03
3.96	0.06	3.96	0.07
5.94	0.08	5.94	0.10
7.92	0.11	7.92	0.14
9.90	0.14	9.90	0.17
11.89	0.17	11.88	0.21
13.87	0.20	13.86	0.24
15.85	0.22	15.84	0.28
17.83	0.25	17.82	0.32
19.81	0.28	19.80	0.35

Determination of Culvert Headwater and Outlet Protection

Project: **21-321 Spruce Haven Townhomes**

Basin ID: **DP-4 Pipe outfall protection**



Soil Type:

Choose One:

- ☒ Sandy
☐ Non-Sandy

Supercritical Flow! Using D_a to calculate protection type.

Design Information (Input):

Design Discharge

Q = 1.4 cfs

Circular Culvert:

Barrel Diameter in Inches

D = 8 inches

Inlet Edge Type (Choose from pull-down list)

Square End Projection

OR

Box Culvert:

Barrel Height (Rise) in Feet

Height (Rise) =

Barrel Width (Span) in Feet

Width (Span) =

Inlet Edge Type (Choose from pull-down list)

Number of Barrels

No = 1

Inlet Elevation

Elev IN = 8553 ft

Outlet Elevation **OR** Slope

So = 0.02 ft/ft

Culvert Length

L = 155.12 ft

Manning's Roughness

n = 0.012

Bend Loss Coefficient

k_b = 0

Exit Loss Coefficient

k_x = 1

Tailwater Surface Elevation

Elev Y_t =

Max Allowable Channel Velocity

V = 5 ft/s

Required Protection (Output):

Tailwater Surface Height

Y_t = 0.27 ft

Flow Area at Max Channel Velocity

A_t = 0.28 ft²

Culvert Cross Sectional Area Available

A = 0.35 ft²

Entrance Loss Coefficient

k_e = 0.50

Friction Loss Coefficient

k_f = 7.06

Sum of All Losses Coefficients

k_s = 8.56

Culvert Normal Depth

Y_n = 0.43 ft

Culvert Critical Depth

Y_c = 0.56 ft

Tailwater Depth for Design

d = 0.61 ft

Adjusted Diameter **OR** Adjusted Rise

D_a = 0.55 ft

Expansion Factor

$1/(2*\tan(\Theta))$ = 4.83

Flow/Diameter^{2.5} **OR** Flow/(Span * Rise^{1.5})

$Q/D^{2.5}$ = 3.86 ft^{0.5}/s

Froude Number

Fr = 1.68

Tailwater/Adjusted Diameter **OR** Tailwater/Adjusted Rise

Y_t/D = 0.49 Supercritical!

Inlet Control Headwater

HW_i = 1.09 ft

Outlet Control Headwater

HW_o = -0.35 ft

Design Headwater Elevation

HW = 8,554.09 ft

Headwater/Diameter **OR** Headwater/Rise Ratio

HW/D = 1.63 HW/D > 1.5!

Minimum Theoretical Riprap Size

d_{50} = 2 in

Nominal Riprap Size

d_{50} = 6 in

UDFCD Riprap Type

Type = VL

Length of Protection

L_p = 3 ft

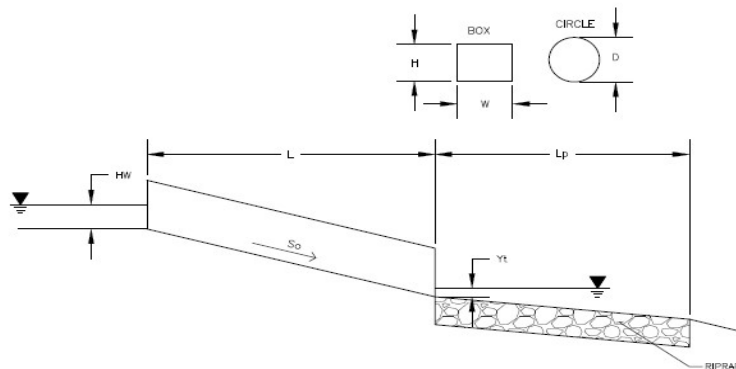
Width of Protection

T = 2 ft

Determination of Culvert Headwater and Outlet Protection

Project: **21-321 Spruce Haven Townhomes**

Basin ID: **Pond outfall protection**



Soil Type:

Choose One:

☒ Sandy

☐ Non-Sandy

Design Information (Input):

Design Discharge

Q = 1.1 cfs

Circular Culvert:

Barrel Diameter in Inches

D = 8 inches

Inlet Edge Type (Choose from pull-down list)

Square End Projection

OR

Box Culvert:

Barrel Height (Rise) in Feet

Height (Rise) =

Barrel Width (Span) in Feet

Width (Span) =

Inlet Edge Type (Choose from pull-down list)

Number of Barrels

No = 1

Inlet Elevation

Elev IN = 8553 ft

Outlet Elevation **OR** Slope

So = 0.005 ft/ft

Culvert Length

L = 6.75 ft

Manning's Roughness

n = 0.012

Bend Loss Coefficient

k_b = 0

Exit Loss Coefficient

k_x = 1

Tailwater Surface Elevation

Elev Y_t =

Max Allowable Channel Velocity

V = 5 ft/s

Required Protection (Output):

Tailwater Surface Height

Y_t = 0.27 ft

Flow Area at Max Channel Velocity

A_t = 0.22 ft²

Culvert Cross Sectional Area Available

A = 0.35 ft²

Entrance Loss Coefficient

k_e = 0.50

Friction Loss Coefficient

k_f = 0.31

Sum of All Losses Coefficients

k_s = 1.81

Culvert Normal Depth

Y_n = 0.46 ft

Culvert Critical Depth

Y_c = 0.50 ft

Tailwater Depth for Design

d = 0.58 ft

Adjusted Diameter **OR** Adjusted Rise

D_a = - ft

Expansion Factor

1/(2*tan(Θ)) = 4.39

Flow/Diameter^{2.5} **OR** Flow/(Span * Rise^{1.5})

Q/D^{2.5} = 3.03 ft^{0.5}/s

Froude Number

Fr = -

Tailwater/Adjusted Diameter **OR** Tailwater/Adjusted Rise

Y_t/D = 0.40 **Pressure flow!**

Inlet Control Headwater

HW_i = 0.85 ft

Outlet Control Headwater

HW_o = 0.83 ft

Design Headwater Elevation

HW = 8,553.85 ft

Headwater/Diameter **OR Headwater/Rise Ratio**

HW/D = 1.28

Minimum Theoretical Riprap Size

d₅₀ = 2 in

Nominal Riprap Size

d₅₀ = 6 in

UDFCD Riprap Type

Type = VL

Length of Protection

L_p = 3 ft

Width of Protection

T = 2 ft

Site-Level Low Impact Development (LID) Design Effective Impervious Calculator

LID Credit by Impervious Reduction Factor (IRF) Method

UD BMP (Version 3.06, November 2016)

User Input

Calculated cells

***Design Storm: 1 Hour Rain Depth	WQCV Event	0.76	inches
***Minor Storm: 1 Hour Rain Depth	5 Year Event	1.00	inches
***Major Storm: 1 Hour Rain Depth	100 Year Event	2.03	inches
Optional User Defined Storm	CUHP		
(CUHP) NOAA 1 Hour Rainfall Depth and Frequency for User Defined Storm	100 Year Event		

Max Intensity for Optional User Defined Storm

0

Designer:

Company: CATAMOUNT

Date: March 24, 2022

Project: Spruce Haven Townhomes

Location: Pond P

SITE INFORMATION (USER-INPUT)

Sub-basin Identifier	A1	A1.1																
Receiving Pervious Area Soil Type	Loamy Sand	LOAMY SAND																
Total Area (ac., Sum of DCIA, UIA, RPA, & SPA)	0.648	0.285																
Directly Connected Impervious Area (DCIA, acres)	0.000	0.000																
Unconnected Impervious Area (UIA, acres)	0.288	0.222																
Receiving Pervious Area (RPA, acres)	0.360	0.063																
Separate Pervious Area (SPA, acres)	0.000	0.000																
RPA Treatment Type: Conveyance (C), Volume (V), or Permeable Pavement (PP)	C	C																

CALCULATED RESULTS (OUTPUT)

Total Calculated Area (ac, check against input)	0.648	0.285																
Directly Connected Impervious Area (DCIA, %)	0.0%	0.0%																
Unconnected Impervious Area (UIA, %)	44.4%	77.9%																
Receiving Pervious Area (RPA, %)	55.6%	22.1%																
Separate Pervious Area (SPA, %)	0.0%	0.0%																
A _u (RPA / UIA)	1.250	0.284																
I _u Check	0.440	0.780																
f / i for WQCV Event:	2.5	2.5																
f / i for 5 Year Event:	0.6	0.6																
f / i for 100 Year Event:	0.4	0.4																
f / i for Optional User Defined Storm CUHP:																		
IRF for WQCV Event:	0.57	0.77																
IRF for 5 Year Event:	0.85	0.91																
IRF for 100 Year Event:	0.90	0.96																
IRF for Optional User Defined Storm CUHP:																		
Total Site Imperviousness: I _{total}	44.4%	77.9%																
Effective Imperviousness for WQCV Event:	25.4%	59.6%																
Effective Imperviousness for 5 Year Event:	37.6%	71.1%																
Effective Imperviousness for 100 Year Event:	40.1%	74.4%																
Effective Imperviousness for Optional User Defined Storm CUHP:																		

LID / EFFECTIVE IMPERVIOUSNESS CREDITS

WQCV Event CREDIT: Reduce Detention By:	N/A	N/A	28.8%	25.6%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
This line only for 10 Year Event	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
100 Year Event CREDIT**: Reduce Detention By:	N/A	N/A	9.9%	4.3%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
User Defined CUHP CREDIT: Reduce Detention By:																		

Total Site Imperviousness:

54.7%

Total Site Effective Imperviousness for WQCV Event:

35.9%

Total Site Effective Imperviousness for 5-Year Event:

47.8%

Total Site Effective Imperviousness for 100-Year Event:

50.6%

Total Site Effective Imperviousness for Optional User Defined Storm CUHP:

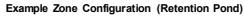
Notes:

* Use Green Ampt average infiltration rate values from Table 3.3.

** Flood control detention volume credits based on empirical equations from Storage Chapter of USDCM.

*** Method assumes that 1 hour rainfall depth is equivalent to 1 hour intensity for calculation purposed

DETENTION BASIN STAGE-STORAGE TABLE BUILDER

Basin ID: EDB DESIGN POINT P

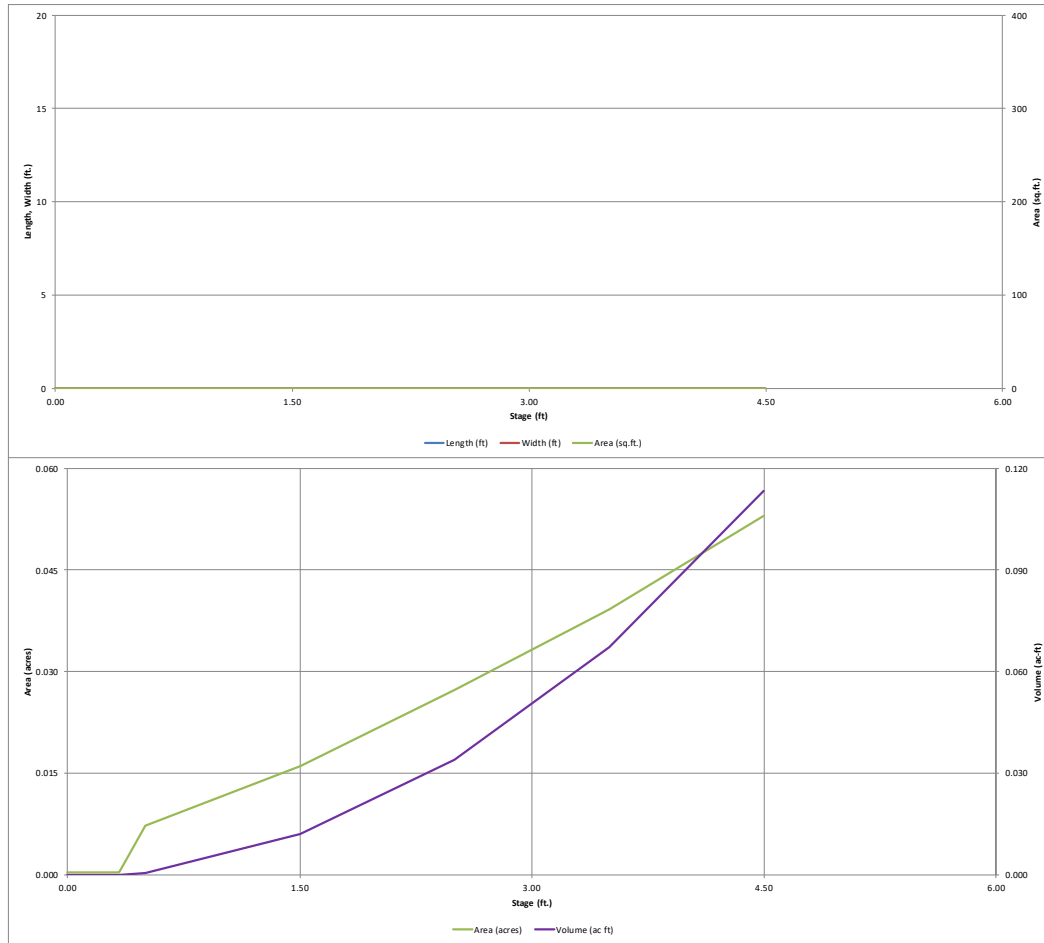
Selected BMP Type =		EDB
Watershed Area =	0.87	acres
Watershed Length =	441	ft
Watershed Slope =	0.075	ft/ft
Watershed Imperviousness =	50.60%	percent
Percentage Hydrologic Soil Group A =	0.05%	percent
Percentage Hydrologic Soil Group B =	100.0%	percent
Percentage Hydrologic Soil Groups C/D =	0.00%	percent
Desired WQCV Drain Time =	40.0	hours
Location for 1-Hr Rainfall Depths = User Input		
Water Quality Capture Volume (WQCV) =	0.047	acre-feet
Excess Urban Runoff Volume (EURV) =	0.015	acre-feet
2-yr Runoff Volume (P1 = 0.71 in.) =	0.325	acre-feet
5-yr Runoff Volume (P1 = 0.97 in.) =	0.39	acre-feet
10-yr Runoff Volume (P1 = 1.17 in.) =	0.052	acre-feet
25-yr Runoff Volume (P1 = 1.48 in.) =	0.076	acre-feet
50-yr Runoff Volume (P1 = 1.75 in.) =	0.096	acre-feet
100-yr Runoff Volume (P1 = 2.03 in.) =	0.118	acre-feet
500-yr Runoff Volume (P1 = 2.8 in.) =	0.173	acre-feet
Approximate 2-yr Detention Volume =	0.024	acre-feet
Approximate 5-yr Detention Volume =	0.035	acre-feet
Approximate 10-yr Detention Volume =	0.040	acre-feet
Approximate 25-yr Detention Volume =	0.055	acre-feet
Approximate 50-yr Detention Volume =	0.069	acre-feet

Optional User Input 1-hr Precipitation	
0.76	inches
0.97	inches
1.17	inches
1.48	inches
1.75	inches
2.03	inches
2.80	inches

Zone 1 Volume (WQCV)	0.015	acre-feet
Zone 2 Volume (EURV - Zone 1)	0.032	acre-feet
Zone 3 Volume (100-year - Zones 1 & 2)	0.021	acre-feet
Total Detention Basin Volume =	0.069	acre-feet
Initial Surcharge Basin (ISV)	user	ft ³
Initial Surcharge Depth (ISD)	user	ft
Total Available Detention Depth (H_{DAV})	user	ft
Depth of Trickle Channel (H_{TC})	user	ft
Slope of Trickle Channel (S_{TC})	user	ft/ft
Slopes of Main Basin Sides (S_{MAIN})	user	ft/ft
Basin Length-to-Width Ratio ($R_{L/W}$)	user	
Initial Surcharge Area (A_{ISD})	user	ft ²
Surcharge Volume Length (L_{SV})	user	ft
Surcharge Volume Width (W_{SV})	user	ft
Depth of Basin Floor ($H_{1(LOCF)}$)	user	ft
Length of Basin Floor ($H_{1(LOCF)}$)	user	ft
Width of Basin Floor ($W_{1(LOCF)}$)	user	ft
Area of Basin Floor ($A_{1(LOCF)}$)	user	ft ²
Volume of Basin Floor ($V_{1(LOCF)}$)	user	ft ³
Depth of Main Basin (H_{MAIN})	user	ft
Length of Main Basin (L_{MAIN})	user	ft
Width of Main Basin (W_{MAIN})	user	ft
Area of Main Basin (A_{MAIN})	user	ft ²
Volume of Main Basin (V_{MAIN})	user	ft ³
Calculated Total Basin Volume (V_{DAV})	user	acre-feet

[illegible]

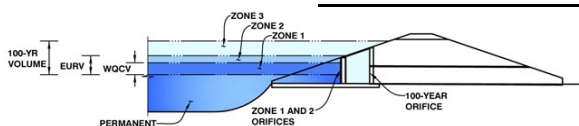
DETENTION BASIN STAGE-STORAGE TABLE BUILDER



Detention Basin Outlet Structure Design

Project: _____

Basin ID: _____



Example Zone Configuration (Retention Pond)

	Stage (ft)	Zone Volume (ac-ft)	Outlet Type
Zone 1 (WQCV)	1.66	0.015	Orifice Plate
Zone 2 (EURV)	2.95	0.032	Orifice Plate
Zone 3 (100-year)	3.54	0.021	Weir&Pipe (Restrict)
		0.069	Total

User Input: Orifice at Underdrain Outlet (typically used to drain WQCV in a Filtration BMP)

Underdrain Orifice Invert Depth = ft (distance below the filtration media surface)
Underdrain Orifice Diameter = inches

Calculated Parameters for Underdrain

Underdrain Orifice Area = ft²
Underdrain Orifice Centroid = feet

User Input: Orifice Plate with one or more orifices or Elliptical Slot Weir (typically used to drain WQCV and/or EURV in a sedimentation BMP)

Invert of Lowest Orifice = ft (relative to basin bottom at Stage = 0 ft)
Depth at top of Zone using Orifice Plate = ft (relative to basin bottom at Stage = 0 ft)
Orifice Plate: Orifice Vertical Spacing = inches
Orifice Plate: Orifice Area per Row = sq. inches (diameter = 3/8 inch)

Calculated Parameters for Plate

WQ Orifice Area per Row = ft²
Elliptical Half Width = feet
Elliptical Slot Centroid = feet
Elliptical Slot Area = ft²

User Input: Stage and Total Area of Each Orifice Row (numbered from lowest to highest)

	Row 1 (required)	Row 2 (optional)	Row 3 (optional)	Row 4 (optional)	Row 5 (optional)	Row 6 (optional)	Row 7 (optional)	Row 8 (optional)
Stage of Orifice Centroid (ft)	0.00	1.25	2.50					
Orifice Area (sq. inches)	0.12	0.12	0.12					

	Row 9 (optional)	Row 10 (optional)	Row 11 (optional)	Row 12 (optional)	Row 13 (optional)	Row 14 (optional)	Row 15 (optional)	Row 16 (optional)
Stage of Orifice Centroid (ft)								
Orifice Area (sq. inches)								

User Input: Vertical Orifice (Circular or Rectangular)

Invert of Vertical Orifice = ft (relative to basin bottom at Stage = 0 ft)
Depth at top of Zone using Vertical Orifice = ft (relative to basin bottom at Stage = 0 ft)
Vertical Orifice Diameter = inches

Calculated Parameters for Vertical Orifice

Vertical Orifice Area = ft²
Vertical Orifice Centroid = feet

User Input: Overflow Weir (Dropbox) and Grate (Flat or Sloped)

Overflow Weir Front Edge Height, H_o = ft (relative to basin bottom at Stage = 0 ft)
Overflow Weir Front Edge Length = feet
Overflow Weir Slope = H:V (enter zero for flat grate)
Horiz. Length of Weir Sides = feet
Overflow Grate Open Area % = %
Debris Clogging % = %

Calculated Parameters for Overflow Weir

Height of Grate Upper Edge, H₁ = feet
Over Flow Weir Slope Length = feet
Grate Open Area / 100 yr Orifice Area = should be ≥ 4
Overflow Grate Open Area w/o Debris = ft²
Overflow Grate Open Area w/ Debris = ft²

User Input: Outlet Pipe w/ Flow Restriction Plate (Circular Orifice, Restrictor Plate, or Rectangular Orifice)

Depth to Invert of Outlet Pipe = ft (distance below basin bottom at Stage = 0 ft)
Outlet Pipe Diameter = inches
Restrictor Plate Height Above Pipe Invert = inches

Calculated Parameters for Outlet Pipe w/ Flow Restriction Plate

Outlet Orifice Area = ft²
Outlet Orifice Centroid = feet
Half Central Angle of Restrictor Plate on Pipe = radians

User Input: Emergency Spillway (Rectangular or Trapezoidal)

Spillway Invert Stage = ft (relative to basin bottom at Stage = 0 ft)
Spillway Crest Length = feet
Spillway End Slopes = H:V
Freeboard above Max Water Surface = feet

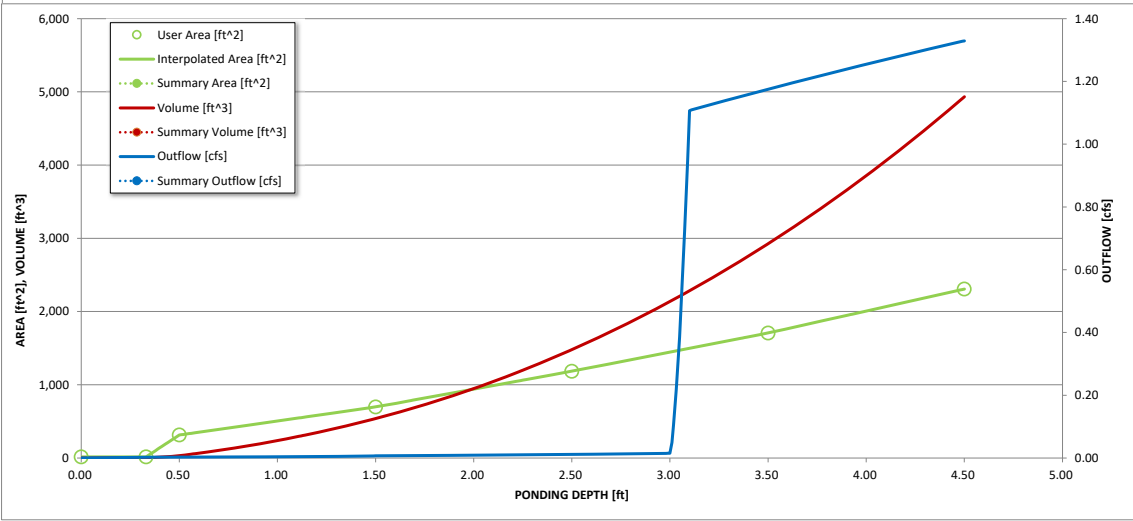
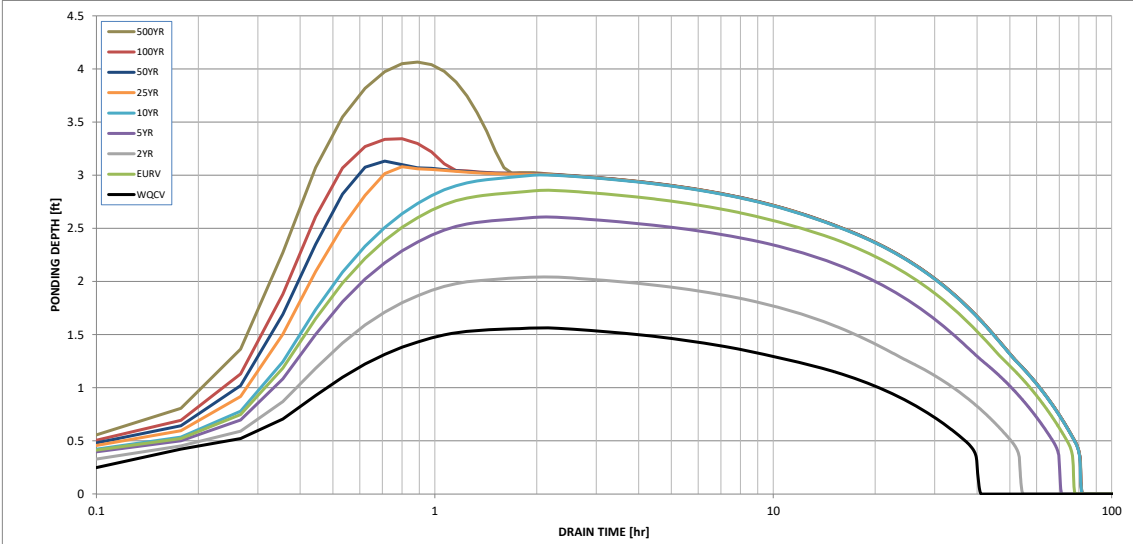
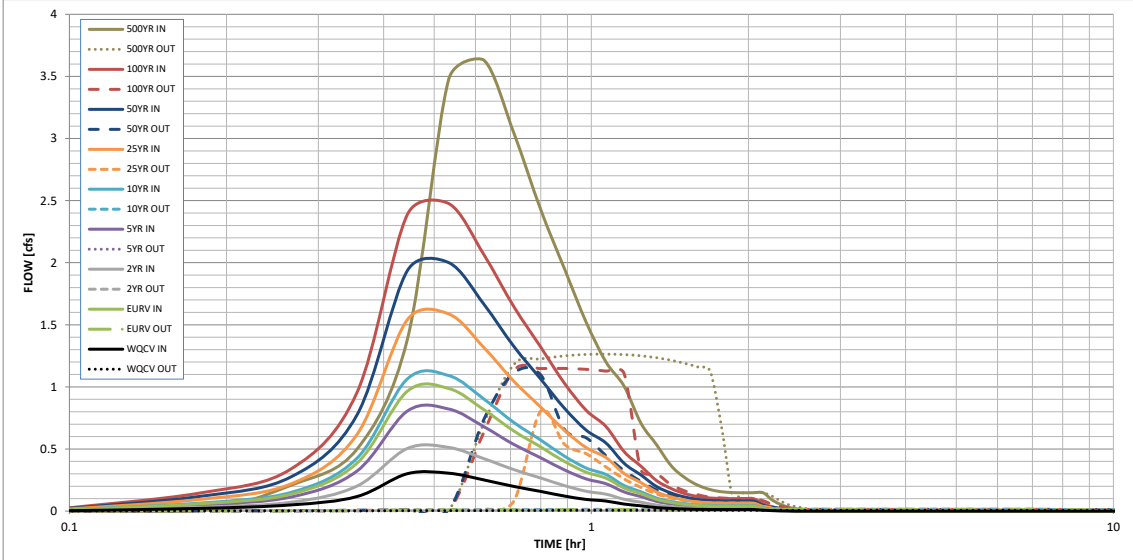
Calculated Parameters for Spillway

Spillway Design Flow Depth = feet
Stage at Top of Freeboard = feet
Basin Area at Top of Freeboard = acres

Routed Hydrograph Results

	WQCV	EURV	2 Year	5 Year	10 Year	25 Year	50 Year	100 Year	500 Year
Design Storm Return Period =	0.53	1.07	0.76	0.97	1.17	1.48	1.75	2.03	2.80
One-Hour Rainfall Depth (in) =	0.015	0.047	0.025	0.039	0.052	0.076	0.096	0.118	0.173
Calculated Runoff Volume (acre-ft) =									
OPTIONAL Override Runoff Volume (acre-ft) =									
Inflow Hydrograph Volume (acre-ft) =	0.014	0.047	0.024	0.039	0.051	0.075	0.095	0.118	0.173
Predevelopment Unit Peak Flow, q (cfs/acre) =	0.00	0.00	0.01	0.17	0.34	0.79	1.02	1.31	1.85
Predevelopment Peak Q (cfs) =	0.0	0.0	0.0	0.1	0.3	0.7	0.9	1.1	1.6
Peak Inflow Q (cfs) =	0.3	1.0	0.5	0.8	1.1	1.6	2.0	2.5	3.6
Peak Outflow Q (cfs) =	0.0	0.0	0.0	0.0	0.0	0.8	1.1	1.1	1.3
Ratio Peak Outflow to Predevelopment Q =	N/A	N/A	N/A	0.1	0.1	1.2	1.3	1.0	0.8
Structure Controlling Flow =	Plate	Plate	Plate	Plate	Overflow Grate 1	Overflow Grate 1	Outlet Plate 1	Outlet Plate 1	Outlet Plate 1
Max Velocity through Grate 1 (fps) =	N/A	N/A	N/A	N/A	0.0	0.1	0.1	0.1	0.1
Max Velocity through Grate 2 (fps) =	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Time to Drain 97% of Inflow Volume (hours) =	38	71	51	65	74	72	70	68	62
Time to Drain 99% of Inflow Volume (hours) =	40	75	53	69	79	78	77	76	74
Maximum Ponding Depth (ft) =	1.56	2.86	2.04	2.61	3.00	3.08	3.13	3.34	4.07
Area at Maximum Ponding Depth (acres) =	0.02	0.03	0.02	0.03	0.03	0.03	0.03	0.04	0.05
Maximum Volume Stored (acre-ft) =	0.013	0.044	0.023	0.037	0.049	0.052	0.053	0.061	0.091

Detention Basin Outlet Structure Design



S-A-V-D Chart Axis Override

	X-axis	Left Y-Axis	Right Y-Axis
minimum bound			
maximum bound			

SPRUCE HAVEN TOWNHOMES EXTENDED DETENTION BASIN

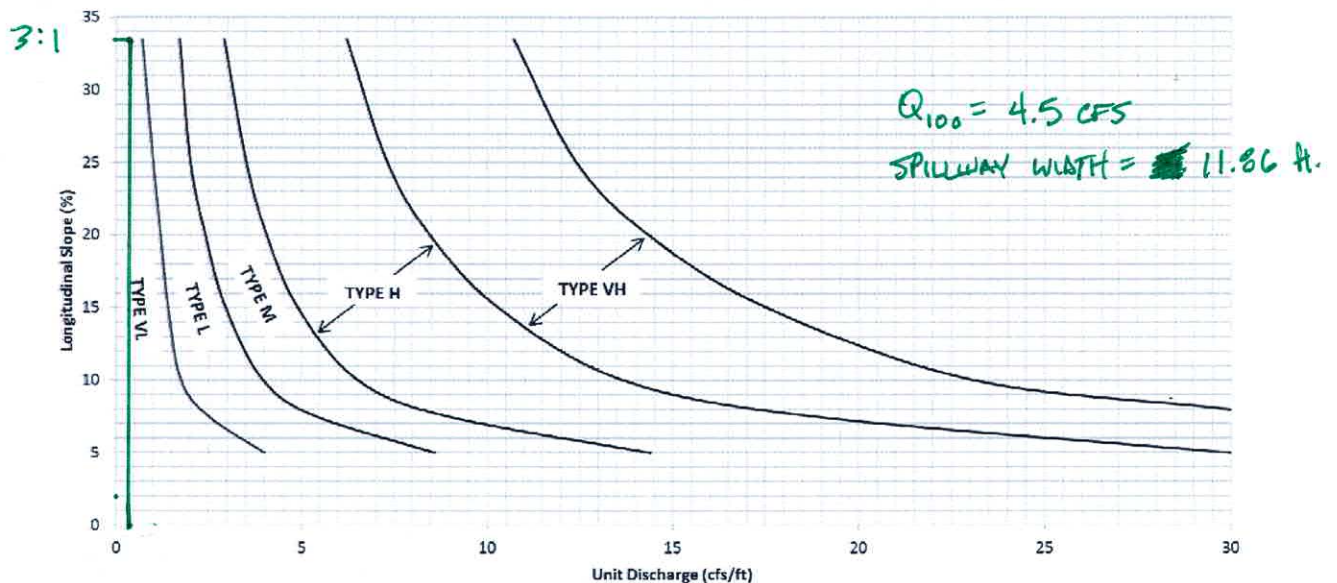
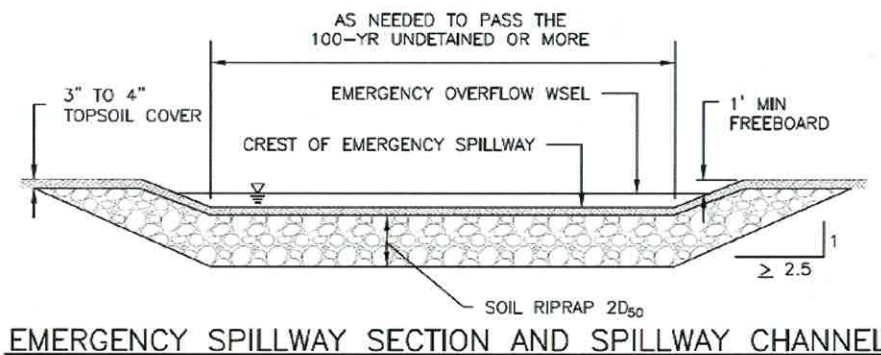
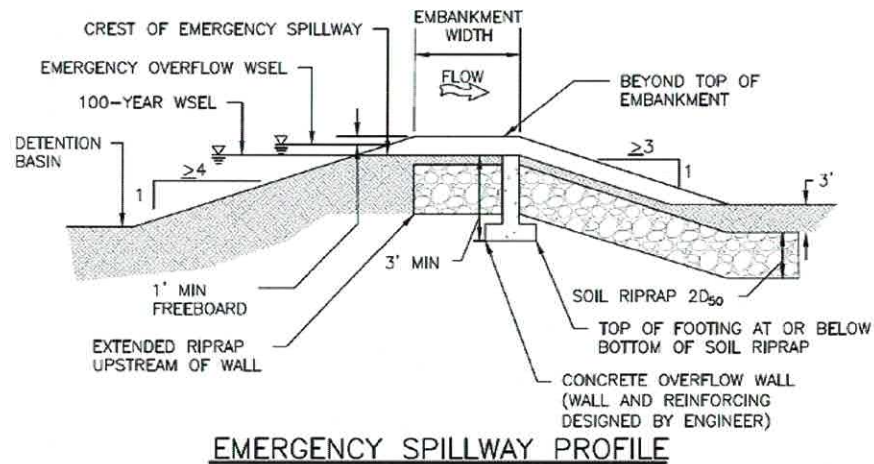


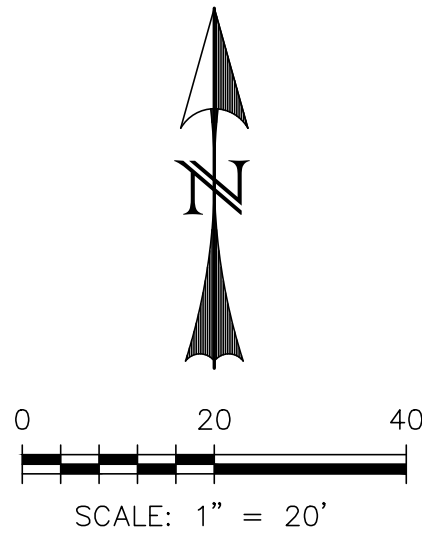
Figure 12-21. Embankment protection details and rock sizing chart (adapted from Arapahoe County)

USE 12" DEPTH OF TYPE 'VL' SOIL RIPRAP
COVERED BY 6" OF SOIL.

DRAINAGE MAP

EXISTING DRAINAGE BASINS			
BASIN	AREA (ACRES)	Q5 (CFS)	Q100 (CFS)
OS-1	0.39	0.3	1.1
OS-2	0.43	0.3	1.2
OS-3	0.10	0.0	0.2
E1	0.36	0.1	0.9
E2	1.07	0.2	2.0
E3	0.24	0.1	0.6

PROPOSED DESIGN POINTS		
DESIGN POINT	Q5 (CFS)	Q100 (CFS)
E1	0.4	1.8
E2	0.5	3.0
E3	0.1	0.8



DRAINAGE LEGEND

- BASIN IDENTIFIER
BASIN AREA [AC]
- DESIGN POINT IDENTIFIERS
- DRAINAGE BASIN BOUNDARY
- SURFACE SHEET FLOW DIRECTION
- EXISTING MAJOR CONTOUR (10')
- EXISTING MINOR CONTOUR (2')
- PROPOSED MAJOR CONTOUR (10')
- PROPOSED MINOR CONTOUR (2')
- EXISTING
PROPOSED
FUTURE
- SLOPE/DIRECTION
(E) STORM SEWER
(P) STORM SEWER, INLET, OUTFALL
PROPERTY BOUNDARY
- 3
- OS1
0.53
- 1.00%

REV.	DESCRIPTION	DATE



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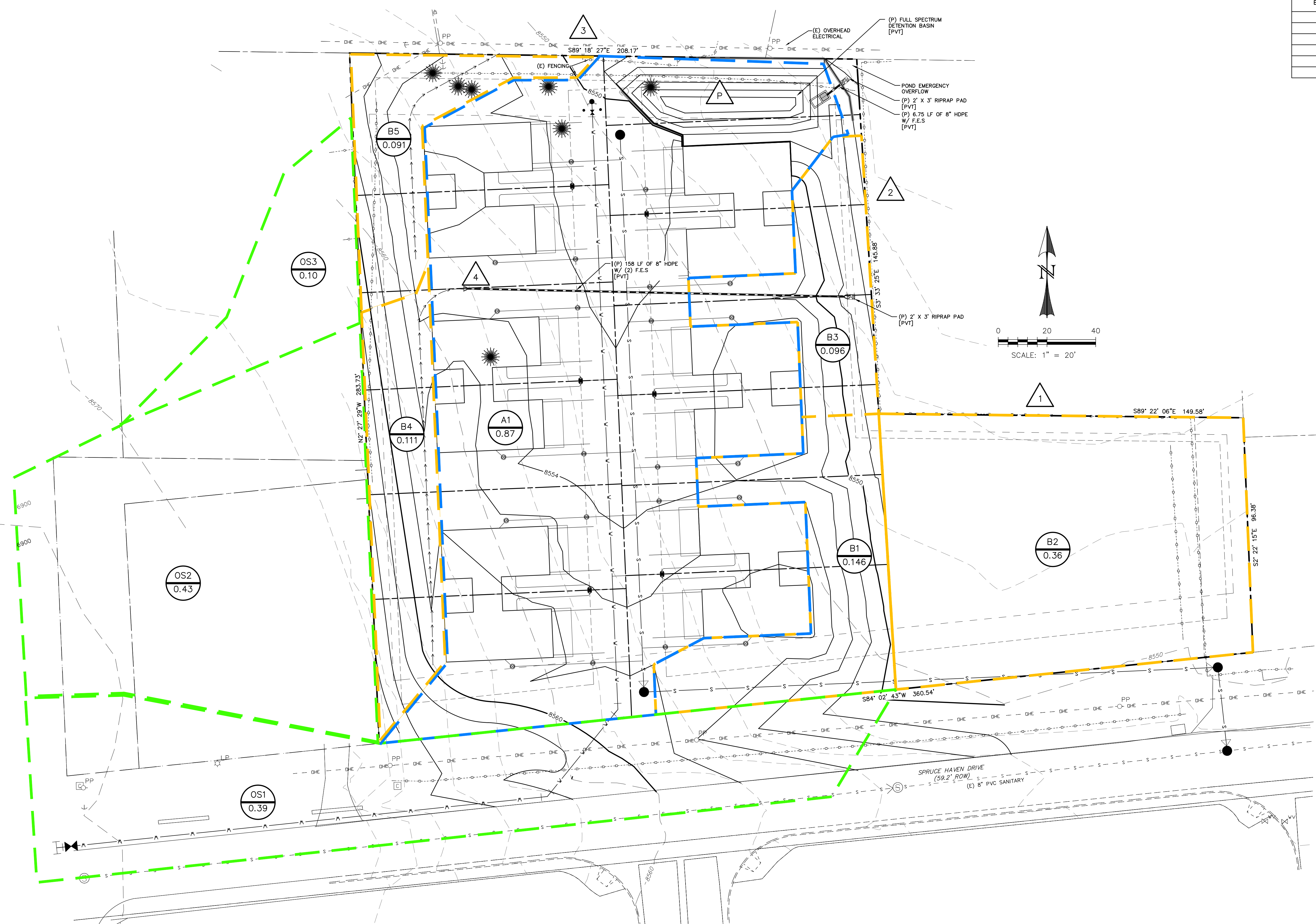
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ENGINEERING
321 W. HENRIETTA AVE
WOODLAND PARK, CO 80866
PO BOX 221 (719) 428-2124

SPRUCE HAVEN TOWNHOMES
EXISTING DRAINAGE MAP

DESIGNED BY:	DLM	DRAWN BY:	SLP
SCALE:	1"=20'	DATE:	03/23/22
JOB NUMBER	21-321	SHEET	1 OF 1

PROPOSED DRAINAGE BASINS			
BASIN	AREA (ACRES)	Q5 (CFS)	Q100 (CFS)
A1	0.87	1.9	5.0
B1	0.15	0.1	0.5
B2	0.36	0.1	0.7
B3	0.10	0.0	0.3
B4	0.11	0.0	0.3
B5	0.09	0.0	0.2

PROPOSED DESIGN POINTS		
DESIGN POINT	Q5 (CFS)	Q100 (CFS)
1	0.4	2.0
4	0.3	1.4
3	0.1	0.5
P-IN	1.7	4.5
P-OUT	0.0	1.1
2	0.3	2.5



DRAINAGE LEGEND

BASIN IDENTIFIER
BASIN AREA [AC]

DESIGN POINT IDENTIFIERS

PIPE DESIGN POINT

DRAINAGE BASIN BOUNDARY

SURFACE SHEET FLOW DIRECTION

EXISTING MAJOR CONTOUR (10')

EXISTING MINOR CONTOUR (2')

PROPOSED MAJOR CONTOUR (10')

PROPOSED MINOR CONTOUR (2')

EXISTING
PROPOSED
FUTURE

SLOPE/DIRECTION
(E) STORM SEWER
(P) STORM SEWER, INLET, OUTFALL

(P) BOUNDARY

A1
1.069

3

P2

(ONSITE)
(OFFSITE)
(FLOWS TO OFFSITE)

1.00%

REV.	DESCRIPTION	DATE

811

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WOODLAND PARK, CO 80866
PO BOX 221

SPRUCE HAVEN TOWNHOMES
PROPOSED DRAINAGE MAP

DESIGNED BY:	DLM	DRAWN BY:	SLP
SCALE:	1"=20'	DATE:	03/23/22
JOB NUMBER	21-321	SHEET	1 OF 1