



AGENDA
CITY OF GLENWOOD SPRINGS
Planning and Zoning Commission
Regular Meeting
MARCH 22, 2022
Council Chambers, First Floor
101 W. 8TH STREET
6:00 PM

1 Attendance Instructions

- A. This meeting is being held in person as well as via zoom.

Please click the link below to join the webinar:

<https://us02web.zoom.us/j/83707722740>

Or One tap mobile :

US: +13462487799,,83707722740# or +16699006833,,83707722740#

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Dial(for higher quality, dial a number based on your current location):

US: +1 346 248 7799 or +1 669 900 6833 or +1 253 215 8782 or +1 312 626 6799 or +1 929 205 6099 or +1 301 715 8592

Webinar ID: 837 0772 2740

International numbers available: <https://us02web.zoom.us/j/83707722740>

2 Roll Call

3 Receipt of the Minutes

- A. February 22, 2022 Planning and Zoning Commission Meeting Draft Minutes

4 Comments from citizens appearing for items not on the agenda

5 Continued Items

- A. Planning File 02-02, Part 2 Fire Impact Fee

6 New Items

- A. Planning File 53-20 City of Glenwood Springs Parks and Recreation Department World Headquarters Location and Extent Review

- B. Planning File 07-22 Code Amendments to Title 070 Development Standards in regards to Landscaping.

7 Commissioner Comments

8 Director Comments

9 Adjournment



MINUTES
CITY OF GLENWOOD SPRINGS
Planning and Zoning Commission
Regular Meeting
FEBRUARY 22, 2022
Council Chambers, First Floor 101
W. 8TH STREET
6:00 PM

1. Roll Call

- a. Present: Commissioners Carolyn Cipperly, Joy White, Peter Waller, George Shaver, Amber Wissing, and Alternates Jim Hardcastle and Mitchel Weimer.
- b. Staff: Assistant City Manager Jenn Ooton, Asst. Director Community Development Hannah Klausman, Long Range Senior Planner Trent Hyatt, Planner I Emery Ellingson.

Commissioner Waller motioned to seat Alternate Jim Hardcastle. Commissioner Cipperly Seconds. Motion passes unanimously.

2. Receipt of the Minutes

- a. Draft Minutes January 25, 2022 Planning and Zoning Commission Meeting
- b. Draft Minutes February 8, 2022 Special Planning and Zoning Commission Meeting

3. Comments from citizens appearing for items not on the agenda

- a. No comments received

Chair Dehm asks for a motion to change the agenda and move item 7, Election of Officers, up to the next item. Commissioner Waller motions to change the agenda. Commissioner Wissing seconds. Motion passes unanimously.

4. Planning and Zoning Commission Officers

- a. Election of Officers

Chair Dehm asked for nominations for election of Chair and Vice Chair positions.

Commissioner Cipperly motioned to nominate Commissioner Shaver to serve as Chair and Peter Waller to serve as Vice Chair. Commissioner White seconds. Motion passed unanimously with a vote of 7-0.

With approval of the new Chair and Vice Chair positions, former Chair Dehm indicated that as he was a current candidate for City Council seat that he would not be sitting for the remainder of the meeting.

Chair Shaver asked for a motion to seat alternate Mitchell Weimer to the vacated seat. Commissioner Waller motions to seat the alternate. Commissioner Wissing seconds. Unanimously approved.

5. New Items

a. Planning Item 34-21 Annexation and Rezoning (initial zoning) 25 Airport Road

Staff made a presentation on the application and provided recommendations for approval for both action items with the findings and conditions on pages 7 and 8 of the staff report.

The Commission had questions on elements of application including the requirement for a sidewalk or payment in lieu of, grandfathering of existing units, site access, sanitary service, potential for redevelopment of the site, zoning of adjacent properties, proposed zone district dimensional standards, proposed adjacent roundabout

Applicant Steve Ochko mentioned concerns he has related to ongoing Midland Road improvements and the City's plans for access/parking to his property. He also mentioned his discontent with staff's recommendation for the requirement of a sidewalk. He responded to Commissioner questions.

Public Comment:

Barbara Phillipone had questions about site orientation.

Action 1 - Annexation – of a 0.358 acre parcel into the municipal limits of the City of Glenwood Springs. Commissioner Cipperly motions to approve. Commissioner White Seconds. Unanimously approved 7-0.

Action 2 - Rezoning (initial zoning) – of a 0.358 acre parcel to Residential Medium-Density (RM1) District. Commissioner Cipperly motions to approve. Commissioner White Seconds. Unanimously approved 7-0.

b. Planning Item 49-21 Site/Architectural Plan Review and Design Variances 1010 Grand

Staff made a presentation on the application and provided recommendations for approval for action items 1 and 4 and denial for action items 2 and 3 with the findings and conditions on pages 9 through 11 of the staff report.

The Commission had questions on elements of application including the downtown core roof pitch requirements, horizontal/vertical siding, precedence setting, design variance review criteria, and parking lot screening.

Applicant Scott Dillard expressed his general desire to not request variances and that he felt the code was not contradictory design. He stated he thought the parking and design elements as proposed best served the code, block, and downtown. Architect Mark Noel stated that vertical siding is found on approximately a third of structures downtown.

Public Comment:

Marianne McDonough outlined major concerns regarding parking and requested limiting parking along Grand Avenue to 30 minutes.

Action 1 – Design Variance – from Section 070.040.060(h)(6) of the Glenwood Springs Municipal Code requiring landscaping for off-street parking. Commissioner Waller motions to approve. Commissioner Cipperly seconds Unanimously approved 7-0.

Action 2 – Design Variance – from Section 070.040.080(e)(10)c.5.1 of the Glenwood Springs Municipal Code to allow for a 2:12 shed roof on a block face consisting of gabled roofs in the Downtown Core. Commissioner Cipperly motions to approve. Commissioner White seconds. Motion approved 6-1.

Action 3 – Design Variance – from Section 070.040.080(e)(10) d.2. of the Glenwood Springs Municipal Code to allow for the use of vertical siding in the Downtown Core. Commissioner Cipperly motions to approve. Commissioner White seconds. Motion approved 5-2.

Action 4 - Site/Architectural Plan Review – for the construction of a 1,740 square foot second story addition to an existing 3,540 square foot building to accommodate five multi-family units. Commissioner Cipperly motions to approve. Commissioner Wissing seconds. Unanimously approved 7-0.

c. Planning Item 67-21 Minor Site/Architectural Plan 702 23rd Street

Action 1 – Consider Minor Site & Architectural Plan for development of a 5 unit multifamily residential building.

Staff made a presentation on the application and made recommendation for approval of application with findings and conditions on pages 12 and 13 of the staff report.

Commission discussed questions on elements of application including building design, building massing, transition to existing residential, parking, engineering variances, screening of rear parking areas, and building material.

Applicant Brad Jordan and Stanley Bartlomiejczuk responded to Commission's initial question on the application.

Commissioner Shaver opened the item to public comment.

Lisa Wilson, 2312 Bennett Court stated opposition to the project citing concerns over proposed density and traffic.

Commission Shaver closed the item to public comment.

Commissioner Waller made a motion to approve Action Item 1 with findings and conditions on pages 12 and 13 of the staff report. Motion was seconded by Commissioner Wissing.

Commission proceeded with additional questions on the project focused on building material and screening of rear parking areas. Commission asked applicant if applicant would be willing to utilize a secondary building material to break up the mass of the building. The applicant agreed to work with staff on revising the building design to include a secondary building material in addition to the proposed stucco. Commission also asked if applicant was willing to utilize a 4' fence for screening along the length of parking spaces located in the rear setback instead of the landscaping proposed. The applicant verbally agreed to that condition.

Commissioner Waller made a motion to amend original motion and to add a condition that the applicant work with staff to use secondary materials to break up the mass of the building. Commissioner Wissing seconded the amended motion.

Commissioner Shaver called the item to vote. Motion passed unanimously.

d. Planning Item 69-21 Minor Site/Architectural Plan 2525 S Grand Avenue

Action 1 – Consider Minor Site & Architectural Plan for development of a 5 unit multifamily residential building.

Staff made a presentation on the application and made recommendation for approval of application with findings and conditions on pages 13 and 14 of the staff report.

Commission had questions for staff on building height, landscaping, parking, snow storage, and design concerns related to proximity to 35' setback from the high water mark.

Applicants Doug Pratte from Land Studio, Zachary Stevens from Move Matters, and Nick DiFrank provided the Commission with a short presentation on the proposed application.

Commission had additional questions on the cantilevered balcony, access to river, fisherman's easement, and concerns regarding proximity of limits of disturbance to the 35' setback from high water mark, building massing.

Commissioner Shaver opened the item to public comment. No members of the public presented for comment. Commissioner Shaver closed the item to public comment.

Commissioner White made a motion to approve Action Item 1 with findings and conditions on pages 13 and 14 of the staff report. Commissioner Cipperly seconded the motion.

Commissioner Shaver called the item to a vote. Motion passed unanimously.

6. Continued Items

a. Planning File 02-02, Part 2 Fire Impact Fee

Staff explained that there was not enough time for this item to be reviewed at this meeting and asked the Commission to continue the item to the next regularly scheduled meeting.

Commissioner White motioned to continue Planning File 02-22. Commissioner Waller seconded the motion. Motion passed unanimously.

7. Commissioner Comments

None.

8. Director Comments

None.

9. Meeting adjourned at 11:00PM.



Planning and Zoning Commission Report

Date: March 9, 2022
To: Planning and Zoning Commission
From: Jenn Ooton, Assistant City Manager
Subject: Planning Item 02-22

REQUEST	Consideration of code changes to Title 070
APPLICANT	City of Glenwood Springs
OWNER	
ZONE	
LOCATION:	
SURROUNDING LAND USES	
LOT SIZE	

ACTION ITEMS

Action 1:

Consideration of code text amendments to Municipal Code Section 070.040.030(g)(5)e.1

Staff recommends approval with suggested findings on page 2

Background & Project Description

In researching a question about fire impact fees for a member of the Rural Fire Protection Board, staff realized that the formula for the fire fees was inadvertently left out of the land use code redraft. Staff believes that this is a scrivener's error, however, staff felt that this should come back through the process for a code amendment after so much time had lapsed. It also will be the language that was adopted in 2016 for the formulas.

Fire fees are one of several system improvement fees that are charged to new and renovated developments to cover the cost of connecting to or receiving services from City Utilities and emergency services.

Changes to Title 070 of the Municipal Code require a public hearing at the Planning and Zoning Commission and Council, so that is why this technical code amendment is coming back through the process. The Comprehensive Plan states that providing efficient public utilities and services is essential to quality of life, livability and to cost-effective growth.

According to Ordinance 21-2016, "City Council authorized a study of the industry standard rational nexus of classifications for the payment of fire and emergency services impact fees and reviewed the recommendations in the Fire\EMS System Impact Fee Report dated March 3, 2016 and the information provided on the July 7, 2016 City Council agenda, and determined a policy change was necessary." This item restores the formula that was adopted through that ordinance back into the code. The Ordinance

and Resolutions from 2016 are included as attachments to this report, in addition to the new Ordinance authorizing the amendment.

For actions involving amendments to the Land Use, Code, the Planning and Zoning Commission is a recommending body to City Council. All Municipal Code amendments are completed by ordinance, which requires two hearings before City Council.

A Code amendment is a legislative decision by the City Council. Prior to recommending approval or approving a proposed Code amendment, the Planning Commission and City Council shall consider whether and to what extent the proposed amendment:

- i. Is consistent with the Comprehensive Plan and other City policies;
- ii. Does not conflict with other provisions of this Code or other provisions in the Glenwood Springs Municipal Code;
- iii. necessary to address a demonstrated community need;
- iv. Is necessary to respond to substantial changes in conditions and/or policy; and
- v. Is consistent with the general purpose and intent of this Code.

This is a technical fix to the land use code, which staff believes is consistent with the Comprehensive Plan and other policies. While fire impact fees are not specifically mentioned within the Comprehensive Plan, maintaining fire service is important to the goal to "Preserve the small town character while maintaining the livability of Glenwood Springs and increasing the vibrancy and commercial success of the Downtown."

As is mentioned elsewhere in this report, this item is intended to ensure that the code reflects the formula that was adopted in 2016. This is similar to other locations within the Municipal Code, which establish a measurement for equivalent to a single-family residential unit for different types of uses.

Staff Recommendation and Suggested Findings

Staff recommends approval of the proposed text amendments with the following suggested findings:

- i. Is consistent with the Comprehensive Plan and other City policies;
- ii. Does not conflict with other provisions of this Code or other provisions in the Glenwood Springs Municipal Code;
- iii. necessary to address a demonstrated community need;
- iv. Is necessary to respond to substantial changes in conditions and/or policy; and
- v. Is consistent with the general purpose and intent of this code.

ORDINANCE NO. xx

Series of 2022

AN ORDINANCE OF THE CITY OF GLENWOOD SPRINGS, COLORADO, AMENDING SECTION 070.040.030 OF THE GLENWOOD SPRINGS MUNICIPAL CODE REGARDING CLASSIFICATIONS FOR THE PAYMENT OF FIRE AND EMERGENCY SERVICES IMPACT FEES.

WHEREAS, Subsection 070.040.030(g)(5) of the Glenwood Springs Municipal Code establishes the calculation of emergency services impact fees; and

WHEREAS, City Council authorized a study of the industry standard rational nexus of classifications for the payment of fire and emergency services impact fees and reviewed the recommendations in the Fire\EMS System Impact Fee Report dated March 3, 2016 and the information provided on the July 7, 2016 City Council agenda, and determined a policy change was necessary; and

WHEREAS, the City Council previously amended Section 070.030.150 of the code via Ordinance No. 16, Series 2016, and that revision to implement a classification schedule and EQR definition was inadvertently left out of the land use code redraft in 2018; and

WHEREAS, the Glenwood Springs Home Rule Charter requires that an ordinance be enacted to effectuate this amendment.

NOW, THEREFORE, IT IS ORDAINED BY THE CITY COUNCIL OF THE CITY OF GLENWOOD SPRINGS, COLORADO, THAT:

Section 1. The recitals above are hereby adopted as findings.

Section 2. Section 070.040.030 of the City Code is hereby amended in part as provided for on the attached **Exhibit A**.

Section 3. Any ordinances or resolutions or parts thereof, which are in conflict with this ordinance, are hereby repealed to the extent of such conflict only.

INTRODUCED, READ ON FIRST READING, PASSED, AND ORDERED PUBLISHED BY TITLE ONLY THIS _____ DAY OF _____, 2022.

CITY OF GLENWOOD SPRINGS, COLORADO

ATTEST:

Ryan Muse, City Clerk

Jonathan Godes, Mayor

INTRODUCED, READ ON SECOND READING, PASSED, AND ORDERED PUBLISHED BY TITLE ONLY TO BE EFFECTIVE TEN DAYS FOLLOWING THE DATE OF SECOND PUBLICATION THIS _____ DAY OF _____, 2022.

CITY OF GLENWOOD SPRINGS, COLORADO

ATTEST:

Jonathan Godes, Mayor

Ryan Muse, City Clerk

EXHIBIT A

New language in bold.

070.040.030 – Site Development and Improvement Standards.

...

- (5) *Fire and emergency services impact fee.* In order to help offset the financial impacts of new development on the residents of the City, all new development shall pay a fire and emergency services impact fee as provided for in this section.

...

(e) Calculation of emergency services impact fee and credit for improvements.

1. The emergency services impact fee shall be calculated as follows, **and the amount of the fee shall be set by City Council resolution. One (1) EQR is the equivalent of one single family residential unit.**

A. RESIDENTIAL CLASSIFICATIONS

1. Single-Family Residential Units:

Single family homes, three (3) bedrooms	1.00 EQR
Each additional bedroom	0.15 EQR

2. Secondary Residential Units:

Accessory dwelling unit: guesthouse, accessory dwelling unit, 0.65 EQR
separate apartment attached to single-family residential unit,
and other separate residential units associated. Up to two (2)
bedrooms, one(1) bathroom, one (1) kitchen

3. **Multi-Family Residential Units:** duplexes, apartments, townhouses,
and similar facilities in the same complex, and small cabins in courts
not associated with motels.

- a. Studio apartment or buffet or condo with one (1) kitchen, 0.65 EQR
no greater than 1,500 sq ft
- b. Up to two (2) bedrooms with 1.5 bath and one (1) kitchen, 0.75 EQR
no greater than 1,500 sq ft
- c. Three (3) bedrooms with up to two (2) baths and one(1) 1.00 EQR
kitchen, no greater than 2,000 sq ft

B. COMMERCIAL CLASSIFICATIONS

1. General Office, medial, retail, warehouse, industrial buildings, theaters, grocery stores, churches, athletic clubs and any other commercial classification (per 1,000 sq ft) 0.30 EQR
2. Special Review
Any commercial or industrial use that may have special FIRE/EMS needs or that may have hazardous materials may undergo a special review.

RESOLUTION 2016-21

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF GLENWOOD SPRINGS, COLORADO, SETTING THE FIRE AND EMERGENCY SERVICE IMPACT FEE FOR THE PERIOD BEGINNING SEPTEMBER 1, 2016 AND ENDING JANUARY 31, 2018, AND PROVIDING FOR THE ANNUAL ADJUSTMENT OF EMERGENCY SERVICE, WATER, AND WASTEWATER FEES.

WHEREAS, Subsection 070.030.150(e)(6) of the Glenwood Springs Municipal Code establishes the calculation of fire and emergency services impact fees; and

WHEREAS, City Council authorized a study of the industry standard rational nexus of classifications for the payment of fire and emergency services impact fees and determined a policy change was necessary; and

WHEREAS, the City Council desires to set the fire and emergency service impact fees to better reflect actual costs to the City in providing these services to new developments in the City; and

WHEREAS, the City Council further desires to establish annual adjustments of service and system impact fees based on the prior years' average inflation.

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF GLENWOOD SPRINGS, COLORADO, RESOLVES THAT:

1. The foregoing recitals are hereby incorporated as if set forth in full.
2. The emergency services impact fee established in Section 070.030.150(6) shall be \$1,290.00 for one (1) equivalent residential unit ("EQR") during the period beginning September 1, 2016 and ending January 31, 2018.
3. Unless otherwise adjusted by the resolution of the Glenwood Springs City Council, the emergency services impact fee set herein shall, beginning in 2018, be adjusted annually based on the prior years' average inflation as established by the United States Bureau of Labor Statistics Consumer Price Index for Denver-Boulder-Greeley, to be effective February 1 of each year.
4. Unless otherwise adjusted by the resolution of the Glenwood Springs City Council, the water and wastewater system improvement fees set in Resolution 2016-13 shall, beginning in 2018, be adjusted annually based on the prior years' average inflation as established

by the United States Bureau of Labor Statistics Consumer Price Index for Denver-Boulder-Greeley, to be effective February 1 of each year.

INTRODUCED, READ, AND PASSED THIS 4TH DAY OF AUGUST, 2016.

CITY OF GLENWOOD SPRINGS, COLORADO

Michael Gamba, Mayor

ATTEST:

Catherine Mythen Fletcher, City Clerk

ORDINANCE NO. 21

Series of 2016

AN ORDINANCE OF THE CITY OF GLENWOOD SPRINGS, COLORADO, AMENDING SECTION 070.030.150 OF THE GLENWOOD SPRINGS MUNICIPAL CODE REGARDING CLASSIFICATIONS FOR THE PAYMENT OF FIRE AND EMERGENCY SERVICES IMPACT FEES.

WHEREAS, Subsection 070.030.150(e)(6) of the Glenwood Springs Municipal Code establishes the calculation of emergency services impact fees; and

WHEREAS, City Council authorized a study of the industry standard rational nexus of classifications for the payment of fire and emergency services impact fees and reviewed the recommendations in the Fire\EMS System Impact Fee Report dated March 3, 2016 and the information provided on the July 7, 2016 City Council agenda, and determined a policy change was necessary; and

WHEREAS, the City Council desires to amend Section 070.030.150 by implementing a classification schedule and EQR definition; and

WHEREAS, the Glenwood Springs Home Rule Charter requires that an ordinance be enacted to effectuate this amendment.

NOW, THEREFORE, IT IS ORDAINED BY THE CITY COUNCIL OF THE CITY OF GLENWOOD SPRINGS, COLORADO, THAT:

Section 1. The recitals above are hereby adopted as findings.

Section 2. Section 070.030.150 of the City Code is hereby amended in part as provided for on the attached **Exhibit A**.

Section 3. Any ordinances or resolutions or parts thereof, which are in conflict with this ordinance, are hereby repealed to the extent of such conflict only.

INTRODUCED, READ ON FIRST READING, PASSED, AND ORDERED
PUBLISHED BY TITLE ONLY THIS _____ DAY OF _____, 2016.

CITY OF GLENWOOD SPRINGS, COLORADO

ATTEST:

Catherine Mythen Fletcher, City Clerk

Michael Gamba, Mayor

INTRODUCED, READ ON SECOND READING, PASSED, AND ORDERED
PUBLISHED BY TITLE ONLY TO BE EFFECTIVE TEN DAYS FOLLOWING THE DATE
OF SECOND PUBLICATION THIS _____ DAY OF _____, 2016.

CITY OF GLENWOOD SPRINGS, COLORADO

ATTEST:

Michael Gamba, Mayor

Catherine Mythen Fletcher, City Clerk

EXHIBIT A

New language in bold.

~~Strike through language is deleted~~

070.030.150 - Dedications.

...

- (e) *Fire and emergency services impact fee.* In order to help offset the financial impacts of new development on the residents of the City, all new development shall pay a fire and emergency services impact fee as provided for in this section.

...

(6) *Calculation of emergency services impact fee and credit for improvements.*

- a. The emergency services impact fee shall be calculated as follows, **or as set by City Council resolution. One (1) EQR is the equivalent of one single family residential unit.**

A. RESIDENTIAL CLASSIFICATIONS

1. Single-Family Residential Units:

EQR	Single family homes, three (3) bedrooms	1.00
	Each additional bedroom	0.15
EQR		

2. Secondary Residential Units:

Accessory dwelling unit: guesthouse, accessory dwelling unit,
0.65 EQR
separate apartment attached to single-family residential unit,
and other separate residential units associated. Up to two (2)
bedrooms, one(1) bathroom, one (1) kitchen

- 3. Multi-Family Residential Units: duplexes, apartments, townhouses, and similar facilities in the same complex, and small cabins in courts not associated with motels.**

- a. Studio apartment or buffet or condo with one (1) kitchen, no greater than 1,500 sq ft 0.65 EQR
- b. Up to two (2) bedrooms with 1.5 bath and one (1) kitchen, no greater than 1,500 sq ft 0.75 EQR
- c. Three (3) bedrooms with up to two (2) baths and one(1) kitchen, no greater than 2,000 sq ft 1.00 EQR

B. COMMERCIAL CLASSIFICATIONS

EQR

- 1. General Office, medial, retail, warehouse, industrial 0.30

buildings, theaters, grocery stores, churches, athletic clubs and any other commercial classification (per 1,000 sq ft)

- 2. Special Review

Any commercial or industrial use that may have special FIRE/EMS needs or that may have hazardous materials may undergo a special review.

Residential:	\$1,720.43—per residential unit
Commercial:	\$1,720.43—per 1,900-square feet of commercial space



Planning and Zoning Commission Report

Date: March 22, 2022
To: Planning and Zoning Commission
From: Trent L. Hyatt, Long Ranger Senior Planner
Subject: #53-20 – Parks World Headquarters Building Addition

REQUEST	Consideration of a Location and Extent Review application for the construction of an 1,800 square foot addition to an existing 4,520 square foot building
APPLICANT	Dan Roper, Parks Superintendent
OWNER	City of Glenwood Springs
LOCATION	191 Soccer Field Road (PIN: 2185-061-08-001)
ZONE	Mixed-Use Corridor (M1) District
SURROUNDING LAND USES	North: Warehousing and single-family residential South: Multi-family residential (Machebeuf Apartments) West: Single-family residential East: Institutional (Glenwood Springs Middle School)
LOT SIZE	Approximately 1 acre (43,560 square feet)

ACTION ITEM

Per Section 070.060.050(a)/Table 060.2 of the *Glenwood Springs Municipal Code* (Code), the Planning and Zoning Commission (Commission) is the reviewing body for Location and Extent Review applications for public or quasi-public special districts (funded by taxpayers) for compliance with the *Glenwood Springs Comprehensive Plan* (Comp Plan) per Colorado Revised Statutes 30-28-110 and 22-32-101 et seq. Following any approval (with or without conditions) of a Location and Extent Review, the applicant must still submit and receive approval of a grading and building applications from the City Engineering and Building Departments respectively.

Action 1 - Location and Extent Review - allowing for the construction of an 1,800 square foot addition to an existing 4,520 square foot building and other site improvements.

Staff recommendation: *Staff recommends **approval (with conditions)** of the Location and Extent Review application with the findings and conditions on page 7.*

BACKGROUND/ANALYSIS

Proposal

The City has received an application for the construction of an addition to an existing building and other related site improvements at the Glenwood Springs Parks and Recreation Department World

Headquarters. The need for improvements at the site was known prior to relocating to the site from the former Municipal Operations Center in January 2020. Additional dry, heated storage is needed for equipment and landscaping chemicals. Other related site improvement include the regrading of the lot (which occurred previously) for improved drainage, parking and circulation paving, and new landscaping.



The site (depicted on the vicinity map above) is located at along on Soccer Field Road in the M1 zone district, where the current/proposed use of the property for a contractor's office and equipment storage yard is permitted by right. The attached submittal from the applicant includes a site plan, floor plans, elevations, landscaping plan, grading, and utilities plans for your review.

Development Standards

Article 070.040 of the Glenwood Springs Municipal Code (Code) outlines the development standards applicable to developments within the City. A summary of applicable standards is provided in the table below. Specific areas of interest are addressed in further detail.

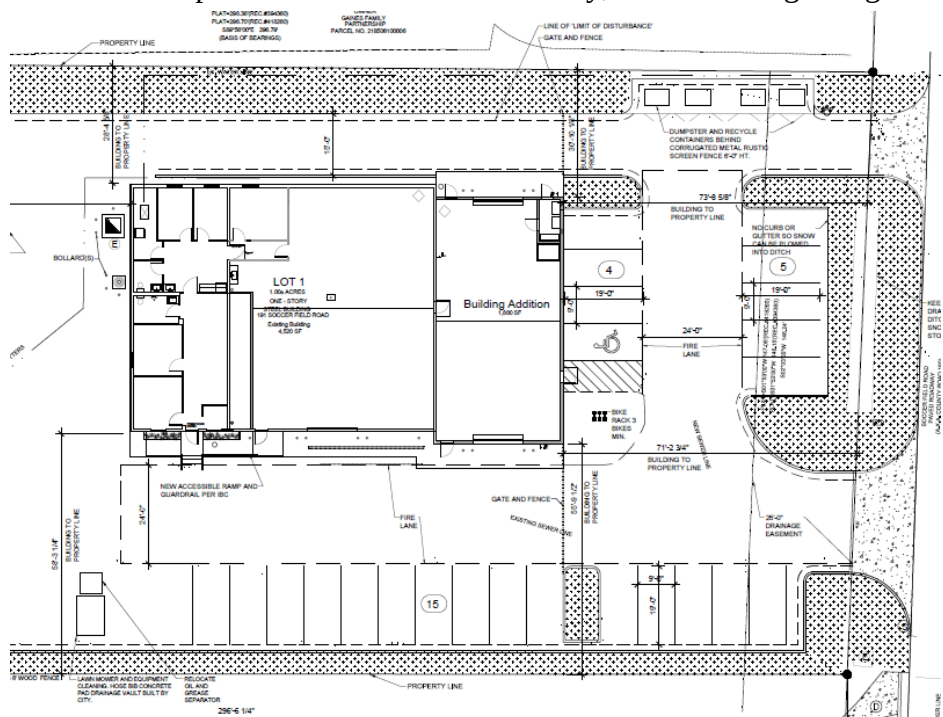
<u>Code Standard</u>		<u>Proposal</u>	<u>Standard Met</u>
Common Open Space	10% (4,356 square feet)	Additional information requested	TBD
Landscaping	15% (6,534 square feet)	14% (6,178 square feet)	No
Parking Lot Landscaping			
Surface Area	20%	Additional information requested	TBD
Interior	10 square feet/space	Additional information requested	TBD
Setbacks			
Front	Minimum – 5 feet Maximum – 25 feet	71.23 feet	No
Rear	7.5 feet	117.84 feet	Yes
Side	5 feet	30.84 feet	Yes
Height	40 feet	19.98 feet	Yes

<u>Code Standard</u>		<u>Proposal</u>	<u>Standard Met</u>
Parking	16 spaces (1 per 400 square feet for contractor offices and equipment storage yards)	27 spaces	Yes
Bike Parking	3 spaces	3 spaces	Yes
Trash Enclosure	Enclosed, 6 foot	6 foot corrugated metal fence	Yes
Building Design			
Architectural Elements	3 required every 30 feet	-30% glazed windows/doors facing ROWs, parking, or adjacent residential uses -Change in color -Change in texture -Awnings	No Yes Yes Yes
Roof	Change in height every 50 feet	N/A	No
Materials	Shall not include more than 70% of one	Metal, approximately 100%	No
Colors	Shall not include white, off-white, or fluorescent	Light gray	No

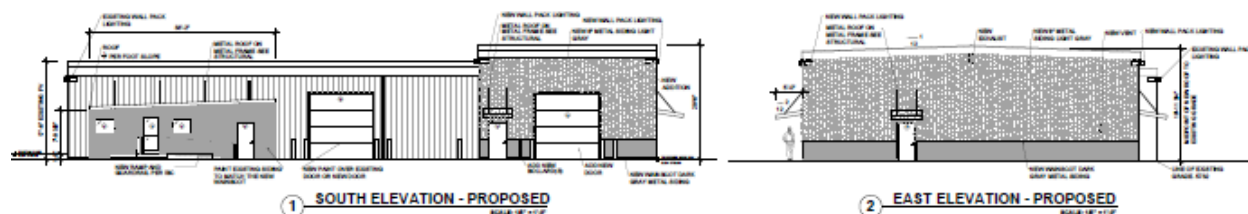
While the table above outlines some areas where the proposal is not in compliance with various sections of the Code, there are related noteworthy improvements to outline as depicted on the site plan below. For example, the front building setback is moving closer to the zone district maximum standard by 31.5 feet. Resulting parking and circulation are greatly improved and new site landscaping/islands will soften the impacts thereof. Additionally, overall site grading and drainage features will help improve overall water quality. Architectural elements associated with the addition vastly improve the aesthetic of building from Soccer Field Road and adjacent properties.

Common Open Space and Landscaping

Sections 070.040.040 and 070.040.050 of the Code require a minimum of 10 percent of the site is reserved for open space (for



commercial uses) and 15 percent of the site is reserved for landscaping (per the I2 district). Common open space amenities include a planting area adjacent to Soccer Field Road to showcase native trees and shrubs species and a potential outdoor employee area in the vicinity of trash and recycling area (which is to be relocated to the rear of the building). Landscaping will include street trees, interior parking lot trees/shrubs, and buffer areas next to adjacent properties.



Nonresidential Design Standards

While fiscally constrained, the applicant attempted to comply with applicable design standards outlined in Section (070.040.090). The design includes the required minimum three elements every 30 feet, exclusive of 30 percent glazing.

Location and Extent Review Criteria

The Location and Extent review criteria are outlined in Section 070.060.050(d)(3)e.3 of the Code and are outlined in bold italics below.

i. Is consistent with the Comprehensive Plan and other City plans and policies;

As shown at bottom right, Map 2.1 (Future Land Use) of the Glenwood Springs Comprehensive Plan (Comp Plan) identifies the area as "Mixed -Use" in purple. Chapter Two of the Comp Plan explains that the designation "...allows for a variety of uses including commercial, retail, office, restaurant, entertainment, and multi-family housing co-existing through design either in a horizontal or vertical fashion." Contractors' yards and office space, as proposed, are in compliance with the designation.



Numerous community goals and related objectives and strategies outlined in the Executive Summary and subsequent chapters of the Comp Plan support this proposal. These goals are outlined in the following table.

<u>Comprehensive Plan Goal Supported</u>	<u>Objective and Strategies</u>
Promote long-term, sustainable, diverse, economic development	-Direct development into a compact form: infill and redevelopment (Chapter 3, Page 34) -Attract diverse businesses and industries (Chapter 4, Page 54) -Retain the long-standing tourist market (Chapter 4, Page 54) -Retain role as a regional center (Chapter 7, Page 83)
Staff Comment: While the specific proposal and/or use may not be diverse, the City's Parks and Recreation Department is essential to maintaining the attractiveness of our community and out of door activities which help to lure businesses and tourists. The use is directly related to retaining our role as a regional governmental center.	
Maintain Glenwood Springs as the regional tourism, retail, commercial, and governmental center of Garfield County	-Attract diverse businesses and industries (Chapter 4, Page 50) -Retain the long-standing tourist market (Chapter 4, Page 54) -Build on role as a regional medical and education center (Chapter 4, Page 54) -Maintain the role as regional center (Chapter 4, Page 54) -Retain role as a governmental center (Chapter 4, 56)
Staff Comment: Providing a permanent location for the Parks and Recreation Department is necessary to maintain and enhance the City's status as the regional center of Garfield County. The objectives/strategies outlined above are supported by the current proposal as it aids in attracting diverse businesses, supporting tourism, and governmental services.	
Direct development to locations and building forms that are cost effective to serve	-Direct development into a compact form: infill and redevelopment (Chapter 3, Page 34) -Direct growth to areas where utilities and services can be provided efficiently (Chapter 7, Page 82) -Retain role as a regional center (Chapter 7, Page 83) -Direct growth inward (Chapter 9, Page 102)
Staff Comment: Infill development in areas already served by City's utilities allow for more cost-effective construction. The subject proposal impacts/strengthens all the objectives/strategies and therefore aids in achieving this Comp Plan goal.	
Address transportation and provide multiple convenient travel choices	-Direct development into a compact form: infill and redevelopment (Chapter 3, Page 34)
Staff Comment: Infill development, as discussed above, is identified as a strategy to achieve the stated Comp Plan goal.	
Support social diversity	-Direct development into a compact form:

<u>Comprehensive Plan Goal Supported</u>	<u>Objective and Strategies</u>
	infill and redevelopment -Direct growth inward (Chapter 9, Page 102) -Retain role as a regional center (Chapter 7, Page 83)
Staff Comment: The proposal aids in supporting this Comp Plan goal via the goals/objectives herein and discussed above.	
Preserve natural resources	-Continue leadership in protecting the natural setting (Chapter 9, Page 98) -Preserve and enhance the river corridor environment (Chapter 9, Page 98) -Support efforts in protect the Roaring Fork River and Colorado River systems (Chapter 9, Page 100) -Increase access to the rivers (Chapter 9, Page 100) -Establish water conservation programs (Chapter 9, Page 101) -Direct growth inward (Chapter 9, Page 102) -Minimize human/wildlife conflicts (Chapter 9, Page 102)
Staff Comment: Providing for and improving Parks and Recreation Department offices and facilities directly supports their activities in our community which aid in and are necessary to support the Comp Plan goal/objectives listed above.	

ii. Is consistent with the general purpose and intent of this Code; and

The proposal appears to be consistent with the general purpose of health, safety, and welfare and various intents including orderly, efficient development, regulating the use of land based on impacts, and minimum standards for design as outlined in Section 070.010.030.

iii. Minimizes adverse impacts to the health, safety, and welfare of the inhabitants of the surrounding areas and the city.

No known hazards currently exist at the site. The site has been used by the Parks and Recreation Department for over two years now and for similar commercial/industrial uses for many years prior. It does not appear the proposal will create any additional negative impacts to health, safety, and/or welfare of the surrounding area or City.

Reviewing Agency Comments

An overview of any comments received from referral agencies is provided below. Said comments are also attached.

Engineering Department - Comments received outline the need for additional details related to pipe and asphalt removal, curb and gutter, drainage, site walls, finished floor elevations, minimum pipe

coverage, etc.

Public Works – Comments outline questions/comments regarding coordination and requirements for water/wastewater and electric service and the need to verify the percolation rate of the site drywell.

ACTION ALTERNATIVES AND STAFF RECOMMENDATION:

Section 070.060.030(g)(1)d outlines the review and decision procedures for applications being considered by the Commission and/or City Council stating, “[T]he applicable review body shall **approve, approve with conditions, or deny** the application **based on the applicable approval criteria** listed in the application-specific procedures. The body may also **continue** the hearing or **refer the application** to another authority as provided in 070.060.050(a)(2)c, Referral and Call-Up Procedures.”

Action 1 – Location and Extent Review - allowing for the construction of an 1,800 square foot addition to an existing 4,520 square foot building and other site improvements.

Staff Recommendation/Suggested Motion

Staff recommends **approval (with conditions)** of the Location and Extent Review with the following **findings** and **conditions**:

Recommended Findings:

1. The proposal is consistent with the Comprehensive Plan and other City plans and policies;
2. The proposal is consistent with the general purpose and intent of this Code; and
3. The proposal minimizes adverse impacts to the health, safety, and welfare of the inhabitants of the surrounding areas and the city.

Recommended Conditions:

1. The applicant shall comply with/address all City referral comments prior to the issuance of a grading permit or building permit application.
2. The applicant shall work with the Community Development Department to address various zoning/design requirements that are not in full compliance with Title 70 of the *Glenwood Springs Municipal Code* to best of their financial ability.
3. The applicant shall comply with all verbal representations made in the public hearings, as outlined in all application materials, and/or as revised per conditions herein and approved by the Community Development Director.
4. The applicant shall submit a building permit application as required. All contractors must receive a license to work in the City of Glenwood Springs.
5. Prior to submitting a building or grading permit application, the applicant shall schedule a pre-construction meeting with applicable City departments.

Alternate Motion for Denial

In most instances, staff has worked with the applicant to address requirements outlined in the Code. Therefore, we are generally in support of an application by the time it reaches the Commission for

consideration. However, if Commission does not believe the application meets minimum approval criteria, your denial should be based on one or more of the same approval criteria applicable to the application. You should support your motion with findings outlining the shortcomings of the request as shown in the example below:

I move to **DENY** the Location and Extent Review application finding that [Insert one or more of the following findings here]: -

1. The proposal is inconsistent with the Comprehensive Plan and other City plans and policies due to [insert reasoning here];
2. The proposal is inconsistent with the general purpose and intent of this Code because [insert reasoning here]; and/or
3. The proposal creates adverse impacts to the health, safety, and welfare of the inhabitants of the surrounding areas and the city by [insert reasoning here].

Daniel Roper
Parks Superintendent
191 Soccer Field Road
(970) 384-6366 (o)



Glenwood Springs, CO 81601

1-4-2021

City of Glenwood Springs
Community Development
Dear Trent,

As discussed with the Planning & Zoning Commission in 2020, we are continuing work on the City of Glenwood Springs Parks Department facility located at 191 Soccer Field Road. The attached Complete Plan Set: Cover Sheet includes the land use details.

As detailed in the attached site plan, the first phase of the project has included removing the aging asphalt, installation of a dry-well and adjoining drainage, backfilling the lot with road base to average the gradient and using asphalt millings to complete the parking lot surface. The asphalt millings will receive a final coat to ensure that the surface acts and looks like an asphalt surface.

The second phase of the project will take place in the Spring of 2021. As part of the design and build process the Parks Department has contracted with CUC Construction to assist with the remaining work. The remaining project items include pouring curb and gutter along the south and west boundaries, landscaping and renovating the current building which includes the addition of 1,800 sq. feet.

If you have any questions, please let me know. Thank you very much for your time.

Daniel Roper

Attached:

Vicinity Location Map
Complete Plan: Cover Sheet
Complete Plan: Grading Plan
Site Plan



City of Glenwood Springs - Parks Building
191 Soccer Field Road



0 100 200 Feet

Date: 2020-08-24
Drawn: DNR



City of Glenwood Springs Property - Parks Building

Source: 2018 COGS Aerial Photography



Economic & Community Development Department
 101 W. 8th Street
 Glenwood Springs, CO 81601
 (970) 384-6411

Complete Plan Set: Grading Plan

The Grading Plan must include the information listed below to be considered complete. During the Pre-application Meeting, City Staff may request additional items.

General Plan Items (to be included on all sheets)				
Applicant			City Staff	
Yes	N/A		Yes	N/A
		<u>Formatting Requirements:</u>		
X		All drawings shall be submitted in both hard copy and electronic (PDF) formats.		
X		Sheet sizes shall be a minimum of 11" x 17" and a maximum of 24" x 36" with a ½" border in landscape orientation.		
X		Symbols and line types shall comply with industry drafting standards and shall graphically distinguish between existing and proposed items.		
X		Text shall be no less than 0.1 inch in height.		
X		Property boundary lines of the subject property shall be depicted with a bold "phantom" linetype.		
X		Utilize match lines to connect information from drawings.		
		<u>General Information to be included on all civil sheets:</u>		
X		Name of subdivision or address; section, township, range; city, county and state.		
X		Page number (i.e. 1 of x, 2 of x, etc.)		
X		Title block.		
X		North arrow and indication of standardized scale, both fractional and bar (i.e. 1" = 20' or 1" = 40')		
X		Date of preparation.		
X		Contact information for professional preparing plans including email address.		
X		Name, address, email, and telephone number of owner and applicant.		

Grading Plan				
Applicant			City Staff	
Yes	N/A		Yes	N/A
X		Depict existing and proposed contours.		
X		Include limits of disturbance.		
X		Provide flow directions with arrows.		
X		Include cut and fill slopes. Cut and fill slopes shall not exceed 2:1 unless otherwise specified by the geotechnical report.		
	X	Depict top and bottom of wall information for all retaining walls.		
X		Provide finished floor elevations.		
X		Provide and label all drainage easements for public storm drainage facilities located on private property.		



Economic & Community Development Department
 101 W. 8th Street
 Glenwood Springs, CO 81601
 (970) 384-6411

Complete Plan Set: Cover Sheet

The cover sheet must include the information listed below to be considered complete. During the Pre-application Meeting, City Staff may request additional items.

General Plan Items (to be included on all sheets)				
Applicant			City Staff	
Yes	N/A		Yes	N/A
		<u>Formatting Requirements:</u>		
X		All drawings shall be submitted in both hard copy and electronic (PDF) formats.		
	X	Sheet sizes shall be a minimum of 11" x 17" and a maximum of 24" x 36" with a ½" border in landscape orientation.		
X		Symbols and line types shall comply with industry drafting standards and shall graphically distinguish between existing and proposed items.		
X		Text shall be no less than 0.1 inch in height.		
X		Property boundary lines of the subject property shall be depicted with a bold "phantom" linetype.		
X		Utilize match lines to connect information from drawings.		
		<u>General Information to be included on all civil sheets:</u>		
X		Name of subdivision or address; section, township, range; city, county and state.		
X		Page number (i.e. 1 of x, 2 of x, etc.)		
X		Title block.		
X		North arrow and indication of standardized scale, both fractional and bar (i.e. 1" = 20' or 1" = 40')		
X		Date of preparation.		
X		Contact information for professional preparing plans including email address.		
X		Name, address, email, and telephone number of owner and applicant.		

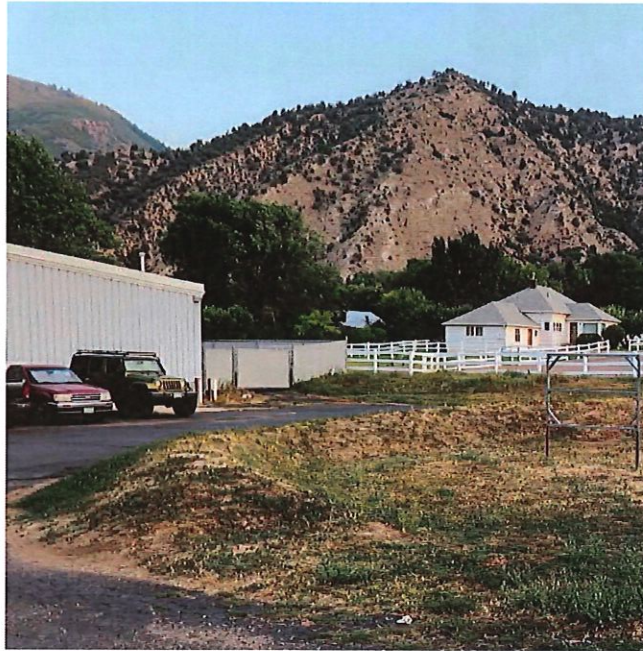
Cover Sheet				
Applicant			City Staff	
Yes	N/A		Yes	N/A
X		Vicinity map.		
X		Basis of bearings & benchmarks.		
	X	FEMA floodplain statement including community map number and date. Indicate whether the site is located within a designated floodplain.		
	X	Geologic hazards disclosure. "This property is subject to geologic hazards per the adopted mapping by the City of Glenwood Springs. Hazards to note are _____. A final Geologic Hazard Report will be submitted upon application of a building permit.		
	X	If property is located within an airport overlay zone, the following note must be included		

	X	on the cover sheet: "The avigation easement dedicated herein for public avigation purposes, shall be considered a public easement subject to those terms and conditions specified on the instrument recorded at _____ of the records of Garfield County, Colorado. All other easements or interests of record affecting any of the platted property depicted hereon shall not be affected and shall remain in full force and effect."		
	X	Index for all sheets included in submittal set.		
	X	Public Facilities – A note shall be placed on the site plan that makes reference to the public facility requirements for the installation and construction and/or contributions.		
X		Project Summary Table – Use the table format below to provide data about the proposed project. Make sure to complete all applicable cells.		

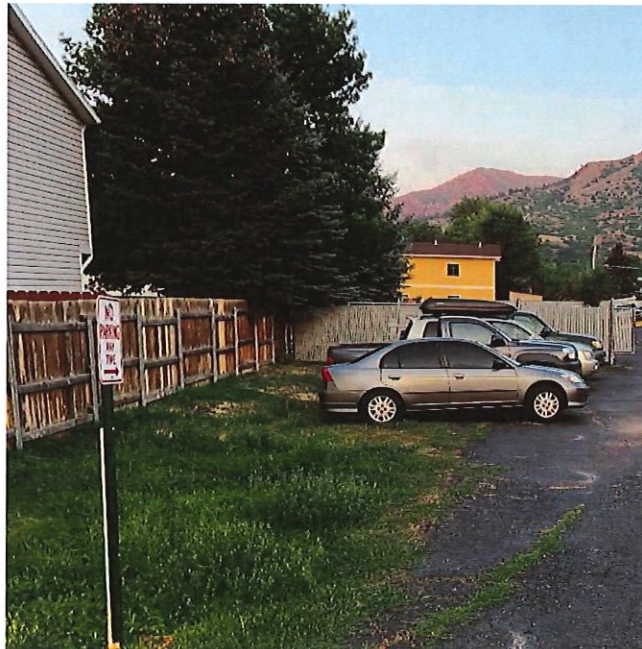
Project Summary Table

Project Description					
Lot Size Information	Acres	Square feet	Lot Coverage	Existing (Sq Ft & %)	Proposed (Sq. Ft. & %)
		43,560			
Limits of Disturbance	Existing (Sq & %)	Proposed (Sq. Ft. & %)	Average Slope within Limits of Disturbance	Percentage %	
		31,182, 72 %		2.9%	
Off-street Parking Spaces	Existing # Vehicle Spaces	Proposed # Vehicle Spaces	Bicycle Parking	Existing # Spaces	Proposed # Spaces
		27		0	5
Residential Units	# Existing Units	# Proposed Units	Non-residential Uses	Type of Use(s)	Gross Floor Area (Sq. Ft.)
	N/A	N/A		Office space and Equipment storage	6,320
Open Space	Existing (Sq ft & %)	Proposed (Sq Ft & %)	Total Landscaped area	Existing (Sq Ft & %)	Proposed (Sq Ft & %)
		6,178, 14%		21,634, 50%	6,178, 14%
Building Height	Existing	Proposed	Total Impervious Area	Existing (Sq Ft & %)	Proposed (Sq Ft & %)
	13'10"	13'10"		17,406, 40%	31,062, 71%
Snow Storage	Required (sq ft)	Proposed (sq ft)	Other		
		1,000			

191 Soccer Field Road
Current Site Conditions



Photograph 1: Soccer Field Road Entrance



Photograph 2: Staff parking



Photograph 3: Parking with substantial gradient changes



Photograph 4: Current stormwater retention basin

2009 IECC Requirements Ch.5 COMMERCIAL ENERGY EFFICIENCY (Climate Zone 5B)

Only areas specifically worked on in the Existing Building need to comply with the IECC 2009 as exempted by the IEBC 2009 & all the Addition shall comply with the requirements of the IECC 2009

Specific Compliance Path Used: (Prescriptive U Value Table 502.1.2 or R value Table 502.2(1)).

Plans, details & specs shall be provided to the Building Department for Approval prior to installation by the project engineers, project suppliers, and project installers. (See Deferred Submittal Table)

THE PROJECT SHALL COMPLY WITH ALL APPLICABLE PROVISIONS OF 2009 IECC Ch.5 COMMERCIAL ENERGY EFFICIENCY INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

501 Assuming this building is "heated", defined as- having a heating system capable of supplying more than 15 Btu/hour/square foot. (7200 sf x 15 Btu/sf = 108,000 Btu/hour/sf)

502.1 This application follows the prescriptive path to compliance. . This building is not Group R.

502 Roof Assembly Maximum U-factor .027 See Table 502.1.2 Minimum R-value R13 + R13 or R38. See Table 502.2(1) Mass Wall above grade Maximum U-factor 0.09 See Table 502.1.2 Minimum R-value R11.4 CI See Table 502.2(1) Other walls above grade (not metal) Maximum U-factor 0.064 see table 502.1.2 Minimum R-value R13 + R3.8 CI See Table 502.2(1) Metal Building walls above grade U-Factor .069 See table 502.1.2 Minimum R-Value R13 + R5.6 CI. See Table 502.1(1). Unheated slab on grade Maximum F-factor 0.73 See Table 502.1.2 Minimum R-Value - Not required (slab edge insulation recommended) Doors, swinging U -.070 Maximum See Table C502.2(1) Door, roll-up maximum. U - 0.50 See Table C502.2(1) Windows maximum U-factor Table 502.3 Maximum SHGC no requirement Maximum air leakage .3 CFM/square foot

502.4.3 Sealing of the building envelope. Openings and penetrations in the building envelope shall be sealed with caulking materials or closed with gasketing systems compatible with the construction materials and location. Joints and seams shall be sealed in the same manner or taped or covered with a moisture vapor-permeable wrapping material sealing materials spanning joints between construction materials shall allow for expansion and contraction of the construction materials.

503.1 Heating systems design & performance (Boilers, HVAC) HVAC Equipment shall meet performance requirements listed in the 503 Tables

503.2.1 503.2.3 Heating design loads calculations. Heating system design by others. Heating system concept: radiant tube heaters hung from ceiling.

503.2.4.1 Provide a thermostat for every zone.

503.2.4.3 Provide thermostats and controls that comply with setback and shutdown requirements. Setpoint by others.

503.2.4.5 Snow melt Systems

503.3.5 Ventilation

503.2.7 Ducts

503.2.8 Pipe Insulation

503.2.9 Provide Operation and Maintenance manual to Owner.

504 Service water heating shall comply with 504.

505.2.2.1 Provide light reduction controls

505.2.2.2 Provide automatic lighting shutoff

505.2.4 Provide exterior lighting controls

505.4 Internally illuminated exit signs shall not exceed 5 watts per side.

505.5 Lighting design by others. Maximum allowable connected interior lighting power budget .8 Watts/square foot = 5760 Watts.

505.6 Lighting design by others.

Lighting power densities for building exterior applications
Uncovered Parking Areas
Parking Lots and drives 0.15 W/ft
Building Grounds
Walkways less than 10 feet wide 1.0 watts/linear foot
Walkways 10 feet wide or greater 0.2 W/ft
Building Entrances and Exits
Main entries 30 watts/linear foot of door width
Other doors 20 watts/linear foot of door width
Building facades
0.2 W/ft for each illuminated wall or surface or
5.0 Watts/linear foot for each illuminated wall or surface length

ENERGY UPGRADE ON EXISTING

Air sealing and insulation as per proposal:

Air Sealing Depressurization test in and out with CFM results*, infrared image to determine leakage areas. Air seal leakage areas in all areas less than 15 feet high as need using 1 part foam, 2 part foam, caulk, backer rods, rigid insulation, all air sealing done with blower door

Insulation: Removed existing wall insulation and re-use usable insulation

Uninstalled existing metal straps

Discarded unusable or un needed existing insulation

Installed insulation pins

Installed r-19 batts to 3 exterior walls, tape seams

Reinstalled usable plastic batts

Re-installed metal straps as needed and possible.

* CFM starting 8594, ending 6093 - 29% air leakage reduction

CODE NOTES:

ALL CONSTRUCTION SHALL COMPLY WITH THE IBC, IPC, IMC, IFGC, IFC 2015 & THE IECC 2009 AS ADOPTED & AMENDED BY THE CITY OF GLENWOOD SPRINGS, AND, THE NEC AS ADOPTED & AMENDED BY THE CITY OF GLENWOOD SPRINGS

Occupancy: S1 Combustible Storage with Vehicle / Truck Parking /Storage
B Office with B Conference Room & B Common (Break) Room

Type of Construction: VB

Fire Suppression Sprinkler System: Not Required .
See Ch. 9 IBC & IFC as Amended by the City of GWS
Per Amendments to IFC 2015 Ch.(903.2 Where Required (Automatic Sprinkler Systems)
VB Bldg's less than 7500 sq.ft. - Automatic Sprinkler Systems Not Required

Provide fire extinguishers as required by Fire Department

Total Bldg Area: 6320 sq. ft.
Warehouse Addition Area: 1800 sq. ft.
Existing building Area: 4520 sq. ft.

Building Areas:
Offices (102, 104,109, 110,114): 686 sq. ft.
Conference Room (103): 350 sq. ft.
Common (Break) Room (107): 188 sq. ft.
Bathrooms (104,105) : 140sq. ft.
Mechanical (108): 107 sq. ft.
Remodeled Warehouse Area (111): 2562 sq. ft.
New Warehouse Area (112): 1680 sq. ft.
Pesticide Storage Room (113)- 50 sq. ft.

Parking Requirements (Table 030.1 Article 070.030 – Use Regulations COGS Municipal/ Developmemt Code):

Maintenance & Repair Services, Minor -1 space / 500 sq. ft. - 4580 / 300 = 15.3 = 16
Office 1 space / 300 sq. ft. - 1740 / 300 = 5.8 = 6
Total required parking spaces = 22

Accessible Parking Spaces Required(070.040.060 (d) COGS Municipal CodeSee IBCTable 1106.1:
1 - 25 spaces - 1 Accessible Space required = 1

Bicycle Spaces Table 040.7 Article 070.040.060 – Off Street Parking COGS Municipal Code:
Fewer than 50 spaces - Required Bicycle Spaces Required =3

International Existing Building Code (IEBC 2015) Key Applicable Exemptions:

Ch.8 IEBC Level 2 Alteration – Work Area Less than 50% of Existing Bldg
804.2.4 IEBC - Fire Suppression Sprinkler Protection – Exempt
804.4.1 Alarm not required in S & B Occupancies but is required if Fire Suppression Sprinkler Protection is installed
705.2 Accessibility – “Where an alteration effects the route to the primary function the route to, or contains an area of primary function, the route to the primary function shall be accessible. The route to the primary function shall include toilet facilities and drinking fountains serving the primary function.
Exception: The costs of providing the accessible route are not required to exceed 20% of the costs of the primary function.
811 ENERGY CONSERVATION. Minimum Requirements. Only new aspects of the construction are required to comply with the IECC.

Ch.11 IEBC Additions

1102. Height, Area & Fire protection not allowed to increase the existing building to exceed IBC requirements of Sec. 903 Automatic Sprinkler Systems. Addition does not cause the these requirements to be exceeded. 9000 sq. ft. Type VB building allowed for S-1 & B occupancies without yard increases. S-1 Fire Area allowed is 12,000 sq. ft. Group B fire area is unlimited. See Fire Suppression Sprinkler System above.

Rack Storage: Any & all Rack Storage shall not exceed 12 feet in height to top of storage therefore no special requirements. (For Rack storage higher than 12 feet compliance with IBC 413, IFC Ch.32 High Piled Combustible Storage. Rack Storage IFC Sec. 3208, 5104.4.3,5704.3.3.6 required. Separate permit required from AHJ)

Pesticides Storage Room:

Substances to be housed include insecticides, herbicides, and fungicides. Based on label requirements for each substances.

Size of container – Not more than 5G with not more than 10 count total .

Storage area under lock and key.

Storage area to be vented directly to the exterior environment and on continuously.

Storage area shall have available, in good working order, at least, one fire extinguisher rates for chemical fires and have materials for use in cleaning up pesticide spills.

Storage area shall be marked with a sign or signs, in letters at least one inch high, warning that pesticides are stored within and communicating the highest toxicity category any person may be exposed to within the storage area such as: “Danger, Pesticide Storage, Authorized Personnel Only.”

Storage area should have direct access to exterior environment via an outward opening door.

A water tap placed within 8 foot of the exterior door would be ideally placed to assist with mixing.

STRUCTURAL NOTES:

- SEE ENGINEER STAMPED STRUCTURAL PLANS
- FLOOR DESIGN LOAD - See structural plans
- WIND DESIGN LOAD - See structural plans
- TRUSS/ROOF DESIGN LOAD - See structural plans

CIVIL NOTES:

- See stamped civil engineered plans
- Provide site drainage away from building per soils report and civil engineering plans
- Gutters, down spouts, and snow slides to be installed on roofs as required by owner and soils report. Design provided by gutter supplier &/or gutter installer as required.
- Slope floor slab to drain to interior drains. See MEP & structural plans.

Additional Notes:

- Glazing in hazardous locations shall be safety glazing per SEC. 2406 IBC 2015, IEBC 2015
- Interior finishes shall be Class C or better and comply with SEC. 803. TABLE 803.11. IBC 2015
- Submit exterior materials board and specs to COGS for approval prior to installation of all exterior materials including but not limited to metal siding, garage door, man doors, roofing, light fixtures, etc. as required by COGS

DEFERRED SUBMITTAL TABLE

(All Deferred Submittals to be submitted by the applicant and approved by the City of Glenwood Springs prior to installation of the applicable phase of construction)

- Fire Suppression System, If Required.
- Alarm System, If Required
- Mechanical & Plumbing Plans From Mechanical & Plumbing Subcontractors, and Wash Bay Equipment providers and Installers, and , MEP Engineer if required by the City of Glenwood Springs, Demonstrating Compliance w the IECC 2009 & IBC 2015, IMC 2015, IPC 2015, IFGC 2015
- Electrical & Lighting Plans From Electrician & Lighting Supplier Demonstrating Compliance w the IECC 2009 & IBC 2015, and Current edition of the NEC as amended & adopted by the City of Glenwood Springs.
- Insulation and Thermal Envelope Sealing Plans From Insulation Subcontractor Demonstrating Demonstrating Compliance w the IECC 2009 & IBC 2015 as amended & adopted by the City of Glenwood Springs
- Window and Door Schedules From the Window & Door Suppliers Demonstrating Compliance w the IECC 2009 & IBC 2015 as amended & adopted by the City of Glenwood Springs



Property Description

LOT 1, NILE VALLEY FEDERAL SAVINGS AND LOAN ASSOCIATION SUBDIVISION, ACCORDING TO THE PLAT THEREOF FILED AUGUST 5, 1988 AT RECEPTION NO. 394360.
ALSO KNOWN BY STREET AND NUMBER AS:
191 SOCCER FIELD ROAD, GLENWOOD SPRINGS, CO. 81601

EXISTING BUILDING SF = 4520
NEW ADDITION SF = 1800
TOTAL BUILDING SF = 6320
LOT AREA = 43,662 SF
LANDSCAPE = 6639 SF
'IMPERVIOUS SURFACES' (BUILDINGS, DRIVEWAYS, WALKS AND OTHER IMPREVIOUS SURFACES = 37023 SF

Project Directory

CLASS OF WORK:
ADDITION

OWNER:
COGS Daniel Roper
Parks Superintendent
Office: 970-384-6366
Cell: 970-471-6394



GENERAL CONTRACTOR:
CUC



Eliel Ruiz
Project Manager
CUC Construction
P: (970) 230-3476M: (970) 989-3907
A: 625 Airport Road, Glenwood Springs, CO. 81601
W: www.cucconstruction.com F: Eliel@cucconstruction.com

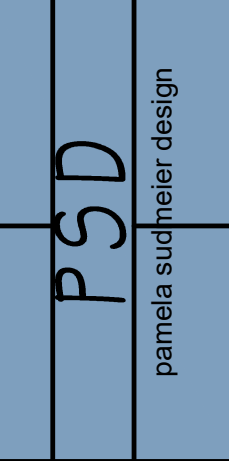
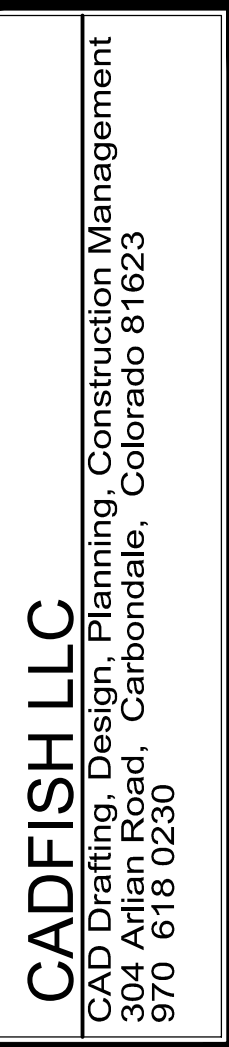
CIVIL ENGINEER:
SGM

David M. Kotz, PE, CFM
Principal Civil Engineer



DESIGNER:

CADFISH, LLC
CAD DRAFTING, DESIGN, PLANNING, CONSTRUCTION MGMNT
304 ARLIAN ROAD, CARBONDALE, CO 81623
970-618-0230



GLENWOOD SPRINGS PARKS
DEPARTMENT WAREHOUSE ADDITION
191 SOCCER FIELD ROAD
GLENWOOD SPRINGS, COLORADO

DRAWN BY: CADFISH, LLC & P&S

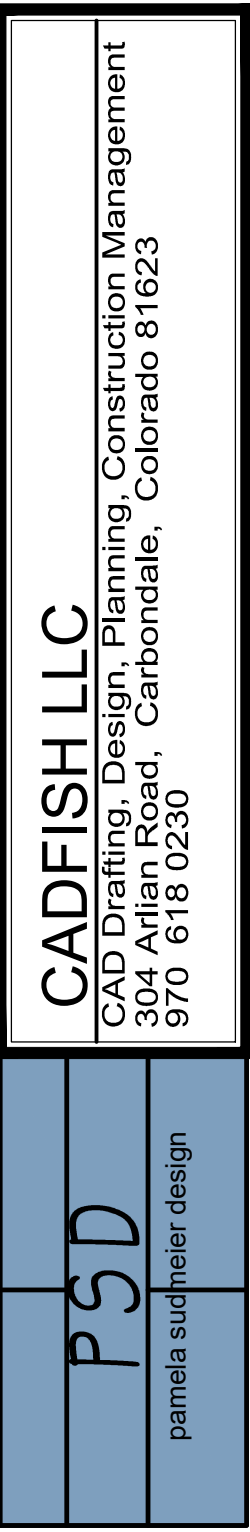
ISSUE DATE:
12-01-2021

SHEET TITLE

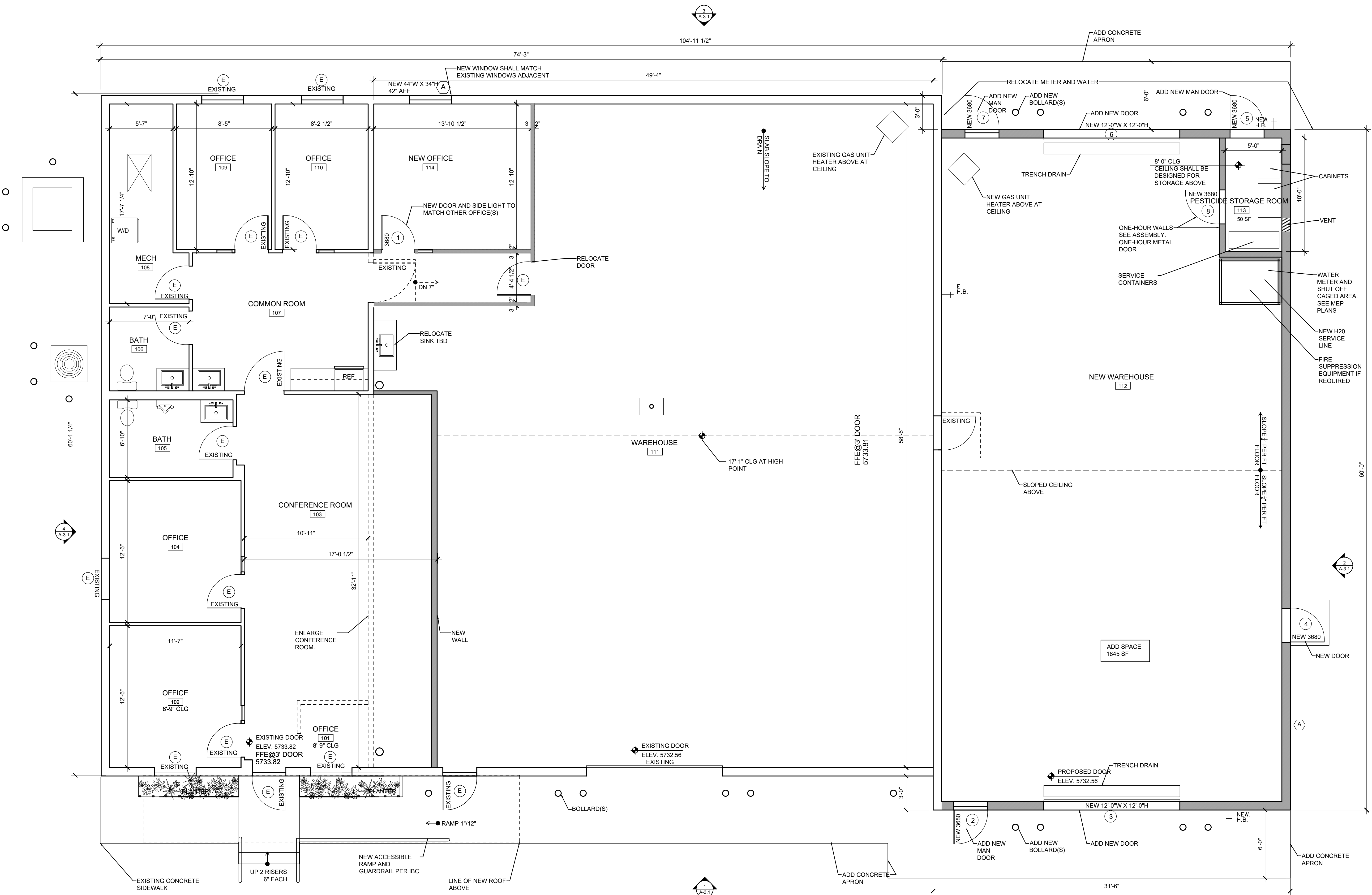
COVER AND
INFORMATION

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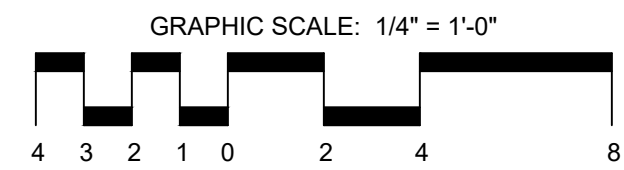


1 EXISTING FLOOR PLAN AND PROPOSED ADDITION

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

NOTE:
1.) VERIFY ALL DIMENSIONS IN THE
FIELD.

LEGEND	
-----	EXISTING WALLS TO BE DEMOLISHED
=====	EXISTING WALLS TO REMAIN
=====	PROPOSED - NEW WALLS
NOTE: DIMENSION FROM STUD OR CONCRETE BLOCK	



GLENWOOD SPRINGS PARKS
DEPARTMENT WAREHOUSE ADDITION
191 SOCCER FIELD ROAD
GLENWOOD SPRINGS, COLORADO

DRAWN BY: CADFISH, LLC & PSD

ISSUE DATE:
12-01-2021

SHEET TITLE

EXISTING PLAN AND
PROPOSED ADDITION

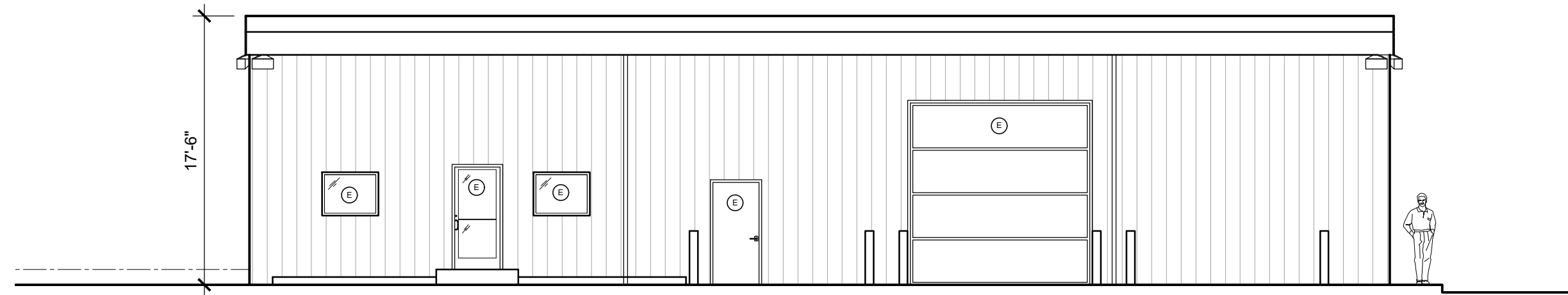
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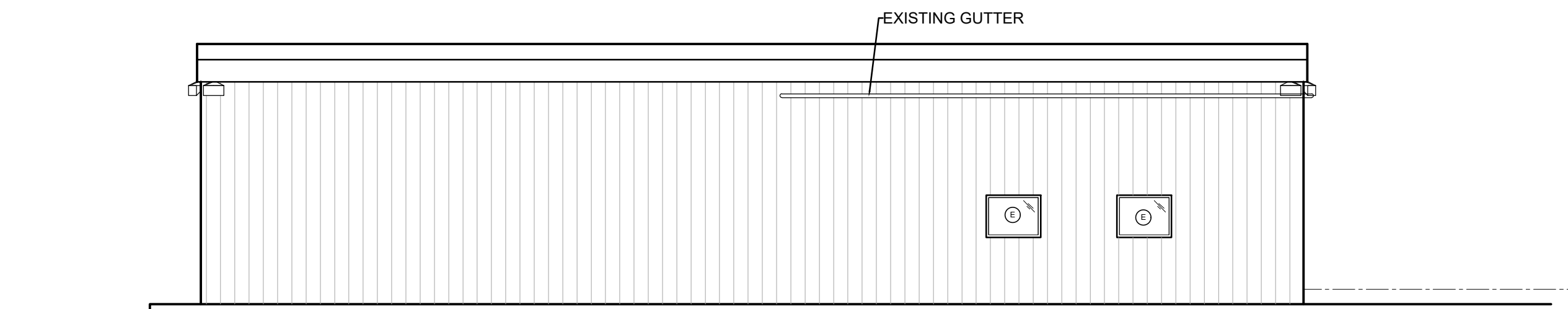
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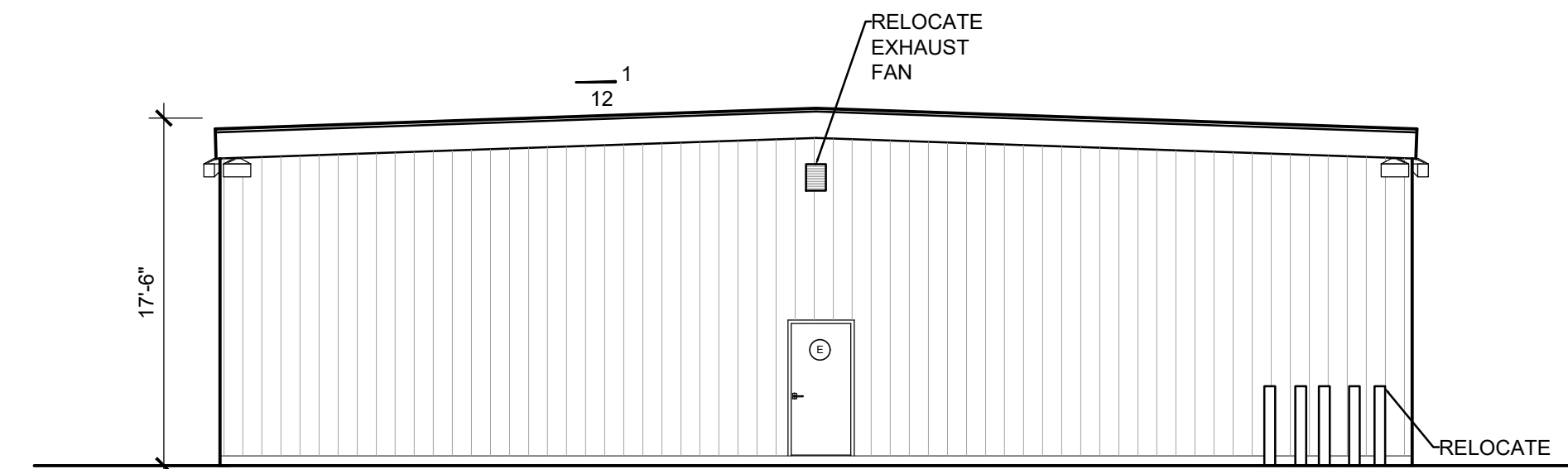
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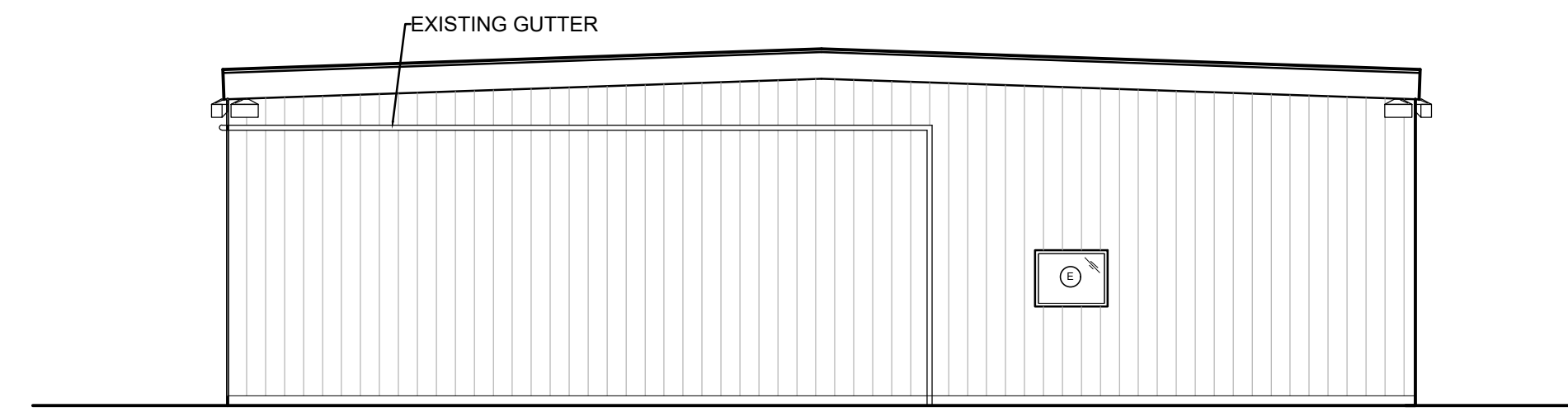
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SCALE: 1/8" = 1'-0"



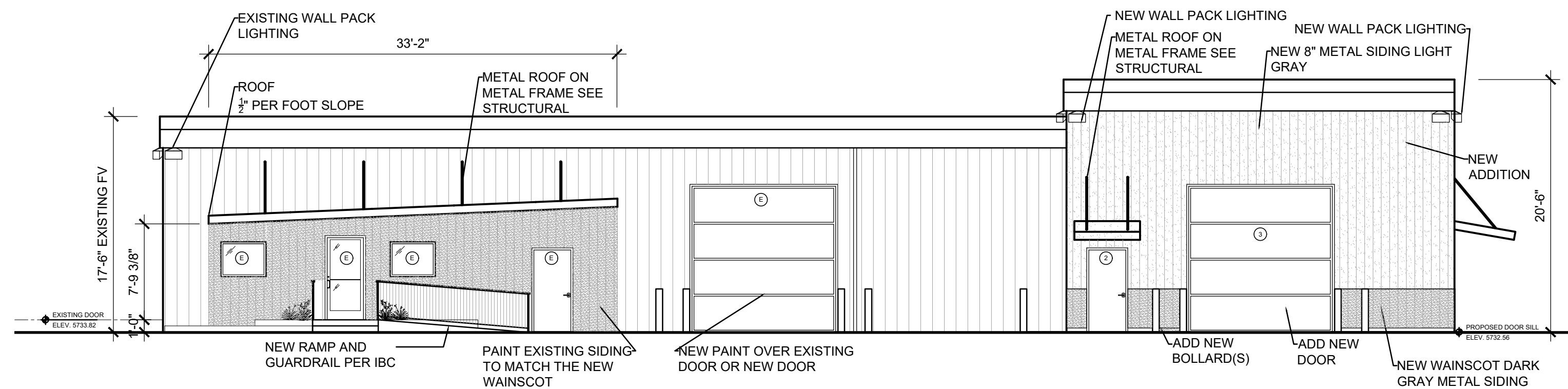
3 NORTH ELEVATION - EXISTING
SCALE: 1/8" = 1'-0"



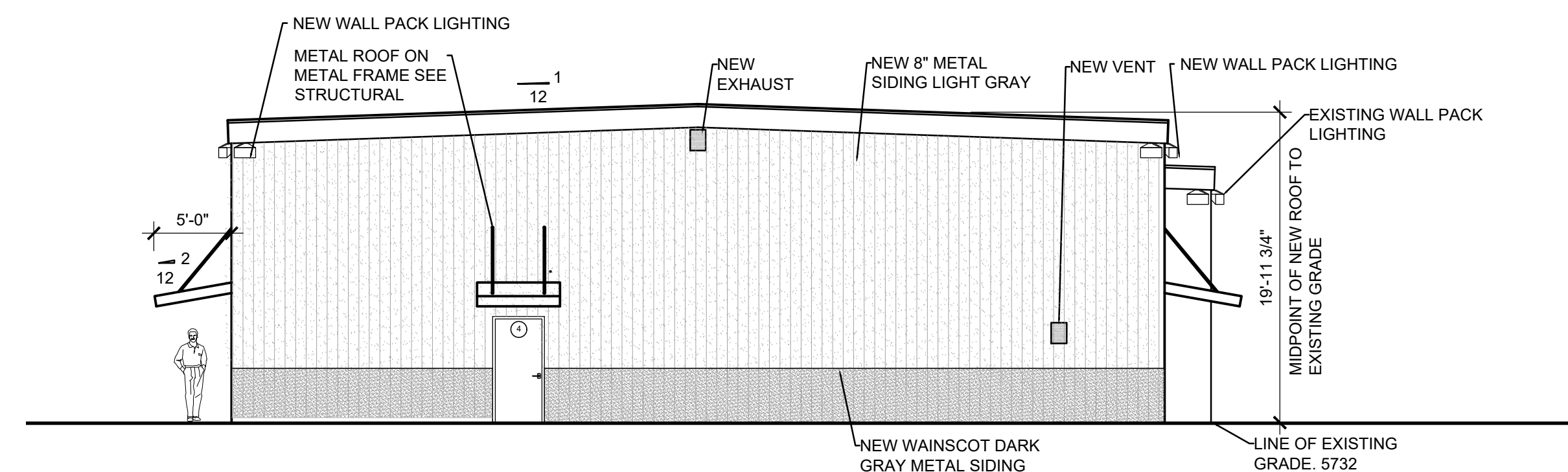
2 EAST ELEVATION - EXISTING
SCALE: 1/8" = 1'-0"



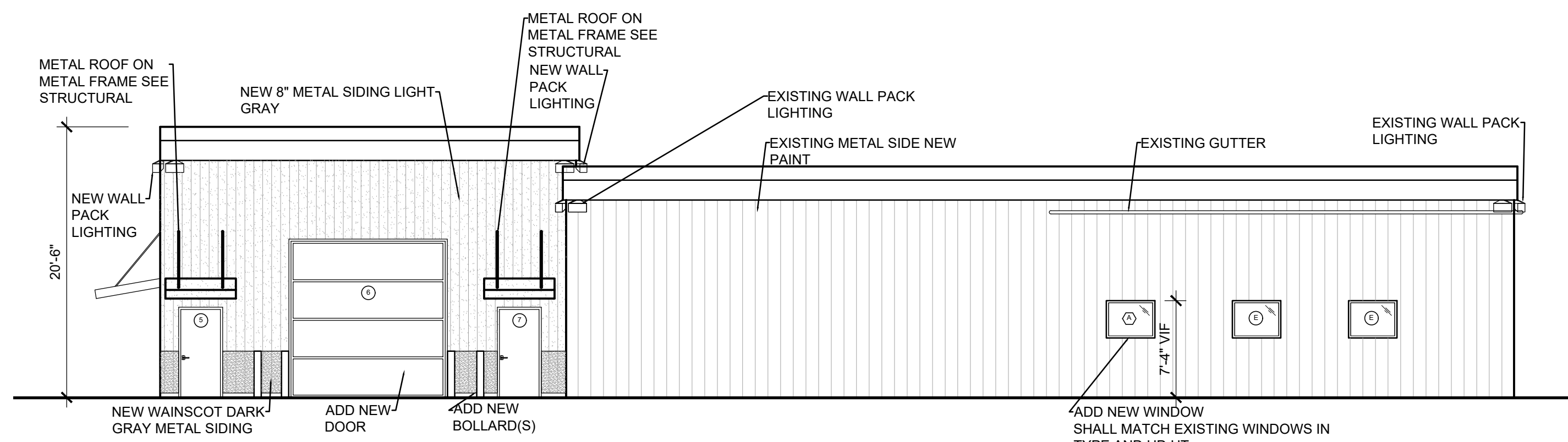
4 WEST ELEVATION - EXISTING
SCALE: 1/8" = 1'-0"



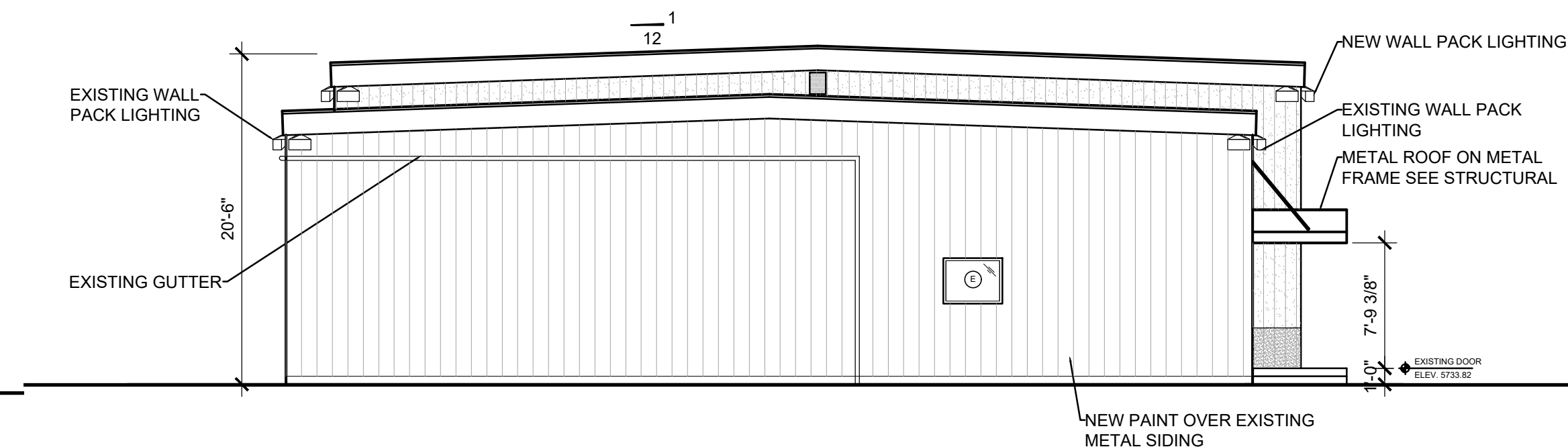
1 SOUTH ELEVATION - PROPOSED
SCALE: 1/8" = 1'-0"



2 EAST ELEVATION - PROPOSED
SCALE: 1/8" = 1'-0"



3 NORTH ELEVATION - PROPOSED
SCALE: 1/8" = 1'-0"



4 WEST ELEVATION - PROPOSED
SCALE: 1/8" = 1'-0"

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GLENWOOD SPRINGS PARKS
DEPARTMENT WAREHOUSE ADDITION
191 SOCCER FIELD ROAD
GLENWOOD SPRINGS, COLORADO

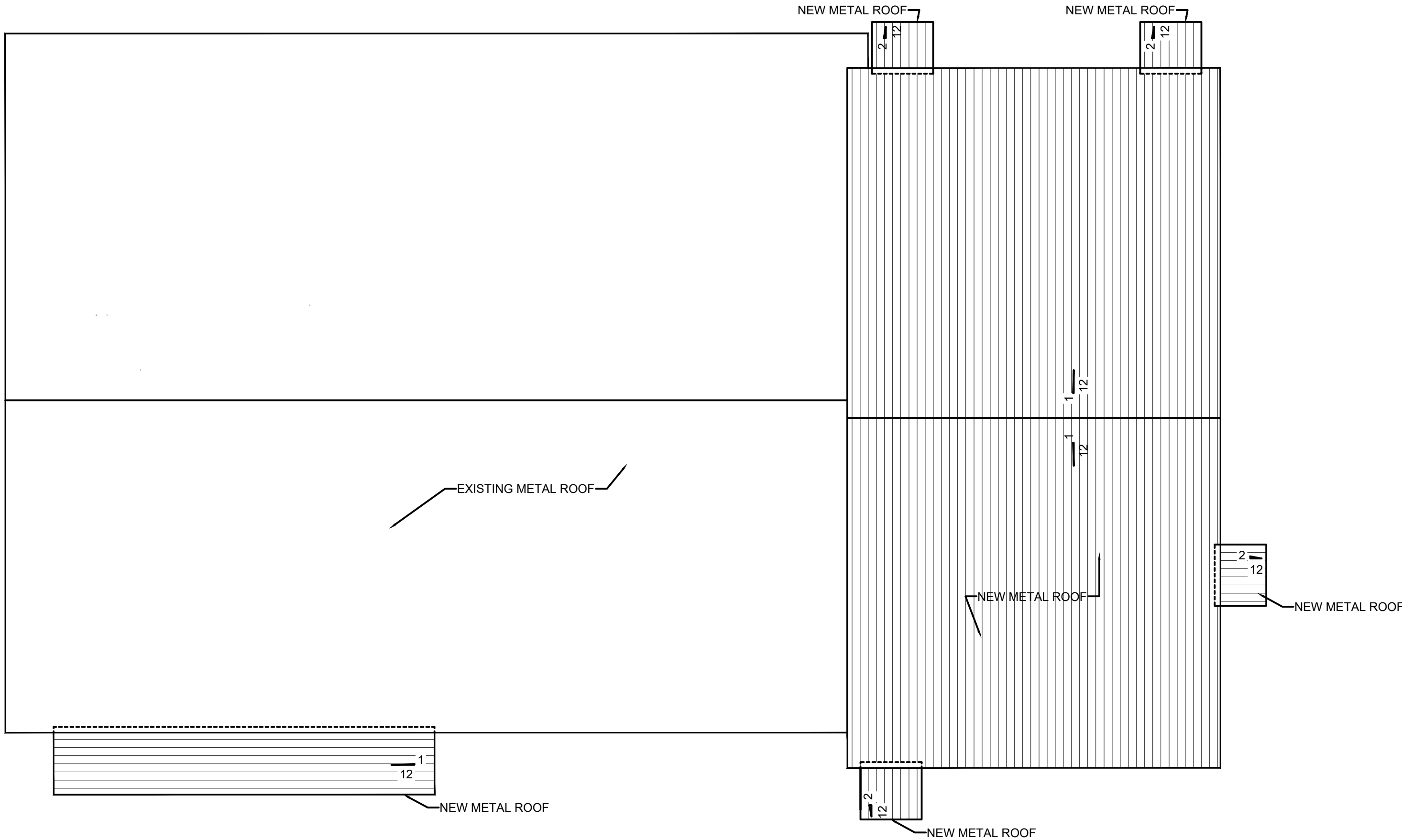
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SHEET TITLE
EXTERIOR ELEVATIONS
EXISTING AND
PROPOSED

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

NEW WINDOW SCHEDULE		ENERGY CALCULATIONS AND GLAZING VALUES REF: WINDOW SPECIFICATIONS IECC			
SYMBOL	WIDTH	HEIGHT	TYPE	OPERATION AND HD HT	LOCATION
A	44"	34"	MATCH EXISTING WINDOWS	SEE ELEVATION	NEW OFFICE 114. THIS NEW WINDOW SHALL MATCH THE HEAD HT OF THE EXISTING WINDOWS

NEW DOOR SCHEDULE					
SYMBOL	WIDTH	HEIGHT	MATERIAL	OPERATION	LOCATION
1	36"	80"	MATCH EXISTING INTERIOR DOORS	SEE PLAN	NEW DOOR AND SIDE LIGHT IN THE NEW OFFICE 114 SPACE SHALL MATCH EXISTING DOOR AND SIDE LIGHT AS THE OTHER OFFICE(S).
2	36"	80"	MATCH EXISTING EXTERIOR MANDOOR	SEE PLAN	NEW WAREHOUSE SPACE 112
3	12'-0"	12'-0"	MATCH EXISTING GARAGE DOOR	SEE PLAN	NEW WAREHOUSE SPACE 112
4	36"	80"	MATCH EXISTING EXTERIOR MANDOOR	SEE PLAN	NEW WAREHOUSE SPACE 112
5	36"	80"	MATCH EXISTING EXTERIOR MANDOOR	SEE PLAN	NEW PESTICIDE STORAGE ROOM 113
6	12'-0"	12'-0"	MATCH EXISTING GARAGE DOOR	SEE PLAN	NEW WAREHOUSE SPACE 112
7	36"	80"	MATCH EXISTING EXTERIOR MANDOOR	SEE PLAN	NEW WAREHOUSE SPACE 112
8	36"	80"	ONE-HOUR METAL DOOR INTERIOR DOOR	SEE PLAN	NEW PESTICIDE STORAGE ROOM 113

NOTES:
1.) PROVIDE MATCHING MANUFACTURED WINDOWS AND DOORS AS THE EXISTING. WITH U=0.35 OR LESS.
2.) CONFIRM ALL WINDOW SIZES PER OWNERSHIP SELECTIONS UNLESS NOTED OTHERWISE.
3.) THE WINDOW IMAGERY REPRESENTS SIZE AND TYPE ONLY.
4.) SEE THE ELEVATIONS AND PLANS FOR OPERATION.
5.) FIELD VERIFY ALL ROUGH OPENINGS.
6.) CONCUR PER MANUFACTURER INSTALLATIONS AND SPECIFICATIONS FOR DOOR AND WINDOW PLACEMENTS.
7.) SAFETY GLAZING IN ALL HAZARDOUS LOCATION PER SEC. 2046 IBC 2015 IEBC 2015
8.) REFER TO MANUFACTURER FOR ALL WINDOWS. THE NEW WINDOW SHALL MATCH THE EXISTING IN SIZE MANUFACTURER..

2 SCHEDULES
SCALE: NTS

TYPE OF MATERIALS AND PERCENTAGE OF TOTAL SURFACE AREA IN SQUARE FOOTAGE
LG= LIGHT GRAY SIDING, DG = DARK GRAY SIDING, (P) = PAINTED EXISTING

SOUTH ELEVATION						
	EXISTING	NEW	LG	DG	SURFACE AREA (SF)	PERCENTAGE OF NET*
GROSS OF WALL	1097	565			1662	N/A
NET*METAL SIDING	1075	557	455 783(P)	110 314(P)	1632	9%
*NET EXCLUDES ROOF FORMS, AWNINGS AND SIMILIAR FEATURES, INCLUDES GLAZED WINDOWS AND DOORS						

EAST ELEVATION						
	EXISTING	NEW	LG	DG	SURFACE AREA (SF)	PERCENTAGE OF NET*
GROSS OF WALL	45	1109			1154	N/A
NET*METAL SIDING	45	1101	877	212	1146	9%
*NET EXCLUDES ROOF FORMS, AWNINGS AND SIMILIAR FEATURES, INCLUDES GLAZED WINDOWS AND DOORS						

NORTH ELEVATION						
	EXISTING	NEW	LG	DG	SURFACE AREA (SF)	PERCENTAGE OF NET*
GROSS OF WALL	1073	547			1620	N/A
NET*METAL SIDING	1073	531	438	109	1604	9%
*NET EXCLUDES ROOF FORMS, AWNINGS AND SIMILIAR FEATURES, INCLUDES GLAZED WINDOWS AND DOORS						

WEST ELEVATION						
	EXISTING	NEW	LG	DG	SURFACE AREA (SF)	PERCENTAGE OF NET*
GROSS OF WALL	958	137			1095	N/A
NET*METAL SIDING	958	137	127	10	1095	0%
*NET EXCLUDES ROOF FORMS, AWNINGS AND SIMILIAR FEATURES, INCLUDES GLAZED WINDOWS AND DOORS						

3 TYPE OF MATERIAL AND PERCENTAGE OF SF
SCALE: NTS

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GLENWOOD SPRINGS PARKS
DEPARTMENT WAREHOUSE ADDITION
191 SOCCER FIELD ROAD
GLENWOOD SPRINGS, COLORADO

DRAWN BY: CADFISH, LLC & PSD

ISSUE DATE:
12-01-2021

SHEET TITLE
ROOF PLAN, SCHEDULES
AND TYPE OF MATERIAL
AND PERCENTAGE
CHART

A-3.2

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1 **FLAT OVERHANG EXTENSION SAMPLE**
SCALE: NTS



2 **TWO COLORED - SIDING AND WAINSCOT SAMPLE**
SCALE: NTS



A **EAST ELEVATION - EXISTING**
SCALE: NTS



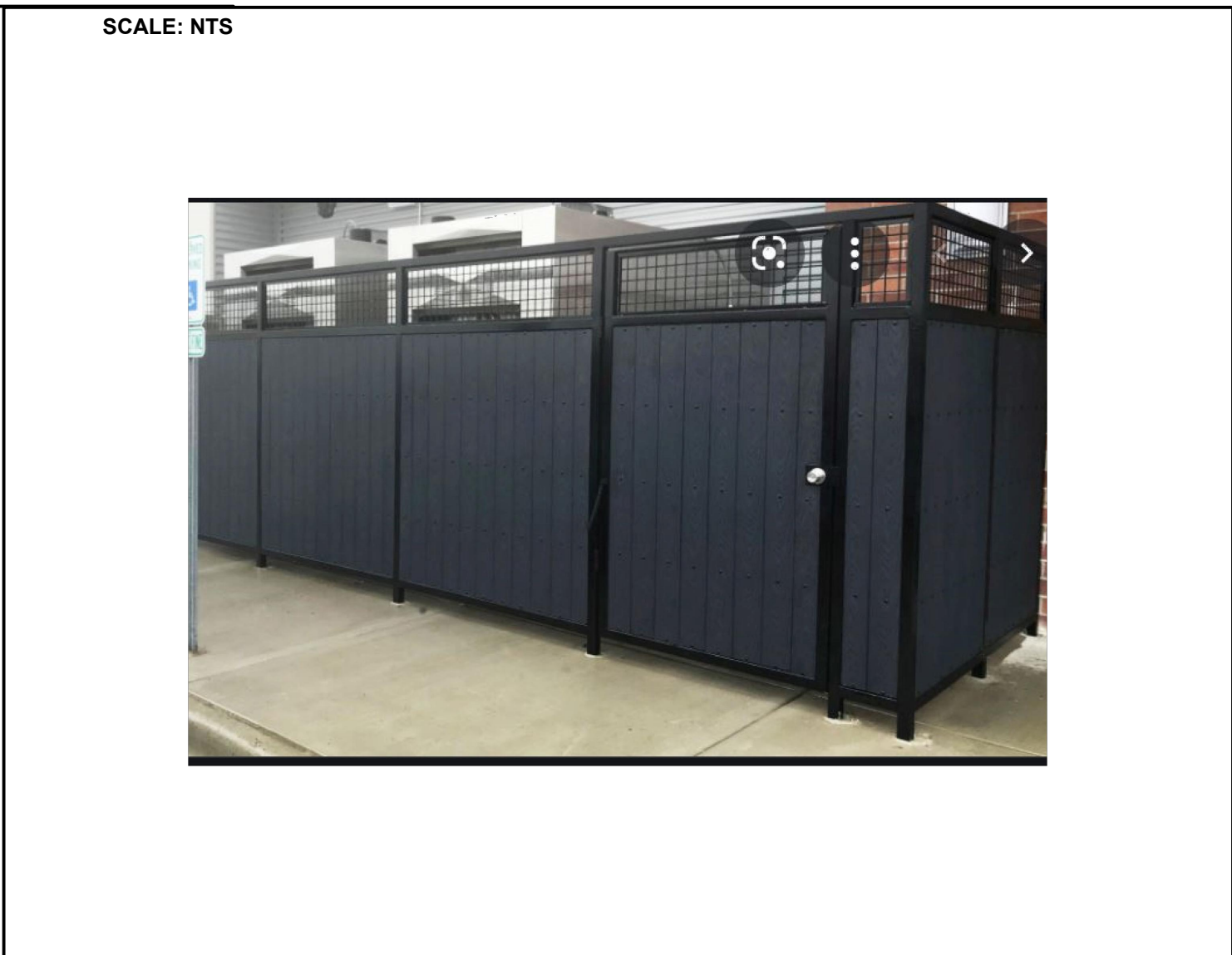
B **SOUTH ELEVATION - EXISTING**
SCALE: NTS



C **RELOCATE**
SCALE: NTS



D **EXISTING EAST INTERIOR WALL CONSTRUCTION**
SCALE: NTS



E **DUMPSTER FENCE SAMPLE**
SCALE: NTS

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DEPARTMENT WAREHOUSE ADDITION
191 SOCCER FIELD ROAD
GLENWOOD SPRINGS, COLORADO

DRAWN BY: CADFISH, LLC & PSD

ISSUE DATE:
12-01-2021

SHEET TITLE
IMAGERY OF EXISTING
BUILDING AND
PROPOSED SAMPLES

A-8.1

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Glenwood Springs, CO 81601
970.945.1004 www.sgm-inc.com



Remove and replace existing asphalt with new asphalt and parking lot features. Remove and replace northerly culvert with new 18" ADS. Connect new 18" ads to southerly culvert to accommodate new driveway access. Install new sewer service for new building addition. Install new trash collection area. Install new 12" ADS and inlet with connection to existing manhole in southwest corner of property.



Owner/Applicant

101 West 8th Street
Glenwood Springs, CO 81601

Mayor - *Johnathan Godes, Ward 5*
 Mayor Protem - *Charlie Willman, Ward 3*
 Trustees - *Tony Hershey, At Large*
 - *Shelley Kaup, At Large*
 - *Paula Stepp, Ward 4*
 - *Ingrid Wusson*
 - *Steve Davis, Ward 1*



**Know what's below.
Call before you dig.**

UNCC 1-800-922-1987

1	Cover Sheet
2	Legend and Abbreviations
3	Existing Conditions and Demolition Plan
4	Site Plan
5	Grading and Drainage Plan
6	Storm Drain Plan and Profile
7	Utility Plan
8	Erosion Control Plan
9	Erosion Control Details
10	Detail Sheet

[illegible]

Project Milestone: Preliminary Not For Construction

b No.		2018-476.002	
Drawn by:		FJB	
Date:		12.22.21	
C:	DMK	PE:	CL
S:		SFR-Admin	

e:

Cover Sheet

g No.

1

: 10

Linetypes

Hatching

CONTACT LIST OF UTILITY OWNERS WITHIN VICINITY OF PROJECT LIMITS						
ORGANIZATION NAME	ABBREVIATION	UTILITY TYPE	CONTACT NAME	CONTACT PHONE	CONTACT EMAIL	RECORDS RECEIVED
BLACK HILL ENERGY	BHEN	GAS	JASON COX	(970) 456-3117	JASON.COX@BLACKHILLSCORP.COM	YES
CENTURYLINK (NOW LUMEN)	CNKL	TELEPHONE	JASON SHARPE	(970) 328-8290	JASON.SHARPE@CENTURYLINK.COM	YES
CITY OF GLENWOOD SPRINGS ELECTRIC	COGS	ELECTRIC	DOUG HAZZARD	(970) 384-6353	DOUG.HAZZARD@COGS.US	YES
CITY OF GLENWOOD SPRINGS FIBER OPTIC	COGS	FIBER OPTIC	MICHAEL GARDNER	(970) 384-4800	MICHAEL.GARDNER@COGS.US	NO
WEST GLENWOOD SANITATION DISTRICT	COGS	SANITARY	KELLY MULLANE	(970) 618-5147		YES
CITY OF GLENWOOD SPRINGS WATER	COGS	WATER	MIKE HOFFMAN	(970) 384-6343	MIKE.HOFFMAN@COGS.US	YES
COMCAST	CMCT	CABLE TV, FIBER OPTIC	RYAN ANDERSEN	(720) 219-8186	RYAN_ANDERSEN@COMCAST.COM	YES

Symbols

EXISTING UTILITY NOTES - "SUE-REQUIRED PROJECT" COMPLIANT

<u>COLORADO REVISED STATUTES (CRS) 2018 TITLE 9-1.5-102 SUBSURFACE UTILITY ENGINEERING (SUE) REQUIRED PROJECT COMPLIANCE CHECKLIST</u>				
1	9-1.5-102 -6.8.A	PROJECT INVOLVES CONSTRUCTION CONTRACT WITH A PUBLIC ENTITY	YES, PUBLIC	NO, PRIVATE
2	9-1.5-102 -6.8.B	PROJECT INVOLVES PRIMARILY HORIZONTAL CONSTRUCTION AND DOES NOT INVOLVE PRIMARILY THE CONSTRUCTION OF BUILDINGS	YES, HORIZONTAL	NO, VERTICAL
3A	9-1.5-102 -6.8.C.1.A	EXCAVATION FOOTPRINT EXCEEDS 2-FOOT DEPTH AND IS A CONTIGUOUS 1,000-SQUARE FEET; OR	YES, EXCEEDS	NO, LESS THAN
3B	9-1.5-102 -6.8.C.1.B	INVOLVES UTILITY BORING	YES, BORING	NO BORING
4	9-1.5-102 -6.8.D	PROJECT REQUIRES THE DESIGN SERVICES OF A LICENSED PROFESSIONAL ENGINEER (P.E.)	YES, P.E. NEEDED	NO P.E. NEEDED
SUMMARY	9-1.5-103 -2.4	REQUIRED TO MEET OR EXCEED THE ASCE 38 STANDARD?	YES, ASCE 38 STD.	NO ASCE 38 STD.

2. UTILITIES ARE DEPICTED ON THESE PLANS IN ACCORDANCE WITH THEIR ACHIEVED "QUALITY LEVELS" AS DEFINED IN THE AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE) DOCUMENT ASCE 38, "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA." LOCATION OF EXISTING UTILITIES IS DEPICTED ACCORDING TO THE BEST AVAILABLE INFORMATION. INFORMATION IS TO BE PROVIDED TO THE USER OF THESE PLANS AT THE TIME OF DATA COLLECTION. PRIOR TO CONSTRUCTION, CONTRACTOR SHALL VERIFY EXISTING UTILITIES WITH THE UTILITY NOTIFICATION CENTER OF COLORADO (UNCC) AND/OR UTILITY COMPANIES. ALL COSTS ASSOCIATED WITH FIELD VERIFICATION OF LOCATION AND DEPTHS OF UTILITIES FOR DAMAGE PREVENTION SHALL BE BORNE BY THE CONTRACTOR AND SHALL BE COMPLETED PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY DISCREPANCIES OR NEWLY ACQUIRED UTILITY DATA.
3. UTILITY QUALITY LEVELS ARE GENERALLY DEFINED BELOW. REFER TO ASCE 38 FOR MORE INFORMATION:
 - 3.1 UTILITY QUALITY LEVEL "7" (Q7) – A VALUE ASSIGNED TO A SUBSURFACE UNDERGROUND UTILITY SEGMENT OR UTILITY FEATURE, WHOSE ESTIMATED POSITION IS JUDGED THROUGH UTILITY RECORDS, INFORMATION FROM OTHERS (SUCH AS UNCC 611 FIELD MARKS), OR FROM VISUAL CLUES SUCH AS PAVEMENT CUTS, OBVIOUS TRENCHES, OR EXISTENCE OF SERVICE.
 - 3.2 UTILITY QUALITY LEVEL "6" (Q6) – A VALUE ASSIGNED TO A SUBSURFACE UTILITY SEGMENT, WHOSE ESTIMATED POSITION IS JUDGED THROUGH CORRELATING UTILITY RECORDS OR SIMILAR EVIDENCE TO UTILITY FEATURES, VISIBLE ABOVE AND/OR BELOW GROUND.

PERM PERMANENT
PG PAGE
PGL PROFILE GRADE LINE
PI POINT OF INTERSECTION
PL PROPERTY LINE
PM PROJECT MANAGER
PNT POINT
POC POINT ON CURVE
POT POINT ON TANGENT
PRO PROPOSED
PROP PROPOSED
PRV PRESSURE REDUCING VALVE
PSF POUNDS PER SQUARE FEET
PSI POUNDS PER SQUARE INCH
PT POINT OF TANGENCY
PUD PLANNED UNIT DEVELOPMENT
PVC POLYVINYL CHLORIDE
PVI POINT OF VERTICAL INTERSECTION
PVMT PAVEMENT
PVT POINT OF VERTICAL TANGENCY
Q PEAK DISCHARGE
QA/QC QUALITY ASSURANCE/QUALITY CONTROL
QTY QUANTITY
R RIGHT
R-R REMOVE AND REPLACE
RAD RADIUS
RCP REINFORCED CONCRETE PIPE
REF REFERENCE
REQ REQUIRED
REVEG REVEGETATE
RFTA ROARING FORK TRANSIT AUTHORITY
ROW RIGHT OF WAY
RP RADIUS POINT
RS REMANDED SOIL SLOPE
RW RETAINING WALL
SAC STEEL ARCH CULVERT
SAN SANITARY
SB SOUTH BOUND
SCF SEDIMENT CONTROL FENCE
SD STORM DRAIN
SDR STANDARD DIMENSION RATIO
SE SOUTHEAST
SECT SECTION
SF SQUARE FEET
SHLDR SHOULDER
TL SANITARY SEWER LINE
SMH SANITARY SEWER MANHOLE
SOD GRASS AREA
SS SANITARY SEWER SERVICE
SSD STOPPING SIGHT DISTANCE
STA STATION
STBK SETBACK
SW SIDEWALK
SY SQUARE YARDS
SYM SYMMETRICAL
T TREAD STAIRS
TAN TANGENT
TBC TOP BACK OF CURB
TLBK THRUST BLOCK
TC TOP OF CURB
TCE TEMPORARY CONSTRUCTION EASEMENT
TCP TRAFFIC CONTROL PLAN
TEL TELEPHONE
TEMP TEMPORARY
TP TOP OF PIPE
TRANS TRANSITION
TRFLG TRAFFIC FLANGE OF FIRE HYDRANT
TW TOP OF WALL
TYP TYPICAL
UCTV UNDERGROUND CABLE TELEVISION LINE
UG UNDERGROUND ELECTRIC LINE
UG UNDERGROUND GAS LINE
USACE US ARMY CORPS OF ENGINEERS
USGS US GEOLOGICAL SURVEY
UT UNDERGROUND TELEPHONE LINE
VC VERTICAL CURVE
VCP VITRIFIED CLAY PIPE
VLP VEHICLE LANE
VTC VEHICLE TRACKING CONTROL
W/ WITH
WB WEST BOUND
WL WATER LINE
WS WATER SERVICE
WQCD WATER QUALITY CONTROL DIVISION
WTR WATER
WWM WELDED WIRE MESH
X-S CROSS
YO YARD

ADS	ADVANCED DRAINAGE SYSTEM
ASCE	AMERICAN SOCIETY OF CIVIL ENGINEERS
AWWA	AMERICAN WATER WORKS ASSOCIATION
BOP	BOTTOM OF PIPE
C	CABLE TELEVISION
CMCT	COMCAST
CNULP	CENTURY LINK (AKA LUMEN)
DDSG	DEEP DRAINAGE SYSTEMS
DIP	DUCTILE IRON PIPE
E	ELECTRIC
EL	ELEVATION
EX	EXISTING
F	FIBER OPTIC
G	GAS
GPR	GROUND PENETRATING RADAR
INV	MANHOLE
PCL	PRECAST CONCRETE PLATE
MV1	POLYVINYL CHLORIDE (PVC)
OL	QUALITY LEVEL
OLA	QUALITY LEVEL A
QLB	QUALITY LEVEL B
QLC	QUALITY LEVEL C
QLD	QUALITY LEVEL D
RCP	REINFORCED CONCRETE PIPE
SNH	SANITARY MANHOLE
STM	SANITARY MANHOLE
SUE	SUBSURFACE UTILITY ENGINEERING
T	TELEPHONE
TH	TEST HOLE
TD	TOP OF DIRT
TOT	TOP OF TUIT
TOP	TOP OF PIPE
UTH	UTILITY TEST HOLE

CHANGE IN QUALITY LEVEL

```

graph LR
    CABLES --> OPTICAL_FIBER_CABLES[OPTICAL FIBER CABLES]
    CABLES --> ELECTRIC_CABLES[ELECTRIC CABLES]
    OPTICAL_FIBER_CABLES --> EXISTING_CABLE_TELEVISION[EXISTING CABLE TELEVISION]
    OPTICAL_FIBER_CABLES --> EXISTING_FIBER_OPTIC[EXISTING FIBER OPTIC]
    OPTICAL_FIBER_CABLES --> EXISTING_TELEPHONE[EXISTING TELEPHONE]
    ELECTRIC_CABLES --> EXISTING_ELECTRIC[EXISTING ELECTRIC]
    ELECTRIC_CABLES --> EXISTING_GAS[EXISTING GAS]
    ELECTRIC_CABLES --> EXISTING_IRRIGATION[EXISTING IRRIGATION]
    ELECTRIC_CABLES --> EXISTING_NONPOTABLE_WATER[EXISTING NONPOTABLE WATER]
    ELECTRIC_CABLES --> EXISTING_SANITARY[EXISTING SANITARY]
    ELECTRIC_CABLES --> EXISTING_STORM[EXISTING STORM]
    ELECTRIC_CABLES --> EXISTING_WATER[EXISTING WATER]
    EXISTING_CABLE_TELEVISION --> C-QLB
    EXISTING_CABLE_TELEVISION --> C-QLC
    EXISTING_CABLE_TELEVISION --> C-QLD
    EXISTING_FIBER_OPTIC --> F-QLB
    EXISTING_FIBER_OPTIC --> F-QLC
    EXISTING_FIBER_OPTIC --> F-QLD
    EXISTING_TELEPHONE --> T-QLB
    EXISTING_TELEPHONE --> T-QLC
    EXISTING_TELEPHONE --> T-QLD
    EXISTING_ELECTRIC --> E-QLB
    EXISTING_ELECTRIC --> E-QLC
    EXISTING_ELECTRIC --> E-QLD
    EXISTING_GAS --> G-QLB
    EXISTING_GAS --> G-QLC
    EXISTING_GAS --> G-QLD
    EXISTING_IRRIGATION --> IRR-QLB
    EXISTING_IRRIGATION --> IRR-QLC
    EXISTING_IRRIGATION --> IRR-QLD
    EXISTING_NONPOTABLE_WATER --> NP-QLB
    EXISTING_NONPOTABLE_WATER --> NP-QLC
    EXISTING_NONPOTABLE_WATER --> NP-QLD
    EXISTING_SANITARY --> S-QLB
    EXISTING_SANITARY --> S-QLC
    EXISTING_SANITARY --> S-QLD
    EXISTING_STORM --> ST-QLB
    EXISTING_STORM --> ST-QLC
    EXISTING_STORM --> ST-QLD
    EXISTING_WATER --> W-QLB
    EXISTING_WATER --> W-QLC
    EXISTING_WATER --> W-QLD
  
```




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Grand Junction, CO 81501
970.245.2571 www.sgm-inc.com

City of Glenwood Springs
PHQ 191 Soccer Field Road

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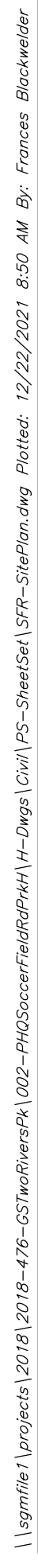
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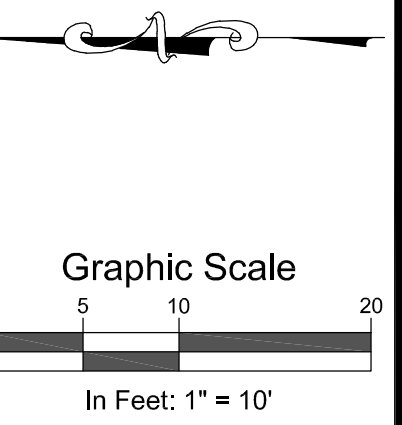
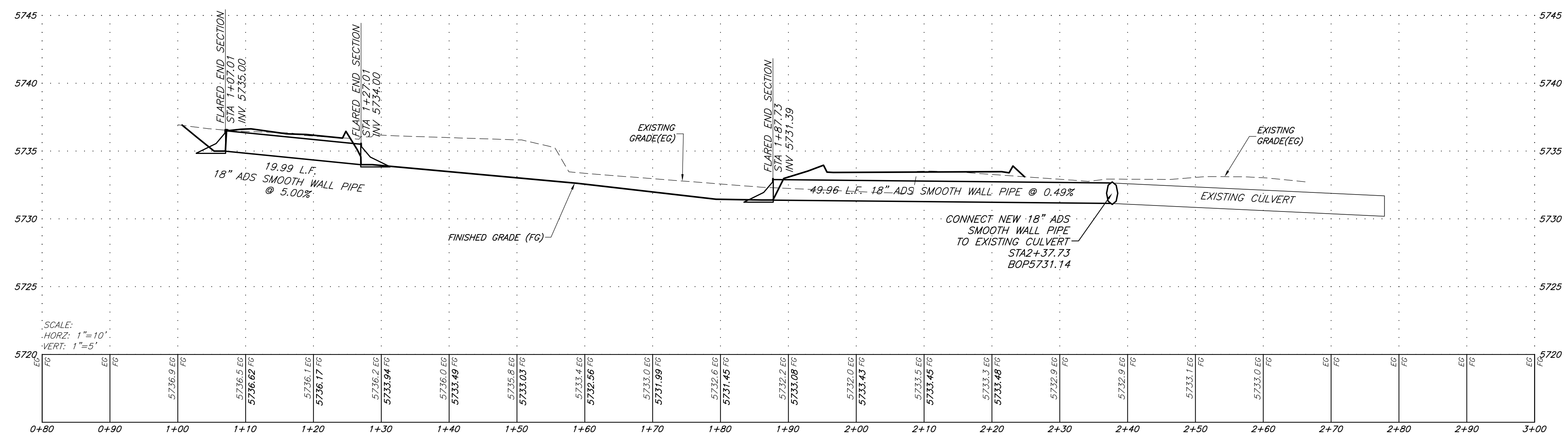
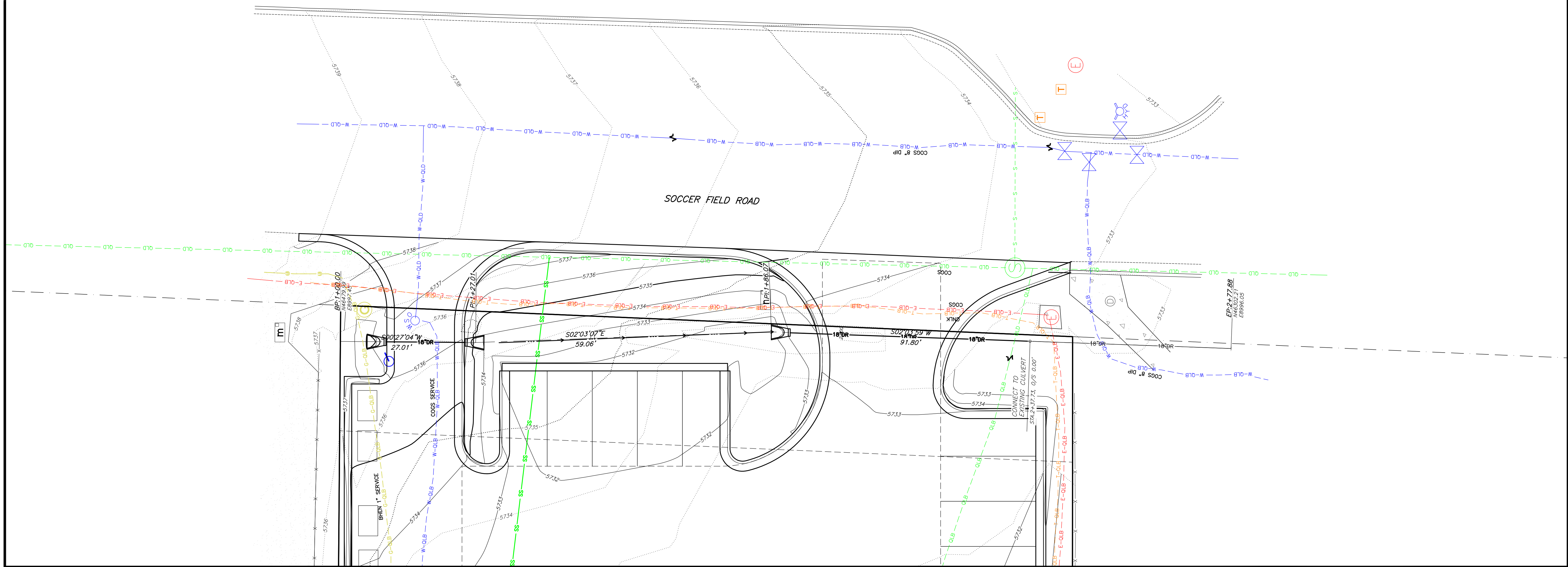
Job No.	2018-476.002		
Drawn by:	FJB		
Date:	12.22.21		
C:	DMK	PE:	CL
File:	SFR-SitePlan		

Site Plan

Fig No.

10





In Feet: $1'' = 10'$

SGM
2259 Grand Avenue, Suite 200
Grand Junction, CO 81501
970.245.2571 www.sgm-inc.com

City of Glenwood Springs
PHQ 191 Soccer Field Road

PHQ 191 Soccer Field Road

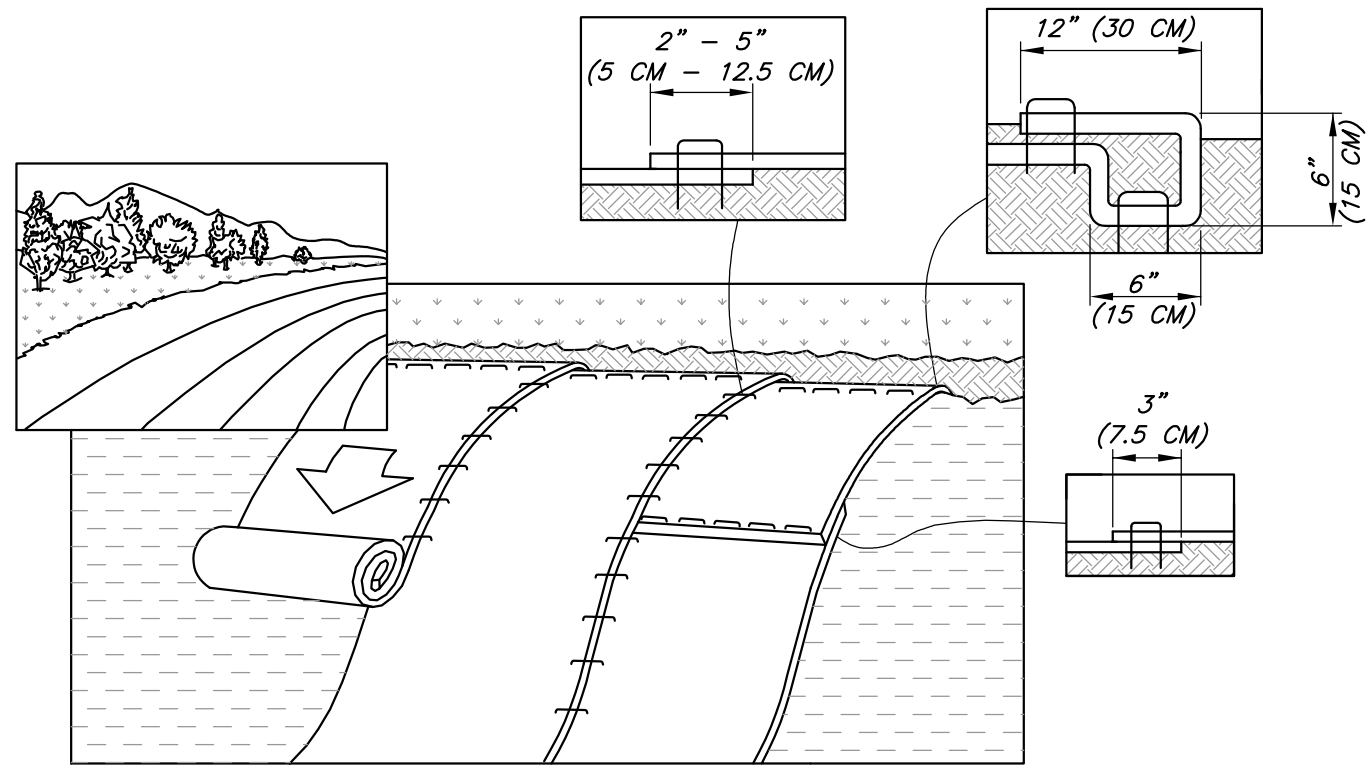
Project Milestone:	Preliminary Not For Construction									
Job No.	2018-476.002									
Drawn by:	FJB									
Date:	12.22.21									
By:	DMK	PE:	CL							
Re:	SFR-StormDrainPPP									

Storm Drain Plan and Profile

ing No.

•

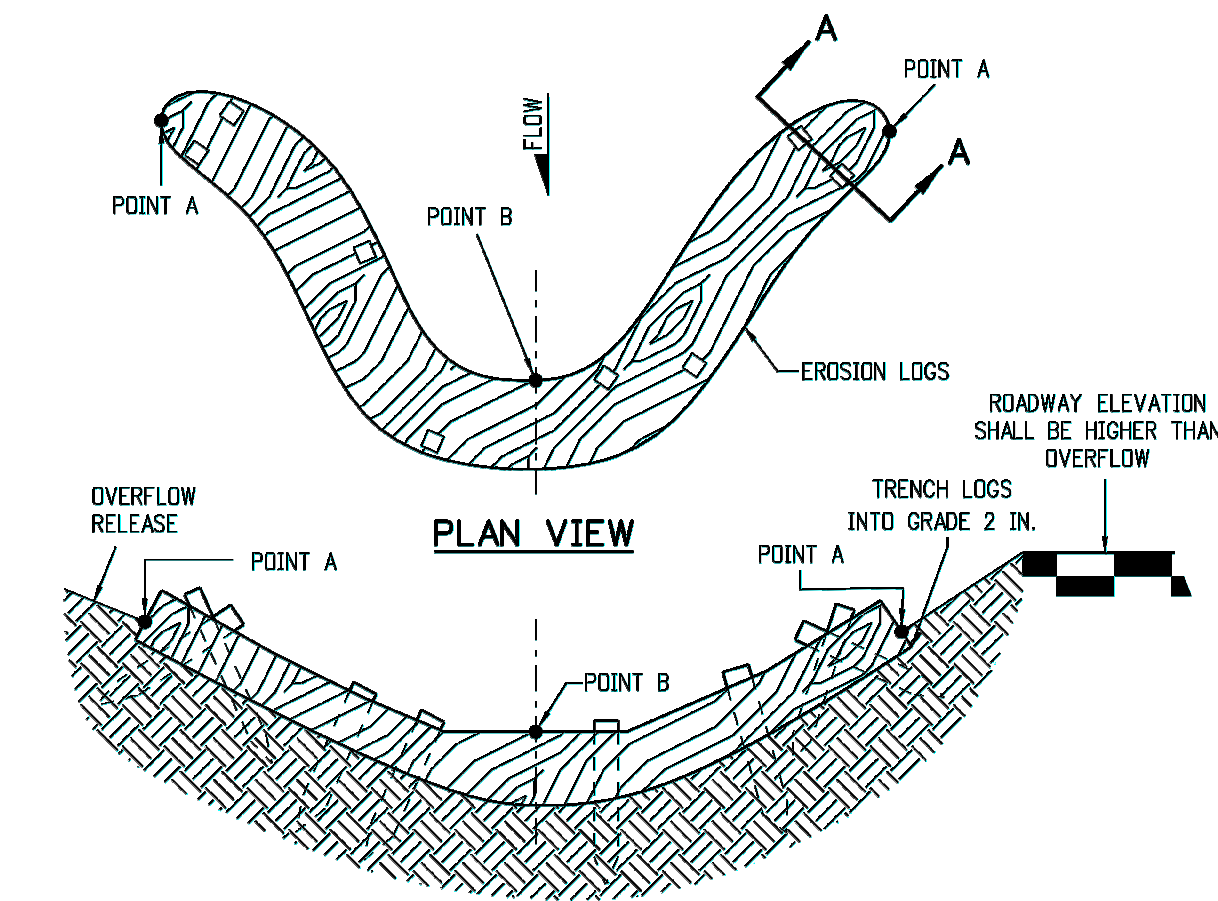
10



SLOPE INSTALLATION NOTES:

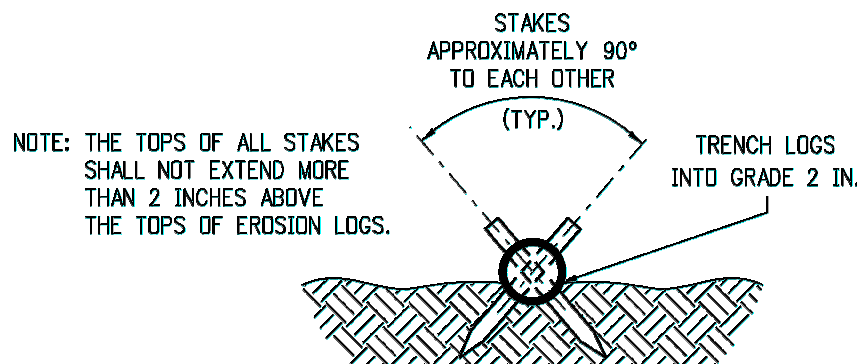
1. PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECP'S), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
2. WHEN USING CELL-O-SEED, DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
3. BEGIN AT TOP OF THE SLOPE BY ANCHORING THE RECP'S IN A 6" (15 CM) DEEP X 6" (15 CM) WIDE TRENCH WITH APPROXIMATELY 12" (30 CM) OF RECP'S EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE RECP'S WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30 CM) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30 CM) PORTION OF RECP'S BACK OVER SEED AND COMPACTED SOIL. SECURE RECP'S OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30 CM) APART ACROSS THE WIDTH OF THE RECP'S.
4. ROLL THE RECP'S DOWN OR HORIZONTALLY ACROSS THE SLOPE. RECP'S WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL RECP'S MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING DOT SYSTEM, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
5. THE EDGES OF PARALLEL RECP'S MUST BE STAPLED WITH APPROXIMATELY 2"-5" (5 CM - 12.5 CM) OVERLAP DEPENDING ON RECP'S TYPE.
6. CONSECUTIVE RECP'S SPICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" (7.5 CM) OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" (30 CM) APART ACROSS ENTIRE RECP'S WIDTH.
7. IN LOOSE SOIL CONDITIONS, THE USE OF STAPLES/STAKES LENGTHS GREATER THAN 6" (15 CM) MAY BE NECESSARY TO PROPERLY SECURE THE RECP'S.

SLOPE INSTALLATION DETAIL
N.T.S.



NOTE: POINTS "A" SHALL BE A MINIMUM 4 IN. HIGHER THAN POINT "B".

ELEVATION

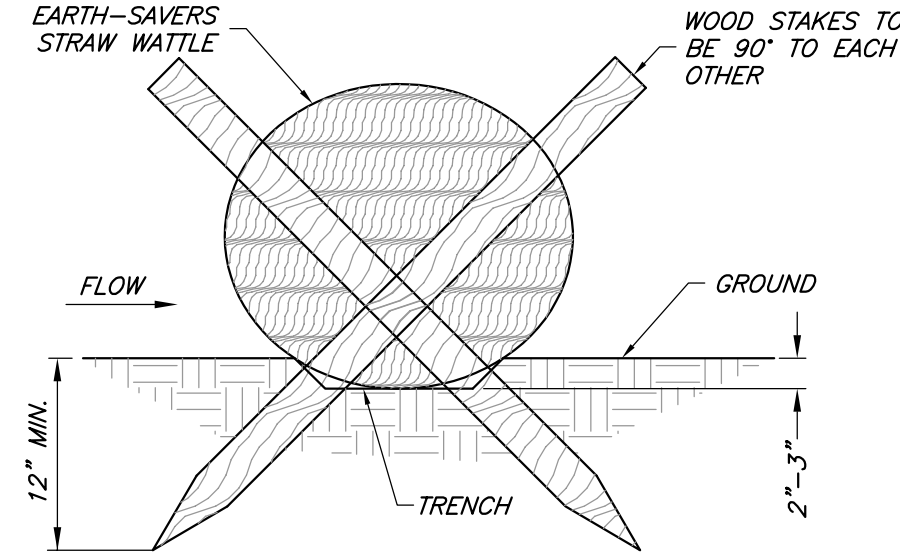


SECTION A-A

NOTES:

1. EROSION LOGS SHALL BE EMBEDDED 2 INCHES INTO THE SOIL.
2. EROSION LOGS SHALL BE TIGHTLY ABUTTED WITH NO GAPS.
3. V-SHAPED TEMPORARY DITCHES SHALL NOT BE USED. DITCHES SHAL BE GRADED IN A PARABOLIC OR TRAPEZOIDAL SHAPE.

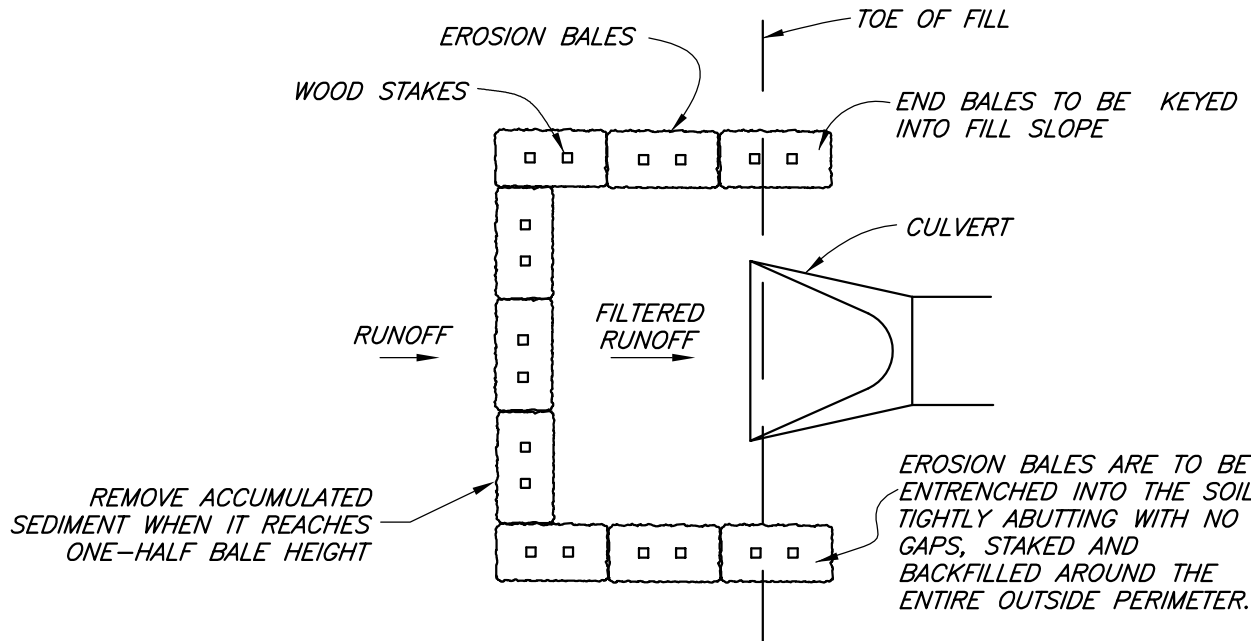
EROSION LOG INSTALLATION



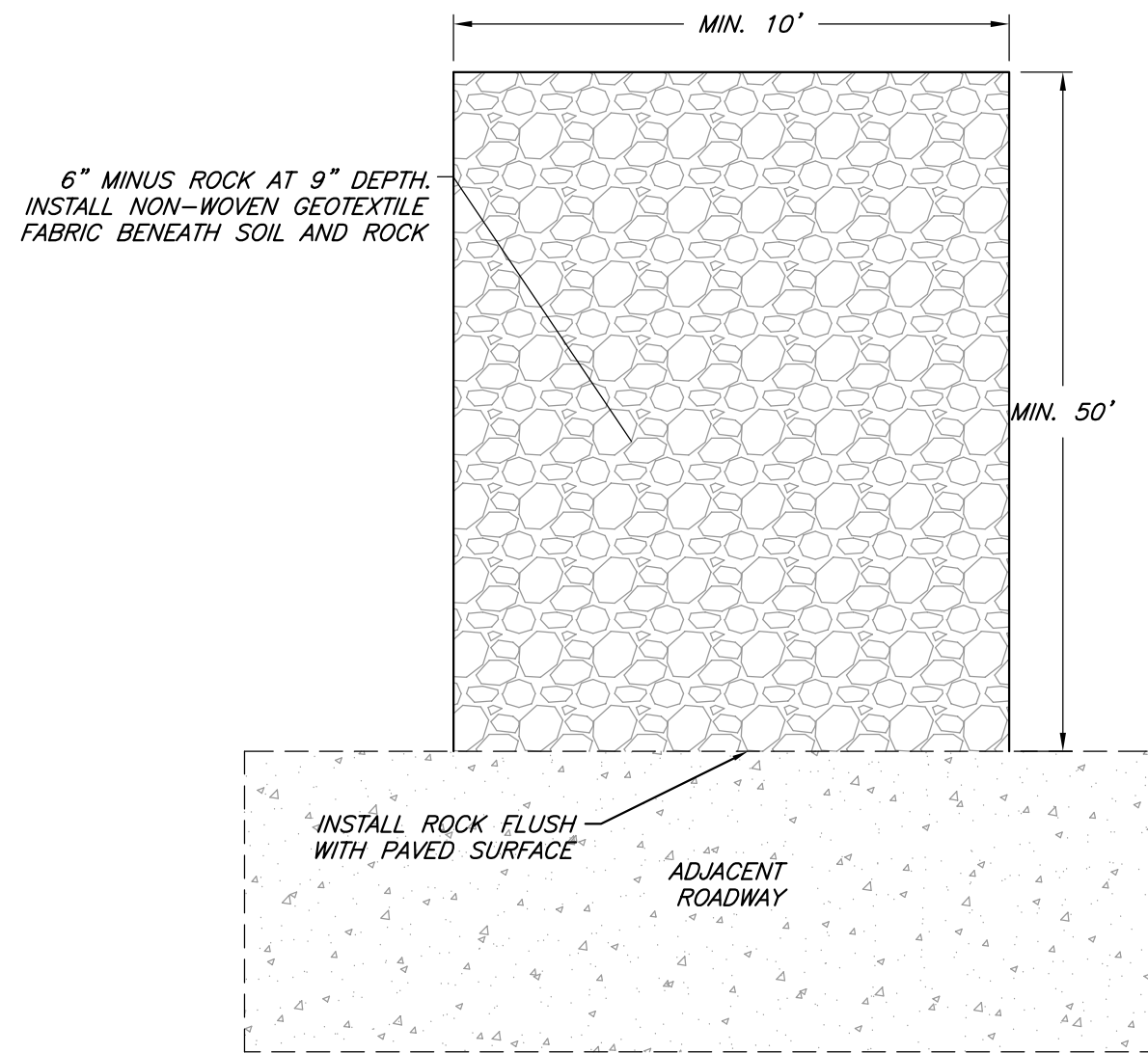
NOTES:

1. EROSION LOGS SHALL BE EMBEDDED 2" INTO THE SOIL.
2. EROSION LOGS SHALL BE TIGHTLY ABUTTED WITH NO GAPS.
3. V-SHAPED TEMPORARY DITCHES SHALL NOT BE USED. DITCHES SHALL BE GRADED IN A PARABOLIC OR TRAPEZOIDAL SHAPE.
4. THE TOPS OF ALL STAKES SHALL NOT EXTEND MORE THAN 2" ABOVE TOPS OF EROSION LOGS.

STRAW WATTLE INSTALLATION DETAIL
N.T.S.



CULVERT EROSION BALE INLET PROTECTION
N.T.S.



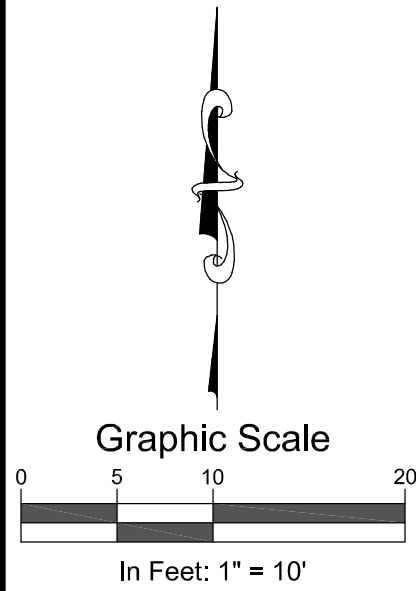
VTC INSTALLATION NOTES:

1. INSTALL SEE PLAN VIE FOR GENERAL LOCATION. CONTRACTOR TO DETERMINE FINAL LOCATION OF CONSTRUCTION SITE ENTRANCE. VTC SHALL BE LOCATED AT ALL ACCESS POINTS TO PUBLIC OR PRIVATE ROADWAY CORRIDORS.
2. VTC SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.
3. INSPECT VTC DAILY AND MAINTAIN IN EFFECTIVE OPERATING CONDITION. INSPECT ALL BMPs AFTER ANY PRECIPITATION EVENT. AND PERFORM NECESSARY MAINTENANCE.
4. ROCK SHALL BE REPLACED OR REGRADED TO MAINTAIN CONSISTENT DEPTH.
5. SEDIMENT TRACKED ONTO PAVED ROADS SHALL BE REMOVED THROUGHOUT THE DAY AND AT THE END OF EACH WORK DAY BY SHOVELING AND SWEEPING. SEDIMENT SHALL NOT BE DISPOSED OF INTO STORM DRAIN SYSTEM.

VEHICLE TRACKING CONTROL DETAIL
N.T.S.

EROSION CONTROL NOTES:

1. IN AREAS OF DITCH RE-REGADING, PROVIDE A STRAW WATTLE CHECK DAM EVERY 50 L.F.
2. PROVIDE INLET PROTECTION FOR ALL CULVERTS USING STRAW WATTLES OR HAY BALES.
3. STORM WATER MANAGEMENT AND EROSION CONTROL SHALL BE PAID FOR USING ITEM 208-0000 AND SHALL INCLUDE INLET, DITCH AND SLOPE PROTECTION FOR ALL EROSION CONTROL ITEMS NOT SPECIFICALLY LISTED IN THE BID SCHEDULE.
4. VEHICLE TRACKING PAD SHALL BE UTILIZED PRIOR TO ASPHALT ACCESS.
5. TOTAL AREA OF DISTURBANCE IS APPROXIMATELY 1.00 ACRE
6. STORING, STOCKPILING AND STAGING AREAS WILL BE IDENTIFIED BY THE CONTRACTOR AND SUBJECT TO APPROVAL BY THE CITY OF GLENWOOD SPRINGS.
7. CONCRETE WASHOUT AND VEHICLE TRACKING PADS WILL BE IDENTIFIED BY THE CONTRACTOR AND SUBJECT TO APPROVAL BY THE CITY OF GLENWOOD SPRINGS.
8. REVEGETATE DISTURBED AREA AS SOON AS PRACTICAL.



SGM
259 Grand Avenue, Suite 200
Grand Junction, CO 81501
970.245.2571 www.sgm-inc.com

City of Glenwood Springs
PHQ 191 Soccer Field Road

By:	Date:	Revision:	Project Milestone:
			Preliminary Not For Construction
Job No.	2018-476.002		
Drawn by:	FJB		
Date:	12.22.21		
QC:	DMK	PE:	CL
File:	SFR-ErosionControl		

**Erosion Control
Details**

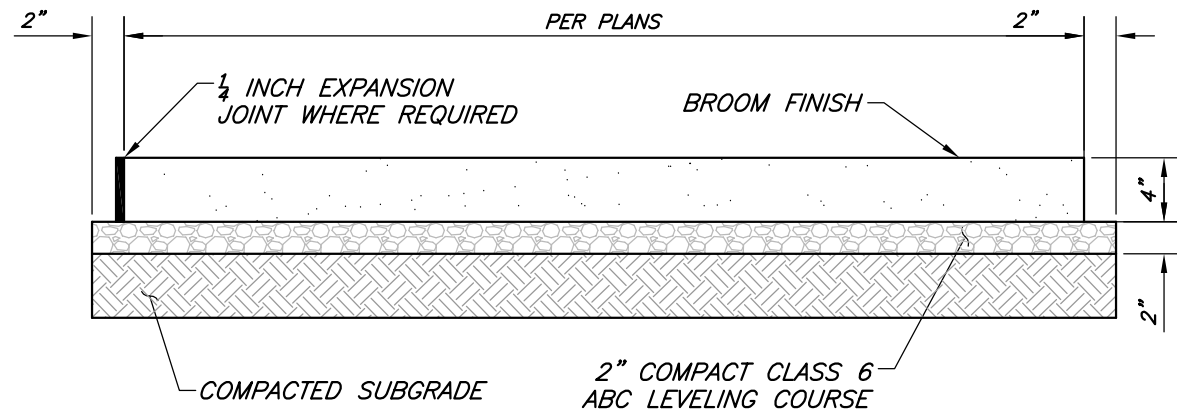
Dwg No.

9

Of: 10

CONCRETE FOR FLATWORK AND CURB/GUTTER

- 1) EXPANSION JOINTS: 100' ON CENTER AND AT DRIVEWAYS.
- 2) DUMMY JOINTS: 1" DEEP BY 1/8"-1/4" WIDTH AT INTERVALS EQUAL TO SIDEWALK WIDTH.
- 3) USE 1/4" RADIUS ON ALL EDGES.
- 4) USE 6" DEPTH OF CONCRETE ON ALL DRIVEWAYS.
- 5) CURE FOR 72 HOURS USING CURING COMPOUND, PLASTIC COVERING OR MOISTURE.
- 6) USE 3750 PSI CONCRETE WITH FIBERMESH ADDITIVE AT 1-1/2 LBS./C.Y. MAXIMUM SLUMP 4".

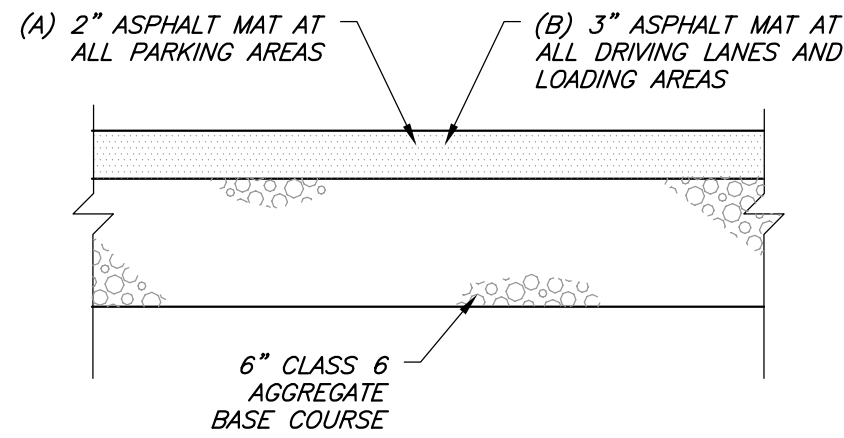


NOTES:

- 1) EXPANSION JOINTS: 100' ON CENTER AND AT DRIVEWAYS.
- 2) DUMMY JOINTS: 1" DEEP BY 1/8" - 1/4" WIDTH AT INTERVALS EQUAL TO SIDEWALK WIDTH.
- 3) USE 1/4" RADIUS ON ALL EDGES.
- 4) USE 6" DEPTH OF CONCRETE ON ALL DRIVEWAYS.
- 5) CURE FOR 72 HOURS USING CURING COMPOUND, PLASTIC COVERING OR MOISTURE.
- 6) USE 3750 PSI CONCRETE WITH FIBERMESH ADDITIVE AT 1-1/2 LBS./C.Y. MAXIMUM SLUMP 4".

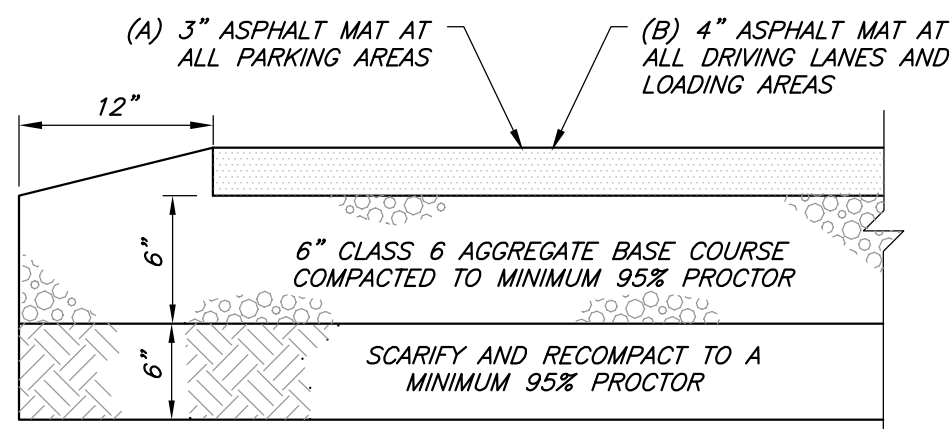
CONCRETE SIDEWALK

SCALE: 1"= 1'-0"



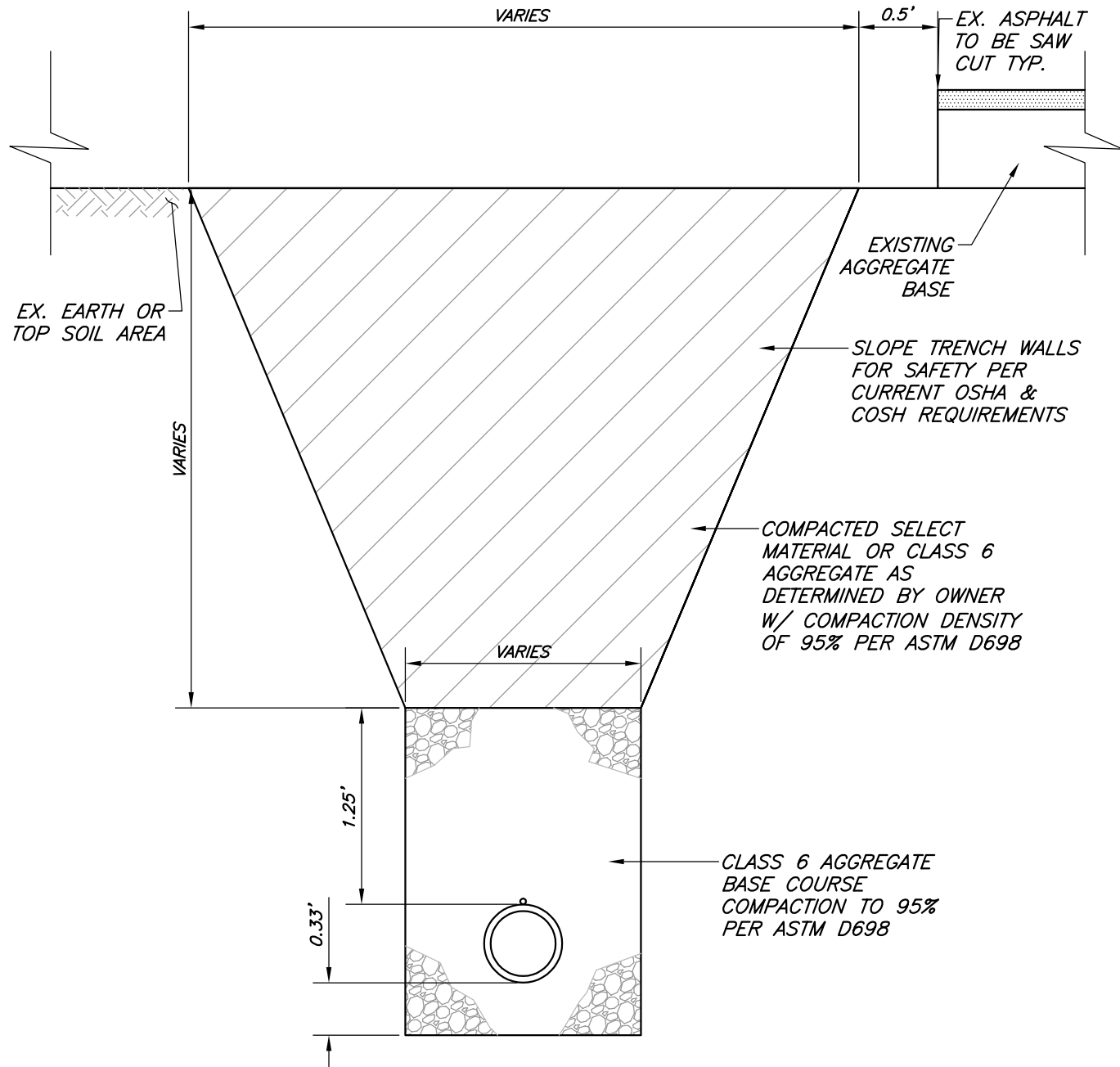
TYPICAL PAVING SECTION

SCALE: 1" = 1'-0"



TYPICAL PAVING SECTION

SCALE: 1" = 1'-0"

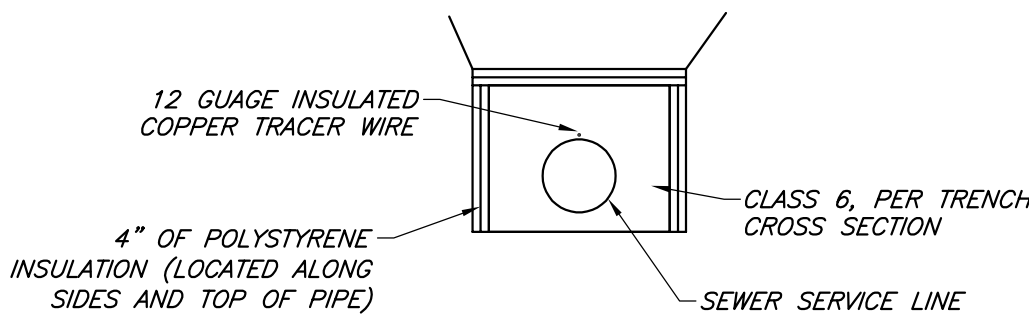


NOTES:

1. PAVEMENT REPLACEMENT SHALL MEET EXISTING THICKNESS AND KIND WITH THE FOLLOWING MINIMUMS:
ASPHALT SURFACING = 3" MIN.
AGGREGATE BASE COURSE = 8" MIN.
2. BASE COURSE REPLACEMENT SHALL MEET EXISTING THICKNESS WITH THE FOLLOWING MINIMUMS:
AGGREGATE BASE COURSE = 12" MIN.
3. DIRT / TOPSOIL PLACEMENT SHALL MEET EXISTING THICKNESS AND KIND WITH THE FOLLOWING MINIMUMS:
4" TOPSOIL.
4. SELECT MATERIAL AS FOLLOWS:
6" MAXIMUM SIZE IN TOP 12" OF BACKFILL
12" MAXIMUM SIZE IN REMAINDER OF BACKFILL

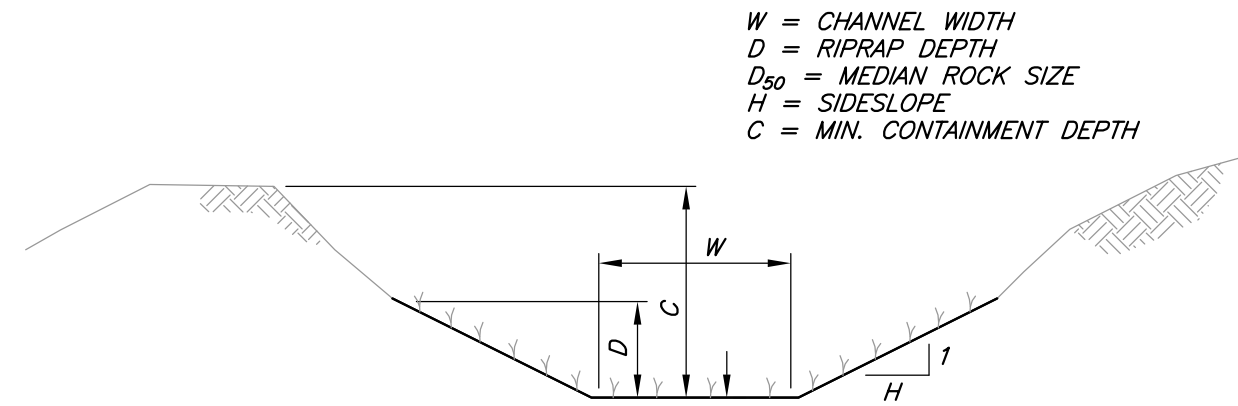
SEWER TRENCH CROSS-SECTION

SCALE 1"=1'



INSULATION DETAIL

NOT TO SCALE



NOTE:

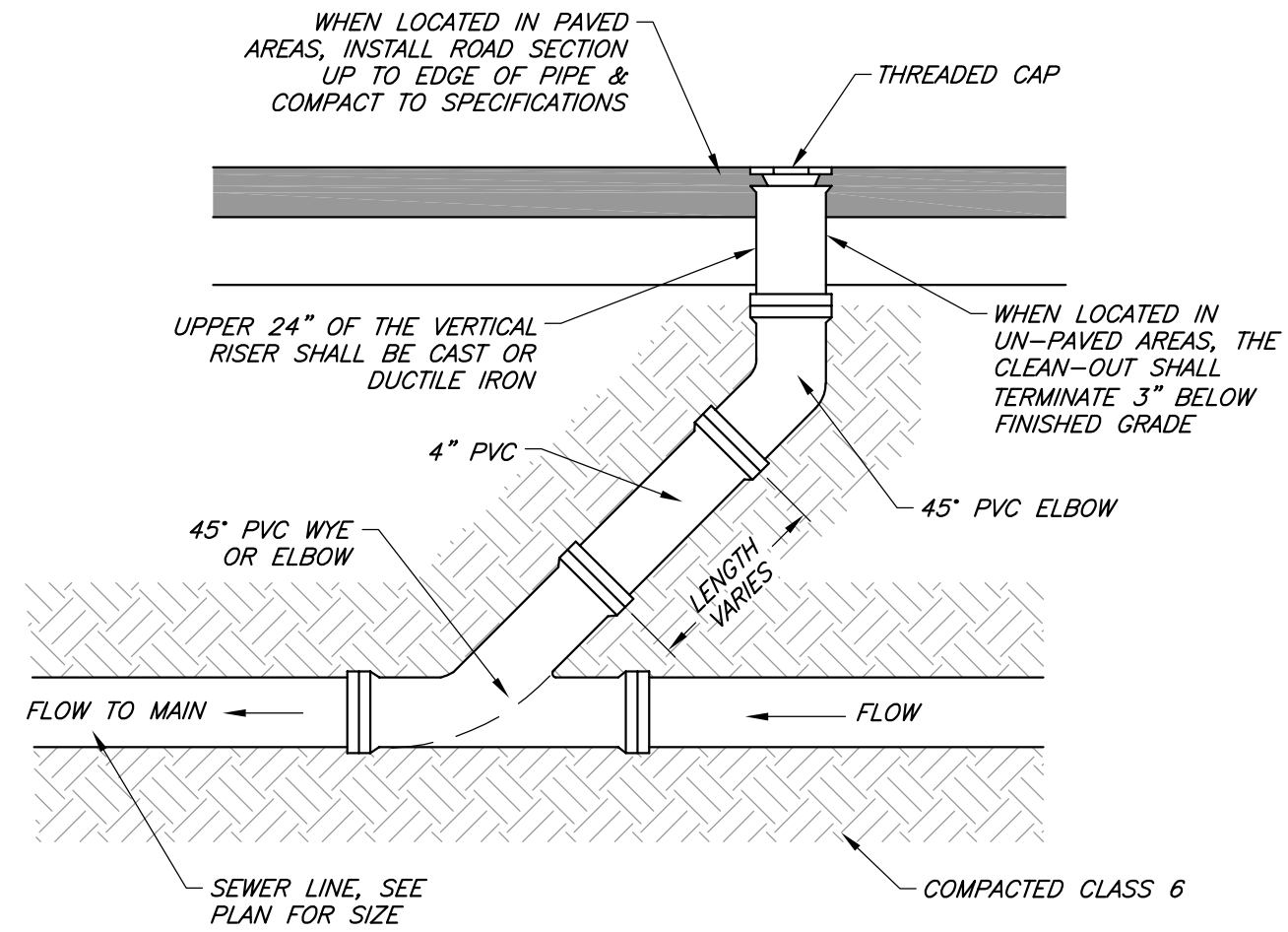
GEOTEXTILE TO BE INSTALLED PER EROSION CONTROL NETTING DETAILS.
REFER TO SPECS FOR RIPRAP MATERIAL, GRADATION AND INSTALLATION REQ'TS.

GRASS SWALE

NOT TO SCALE

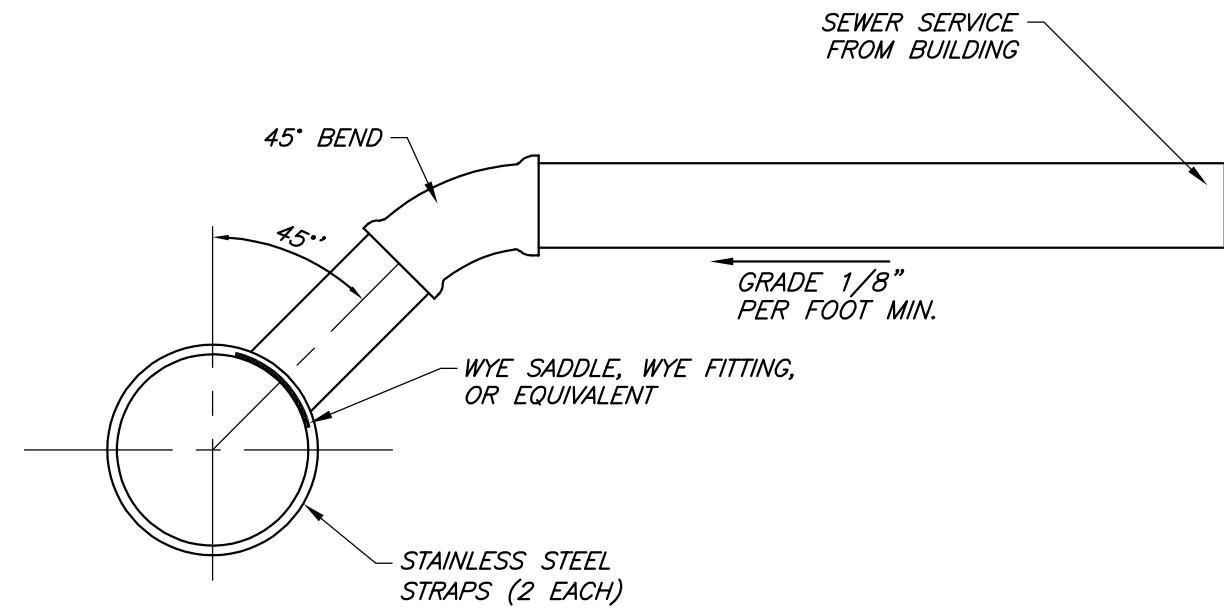
NOTE:

LOCATE SEWER CLEANOUT AT ALL HORIZONTAL AND/OR VERTICAL CHANGES IN DIRECTION



SEWER CLEAN-OUT DETAIL

NOT TO SCALE



NOTES:

1. IN-LINE WYE FOR EXISTING STRUCTURES
2. WYE SADDLE FOR OTHER SERVICES.
3. BACKFILL UNDER WYE TO BE SCREENED ROCK OR CLASS 6 AGGREGATE, 95% COMPACTION DENSITY PER ASTM D-698.
4. MINIMUM COVER - 5 FEET.

SEWER SERVICE CONNECTION DETAIL

NOT TO SCALE



118 West Sixth Street, Suite 200
Glenwood Springs, CO 81601
970.945.1004 www.sgm-inc.com

City of Glenwood Springs
PHQ 191 Soccer Field Road

#	Date	By:	Revision
1			

Job No.	2018-478.002
Drawn by:	FJB
Date:	12.22.21
QC:	DMK PE:
File:	SFR-Admin

Title:

Detail Sheet

Dwg No.

10

Of: 10



TITLE COMPANY

of the rockies

1620 Grand Avenue
Bldg Main Floor 1
Glenwood Springs, CO 81601
Phone: 970-945-1169 Fax: 844-269-2759
www.titlecorockies.com

Commitment Ordered By:

Todd Ambrose
Coldwell Banker Mason Morse
1614 Grand Ave
Glenwood Springs, CO 81601
Phone: 970-928-9000 Fax: 970-928-0977
email: toddambrose@masonmorse.com

Inquiries should be directed to:

Nevada Hunter
Title Company of the Rockies
1620 Grand Avenue
Bldg Main Floor 1
Glenwood Springs, CO 81601
Phone: 970-945-1169 Fax: 844-269-2759
email: NHunter@titlecorockies.com

Commitment Number:

0602093-C

Buyer's Name(s):

The City of Glenwood Springs

Seller's Name(s):

Douglass Colony Group, Inc.

Property:

191 Soccer Field Road, Glenwood Springs, CO 81601
Lot 1, Nile Valley, Garfield County, Colorado

TITLE CHARGES

These charges are based on issuance of the policy or policies described in the attached Commitment for Title Insurance, and includes premiums for the proposed coverage amount(s) and endorsement(s) referred to therein, and may also include additional work and/or third party charges related thereto.

If applicable, the designation of "Buyer" and "Seller" shown below may be based on traditional settlement practices in Garfield County, Colorado, and/or certain terms of any contract, or other information provided with the Application for Title Insurance.

Owner's Policy Premium:	\$2,702.00
Loan Policy Premium:	
Additional Lender Charge(s):	
Additional Other Charge(s):	
Tax Certificate:	\$25.00
Total Endorsement Charge(s):	\$225.00
TBD Charge(s):	
TOTAL CHARGES:	\$2,952.00

*Service Beyond Expectation in Colorado for: Eagle, Garfield, Grand, Pitkin and Summit Counties. (Limited Coverage: Jackson, Lake, Park and Routt Counties)
Locations In: Avon/Beaver Creek, Basalt, Breckenridge, Grand Lake and Winter Park. (Closing Services available in Aspen and Glenwood Springs).*



**ALTA Commitment For Title Insurance
(Adopted 06-17-06) (Revised 08-01-2016)**

**COMMITMENT FOR TITLE INSURANCE
ISSUED BY
WESTCOR LAND TITLE INSURANCE COMPANY**

NOTICE

IMPORTANT-READ CAREFULLY: THIS COMMITMENT IS AN OFFER TO ISSUE ONE OR MORE TITLE INSURANCE POLICIES. ALL CLAIMS OR REMEDIES SOUGHT AGAINST THE COMPANY INVOLVING THE CONTENT OF THIS COMMITMENT OR THE POLICY MUST BE BASED SOLELY IN CONTRACT.

THIS COMMITMENT IS NOT AN ABSTRACT OF TITLE, REPORT OF THE CONDITION OF TITLE, LEGAL OPINION, OPINION OF TITLE, OR OTHER REPRESENTATION OF THE STATUS OF TITLE. THE PROCEDURES USED BY THE COMPANY TO DETERMINE INSURABILITY OF THE TITLE, INCLUDING ANY SEARCH AND EXAMINATION, ARE PROPRIETARY TO THE COMPANY, WERE PERFORMED SOLELY FOR THE BENEFIT OF THE COMPANY, AND CREATE NO EXTRACONTRACTUAL LIABILITY TO ANY PERSON, INCLUDING A PROPOSED INSURED.

THE COMPANY'S OBLIGATION UNDER THIS COMMITMENT IS TO ISSUE A POLICY TO A PROPOSED INSURED IDENTIFIED IN SCHEDULE A IN ACCORDANCE WITH THE TERMS AND PROVISIONS OF THIS COMMITMENT. THE COMPANY HAS NO LIABILITY OR OBLIGATION INVOLVING THE CONTENT OF THIS COMMITMENT TO ANY OTHER PERSON.

COMMITMENT TO ISSUE POLICY

Subject to the Notice; Schedule B, Part I-Requirements; Schedule B, Part II-Exceptions; and the Commitment Conditions, WESTCOR LAND TITLE INSURANCE COMPANY, a South Carolina Corporation (the "Company"), commits to issue the Policy according to the terms and provisions of this Commitment. This Commitment is effective as of the Commitment Date shown in Schedule A for each Policy described in Schedule A, only when the Company has entered in Schedule A both the specified dollar amount as the Proposed Policy Amount and the name of the Proposed Insured.

If all of the Schedule B, Part I-Requirements have not been met within six (6) months after the Commitment Date, this Commitment terminates and the Company's liability and obligation end.

IN WITNESS WHEREOF, WESTCOR LAND TITLE INSURANCE COMPANY has caused its corporate name and seal to be hereunto affixed and by these presents to be signed in facsimile under authority of its by-laws, effective as of the date of Commitment shown in Schedule A.

Issued By:



TITLE COMPANY
of the rockies

The Title Company of the Rockies
1620 Grand Avenue Bldg Main, Floor 1
Glenwood Springs, CO 81601
Phone: 970-945-1169

WESTCOR LAND TITLE INSURANCE COMPANY



By:

Mary O'Donnell

President

Attest:

[Signature]

Secretary

CONDITIONS

1. The term mortgage, when used herein, shall include deed of trust, trust deed, or other security instrument.
2. If the proposed Insured has or acquired actual knowledge of any defect, lien, encumbrance, adverse claim or other matter affecting the estate or interest or mortgage thereon covered by this Commitment other than those shown in Schedule B hereof, and shall fail to disclose such knowledge to the Company in writing, the Company shall be relieved from liability for any loss or damage resulting from any act of reliance hereon to the extent the Company is prejudiced by failure to so disclose such knowledge. If the proposed Insured shall disclose such knowledge to the Company, or if the Company otherwise acquires actual knowledge of any such defect, lien, encumbrance, adverse claim or other matter, the Company at its option may amend Schedule B of this Commitment accordingly, but such amendment shall not relieve the Company from liability previously incurred pursuant to paragraph 3 of these Conditions and Stipulations.
3. Liability of the Company under this Commitment shall be only to the named proposed Insured and such parties included under the definition of Insured in the form of policy or policies committed for and only for actual loss incurred in reliance hereon in undertaking in good faith (a) to comply with the requirements hereof, or (b) to eliminate exceptions shown in Schedule B, or (c) to acquire or create the estate or interest or mortgage thereon covered by this Commitment. In no event shall such liability exceed the amount stated in Schedule A for the policy or policies committed for and such liability is subject to the insuring provisions and Conditions and Stipulations and the Exclusions from Coverage of the form of policy or policies committed for in favor of the proposed Insured which are hereby incorporated by reference and are made a part of this Commitment except as expressly modified herein.
4. This Commitment is a contract to issue one or more title insurance policies and is not an abstract of title or a report of the condition of title. Any action or actions or rights of action that the proposed Insured may have or may bring against the Company arising out of the status of the title to the estate or interest or the status of the mortgage thereon covered by this Commitment must be based on and are subject to the provisions of this Commitment.
5. *The policy to be issued contains an arbitration clause. All arbitrable matters when the Amount of Insurance is \$2,000,000 or less shall be arbitrated at the option of either the Company or the Insured as the exclusive remedy of the parties. You may review a copy of the arbitration rules at < <http://www.alta.org/>>.*

Joint Notice of Privacy Policy

of

Westcor Land Title Insurance Company

and

The Title Company of the Rockies

Westcor Land Title Insurance Company ("WLTIC") and **The Title Company of the Rockies** value their customers and are committed to protecting the privacy of personal information. In keeping with that philosophy, we each have developed a Privacy Policy, set out below, that will endure the continued protection of your nonpublic personal information and inform you about the measures WLTIC and **The Title Company of the Rockies** take to safeguard that information. This notice is issued jointly as a means of paperwork reduction and is not intended to create a joint privacy policy. Each company's privacy policy is separately instituted, executed, and maintained.

Who is Covered

We provide our Privacy Policy to each customer when they purchase a WLTIC title insurance policy. Generally, this means that the Privacy Policy is provided to the customer at the closing of the real estate transaction.

Information Collected

In the normal course of business and to provide the necessary services to our customers, we may obtain nonpublic personal information directly from the customer, from customer-related transactions, or from third parties such as our title insurance agent, lenders, appraisers, surveyors and other similar entities.

Access to Information

Access to all nonpublic personal information is limited to those employees who have a need to know in order to perform their jobs. These employees include, but are not limited to, those in departments such as closing, legal, underwriting, claims and administration and accounting.

Information Sharing

Generally, neither WLTIC nor **The Title Company of the Rockies** shares nonpublic personal information that it collects with anyone other than those individuals necessary needed to complete the real estate settlement services and issue its title insurance policy as requested by the consumer. WLTIC or **The Title Company of the Rockies** may share nonpublic personal information as permitted by law with entities with whom WLTIC or **The Title Company of the Rockies** has a joint marketing agreement. Entities with whom WLTIC or **The Title Company of the Rockies** have a joint marketing agreement have agreed to protect the privacy of our customer's nonpublic personal information by utilizing similar precautions and security measures as WLTIC and **The Title Company of the Rockies** use to protect this information and to use the information for lawful purposes. WLTIC or **The Title Company of the Rockies**, however, may share information as required by law in response to a subpoena, to a government regulatory agency or to prevent fraud.

Information Security

WLTIC and **The Title Company of the Rockies**, at all times, strive to maintain the confidentiality and integrity of the personal information in its possession and has instituted measures to guard against its unauthorized access. We maintain physical, electronic and procedural safeguards in compliance with federal standards to protect that information.

The WLTIC Privacy Policy can be found on WLTIC's website at www.wltic.com

COMMITMENT FOR TITLE INSURANCE

Issued by



TITLE COMPANY
of the rockies

as agent for

Westcor Land Title Insurance Company

SCHEDULE A

Reference:

Commitment Number: 0602093-C

1. Effective Date: **June 24, 2019, 7:00 am** Issue Date: **July 05, 2019**

2. Policy (or Policies) to be issued:

ALTA Owner's Policy (6-17-06)

Policy Amount:

\$1,295,336.00

Premium:

\$2,927.00

Proposed Insured: **The City of Glenwood Springs**

3. The estate or interest in the land described or referred to in this Commitment is **Fee Simple**.

4. The Title is, at the Commitment Date, vested in:

Earl F. Douglass Roofing Company Douglass Colony Group, Inc.

5. The land referred to in this Commitment is described as follows:

FOR LEGAL DESCRIPTION SEE SCHEDULE A CONTINUED ON NEXT PAGE

Countersigned

The Title Company of the Rockies

By:

A handwritten signature in dark ink, appearing to read "Mike Mulligan".

Mike Mulligan

This page is only a part of a 2016 ALTA® Commitment for Title Insurance issued by Westcor Land Title Insurance Company. This Commitment is not valid without the Notice; the Commitment to Issue Policy; the Commitment Conditions; Schedule A; Schedule B, Part I-Requirements; and Schedule B, Part II-Exceptions.

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SCHEDULE A (continued)

LEGAL DESCRIPTION

The Land referred to herein is located in the County of **Garfield**, State of **Colorado**, and described as follows:

Lot 1,
NILE VALLEY FEDERAL SAVINGS AND LOAN ASSOCIATION SUBDIVISION, according to the Plat thereof
filed August 5, 1988 at Reception No. 394360.

This page is only a part of a 2016 ALTA® Commitment for Title Insurance issued by Westcor Land Title Insurance Company. This Commitment is not valid without the Notice; the Commitment to Issue Policy; the Commitment Conditions; Schedule A; Schedule B, Part I-Requirements; and Schedule B, Part II-Exceptions.

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Commitment for Title Insurance (8-1-2016)
Technical Correction 4-2-2018
Schedule A

Page 2

COMMITMENT FOR TITLE INSURANCE

Issued by

Westcor Land Title Insurance Company

SCHEDULE B, PART I Requirements

The following are the requirements to be complied with prior to the issuance of said policy or policies. Any other instrument recorded subsequent to the effective date hereof may appear as an exception under Schedule B of the policy to be issued. Unless otherwise noted, all documents must be recorded in the office of the clerk and recorded of the county in which said property is located.

All of the following Requirements must be met:

1. The Proposed Insured must notify the Company in writing of the name of any party not referred to in this Commitment who will obtain an interest in the Land or who will make a loan on the Land. The Company may then make additional Requirements or Exceptions.
2. Pay the agreed amount for the estate or interest to be insured.
3. Pay the premiums, fees, and charges for the Policy to the Company.
4. Documents satisfactory to the Company that convey the Title or create the Mortgage to be insured, or both, must be properly authorized, executed, delivered, and recorded in the Public Records.
5. Certificate of Incorporation or Certificate of Good Standing issued by the Secretary of State or other appropriate official for the State of Colorado, and evidencing to the satisfaction of the Company or its duly authorized agent that Earl F. Douglass Roofing Company was duly organized and incorporated under the laws of the State of Colorado prior to the time it conveys title to subject property.
6. Certificate of Incorporation or Certificate of Good Standing issued by the Secretary of State or other appropriate official for the State of Colorado, and evidencing to the satisfaction of the Company or its duly authorized agent that Douglass Colony Group, Inc. was duly organized and incorporated under the laws of the State of Colorado prior to the time it conveys title to subject property.

NOTE: Please be advised that our search did not disclose any open Deeds of Trust of record. If you should have knowledge of any outstanding obligation, please contact the Title Department immediately for further review prior to closing.

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7. Resolution from the Board of County Commissioners of Garfield County approving the transaction contemplated herein.
8. Deed from Earl F. Douglass Roofing Company to Douglass Colony Group, Inc.

NOTE: Duly executed real property transfer declaration, executed by either the Grantor or Grantee, to accompany the Deed mentioned above, pursuant to Article 14 of House Bill No. 1288 - C.R.S. 39-14-102.

9. Deed from Douglass Colony Group, Inc. to The City of Glenwood Springs.

NOTE: Duly executed real property transfer declaration, executed by either the Grantor or Grantee, to accompany the Deed mentioned above, pursuant to Article 14 of House Bill No. 1288-CRA 39-14-102.

The Owner's Policy, when issued, will not contain Exceptions No. 1, 2, 3 and 4, provided that:

(A) The enclosed form of indemnity agreement or final affidavit and agreement is properly executed and acknowledged by the party(ies) indicated and returned to the Company or its duly authorized agent,

(B) The Company or its duly authorized agent receives and approves a Land Survey Plat, Improvement Survey Plat or ALTA survey properly certified by a registered surveyor or engineer, and

(C) Applicable scheduled charges in the amount of \$225.00 are paid to the Company or its duly authorized agent.

EXCEPTION NO. 5 UNDER SCHEDULE B, SECTION 2 OF THIS COMMITMENT WILL NOT APPEAR IN THE POLICY OR POLICIES TO BE ISSUED PURSUANT HERETO, PROVIDED THAT (A) THE DOCUMENTS CONTEMPLATED BY THE REQUIREMENTS SET FORTH IN SCHEDULE B, SECTION 1 OF THIS COMMITMENT ARE SUBMITTED TO AND APPROVED AND RECORDED BY THE COMPANY OR ITS DULY AUTHORIZED AGENT, AND (B) AN EXAMINATION OF THE RECORDS IN THE OFFICE OF THE CLERK AND RECORDER FOR GARFIELD COUNTY, COLORADO BY THE COMPANY OR ITS DULY AUTHORIZED AGENT DISCLOSES THAT NO DEFECTS, LIENS, ENCUMBRANCES, ADVERSE CLAIMS OR OTHER MATTERS HAVE BEEN RECORDED IN SUCH RECORDS SUBSEQUENT TO THE EFFECTIVE DATE HEREOF.

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Commitment for Title Insurance (8-1-2016)
Technical Correction 4-2-2018
Schedule B - Part I - continued

Page 4

SCHEDULE B, PART II
Exceptions

THIS COMMITMENT DOES NOT REPUBLISH ANY COVENANT, CONDITION, RESTRICTION, OR LIMITATION CONTAINED IN ANY DOCUMENT REFERRED TO IN THIS COMMITMENT TO THE EXTENT THAT THE SPECIFIC COVENANT, CONDITION, RESTRICTION, OR LIMITATION VIOLATES STATE OR FEDERAL LAW BASED ON RACE, COLOR, RELIGION, SEX, SEXUAL ORIENTATION, GENDER IDENTITY, HANDICAP, FAMILIAL STATUS, OR NATIONAL ORIGIN.

Schedule B of the policy or policies to be issued will contain exceptions to the following matters unless the same are disposed of to the satisfaction of the Company.

Any loss or damage, including attorney fees, by reason of the matters shown below:

1. Any facts, right, interests, or claims which are not shown by the Public Records but which could be ascertained by an inspection of said Land or by making inquiry of persons in possession thereof.
2. Easements or claims of easements, not shown by the Public Records.
3. Any encroachment, encumbrance, violation, variation, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land.
4. Any lien, or right to a lien for services, labor or material heretofore or hereafter furnished, imposed by law and not shown by the Public Records.
5. Defects, liens, encumbrances, adverse claims or other matters, if any created, first appearing in the Public Records or attaching subsequent to the effective date hereof, but prior to the date of the proposed insured acquires of record for value the estate or interest or mortgage thereon covered by this Commitment.
6. (a) Taxes or assessments that are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; (b) proceedings by a public agency that may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the Public Records.
7. Right of the Proprietor of a vein or lode to extract and remove his ore therefrom, should the same be found to penetrate or intersect the premises hereby granted, as reserved in United States Patent recorded February 26, 1884 in [Book 12 at Page 298](#).
8. Right of way for ditches or canals constructed by the authority of the United States, as reserved in

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United States Patent recorded February 26, 1884 in [Book 12 at Page 298](#).

9. Easement and right of way for sewer line purposes, as granted to West Glenwood Springs Sanitation District, by instrument recorded May 19, 1970 in [Book 410 at Page 336](#), said easement being more particularly described therein.
10. Terms, agreements, provisions, conditions and obligations as contained in Agreement recorded June 2, 1970 in [Book 410 at Page 499](#).
11. Terms, agreements, provisions, conditions and obligations as contained in Resolution No. 84-183 recorded August 14, 1984 in [Book 654 at Page 630](#).
12. Terms, agreements, provisions, conditions and obligations as contained in Subdivision Agreement recorded August 5, 1988 in [Book 739 at Page 27](#).
13. Easements, rights of way and all other matters as shown on the Plat of Nile Valley Federal Savings and Loan Association Subdivision, filed August 5, 1988 at Reception No. 394360.

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*Commitment for Title Insurance (8-1-2016)
Technical Correction 4-2-2018
Schedule B - Part II - continued*

Page 6

DISCLOSURE STATEMENTS

Note 1: Colorado Division of Insurance Regulations 3-5-1, Paragraph C of Article VII, requires that "Every Title entity shall be responsible for all matters which appear of record prior to the time of recording whenever the Title entity conducts the closing and is responsible for recording or filing of legal documents resulting from the transaction which was closed." (Gap Protection)

Note 2: Exception No. 4 of Schedule B, Section 2 of this Commitment may be deleted from the Owner's Policy to be issued hereunder upon compliance with the following conditions:

1. The Land described in Schedule A of this commitment must be a single-family residence, which includes a condominium or townhouse unit.
2. No labor or materials may have been furnished by mechanics or materialmen for purpose of construction on the Land described in Schedule A of this Commitment within the past 13 months.
3. The Company must receive an appropriate affidavit indemnifying the Company against unfilled mechanic's and materialmen's liens.
4. Any deviation from conditions A through C above is subject to such additional requirements or Information as the Company may deem necessary, or, at its option, the Company may refuse to delete the exception.
5. Payment of the premium for said coverage.

Note 3: The following disclosures are hereby made pursuant to §10-11-122, C.R.S.:

- (i) The subject real property may be located in a special taxing district;
- (ii) A certificate of taxes due listing each taxing jurisdiction shall be obtained from the County Treasurer or the County Treasurer's authorized agent; and
- (iii) Information regarding special districts and the boundaries of such districts may be obtained from the County Commissioners, the County Clerk and Recorder, or the County Assessor.

Note 4: If the sales price of the subject property exceeds \$100,000.00, the seller shall be required to comply with the disclosure or withholding provisions of C.R.S. §39-22-604.5 (Non-resident withholding).

Note 5: Pursuant to C.R.S. §10-11-123 Notice is hereby given:

- (a) If there is recorded evidence that a mineral estate has been severed, leased or otherwise conveyed from the surface estate then there is a substantial likelihood that a third party holds some or all interest in oil, gas, other minerals, or geothermal energy in the property, and
- (b) That such mineral estate may include the right to enter and use the property without the surface owner's permission.

Note 6: Effective September 1, 1997, C.R.S. §30-10-406 requires that all documents received for recording or filing in the clerk and recorder's office shall contain a top margin of at least one inch and a left, right and bottom margin of at least one-half inch the clerk and recorder may refuse to record or file any document that does not conform.

Note 7: Our Privacy Policy:

We will not reveal nonpublic personal customer information to any external non-affiliated organization unless we have been authorized by the customer, or are required by law.

Note 8: Records:

Regulation 3-5-1 Section 7 (N) provides that each title entity shall maintain adequate documentation and records sufficient to show compliance with this regulation and Title 10 of the Colorado Revised Statutes for a period of not less than seven (7) years, except as otherwise permitted by law.

Note 9: Pursuant Regulation 3-5-1 Section 9 (F) notice is hereby given that "A title entity shall not earn interest on fiduciary funds unless disclosure is made to all necessary parties to a transaction that interest is or has been earned. Said disclosure must offer the opportunity to receive payment of any interest earned on such funds beyond any administrative fees as may be on file with the division. Said disclosure must be clear and conspicuous, and may be made at any time up to and including closing."

Be advised that the closing agent will or could charge an Administrative Fee for processing such an additional services request and any resulting payee will also be subjected to a W-9 or other required tax documentation for such

purpose(s).

Be further advised that, for many transactions, the imposed Administrative Fee associated with such an additional service may exceed any such interest earned.

Therefore, you may have the right to some of the interest earned over and above the Administrative Fee, if applicable (e.g., any money over any administrative fees involved in figuring the amounts earned).

Note 10: Pursuant to Regulation 3-5-1 Section 9 (G) notice is hereby given that "Until a title entity receives written instructions pertaining to the holding of fiduciary funds, in a form agreeable to the title entity, it shall comply with the following:

1. The title entity shall deposit funds into an escrow, trust, or other fiduciary account and hold them in a fiduciary capacity.
2. The title entity shall use any funds designated as "earnest money" for the consummation of the transaction as evidenced by the contract to buy and sell real estate applicable to said transaction, except as otherwise provided in this section. If the transaction does not close, the title entity shall:
 - (a) Release the earnest money funds as directed by written instructions signed by both the buyer and seller; or
 - (b) If acceptable written instructions are not received, uncontested funds shall be held by the title entity for 180 days from the scheduled date of closing, after which the title entity shall return said funds to the payor.
3. In the event of any controversy regarding the funds held by the title entity (notwithstanding any termination of the contract), the title entity shall not be required to take any action unless and until such controversy is resolved. At its option and discretion, the title entity may:
 - (a) Await any proceeding; or
 - (b) Interplead all parties and deposit such funds into a court of competent jurisdiction, and recover court costs and reasonable attorney and legal fees; or
 - (c) Deliver written notice to the buyer and seller that unless the title entity receives a copy of a summons and complaint or claim (between buyer and seller), containing the case number of the lawsuit or lawsuits, within 120 days of the title entity's written notice delivered to the parties, title entity shall return the funds to the depositing party."

Title Company of the Rockies

Disclosures

All documents received for recording or filing in the Clerk and Recorder's office shall contain a top margin of at least one inch and a left, right and bottom margin of at least one half of an inch. The Clerk and Recorder will refuse to record or file any document that does not conform to the requirements of this section. Pursuant to C.R.S. 30-10-406(3)(a).

The company will not issue its policy or policies of title insurance contemplated by this commitment until it has been provided a Certificate of Taxes due or other equivalent documentation from the County Treasurer or the County Treasurer's authorized agent; or until the Proposed Insured has notified or instructed the company in writing to the contrary. Pursuant to C.R.S. 10-11-122.

No person or entity that provides closing and settlement services for a real estate transaction shall disburse funds as a part of such services until those funds have been received and are available for immediate withdrawals as a matter of right. Pursuant to C.R.S. 38-35-125(2).

The Company hereby notifies the proposed buyer in the current transaction that there may be recorded evidence that the mineral estate, or portion thereof, has been severed, leased, or otherwise conveyed from the surface estate. If so, there is a substantial likelihood that a third party holds some or all interest in the oil, gas, other minerals, or geothermal energy in the subject property. Such mineral estate may include the right to enter and use the property without the surface owner's permission. Pursuant to C.R.S. 10-11-123.

If this transaction includes a sale of property and the sales price exceeds \$100,000.00, the seller must comply with the disclosure/withholding requirements of said section. (Nonresident withholding) Pursuant to C.R.S. 39-22-604.5.

Notice is hereby given that: The subject property may be located in a special taxing district. A Certificate of Taxes due listing each taxing jurisdiction shall be obtained from the County Treasurer or the County Treasurer's authorized agent. Information regarding special districts and the boundaries of such districts may be obtained from the Board of County Commissioners, the County Clerk and Recorder, or the County Assessor. Pursuant to C.R.S. 10-11-122.

Notice is hereby given that: Pursuant to Colorado Division of Insurance Regulation 8-1-2;

"Gap Protection" -When this Company conducts the closing and is responsible for recording or filing the legal documents resulting from the transaction, the Company shall be responsible for all matters which appear on the record prior to such time or recording or filing; and

"Mechanic's Lien Protection" - If you are the buyer of a single family residence, you may request mechanic's lien coverage to be issued on your policy of Insurance. If the property being purchased has not been the subject of construction, improvements or repairs in the last six months prior to the date of this commitment, the requirements will be payment of the appropriate premium and the completion of an Affidavit and Indemnity by the seller. If the property being purchased was constructed, improved or repaired within six months prior to the date of this commitment the requirements may involve disclosure of certain financial information, payment of premiums, and indemnity, among others. The general requirements stated above are subject to revision and approval by the Company. Pursuant to C.R.S. 10-11-122.

Notice is hereby given that an ALTA Closing Protection Letter is available, upon request, to certain parties to the transaction as noted in the title commitment. Pursuant to Colorado Division of Insurance Regulation 8-1.

Nothing herein contained will be deemed to obligate the Company to provide any of the coverages referred to herein unless the above conditions are fully satisfied.

**GEOTECHNICAL INVESTIGATION
GLENWOOD SPRINGS PARKS AND
RECREATION FACILITY
191 SOCCER FIELD ROAD
GLENWOOD SPRINGS, COLORADO**

Prepared For:
CITY OF GLENWOOD SPRINGS
101 West 8th Street
Glenwood Springs, Colorado 81601

Attention: Matt Kraemer

Project No. GS06401.000-125

November 20, 2019

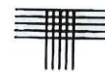
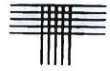


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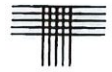


SCOPE

This report presents the results of our geotechnical investigation for the proposed Parks and Recreation Maintenance Facility at 191 Soccer Field Road in Glenwood Springs, Colorado. We conducted this investigation to evaluate subsurface conditions at the site and provide geotechnical engineering recommendations for the planned building. Our report was prepared from data developed from our field exploration, laboratory testing, engineering analysis, and our experience with similar conditions. This report includes a description of the subsurface conditions observed in our exploratory pits and presents our geotechnical engineering recommendations for design and construction of foundations, floor slabs, and details influenced by the subsoils. A summary of our conclusions is presented below.

SUMMARY OF CONCLUSIONS

1. Subsoils encountered in our exploratory pits consisted of 1 to 2.5 feet of asphalt pavement, topsoil, and fill, underlain by sandy clay with scattered gravel and cobbles to the total explored depth of 8 feet. Groundwater was not found in our exploratory pits.
2. Laboratory testing and our experience indicate the undisturbed natural clay at this site possesses significant potential for consolidation when wetted under building loads. The building can be constructed on footing foundations. We recommend subexcavation of the existing soils to a depth of 3 feet below footings and replacement with densely-compacted structural fill. Design and construction criteria for footing foundations are in the report.
3. A slab-on-grade floor is likely for the building. We recommend subexcavation of the existing soils to a depth of at least 3 feet below slab elevation and replacement with densely-compacted structural fill. Pavements, topsoil, and existing fill should be removed from below the new building footprint.
4. Surface drainage should be designed to provide for rapid removal of surface water off pavements away from the building.



SITE CONDITIONS

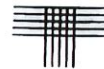
The Parks and Recreation Facility is proposed at 191 Soccer Field Road in Glenwood Springs, Colorado. A vicinity map with the location of the site is shown on Figure 1. The lot is a 1.0-acre parcel with an existing steel-framed building and asphalt parking areas. Vegetation consists of grass in areas that are not paved. An aerial photograph of the site is included as Figure 2. A detention pond is at the southwest corner of the lot. A utility and drainage easement is along the west side. Multi-family residences are on the property to the south. Single-family residences are on the lots to the west. Steel-framed buildings are on the property to the north. Ground surface slopes down to the south at grades less than 10 percent. Existing site conditions are shown on Figure 3. A photograph of the site is below.

PROPOSED CONSTRUCTION

Plans for the project were conceptual at this writing. We understand the existing building on the property will remain. A new building is proposed. The building will likely be a steel-framed, one-story structure with a slab-on-grade floor. New paved parking areas may be constructed. Foundation loads along perimeter walls will likely be less than 3,000 pounds per linear feet. Maximum interior column loads are anticipated at 50 kips. We should be provided with construction plans as they are developed, so we can provide geotechnical engineering input.

SUBSURFACE CONDITIONS

Subsurface conditions at the site were investigated by directing and observing the excavation of three exploratory pits at the approximate locations shown on Figures 2 and 3. Subsurface conditions observed in the pits were logged by our representative who obtained samples of the soils. Subsoils found in our explora-



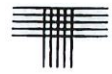
tory pits generally consisted of 1 to 2.5 feet of asphalt pavement, topsoil, and existing fill underlain by sandy clay with scattered gravel and cobbles to the total explored depth of 8 feet. Groundwater was not found in our pits at the time of excavation. The pits were backfilled after completion of our field investigation. Graphic logs of the soils observed in the exploratory pits are shown on Figure 4.

Samples of the soils obtained in the field were returned to our laboratory for classification and pertinent testing. One sample of the clay selected for one-dimensional, swell-consolidation testing exhibited 9.0 percent consolidation when wetted under an applied pressure of 1,000 psf. Engineering index tests indicated the natural clay soil at the site is moderately plastic with liquid limits of 32 to 37 percent and plasticity indices of 14 to 17 percent. Swell-consolidation test results are shown on Figure 5. Laboratory test results are summarized on Table I.

SITE EARTHWORK

Based on our subsurface information, excavations at the site can be accomplished with typical heavy-duty excavation equipment. Sides of excavations need to be sloped to meet local, State, and federal safety regulations. The clay soils will likely classify as a Type B soil based on OSHA criteria. Excavations deeper than 4 feet should be sloped no steeper than 1 to 1 (horizontal to vertical) in Type B soils.

Free groundwater was not encountered in our exploratory pits during excavation operations. We do not anticipate ground water will be encountered in excavations for the proposed construction. We suggest excavations be sloped to a gravity discharge or to a temporary sump where water from precipitation and runoff can be removed by pumping.



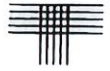
Subexcavation and Structural Fill

Laboratory testing and our experience indicate the undisturbed natural clay at this site possess significant potential for consolidation when wetted under building loads. To enhance potential performance of the building, we recommend subexcavation of the soils below footings and floor slabs to a depth of at least 3 feet and replacement with densely-compacted structural fill. We expect the excavated natural clay soils can be moisture-treated and reused as structural fill, provided they are free of rocks larger than 4 inches in diameter, organics, and debris. If desired, a Class 6 aggregate base course or similar material can be imported for use as structural fill.

Structural fill should be moisture-conditioned to within 2 percent of optimum moisture content and placed in loose lifts of 10 inches thick or less. Structural fill should be compacted to 98 percent of standard Proctor (ASTM D 698) maximum dry density. Moisture content and density of structural fill should be checked by a representative of our firm during placement. Observation of the compaction procedure is necessary.

Foundation Wall Backfill

Proper placement and compaction of foundation backfill is important to reduce infiltration of surface water and settlement of backfill. The on-site soils can be reused as backfill, provided they are free of rocks larger than 6 inches in diameter, organics and debris. Backfill should be placed in loose lifts of approximately 10 inches thick or less, moisture-conditioned to within 2 percent of optimum moisture content, and compacted to at least 95 percent of maximum standard Proctor dry density (ASTM D 698). Moisture content and density of the backfill should be checked during placement by a representative of our firm.



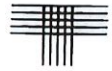
FOUNDATION

The building can be constructed on footing foundations, provided the soils below footings are subexcavated to a depth of at least 3 feet and replaced with densely-compacted structural fill. Structural fill should be in accordance with recommendations in the Subexcavation and Structural Fill section. Recommendations for design and construction of footings are below.

1. Footings should be supported on an at least 3-foot thickness of densely-compacted structural fill in accordance with the Subexcavation and Structural Fill section.
2. Footings on densely-compacted structural fill can be sized using a maximum allowable bearing pressure of 2,000 psf.
3. Continuous wall footings should have a minimum width of at least 16 inches. Column footings should have a minimum dimension of 24 inches. Larger sizes may be required, depending upon foundation loads.
4. Grade beams and foundation walls should be well reinforced, top and bottom, to span undisclosed loose or soft soil pockets. We recommend reinforcement sufficient to span an unsupported distance of at least 12 feet.
5. The soils under exterior footings should be protected from freezing. We recommend the bottom of footings be constructed at a depth of at least 36 inches below finished exterior grades. The Glenwood Springs building department should be consulted regarding required depth.

SLAB-ON-GRADE CONSTRUCTION

A slab-on-grade floor is likely to be constructed in the new building. We recommend sub-excavation of the soils to a depth of at least 3 feet below the floor slab and replacement with densely-compacted structural fill. Recommendations in the Subexcavation and Structural Fill section should be followed. We recommend the following precautions for slab-on-grade construction at this site.



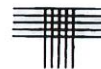
1. Floor slabs should be separated from exterior walls and interior bearing members with slip joints which allow free vertical movement of the slabs.
2. The use of underslab plumbing should be minimized. Underslab plumbing should be pressure tested for leaks before the slabs are constructed. Plumbing and utilities which pass through slabs should be isolated from the slabs with sleeves and provided with flexible couplings to slab supported appliances.
3. Exterior concrete flatwork should be isolated from the building. These slabs should be well-reinforced to function as independent units.
4. Frequent control joints should be provided, in accordance with American Concrete Institute (ACI) recommendations, to reduce problems associated with shrinkage and curling.

BELOW-GRADE CONSTRUCTION

We understand below-grade areas are not planned for the building. If construction plans change to include a below-grade area, such as a basement, we should be notified so that we can provide criteria for lateral earth pressures and subsurface drainage.

SURFACE DRAINAGE

Surface drainage is critical to the performance of foundations, floor slabs, and concrete flatwork. Surface drainage should be designed to provide rapid runoff of surface water away from the building. Proper surface drainage and irrigation practices can help control the amount of surface water that penetrates to foundation levels and contributes to settlement or heave of soils and bedrock that support foundations and slabs-on-grade. Positive drainage away from the foundation and avoidance of irrigation near the foundation also help to avoid excessive wetting of backfill soils, which can lead to increased backfill settlement and possibly to higher lateral earth pressures, due to increased weight and reduced strength of the backfill. We recommend the following precautions.



1. The ground surface, including pavements, should be sloped to drain away from the building in all directions. We recommend providing a slope of at least 12 inches in the first 10 feet around the building, where possible. Pavements adjacent to buildings should be sloped to rapidly convey surface water away from building.
2. The building should be provided with roof gutters and downspouts. Roof downspouts and drains should discharge well beyond the limits of all backfill. Splash blocks and downspout extensions should be provided at all discharge points.
3. Landscaping should be carefully designed to minimize irrigation. Plants used near foundation walls should be limited to those with low moisture requirements; irrigated grass should not be located within 5 feet of the foundation. Sprinklers should not discharge within 5 feet of the foundation and should be directed away from the building.

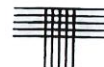
CONCRETE

Concrete in contact with soil can be subject to sulfate attack. We measured water-soluble sulfate concentration of 0.00 percent in sample of soil from the site. For this level of sulfate concentration, ACI 332-08 indicates there are no special requirements for sulfate resistance.

In our experience, superficial damage may occur to the exposed surfaces of highly permeable concrete, even though sulfate levels are relatively low. To control this risk and to resist freeze-thaw deterioration, the water-to-cementitious materials ratio should not exceed 0.50 for concrete in contact with soils that are likely to stay moist due to surface drainage or high-water tables. Concrete should have a total air content of 6% +/-1.5%. We recommend all foundation walls and grade beams in contact with the subsoils be damp-proofed.

PAVEMENTS

Based on the AASHTO Classification system, the natural sandy silt and clay at this site generally classifies as AASHTO Group A-6. Group Indices for the



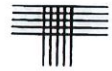
on-site soils range from 11 to 17. We estimated a resilient modulus (M_R) of 5,000 psi based on our laboratory testing and experience with similar soils.

Traffic loading numbers were not available at this writing. We assume pavements will be primarily subject to automobile traffic. Some heavy truck traffic, such as garbage trucks, may occur in some areas, including dumpster pads. We estimated an Equivalent Single Axle Load (ESAL) Value of 73,000 for the pavements at the site. We should be provided with design traffic numbers when available so that we can review and/or refine our recommendations. Based on our calculations, we recommend the following minimum pavement sections.

Pavement Classification	Asphalt Concrete (AC)	Asphalt Concrete + Aggregate Base Course (AC + ABC)	Portland Cement Concrete (PCC)
Access Drives and Parking Areas	6.0" AC	4.0" AC + 8.0" ABC	6.0" PCC
Truck Traffic Areas	Not recommended	Not recommended	6.0" PCC

The performance of a pavement system is as much a function of the quality of the paving materials and construction as the support characteristics of the subgrade. If the pavement system is constructed of inferior material, then the life and serviceability of the pavement will be substantially reduced. We recommend that subgrade soils below pavements be scarified to a depth of 8 inches, moisture-treated, and recompacted as structural fill. Recommendations in the Subexcavation and Structural Fill section should be followed.

Routine maintenance, such as sealing and repair of cracks and overlays at 5 to 7-year intervals, are necessary to achieve long-term performance of an asphalt system. We recommend application of a rejuvenating sealant such as fog seal after the first year. Deferring maintenance usually results in accelerated deterioration leading to higher future maintenance costs.



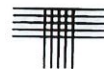
A primary cause of early pavement deterioration is water infiltration into the pavement system. The addition of moisture usually results in softening of base course and subgrade and the eventual failure of the pavement. We recommend drainage be designed for rapid removal of surface runoff from pavement surfaces. Final grading should be carefully controlled so that design cross-slope is maintained and low spots in the subgrade which could trap water are eliminated. Portland cement concrete drainage pans with subsurface drains should be considered in areas where water will be flowing across pavement surfaces.

CONSTRUCTION OBSERVATIONS

We recommend that CTL | Thompson, Inc. be retained to provide construction observation and materials testing services for the project. This would allow us the opportunity to verify whether soil conditions are consistent with those found during this investigation. If others perform these observations, they must accept responsibility to judge whether the recommendations in this report remain appropriate. It is also beneficial to projects, from economic and practical standpoints, when there is continuity between engineering consultation and the construction observation and materials testing phases.

STRUCTURAL ENGINEERING SERVICES

CTL | Thompson, Inc. is a full-service geotechnical, structural, materials, and environmental engineering firm. Our services include preparation of structural framing and foundation plans. We can also design earth retention systems. Based on our experience, CTL | Thompson, Inc. typically provides value to projects from schedule and economic standpoints, due to our combined expertise and experience with geotechnical, structural, and materials engineering. We would like the opportunity to provide proposals for structural engineering services on your future projects.



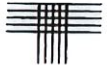
GEOTECHNICAL RISK

The concept of risk is an important aspect of any geotechnical evaluation. The primary reason for this is that the analytical methods used to develop geotechnical recommendations do not comprise an exact science. The analytical tools which geotechnical engineers use are generally empirical and must be tempered by engineering judgment and experience. Therefore, the solutions or recommendations presented in any geotechnical evaluation should not be considered risk-free and, more importantly, are not a guarantee that the interaction between the soils and that the proposed structure will perform as desired or intended. What the engineering recommendations presented in the preceding sections do constitute is our estimate, based on the information generated during this and previous evaluations and our experience in working with these conditions, of those measures that are necessary to help the building perform satisfactorily.

This report has been prepared for the exclusive use of the client for the purpose of providing geotechnical design and construction criteria for the proposed project. The information, conclusions, and recommendations presented herein are based upon consideration of many factors including, but not limited to, the type of structure proposed, the geologic setting, and the subsurface conditions encountered. The conclusions and recommendations contained in the report are not valid for use by others. Standards of practice continuously change in the area of geotechnical engineering. The recommendations provided in this report are appropriate for three years. If the proposed project is not constructed within three years, we should be contacted to determine if we should update this report.

LIMITATIONS

Our exploratory pits provide a reasonably accurate picture of subsurface conditions at the site. Variations in the subsurface conditions not indicated by the pits will occur.



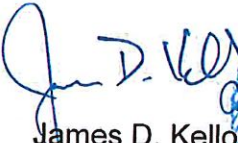
This investigation was conducted in a manner consistent with that level of care and skill ordinarily exercised by geotechnical engineers currently practicing under similar conditions in the locality of this project. No warranty, express or implied, is made. If we can be of further service in discussing the contents of this report, please call.

CTL | THOMPSON, INC.

Reviewed By:

Ryan DeMars, E.I.T.
Staff Engineer

RD:JDK:ac


James D. Kellogg, P.E.
Division Manager





SCALE: 1" = 1,000'



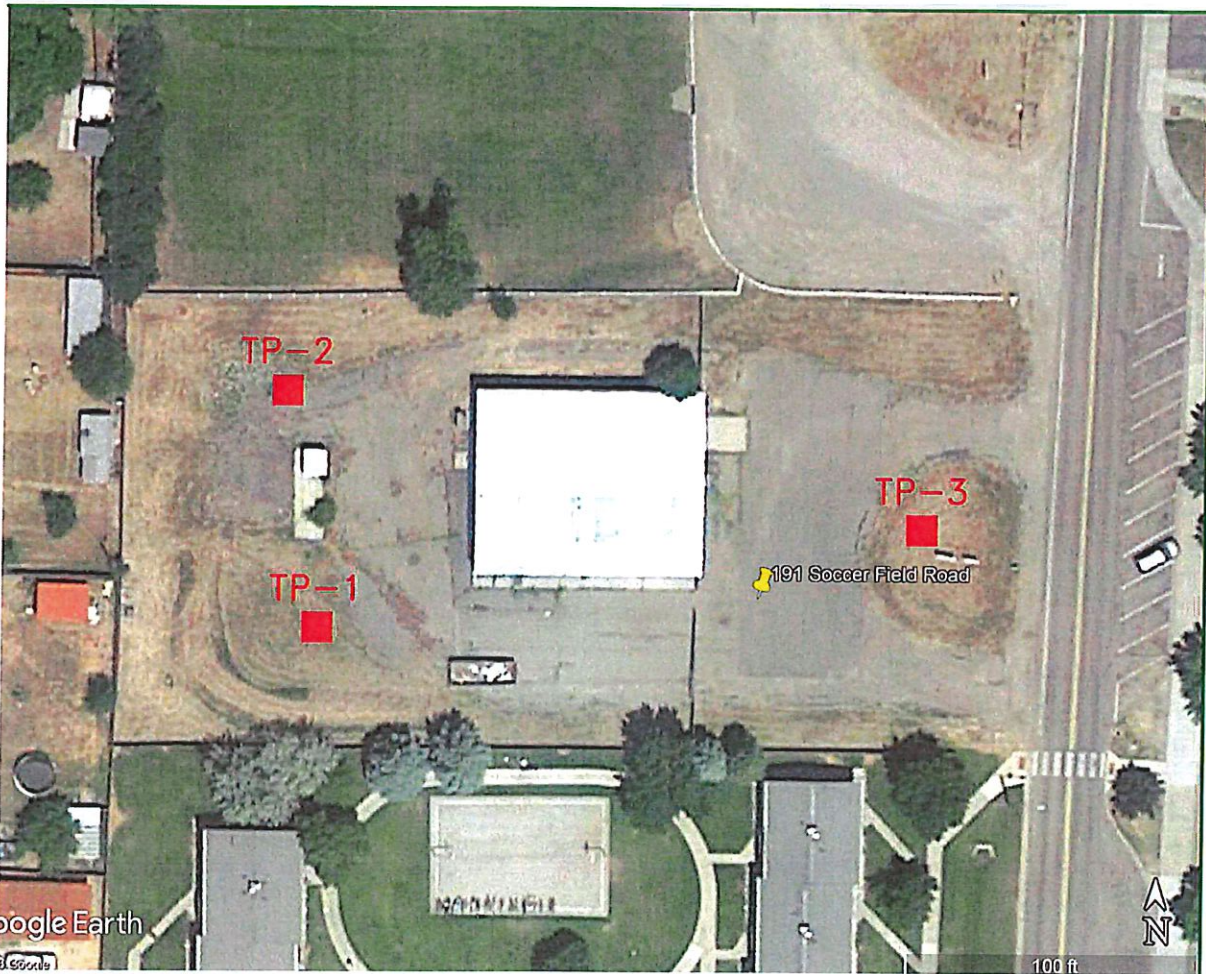
CITY OF GLENWOOD SPRINGS
PARKS AND RECREATION FACILITY
Project No. GS06401.000-120

Vicinity Map

Fig. 1



SCALE: 1" = 60'



NOTE: IMAGE IS FROM GOOGLE EARTH.

TP-1 APPROXIMATE LOCATION OF EXPLORATORY PIT.

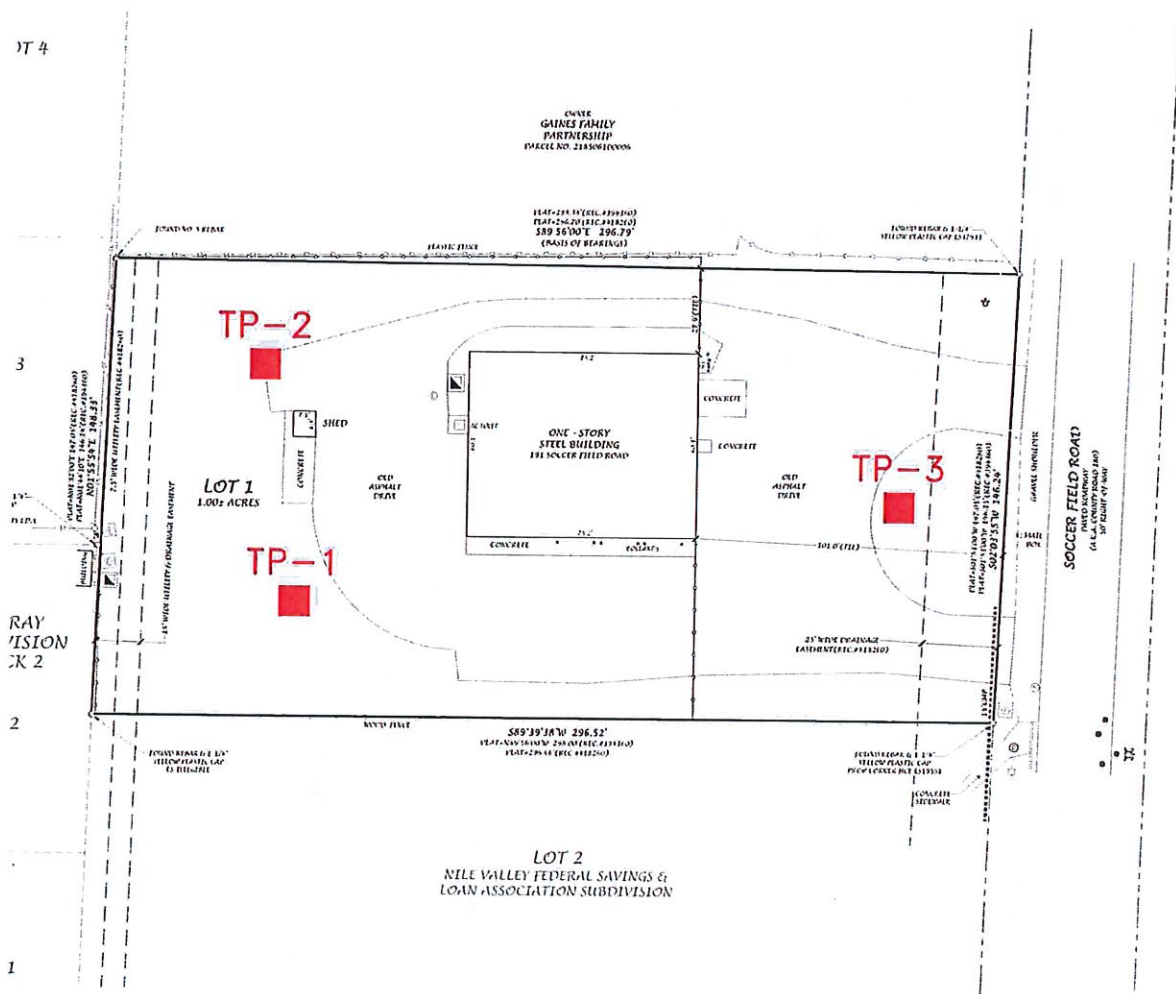
CITY OF GLENWOOD SPRINGS
PARKS AND RECREATION FACILITY
Project No. GS06401.000-120

Aerial Photograph

Fig. 2



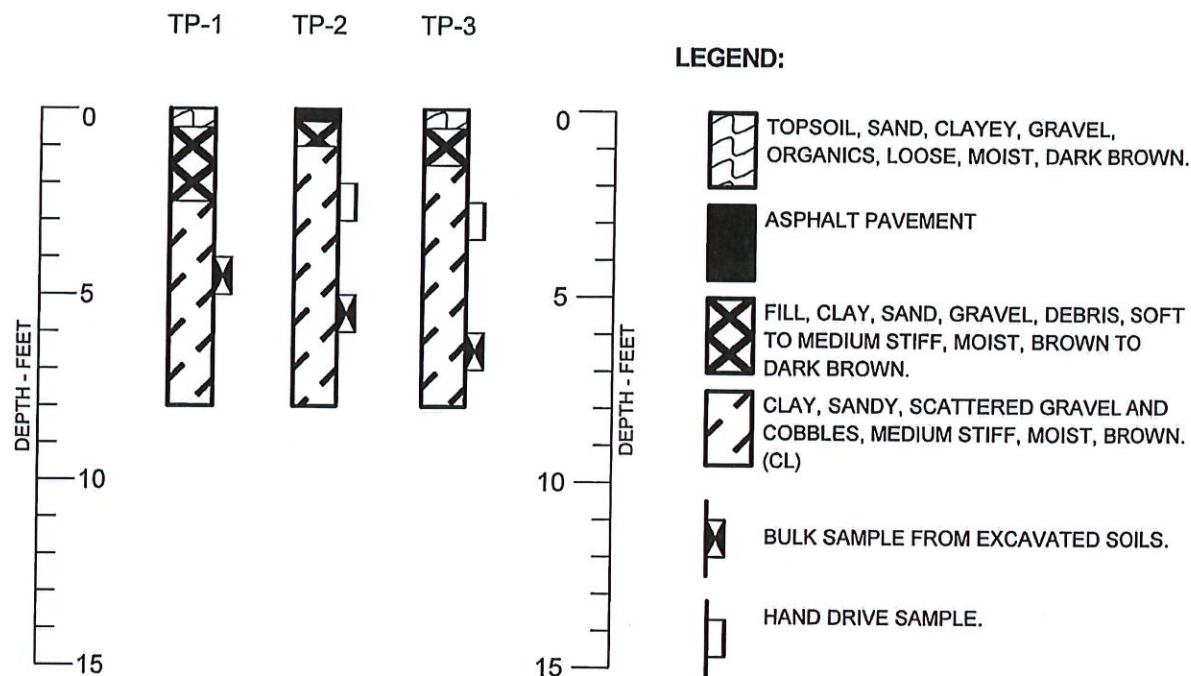
SCALE: 1" = 60'



CITY OF GLENWOOD SPRINGS
PARKS AND RECREATION FACILITY
Project No. GS06401.000-120

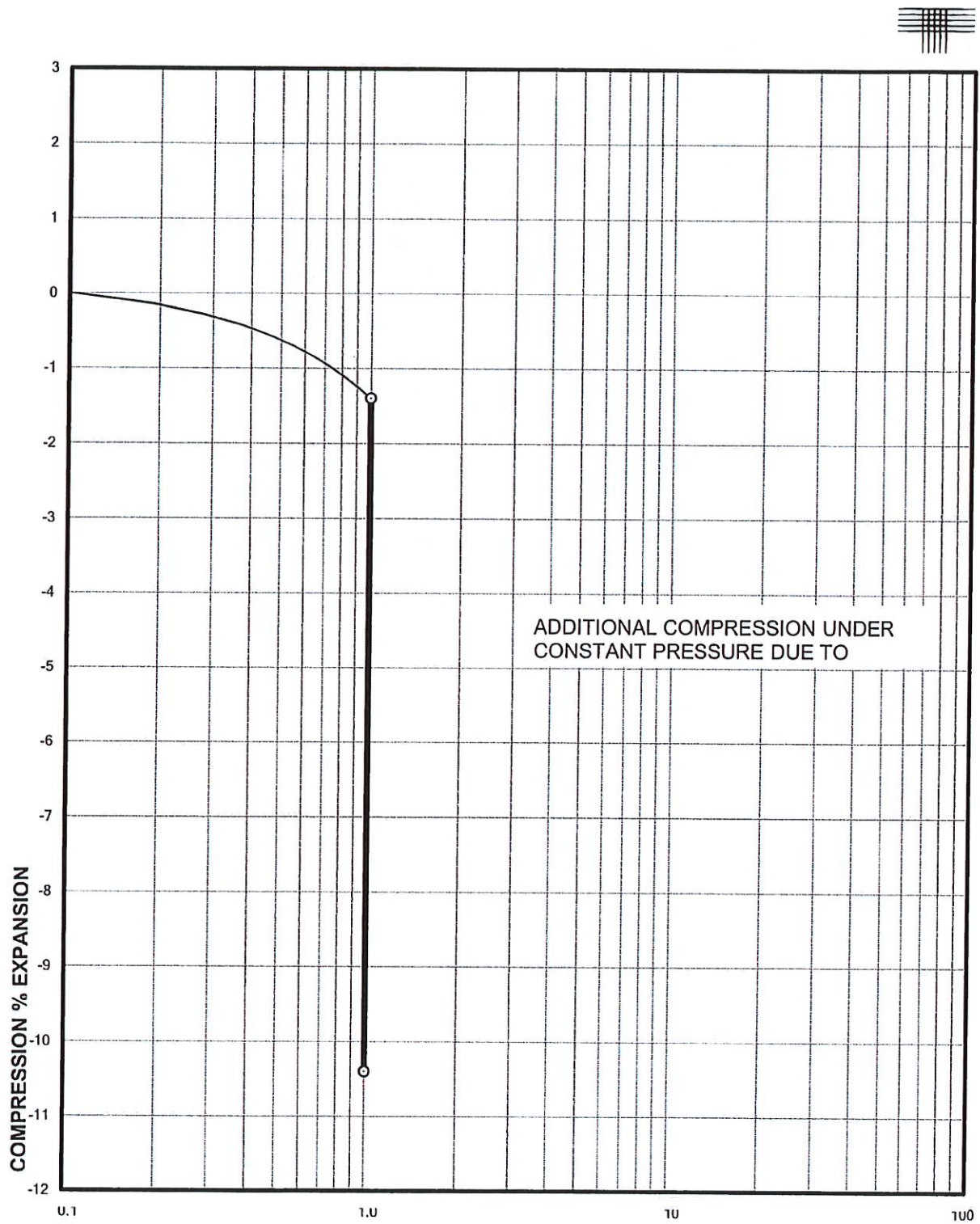
Existing
Conditions

Fig. 3



NOTES:

1. EXPLORATORY PITS WERE EXCAVATED WITH A BACKHOE ON OCTOBER 18, 2019.
2. GROUND WATER WAS NOT FOUND IN OUR PITS AT THE TIME OF EXCAVATION. PITS WERE BACKFILLED IMMEDIATELY AFTER EXPLORATORY EXCAVATION OPERATIONS WERE COMPLETED.
3. LOCATIONS OF EXPLORATRY PITS ARE APPROXIMATE.
4. EXPLORATORY PITS ARE SUBJECT TO THE EXPLANATIONS, LIMITATIONS AND CONCLUSIONS CONTAINED IN THIS REPORT.



APPLIED PRESSURE - KSF
 Sample of CLAY, SANDY (CL)
 From TP-3 AT 2.5 FEET

DRY UNIT WEIGHT= 87 PCF
 MOISTURE CONTENT= 9.6 %

CITY OF GLENWOOD SPRINGS
 PARKS AND RECREATION FACILITY
 PROJECT NO. GS06401.000-125

Swell Consolidation Test Results

FIG. 5



**SUMMARY OF LABORATORY TESTING
PROJECT NO. GS06401.000-125**

[illegible]

* SWELL MEASURED WHEN WETTED UNDER 1,000 PSF PRESSURE. NEGATIVE VALUE INDICATES COMPRESSION.

Planning Item: **##-##**
Applicant: **City of Glenwood Springs, Parks Department**
Owner: **City of Glenwood Springs**
Location: **191 Soccerfield Road**
Parcel: **2185-061-08-001**
Date of Comments: **2-4-2022**

The following are W/WW/Electric and PW Department comments based on the application package dated 10-6-2021.

W/WW Department Comments

- It does not appear that there are any added water or sewer fixtures with this expansion. If a new/additional tap is needed, coordinate with the water department.
- Staff should locate the existing sewer and water services and make sure they are not under the proposed expansion.
- The water, sewer and electric details need to follow city standards details at the City of Glenwood Springs Engineering Department website, Engineering Standards.
- All services that are to be used for combined fire sprinkler/domestic water must be designed and constructed to NFPA24 requirements and will be considered private. Design needs to show in detail thrust blocks and calculations, restrains, etc. This must be noted on the plans.

W/WW Department Contact Information:

- Mike Hoffman – 970-384-6343 (W/WW Superintendent)
 - Utility Billing – 970-384-6400 (Account setup; Water Meter Purchase)
 - Community Development Department – 970-384-6411 (Improvements Fees)
-

The following are Electric Department comments:

Electric Department Comments

- Final service layout, transformer locations and site planning will need to be coordinated with the City of Glenwood Springs Electric Department. An easement around the transformer and access to that easement will be required prior to CO if applicable.
- Owners GC/excavation company will be responsible for all trenching, including the line extension trenches to new transformer locations, electric primary and secondary conduit installation, electric pull vaults and transformer vaults.

- Developer to supply a Load Calculation form to the City of Glenwood Springs Electric Department for the building. We did not see one within the packet, needs to be provided to electric department and comm dev for the packet.

Electric Department Contact Information:

- o Doug Hazzard – 970-384-6353 (Electric Superintendent)
- o Mark Smith – 970-930-7071, mark.smith@cogs.us (CBN)
- o Utility Billing – 970-384-6400 (Account setup)

The following are Public Works Department comments:

PW Department Comments

- o I don't know who drew these plans, but they are amazing.
- o Drywell percolation rate to be confirmed by geotech once the hole has been dug to install the barrel?

Public Works Contact Information:

- o Matthew Langhorst – 970-384-6438 (PW Director)

118 West Sixth Street, Suite 200
Glenwood Springs, CO 81601
970.945.1004 www.sgm-inc.com



Scope of Work



Project Engineer

Owner/Applicant

City of Glenwood Springs

- Johnathan Godes, Ward 5
- Charlie Willman, Ward 3
- Tony Hershey, At Large
- Shelley Kaup, At Large
- Paula Stepp, Ward 4
- Ingrid Wusson
- Steve Davis, Ward 1

Sheet Index

1	Cover Sheet
2	Legend and Abbreviations
3	Existing Conditions and Demolition Plan
4	Site Plan
5	Grading and Drainage Plan
6	Storm Drain Plan and Profile
7	Utility Plan
8	Erosion Control Plan
9	Erosion Control Details
10	Detail Sheet

City of Glenwood Springs
PHQ 191 Soccer Field Road

[illegible]

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b No.		2018-476.002	
Drawn by:		FJB	
Date:		12.22.21	
C:	DMK	PE:	CL
S:		SFR-Admin	

e:

over Sheet

g No.

: 10



Know what's below.
Call before you dig.

UNCC 1-800-922-1987

Linetypes

Hatching

CONTACT LIST OF UTILITY OWNERS WITHIN VICINITY OF PROJECT LIMITS						
ORGANIZATION NAME	ABBREVIATION	UTILITY TYPE	CONTACT NAME	CONTACT PHONE	CONTACT EMAIL	RECORDS RECEIVED
BLACK HILL ENERGY	BHEN	GAS	JASON COX	(970) 456-3117	JASON.COX@BLACKHILLSCORP.COM	YES
CENTURYLINK (NOW LUMEN)	CNLIK	TELEPHONE	JASON SHARPE	(970) 328-8290	JASON.SHARPE@CENTURYLINK.COM	YES
CITY OF GLENWOOD SPRINGS ELECTRIC	COGS	ELECTRIC	DOUG HAZZARD	(970) 384-6353	DOUG.HAZZARD@COGS.US	YES
CITY OF GLENWOOD SPRINGS FIBER OPTIC	COGS	FIBER OPTIC	MICHAEL GARDNER	(970) 384-4800	MICHAEL.GARDNER@COGS.US	NO
WEST GLENWOOD SANITATION DISTRICT	COGS	SANITARY	KELLY MULLANE	(970) 618-5147		YES
CITY OF GLENWOOD SPRINGS WATER	COGS	WATER	MIKE HOFFMAN	(970) 384-6343	MIKE.HOFFMAN@COGS.US	YES
COMCAST	CMCT	CABLE TV, FIBER OPTIC	RYAN ANDERSEN	(720) 219-8186	RYAN_ANDERSEN@COMCAST.COM	YES

Symbols

EXISTING UTILITY NOTES - "SUE-REQUIRED PROJECT" COMPLIANT

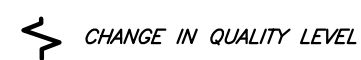
2. UTILITIES ARE DEPICTED ON THESE PLANS IN ACCORDANCE WITH THEIR ACHIEVED "QUALITY LEVELS" AS DEFINED IN THE AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE) DOCUMENT ASCE 38, "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA." LOCATION OF EXISTING UTILITIES IS DEPICTED ACCORDING TO THE BEST AVAILABLE INFORMATION. INFORMATION IS TO BE PROVIDED TO THE USER OF THESE PLANS AT THE TIME OF DATA COLLECTION. PRIOR TO CONSTRUCTION, CONTRACTOR SHALL VERIFY EXISTING UTILITIES WITH THE UTILITY NOTIFICATION CENTER OF COLORADO (UNCC) AND/OR UTILITY COMPANIES. ALL COSTS ASSOCIATED WITH FIELD VERIFICATION OF LOCATION AND DEPTHS OF UTILITIES FOR DAMAGE PREVENTION SHALL BE BORNE BY THE CONTRACTOR AND SHALL BE COMPLETED PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY DISCREPANCIES OR NEWLY ACQUIRED UTILITY DATA.
3. UTILITY QUALITY LEVELS ARE GENERALLY DEFINED BELOW. REFER TO ASCE 38 FOR MORE INFORMATION:
 - 3.1 UTILITY QUALITY LEVEL "7" (OLD) – A VALUE ASSIGNED TO A SUBSURFACE UNDERGROUND UTILITY SEGMENT OR UTILITY FEATURE, WHOSE ESTIMATED POSITION IS JUDGED THROUGH UTILITY RECORDS, INFORMATION FROM OTHERS (SUCH AS UNCC #11 FIELD MARKS), OR FROM VISUAL CLUES SUCH AS PAVEMENT CUTS, OBVIOUS TRENCHES, OR EXISTENCE OF SERVICE.
 - 3.2 UTILITY QUALITY LEVEL "6" (OLC) – A VALUE ASSIGNED TO A SUBSURFACE UTILITY SEGMENT, WHOSE ESTIMATED POSITION IS JUDGED THROUGH CORRELATING UTILITY RECORDS OR SIMILAR EVIDENCE TO UTILITY FEATURES, VISIBLE ABOVE AND/OR BEYOND SURFACE.

PERM	PERMANENT
PG	PAGE
PGL	PROFILE GRADE LINE
PI	POINT OF INTERSECTION
PL	PROPERTY LINE
PM	PROJECT MANAGER
PNT	POINT
POC	POINT ON CURVE
POT	POINT ON TANGENT
PRO	POINT OF REVERSE CURVE
PROP	PROPOSED
PRV	PRESSURE REDUCING VALVE
PSF	POUNDS PER SQUARE FEET
PSI	POUNDS PER SQUARE INCH
PT	POINT OF TANGENCY
PUD	PLANNED UNIT DEVELOPMENT
PVC	POLYVINYL CHLORIDE
PVI	POINT OF VERTICAL INTERSECTION
PVMT	PAVEMENT
PVT	POINT OF VERTICAL TANGENCY
Q	PEAK DISCHARGE
QA/QC	QUALITY ASSURANCE/QUALITY CONTROL
Q	QUANTITY
R	RIGHT
R-R	REMOVE AND REPLACE
RAD	RADIUS
RCF	REINFORCED CONCRETE PIPE
REF	REFERENCE
REQ	REQUIRED
REVEG	REVEGETATE
RFTA	ROARING FORK TRANSIT AUTHORITY
ROW	RIGHT OF WAY
RP	RADIUS POINT
RSS	RETAINED SOIL SLOPE
SW	RETAINING WALL
SAC	STEEL ARCH CULVERT
SAN	SANITARY
SB	SOUTH BOUND
SCF	SEDIMENT CONTROL FENCE
SD	STANDARD
SDR	STANDARD DIMENSION RATIO
SE	SOUTHEAST
SECT	SECTION
SF	SQUARE FEET
SHLDR	SHOULDER
SL	SANITARY SEWER LINE
SMH	SANITARY SEWER MANHOLE
SOD	GRASS AREA
SS	SANITARY SEWER SERVICE
SSD	STOPPING SIGHT DISTANCE
STA	STATION
STBK	STREETBACK
SY	SQUARE YARDS
SYM	SYMMETRICAL
T	TEND STAIRS
TAN	TANGENT
TBC	TOP BACK OF CURB
TBLK	THRUST BLOCK
TC	TOP OF CURB
TCE	TEMPORARY CONSTRUCTION EASEMENT
TCF	TRAFFIC CONTROL PLAN
TEL	TELEPHONE
TEMP	TEMPORARY
TP	TOP OF PIPE
TRANS	TRANSITION
TRFLG	TRAFFIC FLANGE OF FIRE HYDRANT
TW	TOP OF WALL
TY	TYPICAL
UCTV	UNDERGROUND CABLE TELEVISION LINE
UE	UNDERGROUND ELECTRIC LINE
UG	UNDERGROUND GAS LINE
US	US ARMY CORPS OF ENGINEERS
USSS	US GEOLOGICAL SURVEY
UT	UNDERGROUND TELEPHONE LINE
VC	VERTICAL CURVE
VCP	VITRIFIED CLAY PIPE
VLP	VALLEY PAN
VTC	VEHICLE TRACKING CONTROL
W	WIDE
W/	WITH
WB	WEST BOUND
WL	WATER LINE
WS	WATER SERVICE
WOCD	WATER QUALITY CONTROL DIVISION
WS	WATER SERVICE
WNM	WELDED WIRE MESH
X-S	CROSS SLOPE
YD	YARD

SUE ABBREVIATIONS

ADS	ADVANCED DRAINAGE SYSTEM
ASCE	AMERICAN SOCIETY OF CIVIL ENGINEERS
BAC	BALANCE
BOP	C
C	BOTTOM OF PIPE
CMCT	CABLE TELEVISION
CNP	CONCRETE
CNDK	CENTURYLINK (AKA LINCOLN)
COOS	CITY OF OAKLAND
DIP	DUCTILE IRON PIPE
EL	ELECTRIC
EL	ELEVATION
EX	EXISTING
EX	FIBER OPTIC
	GAS
GPR	GROUND PENETRATING RADAR
HWY	HIGHWAY
MW	MANHOLE
PCL	PLAIN CABLE LOCATE
PVC	POLYVINYL CHLORIDE (PLASTIC)
QL	QUALITY LEVEL
QLA	QUALITY LEVEL A
QLB	QUALITY LEVEL B
QLC	QUALITY LEVEL C
QLD	QUALITY LEVEL D
RCP	REINFORCED CONCRETE PIPE
SAN	SANITARY
SME	SANITARY MANHOLE
STM	STORM
STM	SUBSURFACE UTILITY ENGINEERING
TH	TELEPHONE
TH	TEST HOLE
TD	TOP OF DIRT
TON	TOP OF CUT
TOP	TOP OF PIPE
UTH	UTILITY TEST HOLE
	WATER

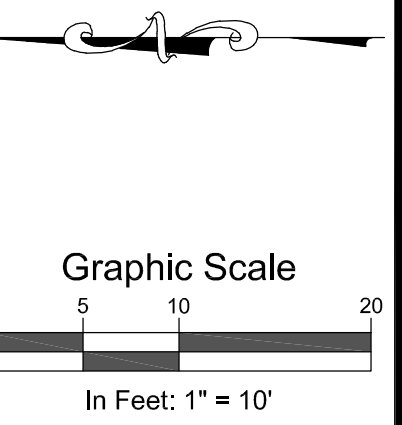
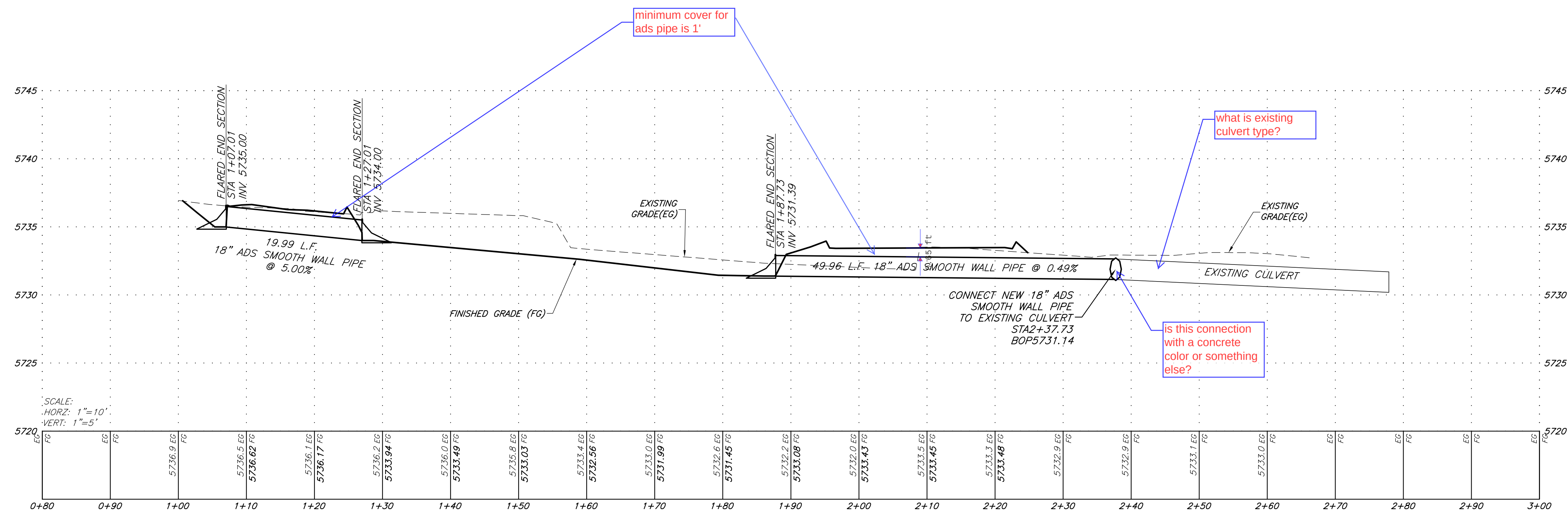
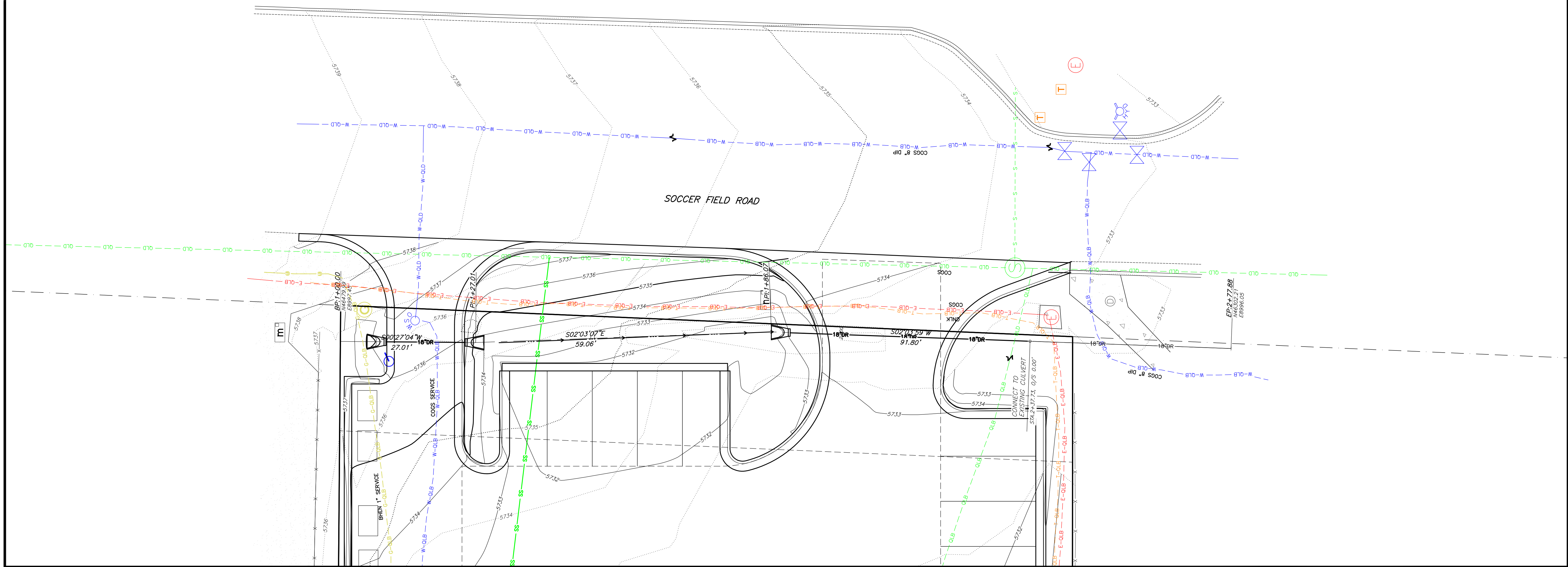
SUE SYMBOL LEGEND



SUE LINE TYPE LEGEND

The diagram is a hierarchical tree structure. On the left, there are 18 lines, each with a color-coded code. These lines are grouped into 10 categories, each represented by a bracketed group of lines. The categories are listed on the right side of the diagram. The categories are: EXISTING CABLE TELEVISION (3 lines), EXISTING FIBER OPTIC (3 lines), EXISTING TELEPHONE (3 lines), EXISTING ELECTRIC (3 lines), EXISTING GAS (3 lines), EXISTING IRRIGATION (3 lines), EXISTING NONPOTABLE WATER (3 lines), EXISTING SANITARY (3 lines), EXISTING STORM (3 lines), and EXISTING WATER (3 lines). The lines are color-coded: orange for Cable Television, Fiber Optic, and Telephone; red for Electric; green for Gas, Sanitary, and Storm; and blue for Irrigation, Nonpotable Water, and Water.

Category	Code
EXISTING CABLE TELEVISION	C-QLB
	C-QLC
	C-QLD
EXISTING FIBER OPTIC	F-QLB
	F-QLC
	F-QLD
EXISTING TELEPHONE	T-QLB
	T-QLC
	T-QLD
EXISTING ELECTRIC	E-QLB
	E-QLC
	E-QLD
EXISTING GAS	G-QLB
	G-QLC
	G-QLD
EXISTING IRRIGATION	IRR-QLB
	IRR-QLC
	IRR-QLD
EXISTING NONPOTABLE WATER	NP-QLB
	NP-QLC
	NP-QLD
EXISTING SANITARY	QLB
	QLC
	QLD
EXISTING STORM	QLB
	QLC
	QLD
EXISTING WATER	W-QLB
	W-QLC
	W-QLD



In Feet: $1'' = 10'$

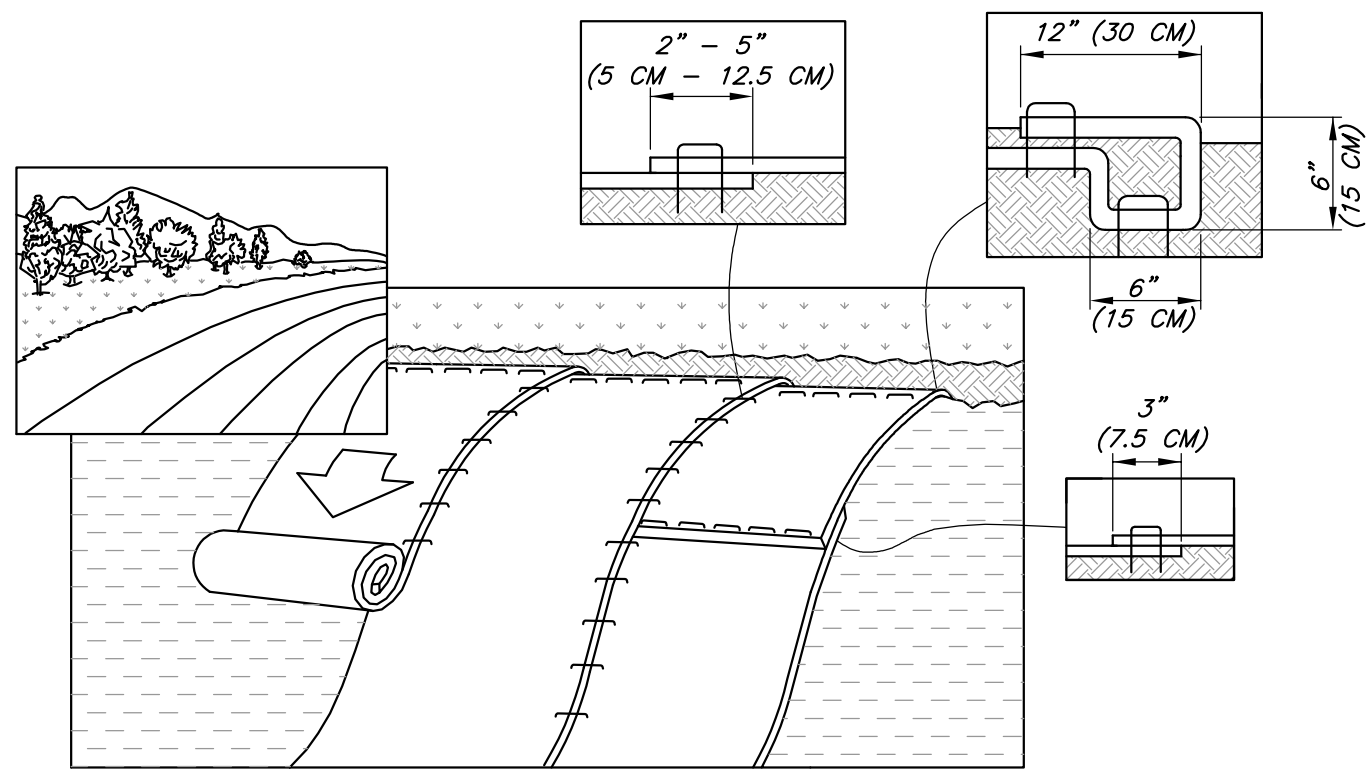


2259 Grand Avenue, Suite 200
Grand Junction, CO 81501
970.245.2571 www.sgminc.com

City of Glenwood Springs
PHQ 191 Soccer Field Road

[illegible]

Title: Storm Drain Plan and Profile	
Dwg No. 6	Of: 10

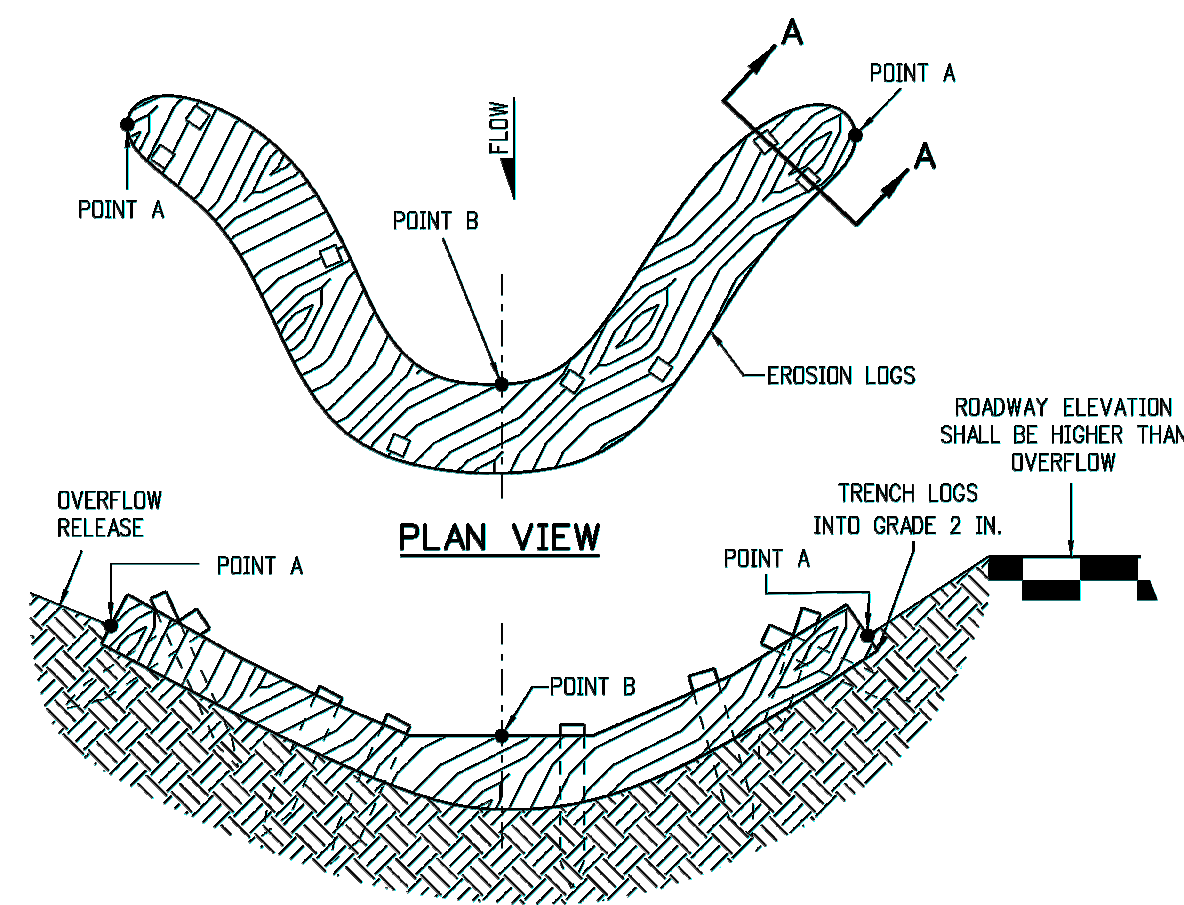


SLOPE INSTALLATION NOTES:

1. PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECP'S), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
2. WHEN USING CELL-O-SEED, DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
3. BEGIN AT TOP OF THE SLOPE BY ANCHORING THE RECP'S IN A 6" (15 CM) DEEP X 6" (15 CM) WIDE TRENCH WITH APPROXIMATELY 12" (30 CM) OF RECP'S EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE RECP'S WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30 CM) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30 CM) PORTION OF RECP'S BACK OVER SEED AND COMPACTED SOIL. SECURE RECP'S OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30 CM) APART ACROSS THE WIDTH OF THE RECP'S.
4. ROLL THE RECP'S DOWN OR HORIZONTALLY ACROSS THE SLOPE. RECP'S WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL RECP'S MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING DOT SYSTEM, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
5. THE EDGES OF PARALLEL RECP'S MUST BE STAPLED WITH APPROXIMATELY 2"-5" (5 CM - 12.5 CM) OVERLAP DEPENDING ON RECP'S TYPE.
6. CONSECUTIVE RECP'S SPICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" (7.5 CM) OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" (30 CM) APART ACROSS ENTIRE RECP'S WIDTH.
7. IN LOOSE SOIL CONDITIONS, THE USE OF STAPLES/STAKES LENGTHS GREATER THAN 6" (15 CM) MAY BE NECESSARY TO PROPERLY SECURE THE RECP'S.

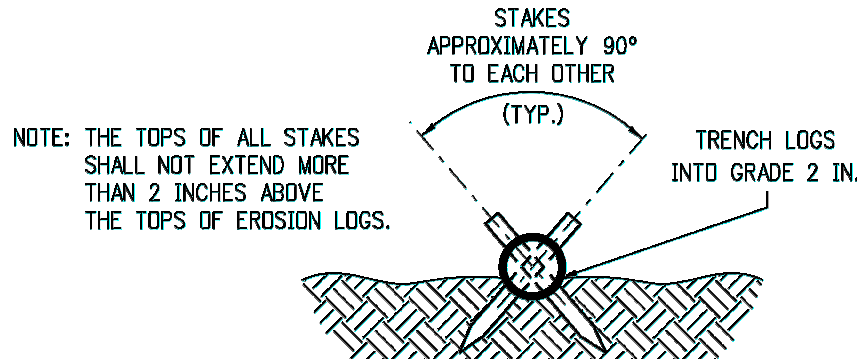
SLOPE INSTALLATION DETAIL

N.T.S.



NOTE: POINTS "A" SHALL BE A MINIMUM 4 IN. HIGHER THAN POINT "B".

ELEVATION



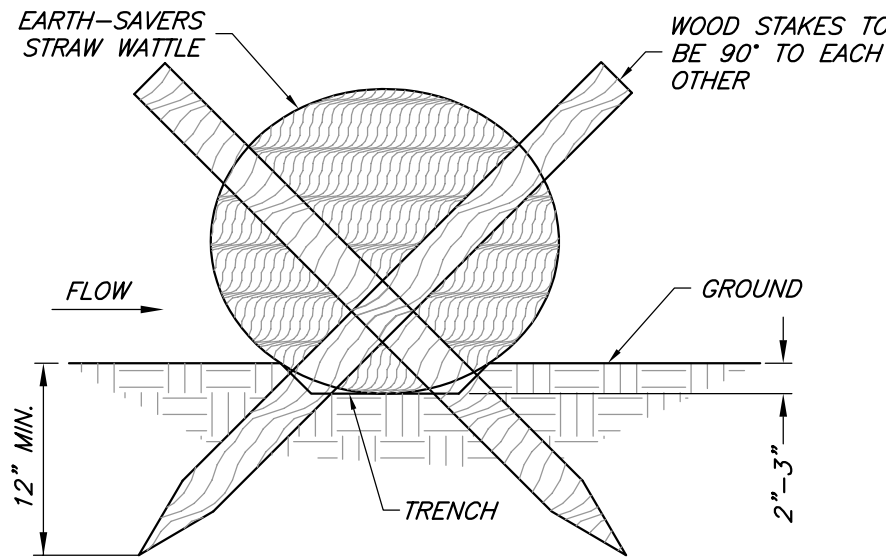
NOTE: THE TOPS OF ALL STAKES SHALL NOT EXTEND MORE THAN 2 INCHES ABOVE THE TOPS OF EROSION LOGS.

SECTION A-A

NOTES:

1. EROSION LOGS SHALL BE EMBEDDED 2 INCHES INTO THE SOIL.
2. EROSION LOGS SHALL BE TIGHTLY ABUTTED WITH NO GAPS.
3. V-SHAPED TEMPORARY DITCHES SHALL NOT BE USED. DITCHES SHAL BE GRADED IN A PARABOLIC OR TRAPEZOIDAL SHAPE.

EROSION LOG INSTALLATION

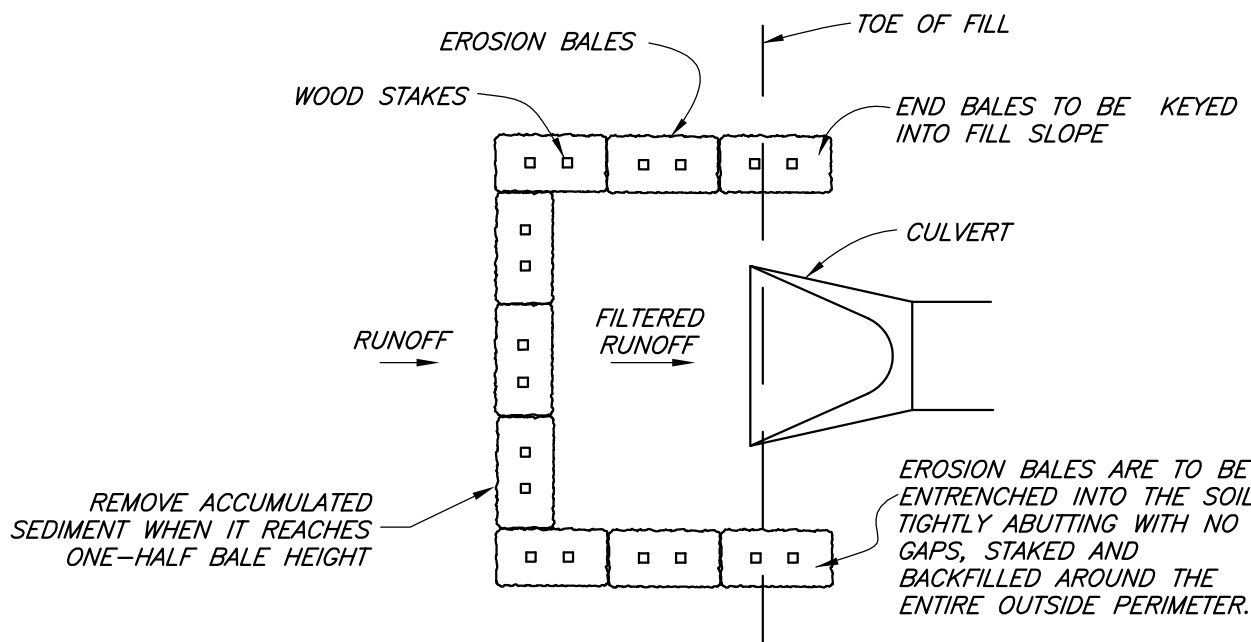


NOTES:

1. EROSION LOGS SHALL BE EMBEDDED 2" INTO THE SOIL.
2. EROSION LOGS SHALL BE TIGHTLY ABUTTED WITH NO GAPS.
3. V-SHAPED TEMPORARY DITCHES SHALL NOT BE USED. DITCHES SHALL BE GRADED IN A PARABOLIC OR TRAPEZOIDAL SHAPE.
4. THE TOPS OF ALL STAKES SHALL NOT EXTEND MORE THAN 2" ABOVE TOPS OF EROSION LOGS.

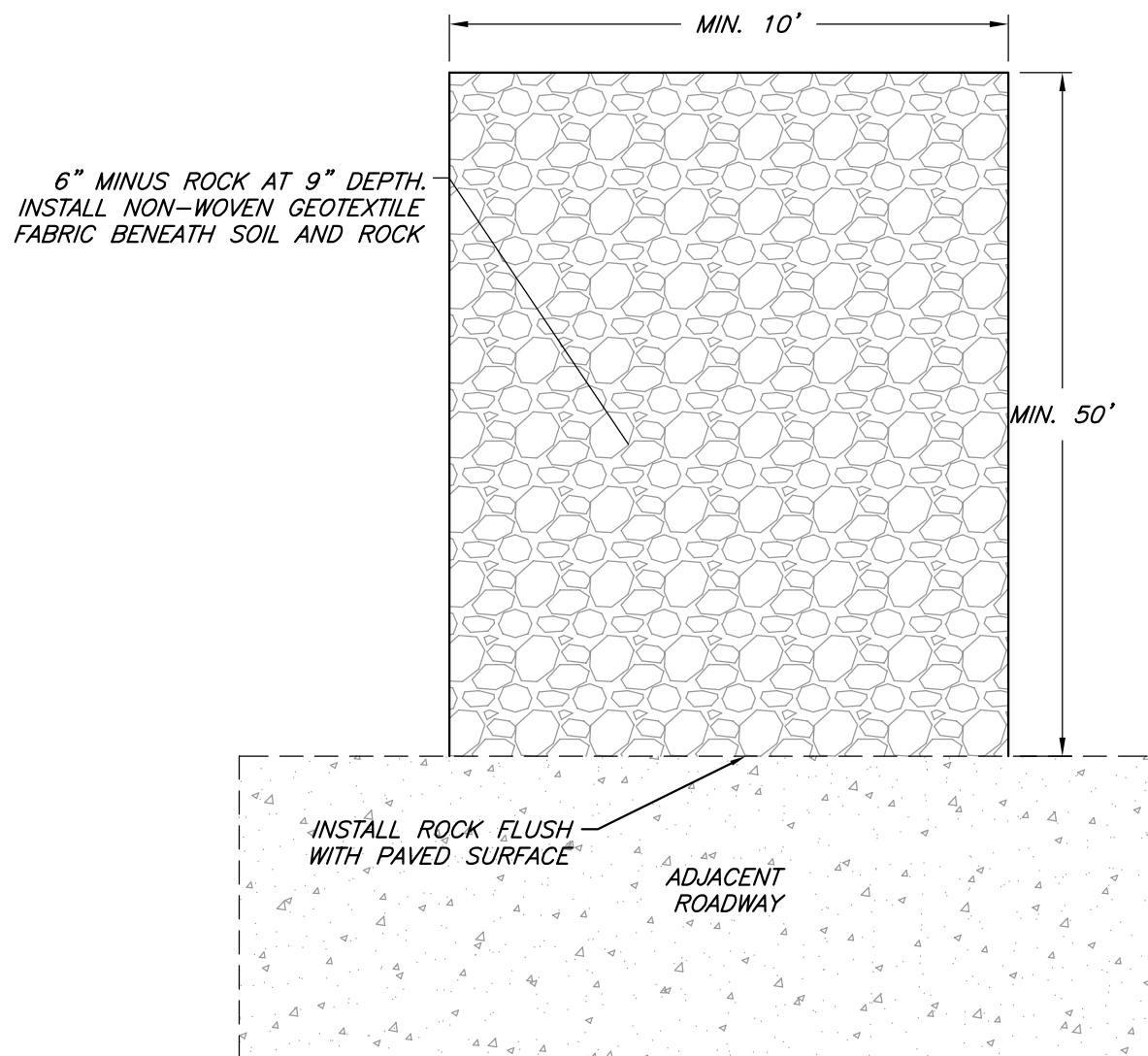
STRAW WATTLE INSTALLATION DETAIL

N.T.S.



CULVERT EROSION BALE INLET PROTECTION

N.T.S.



VTC INSTALLATION NOTES:

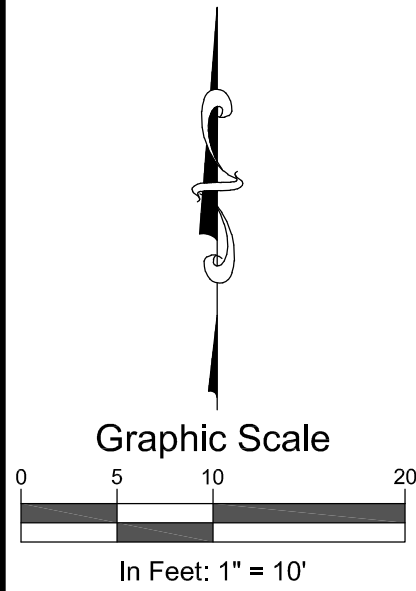
1. INSTALL SEE PLAN VIE FOR GENERAL LOCATION. CONTRACTOR TO DETERMINE FINAL LOCATION OF CONSTRUCTION SITE ENTRANCE. VTC SHALL BE LOCATED AT ALL ACCESS POINTS TO PUBLIC OR PRIVATE ROADWAY CORRIDORS.
2. VTC SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.
3. INSPECT VTC DAILY AND MAINTAIN IN EFFECTIVE OPERATING CONDITION. INSPECT ALL BMPs AFTER ANY PRECIPITATION EVENT. AND PERFORM NECESSARY MAINTENANCE.
4. ROCK SHALL BE REPLACED OR REGRADED TO MAINTAIN CONSISTENT DEPTH.
5. SEDIMENT TRACKED ONTO PAVED ROADS SHALL BE REMOVED THROUGHOUT THE DAY AND AT THE END OF EACH WORK DAY BY SHOVELING AND SWEEPING. SEDIMENT SHALL NOT BE DISPOSED OF INTO STORM DRAIN SYSTEM.

VEHICLE TRACKING CONTROL DETAIL

N.T.S.

EROSION CONTROL NOTES:

1. IN AREAS OF DITCH RE-REGADING, PROVIDE A STRAW WATTLE CHECK DAM EVERY 50 L.F.
2. PROVIDE INLET PROTECTION FOR ALL CULVERTS USING STRAW WATTLES OR HAY BALES.
3. STORM WATER MANAGEMENT AND EROSION CONTROL SHALL BE PAID FOR USING ITEM 208-0000 AND SHALL INCLUDE INLET, DITCH AND SLOPE PROTECTION FOR ALL EROSION CONTROL ITEMS NOT SPECIFICALLY LISTED IN THE BID SCHEDULE.
4. VEHICLE TRACKING PAD SHALL BE UTILIZED PRIOR TO ASPHALT ACCESS.
5. TOTAL AREA OF DISTURBANCE IS APPROXIMATELY 1.00 ACRE
6. STORING, STOCKPILING AND STAGING AREAS WILL BE IDENTIFIED BY THE CONTRACTOR AND SUBJECT TO APPROVAL BY THE CITY OF GLENWOOD SPRINGS.
7. CONCRETE WASHOUT AND VEHICLE TRACKING PADS WILL BE IDENTIFIED BY THE CONTRACTOR AND SUBJECT TO APPROVAL BY THE CITY OF GLENWOOD SPRINGS.
8. REVEGETATE DISTURBED AREA AS SOON AS PRACTICAL.



City of Glenwood Springs
PHQ 191 Soccer Field Road

By:	Date:	Revision:	Project Milestone:
			Preliminary Not For Construction
Job No.	2018-476.002		
Drawn by:	FJB		
Date:	12.22.21		
QC:	DMK	PE:	CL
File:	SFR-ErosionControl		

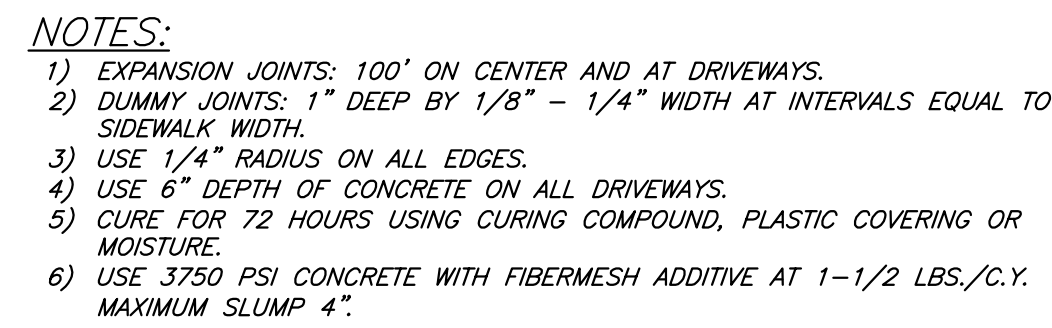
Erosion Control
Details

Dwg No.

9

Of: 10

- 1) EXPANSION JOINTS: 100' ON CENTER AND AT DRIVEWAYS.
- 2) DUMMY JOINTS: 1" DEEP BY 1/8"-1/4" WIDTH AT INTERVALS EQUAL TO SIDEWALK WIDTH.
- 3) USE 1/4" RADIUS ON ALL EDGES.
- 4) USE 6" DEPTH OF CONCRETE ON ALL DRIVEWAYS.
- 5) CURE FOR 72 HOURS USING CURING COMPOUND, PLASTIC COVERING OR MOISTURE.
- 6) USE 3750 PSI CONCRETE WITH FIBERMESH ADDITIVE AT 1-1/2 LBS./C.Y. MAXIMUM SLUMP 4".



VARIES

0.5'

EX. ASPHALT TO BE SAW CUT TYP.

EX. EARTH OR TOP SOIL AREA

VARIES

EXISTING AGGREGATE BASE

SLOPE TRENCH WALLS FOR SAFETY PER CURRENT OSHA & COSH REQUIREMENTS

VARIES

1.25'

0.31'

CLASS 6 AGGREGATE BASE COURSE COMPACTION TO 95% PER ASTM D698

COMPACTED SELECT MATERIAL OR CLASS 6 AGGREGATE AS DETERMINED BY OWNER W/ COMPACTION DENSITY OF 95% PER ASTM D698

- NOTES:
1. PAVEMENT REPLACEMENT SHALL MEET EXISTING THICKNESS AND KIND WITH THE FOLLOWING MINIMUMS:
ASPHALT SURFACING = 3" MIN.
AGGREGATE BASE COURSE = 8" MIN.
 2. BASE COURSE REPLACEMENT SHALL MEET EXISTING THICKNESS WITH THE FOLLOWING MINIMUMS:
AGGREGATE BASE COURSE = 12" MIN.
 3. DIRT / TOPSOIL PLACEMENT SHALL MEET EXISTING THICKNESS AND KIND WITH THE FOLLOWING MINIMUMS:
4" TOPSOIL.
 4. SELECT MATERIAL AS FOLLOWS:
6" MAXIMUM SIZE IN TOP 12" OF BACKFILL
12" MAXIMUM SIZE IN REMAINDER OF BACKFILL

Diagram illustrating the cross-section of a grass swale. The dimensions shown are:

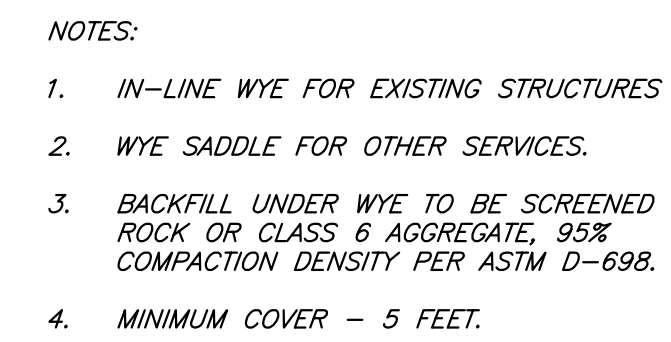
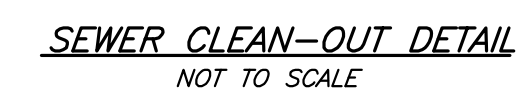
- W = CHANNEL WIDTH
- D = RIPRAP DEPTH
- D_{50} = MEDIAN ROCK SIZE
- H = SIDESLOPE
- C = MIN. CONTAINMENT DEPTH

NOTE:

GEOTEXTILE TO BE INSTALLED PER EROSION CONTROL NETTING DETAILS.

REFER TO SPECS FOR RIPRAP MATERIAL, GRADATION AND INSTALLATION REQTS.

GRASS SWALE
NOT TO SCALE



SGM
118 West Sixth Street, Suite 200
Glenwood Springs, CO 81601
970.945.1004 www.sgm-inc.com

City of Glenwood Springs
PHQ 191 Soccer Field Road

[illegible]

Job No.	2018-476.002		
Drawn by:	FJB		
Date:	12.22.21		
C:	DMK	PE:	CL
e:	SFR-Admin		

le:

Detail Sheet

Fig No.

0

: 10



Planning and Zoning Commission Report

Date: March 22, 2022
To: Planning and Zoning Commission
From: Hannah Klausman, Assistant Director Community Development
Subject: Planning Item 07-22

REQUEST	Consideration of code changes to Title 070 development standards in regard to landscaping including but not limited to sections 070.040.050 and 070.070.030.
APPLICANT	City of Glenwood Springs
OWNER	
ZONE	
LOCATION:	
SURROUNDING LAND USES	
LOT SIZE	

Action Item:

Consideration of code text amendments to Municipal Code Section 070.040.050 Landscaping Screening and Fencing and Section 070.070.030 – All other terms defined.

Staff recommends approval with suggested findings on page 5.

Background & Project Summary

The Planning and Zoning Commission held a work session in July 2021 to discuss drought resiliency as it relates to the landscaping requirements in the development code. Staff incorporated the recommendations from that discussion into the proposed code amendments in Planning File 07-22 for further consideration.

For actions involving amendments to the Land Use, Code, the Planning and Zoning Commission is a recommending body to City Council. All Municipal Code amendments are completed by ordinance, which requires two hearings before City Council.

There are numerous examples of municipalities that have adopted water efficient landscaping standards as well as model codes provided by various Colorado agencies. Staff has included Aspen, CO, Boulder, CO, and Westminster, CO municipal landscape codes as attachments to this report, as well as a model code provisions from the Water Savings Resource Guide and Model Provisions for the Colorado Headwaters Region, produced by Northwest Colorado Council of Government Water Quality and Quantity Committee.

The code examples closely follow Xeric principles. The xeriscape concept promotes water-wise/water conservation in landscape design, to result in landscapes within a semi-arid climate that can have seasonal interest, flowers, and greenery. The seven principles of Xeriscape are:

1. Water Conservation
2. Soil Improvement
3. Limited Turf Area

4. Use of Native Plants
5. Mulch
6. Irrigation
7. Maintenance

Staff has incorporated these principles and best practices into the proposed code language in the following categories:

Soil Amendment

Soil preparation is very important to the success of the landscape. Adding organic material (compost) results in soils that will hold moisture longer.

Staff has included a requirement for a minimum 6 inches depth amendment for turf, shrubs, perennials and annuals, and 36 inches for trees.

Mulch

Mulch covers bare soil, reducing evaporation, soil temperature and erosion. This improves plant growth and assists in reducing weeds and their competition for water and nutrients.

Staff has included a requirement for a minimum of 4 inches of mulch.

Hydro zoning

The design is one that identifies and develops zones of different water requirements. Designing with different area of water demands is called “hydrozoning.”

Staff has included a requirement to hydrozones for plant type and irrigation systems.

Turf Limitations

Careful consideration of where turf is desired and type of grass used is a major component of xeriscaping. Determine the function of turf in the proposed landscape, and then consider the various grasses, suitability for active use, their growth habits, and maintenance requirements.

Staff has noted a comment on the allowance of turf in the planting strip area. Currently the required planting strip of five feet between the street and sidewalk requires a combination of at least two categories include trees, shrubs, perennials, grasses, native plants, drought-tolerant plants or turf. This section may need additional amendment with the best practices around water efficient turf.

Staff has included a prohibition on Very-High and High-water use turf grass into the amendments. In addition to this, a Functional Turf waiver application has been added for developers to be able to utilize these types of high water use turf in specific circumstances that meet the functional and recreational definition. This would also allow community amenities such as ball fields and parks to use for example, Kentucky Blue Grass seed mix in areas of high use and recreational value to the community. The definition for Functional Turf as borrowed from Southern Nevada Water Authority.

Functional turf

An irrigated grass area that provides a recreational benefit to the community and is:

- Located at least 10 feet from a street, installed on slopes less than 25 percent and not installed within street medians, along streetscapes or at the front of entryways to parks, commercial sites, neighborhoods, or subdivisions.
- Active/programmed recreation turf, athletic fields, designated-use-area turf, golf course play areas, some pet relief turf, playground turf or resident area turf.

Areas of functional turf include, but are not limited to:

- Active/programmed recreation turf
- Athletic field turf
- Designated use area for cemeteries and mortuaries
- Golf course play area
- Pet relief area for veterinarian and boarding facilities
- Playground turf
- Resident area turf up to 150 square feet

Nonfunctional turf

An irrigated grass area not providing functional use. Areas of nonfunctional turf include, but are not limited to:

- Streetscape turf
- Frontage, courtyard, interior and building adjacent turf
- Certain HOA- managed landscape areas.

A full description of Functional and Non Functional turf and a description of the waiver application is attached to this report.

Staff has noted a comment on the proposed amendment indicating that alternative turf limitations exist within the code templates. This includes limiting the amount of high-water use turf by percentage of lot and use and with size limitations. This could include:

- Limiting high-water turf grass to 25% of landscaped area
- Prohibiting high-water turf in areas less than ten (10) feet
- Specific square footage limitations by use (Single Family, Multi Family, Commercial, Parks)

At previous discussions, Planning and Zoning Commission indicated a recommendation for prohibiting Kentucky Blue Grass, or similar high-water use turf however these alternative considerations may warrant further discussion.

Native Species Focus

The model code languages and best practice management guides indicate that setting a percentage threshold for native species is desirable. Staff has included a 75% native species requirement into the proposed amendments.

Use of Low Water Plants and Approved Plant Lists

Promoting the use of low water plants reduces the overall water budget for landscapes.

Approved plant lists can provide clarity to developers and community members on what species meet water saving goals and code requirements. Staff is reviewing the following plant lists with the Parks and Recreation and Public Works Department to for optimal selection that coordinates with existing lists already being utilized.

The following plant Lists are specific to the Mountain Regions of Colorado.

- Colorado State University (CSU) Low-water Native Plants for Colorado Gardens: Mountains 7,500' and Above.
- CSU Colorado Native Plant website.
- GreenCo Crop Coefficient Plant List. This list includes plants for the mountain region above 8,500 feet and the West Slope region between 6,500 and 8,500 feet, rated by very low, low, medium and

- high-water use. (Aspen Colorado uses this plant list).
- CSU Extension list of low water plants

Irrigation System Efficiencies

Proper irrigation practices can lead to a 30 to 80 percent water savings.

Staff has added language to the Irrigation System Design requirements that already exist within the landscape code to include soil moisture sensing devices, hydrozone irrigation system components, and specific low-flow or subsurface irrigation in areas of non-turf grass and small size.

Planning and Zoning Commission may want to further discuss additional irrigation components such as wind sensors and weather based controllers. These items could add cost to landscape development and may be more appropriate for larger users as opposed to Single Family or low-density residential or commercial. Public Works discussed a possible landscape square footage threshold for requiring these devices. Another discussion point is the requirement for a certified landscape architect to approve the plans, something that is not currently required by code.

Staff has incorporated these elements into the City's current landscape code for review and discussion. The draft code is attached to this report.

One area that staff seeks additional input and discussion is the applicability of the proposed amendments. Currently the landscape code exempts Single Family and duplex uses from having to abide by most of the landscape requirements. Planning and Zoning Commission may wish to review this policy and determine if there are areas that these uses should be required to be in compliance with. Staff has provided language that would require single family and duplex to abide by the Water Efficient Landscape Standards.

Review Criteria and Staff Analysis

A Code amendment is a legislative decision by the City Council. Prior to recommending approval or approving a proposed Code amendment, the Planning Commission and City Council shall consider whether and to what extent the proposed amendment:

- i. Is consistent with the Comprehensive Plan and other City policies;
- ii. Does not conflict with other provisions of this Code or other provisions in the Glenwood Springs Municipal Code;
- iii. necessary to address a demonstrated community need;
- iv. Is necessary to respond to substantial changes in conditions and/or policy; and
- v. Is consistent with the general purpose and intent of this Code.

Staff believes that the proposed code amendments are consistent with the Comprehensive Plan and other City policies. Specifically, the Comprehensive Plan goals of Promoting long-term, sustainable, diverse economic development, and Preserving Natural Resources are supported by the amendment. The proposed amendments are necessary to address the community need for water conservation and drought resiliency in light of substantial changes in climate and City water infrastructure needs. Finally, staff believes the amendment is consistent with the general purpose and intent of the municipal code.

Reviewing Agency Comments

Planning staff met with Parks and Recreation and Public Works staff to review the proposed amendments. Parks and Recreation comments included needing consideration for allowances for recreational areas including ball parks and other outdoor City amenity areas. Public works gave feedback on irrigation timing

limits, consideration for raw water usage, and applicability of irrigation management devices.

Staff incorporated all comments into the proposed amendments as attached.

Staff Recommendation and Suggested Findings

Staff recommends approval of the code text amendments to Municipal Code Section 070.040.050 Landscaping Screening and Fencing and Section 070.070.030 – All Other Terms Defined, with the following suggested findings:

1. Pursuant to the authority in the Glenwood Springs Municipal Charter and Colorado Revised Statutes §29-20-101 et seq., and §31-23-301 et seq., as amended the City of Glenwood Springs has the authority to plan for and regulate the use of land within the municipality and to regulate and restrict the height, number of stories, and size of buildings and other structures, the percentage of lot that may be occupied, the size of yards, courts, and other open spaces, the density of population, the height and location of trees and other vegetation, and the location and use of buildings, structures, and land for trade, industry, residence, or other purposes.
2. The proposed code amendments are:
 - i. Is consistent with the Comprehensive Plan and other City policies;
 - ii. Does not conflict with other provisions of this Code or other provisions in the Glenwood Springs Municipal Code;
 - iii. necessary to address a demonstrated community need;
 - iv. Is necessary to respond to substantial changes in conditions and/or policy; and
 - v. Is consistent with the general purpose and intent of this code.

070.040.050 Landscaping, Screening, and Fencing.

(a) *Purpose.* The purpose of this Section is to ensure that landscaping, screening, and fencing is provided to:

- (1) Protect and enhance the visual appeal of Glenwood Springs;
- (2) Contribute to high-quality development;
- (3) Improve air quality;
- (4) Buffer potentially incompatible neighboring land uses;
- (5) Mitigate the environmental and visual impacts of surface parking areas; and
- (6) *Protect residential and commercial property values.*
- (7) **Extend water supply and water infrastructure by enhancing efficiency and eliminating outdoor water waste.**

(b) *Applicability.*

- (1) *New Development and Redevelopment.* These standards shall apply to all new development or redevelopment unless otherwise exempted by Paragraph (2).
- (2) *Exemptions.*
 - a. Single- and two-family residential uses except Subsection 070.040.050(d), Streetscape Requirements, Subsection 070.040.050(f)(2), Fence Standards, Subsection 070.040.050(f)(3), Retaining Wall Standards, **and subsection 070.040.050(c)(3) Water Efficient Landscape standards.**
 - b. Mixed-use or nonresidential uses on a lot that is less than five thousand (5,000) square feet shall be exempt from this Section.
 - c. Expansion of existing structures or uses by less than twenty-five (25) percent gross floor area provided that any existing compliant landscaping remains unaltered.

Commented [HK1]: This means that Single Family and duplex uses would still need to abide by turf limitations for square feet and type, and be subject to the redevelopment triggers for nonconforming landscape.

(c) *General Landscaping Standards.*

- (1) *Minimum Landscaped Site Area.*
 - a. The minimum percentage of site area required to be landscaped is established for each zoning district in Section 070.020.020, Summary of Dimensional Standards.
 - b. Except for areas with native vegetation cover, any part of a site not used for building coverage, parking areas, driveways, sidewalks, or other site improvements shall be landscaped.
- (2) *Type and Amount of Plant Material.*
 - a. Trees and other plant material shall be provided according to Table 040.5: Minimum Plant Material and Standards.
 - b. Existing landscaping may be used to satisfy the landscaping requirements, except that preservation of existing trees shall comply with Subsection 070.040.050(c)(4).
 - c. Artificial trees, shrubs, turf, or plants shall not be used to satisfy any of the requirements of this Section.
 - d. Where fractional number results, the number of trees, shrubs, or perennials shall be rounded to the next highest whole number.

Table 040.5: Minimum Plant Material and Standards

Plant Material	Minimum Amount	Species and Size Standards
Trees	One tree per 400 square feet of site area required to be landscaped in addition to those required for parking areas	Deciduous: minimum caliper 2.5 inches (understory ornamental trees may be two-inch caliper)
		Evergreen: (a) minimum height of six feet; (b) shall not exceed 50 percent of total required trees; (c) if provided, ten percent of evergreen trees shall have a minimum height of ten feet.
		Shrub substitution: Up to 50 percent of required trees may be substituted with shrubs (above required amount) at a rate of ten shrubs = one tree. All such shrubs shall comply with the standards in this table.
Shrubs	One shrub per 100 square feet of site area required to be landscaped in addition to those required for parking areas	(a) at least 20 percent of required shrubs shall be an evergreen species; (b) shall be a minimum of five gallons in size and shall grow to a minimum height of one foot at maturity; (c) if used for screening requirements in Subsection 070.040.050(f), shall grow to a minimum height of four feet at maturity.
Perennials	One perennial per 50 square feet of site area required to be landscaped	(a) shall be a minimum of one gallon in size; (b) shrubs (above required amount) may be substituted for perennials at a rate of one shrub = five perennials.

(3) Water Efficient Landscape Standards: The following standards shall apply to all required landscape areas:

a. Soil Amendment.

- i. Soil amendments for turf, shrubs, perennials and annuals shall be sandy loam to a depth of 6" containing at least five (5) percent organic matter by volume.
- ii. Soil amendments for trees shall be sandy loam to a depth of thirty-six (36) inches containing one to three (1-3) percent organic matter by volume. In locations with existing good soils, soil shall be turned three times the dimension of the root ball.

b. Mulch. Mulch shall be applied at a minimum depth of 4 inches with modifications as appropriate for installed plant material. Mulch shall be renewed as needed. Mulch material may be organic material including, but not limited to: wood, bark nuggets, nut shells, grass clippings, straw, compost and chopped leaves; or inorganic material including gravel, stone, pea gravel, pebbles.

c. Plant Selection and Grouping. Plant materials shall be selected for water efficiency, drought tolerance, use of native species and their relationship to the Glenwood Springs regional ecology as well geologic and topographical conditions.

- i. Plants shall be selected from <Appendix, Manual, or list>

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- ii. Hydrozones required. Plants shall be grouped together by soil suitability and by water use in distinct hydrozones (very low, low, moderate and high) to increase irrigation efficiency. Plants from the same water use zone shall be grouped together on the same irrigation zones. Water use zones shall be consistent with the Waterwise Plant List as shown in <Appendix, Manual, or list>.
- iii. The landscape design shall promote and preserve native species and natural areas. Native species shall account for seventy-five (75) percent of provided plants and these must be drought tolerant species.
- c. The total amount of high-water use zones on a property shall not exceed fifty percent of the total landscaped area. Turf grass areas designated and approved as functional turf shall be excluded from the total landscaped area under this requirement. Trees in tree grates shall also be excluded from the total landscaped area under this requirement.
- d. The use of high irrigation plantings shall be limited to high use areas with high visibility or functional needs;
- e. Plants from a high-water use zone shall not be planted on slopes or berms at a 4:1 slope or greater.
- f. Turf.
 - i. Very high- and high-water use turf grass is prohibited.
- g. The developer of a property may submit an application to the Director requesting consideration for a waiver for functional turf that is very-high or high-water use turf grass that provides a recreational benefit to the community and meets the functional turf definition. Waiver applications must demonstrate that the turf substantially complies with the functional turf definition as indicated by:
 - i. Activity type
 - ii. Activity-appropriate dimensions
 - iii. Number of persons served and frequency of use
 - iv. Location in proximity to similar turf areas
 - v. Public access and proximity to roadways
 - vi. Presence of facilities and/or other recreational amenities Irrigation efficiency

(3) *Location of Required Plant Material.*

- a. Required trees, shrubs, and perennials shall be planted in required setbacks, parking areas, and along building foundations.
- b. When planted in required setback areas or along building foundations, trees may be either uniformly spaced or placed in irregular groupings.
- c. Landscaping or other obstructions within a sight distance triangle shall comply with the height restrictions in Subsection 070.020.190(c)(5), Sight Distance Triangle Requirement.
- d. Trees shall be planted at least four (4) feet away from overhanging vehicles. (Figure 040-3)

Commented [HK2]: Alternatives to outright prohibition:

The total amount of high-water use turf grass shall not exceed twenty-five percent (25%) of the total landscaped area.

High water use turf grass shall not be used in landscaped areas with any one dimension less than ten feet in width unless drip, subsurface, or low volume irrigation is used in that area;

Single Family Dwelling units shall not have turf in excess of 1,000 square feet or 10 percent of the total lot area, whichever is less

Multifamily dwellings units shall not have turf in excess of 20 percent of the required common space.

Industrial and commercial development shall not have turf in excess of 1,000 square feet or 3 percent of the required open space, whichever is less.

Public parks and commercial recreation uses are exempt from turf limitations but shall limit Kentucky bluegrass to active recreation and high traffic areas only.

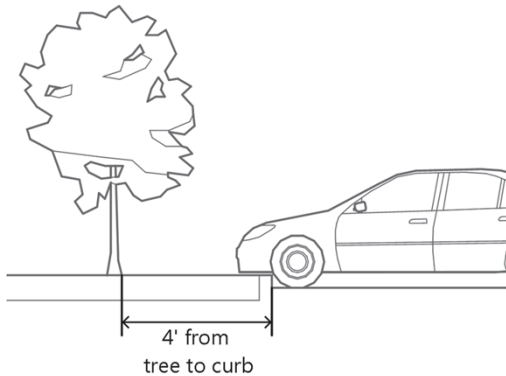


Figure 040-3: Vehicle Overhang

(4) Credits for Tree Preservation.

a. Amount of Tree Preservation Credit.

1. The number of trees preserved can be credited toward the total number of trees required for the development to meet the landscaping requirements of this Section. Credit shall be applied on a one-for-one basis, unless the Director approves an alternate ratio to encourage tree preservation.
2. The Director shall determine whether or not credit shall be granted for existing trees.
3. Tree species that are not acceptable to receive credit under this standard include, but are not exclusive of Siberian and Chinese Elm, Russian Olive, Tamarisk, and other species that are listed on the Garfield County Vegetation Management Department's most current noxious weed list.

b. Procedure for Evaluating Existing Trees.

1. Existing trees intended for preservation shall be evaluated by a licensed arborist prior to submitting an application for development, or prior to issuance of a grading or building permit. The arborist's written evaluation shall include an assessment of the likelihood of the survivability of the trees based on proximity to any grading activity on the site and recommendations for tree preservation during grading and construction activities.
2. Based on the licensed arborist's evaluation, the development may receive credit for existing trees provided that all of the following criteria are met:
 - i. The trees are each a minimum of four-inch caliper in size;
 - ii. Any grading, digging, and/or site preparation activities shall not be permitted within the drip line (Figure 040-4) of the trees intended for preservation; and

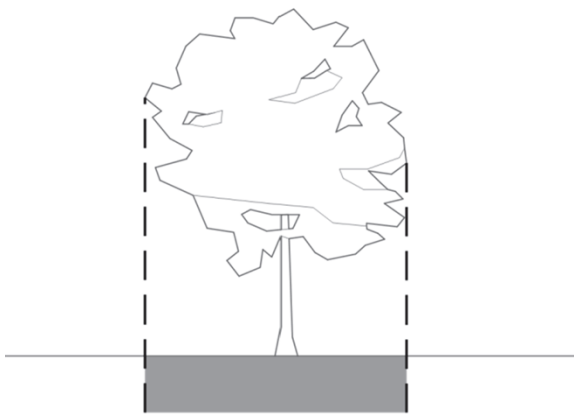


Figure 040-4: Drip Line

- iii. Trees intended for preservation shall be shown on the landscape plan with caliper size and drip line noted.

(d) *Streetscape Requirements.*

- (1) *Minimum Streetscape Elements.* Streetscape elements shall be provided according to Table 040.6: Minimum Streetscape Requirements.

Table 040.6: Minimum Streetscape Requirements				
	Minimum Amount (Residential)	Minimum Amount (In the Downtown Core)	Minimum Amount (Other Mixed-Use and Nonresidential)	Other Standards
Street Trees	One tree per 75 feet street frontage	Residential: one tree per 35 feet street frontage; Mixed-Use: one tree per 50 feet street frontage	One tree per 50 feet street frontage	(a) trees shall meet City specifications pursuant to Article 090.040, Streets and Sidewalks; (b) evergreen trees are prohibited as street trees in the planting strip; (c) where overhead utility lines are present, select a variety of tree that, at

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				maturity, grows no higher than the lowest utility line; (d) trees shall be spaced 30 feet apart on center unless alternative spacing is approved by the Director.
Planting Strip	Minimum five feet in width (from back edge of curb)	Minimum five feet in width (from back edge of curb); however, the Director may waive this requirement based on existing conditions along the block face provided landscape elements are used to define the edge of the property in the absence of a planting strip.	Minimum five feet in width (from back edge of curb)	(a) shall include a combination (at least two) of the following: trees, shrubs, grasses, native plants, drought-tolerant or low-water plants, perennials, annuals, or turf; (b) in the Downtown Core, grasses or turf may only be used for residential or mixed-use development; (c) up to 40 percent of the planting strip may be hard surfaced with concrete, brick, composite pavers, stone, or rock-type mulch.
Amenities	None	Per Director discretion based on the needs for a particular block	None	Amenities shall be designed and installed pursuant to the streetscape manual.

Commented [HK3]: Consider if turf is appropriate in planting strips as they usually are purely decorative and do not serve a recreation component. In addition the five foot width strip is a small enough area to make traditional sprinkler irrigation inefficient due to proximity to pavement and size. If allowed at all, should meet the drip/sub ground irrigation requirement

(2) *Location of Street Trees.*

- a. Unless otherwise permitted in this Section, street trees shall be located within the designated planting strip.

- b. Where no planting strip is present or where utilities prevent trees from being planted in the designated planting strip, trees may be planted on the development parcel, in an area ranging from three (3) to seven (7) feet behind the property line nearest to the public right-of-way.

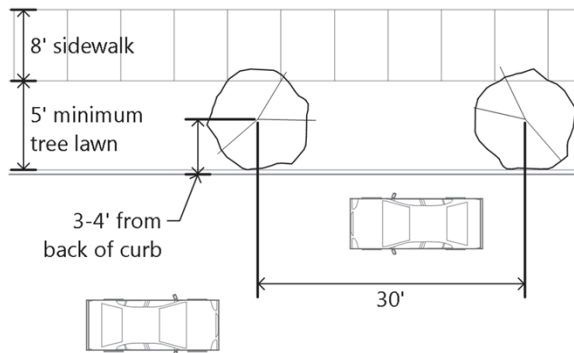


Figure 040-5: Location of Street Trees

- (e) *Parking Area Landscaping.* See Subsection 070.040.060(h)(6), Parking Area Landscaping.
- (f) *Screening, Fences, and Walls.*
- (1) *Screening Standards.*
- Credits Toward Required Landscaping.* Any landscaping provided to meet screening standards will be credited towards the overall landscaping requirements enumerated in this Section.
 - Screening Loading and Outdoor Storage Areas.* Loading and outdoor storage areas shall be screened from view of public rights-of-way and from adjacent residential land uses or districts using any one (1) or a combination of fences, walls, berms, or landscaping that is at least six (6) feet in height and provides a permanent, opaque, year-round screen.
 - Screening Refuse Containers.*
 - Enclosures Required.* Refuse containers shall be located within an enclosure.
 - Location.* Refuse container enclosures shall be located at the rear of the property to the extent practicable and shall be sited to allow for easy vehicular access such that access does not require backing movements onto public rights-of-way, with the exception of alleys.
 - Design and Materials.* Refuse container enclosures shall be of sufficient height to screen containers, but shall not exceed six (6) feet in height unless screening a refuse container taller than six (6) feet. Such enclosures shall be visually compatible with materials used on the primary building. In no case shall enclosures consist of chain link or corrugated metal. Refuse containers shall comply with the provisions set forth in Article 100.010.060 of the Municipal Code. (Figure 040-6)

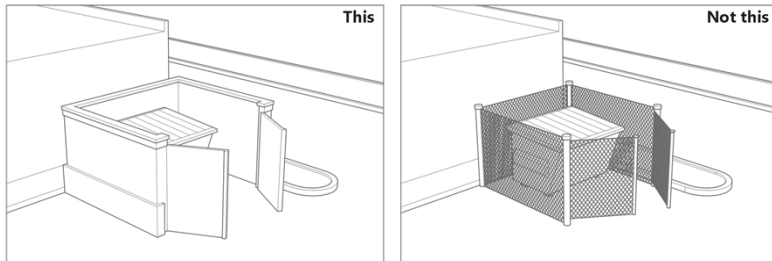


Figure 040-6: Refuse Container Enclosures

4. *Landscaping.* Landscaping shall be used to soften the appearance of the enclosure where such enclosure is located within a side yard or can be viewed from public rights-of-way.
- d. *Screening Mechanical and Utility Equipment.* All mechanical and utility equipment including but not limited to air-conditioning, heating and soft water tanks, television antennas, satellite dishes, security apparatus, transformers, and electric and gas meters shall be integrated into the building design, screened from public view or enclosed in a suitable accessory structure, pursuant to the following standards:
 1. *Location.*
 - i. Ground-mounted mechanical and utility equipment shall be located outside of sight distance triangles in order to avoid obscuring vision at intersections.
 - ii. To the extent practicable, ground mounted mechanical and utility equipment shall be located out of view of public rights-of-way, customer entrances, and other public areas.
 2. *Design.*
 - i. *Materials.* Materials used for screening purposes shall be wood or masonry. The use of split face concrete block is prohibited unless otherwise approved by the Director through the alternative compliance procedure.
 - ii. *Ground-Mounted Equipment.* Ground-mounted mechanical and utility equipment located within view of customer entrances or public rights-of-way shall be integrated into the overall site design, the architectural design of the building, and screened from public view using one (1) or a combination of the following: (Figure 040-7)
 - a. Decorative wall, fence, or enclosure that is constructed of materials that are compatible with the overall architectural design of the development and of a height that is not less than the height of the equipment to be screened; or
 - b. Landscaping that is of sufficient height at maturity and of opacity to effectively soften and screen the equipment, and that is integrated into the overall landscaping plan.

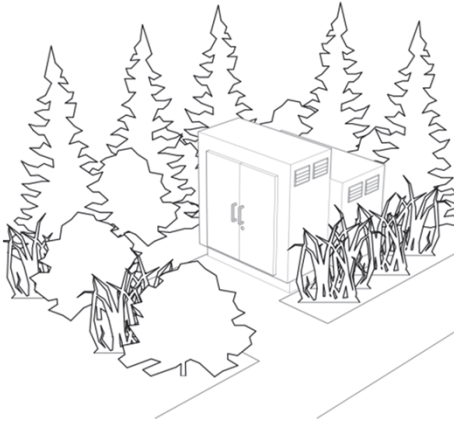


Figure 040-7: Screening Ground-Mounted Equipment

- iii. Fire Hydrants.
 - a. Ensure that plants and other screening mechanisms do not block access to a fire hydrant.
 - b. Setbacks shall be maintained to each side of all fire hydrants as required in the Engineering Standards.
- iv. Roof-Mounted Equipment.
 - a. Roof-mounted equipment shall be an integral part of the building's overall architectural design and shall be screened from view to the extent practicable from public rights-of-way, residential land uses, public parking areas, and/or adjacent properties using parapet walls or other means of screening. When reviewing the type and amount of screening, the Director shall consider the following:
 - 1. The proximity of the development to surrounding residential land uses and the visual impact that roof-mounted equipment may have upon those surrounding residential land uses.
 - 2. The number and size of roof-mounted equipment. The greater the number and/or size, the more screening may be warranted.
 - b. Roof-mounted equipment shall be neutral earth toned colors that have a matte finish and that are compatible with the primary building façade. In no case shall rooftop mechanical equipment be galvanized, shiny, white, off-white, or other light colors that can be observed from a distance.

(2) *Fence Standards.*

- a. *Location and Design.*

-
1. Fences other than those used for screening pursuant to Subsection 070.040.050(f)(1), and that are constructed within the front yard setback, along corner side lot lines, or are adjacent to a public right-of-way, shall be at least sixty (60) percent transparent.
 2. Fences located in a required front yard setback shall be no more than four (4) feet in height.
 3. Fences located in a required side or rear yard setback shall be no more than six (6) feet in height.
 4. Fences shall conform to maximum height requirements when located within a sight distance triangle, as defined in Subsection 070.020.190(c)(5), Sight Distance Triangle Requirement.
- b. *Fencing Materials.*
1. Fencing material shall be compatible with the overall site design, the primary building, and landscaping. Acceptable materials include but are not exclusive of the following:
 - i. Natural stone;
 - ii. Brick;
 - iii. Stucco;
 - iv. Wood;
 - v. Decorative concrete block;
 - vi. Metal, as in wrought iron;
 - vii. Wooden picket fences for residential applications provided the pickets or vertical slats are not more than four (4) inches apart on center; and
 - viii. Chain link provided that the chain link is vinyl coated green, brown, or black, used in conjunction with tightly spaced plant material that provides a dense screen between the fence and the adjacent public right-of-way, and is not otherwise prohibited below.
 2. The following fencing materials are prohibited:
 - i. Except in the I1 and I2 zoning districts, chain link fencing when located in the front yard or in a side yard that is adjacent to and visible from a public right-of-way;
 - ii. Corrugated or ribbed metal;
 - iii. Corrugated plastic;
 - iv. Plastic and vinyl; and
 - v. Barbed wire.
- c. *Fencing Color.*
1. Fencing shall be low reflective, and earth-toned in color.
 2. Fences constructed of metal, wrought iron, or similar material may be black.
 3. Galvanized, shiny, white, off-white, or other light colors that can be observed from a distance are prohibited except that white or off-white wooden picket fences shall be permitted for residential applications.

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(3) *Retaining Wall Standards.*

a. *Location and Design.*

1. Retaining walls shall be designed in accordance with applicable building codes, Engineering Standards, and applicable standards in Section 070.040.020, Sensitive Area Protection.
2. Retaining walls shall not exceed six (6) feet in height, as measured from natural grade to the top of the wall, except for the exceptions to accommodate varying slopes as provided in Subsection 070.040.020(b)(4)g., Retaining Walls and Fencing, or when terracing is provided pursuant to Subsection 070.040.050(f)(3)b., Terracing Required.
3. Retaining walls that are over four (4) feet in height shall be designed by a State of Colorado licensed structural engineer.
4. Retaining walls that are over thirty (30) feet in length shall incorporate the following elements to minimize the overall mass of the wall:
 - i. Recessions and/or projections that have a minimum wall plane change of twenty-four (24) inches and have the effect of casting shadows. (Figure 040-8)

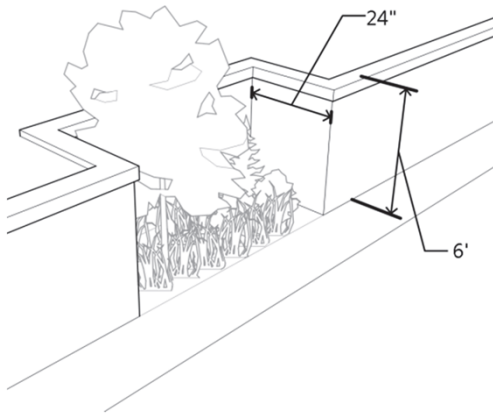


Figure 040-8: Retaining Wall Design

- ii. Landscaping at a minimum shall include trees, shrubs, ornamental grasses and/or and perennials and be of sufficient quantity to add visual interest and to minimize the impact of the structure as viewed from neighboring properties or the public right-of-way. The Director may approve alternative designs to soften retaining walls to reduce the amount of water behind such walls provided the intent of this Section is met. Alternative designs shall be processed according to Subsection 070.040.050(g)(2).
5. Retaining walls shall be designed such that the structure conforms to the existing natural terrain.
6. Retaining walls shall conform to maximum height requirements when located within a sight distance triangle.

- b. *Terracing Required.* The Director may allow retaining walls that exceed six (6) feet in height if they are terraced to minimize visual impacts on residents, neighboring properties, and the public realm by: (Figure 040-9)

1. Limiting terracing to three (3) tiers;
2. Providing a minimum terrace width of four (4) feet between any two (2) six-foot retaining walls with a maximum slope of 3:1 to create pockets for landscaping. The Director may approve reduced terrace depths where site constraints limit the amount of space available to accommodate the minimum required width;
3. Access points, such as stairs, shall be incorporated into the retaining wall for the purposes of maintaining landscaping; and
4. Permanently landscaping or re-vegetating terraces created between retaining walls to screen walls and provide visual interest unless soil conditions are determined by a licensed engineer to be unsuitable due to geologic hazards.

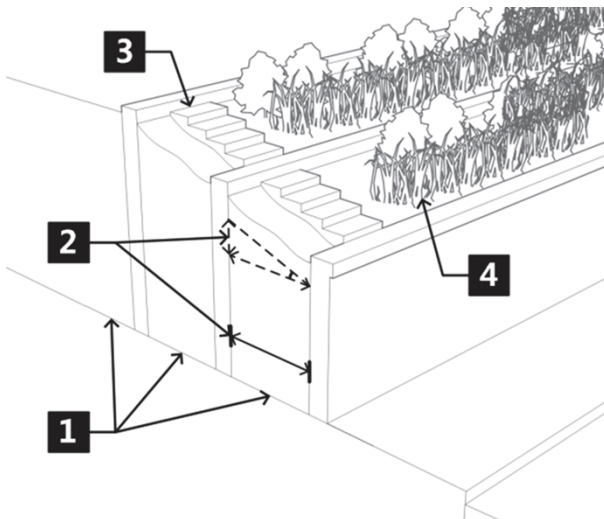


Figure 040-9: Retaining Wall Terracing

Annotations correspond with paragraph numbers in the preceding text.

- c. *Materials and Color.*
1. Retaining walls shall be compatible with the overall site design, the primary building, and landscaping and shall coordinate with rock formations or exposed soil from surrounding hillsides.
 2. Retaining walls shall be constructed of the following materials:
 - i. Natural stone;
 - ii. Concrete keystone blocks with integral earth-toned color; or

-
- iii. Another material that meets the intent of this standard as determined by the Director.
3. When located adjacent to a public right-of-way or when visible from adjacent commercial or residential land uses, the use of railroad ties and timber is prohibited.
- d. *Landscape Buffer as an Alternative.*
1. Where terracing or other mitigation measures are not feasible due to site size or other constraints, a densely landscaped buffer shall be provided as an alternative on the downhill side of the wall.
 2. Appropriate spacing of vegetation and landscaping shall be determined by the Director, dependent upon the species selected; however, spacing shall be such that trees will form a dense screen within five (5) years of planting.
 3. The Director may approve alternative landscape buffer configurations and plantings where insufficient space exists to meet the above landscape buffer standards.
 4. The Director may waive the above standards for alternative landscape buffers if retaining walls will not be visible from neighboring sites, the interior of the proposed structure, and the primary street frontage; and the applicant can demonstrate that views of the retaining wall will be fully screened by the primary structure or a free-standing parking garage structure.
- (g) *Landscaping Evaluation Procedure.*
- (1) *Landscape Plan.*
- a. All development ~~except for single-family detached houses and duplexes~~ shall provide a landscape plan demonstrating compliance with the standards in this Section ~~shall be provided in a form established by the Director.~~
 - b. Review and evaluation of the landscape plan shall be pursuant to the specific application procedure pursuant to Article 070.060: Administration and Procedures.
- (2) *Alternative Compliance.*
- a. For developments with severely hydrocompactive soils, especially those present around building foundations, the Director may approve landscaping and related irrigation design alternatives that meet the overall intent of this Section but that address the special characteristics of these soil types. The Director may require a statement from a licensed geotechnical engineer that specifically addresses the hydrocompactive soil issue as it relates to compliance with the requirements in this Subsection for the City to consider an alternative landscaping design.
 - b. For developments where other exceptional physical limitations of either existing building location or site dimensions result in impractical or impossible application of this Section, then the Director may approve landscaping, screening, fencing, and wall alternatives that meet the intent of this Section.
- (h) *Installation and Maintenance.*
- (1) *Timing of Installation.* The developer shall install all landscape improvements including operable irrigation systems prior to receiving a Certificate of Occupancy. This requirement may be modified by the Director if security is provided and the developer identifies an alternative timeframe for landscaping and/or irrigation system installation. The amount of security shall be based on itemized cost estimates of all landscaping and irrigation system improvements, as well as related labor costs.

Commented [HK4]: Should Single Family and duplexes be required to submit a landscape plan if they are not entirely exempted from the standards?

Commented [HK5]: Currently a landscape plan is not required to be prepared by a landscape architect or licensed professional. Model codes do include this type of requirement. Should it be included?

Itemizations shall be generated from a qualified landscape architect, irrigation system specialist, and/or a local or regional landscaping nursery or garden center.

(2) *Irrigation System Design.*

- a. Irrigation systems shall be professionally designed by a landscape architect or irrigation specialist.
- b. When available, raw water shall be utilized for irrigation. Irrigation systems shall be designed to prevent water from spraying on impervious surfaces adjacent to landscape areas, shall utilize drip irrigation where appropriate to minimize run-off from sprinklers, and shall incorporate moisture sensors to reduce water consumption.

c. A soil moisture sensing device or other irrigation management system shall be required for irrigation systems in turf areas.

d. The landscape plan shall indicate the nature, location, and specifications of the irrigation system which shall be used. Separate irrigation circuits should be specified for different zones on the landscape plan. The landscape plan shall have sufficient detail to show that adequate irrigation will be provided to all required landscape areas and plant materials.

e. The irrigation system shall be designed to correlate to the organization of plants into zones with similar watering requirements.

f. Low-volume, drop, or subsurface irrigation systems shall be used in the following conditions:

- i. In landscaped areas where any one dimension is less than six feet in width and surrounded by impervious surfaces.
- ii. IN all non-turf grass areas.

(3) *Maintenance.* The owner of the property and his/her successors, heirs, and assigns, are responsible for the proper maintenance of the landscaped area, screening, fencing, and parking lot subject to the approved landscape plan. All landscape and parking areas shall be maintained free of trash. Landscaping shall be continuously maintained, including all necessary watering, weeding, pruning, and pest control.

(4) *Protection of Existing Vegetation.*

- a. No existing live trees with a caliper size of fourteen (14) inches or greater may be removed without approval of the Director and Parks and Recreation Director.
- b. Planting strips or areas, walkways, fences, hedges, or walls shall be protected from vehicles and maintenance equipment by curbs, bollards, wheel stops, or other means.

(5) *Replacement of Dead or Diseased Plant Material.* Replacement of dead or diseased plant material shall be of equivalent species or material, as specified in the approved Landscape Plan. Replacement shall occur at the time of removal or, if necessary, the next planting season. In any event, replacement shall occur within one (1) year from the time of removal.

(6) *Maintenance of Trees in Public Right-of-Way.* Trees located within the public right-of-way or on public property shall be maintained in accordance with Section 090.050.030 of the Municipal Code.

(Ord. No. 19-2018 , § 2(Exh. A), 8-2-2018; Ord. No. 3-2019 , § 2(Exh. A), 1-31-2019; Ord. No. 15-2020 , § 2(Exh. A), 7-2-2020; Ord. No. 3-2021 , § 2(Exh. A), 5-20-2021)

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(Supp. No. 23)

070.070.030 All Other Terms Defined.

Abandoned sign. A sign that depicts or refers to a product, use, service, activity, condition, or person that has changed in such a fashion that the sign is no longer a correct identification or description that no longer exists at the location referred to in the sign or that no longer exists in any way or at any place. Signs in good repair of licensed seasonal uses shall not be classified as abandoned signs.

Accent material. Material covering thirty (30) percent or less of the exterior wall elevations.

Access way. A driveway of any length of which the purpose is to provide vehicular access between the public right-of-way and parking areas located on a lot.

Accessory structure. A detached subordinate structure located on the same lot as the principal building, the use of which is incidental to the principal building or use of the lot. Unless approved as an accessory dwelling unit that meets the standards of Subsection 070.030.040(d)(1), Accessory Dwelling Units, such structure shall not be used for living or sleeping quarters in a residential zoning district.

Active Programmed Recreation Turf. Grass used for recreation that is 1,500 contiguous square feet or greater; co-located with facilities; and located at least 10 feet from a street or interior-facing parking lot unless the turf area is at least 30 feet in all dimensions or immediately adjacent to an athletic field.

Active transit stop. A transit stop with current regularly scheduled service.

Addition. An extension or increase in floor area or height of an existing building or structure.

Adjacent. The condition where two (2) or more parcels share common property lines or where two (2) parcels are separated only by an alley, easement, or street.

Administrative adjustment. A development approval authorizing limited deviations from certain provisions of this Code's dimensional or numerical development standards that is reviewed by the Director under Subsection 070.060.070(b).

Administrative manual. A manual containing details regarding the development review procedures, information for potential applicants, and development review forms.

Alley. A minor or secondary right-of-way that provides only a secondary means of access to abutting property and that is used primarily for vehicular service to the back or side of properties that otherwise front on a street.

Alteration. Any construction or renovation to an existing structure other than a repair or addition.

Animated or moving sign. A sign or any portion of a sign that has any moving, rotating, or otherwise physically animated sign or that gives the illusion of a change of position.

Applicant. A person whom submits a development application requesting a development permit or approval authorized by this Code.

Architectural feature. A part, portion, or projection of a building or structure that contributes to its character or style, exclusive of signs, that is not necessary for the structural integrity of the building or to make a building habitable.

Area median income (AMI). The median household income estimates and program income limits compiled and released annually for Garfield County by the United States Department of Housing and Urban Development (HUD).

Athletic Field Turf. Grass used for sports or physical education that is 1,500 contiguous square feet or greater; not less than 30 feet in any dimension; and located at a school, daycare, religious institution, recreation center, senior center, park or water park. Athletic field turf may be located less than 10 feet from a street or interior-facing parking lot if the contiguous turf area is at least 30 feet in all dimensions

Attached sign. Any sign painted, incorporated in, or fixed to the building and any sign consisting of cutout letters or devices affixed to the building with no background design on the building and extending no more than twelve (12) inches.

Average elevation of ground. The average elevation between two (2) points, twenty (20) feet either side of the centerline of the sign parallel to the sign face.

Awning. A movable shelter or shading device supported entirely from the exterior wall of a building and composed of non-rigid materials except for the supporting framework.

Awning/canopy/marquee sign. A sign displayed on the surface of an awning, canopy, or marquee.

Balcony. An unenclosed platform structure supported by and projecting from or inset into the exterior of a building gaining sole access from said building, and designed and intended for either decorative purposes or lounging, dining, and similar activities.

Banner sign. A temporary sign made of fabric or any non-rigid material with no enclosing framework.

Bioswale. A long, channeled depression or trench that receives rainwater runoff (as from a parking lot) and has vegetation (such as grasses, flowering herbs, and shrubs) and organic matter (such as mulch) to slow water infiltration and filter out pollutants.

Bistro lighting. Any ornamental lighting of low voltage (twelve (12) volts or less per bulb) located primarily for the benefit of business patrons and employees or in common gathering spaces.

Block. A unit of land bounded by streets or by a combination of streets and parks or open space, railroad rights-of-way, waterways, or any barrier to the continuity of development.

Block face. Individual or collection of properties abutting one (1) side of a street or public right-of-way and lying between the two (2) nearest intersecting streets or rights-of-way, or intersecting right-of-way and railroad right-of-way, un-subdivided land, water course, or City boundary. Corner properties may be considered to be located on more than one (1) block face.

Buffer. Open spaces, landscaped areas, fences, walls or any combination of the same, used to physically separate or screen one (1) use or property from another to visually shield or block noise, lights, or other nuisances.

Building. Any permanent structure built for the shelter or enclosure of persons, animals, materials, or personal property of any kind, not including a porch, deck, fence, retaining wall, or similar non-enclosed structure. All buildings shall be considered "structures"; however, not all structures shall be considered buildings. See definition for "structure."

Building envelope. Lines enclosing a horizontal and vertical space where a building is to be constructed, which lines indicate the maximum exterior dimensions of the proposed building but do not necessarily depict the shape of the exterior walls of the building.

Building form. The shape and structure of a building as distinguished from its substance or material.

Building frontage. The horizontal, linear dimension of that side of a building that abuts a street, parking area, mall or other circulation area open to the general public and that has either a main window display of the business or a public entrance to the building.

Building height. The vertical distance above finished grade measured to the highest point of the coping of a flat roof or to the deck line of a mansard roof, or to the midpoint of the highest gable of a pitched or hipped roof. See Subsection 070.020.190(d), Building Height, for additional details and exceptions.

Building mass. The three-dimensional bulk of a building height, width, and depth.

Building official. The Building Inspector for the City or his/her designee.

Building scale. The size and proportion of a building as distinguished from its substance or material.

Building, accessory. A building or structure that is subordinate or incidental to, and on the same lot or on a contiguous lot in the same ownership, as the principal building or use on the property.

Building, principal. A building from which the principal use of the lot is conducted and/or located.

Canopy. A permanent, flat-roof shelter covering a sidewalk, driveway, or other similar area, that may be wholly supported by a building or may be wholly or partially supported by columns, poles, or braces extended from the ground.

Capital improvements.

- (a) Fire protection or emergency medical, rescue and ambulance service planning, preliminary architectural and engineering services, architectural and engineering design studies, land surveys, land acquisition, site improvements and off-site improvements associated with new or expanded facilities used for fire protection or emergency medical, rescue and ambulance service;
- (b) Construction of buildings and facilities used for fire protection or emergency medical, rescue and ambulance services; and
- (c) Purchase of fire suppression or emergency medical, rescue and ambulance apparatus and equipment, including communications equipment, with an average useful life of at least five (5) years, necessary to adequately protect and defend new development and its inhabitants.

Certificate of Occupancy. A document issued by the Building Official pursuant to the Building Code that allows the occupancy and use of buildings and structures, certifying that such buildings, structures, and uses have been constructed and will be used in compliance with the Municipal Code.

Character. Those attributes, qualities, and features that make up and distinguish a development or neighborhood and give such development or neighborhood a sense of purpose, function, definition, and uniqueness.

Chicken coop. An enclosed and secured facility for housing chicken hens.

City. The City of Glenwood Springs, in the County of Garfield and State of Colorado.

City Code. The City of Glenwood Springs Municipal Code, as amended.

Civic use. Any use intended to be conducted in a facility or upon land that is owned and operated for public use by school districts, a place of worship, or by a city, county, state, or the federal government.

Code. This Development Code, Title 070 of the Glenwood Springs Municipal Code, as amended.

Commercial development. Any development activity except development activity intended solely for residential or civic use.

Community housing or community housing unit. A residential dwelling unit within the City of Glenwood Springs that is deed restricted in accordance with this article and the City of Glenwood Springs' Community Housing Requirements and Guidelines, as approved and amended from time to time by resolution by the City Council, and in accordance with a deed restriction approved by the City of Glenwood Springs City Council or its designee.

Community housing rental unit. A community housing unit that is deed-restricted in accordance with this article and the City of Glenwood Springs' Community Housing Requirements and Guidelines, as approved and amended from time to time by resolution by the City Council, and in accordance with deed restrictions approved by the City of Glenwood Springs City Council or its designee, to establish a maximum rental prices, as well as residency, employment and income qualifications for owners and occupants.

Community Housing Residency Requirements and Guidelines. The requirements adopted by resolution by the City Council, from time to time, which may include, but shall not be limited to, standards concerning the procedure

for qualifying to own or rent community housing units; the requirements (e.g. residency) for qualifying to own or rent community housing units; forms of approved deed restrictions; limitations on appreciation of sales prices of community housing; procedures for sale of community housing; priorities for persons bidding to purchase community housing units; maximum sales and rental rate increases; standards for the number of residents per dwelling unit; quality of construction requirements for new community housing units; and possible incentives for the construction of community housing. The Community Housing Residency Requirements and Guidelines, and amendments thereto, shall be adopted following a duly noticed public hearing at which such guidelines are considered.

Community housing for sale unit. A community housing unit that is deed-restricted in accordance with this article and the City of Glenwood Springs' Community Housing Requirements and Guidelines, as approved and amended from time to time by resolution by the City Council, and in accordance with a deed restrictions approved by the City of Glenwood Springs City Council or its designee to establish maximum initial sales and resale prices, as well as residency, employment and income qualifications for owners and occupants.

Compact vehicle parking. A vehicle parking space whose dimensions are smaller than a standard vehicle parking space, and that is intended to be occupied by smaller vehicles.

Compatibility. The characteristics of different uses, activities, or designs that allow such uses, activities, or designs to be located near or adjacent to each other without adverse impacts. Some elements affecting compatibility include height, scale, mass, and bulk of structures, pedestrian or vehicular traffic, circulation, access and parking impacts, landscaping, lighting, noise, odor, and architecture. Compatibility does not mean "the same as."

Compatible or compatibility. Consistent with, harmonious with and/or enhancing the mixture of complementary architectural styles either of the architecture of an individual structure or the character of the surrounding structures. The delicate historic character and scale of districts may be overwhelmed and disrupted by buildings out of proportion to those surrounding structures or styles which do not respect the existing historic neighborhood.

Comprehensive Plan. The Comprehensive Plan for the City, stating the goals, recommendations, and policies as adopted by the Planning Commission and City Council.

Condominium. A common interest community in which portions of the real estate are designated for separate ownership and the remainder of which is designated for common ownership solely by the owners of the separate ownership portions. A common interest community is not a condominium unless the undivided interests in the common elements are vested in the unit owners.

Condominium unit. A physical portion of the common interest community which is designated for separate ownership or occupancy and the boundaries of which are described in or determined from the declaration. If a unit in a cooperative is owned by a unit owner or is sold, conveyed, voluntarily or involuntarily encumbered, or otherwise transferred by a unit owner, the interest in that unit which is owned, sold, conveyed, encumbered, or otherwise transferred is the right to possession of that unit under a proprietary lease, coupled with the allocated interests of that unit, and the association's interest in that unit is not thereby affected.

Condominiumization. The division of a building or buildings and land into separate interests, normally called condominium units for the purpose of sale. Condominiumization shall comply with the standards and procedures in Subsection 070.060.060(d).

Construction or construct. The act of adding an addition to an existing structure or the erection of a new principal or accessory structure on a lot or property.

Contiguous. In contact with or sharing a common border, boundary, or property line.

Contributing. A "contributing" property adds to the historic architectural qualities, historic associations, or archaeological values for which the district is significant because: a) it was present during a period of significance

and possesses historic integrity reflected in its character at that time or it is capable of yielding important information about the period; b) it independently meets the National Register criteria; and c) it meets the Glenwood Springs Historic Preservation criteria.

Contributing building structure, site/area, or object. A building, structure, site/area, or object that reflects the historical or architectural character of an historic district, as defined by GSHPC designation pursuant to Section 070.050.020, Designation of Local Landmarks and Historic Districts.

Copy. Any words, letters, figures, designs, symbols, fixtures, or colors, or motion, illumination, or projected images.

Cornice. A horizontal molding projecting along the top of a wall.

Crosswalk. A pedestrian pathway that cuts across a block to facilitate pedestrian access to adjacent streets and properties.

Deciduous. A plant that drops all leaves once per year.

Deck. A roofless outdoor space built as an above ground platform, freestanding or attached, projecting from the wall of a structure and supported by posts or pillars.

Deed restriction. A contract entered into between the City and the owner or purchaser of real property identifying the conditions of occupancy and resale.

Demolition by neglect. Neglect in the maintenance of any building resulting in any one (1) or more of the following:

- a) The deterioration of a building to the extent that it creates or permits a hazardous or unsafe condition as determined by the Building Department.
- b) The deterioration of a building characterized by one (1) or more of the following:
 - 1. Those buildings which have parts thereof which are so attached that they may fall and injure members of the public or property.
 - 2. Deteriorated or inadequate foundation.
 - 3. Defective or deteriorated floor supports or floor supports insufficient to carry imposed loads with safety.
 - 4. Members of walls or other vertical supports that are insufficient to carry imposed loads with safety.
 - 5. Members of ceiling, roof, ceilings, and roof supports or other horizontal members which sag, split or buckle due to defective material or deterioration.
 - 6. Fireplaces or chimneys which list, bulge or settle due to defective material or deterioration.
 - 7. Any fault, defect, or condition in the building which renders the same structurally unsafe or not properly watertight.

Demolition or Demolish. Any act or process that destroys in part or in whole a landmark or a structure within a historic district.

Density. A ratio of dwelling units to gross land area.

Design standard. A requirement for a minimum level of site and/or building quality, as set forth in Section 070.040.080, Residential Site and Building Design, and Section 070.040.090, Nonresidential and Mixed-Use Site and Building Design.

Designated Use Area (Landscaping). Grass designated for special use at cemeteries and mortuaries.

Developer. Any person, firm, partnership, joint venture, limited liability company, association, or corporation who participates as owner, promoter, developer, or sales agent in the planning, platting, development, promotion, sale, or lease of a subdivision or development.

Development. The division of a parcel of land into two (2) or more parcels; the construction, reconstruction, conversion, structural alteration, relocation, or enlargement of any structure; any mining, logging, excavation, landfill or land disturbance; or any use or extension of use that alters the character of the property.

Development Code. Title 070 of the Glenwood Springs Municipal Code, as amended.

Development permit. Any of the approvals authorized by Section 070.060.050, Development Permits, including site/architectural plan review, master plan, construction plans, location and extent review, and special use permit.

Development review committee. The Development Review Committee (DRC) of the City of Glenwood Springs.

Development site sign. An on-premises sign in connection with a development in progress.

Development, mixed-use. A building or group of buildings, planned as a unified and complimentary whole, and containing both residential and nonresidential uses.

Directional sign. Any on-site sign that directs the necessary movement of pedestrians or vehicular traffic without reference to the name of the business, products sold or services offered. This definition includes signs locating public facilities such as rest rooms and emergency facilities.

Director. The Director of the Department of Community Development charged with the administration and enforcement of this Code, or the duly authorized representative of the Director.

Disturbed area. Any grading, scraping, excavating, trenching, filling of land, dumping of fill materials (including but not limited to dumping of soil, concrete, and construction debris), bulk outdoor storage, clearing of trees or vegetation, and any construction in preparation for development, reconstruction, or significant alteration of a structure.

Dormer. A window set upright in a sloping roof. Also used to refer to the roofed projection in which such window is set.

Downtown core. Area of land located south of the Colorado River, north of 13th Street, east of School Street, and west of Cleveland Avenue, and including North Glenwood, generally east of Laurel Avenue. The area includes Block 1—67, Glenwood Springs Original Town Site as platted in 1913, excluding outlots 1 through 33; and includes the South Addition as platted in 1936.

Driveway. A private access way providing access between a street and destinations points within an adjacent property.

Dwelling or dwelling unit. A building or portion of a building designed and intended to be used by a person or family for private residential occupancy. A dwelling has its own separate entrance, permanent plumbing, and is equipped with facilities for sleeping, bathing, and cooking.

Easement. A grant by a property for use of land for designated private or public purposes by another agency or the public.

Elevation. The external faces of a building; also a mechanically accurate "head-on" drawing of any one (1) face of a building or object, without any allowance for the effect of the laws of perspective.

Eligible. A property that has been determined by the State Historic Preservation Officer or the National Parks Service, Department of the Interior, to meet the National Register of Historic Places Criteria for Evaluation.

Emergency service provider. A governmental entity providing fire protection, emergency medical, rescue and ambulance services or any combination of such services.

Emergency services. Fire protection, emergency medical, rescue and ambulance services or any combination of such services.

Emergency services impact fee. A fee for fire protection or emergency medical, rescue and ambulance service established by Subsection 070.040.030(g)(5).

Employee/qualified resident. A person who is employed on the basis of a minimum of one thousand five hundred (1,500) hours worked per calendar year in the employment area, which averages thirty (30) hours per week for a minimum of ten (10) months per year, physically working the employment area and who resides in the community housing unit as their sole and exclusive place of residence a minimum nine (9) months of a twelve-month period. Priority will be given to employees/qualified residents employed within the City of Glenwood Springs boundaries or someone who has received a local employment exemption pursuant to the Community Housing Residency Requirements and Guidelines.

Employment area. Glenwood Springs municipal boundary.

Encroachment. A private improvement, structure, or obstruction extending into or located within, upon, above, or under any public right-of-way or public easement.

Engineering standards. City of Glenwood Springs Engineering Standards.

Evergreen. A plant that retains leaves and/or needles year-round.

Exterior architectural appearance. The architectural character and general composition of the exterior of a structure, including but not limited to the kind, color and texture of the building material and the type, design and character of all windows, doors, light fixtures, signs, and appurtenant elements.

Façade. Any side of a building that faces a street or open space. The front façade is the front or principal face of a building.

Fence. A man-made barrier of any material or combination of materials erected to enclose, screen, or separate areas.

Final plans. Technical engineered drawings demonstrating compliance with this Code, the Building Code, and the City of Glenwood Springs Engineering Standards. Review and approval of final plans shall be pursuant to Subsection 070.060.050(c).

Finished grade. The final elevation of the ground surface after completion of authorized development and associated man-made alterations of the ground surface such as grading, grubbing, fillings, or excavating.

Fire protection. The prevention and extinguishment of fire, protection of life and property from fire, and enforcement of municipal, county, district and state fire prevention codes.

Fixture. A complete lighting unit, consisting of a lamp, reflector, refractor or lens, wiring and sockets.

Fixture height or mounting height. The vertical distance from the ground directly below the centerline of the fixture to the lowest direct light-emitting part of the fixture.

Flag. Any fabric containing distinctive colors, patterns, or symbols used as an emblem, symbol, standard, or decoration and which is hoisted on a permanent flagpole or otherwise displayed from a building.

Floodlight. A light fixture equipped with a reflector or reflector type bulb designed to broadly light a scene or object with minimal control. The beam spread of floodlights may range from "spot" lights of ten (10) to twenty (20) degrees to "floods" with angles of thirty-five (35) or more degrees.

Floor area. The total habitable horizontal area of all floors in a building. Bathroom, toilet compartments, closets, halls, storage or utility space, garages, and similar areas are not considered habitable space.

Flush-mounted or recessed fixture. A fixture that is mounted above the ceiling (or behind a wall or other surface) with the opening of the fixture even with the surface.

Focal Point (Nonresidential and mixed use). A box formed from lines extending thirty (30) feet away from intersecting property lines on corner lots. As noted in Figure 040-24 of Section 070.040.090.

Foot-candle (fc). A measure of light falling on a given surface or a unit of illumination of a surface that is equal to one (1) lumen per square foot. One (1) foot-candle is equal to the amount of light generated by one (1) candle shining on a square foot surface one (1) foot away. Foot-candles can be measured both horizontally and vertically by a foot-candle or light meter. Foot-candles shall be measured at grade level by a digital light meter, unless otherwise noted in Section 070.040.100, Exterior Lighting.

Footprint. For purposes of this Code, the physical area covered by a building or structure.

Free range. Chicken hens being allowed to move about within an open area on the property without the benefit of a chicken coop or run.

Freestanding sign. Any sign that is structurally separate from the building housing the use to which the sign pertains.

Full cut-off fixture. A fixture light distribution where a maximum of two and one-half (2½) percent of the total lamp lumens may be emitted ninety (90) degrees above the lowest point of a sphere; a maximum of ten (10) percent of the total lamp lumens may be emitted between eighty (80) and ninety (90) degrees above the lowest point of a sphere; and ninety (90) percent of the total lamp lumens must fall below eighty (80) degrees of the lowest point of a sphere. (Figure 070-1)

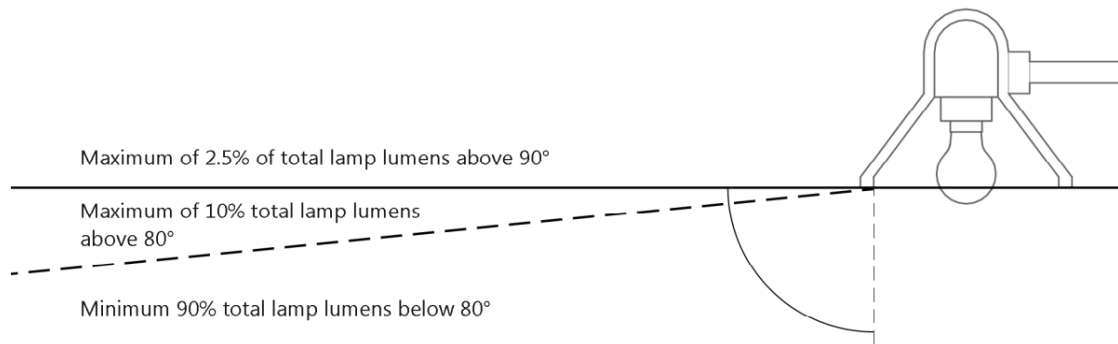


Figure 070-1: Full Cut-Off Fixture

Fully shielded light. Light fixtures shielded or constructed so that no light rays are directly emitted by the installed fixture at angles above the horizontal plane as certified by a photometric test report. The fixture must also be properly installed and adjusted to effectively down direct light in order to comply with the definition. Exemptions from this definition may be allowed for aesthetic lighting elements, such as shades with perforated patterns and opaque diffusers. (Figure 070-2)

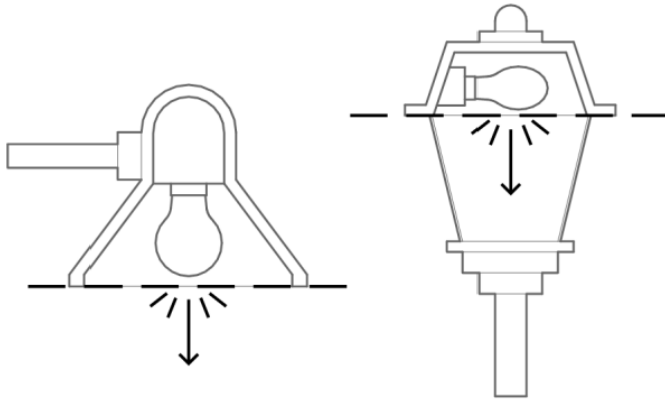


Figure 070-2: Fully Shielded Light

Functional Turf. An irrigated grass area that provides a recreational benefit to the community and is:

- Located at least 10 feet from a street, installed on slopes less than 25 percent and not installed within street medians, along streetscapes or at the front of entryways to parks, commercial sites, neighborhoods, or subdivisions.
- Active/programmed recreation turf, athletic fields, designated-use-area turf, golf course play areas, some pet relief turf, playground turf or resident area turf.

Gable roof. A pitched roof with a ridge and vertical ends.

Ghost sign. An old sign which may or may not be applicable to the building or use where it is located that appears faded and is not maintained. Ghost signs must be designated as historical signs. Ghost signs usually appear on masonry structures and the image appears when wet.

Glare. An intense light that is overpowering and visually unpleasant.

Golf Course play area. Grass in driving ranges, chipping and putting greens, tee boxes, greens, fairways and rough.

Grade, finished. The average of the ground elevations at the center of all walls of a building, following completion of site grading. If a wall is parallel to and within five (5) feet of a sidewalk, finished grade is measured at the sidewalk.

Gross floor area. The total square footage of all finished and unfinished and enclosed floors of the building, including but not limited to living areas, garages, storage, utility spaces, and enclosed porches. Crawl spaces are not included in gross floor area calculations.

Gross income. The total income, including alimony and child support, derived from a business, trust, employment, Social Security benefits of any type and from income-producing property, before deductions for expenses, depreciation, taxes, and similar allowances.

GSHPC. The Glenwood Springs Historic Preservation Commission.

Hardship. A condition by which the property in question cannot be put to reasonable use under existing regulations, subject to a showing of proof under Subsection 070.060.070(a), Variance.

Heat island effect. Developed or built up areas that are hotter than undeveloped or rural areas due to the sun's effect on dry exposed surfaces such as roofs and pavement. Heat islands typically occur during the day and at night, and are stronger during the hot summer months.

Height, building. See "Building Height."

Height, sign. For freestanding signs, the vertical distance between the average elevation of the ground adjoining the sign and the level of the highest point of the sign.

High intensity discharge light source (HID). A light source characterized by an arc tube or discharge capsule that produces light, with typical sources being metal halide, high pressure sodium, and other similar types which are developed in accordance with accepted industry standards.

Hip roof. A roof with sloped ends instead of vertical ends.

Historic building, improvement, structure, site, or object. A building, structure, site, or object that that has been designated by the City Council pursuant to Article 070.050: Historic Preservation, as a local landmark or as contributing to a local historic district; or that is officially designated or has been determined eligible to be on the national or state registers of historic places.

Historic designation sign. A sign, designated by the City Council, as having historical significance to the City.

Historic district. An area designated as an "historic district" by ordinance of the City Council, which may contain within definable geographic boundaries one (1) or more landmarks, and which may have within its boundaries other properties, improvements or structures that, while not of such historic and/or architectural significance to be designated as landmarks, nevertheless contribute to the overall visual characteristics of the landmarks located within the historic district.

Holiday decorations. Ornamental materials temporarily displayed on traditionally accepted holidays.

Holiday lighting. Lighting displays from November 15 through February 28 of the following year.

Illuminating Engineering Society (IES). The Illuminating Engineering Society is an association of professionals in the field of lighting and related professions. Its membership is made up of engineers, architects, designers, manufacturers, contractors, distributors, utility personnel, educators, students, and scientists.

Illumination, direct. Lighting by means of an unshielded light source, including neon tubing but not including electronic message signs, that is effectively visible as part of a sign, where light travels directly from the source to the viewers' eyes.

Illumination, indirect. Lighting by the surface of a light source that is directed at the reflecting surface in such a way as to illuminate the sign from the front or a light source that is primarily designed to illuminate the entire building façade upon which a sign is displayed, but does not include lighting that is primarily used for purposes other than sign illumination, including without limitation, parking lot lights or lights inside a building that may silhouette a window sign that are not primarily installed to serve as illumination of a sign.

Illumination, internal. Lighting by means of a light source that is within a sign having a translucent background and silhouettes opaque letters or designs, or that is within letters or designs that are themselves made of translucent material.

Impervious surface. An asphalt, concrete, or other surface that is not a component of a porous paving system.

Improvements. For the purposes of this Code, the community public works and facilities determined to be necessary in relation to proposed development, including, but not limited to; access drives, landscaping, parking facilities, sanitary sewers, site and street lighting, storm drainage facilities, street facilities, traffic control facilities, and water facilities. All required improvements shall comply with current requirements and standards as established in this Code and other applicable sections of the Municipal Code.

Inclusionary community housing. The policy of requiring community housing in residential developments to ensure adequate housing stock for local residents and to maintain or increase the current ratio of primary to second home ownership in the City of Glenwood Springs.

Infill residential. Residential development on a parcel or tract of land that shares a common lot line with at least two (2) existing single-family homes and is located within a residential zoning district. Infill development generally occurs on lots that are already subdivided, and that are less than one (1) acre in size and located within established single-family neighborhoods; however, some larger parcels may also be included in this definition.

Inflatable sign. Any sign of non-rigid material that utilizes air or other gases, either under pressure or heated, to maintain its shape.

Initial sales price. The maximum price for which a price capped community housing for sale unit may be initially sold.

Interior sign. See "window sign."

Lamp. A bulb, an outer glass envelope, and metal base enclosing a filament or arc tube and electrodes.

Landmark. A property or structure designated as a landmark by ordinance of the City Council, pursuant to procedures prescribed herein, that is worthy of rehabilitation, restoration and preservation because of its historic and/or architectural significance to the City.

Landmark alteration certificate. A certificate issued after approval of plans for alteration, construction, removal or demolition of a landmark or of a structure within an historic district.

Landscape elements. Annual plants, benches, chairs, perennial plants, planters, shrubs, statuary, trees, yard ornaments, and similar elements.

Landscape strip. A landscaped area located within the public right-of-way between the sidewalk and the edge of curb or pavement.

Landscape, landscaping. Live plant materials or areas designed, planted, preserved, and maintained with live plant materials, including perennial ground covers, trees, shrubs, and grasses.

Legally subdivided. Land that has been the subject of a plat filed with the Garfield County Clerk and Recorder that legally establishes boundaries or lot lines or for which a subdivision approval has been issued.

Light pollution. The excess illumination of the nighttime environment that results in the loss of visibility of the stars.

Light source. The element of a lighting fixture that is the point of origin of the lumens emitted by the fixture.

Light trespass. The shining of light produced beyond the boundaries of the property on which it is located, where light is produced by a light fixture or reflected light.

Limits of disturbance. The specific area(s) of a site established pursuant to Subsection 070.040.020(a)(4), Limits of Disturbance, within which construction and development activity shall be contained. The limits of disturbance shall be shown on the site/architectural plan and shall include all principal and accessory buildings and structures, driveways, septic fields, and areas used during construction activities.

Linear lighting. The use of visible or concealed light sources, including neon tubes, fluorescent tubing, and other surface-mounted or recessed light sources that describe or outline the features of a structure such as the roofline, all or part of the perimeter, the façade, walls, soffit, or other structural component, that results in the attraction of attention to the feature or structure. Lighting of drive-under canopies with a light band a maximum of ten (10) inches in width and that emit a light level of one and one-half (½) foot-candles or less, measured ten (10) feet from the source, are exempted from this definition.

Lot. A unit, plot, or parcel of land or assemblage of contiguous parcels of land as established by survey, plat, or deed.

Lot Coverage. The percentage of a lot area occupied by the ground area of principal and accessory buildings or structures excepting the percentage covered by ground-mounted small scale solar energy systems.

Lumen. A measure of light energy generated by a light source. Manufacturers list lumen ratings for all their lamps. Average lumen ratings are slightly lower than initial lumen ratings, as all light sources produce less light as they age.

Marquee. A permanent, rigid, flat, roof-like structure attached to and wholly supported by a building, and projecting over the primary entrance to a building.

Marquee sign. A sign depicted upon, attached to, or supported by a marquee.

Masonry. Stonework, brickwork, or concrete masonry unit (CMU) bonded with mortar by a mason.

Master plan. An optional procedure for large and complex projects whereby an applicant may obtain overall entitlements of a development project prior to submitting for site/architectural plan and/or construction plan approval pursuant to the procedures in Subsection 070.060.050(b), Master Plan.

Master sign plan. A comprehensive sign program for a multi-use building or multi-building commercial development.

Maximum extent feasible. As determined by the Director, no feasible and prudent alternative exists, and all possible efforts to comply with the regulation or minimize potential harm or adverse impacts have been undertaken. Economic considerations may be taken into account but shall not be the overriding factor in determining "maximum extent feasible."

Maximum extent practicable. The degree to which a project meets an adopted standard in which all possible efforts to comply with the standard or to minimize harmful or adverse effects have been undertaken by the applicant, but full compliance cannot be achieved, and no feasible or practical alternative exists. Economic considerations may be taken into account, but shall not be the overriding factor determining "maximum extent practicable."

Mean average. The mean average is calculated by summing all values in a series and dividing by the number of values in that series. For example, the mean average of the values 5, 7, 9, and 11 is 8 ($5+7+9+11/4$ or $32/4 = 8$).

Mechanical and utility equipment. Mechanical and utility equipment includes, but is not limited to transformers, air conditioning units, heating and soft water tanks, television antennas/satellite dishes, security apparatus, and electric and gas meters. Mechanical and utility equipment does not include solar panels.

Median average. The median average is calculated by taking the "middle" value of all values in a series. For example, the median average of the values 5, 7, 8, 9, and 10 is 8 (two (2) values are below 8 and two (2) values are above 8). In the case where there is an even number of values, the median average shall equal the mean average of the middle two (2) values. For example, the median average of the values 5, 7, 9, and 11 is 8 (mean average of 7 and 9, or $9+7/2 = 8$).

Minor subdivision. Any subdivision meeting the applicability standards in Subsection 070.060.060(a), Minor Subdivision.

Mobile home, dependent. Means a mobile home that has no toilet, bathtub or shower facilities.

Mobile home, independent. Means a mobile home that has a toilet and a bathtub or shower.

Mobile home space. Means a plot of ground within a mobile home park designated for the accommodation of one (1) mobile home.

Monument sign. A freestanding ground sign typically containing design elements such as a base, columns, borders, topper, or cap specifically intended for the display of the sign.

Multi-family development. A structure or part thereof designed exclusively for occupancy by two (2) or more families and commonly referred to as a duplex (two-family dwelling), triplex, fourplex, townhouse, or apartment house.

Multi-tenant building. Any nonresidential building with more than one (1) tenant or use. The issuance of multiple sales tax licenses by the City is not necessarily a criteria to determine multiuse building status.

Natural grade. The vertical elevation of the existing ground surface prior to excavation, filling, or disturbance.

Neighboring. A lot or parcel of land that shares a common lot line(s) with another lot or parcel of land. A property that shares only a corner with another property is excluded from this definition.

Nonconforming lot. A lawfully established lot created prior to adoption of this Code that does not comply with the minimum lot size requirements of this Code.

Nonconforming sign. A lawfully established sign constructed or installed prior to adoption of this Code that does not comply with the sign regulations of this Code.

Nonconforming sign. Any sign that was lawfully erected and maintained under prior codes but that does not meet the provisions of this Code.

Nonconforming site feature. Any driveway, off-street parking and loading, landscaping, buffer, screening, or exterior lighting that lawfully existed prior to adoption of this Code but does not comply with the driveway, off-street parking and loading, landscaping, buffer, screening, or exterior lighting standards of this Code.

Nonconforming structure. A lawfully established building or structure constructed or installed prior to adoption of this Code that does not comply with the area, height, or placement regulations of this Code.

Nonconforming use. A use that lawfully existed prior to adoption of this Code, but does not comply with the terms of this Code.

Nonconformity. An existing use, structure, lot of record, or sign that was lawfully established prior to the effective date of this Code and that does not conform to one (1) or more provisions of this Code.

Nonconformity, illegal. An existing use, structure, lot of record, or sign that does not conform with one (1) or more provisions of this Code and that was not lawfully established before the effective date of this Code.

Noncontributing. A "noncontributing" property does not add to historic architectural qualities, historic associations, or archaeological values, usually because of alterations, additions or other changes. If the property no longer possesses integrity reflecting its character at the time or is incapable of yielding information about the period, then it is considered noncontributing. Many buildings are rated noncontributing simply because the building was constructed within the last fifty (50) years.

Non-infill residential. Residential development, on a parcel not zoned residential or on a parcel or tract of land, zoned residential, which shares common lot lines with fewer than two (2) existing single-family homes. Non-infill development will generally occur in non-residential zone districts or on residentially-zoned parcels located outside of established single-family neighborhoods; however, some parcels greater than one (1) acre in size located in established single-family neighborhoods may also be included in this definition.

Nonliving ground cover. Any material used in landscaping including, but not limited to, concrete, gravel, bark, mulch, asphalt, stone and brick.

Nonstructural trim. The molding, battens, caps, nailing strips, latticing, cut-outs, letters, and other nonessential structures that are attached to the sign structure.

Occupancy. The purpose for which a building or structure is used or intended to be used; and, in the case of residential uses, such term can also refer to the number of persons who reside within a building, dwelling unit, or other structure.

Off-premises sign. Any off-premises sign, including without limitation, a billboard or general outdoor advertising device, that directs attention to a use, product, service, or activity conducted, sold or offered elsewhere than on the same property or within the same building upon which such sign is located.

Off-site parking. A site or portion of a site devoted to the off-street parking of motor vehicles, including parking spaces, aisles, access drives, and landscaped areas that is located outside the subject property boundary.

Off-street parking. Parking that is not located in a public or private right-of-way.

Open space. An area or areas suitable for passive and/or active recreational use, that provides visual relief to developed areas or that is set aside to protect water, air, wildlife habitat, vegetation, or significant or scenic views providing benefit to the particular development, surrounding environment, and/or surrounding community.

Open space, active. Common open space improved with permanent recreational facilities such as trails, playground equipment, ball courts, or playing fields.

Open space, common. A type of open space reserved for the use of the residents of a development or subdivision and their guests for passive and/or active recreation.

Open space, passive. Common open space lacking permanent recreational improvements.

Open space, private. The outdoor living area adjoining a dwelling unit or owned by or otherwise limited to the use of the residents of a particular dwelling unit. Examples include private patios, courtyards, and yard areas.

Ordinary repairs and maintenance. Work done on a building in order to correct any deterioration of, decay of or damage to a building or any part thereof in order to restore the same as nearly as practical to its condition prior to such deterioration, decay or damage.

Orient. To bring in relation to, or adjust to, the surroundings, situation, or environment; to place with the most important parts facing in certain directions; and/or to set or arrange in a determinate position.

Owner of record. The person, corporation, or other legal entity listed as owner on the records of the County Clerk and Recorder.

Parapet. The extension of the main walls of a building above the roof level.

Parcel. An area within legally described boundaries under common ownership and capable of being separately conveyed.

Park models. A trailer-type recreational vehicle designed to provide temporary accommodation for recreation, camping, or seasonal use. Park models are not intended to be permanently affixed to the property as a residence.

Parking area. A contiguous area provided for parking, including driveways, maneuvering space, parking lot landscaping areas, snow storage areas, and other ancillary space in addition to vehicle parking spaces.

Parking Demand. The total number of off-street parking spaces needed to park the vehicles associated with the operations of and individuals present at a particular site, use, or structure.

Permanent sign. Any sign that is permanently affixed or attached to the ground or to any structure.

Pet Relief Area. Grass at a property providing commercial and retail services for pets, such as veterinarian and boarding facilities. The area must not exceed 200 square feet.

Phasing. A plan for construction of a development in portions over time, including time ranges that shall be specified in the development application.

Photocell. A type of resistor that can be used to detect light. Also commonly known as a CdS (Cadmium-Sulfide) cell, photoresistor, or LDR (light dependent resistor).

Planned unit development (or PUD). A development designed to accommodate varied types of development in patterns or layouts not otherwise permissible in other zoning districts established by this Code. Planned Unit Developments are designed to provide additional amenities or benefits to the City in return for flexibility in the design, layout, and dimensions of the development. Approval of a PUD shall require a rezoning pursuant to Subsection 070.060.040(b), Rezoning to PUD.

Planning commission. The Planning and Zoning Commission of the City of Glenwood Springs.

Plat. A map delineating the subdivision of land, commonly showing lots, blocks, streets, and other features relevant to the development of land pursuant to this Code, used as an instrument for recording real estate interests with the Garfield County Clerk and Recorder.

Playground turf. Grass in designated play areas with playground amenities, including but not limited to slides, swings and climbing structures on homeowner association owned/managed property or at a public park, water park, school, daycare, recreation center, senior center or religious institution. Playground turf may be located less than 10 feet from a street if fenced.

Pole sign. A freestanding sign erected on a frame, mast, or pole that is affixed to the ground and not attached to any building.

Porch. Any gallery, veranda, piazza, portico, or similar protection from the main wall of a building and covered by a roof, other than a carport, with no opaque side enclosures (except screens and handrails) that is more than thirty-six (36) inches in height.

Porous paving system. A system providing erosion control, softening hard surfaces, reducing stormwater/snowmelt runoff, and/or providing green space. The system includes concrete, plastic, or other systems which may incorporate grass or other landscaped spaces.

Portable sign. Any sign not permanently attached to the ground or a building, not including signs attached to vehicles, except vehicles parked specifically for the purpose of signage.

Premises. The land, building, or portion of the building occupied by the land use or activity being conducted.

Primary material. Material covering seventy (70) percent or more of the exterior wall elevations.

Primary street. The street from which the development faces or is accessed. Primary street frontages do not include alleys, interior parking courts, or other secondary access points.

Principal use. The primary or predominant use of any lot, building, or structure.

Projecting sign. A sign attached to a building or extending in whole or in part fifteen (15) inches or more horizontally beyond the façade of a building to which the sign is attached, but does not include a marquee sign.

Public hearing. A formal meeting held under public notice intended to inform the public and obtain public input.

Public improvements. Any improvement, facility, or service, together with its associate site and any right-of-way necessary to provide transportation, drainage, utilities, or similar essential services and facilities, that is usually owned and operated by a government entity or agency.

Public sign. A sign required by the local and/or state government, or signs erected or required by other government agencies, utilities, or special districts, including address signs, signs for traffic, schools, safety, railroad crossing, wayfinding, civic and special events, public notices, and other official and legal notices.

Reader board. An accessory sign cabinet contained within a distinct border that allows for changeable copy.

Recreation, active. Outdoor leisure activities requiring permanent recreational improvements to the area in which they are performed. These areas are intensively used and may include improvements such as trails, playground equipment, ball courts, or playing fields.

Recreation, passive. Outdoor leisure activities that do not require permanent recreational improvements to open space areas. Examples include picnicking, hiking unimproved trails, enjoyment of scenery, and play in open grassy areas.

Recreational vehicle. Means a portable structure not more than eight (8) feet wide and thirty-five (35) feet long that is designed for extended highway travel, to be driven as or pulled by a private vehicle which requires no special permit for the same, and which is intended as a portable dwelling for vacation and recreational purposes only; or a camp car, motorhome or tent trailer, with or without motor power, and identified as a recreational vehicle by the manufacturer.

Redevelopment. Development on a tract of land with existing structures where all or a majority of the existing structures would be razed and a new structure or structures built.

Reflected light. The light that is reflected off surfaces, becoming a secondary light source.

Related accessory equipment. The transmission equipment customarily used with, and incidental to WCF antennas, including by way of example, coaxial or fiber-optic cable, regular and backup power supply and remote radio units.

Relocation. Any relocation of a structure on its site or to another site.

Repair. The reconstruction or renewal of any part of an existing building for the purpose of its maintenance.

Required rear yard. A yard extending the full width of the lot, the depth of which is measured in the horizontal setback distance, based on the applicable zoning district and are set forth in Article 070.020: Zoning Districts, from the rear lot line.

Resident Area Turf. Grass up to 150 square feet per dwelling unit at multi-family residential properties, multi-family mixed use properties, or assisted living and rehabilitation centers used by tenants for recreation or leisure. May not be located in parking lots, streetscapes or other non-accessible areas

Resident occupied community housing. Housing with a deed restriction recorded against it requiring that it be owned or occupied by an employee/qualified resident as its primary residence as set forth in this article and the City of Glenwood Springs Housing Residency Requirements and Guidelines.

Rezoning. A change in the zoning district classification applied to land by the Zoning Map, reviewed and decided by the City Council under Subsection 070.060.040(a), Rezoning.

Right-of-way. Any strip or area of land, including surface, overhead, or underground, granted by deed, easement, dedication, prescription, or lease, for construction and maintenance according to designated use, such as for streets and highways, drainage ditches, irrigation canals, etc.

Roof form. The shape of a roof, of which there are many variations. The most common roof forms are sloped roofs (roofs constructed of flat sections that are sloped) and flat roofs. Sloped roofs include side gable roofs or end gable roofs (based on whether the gable ends are on the sides or front and back of the building), and may have dormers. The edges of flat roofs (particularly along the front of a building) are commonly defined by parapets and/or cornices.

Roof sign. A sign painted on the roof of a building, supported by poles, uprights, or braces, extending from the roof of a building, or projecting above the roof of a building, but does not include a sign projecting from or attached to a façade wall.

Run. When associated with backyard chickens, a "run" is an enclosed and secured facility where chicken hens are able to move around more freely than within a chicken coop.

Screening. A method of visually shielding or obscuring a nearby structure, building, or use on an abutting or adjacent property or lot from another by fencing, walls, berms, or densely planted vegetation.

Setback. The minimum distance between a lot line and a building or structure required by this Code.

Shared parking. The joint use of a parking area by more than one (1) use.

Sidewalk. Any portion of the street between the curb, or the lateral line of the roadway and the adjacent property line, intended for the use of pedestrians.

Sight distance triangle. The area around an intersection where no obstructions above forty-two (42) inches in height are permitted, and as specifically determined by the City Engineer as prescribed in the Engineering Standards.

Sign. Any object or device or part of an object or device situated outdoors that is used to identify, direct, or attract attention to an object, person, institution, organization, purpose, product, service, contract, event, or location by means of copy. Examples include: words, letters, figures, designs, symbols, fixtures, colors, motion, illumination, or projected images that are visible from any street, alley, or other public right-of-way.

Sign area. The entire area contained within the face of a sign, including all ornamentation or decoration used to attract attention. The sign area shall be the sum of the area of all letters, words, or symbols that can be contained in lines forming the smallest plane geometric shapes around all such letters, words, or symbols having eight (8) or fewer segments.

Sign on a parked vehicle. A sign placed on or affixed to vehicles and/or trailers that are parked on a public right-of-way, public property or private property so as to be visible from a public right-of-way where the apparent purpose is to advertise a product, use, service, or activity or direct people to a property.

Sign structure. Any supports, uprights, braces, or framework of a sign.

Significance. The value placed on a building relating to its architectural or historical importance, as defined by Article 070.050: Historic Preservation.

Single-tenant building. A building occupied by one (1) tenant or use.

Site/architectural plan. A plan drawn to scale showing uses and structures proposed for a lot or parcel.

Site/architectural plan approval. Approval of site/architectural plans according to the procedures in Subsection 070.060.050(a).

Site-specific development plan. A plan that has obtained final development approval under the standards and procedures contained in this Code, and that describes with reasonable certainty the type and intensity of use for a specific parcel or parcels of property, and includes all terms and conditions of approval. A site-specific development plan includes only the following application types:

- a. Master plan;
- b. Administrative site/architectural plan;
- c. Minor site/architectural plan;
- d. Major site/architectural plan;
- e. Planned unit development; and
- f. Final plat.

Special use permit. A permit issued pursuant to Subsection 070.060.050(e), Special Use Permit, for uses designated in the allowable use table (Table 030.1) as requiring special use permit approval.

Start of construction. The date the building permit was issued, including substantial improvements, provided that the actual start of construction, repair, reconstruction, rehabilitation, addition, placement or other improvement was within one hundred eighty (180) days of the permit date. The actual start means the first placement of permanent construction of a structure on a site, such as the pouring of slab or footings, installation of piles, construction of columns or any work beyond the stage of excavation or the placement of a manufactured home on a foundation.

Stop work order. An order issued by the Director that directs the person responsible for an activity in violation of this Code to cease and desist such activity.

Street. Any highway, street, avenue, or common place or square, bridge, viaduct, underpass, overpass, tunnel or causeway, dedicated to the City or otherwise devoted to common public use, excluding alleys.

Street, private. A way of access to two (2) or more parcels of land that is open to vehicular ingress and egress, and that is owned and maintained by affected property owners, but that is not considered to be a driveway.

Streetscape. Landscape materials located adjacent to street rights-of-way intended to enhance, soften, or screen the view of a building, structure, or land use.

Structure. Anything that is constructed or erected and located on or under the ground, or attached to something fixed to the ground, including a walled and roofed building, wall, fence, pergola, and/or a gas or liquid storage tank that is principally above ground.

Subdivision. The division of a lot, tract, or parcel of land into two (2) or more lots, sites, or other divisions for the purpose, whether immediate or future, of sale, lease, or building development, including any resubdivision. In some contexts, the term "subdivision" may also describe the process of subdividing land or the land subdivided.

Substantial compliance. Unless a specific permit or process establishes different criteria, a permit or plan substantially complies with the applicable approval criteria if the proposed use or development: does not significantly (i) alter the basic relationship of the proposed development to adjacent property; (ii) change the uses permitted; (iii) increase the maximum density, floor area ratio, or height; (iv) decrease the amount of required off street parking; or (v) reduce the minimum yards required at the boundary of the site.

Suspended sign. A sign suspended from the ceiling of an awning, marquee, or canopy.

Tandem parking. A parking space in which two (2) vehicles are parked end-to-end or stacked vertically using lift equipment and in which one (1) vehicle must be moved before the second vehicle can access a street, driveway, alley, parking lot, or parking garage driving aisle.

Temporary Sign. A sign, banner, or similar device or display that is intended for a limited duration of display.

Temporary use. Any outdoor retail and/or wholesale sales use on a short-term basis, including, but not limited to: produce stands, peddlers, solicitors, hawkers, itinerant merchants, and transient merchants, and excluding temporary promotions or sidewalk sales by permanent businesses on their own property.

Temporary use permit. A permit issued pursuant to Section 070.030.050, Temporary Uses and Structures.

Time-temperature-date sign. A sign that displays the current time, outdoor temperature, date of the month, or any combination of that information.

Tract. An area, parcel, site, piece of land, or property that is the subject of a development application. For subdivisions, the term is used for units of land created for and limited by deed restriction or dedication to a specific use, including access, utility placement, open space, or natural resource areas.

Traffic-control sign. Any government sign used to direct or control the movement of motor vehicles and/or pedestrians within public streets, alleys, or rights-of-way.

Tree lawn. See "landscape strip."

Twinkle lighting. String lighting of low voltage (not greater than 2.5 volts per light).

Uniformity ratio. The ratio of average illumination to minimum illumination (unless noted otherwise).

Use. The utilization of land and property as permitted by this Code. Allowable uses for each zoning district are listed in Table 030.1.

Variance. A development permit authorizing a deviation from the standards of this Code where strict application of this Code results in a hardship due to circumstances with a particular lot and that is reviewed and decided pursuant to Subsection 070.060.070(a), Variance.

Vertical foot-candles. A measurement of illuminance intensity on a vertical surface, such as a wall or billboard.

Vested property right. The right to undertake and complete the development and use of property under the terms and conditions of a site-specific development plan and any accompanying permit or agreement.

Walkway. An off-street hard-surfaced walk or raised pedestrian path.

Wall sign. A sign displayed upon or against the wall of an enclosed building, where the exposed face of the sign is in a plane parallel to the plane of the wall and extends no more than fifteen (15) inches horizontally from the face of the wall.

Wetland. An area that is inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

Wind sign. A sign consisting of one (1) or more flags, pennants, ribbons, spinners, streamers, captive balloons, or other objects or material fastened in such a manner as to move upon being subjected to pressure by wind.

Window sign. A sign that is painted on, applied, or attached to, or located within fifteen (15) inches of the interior of a window and that can be seen through the window from the exterior of the structure, but excludes merchandise included in a window display.

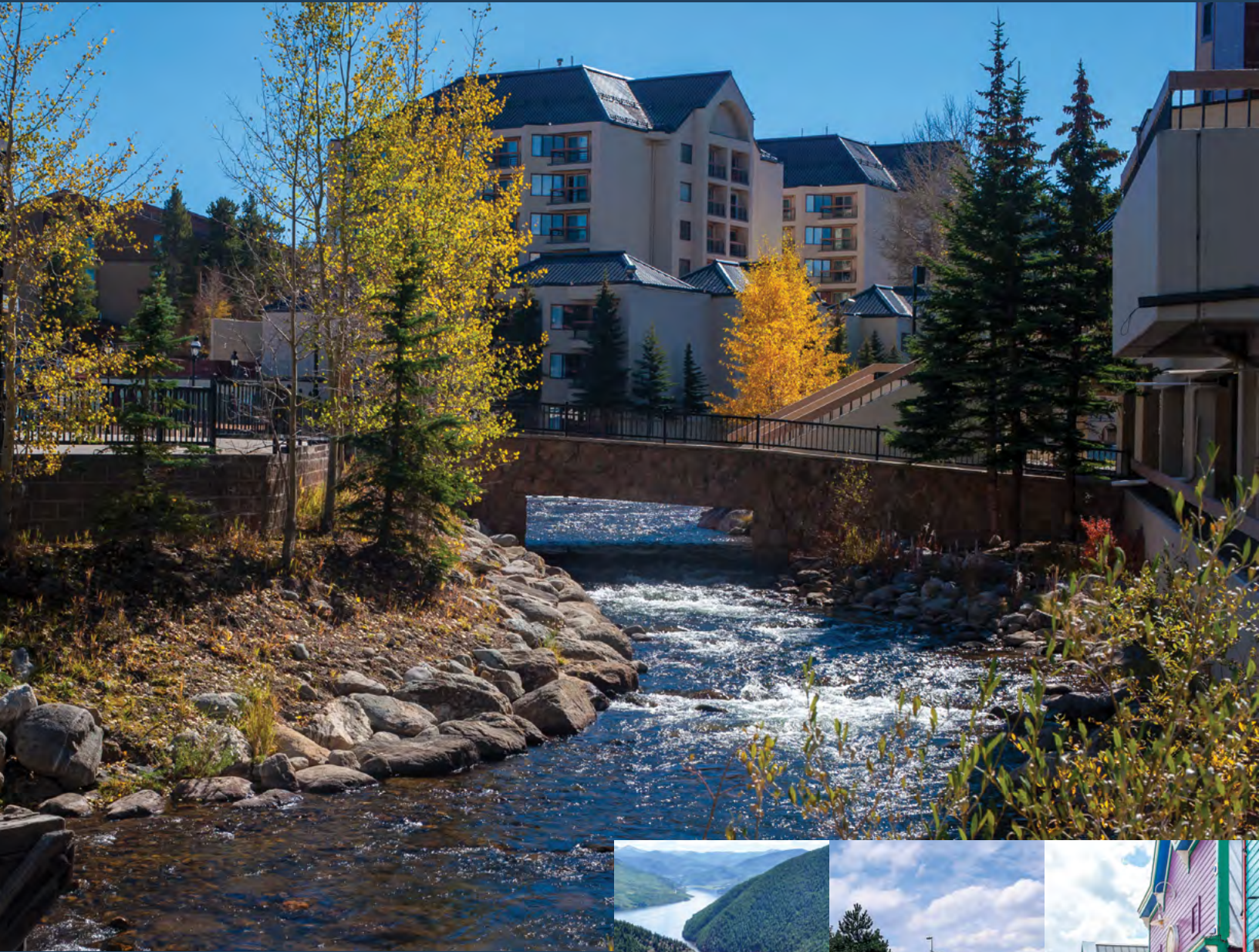
Yard sign. A non-permanent sign constructed of paper, vinyl, plastic, wood, metal, or other material that is intended to be displayed for a limited duration.

Zoning district. A specific delineated area on the Zoning Map within which uniform standards govern the use, placement, spacing, size, and form of land and buildings.

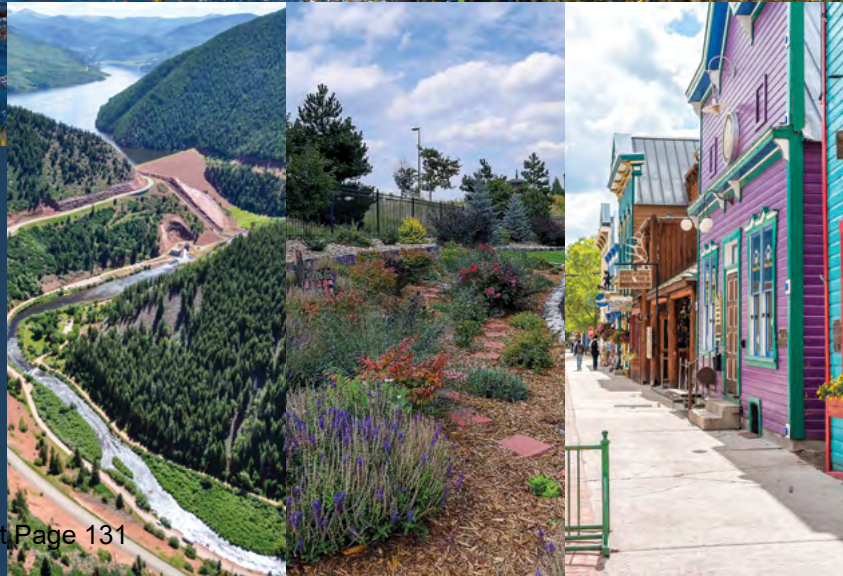
Zoning map. The official zoning map as adopted by the City of Glenwood Springs.

(Ord. No. 19-2018 , § 2(Exh. A), 8-2-2018; Ord. No. 8-2020 , § 2(Exh. A), 5-7-2020; Ord. No. 15-2020 , § 2(Exh. A), 7-2-2020; Ord. No. 1-2021 , § 2(Exh. A), 2-18-2021; Ord. No. 3-2021 , § 2(Exh. A), 5-20-2021)

Water Savings Resource Guide and Model Provisions for the Colorado Headwaters Region



March 2020



Model Code Provisions

Model Water Efficient Landscape Code Provisions¹

Note: These model provisions narrowly address the best practices for the incorporation of water efficiency in a landscape code and does not include the full scope of all landscape code elements, such as design, screening, parking, tree preservation, etc. These standards and application submittal requirements below would be integrated into the relevant sections of a code.

General Provisions

A. Purpose and Objectives

The purpose and intent of water-efficient landscape requirements is to promote a sustainable and resilient landscape as follows:

- Extend water supply and water infrastructure by enhancing efficiency.
- Protect natural landscapes and habitats through incorporation of native plants and natural landscapes.
- Reduce peak season water demand and per capita usage through site design standards and the application of irrigation water budgets.
- Reduce stormwater runoff and impervious surfaces through the integration of Low Impact Design (LID) principles.
- Reduce wildfire risks in fire-prone zones through incorporation of defensible space principles.
- Eliminate outdoor water waste.
- Promote energy efficiency within landscape design.
- Enhance the quality of the urban environment through promotion of well-designed landscapes.

B. Applicability

Landscaping requirements shall apply to *<select and define as appropriate for local context>*:

1. **New Development.** All new nonresidential, multifamily and residential projects consisting of 2 or more lots____ *< or add threshold criteria with a site disturbance area greater than 1,000 square feet or 25 percent of the lot>*.
2. **Existing Development.** Projects that meet the following criteria:
 - a. Projects requiring a building permit that cumulatively increase square footage by *<insert criteria such as 50 percent or more>*.
 - b. Projects that are a change in use from single-family/duplex to multifamily or single-family to nonresidential use.
 - c. Total redevelopment of a lot.
3. **All Public Facilities.**

C. Exceptions

1. **Exceptions.** Exemptions shall apply to: *<insert relevant to local context>*.

¹ Language for this code section informed by regulations from Colorado Springs; Aspen; Castle Rock; Centennial; Commerce City; Flagstaff, Ariz.; Tucson, Ariz.; Santa Fe, N.M., Santa Fe County, N.M.; and California's Model Landscape Code.

- a. (e.g. agricultural activities, master planned communities where different design standards may apply, golf courses, educational institutions, public right of ways, restoration sites, etc.)
 - b. (e.g. Any individual detached single-family residence or duplex on its own lot and not part of a subdivision application.)
- 2. Existing Compliance.** If a project can demonstrate it already meets the minimum water efficiency and landscape standards, a request for a determination of compliance may be made to the *<planning department>* in writing. The request shall contain:
- a. A description of the site, landscape and irrigation system with supporting materials demonstrating compliance.
 - b. A water efficient irrigation audit performed by a certified third-party landscape irrigation auditor.
- 3. Alternative Compliance.** If a development can meet the objectives of this code section through alternative or creative methods, an applicant may request approval of an alternative method of compliance by following this process:
- a. A pre-application conference with *<the planning department>* to discuss the request. A written request should be submitted with accompanying rationale and site map.
 - b. If approved, the application should include:
 - i. A description of site conditions, including topography, soils, existing vegetation, environmental values and identification of limitations.
 - ii. An explanation of methods and techniques in the alternative design and how they will achieve the desired objectives.
 - iii. The alternative landscape design plan.

D. Definitions

Definitions of technical terms used in this section are *<cite section or include below>*.

Required Application Materials

- A. Baseline Conditions.** An assessment of existing vegetation, both native and non-native, that is present on the site before disturbance.
- B. Water Efficient Landscape Plan.** A water efficient landscape plan prepared by a qualified landscape architect, licensed landscape contractor, certified nurseryman or other professional determined by the director to be qualified, that demonstrates how the project will be designed to meet the standards for water efficient landscaping on the site.
 - 1. *<submittal requirements for document size, format, scale, etc.>*
 - 2. Date.
 - 3. Project name.
 - 4. Project contacts.
 - 5. Schematic of landscape design.
 - 6. List of water efficient plant materials.
 - 7. Each hydrozone labeled by a number or letter and delineation of each hydrozone by level of water use: very low, low, moderate, and high.
 - 8. A summary of a soil analysis identifying soil type, soil amendment type, soil amendment volumes, and the condition of the soil related to texture, acidity, salts and plant nutrient availability.
 - 9. Explanation of how topsoil will be stockpiled and reused.
 - 10. Mulch type and application depth.
 - 11. Areas for recreation, edible plants, surface area of water features, etc.

12. Areas irrigated with different water sources including potable water, recycled water and non-potable water.
13. Water features, retaining walls, walls, fences, etc.
14. Location and installation details of stormwater best management practices.
15. Rainwater harvesting technologies.
16. Landscape grading plan.
17. Irrigation system plan, including consistent with the most current version of *Landscape Irrigation Best Practices by the Irrigation Association of the American Society of Irrigation Consultants*.
18. Plan for maintenance of landscape elements, including irrigation system.
19. Signature of licensed landscape architect or licensed/certified landscape contractor.
20. Inspection affidavit.

Water Efficient Landscape Standards

Landscapes shall be designed according to these specifications.

A. Soil Preparation. The soil shall be prepared and amended in accordance with the recommendations of a soil analysis conducted by a certified soil lab.

1. **Top Soil.** Stripping and stockpiling of topsoil shall conducted during construction for replacement, with soil amendments, during landscape installation.
2. **Soil Amendments.**
 - a. Soil amendments for turf, shrubs, perennials and annuals shall be sandy loam to a depth of 6" containing at least 5 percent organic matter by volume.
 - b. Soil amendments for trees shall be:
 - i. Sandy loam to a depth of 36 inches containing 1-3 percent organic matter by volume.
 - ii. In locations with existing good soils, soil shall be turned three times the dimension of the root ball.
3. In locations with hard or compact soil, soil shall be broken up to create adequate drainage.
 - a. Soil amendments shall be Class I and Class II compost.
 - b. The percentage of rocks and debris by volume shall be appropriate for the landscape materials installed.
4. *<if capacity for inspection, soil inspection will occur if deemed necessary prior to installation of plant material conducted by designated staff or contractors.>*

B. Mulch. Mulch shall be applied at a minimum depth of 4 inches with modifications as appropriate for installed plant material. Mulch shall be renewed as needed. Mulch material may be of organic material including, but not limited to: wood, bark nuggets, nut shells, grass clippings, straw, compost and chopped leaves; or inorganic material including gravel, stone, pea gravel, pebbles.

C. Plant Selection and Grouping. Plant materials shall be selected for water efficiency, drought tolerance, use of native species and their relationship to the *<community>* regional ecology as well as geological and topographical conditions:

1. Plants shall be selected from *<Appendix, Manual, or List>*.
2. Plants shall be grouped together by soil suitability and by water use in distinct hydrazones (very low, low, moderate and high) to increase irrigation efficiency.
3. The landscape design shall promote and preserve native species and natural areas and eliminate where possible or minimize need for irrigation after landscaping is established.

4. *<Plant materials used in bioretention and retention ponds shall be adapted to occasional submersion.>*

D. Plant Quality. Plants shall be A-grade or No. 1 grade.

E. Plant Size.

Plant Type	Minimum Size
Shade Tree	<i>2-inch caliper</i>
Evergreen	<i>6-foot height</i>
Ornamental Tree	<i>1.5-inch caliper</i>
Shrubs	<i>5-gallon</i>
Ornamental Grasses	<i>1-gallon</i>

F. Wildfire Management Constraints. In high fire-risk and fire-prone areas identified by *<cite ordinance, map or plan>*, landscape design shall integrate fire-resistant landscaping buffers between development and naturally vegetated areas, locate highest water-use hyrdozones adjacent to structures, select fire-resistant plant species nearest structures, and thin fuel species on slopes and adjacent to structure. In case of a conflict between this regulation and fire safety requirements, the fire safety requirements shall control. *<Landscape plans may be reviewed by the wildfire risk manager in highest fire risk zones> and/or <A site inspection by a wildfire specialist is required prior to landscape design.>*

G. Controlled or Prohibited Materials. The installation of the following invasive species is prohibited: *<list species>*

H. Plant Installation. Groundcover, turf, shrubs, trees and other plant material shall be installed as follows:

1. **Trees.** *<not covered in the scope of this project>*
2. **Groundcover and Shrubs.** *<not covered in the scope of this project>*
3. **Turf.** Turfgrass sod or turfgrass seed shall be cold season grasses with no more than 25 percent Kentucky bluegrass. Recommended turf species includes *<fine fescues, wild ryegrass, blue grama and buffalo grass>*. Turf shall be limited as follows:
 - a. Single-family dwelling units shall not have turf in excess of 1,000 square feet or 10 percent of the total lot area, whichever is less.
 - b. Multifamily dwelling units shall not have turf in excess of 20 percent of the required common space.
 - c. Industrial and commercial development shall not have turf in excess of 1,000 square feet or 3 percent of the required open space, whichever is greater.
 - d. Public parks and commercial recreation uses are exempt from turf limitations but shall limit Kentucky bluegrass to active recreation and high traffic areas only.
- I. **Height limitations.** Landscape materials may not interfere with the proper operation of solar energy equipment or passive solar design on adjacent parcels.
- J. **Water Features.** Decorative water features (e.g. ponds, fountains, pools) shall have recirculating water systems and use recycled water when available.

Outdoor Water Use and Efficient Irrigation Standards

Landscapes shall be designed according to these specifications.

<include A. if utilizing a water allowance>

A. Landscape Water Allowance. Where the water supply source allows outdoor use, the estimated outdoor water use shall not exceed the maximum allowed water budget. Methodology for calculation is *<cite methodology and reference location>*.

1. All irrigated landscaped areas must be included in the water budget calculation.
2. The total irrigation need for all hyrdozones cannot exceed the maximum allowed *<water allowance>*.

- B. Irrigation System Design.** Where irrigation is necessary, water-efficient irrigation systems shall be planned and designed to meet the following standards, consistent with the landscape plan and the most current version of *Landscape Irrigation Best Practices by the Irrigation Association of the American Society of Irrigation Consultants*. Irrigation systems shall be designed for site-specific hydrozones, topography, site orientation, microclimates, prevailing winds and soil type.
1. Dual or multi-program controllers with separate valves and circuits shall be used when the landscape contains more than one type of landscape treatment or for an irrigated area over *<1,000 square feet>* or *<for all commercial, industrial, and multi-family residential developments.>*
 2. Smart controllers, such as soil moisture sensing devices and rain sensors, shall be used on projects greater than *<1,000 square feet>* to minimize overwatering.
 3. Irrigation systems shall use hydrozones by levels of water use.
 4. Permanent irrigation systems (drip, bubblers, low-flow sprinkler heads or similar systems) shall be used on all irrigated landscapes except where hand watering with a hose equipped with a shut off valve is permitted for landscapes of *<less than 1,000 square feet>*.
 5. Check valves and anti-drain valves are required for all sprinkler heads.
 6. The system shall be designed to ensure that the operating pressure at each emission device is within the manufacturer's recommended pressure range for optimal performance.
 7. Overhead spray irrigation is prohibited for use on trees, shrubs and groundcover. Sprinkler heads shall be a WaterSense labeled product and have matched precipitation rates within each valve zone. Sprinkler spacing shall be designed to achieve the highest possible distribution uniformity. All sprinkler heads installed in turfgrass shall have a distribution uniformity of 0.65 or higher.
 8. Low-flow sprinkler heads with matched precipitation rates shall be used when spray or rotor type heads are used for shrubs and groundcover.
 9. Turf areas shall be sized and shaped for efficient irrigation and elimination of water waste. Minimum pop-up height for sprinklers in turfgrass areas shall be 6 inches. Minimum turf area width shall be 10 feet.
 10. *Watering schedule shall comply with <community> water conservation ordinance <cite section> or <Watering shall be scheduled between 6 p.m. and 9 a.m.>*
 11. Irrigation systems shall be designed to prevent water waste, overwatering and overspray, and drainage of water onto any paved or unplanted surface.
- C. Stormwater and Groundwater Recharge.** The landscaped areas shall include best management practices for on-site detention of stormwater runoff and groundwater recharge.
1. *<If stormwater management and low impact design standards are in a separate code section, cite compliance with specific sections. For related code language, see NWCCOG [Model Water Quality Protection Standards](#)>* All landscaping areas that are an integral part of stormwater management systems shall be designed in compliance with *<code citation>*.
 2. *<If no existing regulations>* These practices include but are not limited to:
 - a. Infiltration beds, swales and basins that slow stormwater runoff, collect rainwater and prevent water waste.
 - b. Constructed wetlands and retention ponds that retain water, absorb excess flow and filter pollution.
 - c. Pervious or porous surfaces such as permeable pavers or blocks and porous concrete.
- D. Rainwater Harvesting.** All single- and multi-family residential properties of four units or less are *<encouraged/required>* to utilize water harvested by rainwater barrels for outdoor watering of landscapes. Rainwater harvesting shall consist of two rain barrels not exceeding 110 gallons of storage per residential unit, as authorized under C.R.S. § 37-96.5-103.

Water Waste Prohibition

- A. Water Waste.** Waste of water includes, but is not limited to, continuous application of water to lawns or landscaping that results in excessive puddling or runoff of water, failure to repair leaking water service lines and irrigation systems, application of water to impervious surfaces other than for cleaning purposes, and all other applications of domestic water that do not result in a beneficial use of the public water supply.

Special Requirements for Restrictive Covenants

- A. Restrictive Covenants Landscaping Requirements.** The water demanded by landscapes in residential development, especially turfgrass, peaks in the summer months, straining the water system and environment. Homeowner covenants approved after [effective date of regulations] are prohibited from requiring that the cultivated vegetation within a subdivision be limited to turfgrass, requiring a percentage of a homeowner's property as turfgrass, or prohibiting xeric landscapes.

Maintenance

- A. Maintenance Required.** All landscaping shall be maintained to support healthy and thriving conditions. Irrigation systems and their components shall be maintained in a fully functional manner consistent with the originally approved design and the provisions of this chapter. A maintenance schedule shall be included in the landscape plan and submitted with the final approval application.
- B. Replacement of Plant Material.** Replacement of dead or diseased plant material shall be of the same type of plant material as set forth in the approved landscape plan within 45 days of the start of the following growing season. Replacement time shall not exceed one year.

Installation and Assurances

- A. Timing of Installation.** Approved landscaping and watering systems shall be installed *<and inspected>* in compliance with the approved landscape plan *<prior to issuance of a certificate of occupancy>* or *<prior to the final building inspection>*. If a landscape and irrigation system cannot be installed prior to issuance of a certificate of occupancy for reasons determined by the *<department to be valid, a maximum 90-day deference can be issued along with a temporary certificate of occupancy>* or *< A certificate of occupancy for a structure or building may be issued prior to the completion of required landscape improvements, if the completion is not possible due to seasonal or weather conditions and if the owner or developer escrows the necessary funds with the zoning administrator for the completion of the landscaping.>*

Water Efficiency Provisions for Inclusion in a Water Conservation Ordinance²

Note: These model provisions for outdoor water efficiency can be combined with the model provisions for indoor water efficiency as part of a comprehensive water conservation ordinance.

General Provisions

A. Purpose

As an invaluable natural resource that sustains the ecological, economic, and social vitality of the community, *<jurisdiction>* is committed to ensuring a resilient and sustainable water supply through implementation of water conservation and efficiency practices.

- To protect the health and quality of water bodies.
- To conserve potable and non-potable water resources.
- To reduce peak summer demand therefore extending the capacity of existing water supply and infrastructure.

B. Applicability

These requirements shall apply to development *<select and define as appropriate for local context>* within *<jurisdiction boundary>*. Where a conflict exists between these regulations and any other regulations applicable to the same area, the more stringent requirement shall control.

1. **New Development.** All new residential projects consisting of *<2 or more lots>*, all commercial and multifamily projects, and all nonresidential projects.
2. **Existing Development.** Projects that meet the following criteria:
 - a. Projects requiring a building permit that cumulatively increase square footage by *<insert criteria such as 50 percent or more>*.
 - b. Projects that are a change in use from single-family/duplex to multifamily or single-family to nonresidential use.
 - c. Total redevelopment of a lot.

3. All Public Facilities.

C. Exemptions.

A request for exemption shall be made to the *<person/department>* in a letter that contains the explains the reason an exemption is being requested, the duration of time for requested exemption, the location of the requested exemption, and other data and information that will support the exemption request.

Efficient Outdoor Water Use Requirements

A. Plant Materials

1. Compost, at a rate of a minimum of four cubic yards per one thousand square feet of permeable area, is *<required/recommended>* to a depth of six inches into the soil.
2. A minimum three-inch layer of mulch is *<required/recommended>* to be applied on all exposed soil surfaces of planting areas.
3. The use of native and drought-tolerant plants is *<required/recommended>* for the majority of the landscaped area with the placement of high-water use plants required adjacent to the structure. A list of plants can be found *< See Ch. 3, [page 53](#), for mountain region lists>*.
4. Turfgrass sod or turfgrass seed shall be low water cold season grasses with no more than 25 percent Kentucky bluegrass. Recommended turf species includes *<fine fescues, wild ryegrass, blue grama and buffalo grass>*.
5. Turf shall be limited as follows:

² Language informed by Town of Eagle, CO; Bernalillo County, NM; City of Aspen, CO; Santa Fe County, NM.

1. Single-family dwelling units shall not have turf in excess of *<1,000 square feet or 10 percent of the total lot area>*, whichever is less.
2. Multifamily dwelling units shall not have turf in excess of *<20 percent of the required common space>*.
3. Industrial and commercial development shall not have turf in excess of *<1,000 square feet or 3 percent of the required open space>*, whichever is greater.
4. *<Parks and>* Golf courses shall be designed to limit high-water-use turf and plants to those areas with heavy usage or foot traffic, such as *<athletic fields, playgrounds>* golf course tees, greens, and fairways.
6. Common areas, street medians, streetscapes, ornamental landscapes of developments shall be designed to use medium and low water use turf and plants.

B. Outdoor Irrigation

1. Irrigation Efficiency

Development shall use effective water conservation measures and best management practices, using the most current version of *Landscape Irrigation Best Practices by the Irrigation Association of the American Society of Irrigation Consultants*, that are feasible and reasonable including:

- a. Evapotranspiration or soil moisture irrigation control.
 - i. Smart controllers, such as soil moisture sensing devices and rain sensors, shall be used on projects greater than *<1,000 square feet>* to minimize overwatering.
 - ii. Dual or multi-program controllers with separate valves and circuits shall be used when the landscape contains more than one type of landscape treatment or for an irrigated area over *<1,000 square feet>* or *<for all commercial, industrial, and multi-family residential developments.>*
- b. Irrigation system efficiency improvements.
 - i. Permanent irrigation systems (drip, bubblers, low-flow sprinkler heads or similar systems) shall be used on all irrigated landscapes except where hand watering with a hose equipped with a shut off valve is permitted for landscapes of *<less than 1,000 square feet>*.
 - ii. The system shall be designed to ensure that the operating pressure at each emission device is within the manufacturer's recommended pressure range for optimal performance.
 - iii. Overhead spray irrigation is prohibited for use on trees, shrubs and groundcover. Low-flow sprinkler heads shall be used when spray or rotor type heads are used for shrubs and groundcover.
 - iv. Sprinkler heads shall be a WaterSense labeled product and have matched precipitation rates within each valve zone. Sprinkler spacing shall be designed to achieve the highest possible distribution uniformity. All sprinkler heads installed in turfgrass shall have a distribution uniformity of 0.65 or higher.
 - v. Turf areas shall be sized and shaped for efficient irrigation and elimination of water waste. Minimum pop-up height for sprinklers in turfgrass areas shall be 6 inches. Minimum irrigated turf area width shall be 10 feet.
- c. Leak detection and repair systems or programs.

2. Seasonal and Time of Day Irrigation Restrictions

- a. No outdoor watering shall be permitted prior to *<spring season date>* and after *<fall season date>*.
- b. All spray irrigation during the period beginning on *<date>* and ending on *<date>* of each year must occur between 6:00 p.m. and 9:00 a.m. This restriction shall not apply to drip irrigation and low precipitation bubblers, hand watering, or watering of containerized plants and plant stock.

3. Irrigation Day of Week Restrictions
 - a. For residential uses:
 - i. No residential outdoor watering on Mondays.
 - ii. Even numbered addresses water on Tuesday, Thursday, and Saturdays.
 - iii. Odd numbered addresses water on Wednesday, Fridays, and Sundays.
 - b. For non-residential uses (schools, parks, government, commercial, industrial, churches)
 - i. Water on Mondays, Wednesdays, and Fridays.

C. Water Features

1. Recirculating water systems shall be used for water features.
2. Where available, recycled water shall be used as a source for decorative water features.
3. Covers shall be used for all outdoor pools and spas.

D. Rainwater Harvesting

1. For all residential properties of 4 units or less, households are *<encouraged/required>* to utilize water harvested by rainwater barrels for outdoor watering of landscapes of 2 rain barrels not exceeding 110 gallons of storage per unit authorized under C.R.S §37-96-103.
2. The use of rain gardens to increase infiltration and filtering of stormwater is *<required/recommended>* for parking lots and residential development.

E. Water Waste and Fugitive Water

The following waste of water shall be prohibited.

1. Landscape irrigation water applied in such a manner, rate and/or quantity that it causes runoff onto adjacent property or public right-of-way;
2. Landscape irrigation water which leaves a sprinkler, sprinkler system, or other application device in such a manner or direction as to spray onto adjacent property or public right-of-way;
3. Flow resulting from temporary failures or malfunctions of water supply system when the failure or malfunction is not repaired within *<48>* hours.

F. Restrictive Covenants

1. Traditional turf landscapes in residential development peaks in the summer months placing a significant burden on the water system and environment. Any homeowner covenants created in subdivisions approved following the adoption of this requirement are prohibited from requiring that the cultivated vegetation within a subdivision be limited to or a designated percentage of a homeowner's property as turfgrass is prohibited.

Emergency Water Restrictions

<insert based on drought management plan>

<if no drought management plan, include general language stating the local government has the ability to adopt additional water efficiency and conservation measures not included in the ordinance in the case of a drought or emergency in order to protect water resources.>

Enforcement

A. Compliance

Applicants shall: *<select the appropriate method of compliance>*

- *<Submit a Water Use Efficiency Compliance Form to the <building department> for verification prior to construction.>* or
- *<Submit a Water Use Efficiency Compliance Form to the <building department> certified by a licensed landscape professional before or at the time of final building inspection.>*

B. Violations and Enforcement

<for jurisdiction with a utility>

For a first violation of the requirements of this ordinance, the *<jurisdiction>* shall issue a written notice. For a second violation within the preceding twelve (12) calendar months, a surcharge in the amount of *<\$ amount>* shall be charged to the customer’s water bill>. Each subsequent offense shall have a fine of *<\$ amount>*. After a fifth or any subsequent violation, the *<jurisdiction>* shall have a fine of *<\$ amount>* and *<may restrict water service to the customer>*. Full service may be restored no later than 48 hours after payment of all charges and termination of action resulting in violation. The *<municipality >* shall have the right to enforce compliance including injunction or court action.

<for jurisdiction without a utility>

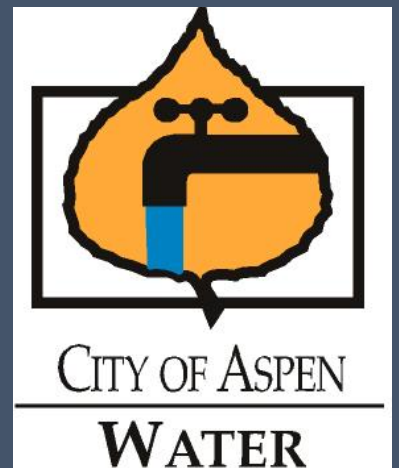
The *<jurisdiction’s departments given authority of enforcement>* may enforce any and all of the water conservation regulations with the following fines scheduled allowed for violation of the ordinance. Violations at a single address per day constitute a single offense.

1 st violation	Written Notice.
2 nd violation with 12 months	<fine \$ amount>
3 rd violation	<fine \$ amount>
4 th violation	<fine \$ amount>
5 th violation	<fine \$ amount> and possible legal action

WATER EFFICIENT LANDSCAPING STANDARDS

The Water Efficient Landscaping Standards provide policies, guidelines, and minimum criteria to governmental agencies, design professionals, private developers, community groups, and homeowners for all new development. These standards promote efficient development and use of water within the City of Aspen's water service area.

JANUARY 1, 2019



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Appendices

APPENDIX A – WATER EFFICIENT LANDSCAPE WORKSHEET

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APPENDIX F – TREE SOIL INFORMATION CHARTS

1. OBJECTIVE AND PURPOSE

1.1 Objective

The *Water Efficient Landscaping Standards* provide policies, guidelines, and minimum landscaping design, installation, maintenance, and management criteria to governmental agencies, design professionals, private developers, community groups, and homeowners for new development and significant remodels. These standards promote efficient development and use of water within the City of Aspen's water service area. Implementation of these standards fulfills certain recommendations identified in the City of Aspen's Municipal Water Efficiency Plan (updated in 2015), the Roaring Fork Regional Water Efficiency Plan (2015), and the Roaring Fork Watershed Plan (2012).

1.2 Purpose

- 1.2.1 Promote the values and benefits of healthy landscapes while recognizing the need to invest water and other resources as efficiently as possible.
- 1.2.2 Establish a structure for planning, designing, installing, maintaining and managing water-efficient landscapes in new construction and renovated/rehabilitated projects.
- 1.2.3 Use water efficiently without waste by setting a Maximum Applied Water Budget as an upper limit for water use and reduce water use to the lowest practical amount.

2. APPLICABILITY AND GENERAL PROVISIONS

2.1 Applicability

30 days after adoption of Ordinance 16, Series 2017, these standards shall apply to the following projects that use City of Aspen potable water:

- 2.1.1 Landscaping, grading, installing or disturbing hardscapes, additions to structures, etc. that has a disturbance area greater than 1,000 square feet and greater than 25% of the entire site.
- 2.1.2 All new construction with internal work only that demolishes greater than 50% of the existing structure (based on the entire square footage of rooms where floors, ceilings, or walls are exposed over the square footage of the structure).

2.2 Exceptions

The standards do not apply to:

- 2.2.1 Projects that do not have water supplied or conveyed by the City of Aspen.
- 2.2.2 Projects in the City of Aspen R-3 (high density) planning zone.
- 2.2.3 There may be special circumstances, including but not limited to the following, in which portions of the standards shall not apply. In these circumstances, applicants shall follow the variance process described in Section 2.4 below.
 - a. Irrigation of public parks, sports fields, golf courses, and schools.
 - b. Landscapes where tree preservation is required under the local tree ordinance.
 - c. Landscapes including public right-of-way.
 - d. Ecological restoration projects that do not require a permanent irrigation system.
 - e. Mined-land reclamation projects that do not require a permanent irrigation system.
 - f. Stormwater treatment facilities that require irrigation.
 - g. Wildfire mitigation areas planned to establish defensible space.
 - h. Properties undergoing Pitkin County Scenic Review.

- i. Areas receiving solely authorized alternative water sources such as rain catchment, raw water, etc.
- j. Registered local, state or federal historical sites.

2.3 Pilot Phase

An 18-month pilot phase began June 22, 2017 after adoption of Ordinance 16, Series 2017 and ended on December 31, 2018. For all permit applications accepted by the City during the pilot phase, all documentation described in this document was required, and irrigation and landscaping installation requirements needed to be met. During the pilot phase, the City encouraged applicants to meet the 7.5 gallons/season/square-foot water budget, however, failure to meet the Maximum Applied Water Budget during the 18-month pilot phase did not hold up applicant's building permit and/or certificate of occupancy. Effective January 1, 2019, full compliance with the City of Aspen Water Efficient Landscaping Ordinance and Standards will be required.

2.4 Variances and Existing Compliance

2.4.1 Variances

The City may grant variances to the Water Efficient Landscaping Standards when practical difficulties or unnecessary hardships exist that cause inconsistencies with the purpose and intent of the standards.

Requests for variances from the standards, policies, or submittal requirements of this document shall be submitted in writing with appropriate documentation and justification to the City Utilities Director.

Variance requests must, at a minimum, contain the following:

- Criteria under which the applicant seeks a variance;
- Justification for not complying with the standards;
- Proposed alternate criteria or standards to comply with the intent of the criteria;
- Supporting documentation, including necessary calculations;
- The proposed variance's potential adverse impacts for adjacent landowners; and
- An analysis of the variance request, signed by a qualified landscape professional or qualified irrigation design professional, depending on the topic of the request.

Upon receipt of a complete application for a variance, the City Utilities Director shall prepare a statement to recommend that the variance be approved or denied or to request a modification of the proposed variance.

2.4.2 Existing Compliance

The City may grant a determination of compliance for existing projects or portions of existing properties in sufficient compliance meeting the minimum standards.

Requests for determination of compliance shall be submitted in writing with appropriate documentation and justification to the City Utilities Director. Requests for determination of existing compliance must, at a minimum, contain the following:

- Landscape and Irrigation Documentation Package; and
- Irrigation audit report performed by a third party Certified Landscape Irrigation Auditor (see Section 5.7 for details).

Upon receipt of a complete application for a determination of existing compliance, the City Utilities Director shall prepare a statement to recommend that the determination be approved or denied or to request a modification of the proposed determination.

2.5 Appeals

2.5.1 Initiation

An applicant aggrieved by an order, requirement, decision, or determination of the City Utilities Director may file an appeal with the Administrative Hearing Officer, pursuant to the procedures set out in Chapter 26.108 of the City of Aspen Municipal Code except to the extent set forth herein. The notice of appeal shall be filed with the City Utilities Director within fifteen (15) days following the date of such order, requirement, decision, or determination. The notice of appeal shall state in detail the action appealed, the grounds for the appeal, and the relief sought. Failure to file such a notice of appeal within the prescribed time shall constitute a waiver of any rights under this section to appeal any order, requirement, decision, or determination.

2.5.2 Effect of Filing an Appeal

The filing of a notice of appeal shall stay any proceedings in furtherance of the action appealed from unless the City Utilities Director certifies in writing to the Administrative Hearing Officer that a stay poses an imminent peril to life or property, in which case the appeal shall not stay further proceedings. The Administrative Hearing Officer may review such certification and grant or deny a stay of proceedings.

2.5.3 Timing of Appeal

The Administrative Hearing Officer shall consider the appeal within thirty (30) days following the date of filing the notice of appeal, or as soon thereafter as is practical under the circumstances.

2.5.4 Action by Administrative Hearing Officer

The Administrative Hearing Officer shall review the record of the action taken by the City Utilities Director and provide a decision to the applicant in writing. The Administrative Hearing Officer may reverse or affirm wholly or partly the order, requirement, decision or determination appealed from and shall enter such order, as they deem appropriate under the circumstance.

3. DOCUMENTATION

The following documentation is required for all projects subject to the Water Efficient Landscaping Standards. The City of Aspen reserves the right to conduct inspections and audits as deemed necessary, at the expense of the customer, if there is indication that the criteria have not been followed.

3.1 Landscape and Irrigation Documentation Package

The Landscape and Irrigation Documentation Package shall include the following six (6) elements:

3.1.1 City-provided checklist of all documents in Landscape and Irrigation Documentation Package.

3.1.2 Project information

- a. Project contacts for the project applicant, landscape and irrigation system installer, and property owner
- b. Project address (if available, parcel and/or lot number(s))
- c. Total landscape area and total irrigated area (square feet)
- d. Project type (e.g., new, rehabilitated, public, private, homeowner-installed)
- e. Water supply type (e.g., potable, recycled, well)

- f. For Pitkin County residents only: Recorded Site Plan and Activity Envelope.
- 3.1.3 Applicant signature and date with statement, "I agree to comply with the requirements of the Water Efficient Landscaping Standards and submit a complete Landscape and Irrigation Documentation Package".
- 3.1.4 Completed Water Efficient Landscape Worksheet (see Appendix A)
- 3.1.5 Signed Landscape Design Plan (signed by a Certified/Licensed Landscape Contractor)
 - a. All applicable soil criteria and standards shall be noted on the landscape design plan.
 - b. A soil analysis report and associated information shall be provided if the project applicant chooses to appeal the standard soil amendment criteria.
- 3.1.6 Signed Irrigation Design Plan (signed by a qualified irrigation professional)

3.2 Compliance with the Landscape and Irrigation Documentation Package

- 3.2.1 Prior to submission of an application, the City of Aspen Landscape Plan Reviewer shall:
 - a. Provide the project applicant with the standards and procedures for permits, check plans, or design reviews.
 - b. Review the Landscape and Irrigation Documentation Package submitted by the project applicant.
 - c. Approve or deny the review of the Landscape and Irrigation Documentation Pre-Submission Package for the project applicant.
- 3.2.2 Prior to submission of an application, the project applicant shall:
 - a. Submit a Landscape and Irrigation Documentation Package to the City of Aspen Landscape Plan Reviewer.
 - b. Receive the authorization from the City of Aspen Landscape Plan Reviewer to proceed with the City of Aspen permit process.
- 3.2.3 Upon approval of the Landscape and Irrigation Documentation Package by the City of Aspen, the project applicant shall:
 - a. Receive a permit or approval of the plan check or design review and retain record to include the date of the permit in the Approval Letter (see Section 5.8 – Approval Letter).
 - b. Submit a copy of the approved Landscape and Irrigation Documentation Package along with the record drawings, and any other information to the property owner or his/her designee.

4. LANDSCAPE CRITERIA

Unless otherwise specified, the criteria within this section shall apply to all applicable projects. The City of Aspen reserves the right to conduct inspections as deemed necessary, at the expense of the project applicant, if there is indication that the criteria have not been followed.

4.1 Soil Criteria

- 4.1.1 Soil Amendment
 - a. Topsoil of irrigated grasses (including turf), shrubs, perennials, and annuals shall be a sandy loam to a depth of at least 6 inches (6") containing at least 5 percent (5%) organic matter by volume.
 - b. Tree soil must be a sandy loam and 36" deep for areas where trees are planted. The total soil depth shall have at least one to three percent (1-3%) organic matter by volume. (NOTE: If in

turf, top soil should be 6" and have 5% organic matter by volume). In good existing soils, dig and turn the soils to three times the dimension of the root ball. Hard or compacted sub soil or lower soil layers should be broken up to create adequate drainage and avoid trapping water creating saturated and anaerobic conditions in the upper soil layer. In newly developed planting sites, soil depth shall be 20' diameter around the trees to a depth of 36" or meet the requirements for soil volume as described in Appendix F.

- c. Soil amendment organic matter shall consist of either Class I and Class II compost.
- d. Soil Evaluation and Improvement
 - i. The following soil evaluation procedure may be utilized if the project applicant chooses to appeal the standard soil amendment criteria and/or if the City of Aspen requires verification of the soil amendment. The soil evaluation determines the condition of the soil related to texture, acidity, salts, and plant nutrient availability.
 - ii. The applicant must discuss the appeal with the City of Aspen to determine the procedures and submittal requirements.
 - iii. The applicant shall submit an explanation in narrative form explaining the appeal and attach any information including site-specific data and the following soil analyses:
 - (a) A soil analysis shall be conducted by a professional soil scientist at a certified soils laboratory.
 - (b) Soil sample(s) shall be taken after over-lot grading, if applicable, and prior to landscaping.
 - (c) The soil sample must represent a uniform area. Differences in texture (sand, silt, clay), color, slope, degree of erosion, drainage, past management practices, types of plant materials designed for each area should be taken into account when collecting the sample. The soil scientist shall determine the sample sites, depth and frequency necessary to reflect a representative sample of the site and to coincide with the plant material intended for the area in the design. Recommended sampling frequency is no less than one (1) sample per five-thousand (5,000) square feet. Any sampling less than this frequency shall be justified by the soil scientist.
 - (d) The soil analysis shall determine the organic and inorganic composition of native/indigenous soil in landscaped areas, and shall include:
 - Soil texture;
 - Total exchange capacity;
 - Conductivity;
 - Organic matter;
 - Acidity; and
 - Content of nitrogen (NO₃, Phosphorus, Potassium, Zinc, Iron, Copper, Manganese and Lime).
 - iv. The soil analysis shall include specific recommendations based on the soil test results for the type of plant material to be grown in each landscaped area. The type and volume of soil amendment shall be determined by the soil scientist and be consistent with the indigenous soil and the needs of the plant materials in each area of the landscape.

- v. Upon receipt of the information, the City of Aspen shall approve or deny the soil amendment. If the amendment is denied, the City of Aspen shall provide information to the project applicant regarding additional requirements.

4.1.2 Soil Preparation

- a. Amendment shall be tilled to a minimum depth of six inches (6").
- b. Site shall be graded to within two-tenths of a foot (2/10th) of the grading plan.
- c. Site shall be free of rocks and debris over one-inch (1") diameter in size. Rocks and debris 0.5 inch (0.5") to one inch (1") shall not exceed 5 percent (5%) by volume and gravel 0.6 inch (0.6") to 1.25 inches (1.25") shall not exceed 5 percent (5%) by volume. Particles such as concrete, brick, glass, metal, wood or plastic greater than one inch (1") shall not be allowed. The total volume of these materials smaller than one inch (1") shall not exceed 5 percent (5%).
- d. Site shall be free of dirt clods over three-quarter inch (3/4") diameter in size. Dryland seed areas may contain dirt clods up to two-inch (2") diameter in size.
 - i. Stockpiling - Stripping and stockpiling of indigenous soil (topsoil) shall be required during construction (except as waived by the City of Aspen). The replacement of this soil, plus additional soil amendments, are critical to successful plant material establishment, ongoing health, and efficient use of water through the life of the project. Stockpiling may not occur on existing native vegetation outside of the disturbance area.
- e. The soil shall have no herbicides, heavy metals, biological toxins or hydrocarbons that impact plant growth or exceed the EPA's standards for soil contaminant.
- f. All applicable soil criteria and standards shall be noted on the landscape design plan. Written verification of approved soil amendment type and volume is required. Projects with inadequate soil amendment and preparation will not be approved.
- g. Written documentation of soil amendment type and volume must be retained and made available to the City upon request.

4.1.3 Soil Inspection

- a. Soil inspections prior to installation of plant material may be conducted by the City of Aspen as deemed necessary and shall include a review of adherence to all criteria and performance standards.
 - i. Soil will be inspected by the City of Aspen Landscape Plan Reviewer for depth and type of organic matter.
- b. Written documentation reflecting approved volume and type of soil amendment is required upon inspection.

4.2 Mulch Criteria

4.2.1 Organic Mulch

- a. Shall be applied at one (1) cubic yard per eighty (80) square feet at a depth of four (4) inches, and as appropriate to each species.
- b. Shall be applied to the soil surface, not against the plant stem or high against the base of trunks to minimize disease.

- c. Organic mulch material includes bark and wood chips. Avoid mulch consisting of construction debris such as pallets.

4.2.2 Inorganic Mulch

- a. Inorganic mulch includes rock, gravel, or pebbles.
- b. Rock mulch shall have a minimum depth of two inches (2").

4.3 Landscape Criteria

4.3.1 Water Budget

- a. All irrigated landscaped areas must be included in the water budget calculation. See Appendix A for details regarding the Maximum Applied Water Budget calculation.
- b. The total irrigation water need for all hydrozones cannot exceed a Maximum Applied Water Budget of 7.5 gallons/season/square-foot of irrigated landscape area (12 inches/season), unless one or more of the following special features are included. See Appendix A for examples of how these circumstances may be included in the water budget calculation.

- i. Special features to incentivize healthy landscapes.

- Non-irrigated protected native vegetation areas.
- Ecological restoration areas (see Section 4.3.2.e below).
- Bioretention areas (see Section 4.3.4.b.i below).
- Non-irrigated permeable areas (see Section 4.3.4.b.ii below).
- Stormwater conveyance infrastructure (see Section Stormwater Management 4.3.4.b.iii below).

If any combination of the special feature areas totals to at least 5% of the total irrigated hydrozone area, then the Maximum Applied Water Budget increases to 8 gallons/season/square foot (12.8 inches/season).

If any combination of the special feature areas totals to at least 10% of the total irrigated hydrozone area, then the Maximum Applied Water Budget increases to 8.5 gallons/season/square foot (13.6 inches/season).

- ii. Rain barrels are incentivized when used to irrigate plantings in the Low or Very Low water use category with drip irrigation. For these areas, the calculated Irrigation Water Need may be decreased by 125 gallons per season for one (1) 55-gallon rain barrel, or by 250 gallons per season for two (2) 55-gallon rain barrels.

4.3.2 Plant Material²

- a. Aside from the use of invasive and/or noxious plant species, any plant can be utilized in the landscape plan. The GreenCO Plant List provides water use categories that can be used for calculating the plant water need. An estimate of the plant water need, in gallons per square foot per season, must be provided for any plants that are not currently included in the GreenCO Plant List. See Appendix B for the GreenCO Plant List.

² See also: Pitkin County Revegetation Guide <http://pitkincounty.com/documentcenter/view/2937>; Pitkin County Riparian Revegetation Guide <http://www.pitkincounty.com/DocumentCenter/View/2938>; and Pitkin County Approved Seed Mixes <http://pitkincounty.com/DocumentCenter/View/2936>.

- b. Each hydrozone shall have plant materials with similar water use.
- c. Plants shall be selected and planted appropriately based upon their adaptability to the climatic, soils, and topographical conditions of the project site. To encourage the efficient use of water, the following are highly recommended:
 - i. Protection and preservation of native species and natural vegetation.
 - ii. Selection of plants based on disease and pest resistance.
 - iii. Selection of trees based on applicable local tree ordinance or tree shading guidelines.
 - iv. Recognize the horticultural attributes of plants (i.e., mature plant size, invasive surface roots) to minimize damage to property or infrastructure (e.g., buildings, sidewalks, power lines).
 - v. Consider the solar orientation for plant placement to maximize summer shade and winter solar gain.
- d. Protected native vegetation areas without irrigation are incentivized through the water budget calculation (see Section 4.3.1 above).
- e. Ecological restoration projects that have establishment irrigation system shall be given a “Very low” plant factor value with an irrigation efficiency value based on the irrigation method and are incentivized through the water budget calculation (see Section 4.3.1 above).
- f. Invasive and/or noxious plant species are prohibited.³
- g. Turf is not allowed on slopes greater than twenty-five percent (25%) where the toe of the slope is adjacent to an impermeable hardscape and where 25% means 1 foot of vertical elevation change for every 4 feet of horizontal length (rise divided by run x 100 = slope percent).
- h. Avoid fire-prone plant materials and highly flammable mulches. See Appendix C for a recommended list of plants to best prepare for wildfire⁴ and landscape design fact sheet Appendix D for the City and Pitkin County Wildfire Hazard Assessment Maps.
- i. A landscape design plan for projects in fire-prone areas shall address fire safety and prevention.
- j. All landscape plantings for properties located in the Moderate or High Wildfire Hazard zone of the City must be firewise (see Appendices C and D).
 - vi. Properties located outside of the City limits should consult with Pitkin County.
- k. The architectural guidelines of a common interest development, which include community apartment projects, condominiums, planned developments, and stock cooperatives, shall not include conditions that have the effect of prohibiting the use of low-water use plants as a group.
- l. Removing vegetation and amending soil under existing trees requires hand grubbing no deeper than four inches (4"). Any additional soil above existing grade limited to a maximum three inches (3").

³ See: Pitkin County Noxious List & Weed Management Plan, <http://pitkincounty.com/430/Noxious-Weed-Information>

⁴ See: City of Aspen Firewise Plant Materials recommendations:
[http://www.aspenpitkin.com/Portals/0/docs/City/wildfire/FireWise%20Information_Landscaping-Plants%20\(2\).pdf](http://www.aspenpitkin.com/Portals/0/docs/City/wildfire/FireWise%20Information_Landscaping-Plants%20(2).pdf)

- m. All irrigation work performed within the drip line of existing trees requires hand grubbing no deeper than six inches (6") and must be as far from tree trunk as practically possible. Do not cut roots larger than four inches (4") in diameter.

4.3.3 Water Features

- a. Recirculating water systems shall be used for water features.
- b. Where available, recycled water is recommended as a source for decorative water features.
- c. For purposes of the water budget calculation, the surface area of a water feature shall be included as a water use hydrozone area with a 75% irrigation efficiency.
- d. Pool and spa covers are highly recommended.

4.3.4 Stormwater Management

- a. Stormwater management practices minimize runoff and increase infiltration which recharges groundwater and improves water quality. Implementing stormwater best management practices into the landscape and grading design plans to minimize runoff and to increase on-site retention and infiltration are encouraged.
- b. Green stormwater infrastructure is incentivized through the water budget calculation. The following treatments associated with the landscape and described in the drainage report will have the following hydrozone values:
 - i. For purposes of the water budget calculation, bioretention areas with permanent irrigation shall apply a plant factor value representing the plantings with an efficiency value based on the irrigation method. Bioretention areas that have establishment irrigation system shall be given a "Very low" plant factor value with an irrigation efficiency value based on the irrigation method. These features include green roofs and rain gardens. Other features may be approved during review by the City of Aspen Landscape Plan Reviewer. These areas are incentivized through the water budget calculation (see Section 4.3.1 above).
 - ii. Non-irrigated permeable surfaces without plants are incentivized through the water budget calculation (see Section 4.3.1 above).
 - iii. For purposes of the water budget calculation, stormwater conveyance infrastructure such as vegetated swales shall apply a plant factor value representing the plantings with an efficiency value based on the irrigation method. These areas are incentivized through the water budget calculation (see Section 4.3.1 above).
- c. Project applicants shall refer to the City of Aspen Engineering Department for information on any applicable stormwater ordinances and stormwater management plans.

4.4 Landscape Plan

The landscape design plan, at a minimum, shall:

- 4.4.1 Delineate and label each hydrozone by number, letter, or other method.
- 4.4.2 Identify each hydrozone Water Use Category.
 - a. Identify proposed plants by common and botanical names within each hydrozone. Provide a legend of graphic symbols for each proposed plant and/or seed mixture.
- 4.4.3 Identify recreational areas.
- 4.4.4 Identify City Right-of-Ways

- 4.4.5 Identify areas permanently and solely dedicated to edible plants.
- 4.4.6 Identify areas irrigated with recycled water.
- 4.4.7 Identify type of mulch and application depth.
- 4.4.8 Identify soil amendments, type, and quantity.
- 4.4.9 Identify type and surface area of water features.
- 4.4.10 Identify hardscapes (pervious and non-pervious).
- 4.4.11 Identify location and installation details of any applicable stormwater best management practices that encourage infiltration of stormwater. Stormwater best management practices are encouraged in the landscape design plan and examples include, but are not limited to:
 - a. Infiltration beds, swales, and basins that allow water to collect and soak into the ground.
 - b. Constructed wetlands and retention ponds that retain water, handle excess flow, and filter pollutants.
 - c. Pervious or porous surfaces (e.g., permeable pavers or blocks, pervious or porous concrete, etc.) that minimize runoff.
- 4.4.12 Identify any applicable rain harvesting or catchment technologies (e.g., rain gardens, cisterns, etc.).
- 4.4.13 Contain the following statement: "I have complied with the criteria of the Water Efficient Landscaping Standards and applied them for the efficient use of water in the landscape design plan".
- 4.4.14 The signature of a licensed landscape architect or Certified/Licensed Landscape Contractor (see description of "Certified/Licensed Landscape Contractor" in Definitions section).

5. IRRIGATION SYSTEM CRITERIA

This section applies to landscaped areas requiring permanent irrigation. For the efficient use of water, an irrigation system shall be planned and designed according to the most current version of the *Landscape Irrigation Best Management Practices*, by the Irrigation Association and the American Society of Irrigation Consultants.

5.1 Irrigation System Requirements

- 5.1.1 Backflow prevention devices shall be required to protect the potable water supply from contamination by the irrigation system and comply with local plumbing codes.
- 5.1.2 Manual shut-off valves (such as a gate valve, ball valve, or butterfly valve) shall be required, as close as possible to the point of connection of the water supply and to isolate sections of mainline on larger systems, to minimize water loss in case of an emergency (such as a main line break) or routine repair.
- 5.1.3 Master shut-off valves (lockable) at or near the point of connection to the water supply are required on all projects.
 - a. City of Aspen staff reserve the right to operate this valve when the City has declared a water shortage under the City's Water Shortage Ordinance or when more than fifty percent (50%) of the account usage occurs in water rate tier four (4).
- 5.1.4 Dedicated landscape water meters/sub-meters shall be installed for all non-residential irrigated landscapes of 5,000 square feet or more.

- 5.1.5 Smart irrigation controllers labeled by U.S. Environmental Protection Agency's WaterSense Program or with published reports posted on the Smart Water Application Technologies website are recommended for residential projects and required for all non-residential projects. Flow sensors integrated with the automatic irrigation controller are required on all projects to control irrigation if flows are abnormal.
- 5.1.6 Sensors (e.g., rain, freeze, wind, and/or soil moisture etc.), either integral or auxiliary, that suspend or alter irrigation operation during unfavorable weather conditions or when sufficient soil moisture is present shall be required on all irrigation systems.
- 5.1.7 Soil moisture sensors are required for all irrigated green roofs.
- 5.1.8 The irrigation system shall be designed to prevent runoff, low head drainage, overspray, or other similar conditions where irrigation water flows onto non-targeted areas, such as adjacent property, non-irrigated areas, hardscapes, roadways, or structures. Restrictions regarding overspray and runoff may be modified if the landscape area is adjacent to permeable surfacing and no runoff occurs or if the adjacent non-permeable surfaces are designed and constructed to drain entirely to landscaping.
- 5.1.9 Minimum pop-up height for sprinklers in turfgrass areas shall be six inches (6").
- 5.1.10 Check valves or anti-drain valves are required on all sprinkler heads.
- 5.1.11 The irrigation system shall be designed to ensure that the operating pressure at each emission device is within the manufacturer's recommended pressure range for optimal performance.
 - a. To control excessive pressure above the required operating pressure of the irrigation system emission devices, pressure-regulating devices such as valve pressure regulators, sprinkler head pressure regulators, inline pressure regulators, or other devices shall be installed to meet the required operating pressure of the emission devices.
 - b. If water pressure is below the required operating pressure of the emission devices, then a booster pump shall be installed so that emission devices shall operate at the manufacturer's recommended pressure.
 - c. The pressure and flow measurements shall be identified at the design stage and verified prior to the installation of the system.
- 5.1.12 All irrigation emission devices shall meet the requirements set in the American National Standards Institute (ANSI) standard, ASABE/ICC 802-2014 "Landscape Irrigation Sprinkler and Emitter Standard" authored by the American Society of Agricultural and Biological Engineers and the International Code Council and verified by an independent third-party.
- 5.1.13 The design of the irrigation system shall conform to the hydrozones of the landscape design plan.
- 5.1.14 Sprinklers within a zone shall have matched precipitation rates, unless otherwise directed by the manufacturer's recommendations.
- 5.1.15 Sprinkler spacing shall be designed to achieve the highest possible distribution uniformity using the manufacturer's recommendations. Spacing must achieve head-to-head coverage. All sprinkler heads installed in the turfgrass areas shall have a distribution uniformity of 0.65 or higher using the protocol defined in ASABE/ICC 802-2014 standard.
- 5.1.16 The irrigation system must be designed and installed to meet, at a minimum, any water windows or restrictions for operation such as day of the week and hours of the day.

5.2 Hydrozone Requirements

- 5.2.1 Each remote-control valve shall irrigate a hydrozone with similar microclimate, soil conditions, slope, and plant materials with similar water demand. Individual hydrozones that mix high, moderate, low, and/or very low water use plants shall not be permitted.
- 5.2.2 Relevant soils information such as soil type and infiltration rate shall be utilized when designing irrigation systems.
- 5.2.3 Narrow or irregularly shaped areas, including turfgrass areas, less than ten feet (10 ft) in dimension in any direction shall not utilize overhead sprinkler irrigation.
- 5.2.4 Slopes greater than twenty-five percent (25%) shall not use sprinklers with an application rate exceeding 0.75 inches per hour. Exception: If the irrigation designer specifies an alternative design or technology and clearly demonstrates no runoff or erosion will occur. Prevention of runoff and erosion shall be confirmed during the irrigation audit.
- 5.2.5 Sprinkler heads and other emission devices shall be selected based on what is appropriate for the plants and soil type within that hydrozone. Individual hydrozones that mix high and low water use plants shall not be permitted.
- 5.2.6 In mulched planting areas, the use of low flow irrigation is required for any vegetation that will exceed twelve inches (12") mature height.
- 5.2.7 Where feasible, trees shall be placed on separate valves from shrubs, groundcovers, and turfgrass to facilitate the appropriate irrigation of trees. The mature size and extent of the root zone shall be considered when designing irrigation for the tree.
- 5.2.8 Hydrozone areas shall be designated by number, letter, or other designation on the landscape design plan and irrigation design plan. On the irrigation design plan, designate the areas irrigated by each valve, and assign a number to each valve. Use this valve designation in the Hydrozone Information Table (see Appendix A). This table can also assist with the irrigation audit and programming the controller.
- 5.2.9 Source water, such as non-potable water should be considered (see Appendix E for more details).

5.3 Irrigation Design Plan

Proper installation and management of the irrigation system shall conform to the approved irrigation design plan. An irrigation design plan meeting the following design criteria shall be submitted for review and approval by the City of Aspen.

5.3.1 Plan Requirements

The irrigation design plan, at a minimum, shall contain:

- a. A scaled plan showing property lines, easements, existing or proposed structures, impervious surfaces, and existing natural features.
- b. Location and size of the point of connection to the water supply and meter locations along with static water pressure at the point of connection to the water supply and dynamic water pressure for proper system operation.
- c. Reclaimed/recycled water or alternative water sources such as graywater shall comply with local plumbing codes including marking of pipes and system components.
- d. Location, type and size of all components of the irrigation system, including backflow preventer, flow sensor, master valve, smart irrigation controllers, main and lateral lines,

- manual valves, remote control valves, sprinkler heads, moisture sensing devices, rain switches, on-site weather monitoring sensors, quick couplers, pressure regulators.
- e. An irrigation legend showing the identification of irrigation components.
- f. Flow rate (gallons per minute), application rate (inches per hour), and design operating pressure (pressure per square inch) for each irrigation zone.
- g. Installation details for each of the irrigation components.
- h. Designer statements and signature:
 - i. The following statement: “I have complied with the criteria of the Water Efficient Landscaping Standards and applied them accordingly for the efficient use of water in the irrigation design plan.”
 - ii. The signature of a qualified irrigation professional such as licensed landscape architect with irrigation credentials, Certified Irrigation Designer, or Certified/Licensed Landscape Contractor with irrigation credentials City Staff may require credentials prior to submission.

5.4 Irrigation System Maintenance Schedule

Irrigation systems shall be maintained to ensure proper operation and function for water use efficiency. A regular maintenance schedule shall be submitted with the Approval Letter.

- 5.4.1 A regular maintenance schedule shall include, but not be limited to, routine inspection, auditing, adjustment and repair of the irrigation system and its components. Operation of the irrigation system outside the normal watering window is allowed for auditing and system maintenance.
- 5.4.2 Repair of all irrigation equipment shall be done with the originally installed components. If equipment components with greater efficiency are used in replacement, the entire zone must be changed to maintain consistency (note that only the zone needs to be replaced and not the entire irrigation system).
- 5.4.3 Project applicants are encouraged to implement sustainable or environmentally-friendly practices for overall landscape maintenance.

5.5 Irrigation Scheduling

For the efficient use of water, all irrigation schedules shall be developed, managed, and evaluated to utilize the minimum amount of water required to maintain plant health. Irrigation schedules shall meet the following criteria:

- 5.5.1 Irrigation scheduling shall be regulated by smart irrigation controllers that utilize evapotranspiration data or soil moisture data.
- 5.5.2 Overhead irrigation shall be scheduled between 6:00 p.m. and 8:00 a.m. unless weather conditions prevent it or an alternate schedule is declared under the City’s Water Shortage Ordinance⁵. Operation of the irrigation system outside the normal watering window is allowed for auditing and system maintenance.
- 5.5.3 Parameters used to set the automatic controller shall be developed and submitted for:
 - a. Plant establishment period,
 - b. The established landscape, and

⁵ See: City Municipal Code Sec. 25.28.010.

- c. Temporarily irrigated areas.
- 5.5.4 Each irrigation schedule shall consider, for each station, all the following that apply.
 - a. Irrigation interval (days between irrigation).
 - b. Irrigation run times (hours or minutes per irrigation event to avoid runoff).
 - c. Number of cycle starts required for each irrigation event to avoid runoff.
 - d. Amount of applied water scheduled to be applied on a monthly basis.
 - e. Application rate setting.
 - f. Root depth setting.
 - g. Plant type setting.
 - h. Soil type.
 - i. Slope factor setting.
 - j. Shade factor setting.
 - k. Irrigation uniformity or efficiency setting, based on audit information.

5.6 Irrigation Management

- 5.6.1 Irrigation management includes planning water use, monitoring water use, and verifying that equipment is maintained and properly adjusted for optimal performance.
- 5.6.2 As the landscape matures, adjustments to the system should be in harmony with the original intent of the irrigation design.
- 5.6.3 Scheduling of irrigation events should match the needs of the plants to maintain health, appearance and meet the function of the landscape.

5.7 Irrigation Audit

- 5.7.1 All landscape irrigation audits shall be conducted by a third party Certified Landscape Irrigation Auditor. Irrigation audits shall not be conducted by the person or company who installed the irrigation system.
- 5.7.2 Prior to the audit, applicant shall inform the Parks Department Permit Coordinator and City of Aspen Landscape Plan Reviewer that the site is ready for irrigation inspection.
- 5.7.3 The project applicant shall submit an irrigation audit report with the Approval Letter request (see below) to the City of Aspen Landscape Plan Reviewer. The irrigation audit report shall include, but is not limited to:
 - a. Inspection details;
 - b. System test with distribution uniformity for all turf areas and at least 10% of remaining zones or a well-represented collection of zones;
 - c. Reporting overspray or run off that causes overland flow;
 - d. Examination of an irrigation schedule, or preparation of one as necessary, including irrigation controller's configuration with application rate, soil types, plant factors, slope, exposure and any other factors necessary for accurate programming; and
 - e. System tune-up recommendations or punch list. Applicant will work with auditor to reconcile recommendations and sign off the punch list to meet the standards.
- 5.7.4 The City of Aspen may administer programs that include, but not be limited to, irrigation water use analysis, irrigation audits, and irrigation surveys for compliance with the Maximum Applied Water Budget.

5.8 Irrigation Approval Letter

5.8.1 The Approval Letter request shall include the following six (6) elements:

- a. Project information sheet that contains:
 - i. Date.
 - ii. Project name.
 - iii. Project address and location.
 - iv. Project applicant name, telephone, and mailing address.
 - v. Property owner name, telephone, and mailing address.
- b. Certification by the qualified irrigation professional that the irrigation system has been installed per the approved irrigation design plan.
- c. Record drawings, provided in electronic format, showing all changes from the approved plan shall be included with the certification.
- d. A diagram of the irrigation system showing hydrozones and the irrigation scheduling parameters used to set the controller shall be kept with the irrigation controller for subsequent management purposes.
- e. Irrigation system maintenance schedule.
- f. Irrigation audit report and punch list of recommendations.

5.8.2 The project applicant shall:

- a. Submit the signed Approval Letter with irrigation management and audit report to the City of Aspen for review.
- b. Ensure that copies of the Approval Letter are submitted to the City of Aspen and property owner or his or her designee.

5.8.3 The City of Aspen shall:

- a. Receive the signed Approval Letter from the project applicant.
- b. Approve or deny the Approval Letter. If the Approval Letter is denied, the City of Aspen shall provide information to the project applicant regarding reapplication, appeal, or other assistance.
- c. If a certificate of occupancy is issued in winter months when landscaping and irrigation systems cannot be inspected for compliance, Aspen Water Department will require a deposit equal to the identified cost to complete the landscaping and irrigation plan. Once compliance has been confirmed, the deposit will be returned in full.

6. INSPECTION REQUIREMENTS

The City of Aspen reserves the right to conduct inspections as deemed necessary, separate from the third-party irrigation audit that is described in Section 5.7 above. All projects must meet the requirements and criteria explained in this document and as approved for building permit, regardless of whether the City conducts an inspection. The following information is required to be provided to the City prior to inspection by the City of Aspen Parks Department.

6.1 Landscape Inspection

- 6.1.1 Plant list and drawings reflecting the landscape design and installed landscaping.
- 6.1.2 Soil inspection report if applicable (see Section 4.1.3 for more information).

6.1.3 Written documentation of soil amendment type and volume.

6.2 Irrigation Inspection

6.2.1 Drawings reflecting the as-built irrigation system.

6.2.2 Third party audit report, as described in Section 5.7 above.

APPENDIX A – WATER EFFICIENT LANDSCAPE WORKSHEET

This worksheet is completed by the project applicant and is a required element of the Landscape and Irrigation Documentation Package.

SECTION A. GALLONS OF WATER NEEDED BY PLANT CATEGORY AND IRRIGATION TYPE

The specific irrigation water needs of each hydrozone in the design should be determined using the following formula and factors:

$$\text{Irrigation Water Budget} = [(ET_o \times \text{Plant Factor}) - Re] \times \text{Irrigated Area} \div \text{Irrigation Efficiency} \times 0.623$$

Where:

ET_o = Reference Evapotranspiration = 27.4 inches/season (May through September)

Re = Effective Precipitation = 6.8 inches/season (May through September)

Irrigated Area = hydrozone area in square feet

Water Use Category	Plant Factor	Irrigation Method	Default Efficiency
Cool-Season Turf	0.90	Overhead	75%
High	0.80	Drip	90%
Medium	0.65	Water Feature	75%
Low	0.40		
Very Low	0.25		
Water Feature	0.90		

Special Features to Incentivize Healthy Landscapes* (% of Irrigated Area)	Maximum Applied Water Budget (gal/sf/season)
At least 10%	8.5
At least 5%	8.0
Less than 5%	7.5

*See Section 4.3.1.b.i. Maximum of 10% of the total irrigated area can be applied for to increase water budget up to 8.5 gal/sf/season with any combination of applicable special features.

Number of 55-Gallon Rain Barrels**	Reduction in Calculated Irrigation Water Need (gallons)
2	250
1	125

**See Section 4.3.1.b.ii. Water from rain barrels must be applied to irrigated plantings with Low or Very Low water use categories with drip irrigation.

SECTION B. HYDROZONE INFORMATION TABLE AND WATER BUDGET CALCULATION

First, complete the Special Features Table to define the Maximum Applied Water Budget and any allowed reductions to help complete the Hydrozone Table. Next, complete the Hydrozone Table for each hydrozone. Use as many rows as necessary to provide the square footage of landscape area per hydrozone.

1. Special Features Table

Special Feature	Special Feature Response
Total area of Special Features (sq-ft)	
Total percent of Special Features	
Maximum Applied Water Budget (gal/sf/season)	(a)
Total number of 55-gallon rain barrels	
Irrigation Water Need Reduction for Rain Barrel(s)	(b)

2. Hydrozone Table

Hydro-zone	ET _o (in/season)	Plant Water Use Category	Plant Factor	Re (in/season)	Irrigation Method	Irrigation Efficiency	Hydrozone Area (sq-ft)	Irrig Water Need (gal/season)
Sub-total								
Irrigation Water Need Reduction for Rain Barrel(s)								(b)
TOTAL							(c)	(d)

AVERAGE IRRIGATION WATER NEED ALL ZONES = (d) ÷ (c): _____ gal/sf/season
IMPORTANT: Confirm that this does not exceed value determined in (a) above.

Example Hydrozone Information Table and Water Budget Calculations

Example A: This landscape plan has no special features and is required to meet the 7.5 gal/sf/season Maximum Applied Water Budget.

1. Special Features Table

Special Feature	Special Feature Response
Total area of Special Features (sq-ft)	
Total percent of Special Features	
Maximum Applied Water Budget (gal/sf/season)	7.5 (a)
Total number of 55-gallon rain barrels	
Irrigation Water Need Reduction for Rain Barrel(s)	0 (b)

2. Hydrozone Table

Hydro-zone	ET _o (in/season)	Plant Water Use Category	Plant Factor	Re (in/season)	Irrigation Method	Irrigation Efficiency	Hydrozone Area (sq-ft)	Irrig Water Need (gal/season)
Zone 1	27.4	L	0.40	6.8	Drip	0.90	2,000	5759
Zone 2	27.4	M	0.65	6.8	Overhead	0.75	500	4573
Zone 3	27.4	Cool-Season Turf	0.90	6.8	Overhead	0.75	2,000	29,671
Zone 4	27.4	VL	0.25	6.8	Drip	0.90	1,000	35
Sub-total							5,500	40,038
Irrigation Water Need Reduction for Rain Barrel(s)								(b) 0
TOTAL							(c) 5,500	(d) 40,038

AVERAGE IRRIGATION WATER NEED ALL ZONES= (d) ÷ (c): 7.28 gal/sf/season

IMPORTANT: Confirm that this does not exceed value determined in (a) above.

Example B: This landscape plan includes a 400 sq-ft non-irrigated, native vegetation area, totaling 7% of the total irrigated area. This increases the allowed Maximum Applied Water Budget to 8.0 gal/sf/season. With this allowance, Zone 4 from Example A was changed from Very Low plant category with Drip irrigation to Low plant category with Overhead irrigation. This increases the Average Irrigation Water Need to 7.9 gal/sf/season, meeting the Maximum Applied Water Budget of 8.0 gal/sf/season.

1. Special Features Table

Special Feature	Special Feature Response
Total area of Special Features (sq-ft)	400
Total percent of Special Features	7%
Maximum Applied Water Budget (gal/sf/season)	8.0 (a)
Total number of 55-gallon rain barrels	
Irrigation Water Need Reduction for Rain Barrel(s)	0 (b)

2. Hydrozone Table

Hydro-zone	ET _o (in/season)	Plant Water Use Category	Plant Factor	Re (in/season)	Irrigation Method	Irrigation Efficiency	Hydrozone Area (sq-ft)	Irrig Water Need (gal/season)
Zone 1	27.4	L	0.4	6.8	Drip	0.9	2,000	5,759
Zone 2	27.4	M	0.65	6.8	Overhead	0.75	500	4,573
Zone 3	27.4	Cool-Season Turf	0.9	6.8	Overhead	0.75	2,000	29,671
Zone 4	27.4	L	0.4	6.8	Overhead	0.75	1,000	3,456
Sub-total							5,500	43,459
Irrigation Water Need Reduction for Rain Barrel(s)								(b) 0
TOTAL							(c) 5,500	(d) 43,459

AVERAGE IRRIGATION WATER NEED ALL ZONES = (d) ÷ (c): 7.90 gal/sf/season

IMPORTANT: Confirm that this does not exceed value determined in (a) above.

Example C: This landscape plan includes a 650 sq-ft non-irrigated, native vegetation area, totaling 12% of the total irrigated area. This increases the allowed Maximum Applied Water Budget to 8.5 gal/sf/season. With this allowance, Zone 2 from Example A was changed from Medium plant category with Overhead irrigation to Cool Season Turf plant category with Overhead irrigation. This increases the Average Irrigation Water Need to 8.42 gal/sf/season, meeting the Maximum Applied Water Budget of 8.5 gal/sf/season.

1. Special Features Table

Special Feature	Special Feature Response
Total area of Special Features (sq-ft)	650
Total percent of Special Features	12%
Maximum Applied Water Budget (gal/sf/season)	8.5 (a)
Total number of 55-gallon rain barrels	
Irrigation Water Need Reduction for Rain Barrel(s)	0 (b)

2. Hydrozone Table

Hydro-zone	ETo (in/season)	Plant Water Use Category	Plant Factor	Re (in/season)	Irrigation Method	Irrigation Efficiency	Hydrozone Area (sq-ft)	Irrig Water Need (gal/season)
Zone 1	27.4	L	0.4	6.8	Drip	0.9	2,000	5,759
Zone 2	27.4	Cool-Season Turf	0.9	6.8	Overhead	0.75	500	7,418
Zone 3	27.4	Cool-Season Turf	0.9	6.8	Overhead	0.75	2,000	29,671
Zone 4	27.4	L	0.4	6.8	Overhead	0.75	1,000	3,456
Sub-total							5,500	46,304
Irrigation Water Need Reduction for Rain Barrel(s)								(b) 0
TOTAL							(c) 5,500	(d) 46,304

AVERAGE IRRIGATION WATER NEED ALL ZONES = (d) ÷ (c): 8.42 gal/sf/season
IMPORTANT: Confirm that this does not exceed value determined in (a) above.

Example D: This landscape plan includes a 650 sq-ft non-irrigated, native vegetation area, totaling 12% of the total irrigated area. This increases the allowed Maximum Applied Water Budget to 8.5 gal/sf/season. With this allowance, Zone 2 from Example A was changed from Medium plant category with Overhead irrigation to Cool Season Turf plant category with Overhead irrigation. This property also has two 55-gallon rain barrels being used as supplementary supplies, allowing a 250-gallon irrigation water need reduction to the property. This increases the Average Irrigation Water Need to 8.37 gal/sf/season, meeting the Maximum Applied Water Budget of 8.5 gal/sf/season.

1. Special Features Table

Special Feature	Special Feature Response
Total area of Special Features (sq-ft)	650
Total percent of Special Features	12%
Maximum Applied Water Budget (gal/sf/season)	8.5 (a)
Total number of 55-gallon rain barrels	2
Irrigation Water Need Reduction for Rain Barrel(s)	250 (b)

2. Hydrozone Table

Hydro-zone	ET _o (in/season)	Plant Water Use Category	Plant Factor	Re (in/season)	Irrigation Method	Irrigation Efficiency	Hydrozone Area (sq-ft)	Irrig Water Need (gal/season)
Zone 1	27.4	L	0.4	6.8	Drip	0.9	2,000	5,759
Zone 2	27.4	Cool-Season Turf	0.9	6.8	Overhead	0.75	500	7,418
Zone 3	27.4	Cool-Season Turf	0.9	6.8	Overhead	0.75	2,000	29,671
Zone 4	27.4	L	0.4	6.8	Overhead	0.75	1,000	3,456
Sub-total							5,500	46,304
Irrigation Water Need Reduction for Rain Barrel(s)								(b) 250
TOTAL							(c) 5,500	(d) 46,054

AVERAGE IRRIGATION WATER NEED ALL ZONES = (d) ÷ (c): 8.37 gal/sf/season

IMPORTANT: Confirm that this does not exceed value determined in (a) above.

9-9-12. Landscaping and Screening Standards.

- (a) Purpose: The purpose of the landscaping and screening requirements set forth in this chapter is to:
- (1) Provide minimum requirements for the landscaping of lots and parcels, street frontages, streetscapes and paved areas;
 - (2) Provide minimum requirements to ensure the proper installation or cultivation, and maintenance of landscaping materials;
 - (3) Promote sustainable landscapes and improve the quality of the environment by enhancing air quality, reducing the amount and rate of stormwater runoff, improving stormwater runoff quality, the spread of noxious weeds, and increasing the capacity for groundwater recharge;
 - (4) Minimize the amount of water used for landscaping by promoting Xeriscape™ practices and improving irrigation efficiency;
 - (5) Enhance the appearance of both residential and nonresidential areas, and reduce the visual impacts of large expanses of pavement and rock; and
 - (6) Minimize impacts between uses both on-site and off-site. Landscaping can improve the compatibility of adjacent land uses and screen undesirable views. The landscaping standards also enhance the streetscape by separating the pedestrian from motor vehicles, auto fumes, and dust, providing shade, attenuating noise, and filtering air, buffering wind, and reducing glare.
- (b) Scope: This section and Section 9-9-14, "Parking Lot Landscaping Standards," B.R.C. 1981, apply to all nonresidential and residential developments unless expressly stated otherwise.
- (1) The standards in this section and Sections 9-9-13, "Streetscape Design Standards," and 9-9-14, "Parking Lot Landscaping Standards," B.R.C. 1981, shall be met prior to a final inspection for any building permit for:
 - (A) New development;
 - (B) Redevelopment involving expansion of the total building floor area which exceeds twenty-five percent of the value of the existing structure for any use except a property with three or fewer dwelling units;
 - (C) Redevelopment involving the expansion of the total floor area for a property that has three or fewer dwelling units, shall meet the landscaping standards as follows:
 - (i) Redevelopment valued at more than twenty-five percent, but less than fifty percent of the value of the existing structure shall require compliance with the street and alley tree requirements and the trash and parking screening requirements;
 - (ii) Redevelopment valued at fifty percent or more, but less than seventy-five percent of the value of the existing structure shall require compliance with the street and alley tree requirements and the trash and parking screening requirements and the front yard landscape requirements; and
 - (iii) Redevelopment valued at seventy-five percent or more of the value of the existing structure shall require compliance with the landscape regulations.
 - (D) Redevelopment exceeding one hundred percent of the value of the existing structure and not involving expansion of the total building floor area; or
 - (E) The addition of a dwelling unit.

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- (F) For purposes of this paragraph (1), the applicant shall demonstrate the value of the existing structure by submitting, at the discretion of the applicant, either the actual value assessed by the Boulder County Assessor's Office or the fair market value determined by a real estate appraiser licensed in Colorado.
- (2) When additional parking spaces are provided, or for a change of use where new off-street parking spaces are provided, the provisions of Section 9-9-14, "Parking Lot Landscaping Standards," B.R.C. 1981, shall be applied as follows:
- (A) When the number of additional parking spaces that will be provided exceeds twenty-five percent of the number of existing parking spaces on the site, all standards in Section 9-9-14, "Parking Lot Landscaping Standards," B.R.C. 1981, shall be met for the entire parking lot (existing and new portions) prior to the final inspection for a change of use or concurrent with the addition of the parking spaces.
- (B) When the number of additional parking spaces that will be provided is less than twenty five percent of the number of existing parking spaces on the site, the standards in Section 9-9-14, "Parking Lot Landscaping Standards," B.R.C. 1981, shall be met for the new portions of the parking lot prior to the final inspection for a change of use or concurrent with the addition of the parking spaces.
- (c) Modifications to the Landscape Standards: The city manager is authorized to modify the standards set forth in this section and Sections 9-9-13, "Streetscape Design Standards," and 9-9-14, "Parking Lot Landscaping Standards," B.R.C. 1981, upon finding that:
- (1) The strict application of these standards is not possible due to existing physical conditions;
- (2) The modification is consistent with the purpose of the section; and
- (3) The modification is the minimum modification that would afford relief and would be the least modification of the applicable provisions of this chapter.
- The manager shall require that a person requesting a modification supply the information necessary to substantiate the reasons for the requested modification. The details of any action granting modifications will be recorded and entered in the files of the planning department.
- (d) General Landscaping and Screening Requirements:
- (1) Landscaping Plan: A landscaping plan designed in accordance with this section and Sections 9-9-13, "Streetscape Design Standards," and 9-9-14, "Parking Lot Landscaping Standards," B.R.C. 1981, shall be provided for all developments. The site plan shall include the following:
- (A) A site plan with a north arrow showing the major details of the proposed landscaping and irrigation, prepared on a scale not less than one inch equals thirty feet providing sufficient detail to evaluate the features of the landscaping and irrigation required by this section and Sections 9-9-13, "Streetscape Design Standards," and 9-9-14, "Parking Lot Landscaping Standards," B.R.C. 1981;
- (B) The location of property lines and adjacent streets, the zoning and use of adjacent properties, the existing and proposed locations of all buildings, sidewalks and curb cuts, bike paths and pedestrian walkways, drive aisles and curb islands, utilities, and easements, and the existing location, size, and type of all trees one and one-half inch caliper or greater;
- (C) The location of existing and proposed parking lots, including the layout of parking spaces and interior and perimeter parking lot landscaped areas, and the dimensions and total area (in square feet) for each interior parking lot landscaped area;

-
- (D) The location, design, and materials of all other landscaped areas, including, without limitation, planting strips along all streets, earth berms, retaining walls, fences, water features, benches, trash enclosures, lights, and paved areas. Where fencing is used for required screening, a scaled drawing of the fence elevation must be included;
 - (E) The locations of all proposed plant material, drawn at the size the materials will be within five years of initial planting;
 - (F) The locations of all proposed planting of all ground surfaces. Grass surfaces must be identified as sod or seed with the blend or mix specified;
 - (G) The botanical and common names and sizes of all plant material;
 - (H) Location and dimensions of sight distance triangles at all intersections of streets and curb cuts;
 - (I) Location and type of irrigation and of plant groupings by water use zone;
 - (J) A chart comparing the landscaping requirements of Sections 9-9-13, "Streetscape Design Standards," and 9-9-14, "Parking Lot Landscaping Standards," B.R.C. 1981, to the proposed materials, including, without limitation, the following information: total lot size (in square feet), total parking lot size, including all drives and driveways (in square feet), total number of parking stalls required and the total provided, total interior parking lot landscaped area required and the total provided, total perimeter parking lot landscaping required and total provided, total number of street trees required and the total provided, and total quantity of plant material required and the total provided;
 - (K) The location, size, and species of all existing trees on the property and within the landscape setbacks of all properties adjacent to the development site; and
 - (L) The landscaping plan shall consider and attempt to avoid shading of new trees onto a solar zone required under the 2017 City of Boulder Energy Conservation Code.
- (2) Landscape and Screening Maintenance and Replacement: The property owner shall maintain all required landscaping and provide for replacement of plant materials that have died or have otherwise been damaged or removed, and maintenance of all non-live landscaping materials, including, but not limited to, fencing, paving, irrigation systems, and retaining walls from the issuance of a certificate of occupancy or certificate of completion.
 - (3) Open Space: Required useable open space shall meet the provisions of this section and Sections 9-7-1, "Schedule of Form and Bulk Standards," and 9-9-11, "Useable Open Space," B.R.C. 1981.
 - (4) Pedestrian Access: In all zones except A, P, RR, RE, RL, and RM, paved pedestrian walkways, a minimum of three feet in width, shall be provided as follows:
 - (A) Between at least one building entrance and the sidewalk adjacent to the street;
 - (B) Between the parking lot and the entrance to any buildings larger than 10,000 square feet in size.
 - (5) Screening of Trash Collection and Recycling Areas, Service Areas, and Loading Areas: In nonresidential and multi-family residential developments, trash collection and recycling areas, service areas, and loading areas shall be screened on all sides so that no portion of such areas are visible from public streets and alleys and adjacent properties. Required screening may include new and existing plantings, walls, fences, screen panels, doors, topographic changes, buildings, horizontal separation, or any combination thereof.
 - (6) Outdoor Service Yards and Storage Areas: Service yards and outdoor storage areas in commercial and industrial areas shall be screened from public areas, streets, alleys, and adjacent areas through the use of one or more of the following: walls, fencing, or plantings.

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- (7) Setbacks: All setbacks adjacent to a street shall be landscaped in accordance with the standards set forth in Section 9-9-13, "Streetscape Design Standards," B.R.C. 1981, including, without limitation, that area between the property line and the edge of the pavement or curb of the adjacent street.
- (8) Minimum Overall Site Landscaping: In all zones except A, P, RR, RE, RL and RM, one tree and five shrubs are planted for each 1,500 square feet of lot area not covered by a building or required parking.
- (9) Materials: All material required in a landscaped area shall be live plant material, except as approved by the city manager to provide attractive screening, plazas, or pedestrian access. Plant materials shall be planted in sufficient quantity to completely cover within five years of initial planting, all landscaped areas, including temporary mulched areas, and under trees.
- (10) Mulches:
- (A) Temporary mulches are required in all shrub, tree, and perennial planting beds until full plant coverage is achieved. Organic mulches include wood and bark chips, straw, grass clippings, and seed hulls. Inorganic or inert mulches include weed-barrier fabrics, gravel, and rock.
 - (B) Non-living materials such as bark or rocks shall only be used as temporary mulch until full plant coverage is achieved, or as permanent mulch under shrubs if specifically approved as part of a final landscape plan.
 - (C) Rocks larger than three inches in diameter shall not be used in the public right-of-way or adjacent to sidewalks, and shall be used only upon approval of the city manager as a decorative feature. Rock mulches shall not be used in landscaped areas on the south, west, or southwest-facing sides of buildings or in interior parking lot landscaped areas except under the following conditions:
 - (i) All plants within the rock mulched area are from very low, low, or moderate water use zones and spaced to fill the beds within three years of initial planting; or
 - (ii) Rock is used as a specific ornamental feature in a limited area or as a pedestrian path.
- (11) Minimum Plant Sizes: All materials planted under the provisions of this title shall meet the following requirements:
- (A) Deciduous trees are at least two-inch caliper measured six inches above the ground, except ornamental and flowering trees, including, without limitation, the trees identified as "small maturing trees" on the approved street tree list in Section 3.03-1, City of Boulder Design and Construction Standards, that are at least one and one-half inch caliper measured six inches above the ground;
 - (B) Evergreens are at least five feet tall; and
 - (C) Shrubs are five-gallon container size.
- (12) Grading Standards for New Earth Berms: Berms adjacent to paved surfaces shall be graded to capture all irrigation runoff or to convey it to an appropriate water quality design feature as described in the Urban Storm Drainage Criteria Manual, Vol. 3 (Urban Drainage and Flood Control District, Denver, Colorado).
- (13) Soil Preparation and Planting Specifications: Site preparation and all planting shall be completed, at a minimum, in accordance with the City of Boulder Design and Construction Standards. Site preparation in any development shall include tilling the soil to a minimum depth of six inches below the finished grade, together with soil amendments, including, without limitation, compost, manure, or peat, that are appropriate to ensure the health and sustainability of the landscaping to be planted.
- (14) Water Conservation: Landscaping shall be designed to conserve water through application of all Xeriscape™ landscaping principles. Xeriscape™ landscaping principles do not include artificial turf or

plants, mulched or gravel beds, or areas without landscape plant material, bare ground, weed-covered or infested surfaces, paving of areas not required for pedestrian access, plazas, or parking lots, or any landscaping that does not comply with the standards of this section. Xeriscape™ landscaping principles include:

- (A) Planning and design that ensures water-conserving techniques are coordinated and implemented in the landscape;
 - (B) Grouping plants with similar water and cultural requirements (such as sun and climate) together in the same water use zones and on the same irrigation zones;
 - (C) Limiting the use of high water use turf grass and plantings to high-use areas with high visibility or functional needs;
 - (D) Use of efficient irrigation systems;
 - (E) Use of mulches;
 - (F) Improving soils to allow better water absorption and proper drainage; and
 - (G) Continued maintenance, including weeding, pruning, fertilizing, pest control, and irrigation maintenance.
- (15) Xeriscape™ Landscape Standards: The following Xeriscape™ landscape standards shall apply to all required landscaped areas:
- (A) Plants from the same water use zone shall be grouped together on the same irrigation zones. Water use zones shall be consistent with the Waterwise Plant List as shown in the City of Boulder, Landscape Requirements for Streetscape, Parking Lots, and All Other Developments or based on other lists which meet the same criteria for water use and adaptability if approved by the city manager;
 - (B) The total amount of high water use zones on a property shall not exceed fifty percent of the total landscaped area. The total amount of high water use turf grass shall not exceed twenty-five percent of the total landscaped area. Turf grass areas designated for high use or a specific recreational use shall be excluded from the total landscaped area under this requirement. Trees in tree grates shall also be excluded from the total landscaped area under this requirement;
 - (C) The use of high-irrigation turf and plantings shall be limited to high-use areas with high visibility or functional needs;
 - (D) High water use turf grass shall not be used in landscaped areas with any one dimension less than ten feet in width unless drip, subsurface, or low-volume irrigation is used in that area;
 - (E) Very low and low water use zone plants and turf grass shall be used to the extent practicable;
 - (F) Plants or turf grass from a high water use zone shall not be planted on slopes or berms at a 4:1 slope or greater.
- (16) Irrigation: The following standards shall apply to irrigation systems for required landscaped areas:
- (A) All landscaped areas, including, but not limited to, trees in tree pits, raised planters, planting in the public right-of-way, and all landscaping required in this chapter, shall be irrigated with a permanent, automatic irrigation system designed to provide efficient irrigation coverage with minimal overspray onto non-landscaped areas.
 - (B) The city manager may approve the use of temporary irrigation systems if all plant material is from the very low or low water use zones.
 - (C) Low-volume, drip, or subsurface irrigation systems shall be used in the following conditions:

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- (i) In landscaped areas where any one dimension is less than six feet in width and surrounded by impervious surfaces;
 - (ii) In all non-turf grass areas.
 - (D) Trees shall be zoned separately from turf grass when located in a low or very low water use zone.
 - (E) A soil moisture sensing device or other irrigation management system shall be required for irrigation systems in turf areas.
 - (F) The landscape plan shall indicate the nature, location, and specifications of the irrigation system which shall be used. Separate irrigation circuits should be specified for different zones on the landscape plan. The landscape plan shall have sufficient detail to show that adequate irrigation will be provided to all required landscape areas and plant materials.
 - (G) The irrigation system shall be designed to correlate to the organization of plants into zones with similar watering requirements.
 - (H) Irrigation systems shall be designed to maximize efficient water use and minimize the waste of water.
- (17) Noxious Weeds: All landscape plans must comply with the current state weed and nursery lists.
- (18) Tree Protection: All existing trees six inches or more in caliper and located in any development in the required setback or on the property line shall be protected from construction impacts, unless the tree is a noxious weed. Trees over six inches in caliper shall be protected from construction impacts within the drip line of the tree in a manner that is consistent with the City of Boulder Design and Construction Standards' tree protection for construction site standards.
- (19) Final Inspection: Labels that identify the botanical or common name of the plant material shall be on all trees at the time of final inspection.

Ordinance Nos. 5930 (1997); 7079 (2000); 7088 (2000); 7279 (2003); 7331 (2004); 7713 (2011); 7921 (2013); 8018 (2014) ; 8166 (2017) ; 8323 (2019) ; 8409 (2020)

LANDSCAPE REGULATIONS 2004

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City of Westminster Landscape Regulations
Effective Date September 1, 2004
2004 Edition

I. STATEMENT OF INTENT

The purpose of these Landscape Regulations is to provide minimum design, installation and maintenance criteria for landscape elements. The City of Westminster recognizes landscaping as an important component of quality development, resulting in the enhancement of Westminster's character and image as well as providing benefits to the public such as, but not limited to:

- Enhancement of property values
- Improvement of air and water quality
- Reduction of heat, glare, dust and noise
- Buffering or framing views
- Provision of wildlife habitat and living environment
- Seasonal interest and visual enhancement
- Efficient use of water resources

II. APPLICABILITY

These Landscape Regulations have been adopted by the Westminster City Council. All areas to be landscaped shall incorporate the requirements herein. Enforcement of the regulations shall be as provided in Section 1-8-1 of the Westminster Municipal Code.

Landscaping will be required according to the Landscape Regulations in instances as follows:

- In new development.
- In redevelopment, except in cases where there is no modification that increases any aspect of non-conformance with these Regulations nor increase in hardscape area of greater than 500 square feet.
- In existing developments where there is an Official Development Plan or amended Official Development Plan or Official Development Plan waiver that addresses landscaping, and landscaping is proposed to be modified from what was approved.
- In existing non single-family detached developments where there is no Official Development Plan or amended Official Development Plan or Official Development Plan waiver that addresses landscaping, and landscape area or materials are proposed to be modified. Improvements within existing landscape area or materials must occur in a manner that complies with the standards herein or decreases aspects of non-conformance. Landscape area or materials cannot be reduced without City approval. Existing trees on these properties cannot be removed without City approval.
- In existing single-family detached residential development where there is no approved Official Development Plan or amended Official Development Plan or Official Development Plan that addresses landscaping, and landscape area or related requirements is proposed to be modified to less than the standards herein for a new single-family detached lot.

Landscape and irrigation drawings and documents related thereto are required as described in these Regulations.

Rental housing has additional Municipal Code regulations regarding landscaping. Refer to the Municipal Code at 11-12-7.

III. ADJUSTMENT OF REQUIREMENTS

The Planning Manager is authorized to allow an adjustment from the strict application of the landscape and irrigation requirements in cases that involve practical difficulties or unnecessary hardship, provided however, that:

- The adjustment granted is the minimum necessary to alleviate such practical difficulties or undue hardship upon the owner or the property;
- Such relief may be granted without substantial detriment to the public good and without substantially impairing the intent and purpose of these regulations.

In granting an adjustment, the Planning Manager may attach reasonable conditions thereto. The granting of any adjustment shall not constitute or be construed as a precedent, ground or cause for any other adjustment.

Appeals from this section shall be considered by the Planning Commission and shall follow procedure and fees as established by the approval process for Official Development Plans.

In the case of conflict or lack of specifications, the Planning Manager will determine the appropriate regulation.

It is recognized that City projects such as parks, street medians or public utility facilities may have unique requirements for landscaping and will be reviewed on an individual basis. To the extent that City projects are similar in nature to private development projects, the Landscape Regulations will apply.

IV. OTHER REFERENCES

Other documents which should be referenced that are relevant to landscaping include (but are not limited to): the Sitework Specifications; Standards and Specifications for the design and construction of public improvements (in this case, requirements listed for public improvements will apply to landscape related improvements for private improvements); the Single-Family Detached, Single-Family Attached, Multi-Family, and Senior Residential Design Guidelines; the Traditional Mixed Use Neighborhood Developments Design Guidelines; the Retail Commercial Design Guidelines; and any other design guidelines. Other documents, which apply to specific developments, include the Official Development Plan and any referenced guidelines.

Questions concerning the landscaping for City owned and maintained trails, greenbelts and parks, and publicly owned and maintained open space should be directed to the Department of Parks, Recreation and Libraries.

V. CONSIDERATIONS IN LANDSCAPE DESIGN

Prior to design of a new landscape or modifications to an existing landscape, the following landscape design elements must be considered and incorporated into the landscape and irrigation design.

A. WATER CONSERVATION/WATER-WISE LANDSCAPING/XERISCAPING

The Denver Metropolitan area has a semi-arid climate with an average of only fourteen inches of natural precipitation a year. Because landscape design in Colorado often incorporates the use of plants that are native to regions that have higher levels of annual precipitation, supplemental water is necessary to ensure these landscape survive in Colorado.

1. Xeriscape

The concept of xeriscape was developed in Denver in response to water shortages and refers to an attractive landscape that uses little supplemental water. It does not refer to a dry, barren, no-maintenance landscape, without irrigation. The xeriscape concept promotes water-wise/water conservation in landscape design, to result in landscapes within a semi-arid climate that can have seasonal interest, flowers, and greenery.

Xeriscaping incorporates seven water conserving principles. These are as follows:

- Design – The water conserving landscape requires careful attention to design. The design is one that identifies and develops zones of different water requirements. Designing with different area of water demands is called “hydrozoning.”
- Irrigation – Irrigation is necessary to effectively establish the landscape and to maintain plant life that requires supplemental water on a regular or periodic basis, or in periods of drought. Watering deeply and less frequently will typically result in plants that are deeper rooted and more drought tolerant.
- Soil Preparation – Soil preparation is very important to the success of the landscape. Adding organic material (compost) results in soils that will hold moisture longer. Loosening the soil (rototilling) provides water and air infiltration for improved root development.
- Mulch – Mulch covers bare soil, reducing evaporation, soil temperature and erosion. This improves plant growth and assists in reducing weeds and their competition for water and nutrients, mulch also makes weeding easier to perform.
- Appropriate Use of Turf – Careful consideration of where turf is desired and type of grass used is a major component of xeriscaping. Determine the function of turf in the proposed landscape, and then consider the various grasses, suitability for active use, their growth habits, and maintenance requirements.

- Use of Low Water Plants – Careful plant selection and grouping based upon water requirements, with the goal of conserving water, can result in a landscape design of great beauty and interest. Xeriscaping has increased the popularity of many plants that do not require significant levels of water.
- Maintenance – All landscapes require regular and periodic maintenance. Replacement of mulches, weeding, pruning, mowing, and irrigation adjustment are routine requirements of both the xeriscape and traditional landscape.

2. Specific Water – Wise Landscape Elements

In order to reduce the impact of drought on landscapes, and provide efficiency in the use of water, landscape design will be required to incorporate various water-wise elements. These are as follows:

- Design based upon zones of different water requirements – referred to as “hydrozoning.” Low, moderate, and high hydrozones will be required to be identified on landscape and irrigation plans. Plant choice and irrigation design must reflect the relevant hydrozone requirements.
- Total annual water application by irrigation (water budget) shall not exceed 15 gallons/square foot/year (24 inches).
- Low hydrozones are classified by plantings that generally do not require more than 3 gallons/square foot of supplemental water per year, and plants in this zone generally need lower levels of water to thrive. Although plants in this zone may grow with minimal use of supplemental water, in times of plant establishment or drought, these low water use plants benefit from controlled, supplemental watering. Irrigation methods in this zone will typically be micro-spray or drip. Buffalo grass is a typical grass in this hydrozone.
- Moderate hydrozones are classified by plantings that generally require 10 gallons/square foot of supplemental water per year, and plants in this zone generally need this level of water to thrive. Irrigation methods in this zone will typically be spray heads. Turf-type tall fescue is a typical grass in this zone.
- High hydrozones are classified by plantings that will generally require 18 inches/square foot of supplemental water per year. Plants in this zone generally need this high level of water to thrive. Irrigation methods in this zone will typically be spray or rotor heads. Bluegrass turf is a typical grass in this zone.
- High hydrozones should not be within five-feet of a building foundation to reduce potential problems from expansive soils. In general, for purposes of water conservation, it is desirable to transition to a low water zone adjacent to paved areas.
- Automatic irrigation systems will be required in all landscape areas, and must be installed prior to plant materials. Automatic irrigation systems increase the establishment of plants, allow for regular monitoring of water use and needs, and allow the watering of landscapes with minimal manual involvement. The design

of the irrigation system must reflect hydrozones and various requirements within these regulations.

- Soil preparation, including loosening the soil by rototilling and incorporating compost as a soil amendment, is a minimum requirement in all areas of potential landscaping. A soil analysis indicating existing soil texture, percent of organic material and a measure of PH and soluble salts is recommended to determine what other optional soil improvements may be necessary. (Refer to Section V for specific requirements.)
- Mulching in all non-turf areas of the landscape area is required. Because organic mulches (such as bark) assist in retaining soil moisture, and reduce heat absorption and reflection, organic mulches will be required in moderate and high hydrozones. Inorganic mulch (such as stone) will be allowed only in low water zones.
- Plant selection and location will be required to match the plants' water needs to the appropriate water zone. This design practice enhances the efficient use of water and increases the survival rate and health of plants by reducing over-watering or under-watering of plants.

B. Existing Vegetation

All existing healthy trees of desirable species 4 inch caliper or more must be shown on the landscape plan, and must be preserved or transplanted on the site unless approved otherwise by the City. Grading shall not be permitted within the drip line of trees to be preserved or until after relocation is complete. Tree wells or retaining walls may be used beyond the limits of the drip line of the trees in order to protect the trees if grading does not otherwise accommodate preserving the existing grade. The number of trees to be preserved can be credited toward the total number of trees required for the development. The size of trees that are preserved cannot be applied toward additional required landscaping. Any replacement trees are required to be in excess of the otherwise minimum total number of trees.

Any tree removed shall be replaced on a 2:1 caliper-inch ratio. For example, five 2 ½-inch caliper trees and one 3½-inch caliper tree (16 caliper inches in total) would replace one 8-inch caliper tree (8 caliper inches). Special circumstances may be considered in the total number of trees required for replacement, and off-site planting may be considered in some instances.

C. Canals and Watercourses

Setbacks from canals, irrigation ditches or other watercourses are required to protect existing vegetation and channel banks from development encroachment and to minimize slope failures. These setbacks also maintain access to watercourses for maintenance purposes, preserve trees, and provide land for open space and trails.

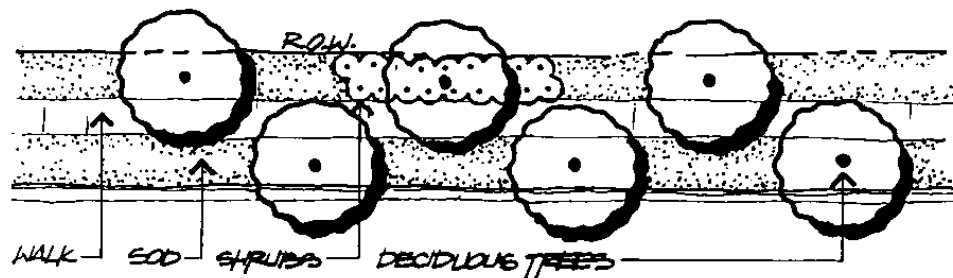
City Council Resolution No. 2 of 1986, requires that the edge of any improvement (grading, paving or trenching) be set back a minimum of 30 feet from the top of bank or right-of-way line, whichever is the furthest from the watercourse. Any structure shall be set back a minimum of 40 feet. Where trees exist within 20 feet of the top of the

watercourse bank, the edge of any improvement shall be set back a minimum of 20 feet from the tree trunk or from a line connecting tree trunks less than 50 feet apart. Any structure shall be set back a minimum of 30 feet from the tree trunks or a line connecting them.

In addition to Resolution No. 2 of 1986, no grading or storage of materials may occur within the drip line of any existing trees to be preserved on a site. The drip line must be fenced prior to and during construction activities. Supplemental watering may be necessary during construction, prior to installation of irrigation systems.

D. Plant Selection and Design

A formal approach to street tree planting and median landscaping is recommended along arterial and collector streets, as this appearance is desired by the City. Formal design incorporates regular spacing of shade trees in a repetitive or predictable pattern. Potential conflicts with pedestrian or vehicular traffic and traffic signage must be taken into account. Planting trees on both sides of the sidewalk is required in order to create a canopy effect and to provide areas of shade for the pedestrian.



TYPICAL STREET LANDSCAPE

Provision of a variety of species is required, as determined by the City. This is necessary not only to provide visual appeal and diversity, but also to limit the impact of diseases and environmental problems that affect different species to varying degrees.

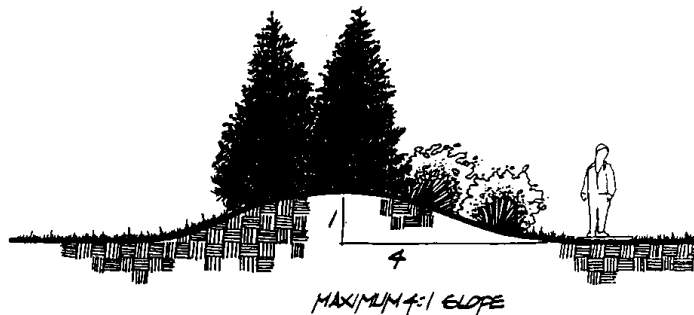
A mix of evergreen and deciduous trees and shrubs is required for a seasonal appearance of greenery throughout the year. Long living, deciduous shade trees (ash, honeylocust, linden, oak, etc.) are preferred and fast-growing trees that are often subject to snow and wind damage (cottonwoods, Silver Maples) may be used only on a very limited basis, as approved by the City. (Refer to plant list.)

Use of non-potable water will require plant selection tolerant of higher salt and potassium levels. Additional information pertaining to the use of non-potable water may be obtained by contacting the City of Westminster Department of Public Works and Utilities.

E. Buffering Between Uses

Buffering is encouraged between two or more properties of varying use intensities in order to inhibit visibility and/or to mitigate the transmission of noise from one property to

another. Buffering can be accomplished by means of plant materials, walls, fencing, landforms, or a combination of these measures. Because earth berms are so effective in reducing sound and limiting undesirable views, the installation of berms, in combination with evergreen and deciduous trees and shrubs, is generally required to occur between differing land uses. The maximum slope of berms shall not exceed 4:1 (25%).



LANDSCAPE BUFFER

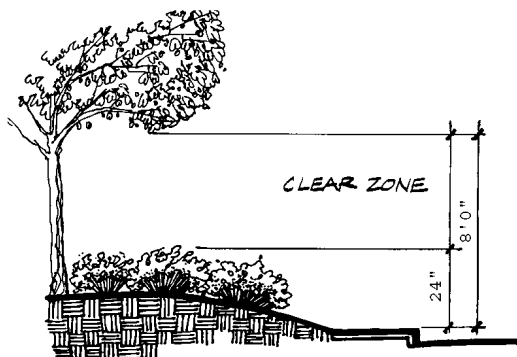
Intensity: For purposes of this section of the regulations, intensity is a general expectation of the magnitude and negative impact of a land use on a neighboring land use. The intent is that a lesser intensity use be buffered from the negative impacts of a higher intensity use.

F. Sight Triangles

Safe ingress and egress from one street or driveway to another, based in part upon the ability of a driver to see oncoming vehicles or pedestrians is a necessary consideration in site planning and landscape design.

“Sight triangles” shall be designated in order to insure that there are no visibility obstructions for motorists. Sight triangles shall be shown on all relevant Plans. (Refer to the City’s Standards and Specifications for the design and construction of public improvements for more detailed information regarding how to calculate a sight triangle.)

All plant material, walls, fences, berms and/or structures in the sight triangle cannot exceed 24 inches above the top of the adjacent curb height. Evergreen trees may not be placed within the sight triangle. The placement of deciduous trees within sight distance triangles is discouraged because as trees mature and tree trunks increase in size, visibility may be impacted to such a degree that removal of the tree(s) may become necessary



SIGHT TRIANGLE LANDSCAPE

G. Medians, Landscape Islands, and Landscape Adjacent to Hardscape

Landscape street medians at development entryways and landscape islands in the center of cul-de-sacs may be required. If landscaped medians are provided, they should be a minimum of 50 feet long and 10 feet wide. Medians and landscape islands shall be maintained by the property owner or homeowner's association – and indicated as such on the relevant Official Development Plan. When the City is intended to maintain a median or similar area, the irrigation design must be separate from landscape areas maintained by others. This includes a separate irrigation tap and meter.

Careful attention to the design of berms and slopes is necessary to minimize water runoff and drainage on adjacent areas.

Planting area height (including mulch) immediately adjacent to hardscape, such as pavement or curbing, shall be level to or below the surrounding hardscape or curbing to minimize water runoff and enable proper maintenance.

H. Drainage and Detention Areas

The developer/owner is responsible for the installation of landscaping and irrigation for drainage areas and detention ponds. The design of these areas must consider maintenance issues such as: weed control measures, maximum heights of grasses/turf, mowing, and water retention and release rates that can result in soggy ground at the bottoms of these pond areas. When channelization occurs, design incorporating physical elements or plants for a natural appearance may be required. The design must be consistent with the requirements of the Urban Drainage and Flood Control District.

Detention pond areas must be planted at a rate of 1 tree and 3 shrubs per 550 square feet of area above the 5-year storm water surface elevation. Trees and shrubs must be located above the 5-year storm water surface elevation. Below the 5-year surface elevation, plant material is limited to turf or other groundcovers. The bottoms of detention ponds may be planted with a mixture of grasses and forbs that are suited to periodic flooding and/or maintained for natural habitat evolution if function is not impaired. Timber or concrete walls are not acceptable design solutions for detention ponds.

The design of drainage areas shall address the same issues and incorporate the same criteria, noted herein, as that of detention ponds.

The property owner shall be responsible for the ongoing maintenance of detention ponds and drainage areas. Maintenance responsibility shall be clearly defined on the Official Development Plan.

Detention ponds and drainage areas in non-residential developments shall be located within a building lot.

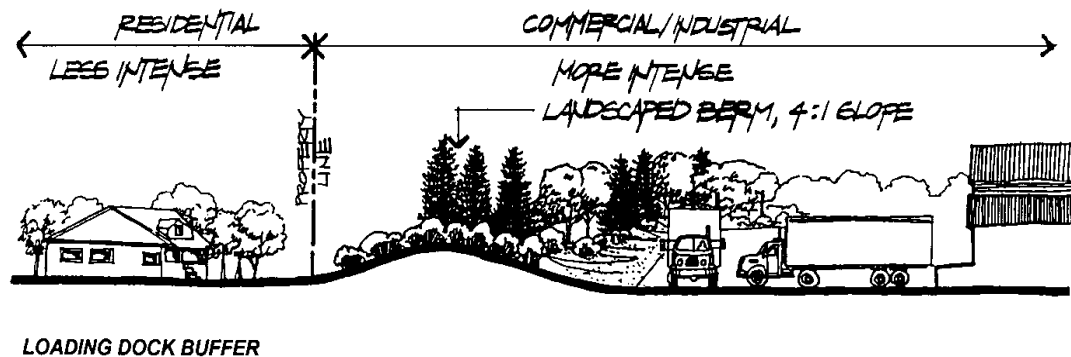
Detention Ponds and drainage areas are not permitted within minimum landscape setbacks. The location and design must be integrated with the overall site.

All turf and plant material shall be irrigated with an automatic sprinkler system. To prevent a soggy bottom area, it is suggested that the bottom area within the detention pond be a separate irrigation zone from the sloped sides. Slopes shall not exceed 4:1.

I. Trash and Loading Area Screening

Trash dumpsters must be screened with opaque gates, fences or walls – according to existing zoning requirements or design guidelines. Brick Screen walls are generally required. Dumpsters and trash cannot exceed the height of the surrounding enclosure. Roofed enclosures and other design elements may be required.

Trash, service areas and docking facilities shall be buffered from adjacent properties by means of evergreen plant material, walls, landforms, or a combination of these measures. Berms with a maximum 4:1 slope in combination with evergreen and deciduous trees and shrubs are recommended. The height of berms will be determined at the time of Official Development Plan.



J. Fencing and Walls

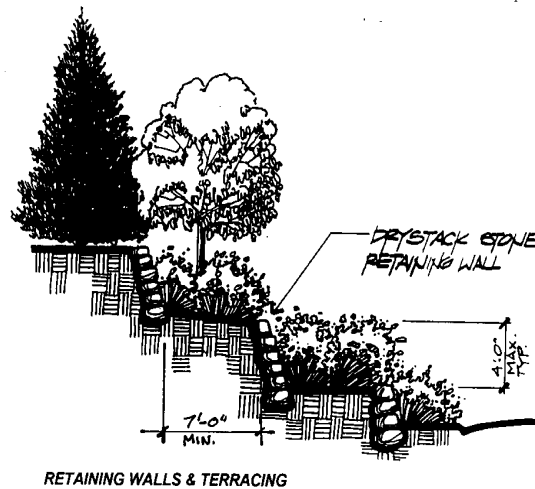
Fencing shall be as per the City Municipal Code, Section 11-4-6-(O), requirements as noted in specific land use categories herein, and any applicable design guidelines. The ownership and responsibility for the on-going maintenance of fencing and walls must be identified on the Official Development Plan.

K. Retaining Walls

Retaining walls are commonly used to reduce steep slopes and create level areas. Wall heights shall not exceed 4 feet. Terracing steep slopes with a series of low retaining walls is a design solution for changes in grade that exceed 4 feet in elevation. Retaining walls shall be spaced a minimum distance apart of 7 feet. The slope between walls shall be per geotechnical recommendations and shall not exceed 4:1 (25%).

Dry-stacked native stone, pre-cast masonry block, or masonry block walls with stone, brick or stucco facing are required materials for retaining walls. Treated timber walls are prohibited – except for use by the resident homeowner in single-family detached or duplex lots. Landscaping, including irrigation, is required to occur within any terraced areas. Large species of trees are discouraged within or adjacent to terraces or walls due

to potential negative impact on the structural integrity of terraces and walls. Low water plantings and/or low volume irrigation is required in these areas.



L. Utilities, Fire Hydrants and Easements

Landscaping within these areas must be shown on the Official Development Plan. Landscaping, irrigation, paving and fencing within a public easement must be removed and replaced by the owner of the land, when requested by the City, so that maintenance within easements can be performed.

Landscaping adjacent to overhead utility lines must take into account mature size and shape of plantings, and minimize potential conflicts, as determined by the City.

No plants or other landscape items shall block free access to a fire hydrant. A 5-foot minimum setback shall be maintained to each side of all fire hydrants. Access from the front is to be completely unobstructed. (Requirements should be checked against current Uniform Fire Code).

VI. GENERAL LANDSCAPE PROVISIONS FOR PLANT MATERIALS, AND THEIR DESIGN AND INSTALLATION

The standards in these regulations are to be considered as minimum requirements. Developers/owners are encouraged to increase the size and/or quantity of plant materials whenever possible. Dependent upon site characteristics, the type of use, and desired effect or appearance, the City has the option to require landscaping beyond the minimum standards for a particular project.

The owner of a project is required to check with the City's Department of Public Works and Utilities to determine the proximity of the project to the City's non-potable water system and the feasibility of tying into this system.

The health, size and general appearance of plant material at the time of planting shall be in accordance with the recognized standards of the American Standards for Nursery Stock, published by the American Association of Nurserymen, and the standard specifications of the Associated Landscape Contractors of Colorado. The City retains the right to reject any and all plants not determined by the City to be of high quality, at time of landscape installation or acceptance.

All areas to be landscaped require soil amendment in accordance with the City's "Standards and Specifications for the design of construction of public improvement." This requires a minimum of 5 cubic yards of an organic amendment per 1,000 square feet of landscape area, tilled 8 inches in depth into the soil. (This also equals a minimum of 1 $\frac{5}{8}$ inch depth spread over the landscape area surface – prior to tilling.) The total required amount of soil amendment must be indicated on the Official Development Plan, including calculations indicating how the total amount was derived. Aged ground manure or compost containing a minimum of 50% organic matter is a general recommendation, however soil texture, PH, and amount of soluble salts in the soil and the amendment should be considered. If non-potable water is to be used, the organic soil amendment will need to be low in sodium.

For all properties that will have landscape area maintained by a Homeowners' Association, rental properties, and all non-residential properties, an inspection will be required to occur after spreading of the soil amendment, and prior to tilling. At time of inspection, the City must be provided with verification, including a receipt, from the supplier of the amount and type of soil amendment delivered.

All single-family lots will be required to have soil amendment according to City requirements noted herein, installed in all areas of the yard not covered with hardscape. Installation must occur by the developer prior to issuance of Certificate of Occupancy for each lot; or if surety is provided to the City, in an alternate timeframe determined by the City. The City must be provided with verification, including a receipt, from the supplier or installer of the amount and type of soil amendment delivered and installed. The City will require inspection prior to Certificate of Occupancy and release of surety.

Plants located within a particular hydrozone must be similar in water requirements to the designated zone.

A. Trees

Specific design considerations relevant to trees are as follows:

- Refer to the previous section “Considerations in Landscape Design” for primary design requirements.
- Long-living shade trees such as ash, honeylocust, linden, oak, etc. are preferred over fast growing, shorter living trees. The minimum size for deciduous shade trees is 2 inches in caliper.
- Ornamental trees shall not comprise more than $\frac{1}{3}$ of the total trees in the landscape design, unless approved otherwise by the City. The minimum size of an ornamental tree shall be 2 inches in caliper. The minimum size for clump ornamental trees shall be 3 tree trunks and 6 feet in height.
- Evergreen trees must comprise at least $\frac{1}{3}$ of the total trees required, unless approved otherwise by the City. The minimum size of evergreen trees shall be 6 feet in height.
- Twenty percent of the total number of required deciduous trees must be increased in size to a minimum of 3 inches in caliper. Twenty percent of the total number of required evergreen trees must be increased in size to 8 feet in height.
- Diversity of trees shall be as follows:

<u>#of Trees on Site</u>	<u>Maximum % of any One Species</u>
10-19	50%
20-39	33%
40-59	25%
60 or more	20%

- Evergreen trees such as Austrian Pine, Ponderosa Pine, and spruce must not be planted closer than 10 feet to a street, sidewalk or parking area. (Measured from trunk of tree to edge of pavement.)
- Trees should be located to provide summer shade and limit winter shade on walks and streets.
- Trees that drop fruits or have thorns should not be planted in close proximity to sidewalks, within parking lot islands or medians. (Very small or persistent fruits ok.)
- The use of Siberian or Chinese Elm (*Ulmus pumila*), Russian Olive (*Elaeagnus angustifolia*) and Salt Cedar Shrubs (*Tamarix*) is prohibited due to excessive insect infestation or invasive growth habits.
- Periodic winter watering is typically necessary in Colorado due to periods of dryness.
- All trees must be surrounded by an area of mulch, of no less than 2 feet from the trunk and 4 feet in diameter, and no less than 3 inches in depth. Keep mulch 3 inches away from tree trunks to reduce insect and trunk damage. It is recommended to periodically increase the mulch ring to the size of the drip line of the tree. This

encourages root development and conserves water for this purpose. Type of mulch must be specified and approved by the City.

- The preferable size of tree grates is 7 feet in circumference for the health of the tree. The minimum size shall be no less than 5 feet in circumference.
- One tree may be substituted for 10 shrubs, or vice versa, if determined to be desirable by the City.

B. Shrub and Perennial Beds

- Refer to the previous section “Considerations in Landscape Design” for primary design requirements.
- All shrub and perennial bed areas shall be separated from turf areas by an edging material. Edging materials placed near building foundations shall not be so high as to interfere with positive drainage away from the structures. Metal or plastic edging shall not be installed or maintained at a height greater than the adjacent landscape surfaces. Edging with sharp edges is prohibited.
- No more than 25% of a shrub bed shall be designed in such a manner as to be free of plant material within 5 years of planting.
- All shrub beds must be mulched and maintained at a minimum mulch depth of 3 inches. Areas containing perennial flower or groundcover species that have a spreading growth habit, may be mulched at a minimum 1-inch depth, as approved by the City.
- Mulches can be difficult to maintain on sloped areas. Plant choice and reduced spacing between plants should be considered for sloped areas.
- The height/grade of the soil within shrub and perennial beds must be lower than the surrounding hardscape or turf areas in order to accommodate the mulch depth requirements, as well as to minimize water runoff, reduce mulch loss to other areas, and enable property maintenance.
- The use of weed barrier fabrics underneath mulch in shrub beds is required, except for landscaping within a single-family lot. Weed barrier fabrics must be water permeable.
- For purposes of diversity, longevity, and health, no more than 25% of the shrub total shall be comprised of one species.
- All shrubs must be minimum 5-gallon container in size.
- One 5 gallon; or three 1 gallon long-lived, large perennial grass species, or climbing vine species, may be substituted for one five-gallon shrub, as approved by the City.
- The use of perennial and annual flower and herbaceous plants is encouraged but not required by the City. Except as noted otherwise, perennial, annual and herbaceous

plants are not accepted in lieu of minimum shrub requirements. All groundcovers and perennial flowers, vines or grasses must be minimum 1-gallon container in size.

C. Turf Areas

- Refer to the previous section “Considerations in Landscape Design” for primary design requirements. Also, refer to the City’s “Standards and Specifications for the Design and Construction of Public Improvements” for additional, detailed construction requirements related to landscaping.
- For reasons of water conservation and water-wise landscaping, the high hydrozone shall not exceed 50% of the landscape area of non-residential properties, exclusive of right-of-way, unless approved otherwise by the City. An annual water budget not to exceed 15 gallons/square foot/year is required for all landscapes.
- A bluegrass blend turf is best suited for turf areas that will receive regular pedestrian or canine foot traffic. Areas that do not receive regular pedestrian or canine foot traffic will be considered for alternative turf grasses.
- The use of artificial turf is generally prohibited, except for use in single-family detached or duplex lot yard areas not adjacent to a street, or public or private park or open space. The City may consider other exceptions to this limitation on a case-by-case basis for sports fields and other limited applications.
- Alternative turfs such as buffalo grass, fescue, and other grasses that can be maintained at a height not to exceed 6 inches are recommended to occur only where less intensive use of turf is anticipated – areas that do not receive regular pedestrian or canine foot traffic. The use of alternative turfs in lieu of bluegrass turf are subject to City approval, excepting the use of alternative turf by the resident single-family or duplex homeowner completing their landscape.
- Acceptable methods of installation for alternative turfs include sodding, plugging, or seeding. Bluegrass, fescue, buffalo grass, and other grasses commercially grown as sod must be installed by sodding, excepting that of the resident single-family detached or duplex homeowner completing their landscape. Automatic irrigation is required.
- A description of proposed turfs and method of installation shall be indicated on approved Official Development Plans and related landscape documents.
- Seed mixes shall specify the species of grasses used in the mix, the anticipated appearance and height, and name of supplier. Grasses shall be a species that can be maintained and irrigated at a maximum of 6 inches in height, unless otherwise approved on the Official Development Plan. All variances from the maximum 6-inch height shall be explicitly outlined on the Official Development Plan.
- Seed installation shall be by drilling or hydroseeding including a mulch and tackifier.

- All native seed areas shall be established at a minimum of 4 to 5 plants per square foot within 4 weeks after germination, and maintained at this level, or shall be re-seeded until established at that rate.
- Alternative turfs installed by seed may result in a higher incidence of weeds, therefore, an establishment and maintenance plan is required to be indicated on all landscape documents including the Official Development Plan. This plan must include a weed control and removal program, mowing schedule, and trash clean up.
- All turf installations, other than sodding, will require an additional warranty period of no less than 2 years.
- The height of grasses impacts the effectiveness/coverage of automatic irrigation systems. This needs to be taken into account in the landscape and irrigation design, as well as maintenance plan.
- Artificial turf shall comply with minimum standards and specifications as noted in the City's plant list.

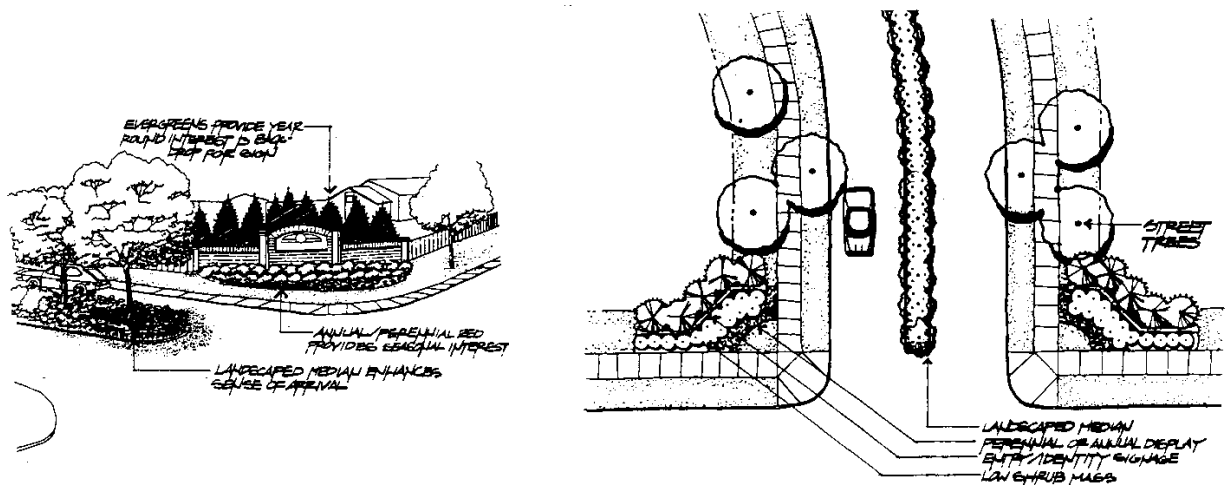
VII. RESIDENTIAL LANDSCAPE STANDARDS

Requirements noted in the land use categories and sections herein generally pertain to all the residential land use categories and sections herein, unless noted otherwise.

Land use designations shall be as defined in the City's Comprehensive Land Use Plan.

The following specific standards for the residential landscape are the minimum requirements. Developers are encouraged to exceed the standards whenever possible.

The entrance to residential developments should be designed to provide an attractive, year round landscape statement and to provide maximum safety for visibility and turning movements. Street medians/landscape islands are required at major entrances to the development. Formal landscaping and signage mounted on masonry walls are encouraged at the entrance to residential developments. Evergreen trees planted behind the entry signage are encouraged to enhance the community character established with the City's monument signage.



RESIDENTIAL PROJECT ENTRANCE PLAN & PERSPECTIVE

A. Single-Family Detached Residential

For the purposes of landscape requirements, duplex development will be determined by the Planning Manager as either single-family detached or attached residential.

1. Minimum Requirements

a. Landscape Area:

- The minimum landscape area for a single-family detached or duplex lot must be a minimum of 50% of each yard area adjacent to a street, unless approved otherwise by the City. Remaining yard area not landscape area, shall be hardscape.
- For yard areas not adjacent to a public street, there is no minimum amount of landscape area. These yard areas shall be any combination of landscape area,

hardscape, mulch or artificial turf. Any landscape area within these yard areas shall follow the requirements herein.

- Maintenance of landscape improvements within the individual lot is the responsibility of the property owner.

b. Plant Materials:

1. Trees:

- Refer to the previous section “Considerations in Landscape Design” for requirements regarding existing trees.
- For lots up to 10,000 square feet in size, a minimum of 1 shade tree shall be required in the front yard of every residence. For lots larger than 10,000 square feet in size, a minimum of 2 trees shall be required in the front yard of every residence, with at least one tree being a shade tree. The use of evergreen trees in conjunction with shade trees is encouraged.
- The required trees shall be installed by the developer prior to Certificate of Occupancy, or if surety is provided to the City, in an alternate timeframe determined by the City. If homeowner installation is preferred; a credit in the amount of the required trees (including installation) shall be posted by the developer with a local nursery for use by the homeowner.

2. Shrubs, Groundcovers and Turf:

- Minimum landscape improvements within the landscape area of each lot shall consist of a grass lawn and/or shrubs and/or groundcovers, and shall be established by the developer or homeowner. Required landscape improvements by the developer must occur prior to Certificate of Occupancy, or if surety is provided to the City, in an alternative timeframe determined by the City. Required landscape improvements by the homeowner shall occur within one year of the Certificate of Occupancy.
- All required landscape area shall consist of 100% living groundcover, turf, or shrub bed area.

c. Adjacent Right-of-Way (ROW) and Common Areas:

- The Official Development Plan must specify the design and landscape requirements of all right-of-ways and common areas including that of right-of-way adjacent to single-family or duplex lots.
- One tree and three shrubs per every 550 square feet of landscape area shall be provided in all right-of-way and common areas. One hundred percent of

1. The right-of-way landscape area of local streets with detached walks shall be planted with one shade tree every 80 linear feet and turf, groundcover, or shrubs.
2. The right-of-way landscape area of local streets with attached walks shall be planted with turf, groundcover, or shrubs.
3. Detention pond area below the 5-year storm surface elevation is limited to the planting of turf or groundcover plants.
4. The Official Development Plan shall specify any deviation from the above landscape requirement for private parks or other common areas or row area if a larger area of turf is determined to be desirable by the City.

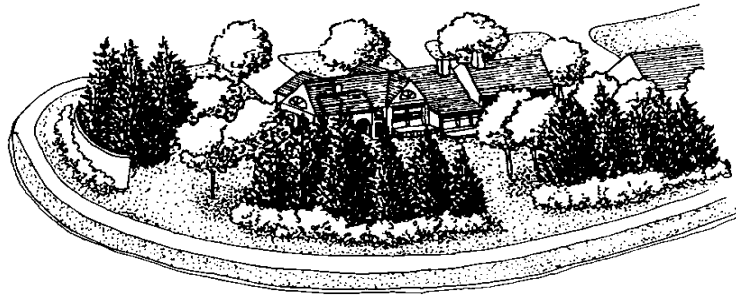
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*All shrubs outside the
5 to 100 year surface elevation*

d. Other Requirements

- A 6-foot height berm (with 6 foot height fence or wall location on top of the berm) will be required adjacent to arterial streets and highways.
- Refer to the Landscape Regulations Chart.
- Refer to other sections within these Landscape Regulations for other requirements including, but not limited to, soil preparation and irrigation.
- Refer to the Municipal Code for additional regulations regarding landscaping for rental housing.

B. Single-Family Attached and Multi-Family Residential



SINGLE - FAMILY ATTACHED PERSPECTIVE

1. Minimum Requirements

a. Landscape Area:

- All non-hardscape shall be developed as landscape area, and no less than a minimum of 40% of the overall site area shall be landscape area, right-of-way landscape area is not included in the 40% area calculation. All non-hardscape area shall be developed as landscape area. A minimum 25-foot landscape setback is required from the ultimate/future right-of-way line. A minimum 35-foot landscape area is required along all other property lines. Also refer to the Single-Family Attached Residential Design Guidelines and other applicable guidelines.

b. Plant Materials:

- Within the landscape area, a minimum of 1 tree and 3 shrubs are required per 550 square feet (excepting below the 5 year storm water surface elevation within detention ponds).

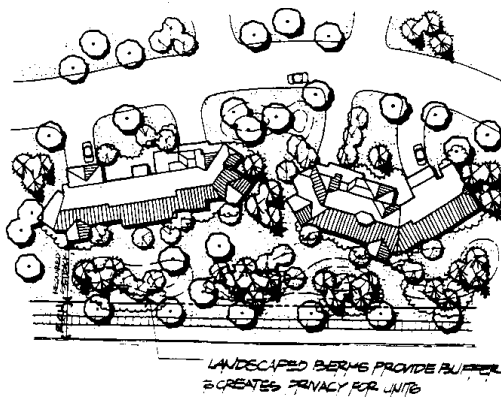
- Refer to the Single-Family Detached Regulations regarding requirements for trees, shrubs, groundcovers and turf.
- Refer to the following section “Adjacent Right-of-Way and Common Areas” for installation and maintenance requirements of plant materials. Landscape improvements within any private courtyard or lot area for each residential unit shall be the responsibility of the resident/owner unless specified otherwise on the Official Development Plan.

c. Adjacent Right-of-Way and Common Areas:

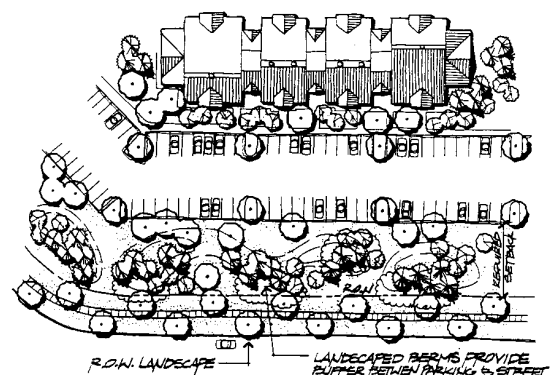
- The Official Development Plan must specify the design of landscaping within all common areas and right-of-way.
- Landscape improvements within the adjacent right-of-way areas, and common areas within the development must occur by the developer according to phasing plans indicated on the Official Development Plan.
- Maintenance of all landscape improvements in the right-of-way and other common areas is the responsibility of the developer until turned over to the homeowner association/owner.

d. Other Requirements

- Refer to the section in Single-Family Detached Residential for requirements.



SINGLE - FAMILY ATTACHED PLAN



MULTI - FAMILY RESIDENTIAL PLAN

VIII. RIGHT OF WAY AREA LANDSCAPE STANDARDS

Right-of-way requirements apply to developments of all types of land use. Landscape improvements and their maintenance, within all right-of-way areas, are the responsibility of the developer/owner of adjacent private property.

Landscape design of all right-of-way areas, including that of US 36 and I-25, shall be shown on the Official Development Plan.

Landscape requirements, including berms, fencing or walls between streets and residential development, shall be as determined by an Official Development Plan or other related documents, and as required by the Regulations herein. Refer to the appropriate design guidelines for additional requirements.

Although fencing between the right of way of arterial or collector streets and residential developments is often proposed or required as a means of providing privacy and buffering, the use of landscape materials and earth berming either in lieu of fencing, or in conjunction with fencing, is highly preferred and shall be required in most instances. The maximum slope of berms shall not exceed 4:1.

A. Minimum Area

- All area within the right-of-way not comprised of hardscape, as required by the City, shall be landscape area.

B. Plant Materials

- Refer to the Landscape Regulations chart, single-family detached, and Section V11.A.1.c for relevant landscape requirements, plant materials and sizes, and amount of landscaping. Automatic irrigation is required.
- The City has the option to reduce (or increase) the amount of required plant materials.

C. Other Requirements

- The City will refer preliminary design of landscape improvements within the right-of-way of I-25, US 36, Federal Boulevard, Wadsworth Parkway, 120th Avenue and Sheridan Boulevard south of US 36 to the Colorado Department of Transportation (CDOT) for comment at the time of Official Development Plan review and approval. Subsequent design review and construction approval from CDOT is the responsibility of the developer.
- The ownership and maintenance of landscape improvements in the right-of-way is that of the developer until turned over to the adjacent property owner or homeowner/business association.
- If an exception is made regarding long term maintenance of any landscape improvements within a median or other right-of-way area to be that of the City, the

irrigation system must be designed and constructed with its own separate water tap (not part of a larger, private irrigation system).

- Refer to Landscape Regulations Chart.
- Refer to other sections within these Regulations.

IX. PARKING LOT LANDSCAPE STANDARDS

Parking lots within any land use category are required to be landscaped.

A. Minimum Area

- Landscape area includes the peripheral area around the outside of the parking lot as well as internal to the parking lot. All non-hardscape area shall consist of landscape area.
- Parking lots and any automobile overhang area shall not be located within the required landscape setback areas (minimum 25 feet from right-of-way line). Refer to other applicable guidelines for additional setback information.
- Landscape islands/medians are encouraged along drive entrances; and required at periodic intervals within parking right-of-ways, at the end of each parking right-of-way and periodically between right-of-ways of parking. (See Landscape Regulations Chart for specific requirements.)
- Parking lots must be buffered, approximately 3 feet in grade, from adjacent streets and properties with the use of berms or slope in grade; shrub beds may replace or be used in conjunction with berms or slopes where it is not feasible for an elevation difference of 3 feet; and trees as determined by the City. An exception to this regulation is the required 6-foot berm adjacent to arterial streets and highways for residential developments as specified elsewhere in these Regulations.
- The landscape design must take into account any automobile overhang into the landscape area and the mature size of the plant material in order to minimize damage and conflict.
- Berming within landscape islands and medians is discouraged due to water runoff and higher maintenance requirements. Bluegrass is discouraged within landscape islands and medians.
- Pedestrian foot traffic must be considered and reflected in the design of parking lots in order to accommodate the needs of the pedestrian and minimize foot traffic within landscape areas.
- Curbs shall be provided in all parking lots to separate landscape area from pavement in order to maintain parking lot surface, protect public sidewalks from vehicular intrusion and prevent parking in areas where parking is not permitted.

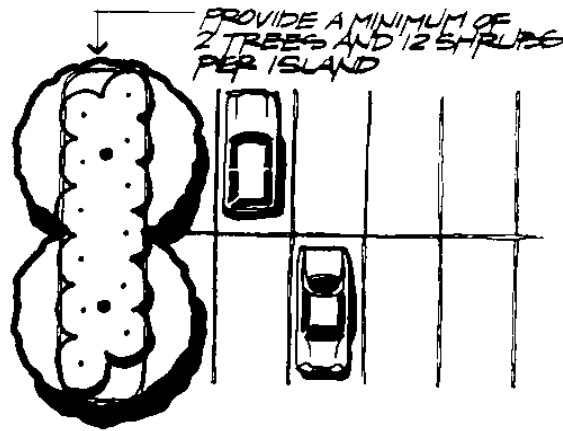
B. Plant Materials

- Refer to the Landscape Regulations Chart, single-family detached, for minimum landscape requirements, minimum plant sizes, and amount of landscaping in common areas.
- Parking lot design, plant selection and location should consider impact on visibility of proposed signage.

- Shade trees are encouraged within and adjacent to parking lots for provision of shade and relief from heat during summer months.
- Plant selection must discourage foot traffic through landscape islands/medians. Plants that grow to a very low height and/or wide plant spacing is therefore discouraged.

C. Other Requirements

- Refer to Landscape Regulation Chart.
- Refer to other sections within these Regulations.



PARKING LOT LANDSCAPE

X. NON- RESIDENTIAL LANDSCAPE STANDARDS

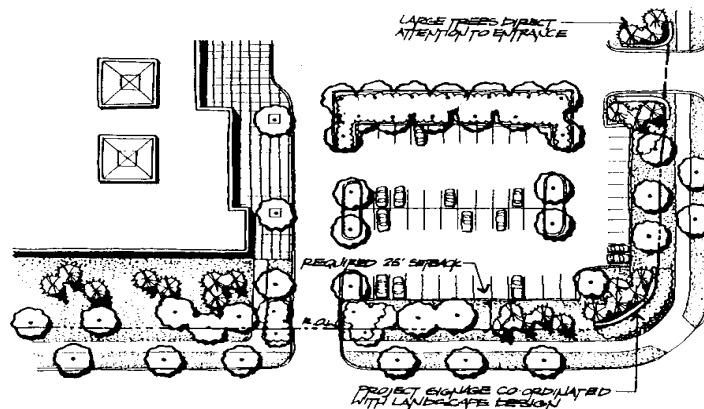
This section of the regulations shall apply to all non-residential land uses such as commercial, office, and industrial properties, as well as religious, institutional, non-profit, government and public projects of a non-residential nature.

It is required that a minimum distance of 25 feet along each property frontage abutting a public right-of-way be landscaped area. The 25 feet is measured from the ultimate/future right-of-way line towards the interior of the site. The majority of the landscaping for commercial and/or industrial sites should be situated in the front and/or the sides of the site, and should be visible from abutting right-of-ways. Landscaped areas should not be enclosed by a fence that limits its visibility.

Landscaping, including trees, is encouraged adjacent to buildings, as well as throughout the general landscape area, and may include landscape planters in the walks and other hard surface areas.

Positive drainage shall be maintained away from buildings. Planter areas shall include adequate area for root growth.

Turf or other plantings adjacent to pavement or foundations are encouraged to be of low water requirements or to be irrigated with low volume methods.



COMMERCIAL LANDSCAPE PLAN

The entrances to commercial or industrial centers should be designed to provide an attractive, year round landscape statement. Medians/landscape islands are encouraged at entranceways.

Enhanced landscaping is encouraged for monument sign feature areas. The addition of large trees, especially evergreens, can provide an all-season backdrop and direct attention to the sign feature area. The inclusion of perennials and annuals can provide color for the spring and summer, and is generally required.

A. Minimum Area

- A minimum of 20% of the site shall be landscaped including the general landscape area and detention pond areas, and excluding right-of-way.

- Driveways, hardscape, parking areas or walks are not included. Parking lot island landscaping is included. Right-of-way landscaping is required for adjacent streets and highways, but is not included in the required 20% calculation.

B. Plant Materials:

- Within the required landscape area, 1 tree and 3 shrubs are required per 550 square feet of the landscape area, (excepting below the 5-year storm water surface elevation within detention ponds). A mixture of evergreen and deciduous trees shall be provided. If the landscape area exceeds 20%, a reduction in the otherwise, resulting number of trees and shrubs, may be approved by the City, in order to encourage landscape area in excess of minimum requirements.
- Refer to Single-Family Detached Regulations regarding the requirements of landscape area and the ground surface coverage.
- High water zones cannot exceed 50% of the landscape area, excepting right-of-way areas, parks, or other areas as approved by the City.
- All landscape improvements shall be installed by the developer prior to Certificate of Occupancy of the building or buildings, in phases indicated by the Official Development Plan, or if surety is provided to the City, in an alternate timeframe determined by the City.
- Maintenance of all landscape improvements shall be the responsibility of the developer/owner/ or business association.

C. Other Requirements

- Refer to Landscape Regulations Chart.
- Refer to other sections within these Regulations.
- Refer to the appropriate design guidelines (example: Commercial Design Guidelines) for additional requirements.

XI. LANDSCAPE REGULATIONS CHART

This chart supplements both the general landscape requirements and the specific land use requirements.

REFER TO TEXT PORTION OF REGULATIONS FOR ADDITIONAL INFORMATION	MINIMUM LANDSCAPE REQUIREMENTS	MINIMUM PLANT SIZES*	AMOUNT OF LANDSCAPING REQUIRED IN COMMON AREAS	MINIMUM LANDSCAPE SETBACK AREA	INSTALLATION AND MAINTENANCE OF LANDSCAPE IMPROVEMENTS
SINGLE FAMILY DETACHED (SFD)	LANDSCAPE AREA: MIN. 50% OF EACH YARD AREA ADJACENT TO A STREET. (REMAINING YARD AREA IS HARDSCAPE) TREES IN THE FRONT YARD: 1 SHADE TREE PER LOT UP TO 10,000 SF IN SIZE; 2 TREES (1 SHADE) PER LOT IF LARGER THAN 10,000 SF REQUIRED LANDSCAPE IMPROVEMENTS MUST BE INSTALLED PRIOR TO C.O. BY DEVELOPER OR WITHIN 1 YEAR OF C.O. BY HOMEOWNER ROW ADJACENT TO LOT OR SUBDIVISION: LANDSCAPE BY HOMEOWNER OR DEVELOPER SOIL PREP. VERIFICATION PRIOR TO CERTIFICATE OF OCCUPANCY. AUTOMATIC IRRIGATION IS REQUIRED EXISTING TREES: REFER TO TEXT IN REGULATIONS	DECIDUOUS SHADE TREE: 2 INCH CALIPER ORNAMENTAL TREE: 2- INCH CALIPER EVERGREEN TREE: 6 FOOT HEIGHT SHRUBS: 5 GALLON CONTAINER PERENNIALS, VINES, GROUNDCOVERS: 1 GALLON CONTAINER TURF/LAWN: GRASS SPECIES TO BE MAINTAINED AT 6 INCH HEIGHT; SEED OR SOD FOR TURF WHEN INSTALLED BY RESIDENT HOMEOWNER; TYPICALLY SOD FOR ALL TURF BY DEVELOPER OR BUILDER WITHIN RESIDENTIAL BUILDING LOT, ROW, OR WITHIN COMMON AREA LANDSCAPING COMMON AREAS: 20% OF DECIDUOUS TREES TO BE 3 INCH CALIPER AND 8 FOOT HEIGHT FOR EVERGREEN TREES	LANDSCAPE AREA: ALL GROUNDPLANE AREA EXCLUSIVE OF HARDSCAPE IMPROVEMENTS. THE LANDSCAPE AREA SHALL BE PLANTED WITH TREES, SHRUBS, TURF OR GROUNDCOVER. ONE TREE AND THREE SHRUBS PER 550 SF OF LANDSCAPE AREA- EXCLUDING THE AREA BELOW THE FIVE YEAR STORM WATER SURFACE ELEVATION IN DETENTION PONDS REFER TO SECTION VII.A.1c FOR LOCAL STREET ROW DETENTION NOT ALLOWED IN ROW THE CITY HAS THE OPTION TO REDUCE THE QUANTITY OF TREES AND/OR SHRUBS FOR LANDSCAPE AREAS SUCH AS PRIVATE PARKS OR OPEN SPACE, WHERE LARGER TURF AREAS ARE DETERMINED BY THE CITY TO BE DESIRABLE.	A 6-FOOT HEIGHT BERM, WITH A 6-FOOT HEIGHT FENCE OR WALL ON TOP OF THE BERM, IS REQUIRED ADJACENT TO ARTERIAL STREETS AND HIGHWAYS, MEASURED FROM TOP OF CURB. THIS WILL REQUIRE ADDITIONAL LANDSCAPE SETBACK ALONG ARTERIAL STREETS AND HIGHWAYS. ALTERNATIVE DESIGN SOLUTIONS DEPENDING UPON SITE SPECIFIC GRADING CONSIDERATIONS MAY BE CONSIDERED BY THE CITY. REFER TO SFD RESIDENTIAL DESIGN GUIDELINES.	INSTALLATION BY THE DEVELOPER OR LOT OWNER FOR EACH LOT AND ADJACENT RIGHT OF WAY MAINTENANCE BY THE DEVELOPER THEN HOME OWNERS ASSOCIATION/OWNER FOR ALL RESIDENTIAL LOTS AND COMMON AREAS *MINIMUM PLANT SIZES DO NOT APPLY TOWARD LANDSCAPING BY RESIDENT LOT OWNER IN PRIVATE YARD AREAS, EXCEPTING ANY REQUIRED FRONT YARD TREES OR SHRUBS AS REQUIRED BY THE OFFICIAL DEVELOPMENT PLAN ADDRESS THE DESIGN, OWNERSHIP AND MAINTENANCE OF FENCING AND WALLS ON THE OFFICIAL DEVELOPMENT PLAN *AS APPROVED BY THE CITY: 1 TREE MAY BE SUBSTITUTED FOR 10 SHRUBS, 1 SHRUB FOR ONE 5-GALLON OR THREE 1 GALLON LARGE PERENNIAL GRASSES OR VINES.

REFER TO TEXT PORTION OF REGULATIONS FOR ADDITIONAL INFORMATION	MINIMUM LANDSCAPE REQUIREMENTS	MINIMUM PLANT SIZES	AMOUNT OF LANDSCAPING REQUIRED IN COMMON AREAS	MINIMUM LANDSCAPE SETBACK AREA	INSTALLATION AND MAINTENANCE OF LANDSCAPE IMPROVEMENTS
SINGLE FAMILY ATTACHED (SFA) AND MULTI-FAMILY (MF)	40 % OF THE OVERALL SITE, EXCLUDING ROW, TO BE LANDSCAPE AREA ROW ADJACENT TO OR WITHIN THE PROPERTY MUST BE LANDSCAPED BY THE DEVELOPER SOIL PREP. VERIFICATION AND INSPECTION PRIOR TO CERTIFICATE OF OCCUPANCY AUTOMATIC IRRIGATION REQUIRED (EXCLUDING ANY PRIVATE COURTYARD AREAS) EXISTING TREES: REFER TO TEXT IN REGULATIONS	REFER TO SFD	REFER TO SFD	25 FEET MINIMUM FROM ULTIMATE RIGHT OF WAY; 35 FEET MINIMUM FROM ADJACENT PROPERTY LINES WITH NO DRIVES, DETENTION POND, OR PARKING IN THIS SETBACK A 6 FOOT HEIGHT BERM IS REQUIRED ADJACENT TO ARTERIAL STREETS AND HIGHWAYS (REFER TO SFD IN FOR SPECIFICS) INCLUDE TALL BERMS NOT TO EXCEED 4:1 SLOPE AUTO OVERHANG INTO THE MINIMUM LANDSCAPE SETBACK REQUIRES THE SETBACK TO BE INCREASED AN EQUAL DIMENSION REFER TO SFA & MF RESIDENTIAL DESIGN GUIDELINES	INSTALLATION BY THE DEVELOPER, MAINTENANCE BY OWNER/ HOME OWNERS ASSOCIATION FOR ALL COMMON AREAS, INCLUDING ROW LOT OWNER IF ANY SEPARATE YARD AREAS, WITH INSTALLATION TO OCCUR WITHIN ONE YEAR OF CERTIFICATE OF OCCUPANCY ADDRESS THE DESIGN, OWNERSHIP AND MAINTENANCE OF FENCING AND WALLS ON THE OFFICIAL DEVELOPMENT PLAN
RIGHT-OF-WAYS (ROW)	REFER TO RELEVANT LAND USE CATEGORY FOR REGULATIONS	REFER TO SFD	REFER TO SFD	NOT APPLICABLE LANDSCAPE DESIGN, INCLUDING GRADING, MUST TAKE INTO ACCOUNT FUTURE ROW IMPROVEMENTS AND WIDENING, AND MINIMIZE FUTURE CONFLICTS	REFER TO RELEVANT LAND USE CATEGORY ADDRESS THE DESIGN, OWNERSHIP AND MAINTENANCE OF ANY FENCING AND WALLS ON THE OFFICIAL DEVELOPMENT PLAN

REFER TO TEXT PORTION OF REGULATIONS FOR ADDITIONAL INFORMATION	MINIMUM LANDSCAPE REQUIREMENTS	MINIMUM PLANT SIZES	AMOUNT OF LANDSCAPING REQUIRED IN COMMON AREAS	MINIMUM LANDSCAPE SETBACK AREA	INSTALLATION AND MAINTENANCE OF LANDSCAPE IMPROVEMENTS
PARKING LOTS	LANDSCAPE ISLANDS AND MEDIANS ARE WITHIN PARKING LOTS ARE REQUIRED. LANDSCAPE ISLANDS ARE REQUIRED AT THE END OF EACH PARKING ROW AND AT A MINIMUM INTERVAL WITHIN THE ROW OF 30 PARKING SPACES IN PARKING LOTS IN EXCESS OF 300 SPACES, LANDSCAPE MEDIANS ARE REQUIRED TO OCCUR AT EVERY 3RD ROW OF PARKING, MINIMUM 9 FT IN WIDTH; OR EVERY 6TH ROW OF PARKING, MINIMUM 25 FT TOTAL WIDTH-INCLUDING 6 FT SIDEWALK. MINIMUM SIZE OF ISLAND MUST EQUAL OR EXCEED DIMENSIONS OF ADJACENT PARKING STALL IN BOTH WIDTH AND LENGTH REFER TO THE RELEVANT LAND USE CATEGORY FOR OTHER REGULATIONS	REFER TO SFA TURF IS GENERALLY NOT ACCEPTABLE WITHIN LANDSCAPE ISLANDS UNLESS AN UNDERGROUND IRRIGATION SYSTEM IS INSTALLED	REFER TO SFD LANDSCAPE ISLAND: ONE TREE AND 6 SHRUBS PER 171 SF, PLUS ONE SHRUB PER EVERY ADDITIONAL 25 SF AND ONE TREE FOR EVERY ADDITIONAL 150 SF. LANDSCAPE MEDIAN: MINIMUM OF ONE TREE EVERY 40 LINEAL FEET PLUS ONE SHRUB EVERY 25 SQUARE FEET	REFER TO RELEVANT LAND USE CATEGORY DESIGN GUIDELINES ANY AUTOMOBILE OVERHANG INTO THE REQUIRED LANDSCAPE SETBACK AREA OR MEDIAN REQUIRES AN INCREASE IN THE LANDSCAPE SETBACK OR MEDIANS BY AN EQUAL DIMENSION	REFER TO SFA

REFER TO TEXT PORTION OF REGULATIONS FOR ADDITIONAL INFORMATION	MINIMUM LANDSCAPE REQUIREMENTS	MINIMUM PLANT SIZES	AMOUNT OF LANDSCAPING REQUIRED IN COMMON AREAS	MINIMUM LANDSCAPE SETBACK AREA	INSTALLATION AND MAINTENANCE OF LANDSCAPE IMPROVEMENTS
NON-RESIDENTIAL	20% OF THE OVERALL SITE, EXCLUDING ROW, MUST BE LANDSCAPE AREA ROW ADJACENT TO OR WITHIN THE PROPERTY MUST BE LANDSCAPED BY THE DEVELOPER NO MORE THAN 50% OF THE LANDSCAPE AREA TO BE A HIGH HYDRO ZONE SOIL PREPARATION, INSPECTION AND VERIFICATION PRIOR TO CERTIFICATE OF OCCUPANCY AUTOMATIC IRRIGATION EXISTING TREES: REFER TO TEXT IN REGULATIONS	REFER TO SFD	REFER TO SFD	25 FT. FROM ULTIMATE ROW: REFER TO COMMERCIAL GUIDELINES FOR ADDITIONAL SETBACK REQUIREMENTS NO DETENTION OR PARKING IN LANDSCAPE SETBACK AREA DETENTION MUST BE LOCATED WITHIN A BUILDING LOT	DEVELOPER THEN PROPERTY OWNER/ OWNERS OR BUSINESS ASSOCIATION FOR ALL LANDSCAPE AREAS INCLUDING ROW

XII. LANDSCAPE AND IRRIGATION PLAN REQUIREMENTS

Landscape and irrigation plans shall be submitted and approved by the City as part of the Official Development Plan (ODP), ODP Amendment or ODP Waiver. Landscape and irrigation plans may be required for redevelopment or change-in-use projects. As determined by the City, minor redevelopment or change-in-use projects may be required only to submit a landscape plan and a written statement describing the type of irrigation system proposed.

Landscape and irrigation plans will not be required of individuals constructing single-family or duplex residential units that they intend to own and occupy or of resident homeowners completing or altering the landscaping within their single-family or duplex lot – however, the landscape and irrigation requirements noted in these regulations must be followed, unless determined otherwise by the City.

Landscape and irrigation plans shall contain information as noted in these Regulations and the Plan Submittal Document.

A set of final landscape and irrigation construction documents shall be submitted for review and approval by the ODP Inspector prior to approval of the final plat, or if a final plat is already in place, prior to issuance of a building permit. No construction or landscape improvements can occur until the City approves the landscape and irrigation construction plans, and private improvements agreement. The landscape and irrigation construction plans must be in a similar format as Official Development Plans for filing and recording purposes by the City.

Landscape and irrigation construction plans must reflect the approved landscape and irrigation plan reviewed and approved at time of earlier Official Development Plan or ODP Waiver approval. Any revisions to these plans during the construction of a project must be approved by the City prior to the field change, and reflected in a revised set of construction drawings. As-built drawings must be submitted by the developer to the ODP Inspector and to the owner/owner's association/homeowner's association prior to final acceptance of the project. Prior to release of any surety, the developer must also provide a signed checklist to the City verifying that the landscape and irrigation improvements have been installed according to approved plans and City requirements.

Either a Landscape Architect or Landscape Designer shall prepare the landscape plan. A Certified Irrigation Auditor shall conduct the irrigation audit. (Resident single-family or duplex lot owners that are revising or completing their landscape are exempt from this requirement.)

A. Landscape Plans – The Official Development Landscape Plan and Landscape Construction Plan shall contain the following items:

1. Sheet sizes according to Official Development Plan requirements and no case larger than 24" x 36" for final landscape construction plans.
2. Title block centered at the top of each sheet – refer to the Official Development Plan submittal document for format, sheet name, company identification including address, phone number, name of person preparing the plan, and date.
3. Scale – written and graphic. Keep in mind the irrigation plan must be drawn to the same scale. 1" = 40 feet or larger (1" = 20 feet preferred).
4. North arrow.
5. Property lines, existing and future right-of-way lines.
6. Key.

7. Existing and proposed structures, sidewalks, overhangs and paving.
8. Natural features relevant to the site and/or retention/detention areas.
9. Proposed grading, indicating topographic features and spot elevations of the final grading plan, adequate to identify and properly specify landscaping for area needing slope protection as well as adequate to depict any screening of parking areas.
10. Show and label water features, berms, retaining walls, walls, fences, trash enclosures, outdoor lighting – including street lights, and signage.
11. Existing and proposed utility easements.
12. Sight triangles.
13. Show and label locations of proposed (low, moderate, high) hydrozones and identify the total square footage of each.
14. Show and label locations to be irrigated with potable and non-potable water and identify the total square footage of each.
15. Total water budget and calculations by hydrozone.
16. Existing plant material, including plants to be removed or relocated. (Label type, size, current and proposed locations.)
17. Proposed plant material located according to low, moderate or high hydrozones (label number, species, and size if not minimum size). Plants within any one hydrozone shall have similar water requirements. Draw plant material at a low estimate of mature size.
18. Language and calculations that indicate overall minimum requirements. This information must reflect both the required minimum percent of landscape area (as determined by type of land use), as well as the required minimum number of plants (trees, shrubs, turf area) broken down into specific landscape areas (such as private landscape areas and right-of-way landscape areas). The plant schedule must meet or exceed these requirements.
19. Note the amount of required soil amendment required and include calculations indicating how the total amount was derived. The amount of soil preparation, and calculations thereof, may be broken down by specific areas – such as right-of-way, private park, etc.
20. Label locations of proposed turf (species). Include information regarding method of installation (sod, plugs, seeding rates), maximum and/or maintained height, mowing schedule and weed control measures.
21. Label or key areas of mulch and indicate type.
22. Planting details, specifications, and installation information for plant materials, soil preparation, mulches, edging, etc. (The Official Development Plan landscape plan will provide general information in this regard and the construction landscape plan will provide additional information necessary for installation.)
23. Show general details of items such as berms, walls, retaining walls, fences, trash enclosures, outdoor lighting, signs, etc. Specific details related to plant installation, mulching, tree staking will be shown on the landscape construction plan.
24. Show a generic or model landscape detail/plan for single-family or duplex lots where the landscaping of a portion of the lot is required by the builder.
25. Plant schedule (see below). The schedule must accurately reflect the landscape plan.
 - The schedule shall be divided according to type of plant material: existing and proposed trees (broken into categories of deciduous shade trees, evergreen trees, accent/ornamental trees), shrubs, groundcovers, turf types, including any seed mixes. Plant species within each category shall also be labeled and grouped by their respective hydrozone rating.

- Plant name abbreviation (if used), plant name (common name, botanical name and variety), and exact quantities of each plant shall be included on the plant schedule.
 - The schedule shall indicate the size of plants. Size shall be expressed in terms of size of container (5 gallon for shrubs, 1 gallon for perennials and groundcovers), height of plant (for evergreen trees), or caliper of tree (for deciduous trees).
 - Plant spacing for shrubs and groundcovers must be indicated (for example: “4 feet on center – triangular spacing”).
26. Information as to who will have responsibility for maintenance of those materials, structures and areas on the plan. Include name, title, address and contact phone number.
27. City of Westminster Standard General Notes. (See Plan Submittal Document packet provided by the City).

For additional information and specific instructions on how to physically install plant material refer to the City sitework specifications.

B. Irrigation Plans

A preliminary irrigation plan shall be submitted in conjunction with the Official Development Plan, but is not part of the Official Development Plan document. The preliminary irrigation plan will be required to coordinate with the Official Development Landscape Plan and must indicate location and size (area) of each hydrozone – including any zones using non-potable water, total water budget broken down by each hydrozone, location and size of water tap and meter, existing and design water pressure, type of irrigation technique (such as drip, microspray, spray, rotor, underground, etc.), and other general information.

Irrigation construction plans will be required to indicate design, layout, and construction information as noted later in this section. Irrigation construction plans shall be submitted for review and approval at the time of landscape construction drawings and private improvements agreement.

All landscape area requires both soil preparation and an automatic irrigation system.

The irrigation system is to be installed after soil preparation and prior to plant materials.

Coordinate and reflect design and construction information as to tying into the City’s non-potable water system, if applicable. Additional information in this regard may be obtained by contacting the City of Westminster Department of Public Works and Utilities.

The irrigation system and irrigation construction plan shall be designed and installed to address all of the following:

- Coordination with the preliminary landscape and irrigation plans.
- Irrigation design and techniques must correspond to the hydrozone and type of plant material.

- Design for berms and slopes should minimize runoff. (Berms and slopes may need repetitive, shorter watering cycles.)
- Avoid overspray onto non-landscape areas.
- Irrigation methods of drip, microspray or sub-surface irrigation within landscape areas less than 8 feet in width.
- Total annual water application by irrigation (water budget) shall not exceed an average of 15 gallons/square foot/year to facilitate water conservation. For purposes of calculating the water budget, the low hydrozone is calculated as 3 gallons/square foot/year; the moderate hydrozone calculated at 10 gallons/square foot/year; and the high hydrozone calculated at 18 gallons/square foot/year.
- Requirements of water features must be indicated as part of the water budget and will be evaluated on a case-by-case basis. The water used in water features must be recycled. Non-potable water must be used if possible. Water features must be maintained in working order and operate during the times specified on the Official Development Plan.
- A maximum irrigation time limit of 8 hours every other day.
- All systems shall be capable of supplying a sufficient number of inches of water per week to the total irrigated area in order to maintain the health of the plant material.
- Identification of existing water pressure and design water pressure.
- Tap size(s) required shall be subject to approval by the City. The number and size of the tap(s) required shall be subject to approval by the City.
- Separate irrigation water taps and meters are required for all residential developments other than single-family detached. Separate irrigation water taps and meters are required for all non-residential developments if the irrigated area exceeds 40,000 square feet. An irrigation water tap shall be used only for irrigation purposes. Refer to the water regulations, Westminster Municipal Code, for information on water tap requirements.
- Use of a master shut-off valve to shut off water to the system when not operating in order to reduce leakage of water from the system.
- Use of backflow preventers.
- Use of pressure reduction valves (PRV) or pressure reduction sprinkler heads if water pressure within the irrigation system is above the component manufacturers recommendations. Likewise, use of booster valves where water pressure is too low.
- Irrigation time clock controllers shall have the capability to allow for seasonal adjustments, including global water budget controls. All controllers shall allow

for multiple programs and start times, 2-3-4-5-7-14 day schedules, and shall allow individual time settings down to the minute. Controllers (excluding single-family detached) shall use evapotranspiration or soil moisture based programming, including either local sensors, remote or historic evapotranspiration based scheduling, or soil moisture sensors.

- Irrigation clock controllers installed by the developer/builder shall be capable of a minimum of 10 zones for a single-family or duplex lot less than 10,000 square feet in area. Lots 10,000 square feet and larger shall require an irrigation clock controller of a minimum of 12 zones.
- Use of automatic rain shutoff devices.
- Sprinkler heads must provide head to head water coverage.
- No single zone shall mix head types.
- Turf and non-turf zones shall be irrigated on separate valves.
- Minimum acceptable distribution uniformities shall be 55% for pop up sprinkler heads or spray zones and 70% for rotor zones, or current irrigation association accepted minimums.
- The use of sprinkler heads that emit large water droplets, such as rotor heads, where possible.
- Sleeve, pipe, and valve sizing. Sleeve all lines under pavement.
- Irrigation using non-potable water should investigate the use of potable water for trees and shrubs.

Technical details regarding overall functioning of the system shall be the responsibility of the designer, the contractor and the owner. For additional reference information regarding irrigation systems see the Westminster Sitework Specifications.

Irrigation construction drawings shall contain the following information:

1. Sheet sizes according to Official Development Plan requirements and no larger than 24" x 36" for final irrigation construction plans.
2. Title block with name of project, sheet name, company identification including address, phone number, name of person preparing the plan and date.
3. Scale-written and graphic to match landscape plan. 1" = 20 feet is preferred.
4. North arrow.
5. Property lines, existing and future right-of-way lines.
6. Key.
7. Existing and proposed structures, water features, sidewalks, overhangs and paving.
8. Proposed grades or spot elevations in sloped or bermed areas.
9. Show and label locations or proposed (low, moderate, high) hydrozones and identify the total square footage of each.

10. Show and label locations to be irrigated with potable and non-potable water and identify the total square footage of each.
11. Total water budget and calculations by hydrozone.
12. All design information, system layout, and details of the system as noted earlier under irrigation system and irrigation construction plans must be shown and labeled.
13. Information as to who will have responsibility for maintenance of the system. Include, name, title, address and contact phone number.
14. City of Westminster standard general notes. (See Plan Submittal Document packet provided by the City.)

Completion of a successful irrigation audit will be required after installation of the irrigation system, prior to City acceptance. (Landscaping by single-family detached homeowner exempt.)

A copy of the irrigation system audit, performed by a Irrigation Association Certified Irrigation Auditor, along with an irrigation schedule developed from the audit that provides at least individual spring, summer, and fall schedules and total annual water application via irrigation in inches (maximum 15 inches/square feet/year), and an as-built irrigation plan shall be provided to the City and posted for the owner and/or manager at each time clock controller.

Within 6 weeks of the installation of new landscaping, the irrigation system installer shall reset the time clock controllers to the normal seasonal watering schedule. (Landscaping by single-family detached homeowner exempt.)

XIII. PLANT MATERIAL LIST BY HYDROZONE

A listing of plant material by suggested hydrozone placement is available from the City's Planning Division. This list will be updated and revised by City Staff on a periodic basis. Factors such as dramatic temperature changes over short periods of time, wind, soil, slope, exposure, moisture, and other environmental and maintenance factors can affect the hardiness and health of plant material. This plant list is not a guarantee of sustainability of any particular species within any particular hydrozone. This list is by no means inclusive and is to serve as a guide only. Proposed plant lists are to be submitted with the required landscape plan and will be reviewed on a case-by-case basis.

Use of non-potable water will require plant selection that is tolerant to higher salt and potassium levels. Plants that have increased salt tolerance are identified. This identification is not a guarantee of salt tolerance, health, or sustainability. For further information in this regard consult a landscape architect or designer.

The use of Siberian or Chinese Elm (*Ulmus pulmila*) and Russian Olive (*Eleagnus angustifolia*) trees and Tamarix (Salt Cedar) shrubs are prohibited within the City of Westminster.

XIV. LANDSCAPE MAINTENANCE REQUIREMENTS

All existing properties, excluding single-family detached, shall not modify any landscape area or plant materials without City approval. Maintenance and minor improvements within existing landscape area or of plant materials must occur in a manner that complies with the standards herein or decreases existing aspects of non-conformance.

An existing single-family lot without an Official Development Plan, or amended Official Development Plan or Official Development Plan Waiver that addresses landscaping, may modify existing landscaping if modifications comply with the requirements herein, or decrease an aspect of existing on-conformance.

The property owner, homeowner's or business association shall be responsible for the continual adequate maintenance of the landscaping and irrigation system required by and shown on the Official Development Plans and site plans accompanying Official Development Plan waivers, and resulting construction drawings.

All landscaping and landscape materials shall be continually maintained including irrigation, weeding, pruning and replacing in a substantially similar manner as originally approved. The following survival standards shall apply to all landscape areas and materials.

- a) All living plant material, as indicated by the Official Development Plan, must be maintained in perpetuity. The City must approve replacement or alternation of plant material.
- b. Non-living ground covers, such as rock or organic mulch, must have 100% ground surface coverage and be maintained at the required depth. Artificial turf shall be installed according to industry specifications and maintained in a manner to mimic a healthy living turf. Replacement of artificial turf shall be required when the material, wear, or installation is such that it is determined by the City that it no longer visually mimics a healthy living lawn area.
- c. All plant material including trees, shrubs, groundcovers, vines and turf must have a 100% ongoing survival rate.
- d. Any dead or severely damaged (as determined by the City) plant material shall be replaced by the owner or assigns within 6 months of notification by the City.
- e. Pruning of plant material shall not drastically alter the natural growth pattern and maturing size, as determined by the City. If the City determines that pruning has occurred that violates this requirement, the owner will be required to replace the affected plant with an equal plant within 6 months of notification by the City. This requirement also applies to plant material affected by storm damage. All tree-pruning activities shall be in accordance with the American National Standard for tree care operations (ANSI A300).
- f. Plants infected with insects or disease must be treated appropriately or removed from the property, as required by the City. Removed plants must be replaced with new, equal plant material, as determined by the City.
- g. Weeds must be abated and removed.
- h. Turf areas generally require periodic mowing, aeration, dethatching, fertilization, and weed abatement. Turf must not exceed 6 inches in height unless approved otherwise by the City. Turf and grass areas must be maintained in a healthy condition without areas of dirt or dead grass, as determined by the City.

- i. Irrigation should not occur in the heat of the day (between the hours of 10 a.m. and 6 p.m.) in order to reduce evaporation. Excessive water run off, as determined by the City, is not permitted.
- j. Irrigation systems shall be maintained and periodically adjusted to assure watering efficiency and conservation methods. Replacement parts shall match or be compatible with the system requirements.

XV. PRIVATE IMPROVEMENTS AGREEMENT

In accordance with City Code, a Private Improvements Agreement and surety is required for all private improvements within a development. Private improvements are all non-public improvements including landscaping, irrigation, lighting, fencing, etc. (See Section 11-6-4 of Westminster Municipal Code). The Private Improvements Agreement is a written agreement between the property owner and the City, and shall include the required landscape and automatic irrigation requirements and projected costs. Construction drawings shall accompany the Private Improvements Agreement. One of the forms of security as established by City Code shall also accompany the Public Improvements Agreement.

A. Releasing Surety and Warranty Maintenance

The improvements will be accepted in writing by the City when all items are satisfactorily completed in accordance with the terms of the Public Improvements Agreement and the Official Development Plan. Prior to release of any surety, the developer must also provide a signed checklist to the City verifying that the landscape and irrigation improvements have been installed according to approved plans and City requirements. Upon such acceptance, the warranty period and performance obligations contained below shall commence and the surety amount may be reduced to 15% of the original surety amount.

Warranty Maintenance

For a period of one year following the acceptance of the Improvements (the "Warranty Period"), the Owner shall be responsible for making any repairs or replacements required due to (a) defective materials, workmanship, or design or (b) damage that may be done to the Improvements except ordinary wear and tear. Repairs or replacement will be made which, in the opinion of the City, are necessary to maintain the Improvements to the same standards applicable at the time of the City's acceptance of the Improvements. The one year period will be extended an additional year for turf areas not established by use of sod.

During the ninth month of the Warranty Period, a warranty inspection will be conducted by the City and a corrections list will be submitted to the Owner stating what repairs or replacements are necessary pursuant to this Agreement. A second warranty inspection will occur prior to the end of the second year for turf area not established by the use of sod.

All such deficiencies set forth in the corrections list shall be completed by the Owner within 60 days of notification. Any warranty repair or replacement that is not satisfactorily completed by the Owner within 60 days following notification may be completed by the City and charged to the Owner, which costs the Owner hereby agrees to reimburse to the City, unless modified by written agreement.

The City will monitor the satisfactory completion of all correction list items and, when completed, will provide the Owner a written acknowledgment of the completion of the Warranty Period and the release of the Improvements of designated portions thereof from warranty. Upon the request of the Owner, the City shall release the surety for any portion of the Improvements released from warranty by the City.

XVI. DEFINITIONS

For the purpose of these Landscape Regulations, the following terms shall be defined as noted herein.

Alternative Turf – refers to grasses used for lawn or field/meadow purposes other than bluegrass or a bluegrass/fescue blend.

Artificial Turf – refers to a non-living material typically used in lieu of a living turf/lawn. The appearance mimics a green, living turf or bluegrass lawn during the growing season.

Berm – an earthen mound intended for visual interest or screening of undesirable views. A berm is effective in reducing noise levels.

Caliper – the measurement in diameter of a tree trunk measured 6 inches above the ground for trees up to 4-inch size and 12 inches above the ground for larger sizes.

City – the use of the word “City” generally refers to either the “City of Westminster” or means “The Planning Manager” for the purposes of these Regulations. If a determination by the Planning Manager that an interpretation or decision of Planning Commission and/or City Council is warranted, the use of the word City can include Planning Commission and/or City Council.

Certified Irrigation Designer, Contractor or Auditor – requires successful completion of formal training, certification, licensing or other similar qualification by the Irrigation Association.

Common Areas – land area within a development intended for joint, private or public ownership and use. These areas are often maintained by a homeowners association, business association or in some instances, the City. Right-of-way is considered a common area for the purposes of these Regulations.

Deciduous – a plant with foliage that is shed annually.

Developer – a person, persons, or business that is responsible for the development of land, buildings and/or related improvements – often for the purpose of sale to a subsequent owner. The developer may be the property owner.

Double Row of Parking – Two rows of parking adjacent to each other, generally not separated by a drive aisle or landscaping.

Drip Line – a vertical line extended downward from the tips of the outermost branches of a tree or shrub to the ground.

Drought – generally refers to periods of a year or more with below average precipitation. Can also refer to seasons such as winter, spring, summer or fall, with below average precipitation.

Evapotranspiration – the quantity of water evaporated from adjacent soil surfaces and transpired from plants during a specific time.

Evergreen – a plant with foliage that persists and remains green year-round.

Evergreen Tree – a tree with evergreen foliage. Mature height generally exceeds twenty feet.

Fabric – refers to a porous geotextile fabric installed underneath mulch to retard the growth of weeds into and from the soil.

Groundcover – living plant material that grows low to the ground, usually under 24-inches in height, often of a spreading nature and typically available in small pots for planting. Does not include annuals, weeds, turf grasses, herbaceous perennials, mulches or tree canopy.

Hardscape – non-living site improvements at the ground plane such a building, pavement, walkways and parking areas – including those of crushed stone, patios, decks, mulch area (exclusive of mulch area in shrub and perennial beds) and other similar improvements as determined by the City. Hardscape area does not include artificial turf unless as approved otherwise in these Regulations.

Height – for the purposes of these Regulations plant height is determined as typically measured by National Nursery Association Standards.

Hydrozone – refers to areas within the landscape area defined by similar water needs to sustain healthy plants. For the purposes of these Regulations, hydrozones are broken into three categories and will ultimately be approved by the City after consideration of plant material and method of irrigation:

Low Hydrozone: 3 gallons of water or less of supplemental water is added in an irrigation season. Irrigation methods in this zone will usually be drip or microspray, unless a low water turf or groundcover is being irrigated in which the method may be spray or rotor head.

Moderate Hydrozone: 10 gallons of water is added by supplemental irrigation in an irrigation season. Irrigation methods for this zone will usually be spray or rotor head with large water droplets, or spray heads.

High Hydrozone: 18 gallons of water is added by supplemental irrigation in an irrigation season. Irrigation methods in this zone will usually be spray or rotor heads.

Irrigation – refers to an automatic, permanent, artificial watering system designed to transport and distribute water to landscape plants. Underground irrigation systems are required unless approved otherwise by the City.

Irrigation Audit – a procedure according to the Irrigation Association that includes a visual site inspection of the installed irrigation system for performance according to design criteria; a watering system test; physical corrections if necessary; and establishment of a watering schedule. (www.irrigation.org)

Irrigation Plan – a plan drawn to scale that indicates the irrigation components and their specifications as related to a specific landscape plan.

Irrigation Season – see “Year.”

Land Use – land use designation in these Regulations such as single-family, single-family attached, multi-family, non-residential, or other type of land use designation, are as defined by the Westminster Comprehensive Land Use Plan, Westminster Municipal Code, or City.

Landscape Architect/Designer – a professional who has successfully completed formal study or training in the field of landscape architect/design, culminating in either certification, licensing or degree.

Landscape Area – the area within a lot or property not comprised of hardscape, measured at the ground plane. Landscape area will not include tree canopy area, bare dirt, or weeds. Landscape area will consist of 100% living groundcover, turf, or shrub bed area. Water features may be included in the calculation of landscape area. Areas dedicated to edible plants such as orchards or vegetable gardens are not included.

Landscape Buffer – a landscape area intended to physically and visually separate one land use from another.

Landscape Improvements/Materials – all elements typically used and/or present in the designed landscape such as, but not limited to, soil, compost, rock, plant material, edging, weed fabric, mulch, irrigation system, fencing, lighting, seating. Artificial turf or plants cannot be substituted for required plant materials except as approved otherwise in these Regulations.

Landscape Plan – a plan drawn to scale that shows the layout of all landscape components and their specifications for a development site.

Landscape Setback Area – an area reserved for the primary use of landscaping measured by the horizontal distance between two points of reference. Oftentimes landscape setback refers to a distance of landscape area located between the property line and a building or parking area or other hardscape. Sidewalks located within a landscape setback area will necessitate a corresponding increase in the setback.

Maintenance – any activity undertaken to prevent the deterioration, impairment, or need for repair of an area, structure, right-of-way, or land use, including but not limited to, management, repair or replanting of plant materials and landscape materials.

Mulch – a non-living organic or inorganic material such as bark, rock, or stone materials typically in a loose condition, used in the landscape industry to cover bare ground. Mulch will provide a protective covering around plants, retard erosion, retain soil moisture, reduce weeds and maintain soil temperatures.

Non-Potable Water – treated, recycled waste water that may be available from the City for a specific use such as landscaping, not intended for human consumption.

Ornamental Tree – a tree of smaller size than a large shade or evergreen tree, often providing variety and interest by flower display, attractive fruit or fall color. Examples of ornamental trees are crabapples, aspen, hawthorn, and similar species.

Parking Lot Island - a parking lot landscape area typically surrounded on at least two sides by parking spaces or drive aisles.

Perennial – a herbaceous plant that blooms and produces seed for each year, exceeding two years. A short-lived perennial lives for approximately 3-5 years. Long-lived perennials are likely to live much longer and can remain for over 20 years.

Plant Materials – living plants such as trees, shrubs, groundcovers, vegetables, and vines. Does not include weeds or other undesirable plants as determined by the City.

Rain Sensor or Rain Shutoff Device – a device connected to an irrigation controller that overrides scheduled irrigation when significant precipitation has been detected.

Redevelopment – any man-made change to improved or unimproved real estate including any material change in the use or appearance of any structure, physical improvement, grading, landscaping, or in the land itself.

Shade Tree – Deciduous trees of large size, generally 30 feet or more in height when mature.

Shrub – a plant that typically retains branches all the way to the ground level – does not include evergreen trees with the exception of upright junipers.

Soil Amendment – refers to organic and inorganic material added to the soil to improved texture, moisture holding capacity and water and air infiltration.

Street – any public or private street excluding alleys.

Tree – a woody plant with leaves or needles that grows to achieve height usually above the human form, often providing shade. With the exception of evergreen trees, trees generally do not occupy a significant amount of ground plane area.

Turf – refers to a grouping of grasses that grow in very close proximity to form a living surface at the ground plane. Turf is generally an area of the ground plane intended to be/or could be walked on and when regularly mowed, forms a dense growth of leaf blades and roots.

Water Budget – an estimate of the total amount of gallons of water for irrigation purposes for the irrigation season. The water budget will use specifications provided within these Regulations and any additional information provided by the City, to calculate water usage by hydrozone to arrive at the total amount.

Weeds – weeds are defined by Westminster Municipal Code or State Statute.

Xeriscape – a term coined in Denver to describe landscaping where water efficiency is achieved. It does not mean that the landscape is only dry, or the landscape is all rock, or there is no lawn, or only native plants are used. Refer to the text within this document for a detailed description of landscaping using xeriscape principles.

Yard Area – all portions of a lot not covered by building footprint. Yard area is typically broken down to front, rear, and side yard areas. The definition of these areas shall be by interpretation of the City.

Year – for the purposes of these Regulations and calculation of water rates, a year is equivalent to a typical irrigation season that is from mid-April to mid-October (26 weeks).

Functional turf

An irrigated grass area that provides a recreational benefit to the community and is:

- Located at least 10 feet from a street, installed on slopes less than 25 percent and not installed within street medians, along streetscapes or at the front of entryways to parks, commercial sites, neighborhoods, or subdivisions.
- Active/programmed recreation turf, athletic fields, designated-use-area turf, golf course play areas, some pet relief turf, playground turf or resident area turf.

Active/programmed recreation turf

Grass used for recreation that is 1,500 contiguous square feet or greater; co-located with facilities; and located at least 10 feet from a street or interior-facing parking lot unless the turf area is at least 30 feet in all dimensions or immediately adjacent to an athletic field.

Athletic field turf

Grass used for sports or physical education that is 1,500 contiguous square feet or greater; not less than 30 feet in any dimension; and located at a school, daycare, religious institution, recreation center, senior center, park or water park. Athletic field turf may be located less than 10 feet from a street or interior-facing parking lot if the contiguous turf area is at least 30 feet in all dimensions.

Designated use area

Grass designated for special use at cemeteries and mortuaries.

Golf course play area

Grass in driving ranges, chipping and putting greens, tee boxes, greens, fairways and rough.

Pet relief area

Grass at a property providing commercial and retail services for pets, such as veterinarian and boarding facilities. The area must not exceed 200 square feet.

Playground turf

Grass in designated play areas with playground amenities, including but not limited to slides, swings and climbing structures on homeowner association owned/managed property or at a public park, water park, school, daycare, recreation center, senior center or religious institution. Playground turf may be located less than 10 feet from a street if fenced.

Resident area turf

Grass up to 150 square feet per dwelling unit at multi-family residential properties, multi-family mixed use properties, or assisted living and rehabilitation centers used by tenants for recreation or leisure. May not be located in parking lots, streetscapes or other non-accessible areas.

Nonfunctional turf

An irrigated grass area not providing functional use. Areas of nonfunctional turf include, but are not limited to:

Streetscape turf

Grass located along public or private streets, streetscape sidewalks, driveways and parking lots, including turf within a community, park and business streetscape frontage areas, medians, and roundabouts.

Frontage, courtyard, interior and building-adjacent turf

Grass in front of, between, behind or otherwise adjacent to a building or buildings located on a property not zoned exclusively for single-family residence, including maintenance and common areas.

Certain HOA-managed landscape areas

Turf managed by a homeowner association that does not provide a recreational benefit to the community or that otherwise does not qualify as functional turf, regardless of property zoning.

Waiver requests

Any establishment may apply for a waiver for functional turf that provides a recreational benefit to the community and meets the functional turf definition.

Waiver applications must demonstrate that the turf substantially complies with the functional turf definition as indicated by:

- Activity type
- Activity-appropriate dimensions
- Number of persons served and frequency of use
- Location in proximity to similar turf areas
- Public access and proximity to roadways
- Presence of facilities and/or other recreational amenities Irrigation efficiency

APPENDIX B – GREENCO PLANT LIST

The Plant Water Use Category (VL = Very Low, L = Low; M = Medium; H = High) used to calculate the Irrigation Water Budget in Appendix A should be selected from the plant list provided in the “Green Industry Best Management Practices (BMPs) for the Conservation and Protection of Water Resources in Colorado: Moving Toward Sustainability” Appendix E, Third Release, May 2008. GreenCO’s Appendix E plant list categorizes plant water needs for various regions of Colorado based on elevation, including the East Slope (<6,500 ft), West Slope (6,500 to 8,500 ft), and Mountain Areas (>8,500 ft). Accordingly, Aspen is located in the “West Slope” category. Relevant pages from the GreenCO Appendix E are included below. Applicant shall provide references for the Plant Water Use Category for any plant that is not included in this plant list.

Appendix E
Plan Water Requirement Estimates (GreenCO-CSU Crop Coefficient Survey 2004)

Estimated Water Usage for Plant: VL=Very Low < 25%; ETO L=Low 25%-50%; ETO M=Medium 50%-75%; ETO H=High >75% ETO Plant Type: A=Annual ; P=Perennial; T=Tree; V=Vine; GC=Ground Cover; S=Shrub; TU=Turf										
Botanic Name	Common Name	Plant Type	East Slope	East Slope Votes	West Slope	West Slope Votes	Mountain	Mountain Votes	All Regions	Total Votes
Agapanthus africanus	Lily of the Nile	A	M	14			M	1	M	15
Ageratum houstonianum	Ageratum	A	M	18	L	3	M	4	M	25
Alyssum sp.	Alyssum	A	M	23	L	2	L	4	M	29
Amaranthus spp.	Amaranth	A	L	15	M	2	L	2	L	19
Angelonia spp.	Summer Snapdragon	A	M	9				0	M	9
Antirrhinum majus	Snapdragon	A	M	19	L	4	M	4	M	27
Argyranthemum	Marguerite Daisy	A	M	14			M	1	M	15
Bacopa spp.	Water Hyssop	A	M	10			M	2	M	12
Begonia semperflorens	Wax Begonia	A	H	17			H	2	H	19
Brachycome iberidifolia	Daisy, Swan River	A	M	11			M	2	M	13
Brassica oleracea	Ornamental Cabbage or Kale	A	M	14			M	3	M	17
Browallia speciosa	Bush Violet	A	M	11			H	1	M	12
Calendula officinalis	Calendula	A	M	19	M	1	L	2	M	22
Canna x generalis	Canna	A	H	19	H	1	H	1	H	21
Carex comans	Sedge, New Zealand Hair	A	M	4				0	M	4
Catharanthus roseus	Periwinkle, Madagascar	A	L	14	L	1	L	2	L	17
Celosia argentea plumosa	Cockscomb	A	M	19	M	1	L	2	M	22
Centaurea cyanus	Bachelor Button	A	L	25	L	3	L	3	L	31
Cleome hassleriana	Spiderflower	A	M	15	M	1	H	2	M	18
Cleome serrulata	Rocky Mountain Beeplant	A	L	10	L	1	L	3	L	14
Coleus spp.	Coleus	A	M	25			M	3	M	28
Coreopsis tinctoria	Coreopsis, Plains	A	L	19	L	1	L	2	L	22
Cosmos bipinnatus	Cosmos	A	L	27	L	1	L	2	L	30
Cuphea spp.	Cigar Flower	A	M	7			M	1	M	8
Dahlia pinnata	Dahlia	A	M	21			M	2	M	23
Datura sp.	Angel's Trumpet	A	L	16			M	1	L	17
Dianthus x chinensis	Border Pink	A	M	17			L	2	M	19
Diascia barbaerae	Twinspur	A	M	15	L	1		0	L	16
Dyssodia tenuiloba	Daisy, Dahlberg	A	L	6				0	L	6
Gazania rigens	Treasure Flower	A	L	12			L	1	L	13
Gomphrena globosa	Globe Amaranth	A	L	15			L	2	L	17
Helichrysum bracteatum	Strawflower	A	L	11			L	1	L	12
Heliotropium arborescens	Heliotrope	A	M	13	M	2	M	1	M	16
Impatiens walleriana	Impatiens	A	H	23	H	1	M	2	H	26
Ipomea batatas	Sweet Potato Vine	A	M	17			L	1	M	18
Lantana spp.	Lantana	A	L	18			L	2	L	20
Lathyrus odoratus	Sweet Pea, Annual	A	M	19			M	1	M	20
Limonium sinuatum	Statice	A	L	14	L	1	L	1	L	16
Liriope muscari	Lily Turf	A	M	9			M	1	M	10
Lobelia sp.	Lobelia	A	M	20			M	3	M	23
Lobularia maritima	Sweet Alyssum	A	M	16				0	M	16
Lunaria annua	Money Plant	A	L	9			L	1	L	10
Melinis (Rhynchelytrum) nerviglumis	Grass, Ruby	A	M	10			M	1	M	11
Mimulus spp.	Monkey Flower, Annual	A	H	7			H	2	H	9
Mirabilis jalapa	Four O'Clock, Annual	A	L	22	L	1	VL	1	L	24
Molucella laevis	Bells of Ireland	A	M	9			M	1	M	10
Nicotiana spp.	Flowering Tobacco	A	M	21			M	2	M	23
Nierembergia hippomanica	Cup Flower	A	M	8			M	1	M	9
Ocimum basilicum	Basil	A	M	21			M	2	M	23
Pelargonium hybrids	Geranium	A	M	22			M	2	M	24
Pennisetum setaceum	Grass, Annual Fountain	A	M	21			L	2	M	23
Petunia x hybrida	Petunia	A	M	22	L	1	M	4	M	27
Phacelia campanularia	California Bluebell	A	L	6			L	1	L	7
Plectranthus argentatus	Silver Dollar Plant	A	L	10			VL	1	L	11
Portulaca grandiflora	Moss Rose, Portulaca	A	L	21	VL	1	L	3	L	25
Ricinus communis	Castor Bean	A	M	9				0	M	9
Salvia farinacea	Mealycup sage	A	M	10			L	1	M	11
Salvia splendens	Scarlet Salvia	A	M	11			L	2	M	13
Sanvitalia procumbens	Creeping Zinnia	A	L	11			L	2	L	13
Scaevola aemula	Fan Flower	A	M	11			M	2	M	13
Senecio cineraria	Dusty Miller	A	L	22	L	1	L	2	L	25
Sutera cordata	Bacopa	A	L	9			M	2	M	11
Tagetes spp.	Marigold	A	L	23	L	1	L	3	L	27
Tithonia rotundifolia	Sunflower, Mexican	A	L	15			L	1	L	16
Tropaeolum majus	Nasturtium	A	L	21			L	2	L	23
Verbena bonariensis	Verbena, Tall	A	L	16	VL	1		0	L	17
Verbena x hybrida	Verbena, Garden	A	L	16	L	1	L	3	L	20
Viola tricolor	Viola, Johnny-jump-up	A	M	22			M	2	M	24
Viola x wittrockiana	Pansy	A	M	21			M	3	M	24
Zinnia elegans	Zinnia	A	L	23	L	1	L	2	L	26
Anchusa spp.	Bugloss	A	M	17	L	2	L	1	M	20
Bellis perennis	Daisy, English	A	P	10			M	1	M	11
Campanula medium	Canterbury Bells	A	P	16	M	3	H	2	M	21
Dianthus cultivars	Pinks	A	P	24	L	2	L	3	M	29
Diascia integerrima 'Coral Canyon'	Twinspur, Coral Canyon	A	P	16	L	2	L	2	L	30
Gazania krebsiana Tanager	Gazania, Orange Hardy	A	P	19			L	1	L	20
Rosmarinus officinalis	Rosemary	A	P	16			L	1	L	17
Salvia sclarea	Clary Sage	A	P	21	VL	1	M	1	L	23
Ajuga renevenensis 'Pink Beauty'	Carpet Bugle, Pink Beauty	GC	M	19	M	3	L	2	M	24
Ajuga pyramidalis 'Metallica Crispa'	Carpet Bugle, Pyramid	GC	M	19	M	2		0	M	21
Ajuga reptans	Carpet Bugle, Green	GC	M	26	M	2	M	2	M	30
Euonymus kewensis	Euonymus, Kew	GC	M	13	M	1		0	M	14
Thymus praecox 'Pseudolanuginosus'	Thyme, Woolly	GC	L	6	L	1	VL	1	L	8
Aegopodium podagraria	Bishop's Weed	GCP	M	26	M	4	M	3	M	33
Convallaria majalis	Lily-of-the-Valley	GCP	M	25	M	1	M	1	M	27
Euonymus fortunei 'Coloratus'	Wintercreeper, Purpleleaf	GCP	L	21	L	2	M	1	L	24
Fragaria americana	Strawberry, Wild	GCP	L	21	L	2	L	2	L	25
Fragaria cultivars	Strawberry	GCP	M	22	M	1	M	1	M	24
Fragaria vesca	Strawberry, Runnerless	GCP	M	13			M	1	M	14
Geranium x cantabrigiense	Cranesbill, Cambridge	GCP	L	16	M	1	M	1	M	18
Glechoma hederacea	Ivy, Ground	GCP	M	11			L	1	M	12
Globularia cordifolia	Daisy, Dwarf Globe	GCP	L	12			L	1	L	13
Hypericum calycinum	St. John's Wort, Mounding	GCP	M	13	M	1		0	M	14
Hypericum reptans	St. John's Wort, Creeping	GCP	L	14	M	1		0	L	15
Iberis gibraltarica	Candytuft, Lilac	GCP	L	13			M	1	L	14
Iberis sempervirens	Candytuft, Evergreen	GCP	L	26	M	1	M	1	L	28
Lamium galeobdolon	Yellow archangel	GCP	M	14	M	1	M	1	M	16
Lamium maculatum	Nettle, Spotted	GCP	M	20	M	1	M	1	M	22
Marrubium rotundifolium	Horehound, Silvery	GCP	VL	10				0	VL	10
Mazus reptans	Mazus	GCP	M	5				0	M	5
Pachysandra terminalis	Spurge, Japanese	GCP	M	15	M	2	M	1	M	18

Appendix E
Plan Water Requirement Estimates (GreenCO-CSU Crop Coefficient Survey 2004)

Estimated Water Usage for Plant: VL=Very Low < 25%; ETO L=Low 25%-50%; ETO M=Medium 50%-75%; ETO H=High >75% ETO Plant Type: A=Annual ; P=Perennial; T=Tree; V=Vine; GC=Ground Cover; S=Shrub; TU=Turf										
Botanic Name	Common Name	Plant Type	East Slope	East Slope Votes	West Slope	West Slope Votes	Mountain	Mountain Votes	All Regions	Total Votes
Phlox douglasii	Phlox, Cushion	GCP	L	9			L	1	L	10
Phlox procumbens	Phlox, Creeping	GCP	L	5	M	1	M	1	M	7
Phlox stolonifera	Phlox, Creeping	GCP	M	10				0	M	10
Phlox subulata	Phlox, Creeping	GCP	L	25	M	2	L	2	L	29
Potentilla neumanniana	Cinquefoil, Creeping	GCP	L	13	L	1	L	2	L	16
Potentilla nevadensis	Cinquefoil, Native Silvery	GCP	L	18	L	2	L	2	L	22
Sagina subulata	Pearlwort	GCP	M	10			M	1	M	11
Sedum acre evergreen	Stoncrop, Goldmoss-Utah	GCP	L	16	L	2	VL	3	L	21
Sedum 'Blue Spruce'	Stoncrop, Blue Creeping	GCP	L	14	L	2	L	2	L	18
Sedum hybridum	Stoncrop, Oak-leaf	GCP	L	12	VL	1	L	2	L	15
Sedum spurium	Stoncrop, Two-row	GCP	L	17	L	2	VL	2	L	21
Sempervivum species	Hens and Chicks	GCP	VL	32	VL	4	L	4	VL	40
Stachys byzantina	Lamb's Ears	GCP	L	25	VL	1	VL	2	L	28
Tanacetum densum amani	Partridge Feather	GCP	VL	19	VL	1	VL	1	VL	21
Teucrium chamaedrys	Germander, Wall	GCP	L	14			L	1	L	15
Thymus 'Elfin'	Thyme, Elfin	GCP	L	15	L	1	VL	1	L	17
Thymus praecox arcticus	Thyme, Mother of	GCP	L	19	L	2	L	4	L	25
Thymus serpyllum	Thyme, Wild	GCP	L	16	L	2	L	2	L	20
Veronica allionii	Speedwell, Allioni	GCP	L	15	L	2	L	2	L	19
Veronica Crystal River	Speedwell, Crystal River	GCP	L	10	L	2	L	2	L	14
Veronica filiformis	Speedwell, Birdseye	GCP	L	11	VL	1	L	2	L	14
Veronica ilwanensis	Speedwell, Turkish	GCP	L	21	L	3	L	2	L	26
Veronica pectinata	Speedwell, Wooly Creeping	GCP	L	20	L	4	L	2	L	26
Veronica prostrata	Speedwell, Prostrate	GCP	L	12	L	2	L	2	L	16
Veronica repens	Speedwell, Creeping	GCP	L	17	L	3	L	2	L	22
Vinca major	Periwinkle, Big-Leaf	GCP	M	16	M	2	M	2	M	20
Vinca minor	Periwinkle	GCP	L	24	L	3	M	2	L	29
Waldsteinia ternata	Strawberry, Barren	GCP	L	20	L	3	L	2	L	25
Arctostaphylos nevadensis	Bearberry, Nevada	GCP S	L	26	L	5	L	2	L	33
Arctostaphylos uva-ursi	Kinnikinnick	GCP S	L	36	L	8	L	9	L	53
Mahonia repens	Creeping Colorado Holly	GCP S	L	36	L	5	L	5	L	46
Potentilla species	Cinquefoil, Creeping	GCP S	L	25	L	5	L	4	L	34
Achillea ageratifolia	Yarrow, Greek	P	L	25	L	5	L	3	L	33
Achillea 'Coronation Gold'	Yarrow, Golden Yellow	P	L	31	L	6	L	4	L	41
Achillea filipendulina	Yarrow, Tall Yellow	P	L	25	L	6	VL	5	L	36
Achillea lanulosa	Yarrow, Wooly White	P	L	21	L	4	L	3	L	28
Achillea millefolium	Yarrow, Common White	P	L	30	L	7	L	7	L	44
Achillea 'Moonshine'	Yarrow, Moonshine	P	L	31	L	7	L	5	L	43
Achillea ptarmica 'The Pearl'	Yarrow, The Pearl	P	L	21	L	4	L	3	L	28
Achillea serbica	Yarrow, Serbian	P	L	21	L	4	L	1	L	26
Achillea 'Summer Pastels'	Yarrow, Mixed Pastels	P	L	28	L	6	L	5	L	39
Achillea tomentosa	Yarrow, Wooly Yellow	P	L	24	L	5	L	3	L	32
Aconitum columbianum	Monkshood, Columbian	P	H	11	M	1	H	1	H	13
Aconitum napellus	Monkshood, Garden	P	M	19	H	3	H	2	H	24
Aconitum x cammarum	Monkshood, Bicolor	P	M	11				0	M	11
Actinidia arguta	Kiwi, Hardy	P	M	8				0	M	8
Adiantum pedatum	Fern, Western Maidenhair	P	H	11	H	2		0	H	13
Aethionema coridifolium	Stonecress, Lebanon	P	L	9	M	3	M	1	L	13
Aethionema grandiflorum	Stonecress, Persian	P	L	11	L	3		0	L	14
Agastache aurantiaca 'Coronado'	Hyssop, Coronado	P	L	30	L	3	L	1	L	34
Agastache barberi	Giant Hummingbird's Mint	P	L	20	L	3	L	1	L	24
Agastache 'Blue Fortune'	Hyssop, Blue Fortune Anise	P	L	21	L	3	L	1	L	25
Agastache cana	Double Bubblemint	P	L	28	L	4	L	1	L	33
Agastache foeniculum	Hyssop, Anise	P	L	18	L	2	L	1	L	21
Agastache rupestris	Hyssop, Sunset	P	L	31	L	4	L	2	L	37
Ajania pacifica	Daisy, Pacific	P	L	6	L	1	L	1	L	8
Alcea rosea	Hollyhock	P	L	32	L	4	L	3	L	39
Alchemilla alpina	Lady's Mantle, Alpine	P	M	12	L	1	L	1	M	14
Alchemilla erythropoda	Lady's Mantle, Red	P	M	9	M	2		0	M	11
Alchemilla mollis	Lady's Mantle	P	M	24	M	2	L	1	M	27
Allium cernuum	Nodding Onion	P	L	17	L	1	L	2	L	20
Allium geyeri	Geyer Onion	P	L	10	L	1	M	1	L	12
Allium schoenoprasum	Chives	P	L	25	M	1	M	1	L	27
Alyssum montanum 'Mountain Gold'	Basket of Gold, Mountain	P	L	27	L	5	L	3	L	35
Amsonia jonesii	Jones' Bluestar	P	L	12	M	2		0	L	14
Anacyclus pyrethrum var. depressus	Daisy, Mt. Atlas	P	L	21	L	3	M	1	L	25
Anaphalis margaritacea	Pearly Everlasting	P	L	12	L	3	L	3	L	18
Andropogon gerardii	Bluestem, Big	P	L	23	L	3	L	1	L	27
Andropogon saccharoides	Bluestem, Silver	P	L	15	L	1	L	1	L	17
Anemone biarmiensis	Anemone, Yellow	P	M	10	M	3	L	2	M	15
Anemone canadensis	Anemone, Meadow	P	M	15	M	3	L	1	M	19
Anemone cylindrica	Thimbleweed	P	M	10	M	3	M	1	M	14
Anemone multifida	Windflower	P	M	15	M	3	M	3	M	21
Anemone sylvestris	Anemone, Snowdrop	P	M	19	L	2	M	1	M	22
Anemone tomentosa 'Robustissima'	Anemone, Grape-leaved	P	M	16	M	2	M	1	M	19
Anemone x hybrida	Anemone, Hybrid	P	M	18	M	2	M	1	M	21
Antennaria dioica 'Rubra'	Pussytoes, Pink	P	L	25	VL	3	VL	4	L	32
Antennaria parvifolia	Pussytoes, Dwarf	P	L	24	VL	5	VL	5	VL	34
Anthemis marschalliana	Daisy, Filigree	P	L	8	L	1		0	L	9
Anthemis tinctoria	Daisy, Marguerite	P	L	18	L	2	L	1	L	21
Aquilegia alpina	Columbine, Alpine	P	M	24	M	5	L	4	M	33
Aquilegia barnebyi	Columbine, Barneby's	P	L	15	L	4	M	2	M	21
Aquilegia caerulea	Columbine, Rocky Mountain	P	M	36	M	8	M	8	M	52
Aquilegia canadensis	Columbine, Dwarf Red	P	M	22	M	6	L	4	M	32
Aquilegia chrysantha	Columbine, Yellow	P	L	32	M	7	L	4	L	43
Aquilegia cultivars	Columbine	P	M	27	M	5	M	6	M	38
Aquilegia discolor	Columbine, Spanish	P	M	11	M	3	M	2	M	16
Aquilegia elegantula	Columbine, Dwarf Red	P	M	18	M	3	M	3	M	24
Aquilegia flabellata 'Kuriensis'	Columbine, Compact Pink	P	M	15	M	4	M	2	M	21
Aquilegia formosa	Columbine, Western Red	P	M	15	M	4	M	2	M	21
Aquilegia saximontana	Columbine, Dwarf Blue	P	M	21	M	4	M	3	M	28
Aquilegia vulgaris	Columbine, Garden	P	M	21	M	3	M	4	M	28
Arabis blepharophylla 'Spring Charm'	Rockcress, Spring Charm	P	M	13	L	3	L	2	L	18
Arabis caucasica 'Snowcap'	Rockcress, White Alpine	P	L	19	L	4	L	2	L	25
Arenaria montana	Sandwort, Mountain	P	L	14	L	3	L	2	L	19
Armeria maritima	Sea Pinks	P	M	24	M	3	M	1	M	28
Armeria pseudarmeria	Sea Pinks, Wide-leaved	P	M	10	L	2		0	M	12
Armeria 'Victor Reiter'	Sea Pinks, Victor Reiter	P	M	12	L	2	M	1	M	15
Arnica cordifolia	Arnica, Heartleaf	P	M	7	L	2	L	2	M	11
Artemisia absinthium	Sage, Common Wormwood	P	VL	11	VL	2	VL	1	VL	14
Artemisia 'Powis Castle'	Sage, Powis Castle	P	L	22	L	6	L	3	L	31

Appendix E
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Estimated Water Usage for Plant: VL=Very Low < 25%; ET0 L=Low 25%-50%; ET0 M=Medium 50%-75%; ET0 H=High >75% ET0 Plant Type: A=Annual ; P=Perennial; T=Tree; V=Vine; GC=Ground Cover; S=Shrub; TU=Turf										
Botanic Name	Common Name	Plant Type	East Slope	East Slope Votes	West Slope	West Slope Votes	Mountain	Mountain Votes	All Regions	Total Votes
Artemisia schmidtiana	Sage, Silver Mound	P	L	25	VL	3	VL	2	L	30
Artemisia stellerana 'Silver Brocade'	Sage, Silver Brocade	P	L	18	L	4	VL	2	L	24
Aruncus dioicus	Goats Beard	P	M	13	L	1		0	M	14
Arundo donax	Grass, Giant Reed	P	M	10	H	1		0	M	11
Asclepias incarnata	Milkweed, Swamp	P	M	17	H	1	H	1	M	19
Asclepias speciosa	Milkweed, Showy	P	L	14	L	2	L	2	L	18
Asclepias tuberosa	Gay Butterfly	P	L	23	L	5	L	1	L	29
Aster alpinus	Aster, Alpine	P	L	22	L	4	L	1	L	27
Aster bigelovii	Aster, Plains	P	L	14	L	2	M	1	L	17
Aster laevis	Aster, Smooth	P	L	11	L	2	L	2	L	15
Aster novae-angliae	Aster, New England	P	M	21	M	3	M	2	M	26
Aster novi-belgii	Aster, Dwarf Fall	P	M	26	M	5	VL	1	M	32
Aster porteri	Aster, Porter	P	L	11	L	1		0	L	12
Aster tongolensis 'Wartburg Star'	Aster, Purple	P	M	15	L	2		0	M	17
Aster 'Wood's Purple'	Aster, Wood's Purple	P	M	12	M	3	M	2	M	17
Aster x frikartii 'Monch'	Aster, Monch Frikart's	P	M	22	L	3	M	1	M	26
Astilbe chinensis	False Spirea, Chinese	P	H	17	M	3	H	1	H	21
Astilbe x arendsii	False Spirea	P	H	16	M	3	H	1	H	20
Astilbe x japonica	False Spirea	P	H	15	M	3	M	1	H	19
Astilbe x simplicifolia '	False Spirea, Star	P	H	11	M	1	H	1	H	13
Astilbe x thunbergii	False Spirea	P	H	10	H	2	H	1	H	13
Astrantia cerniolicia	Masterwort, Giant	P	M	5	H	1		0	M	6
Astrantia major	Masterwort	P	M	8	H	1		0	M	9
Athyrium filix-femina	Fern, Lady	P	H	12	H	1	H	1	H	14
Athyrium nipponicum 'Pictum'	Fern, Japanese Painted	P	H	14	H	1	M	1	H	16
Aubrieta deltoidea 'Purple Gem'	Rockcress, Purple	P	L	18	L	2	L	1	L	21
Aubrieta x cultorum	Rockcress, Hybrid	P	L	11	M	1		0	L	12
Aurinia saxatilis 'Gold Ball'	Basket-of-Gold Alyssum	P	L	27	L	5	L	3	L	35
Baileya multiradiata	Desert Marigold	P	VL	8	L	2	L	1	VL	11
Baptisia australis	False Indigo	P	L	21	L	3	L	2	L	26
Belamcanda chinensis	Lily, Blackberry	P	L	14	M	1		0	L	15
Brassica oleracea	Ornamental Cabbage or Kale	A	M	14			M	3	M	17
Browallia speciosa	Bush Violet	A	M	11			H	1	M	12
Calendula officinalis	Calendula	A	M	19	M	1	L	2	M	22
Canna x generalis	Canna	A	H	19	H	1	H	1	H	21
Carex comans	Sedge, New Zealand Hair	A	M	4				0	M	4
Catharanthus roseus	Periwinkle, Madagascar	A	L	14	L	1	L	2	L	17
Celosia argentea plumosa	Cockscomb	A	M	19	M	1	L	2	M	22
Centaurea cyanus	Bachelor Button	A	L	25	L	3	L	3	L	31
Cleome hassleriana	Spiderflower	A	M	15	M	1	H	2	M	18
Cleome serrulata	Rocky Mountain Beeplant	A	L	10	L	1	L	3	L	14
Coleus spp.	Coleus	A	M	25			M	3	M	28
Coreopsis tinctoria	Coreopsis, Plains	A	L	19	L	1	L	2	L	22
Cosmos bipinnatus	Cosmos	A	L	27	L	1	L	2	L	30
Cuphea spp.	Cigar Flower	A	M	7			M	1	M	8
Dahlia pinnata	Dahlia	A	M	21			M	2	M	23
Datura sp.	Angel's Trumpet	A	L	16			M	1	L	17
Dianthus x chinensis	Border Pink	A	M	17			L	2	M	19
Diascia barbaerae	Twinspur	A	M	15	L	1		0	L	16
Dyssodia tenuiloba	Daisy, Dahlberg	A	L	6				0	L	6
Gazania rigens	Treasure Flower	A	L	12			L	1	L	13
Gomphrene globosa	Globe Amaranth	A	L	15			L	2	L	17
Helichrysum bracteatum	Strawflower	A	L	11			L	1	L	12
Heliotropium arborescens	Heliotrope	A	M	13	M	2	M	1	M	16
Impatiens walleriana	Impatiens	A	H	23	H	1	M	2	H	26
Ipomea batatas	Sweet Potato Vine	A	M	17			L	1	M	18
Lantana spp.	Lantana	A	L	18			L	2	L	20
Lathyrus odoratus	Sweet Pea, Annual	A	M	19			M	1	M	20
Limonium sinuatum	Statice	A	L	14	L	1	L	1	L	16
Liriope muscari	Lily Turf	A	M	9			M	1	M	10
Lobelia sp.	Lobelia	A	M	20			M	3	M	23
Lobularia maritima	Sweet Alyssum	A	M	16				0	M	16
Lunaria annua	Money Plant	A	L	9			L	1	L	10
Melinis (Rhynchelytrum) nerviglumis	Grass, Ruby	A	M	10			M	1	M	11
Mimulus spp.	Monkey Flower, Annual	A	H	7			H	2	H	9
Mirabilis jalapa	Four O'Clock, Annual	A	L	22	L	1	VL	1	L	24
Molucella laevis	Bells of Ireland	A	M	9			M	1	M	10
Nicotiana spp.	Flowering Tobacco	A	M	21			M	2	M	23
Nierembergia hippomanica	Cup Flower	A	M	8			M	1	M	9
Ocimum basilicum	Basil	A	M	21			M	2	M	23
Pelargonium hybrids	Geranium	A	M	22			M	2	M	24
Pennisetum setaceum	Grass, Annual Fountain	A	M	21			L	2	M	23
Petunia x hybrida	Petunia	A	M	22	L	1	M	4	M	27
Phacelia campanularia	California Bluebell	A	L	6			L	1	L	7
Plectranthus argentatus	Silver Dollar Plant	A	L	10			VL	1	L	11
Portulaca grandiflora	Moss Rose, Portulaca	A	L	21	VL	1	L	3	L	25
Ricinus communis	Castor Bean	A	M	9				0	M	9
Salvia farinacea	Mealycup sage	A	M	10			L	1	M	11
Salvia splendens	Scarlet Salvia	A	M	11			L	2	M	13
Sanvitalia procumbens	Creeping Zinnia	A	L	11			L	2	L	13
Scaevola aemula	Fan Flower	A	M	11			M	2	M	13
Senecio cineraria	Dusty Miller	A	L	22	L	1	L	2	L	25
Sutera cordata	Bacopa	A	L	9			M	2	M	11
Tagetes spp.	Marigold	A	L	23	L	1	L	3	L	27
Tithonia rotundifolia	Sunflower, Mexican	A	L	15			L	1	L	16
Tropaeolum majus	Nasturtium	A	L	21			L	2	L	23
Verbena bonariensis	Verbena, Tall	A	L	16	VL	1		0	L	17
Verbena x hybrida	Verbena, Garden	A	L	16	L	1	L	3	L	20
Viola tricolor	Viola, Johnny-jump-up	A	M	22			M	2	M	24
Viola x wittrockiana	Pansy	A	M	21			M	3	M	24
Zinnia elegans	Zinnia	A	L	23	L	1	L	2	L	26
Anchusa spp.	Bugloss	A P	M	17	L	2	L	1	M	20
Bellis perennis	Daisy, English	A P	M	10			M	1	M	11
Campanula medium	Canterbury Bells	A P	M	16	M	3	H	2	M	21
Dianthus cultivars	Pinks	A P	M	24	L	2	L	3	M	29
Diascia integrifolia 'Coral Canyon'	Twinspur, Coral Canyon	A P	L	26	L	2	L	2	L	30
Gazania krebsiana Tanager	Gazania, Orange Hardy	A P	L	19			L	1	L	20
Rosmarinus officinalis	Rosemary	A P	L	16			L	1	L	17
Salvia sclarea	Clary Sage	A P	L	21	VL	1	M	1	L	23
Ajuga genevensis 'Pink Beauty'	Carpet Bugle, Pink Beauty	GC	M	19	M	3	L	2	M	24
Ajuga pyramidalis 'Metallica Crispa'	Carpet Bugle, Pyramid	GC	M	19	M	2		0	M	21

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Botanic Name	Common Name	Plant Type	East Slope	East Slope Votes	West Slope	West Slope Votes	Mountain	Mountain Votes	All Regions	Total Votes
Delosperma floribundum 'Starburst'	Iceplant, Starburst	P	L	24	L	3	L	2	L	29
Delosperma Mesa Verde	Iceplant, Mesa Verde	P	L	21	L	2	L	2	L	25
Delosperma nubigenum	Iceplant, Yellow Hardy	P	L	27	L	4	L	2	L	33
Delosperma Table Mountain	Iceplant, Table Mountain	P	L	21	L	2	L	2	L	25
Delphinium grandiflorum	Larkspur, Chinese	P	M	21	M	4	L	4	M	29
Delphinium nelsonii	Larkspur, Nelson	P	L	8	M	1	M	1	L	10
Delphinium species	Larkspur,	P	M	18	M	4	M	5	M	27
Delphinium x Pacific Giant	Larkspur, Mixed	P	M	23	M	3	M	4	M	30
Dendranthema weyrichii 'Pink Bomb'	Daisy, Pink Bomb	P	M	8	M	1	M	1	M	10
Dendranthema x rubellum 'Clara Curtis'	Daisy, Rose Pink	P	M	13	M	1	M	1	M	15
Deschampsia cespitosa	Grass, Tufted Hair	P	M	15	M	2	H	2	M	19
Dianthus anatolicus	Pinks, Anatolian	P	L	9	L	1	L	2	L	12
Dianthus barbatus	Sweet William	P	M	24	L	2	M	3	M	29
Dianthus caryophyllus	Carnation, Hardy	P	M	18	L	1	L	2	M	21
Dianthus deltoides	Pinks, Maiden	P	M	20	L	2	L	2	M	24
Dianthus graniticus	Pinks, Granite	P	M	13	L	2	M	3	M	18
Dianthus gratianopolitanus	Pinks, Pincushion	P	M	17	L	2	L	2	M	21
Dianthus plumarius (lumnitzer)	Pinks, Cottage	P	M	13	L	1	L	2	M	16
Dicentra eximia	Bleeding Heart, Fringed	P	M	22	H	2	H	2	M	26
Dicentra formosa	Bleeding Heart, Fringed	P	M	21	M	3	M	4	M	28
Dicentra spectabilis	Bleeding Heart, Old Fashioned	P	M	24	M	3	M	4	M	31
Dictamnus albus	Gas Plant	P	M	6				0	M	6
Digitalis grandiflora	Foxglove, Perennial Yellow	P	M	19	L	3	M	2	M	24
Digitalis 'Mertonensis'	Foxglove, Perennial Pink	P	M	19	M	1	M	1	M	21
Digitalis purpurea	Foxglove, Common	P	M	23	M	1	M	2	M	26
Digitalis thapsi	Foxglove, Spanish	P	M	23	M	1	M	1	M	25
Dodecatheon pulchellum	Shooting Star	P	M	14			M	1	M	15
Doronicum grandiflorum	Leopard's Bane	P	M	9	L	1	L	1	M	11
Draba hispanica	Draba, Spanish	P	L	9				0	L	9
Dracocephalum botryoides	Dragonhead, Evergreen	P	L	5				0	L	5
Dryopteris dilatata	Fern, Broad Buckler	P	H	8				0	H	8
Dryopteris erythrosora	Fern, Autumn	P	M	10	M	1		0	M	11
Dryopteris filix-mas	Fern, Leatherwood Male	P	M	14			M	1	M	15
Dryopteris marginalis	Fern, Leatherwood	P	H	10				0	H	10
Duchesnea indica	Strawberry, Mock	P	L	18	L	1	L	2	L	21
Echinacea angustifolia	Coneflower, Narrow Leaf Purple	P	L	22	L	1	L	1	L	24
Echinacea purpurea	Coneflower, Purple	P	L	35	L	4	M	2	L	41
Echinops ritro	Globe Thistle	P	L	21	L	2	L	1	L	24
Epilobium fleischeri	Willowherb, Alpine	P	M	11	L	2	L	2	M	15
Epimedium x cantabrigiense	Bishop's Hat	P	M	9				0	M	9
Equisetum hyemale	Rush, Scouring	P	H	8			H	1	H	9
Eragrostis trichodes	Grass, Sand Love	P	L	6	L	1		0	L	7
Erica carnea (herbacea)	Heath, Winter	P	M	5				0	M	5
Erigeron compositus	Daisy, Cut-Leaf	P	L	17	VL	1	VL	3	L	21
Erigeron divergens	Daisy, Spreading	P	L	9	VL	1	L	1	L	11
Erigeron flagellaris	Daisy, Whiplash	P	L	13	VL	2	L	2	L	17
Erigeron speciosus	Fleabane, Showy	P	L	14	L	1	L	2	L	17
Erigeron subtrineris	Fleabane, Three-nerved	P	L	9	L	1		0	L	10
Erigeron vetensis	Daisy, Early Bluetop	P	L	5	L	1		0	L	6
Eriogonum jamesii	Sulphur Flower, Creamy	P	L	13	L	3	L	4	L	20
Eriogonum umbellatum	Sulphur Flower	P	VL	25	L	4	VL	6	VL	35
Erodium reichardii	Heron's Bill	P	M	8			L	1	M	9
Eryngium alpinum 'Superbum'	Sea Holly	P	L	10	L	1	L	1	L	12
Eryngium amethystinum	Sea Holly, Amethyst	P	L	8	L	1	L	1	L	10
Eryngium planum 'Blaukappe'	Sea Holly, Blue Cap	P	L	11	L	1	L	1	L	13
Eryngium varifolium	Sea Holly, Moroccan	P	L	10	L	1	L	1	L	12
Eryngium yuccifolium	Button-Snakeroot	P	L	11	L	1	L	1	L	13
Erysimum asperum	Wallflower	P	L	14	M	1	L	2	L	17
Erysimum kotschyianum	Wallflower, Alpine	P	M	9	M	1	M	2	M	12
Eschscholzia californica	Poppy, California	P	L	28	VL	3	L	4	L	35
Eupatorium purpureum	Joe-Pye Weed	P	M	5				0	M	5
Euphorbia amygdaloides	Spurge, Wood	P	L	13	VL	1	L	1	L	15
Euphorbia polychroma	Spurge, Cushion	P	L	22			L	1	L	23
Fallopia japonica compacta	Fleeceflower, Dwarf	P	L	12	VL	1	VL	1	L	14
Festuca glauca	Fescue, Blue	P	L	25	L	3	L	2	L	30
Festuca idahoensis	Fescue, Idaho	P	L	7			M	1	L	8
Filipendula rubra	Meadowsweet	P	M	13				0	M	13
Filipendula ulmaria	Meadow Sweet	P	M	10				0	M	10
Fragaria virginiana glauca	Strawberry, Scarlet	P	L	6			M	1	M	7
Frasera speciosa	Gentian, Green	P	M	4			H	1	M	5
Gaillardia aristata	Blanket Flower, Native	P	L	31	VL	3	L	2	L	36
Gaillardia x grandiflora	Blanket Flower	P	L	25	VL	1	L	2	L	28
Galium boreale	Northern Bedstraw	P	L	8				0	L	8
Galium odoratum	Sweet Woodruff	P	M	30	L	2	VL	1	M	33
Gaura lindheimeri	Whirling Butterflies	P	L	28	L	2		0	L	30
Gazania linearis 'Colorado Gold'	Gazania, Colorado Gold Hardy	P	L	21			L	1	L	22
Gentiana affinis	Gentian, Northern Pleated	P	M	11			H	1	M	12
Gentiana cachemirica	Gentian, Himalayan	P	M	6				0	M	6
Gentiana calycosa	Gentian, Explorer's	P	M	5			L	1	L	6
Gentiana septemfida jagodechiana	Gentian, Crested	P	M	8			H	1	M	9
Geranium caespitosum	Cranesbill, Purple Wild	P	L	15			M	1	L	16
Geranium cinereum 'Ballerina'	Cranesbill, Ballerina Grayleaf	P	M	20			M	1	M	21
Geranium cultivars	Cranesbill	P	M	23	M	1	M	1	M	25
Geranium dalmaticum	Cranesbill, Compact Rose	P	M	13			M	1	M	14
Geranium endressii 'Wargrave Pink'	Cranesbill, Pink	P	M	15	M	1	M	1	M	17
Geranium himalayense	Cranesbill, Lilac	P	M	17			M	1	M	18
Geranium macrorrhizum	Cranesbill, Adriatic	P	L	14	VL	1	L	2	L	17
Geranium maculatum	Geranium, Wild	P	L	16			M	1	M	17
Geranium magniflorum La Veta Lace	Geranium, La Veta Lace	P	M	11				0	M	11
Geranium platypetalum	Cranesbill, Broad-petaled	P	M	10			M	1	M	11
Geranium psilostemon	Cranesbill, Armenian	P	M	9			M	1	M	10
Geranium sanguineum	Cranesbill, Bloody	P	M	23	L	3	M	1	M	27
Geranium viscosissimum	Geranium, Sticky	P	L	13	L	1	M	1	L	15
Geranium x magnificum	Cranesbill, Showy	P	M	13	M	1	M	1	M	15
Geranium x oxonianum 'Claridge Druce'	Cranesbill, Lilac Pink	P	M	18	L	2		0	M	20
Geum chiloense	Avens, Chilean	P	M	17	M	1	L	1	M	19
Geum coccineum 'Borisii'	Avens, Orange	P	M	15			L	1	M	16
Geum triflorum	Avens, Prairie Smoke	P	L	19	M	2	L	1	L	22
Grindelia squarrosa	Gumweed, Curly-cupped	P	L	7			VL	1	L	8
Gutierrezia sarothrae	Snakeweed	P	VL	12	VL	2	L	1	VL	15
Gymnocarpium dryopteris	Fern, Oak	P	L	1				0	L	1

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Botanic Name	Common Name	Plant Type	East Slope	East Slope Votes	West Slope	West Slope Votes	Mountain	Mountain Votes	All Regions	Total Votes
Gypsophila paniculata	Baby's Breath	P	L	33	M	1	VL	1	L	35
Gypsophila repens	Baby's Breath, Creeping	P	L	24	M	1	L	2	M	27
Hakonechloa macra	Grass, Japanese Forest	P	H	6				0	H	6
Haplopappus glutinosus	Golden Star	P	L	8			VL	1	L	9
Hebe albicans	Hebe	P	M	3				0	M	3
Helenium autumnale	Sneezeweed	P	M	17	M	1	L	1	M	19
Helianthemum	Sunrose	P	L	25	M	1	L	1	L	27
Helianthus maximiliana	Sunflower, Maximilian	P	L	27	L	2	VL	1	L	30
Helianthus pumilus	Sunflower, Dwarf	P	L	7				0	L	7
Helichrysum sibthorpilii	Everlasting	P	L	5				0	L	5
Helictotrichon sempervirens	Grass, Blue Avena	P	L	28	L	3	M	1	L	32
Helioopsis helianthoides	False Sunflower	P	M	19			L	1	M	20
Helleborus argutifolius	Hellebore	P	M	14				0	M	14
Helleborus orientalis	Lenten Rose	P	M	4	M	1		0	M	5
Hemerocallis	Daylily	P	L	36	L	3	M	3	L	42
Heterotheca horrida	Aster, Golden	P	L	8				0	L	8
Heterotheca villosa	Aster, Hairy Golden	P	L	12			VL	1	L	13
Heuchera americana	Coral Bells, American	P	M	21			M	1	M	22
Heuchera cultivars	Coral Bells	P	M	27	L	2	M	1	M	30
Heuchera micrantha	Coral Bells, Smallflowered	P	M	19			M	1	M	20
Heuchera sanguinea	Coral Bells	P	M	24	M	1	M	1	M	26
Heuchera x brizoides	Coral Bells, Hybrid	P	M	11				0	M	11
Heucherella alba	Heucherella, White	P	M	12	M	1		0	M	13
Hibiscus moscheutos	Rose Mallow	P	M	21				0	M	21
Hieracium lanatum	Hawkweed, Felted	P	L	8	L	1		0	L	9
Hierochloa odorata	Grass, Indian Sweet	P	L	5				0	L	5
Hosta cultivars	Hosta	P	M	31	L	2	M	1	M	34
Hosta sieboldiana	Hosta, Sieboldiana	P	M	24	M	1	M	1	M	26
Hosta x fortunei	Hosta, Fortunei	P	M	20			M	1	M	21
Hosta x tardiana 'Halcyon'	Hosta, Halcyon	P	M	15				0	M	15
Hosta x undulata	Hosta, Wavy	P	M	20	M	1	M	2	M	23
Houttuynia cordata 'Chameleon'	Chameleon Plant	P	M	10				0	M	10
Hymenoxys acaulis	Daisy, Angelita	P	L	5			L	1	L	6
Hypericum patulum	St. John's Wort, Goldencup	P	M	12	M	1		0	M	13
Hyssopus officinalis	Hyssop	P	L	6				0	L	6
Imperata cylindrica 'Red Baron'	Grass, Japanese Blood	P	M	17				0	M	17
Incarvillea delavayi	Gloxinia, Hardy	P	M	11				0	M	11
Ipomopsis aggregata	Gilia, Scarlet	P	L	17	L	2	L	2	L	21
Ipomopsis candida	Fairy Trumpet, White	P	L	7			L	1	L	8
Iris ensata (kaempferi)	Iris, Japanese	P	M	19	M	1	M	1	M	21
Iris missouriensis	Iris, Western Blue Flag	P	M	21	L	2	L	2	L	25
Iris orientalis	Iris, Yellow Butterfly	P	L	8				0	L	8
Iris pallida 'Variegata'	Iris, Variegated Sweet	P	L	21			M	1	L	22
Iris pseudacorus	Iris, Yellow Flag	P	M	17			H	1	M	18
Iris setosa artica	Iris, Dwarf Blue Flag	P	M	14			M	1	M	15
Iris siberica	Iris, Siberian	P	M	27	L	1	L	2	M	30
Iris x germanica	Iris, Bearded	P	L	33	L	1	L	3	L	37
Iris x pumila	Iris, Dwarf Bearded	P	L	19	M	1	M	1	L	21
Jasminum fruticans	Jasmine, Evergreen Yellow	P	M	4				0	M	4
Juncus balticus	Rush, Baltic	P	H	5			H	1	H	6
Juncus compressus	Rush, Round-fruit	P	H	5			H	1	H	6
Juncus effusus	Rush, Corkscrew	P	H	5			H	1	H	6
Juncus torreyi	Rush, Torrey	P	H	5			H	1	H	6
Knautia macedonica	Knautia, Purple	P	L	16			M	1	L	17
Kniphofia	Torch Lily	P	L	22			L	1	L	23
Lathyrus latifolius	Sweet Pea, Perennial	P	L	15			L	1	L	16
Lavandula angustifolia	Lavender, English	P	L	27	L	2	L	2	L	31
Lavandula dentata	Lavender, French	P	L	16				0	L	16
Lavandula x intermedia	Lavender, Hybrid	P	L	15				0	L	15
Lavatera thuringiaca	Shrub Mallow	P	L	20	M	1	M	1	L	22
Leontopodium alpinum	Edelweiss	P	L	13	M	1	L	2	L	16
Lespedeza thunbergii	Japanese Bush-clover	P	L	6				0	L	6
Leucanthemum x superbum	Daisy, Shasta	P	M	29	M	1	M	2	M	32
Lewisia cotelidyon	Bitterroot	P	L	9	L	1	L	2	L	12
Leymus arenarius 'Glaucia'	Grass, Blue Lyme	P	L	8				0	L	8
Liatris punctata	Gayfeather, Native	P	L	25	L	2	L	2	L	29
Liatris pycnostachya	Gayfeather, Thickspike	P	L	13				0	L	13
Liatris spicata	Gayfeather, Spike	P	L	26	L	3	L	2	L	31
Ligularia dentata 'Othello'	Groundsel, Golden	P	H	15				0	H	15
Ligularia przewalskii	Groundsel, Shavalski's	P	H	8				0	H	8
Ligularia stenocephala 'The Rocket'	Ragwort, The Rocket	P	H	19				0	H	19
Lilium cultivars	Lily cultivars	P	M	24			M	1	M	25
Limonium latifolium	Sea Lavender, Wide-leaved	P	L	18				0	L	18
Linum flavum	Flax, Yellow	P	L	17	L	1		0	L	18
Brassica oleracea	Ornamental Cabbage or Kale	A	M	14			M	3	M	17
Browallia speciosa	Bush Violet	A	M	11			H	1	M	12
Calendula officinalis	Calendula	A	M	19	M	1	L	2	M	22
Canna x generalis	Canna	A	H	19	H	1	H	1	H	21
Carex comans	Sedge, New Zealand Hair	A	M	4				0	M	4
Catharanthus roseus	Periwinkle, Madagascar	A	L	14	L	1	L	2	L	17
Celosia argentea plumosa	Cockscomb	A	M	19	M	1	L	2	M	22
Centaurea cyanus	Bachelor Button	A	L	25	L	3	L	3	L	31
Cleome hassleriana	Spiderflower	A	M	15	M	1	H	2	M	18
Cleome serrulata	Rocky Mountain Beeplant	A	L	10	L	1	L	3	L	14
Coleus spp.	Coleus	A	M	25			M	3	M	28
Coreopsis tinctoria	Coreopsis, Plains	A	L	19	L	1	L	2	L	22
Cosmos bipinnatus	Cosmos	A	L	27	L	1	L	2	L	30
Cuphea spp.	Cigar Flower	A	M	7			M	1	M	8
Dahlia pinnata	Dahlia	A	M	21			M	2	M	23
Datura sp.	Angel's Trumpet	A	L	16			M	1	L	17
Dianthus x chinensis	Border Pink	A	M	17			L	2	M	19
Diascia barbara	Twinspur	A	M	15	L	1		0	L	16
Dyssodia tenuiloba	Daisy, Dahlberg	A	L	6				0	L	6
Gazania rigens	Treasure Flower	A	L	12			L	1	L	13
Gomphrena globosa	Globe Amaranth	A	L	15			L	2	L	17
Helichrysum bracteatum	Strawflower	A	L	11			L	1	L	12
Heliotropium arborescens	Heliotrope	A	M	13	M	2	M	1	M	16
Impatiens walleriana	Impatiens	A	H	23	H	1	M	2	H	26
Ipomea batatas	Sweet Potato Vine	A	M	17			L	1	M	18
Lantana spp.	Lantana	A	L	18			L	2	L	20
Lathyrus odoratus	Sweet Pea, Annual	A	M	19			M	1	M	20

Appendix E
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Estimated Water Usage for Plant: VL=Very Low < 25%; ET0 L=Low 25%-50%; ET0 M=Medium 50%-75%; ET0 H=High >75% ET0 Plant Type: A=Annual ; P=Perennial; T=Tree; V=Vine; GC=Ground Cover; S=Shrub; TU=Turf										
Botanic Name	Common Name	Plant Type	East Slope	East Slope Votes	West Slope	West Slope Votes	Mountain	Mountain Votes	All Regions	Total Votes
Mirabilis multiflora	Four-O'-Clock, Desert	P	VL	26	VL	3	VL	3	VL	32
Miscanthus floridulus	Grass, Giant Chinese Silver	P	M	12				0	M	12
Miscanthus sinensis	Grass, Maiden	P	M	26	L	2	M	1	M	29
Molinia caerulea	Grass, Purple Moor	P	M	13	L	1		0	M	14
Monarda didyma	Bee-Balm	P	M	28	L	2	L	2	M	32
Monarda fistulosa menthaefolia	Bee-Balm, Native Lavender	P	L	25	L	1	L	2	L	28
Moneses uniflora	One-Flowered Wintergreen	P	M	4			H	2	M	6
Muhlenbergia capillaris	Grass, Muhly	P	L	3			M	1	L	4
Myosotis alpestris	Forget-Me-Not	P	M	18	M	1	M	1	M	20
Nepeta racemosa	Catmint	P	L	18	L	2		0	L	20
Nepeta x faassenii	Catmint, Faassen's	P	L	24	L	2	VL	1	L	27
Nolina microcarpa	Grass, Bear	P	L	13			M	1	L	14
Oenothera berlandieri 'Siskiyou'	Primrose, Siskiyou	P	L	19	VL	1	L	1	L	21
Oenothera brachycarpa	Primrose, Leatherleaf	P	L	11	VL	1	M	1	L	13
Oenothera caespitosa	Primrose, White Evening	P	VL	18	VL	4	L	2	VL	24
Oenothera fruticosa glauca	Sundrops	P	L	11	VL	1	M	1	L	13
Oenothera macrocarpa	Primrose, Missouri Evening	P	L	27	VL	2	M	1	L	30
Oenothera speciosa 'Rosea'	Primrose, New Mexico Evening	P	L	22	VL	1	L	1	L	24
Oenothera strigosa	Evening Primrose, Common	P	L	11	VL	1		0	L	12
Opuntia polyacantha	Cactus, Prickly Pear	P	VL	25	VL	2		0	VL	27
Origanum lavevigitum 'Herrenhausen'	Oregano, Purple	P	L	16				0	L	16
Origanum vulgare	Oregano, Common	P	L	15	M	1		0	L	16
Oryzopsis hymenoides	Grass, Indian Rice	P	L	10	VL	1	L	1	L	12
Osteospermum barberiae compactum 'Purple Mountain'	Sun Daisy, Purple Mountain	P	L	21	VL	1		0	L	22
Osteospermum 'Lavender Mist'	Sun Daisy, Lavender Mist	P	L	22	VL	1		0	L	23
Oxytropis lambertii	Loco Weed, Lambert's	P	VL	9			L	2	L	11
Paeonia lactiflora	Peony	P	M	23	M	1	M	1	M	25
Panicum virgatum	Grass, Switch	P	L	25	L	2	M	1	L	28
Papaver alpinum	Poppy, Alpine	P	M	19	L	2	L	3	L	24
Papaver miyabeum	Poppy, Japanese Alpine	P	M	10			M	1	M	11
Papaver nudicaule	Poppy, Iceland	P	M	23	L	2	M	3	M	28
Papaver orientale	Poppy, Oriental	P	L	27	L	2	M	3	L	32
Paxistima canbyi	Mountain Lover	P	L	12	L	1	M	2	M	15
Paxistima myrtifolia	Mountain Lover	P	L	7			M	1	L	8
Pedicularis groenlandica	Elephant's Head	P	M	8			H	2	H	10
Pennisetum alopecuroides	Grass, Fountain	P	L	23	L	2		0	L	25
Pennisetum orientale	Grass, Oriental Fountain	P	L	11	L	1		0	L	12
Penstemon acuminatus	Penstemon, Sand Dune	P	L	7				0	L	7
Penstemon alpinus	Penstemon, Alpine	P	L	15	L	2	L	2	L	19
Penstemon ambiguus	Penstemon, Sand	P	VL	15	L	2		0	VL	17
Penstemon angustifolius	Penstemon, Narrowleaf	P	VL	11				0	VL	11
Penstemon attenuatus	Penstemon, Taper-leaved	P	L	6				0	L	6
Penstemon barbatus	Penstemon, Scarlet Bugler	P	L	22	VL	3	L	2	L	27
Penstemon caespitosus	Penstemon, Mat	P	L	15	L	3	L	2	L	20
Penstemon cardinalis	Penstemon, Crimson	P	L	11	VL	1	M	1	L	13
Penstemon clutei	Penstemon, Sunset	P	L	11	L	1		0	L	12
Penstemon cyananthus	Penstemon, Wasatch	P	L	12	L	1		0	L	13
Penstemon davidsonii	Penstemon, Davidson's	P	L	8				0	L	8
Penstemon deustus	Penstemon, Hotrock	P	VL	5			VL	1	VL	6
Penstemon digitalis 'HuskerRed'	Penstemon, Husker Red	P	L	29	VL	1	M	1	L	31
Penstemon eatonii	Penstemon, Firecracker	P	L	22	VL	1	M	1	L	24
Penstemon 'Elfin Pink'	Penstemon, Pink	P	L	19	VL	1	L	2	L	22
Penstemon ellipticus	Penstemon, Rockvine	P	VL	3				0	VL	3
Penstemon fruticosus	Penstemon, Shrubby	P	L	9				0	L	9
Penstemon glaber	Penstemon, Saw-sepal	P	L	8				0	L	8
Penstemon gracilis	Penstemon, Slender	P	L	6				0	L	6
Penstemon grandiflorus	Penstemon, Shell Leaf	P	L	21	VL	1		0	L	22
Penstemon hirsutus 'Pygmaeus'	Penstemon, Pygmy Purple	P	L	13	L	1	L	2	L	16
Penstemon 'Hyacinth Flowered'	Penstemon, Hyacinth Flowered	P	M	7				0	M	7
Penstemon jamesii	Penstemon, James	P	VL	8	L	1		0	VL	9
Penstemon linarioides	Penstemon, Blue Mat	P	VL	14			L	1	VL	15
Penstemon neomexicanus	Penstemon, New Mexican Blue	P	L	7				0	L	7
Penstemon nitidus	Penstemon, Smooth Blue	P	VL	8				0	VL	8
Penstemon palmeri	Penstemon, Palmer	P	L	17	VL	3		0	L	20
Penstemon parryi	Penstemon, Parry	P	L	9				0	L	9
Penstemon pinifolius	Penstemon, Pineleaf	P	L	25	VL	3	L	2	L	30
Penstemon procerus	Penstemon, Small-Flowered	P	L	8	L	1		0	L	9
Penstemon pseudospectabilis	Penstemon, Desert	P	L	12	L	1		0	L	13
Penstemon rostriflorus	Bridge's Penstemon	P	L	4				0	L	4
Penstemon secundiflorus	Penstemon, One-sided	P	L	12				0	L	12
Penstemon strictus	Penstemon, Rocky Mountain	P	L	27	VL	3	L	3	L	33
Penstemon teucrioides	Penstemon, Grayleaf Creeping	P	L	7				0	L	7
Penstemon triphyllus	Penstemon, Whorled	P	VL	2				0	VL	2
Penstemon utahensis	Penstemon, Utah	P	L	8				0	L	8
Penstemon venustus	Penstemon, Blue Mountain	P	VL	5				0	VL	5
Penstemon virens	Penstemon, Blue Mist	P	L	15	VL	2	L	2	L	19
Penstemon virgatus asagrayi	Penstemon, Tall	P	VL	7				0	VL	7
Penstemon whippleanus	Penstemon, Whipple's	P	L	15			L	2	L	17
Penstemon wilcoxii	Penstemon, Wilcox	P	VL	2				0	VL	2
Penstemon x mexicali	Penstemon, Mexicali Hybrids	P	L	23	VL	2		0	L	25
Persicaria affinis	Himalayan Border Jewel	P	L	17	L	1	L	2	L	20
Persicaria virginiana 'Painter's Palette'	Border Jewel, Painter's Palette	P	L	9				0	L	9
Petrophytum caespitosum	Rock Spirea	P	L	4				0	L	4
Phalaris arundinacea	Grass, Ribbon	P	M	17	M	1	M	1	M	19
Phlomis cashmeriana	Sage, Himalayan	P	M	11	M	1		0	M	12
Phlomis russeliana	Sage, Jerusalem	P	L	9			L	1	L	10
Phlox borealis	Phlox, Artic	P	M	4			M	1	M	5
Phlox divaricata	Phlox, Wild Sweet William	P	M	14				0	M	14
Phlox paniculata	Phlox, Garden	P	M	22	M	1	M	1	M	24
Phyllostachys aurea	Bamboo, Golden	P	M	7				0	M	7
Phyllostachys aureosulcata	Bamboo, Yellow Groove	P	M	8				0	M	8
Physostegia virginiana	Obedient Plant	P	M	21			L	1	M	22
Platycodon grandiflorus	Balloon Flower	P	M	23	M	1	M	1	M	25
Polemonium caeruleum	Jacob's Ladder	P	M	15	M	1	M	1	M	17
Polemonium carneum	Jacob's Ladder, Salmon	P	M	6				0	M	6
Polemonium reptans	Jacob's Ladder, Creeping	P	M	7				0	M	7
Polemonium viscosum	Sky Pilot	P	L	5			M	1	L	6
Polystichum polyblepharum	Fern, Tassle	P	H	6				0	H	6
Polystichum setiferum	Fern, English Hedge	P	H	7				0	H	7
Potentilla (Drymocalis) fissa	Cinquefoil, Leafy	P	L	8			L	1	L	9

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Botanic Name	Common Name	Plant Type	East Slope	East Slope Votes	West Slope	West Slope Votes	Mountain	Mountain Votes	All Regions	Total Votes
Potentilla atrosanguinea	Cinquefoil, Red	P	L	15	M	1	L	1	L	17
Potentilla hippiana	Cinquefoil, Woolly	P	L	14	L	1	VL	1	L	16
Potentilla nepalensis 'Miss Willmott'	Cinquefoil, Miss Willmott	P	M	20	M	1	L	1	M	22
Potentilla pensylvanica	Cinquefoil, Prairie	P	L	9				0	L	9
Potentilla thurberi	Cinquefoil, Silver	P	L	5				0	L	5
Primula 'Colossea'	Primrose, Hardy English	P	M	11				0	M	11
Primula denticulata	Primrose, Drumstick	P	M	12				0	M	12
Primula elatior	Primrose, Oxlip	P	M	9				0	M	9
Primula parryi	Primrose, Rocky Mountain	P	H	8	M	1	H	3	H	12
Primula veris	Primrose, Cowslip	P	M	8				0	M	8
Primula vulgaris	Primrose, English	P	M	12				0	M	12
Prunella grandiflora	Self-Heal	P	M	8				0	M	8
Prunella laciniata	Lacy Self-Heal	P	L	14	L	2	M	1	L	17
Psilostrophe tagetina	New Mexico Paper Flower	P	VL	11	L	1	L	1	VL	13
Pulmonaria 'Roy Davidson'	Bethlehem Sage, Roy Davidson'	P	M	14				0	M	14
Pulmonaria rubra 'Redstart'	Lungwort, Redstart	P	M	11	M	1		0	M	12
Pulmonaria saccharata	Bethlehem Sage	P	M	13				0	M	13
Pulsatilla patens	Pasqueflower, Lavender	P	L	13			L	2	L	15
Pulsatilla vulgaris	Pasqueflower, European	P	L	18	L	2	L	3	L	23
Ranunculus gramineus	Buttercup, European	P	M	9			M	1	M	10
Ranunculus repens	Creeping Buttercup	P	M	15			H	1	M	16
Ratibida columnifera	Coneflower, Prairie	P	L	26	VL	3	L	2	VL	31
Rheum rhabarbarum	Rhubarb	P	M	20			M	1	M	21
Rosularia globulariifolia	Rosularia, Roundleaf	P	L	5				0	L	5
Rudbeckia fulgida	Black-Eyed Susan	P	L	28	L	2	L	1	L	31
Rudbeckia hirta	Black-Eyed Susan	P	M	25	L	2	M	2	M	29
Rudbeckia laciniata 'Double Gold'	Black Eyed Susan, Double Gold	P	M	18			H	1	M	19
Saccharum ravennae	Grass, Plume	P	M	13				0	M	13
Sagittaria latifolia	Arrowhead, Broadleaf	P	H	8			H	1	H	9
Salvia argentea	Salvia, Silver	P	L	18			L	2	L	22
Salvia azurea grandiflora	Salvia, Blue	P	L	15	L	2		0	L	17
Salvia greggii	Sage, Autumn	P	L	15	L	1		0	L	16
Salvia jurisicii	Salvia, Cutleaf	P	L	13				0	L	13
Salvia leucantha	Sage, Mexican Bush	P	L	7				0	L	7
Salvia lyrata	Sage, Lyre-leaf	P	L	5				0	L	5
Salvia microphylla	Salvia, Red Baby	P	L	8				0	L	8
Salvia nemorosa	Salvia, Blue	P	L	19	L	2	M	1	L	22
Salvia officinalis	Sage, Garden	P	L	21	L	2		0	L	23
Salvia pitcheri	Sage, Pitcher	P	L	9				0	L	9
Salvia superba	Salvia, Hybrid	P	L	13			M	1	L	14
Santolina chamaecyparissus	Lavender Cotton	P	L	24	L	2	VL	1	L	27
Santolina rosmarinifolia	Lavender Cotton, Green	P	L	18	VL	1	VL	1	L	20
Saponaria ocyroides	Rock Soapwort	P	L	20	L	2	M	1	L	23
Saxifraga oppositifolia 'Purple Robe'	Saxifrage, Purple Robe	P	M	12	M	1	H	2	M	15
Saxifraga x arendsii	Saxifrage, Rose Mound	P	M	10			H	1	M	11
Scabiosa caucasica	Pincushion Flower	P	M	19	M	1	L	1	M	21
Scabiosa columbiana	Pincushion Flower	P	L	16			L	1	L	17
Scabiosa lucida	Pincushion Flower, Dwarf	P	L	15	M	1	L	1	L	17
Scabiosa ochroleuca	Pincushion, Yellow	P	L	12				0	L	12
Schizachyrium scoparium	Bluestem, Little	P	L	22	VL	3	L	2	L	27
Schizophragma hydrangeoides	Vine, Japanese Hydrangea	P	M	4				0	M	4
Schoenoplectus lacustris	Bulrush, Common	P	H	6				0	H	6
Schoenoplectus validus	Bulrush, Softstem Great	P	H	6				0	H	6
Scirpus acutus	Bulrush, Hardstem	P	H	7			H	1	H	8
Scirpus americanus	Bulrush, Three-square	P	H	7			H	1	H	8
Scirpus microcarpus	Bulrush, Small-fruited	P	H	7			H	1	H	8
Scutellaria alpina 'Arcobaleno'	Skull Cap, Rainbow	P	M	8			M	1	M	9
Scutellaria resinosa	Skull Cap, Prairie	P	L	8				0	L	8
Sedum 'Autumn Joy'	Stoncrop, Autumn Joy	P	L	28	L	1	L	1	L	30
Sedum kamtschaticum	Stoncrop, Russian	P	L	13	L	1	VL	1	L	15
Sedum lanceolatum	Stoncrop, Native	P	VL	11			VL	2	VL	13
Sedum populifolium	Stoncrop, Herbaceous	P	L	8				0	L	8
Sedum 'Robustum'	Stoncrop, Red-leaf Showy	P	L	11			L	1	L	12
Sedum sieboldii 'October Daphne'	Stoncrop, October Daphne	P	L	8				0	L	8
Sedum spectabile 'Indian Chief'	Stoncrop, Russet Showy	P	L	15	L	1	L	1	L	17
Sedum 'Vera Jameson'	Stoncrop, Vera Jameson	P	L	17	L	1	M	1	L	19
Senecio longilobus	Groundsel, Threadleaf	P	L	8			L	1	L	9
Senecio spartioides	Groundsel, Broom	P	L	5			L	1	L	6
Sidalcea malviflora	Mallow, Prairie	P	M	17			M	1	M	18
Silene acaulis	Moss Campion	P	M	8			M	1	M	9
Silene alpestris	Alpine Catchfly	P	M	10			M	1	M	11
Silphium perfoliatum	Cup Flower	P	M	5				0	M	5
Sisyrinchium angustifolium	Grass, Blue-Eyed	P	M	15			M	1	M	16
Sisyrinchium macrocephalum	Grass, Yellow-Eyed	P	M	9				0	M	9
Sisyrinchium montanum	Grass, Blue-Eyed	P	M	10			M	1	M	11
Solidago decumbens	Goldenrod, Dwarf	P	L	13			H	1	L	14
Solidago 'Golden Baby'	Goldenrod, Golden Baby	P	L	15			L	1	L	16
Solidago missouriensis	Goldenrod, Prairie	P	L	9			M	1	L	10
Sorghastrum nutans	Grass, Indian	P	L	19	L	2		0	L	21
Spartina pectinata	Grass, Prairie Cordgrass	P	M	12	L	1	H	1	M	14
Sphaeralcea coccinea	Prairie Mallow	P	VL	17	VL	2	VL	1	VL	20
Sphaeralcea munroana	Globe Mallow, Orange	P	VL	12				0	VL	12
Sporobolus wrightii	Grass, Giant Sacaton	P	VL	5	L	1		0	L	6
Stachys coccinea	Nettle, Scarlet Hedge	P	L	10				0	L	10
Stanleya pinnata	Prince's Plume	P	VL	11	VL	1	L	2	VL	14
Stipa comata	Grass, Needle-and-Thread	P	L	10	L	2		0	L	12
Stipa gigantea	Needlegrass, Giant	P	L	4				0	L	4
Stipa lettermanii	Grass, Needle	P	L	7				0	L	7
Stipa neomexicana	Needlegrass, New Mexico	P	L	8				0	L	8
Stipa tenuissima	Grass, Mexican Feather	P	L	16	L	2	L	2	L	20
Stokesia laevis	Aster, Stokes'	P	M	10			L	1	M	11
Brassica oleracea	Ornamental Cabbage or Kale	A	M	14			M	3	M	17
Browallia speciosa	Bush Violet	A	M	11			H	1	M	12
Calendula officinalis	Calendula	A	M	19	M	1	L	2	M	22
Canna x generalis	Canna	A	H	19	H	1	H	1	H	21
Carex comans	Sedge, New Zealand Hair	A	M	4				0	M	4
Catharanthus roseus	Periwinkle, Madagascar	A	L	14	L	1	L	2	L	17
Celosia argentea plumosa	Cockscomb	A	M	19	M	1	L	2	M	22
Centaurea cyanus	Bachelor Button	A	L	25	L	3	L	3	L	31
Cleome hassleriana	Spiderflower	A	M	15	M	1	H	2	M	18
Cleome serrulata	Rocky Mountain Beeplant	A	L	10	L	1	L	3	L	14

Appendix E
Plan Water Requirement Estimates (GreenCO-CSU Crop Coefficient Survey 2004)

Estimated Water Usage for Plant: VL=Very Low < 25%; ET0 L=Low 25%-50%; ET0 M=Medium 50%-75%; ET0 H=High >75% ET0										
Plant Type: A=Annual ; P=Perennial; T=Tree; V=Vine; GC=Ground Cover; S=Shrub; TU=Turf										
Botanic Name	Common Name	Plant Type	East Slope	East Slope Votes	West Slope	West Slope Votes	Mountain	Mountain Votes	All Regions	Total Votes
Thalictrum rochebrunianum	Meadowrue, Lavender Mist	P	M	10			M	1	M	11
Thelesperma ambiguum	Navajo Tea	P	L	6	VL	1		0	VL	7
Thelesperma filifolium	Threadleaf Thelesperma	P	L	10			VL	2	L	12
Thermopsis divaricata	Golden Banner	P	L	10	L	2	M	3	M	15
Thermopsis rhombifolia	Golden Banner, Arroyo	P	L	6	L	1	L	2	L	9
Thymus argentea	Thyme, Silver Posy	P	L	7			VL	1	L	8
Thymus vulgaris	Thyme, Garden	P	L	15			VL	1	L	16
Thymus x citriodorus	Thyme, Lemon	P	L	19	L	1	L	1	L	21
Tiarella cordifolia	Foamflower	P	M	11			M	1	M	12
Tiarella wherryi	Foamflower, Wherry's	P	M	11			M	1	M	12
Townsendia exscapa	Easter Daisy, White	P	L	10			L	2	L	12
Townsendia grandiflora	Easter Daisy, Large-flower	P	L	7			L	1	L	8
Townsendia parryi	Easter Daisy, Violet-Blue	P	L	4			L	1	L	5
Tradescantia andersoniana	Spiderwort	P	M	20	M	1	M	1	M	22
Tradescantia occidentalis	Spiderwort, Western Blue	P	L	16	VL	1	M	1	L	18
Tricyrtis hirta	Toad Lily	P	M	6				0	M	6
Trollius chinensis	Globeflower	P	M	16	M	1	M	1	M	18
Trollius pumilus	Globeflower, Dwarf	P	M	8				0	M	8
Typha angustifolia	Cattail, Narrowleaf	P	H	10			H	1	H	11
Typha latifolia	Cattail, Common	P	H	10			H	1	H	11
Valeriana officinalis	Garden Heliotrope	P	M	8				0	M	8
Verbascum bombyciferum	Mullein, Woolly	P	L	16			VL	1	L	17
Verbascum 'Helen Johnson'	Mullein, Peach	P	L	4				0	L	4
Verbascum undulatum	Mullein, Wavy-leaved	P	L	4				0	L	4
Verbena bipinnatifida	Verbena, Native	P	L	19				0	L	19
Verbena canadensis	Verbena, Rose	P	L	12	M	1		0	M	13
Verbena hastata	Vervain, Blue	P	M	5				0	M	5
Veronica austriaca	Speedwell, Hungarian	P	L	12	L	1	M	1	L	14
Veronica gentianoides	Speedwell, Gentian	P	L	8				0	L	8
Veronica longifolia	Speedwell, Long Leaf	P	L	5				0	L	5
Veronica orientalis	Speedwell, Oriental	P	L	6				0	L	6
Veronica peduncularis 'Georgia Blue'	Speedwell, Georgia Blue	P	L	10	L	1		0	L	11
Veronica 'Royal Candles'	Speedwell, Royal Candles	P	L	4				0	L	4
Veronica spicata	Speedwell, Spike	P	M	18	L	1	L	1	M	20
Veronica spicata incana	Speedwell, Woolly	P	L	16			L	1	L	17
Veronica 'Sunny Border Blue'	Speedwell, Sunny Border Blue	P	L	18	L	2	M	1	L	21
Veronicastrum virginicum	Bowman's Root	P	M	11				0	M	11
Viguiera multiflora	Showy Goldeneye	P	L	5				0	L	5
Viola canadensis	Violet, Canadian	P	M	6			M	1	M	7
Viola cornuta	Pansy, Tufted	P	M	15	M	1	M	1	M	17
Viola corsica	Violet, Corsican	P	M	16	M	1	M	1	M	18
Viola odorata	Violet, English	P	M	13			M	1	M	14
Zauschneria californica latifolia	Hummingbird Flower	P	L	19	VL	1		0	L	20
Zauschneria garrettii 'Orange Carpet'	California Fuchsia, Orange	P	L	23	VL	2		0	L	25
Zinnia grandiflora	Paper Flower	P	VL	23	VL	3	VL	1	VL	27
Artemisia frigida	Sage, Fringed	P S	VL	34	VL	8	VL	8	VL	50
Hypericum 'Hidcote'	St. John's Wort, Hidcote	P S	M	27	L	4	L	2	M	33
Lonicera x heckrotti 'Goldflame'	Honeysuckle, Goldflame	P S V	M	24	L	2	L	2	M	28
Bouteloua gracilis	Grass, Blue Grama	P TU	VL	25	VL	5	VL	4	VL	34
Festuca ovina	Fescue, Sheep	P TU	L	18	M	3	M	3	L	24
Festuca rubra commutata	Fescue, Chewings	P TU	L	9	H	1	H	1	M	11
Campsis radicans	Trumpet Vine	P V	L	23				0	L	23
Campsis x tagliabuana	Trumpet Vine	P V	L	13				0	L	13
Clematis alpina	Clematis, Alpine	P V	M	13			M	1	M	14
Clematis columbiana	Clematis, Columbian Virgin's Bower	P V	M	7			M	2	M	9
Clematis cultivars	Clematis	P V	M	29	L	2	M	1	M	32
Clematis ligusticifolia	Clematis, Western Virgin's Bower	P V	L	17	VL	2	L	3	L	22
Clematis montana rubens	Clematis, Pink Anemone	P V	M	11				0	M	11
Clematis paniculata	Clematis, Spring	P V	M	16	M	1	M	1	M	18
Clematis pitcheri	Clematis, Purple Leatherflower	P V	M	9				0	M	9
Clematis tangutica	Clematis, Yellow Lantern	P V	L	16			L	1	L	17
Clematis terniflora	Clematis, Sweet Autumn	P V	L	16	L	1	M	1	L	18
Clematis virginiana	Clematis, Virgin's Bower	P V	L	8			H	1	M	9
Clematis viticella	Clematis, Italian	P V	M	9				0	M	9
Humulus lupulus neomexicanus	Hop Vine, Native	P V	L	16	L	1	L	2	L	19
Parthenocissus tricuspidata	Ivy, Boston	P V	M	22	M	1		0	M	23
Polygonum Aubertii	Vine, Silver Lace	P V	L	22	L	2	L	2	L	26
Abeliophyllum distichum	Forsythia, White	S	M	10				0	M	10
Acer glabrum	Maple, Rocky Mountain	S	L	29	L	4	L	8	L	41
Acer japonicum 'Aconitifolium'	Maple, Cutleaf Fullmoon	S	H	8	L	2	M	1	M	11
Aesculus parviflora	Buckeye, Bottlebrush	S	M	14	M	2	H	2	M	18
Alnus rubra	Alder, Red	S	H	9	H	2	H	2	H	13
Amelanchier alnifolia	Serviceberry, Saskatoon	S	L	32	L	9	L	8	L	49
Amelanchier stolonifera	Serviceberry, Running	S	L	14	L	4	L	5	L	23
Amelanchier utahensis	Serviceberry, Utah	S	L	18	L	5	L	5	L	28
Amorpha canescens	Leadplant	S	VL	31	VL	6	VL	1	VL	38
Amorpha fruticosa	False Indigo	S	L	25	L	5	L	4	L	34
Amorpha nana	Fragrant False Indigo	S	VL	20	VL	3	VL	2	VL	25
Arctostaphylos patula	Manzanita, Greenleaf	S	L	17	L	3	VL	1	L	21
Aronia arbutifolia 'Brilliantissima'	Chokeberry, Brilliant Red	S	M	24	L	4	L	3	M	31
Aronia melanocarpa	Chokeberry, Black	S	L	29	L	5	L	3	L	37
Aronia x prunifolia	Chokeberry, Purple	S	L	17	L	2	L	2	L	21
Artemisia abrotanum	Sage, Southernwood	S	L	16	VL	3	VL	3	VL	22
Artemisia cana	Sagebrush, Silver	S	VL	26	VL	5	VL	6	VL	37
Artemisia filifolia	Sagebrush, Sand	S	VL	25	VL	6	VL	6	VL	37
Artemisia ludoviciana	Sagebrush, Prairie	S	VL	19	VL	5	VL	6	VL	30
Artemisia tridentata	Sagebrush, Tall Western	S	VL	32	VL	9	VL	9	VL	50
Artemisia tripartita	Sagebrush, Three Parted	S	VL	18	VL	3	VL	3	VL	24
Atriplex canescens	Saltbush, Four Wing	S	VL	26	VL	7	VL	4	VL	37
Atriplex confertifolia	Saltbush, Spiny	S	VL	18	VL	3	VL	2	VL	23
Atriplex corrugata	Saltbush, Mat	S	VL	14	VL	4	VL	2	VL	20
Atriplex gardneri	Saltbush, Gardner's	S	VL	9	VL	3	VL	2	VL	14
Baccharis glutinosa	Seep-Willow	S	L	5	H	1	H	1	M	7
Baccharis pilularis	Coyote Brush	S	L	5	H	1	H	1	M	7
Berberis koreana	Barberry, Korean	S	L	25	L	3	L	2	L	30
Berberis thunbergii	Barberry, Japanese	S	L	36	L	4	L	4	L	44
Berberis x gladyensis 'William Penn'	Barberry, William Penn	S	M	14	L	2	M	3	M	19
Berberis x mentorensis	Barberry, Mentor	S	L	26	L	3	L	2	L	31
Berberis x 'Tara'	Barberry, Emerald Carousel	S	L	18	L	3	L	2	L	23
Buddleja alternifolia	Butterfly Bush, Alternate	S	L	30	L	5	L	2	L	37
Buddleja davidii	Butterfly Bush	S	M	38	L	4	L	2	M	44

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Botanic Name	Common Name	Plant Type	East Slope	East Slope Votes	West Slope	West Slope Votes	Mountain	Mountain Votes	All Regions	Total Votes
Buddleja x weyeriana	Butterfly Bush, Yellow	S	M	12	L	1	L	1	L	14
Buxus microphylla	Boxwood, Littleleaf	S	M	23	M	2	M	1	M	26
Buxus sempervirens	Boxwood, Common	S	M	23	M	3	M	2	M	28
Callicarpa japonica	Beautyberry, Japanese	S	M	11	M	2	M	2	M	15
Calycanthus floridus	Carolina Allspice	S	H	4	H	1	H	1	H	6
Caragana arborescens	Peashrub, Siberian	S	L	33	VL	8	L	7	L	48
Caragana frutex	Peashrub, Russian	S	L	19	VL	4	L	2	L	25
Caragana maximowicziana	Peashrub, Maximowics	S	VL	12	L	2	L	1	VL	15
Caragana microphylla	Peashrub, Littleleaf	S	VL	12	VL	3	L	1	VL	16
Caragana pygmaea	Peashrub, Pygmy	S	L	22	VL	6	VL	3	L	31
Caryopteris incana	Spirea, Blue Mist	S	L	25	L	5	VL	3	L	33
Caryopteris x clandonensis	Spirea, Blue Mist	S	L	40	L	6	VL	5	L	51
Ceanothus fendleri	Deerbrush	S	L	13	VL	4	L	5	L	22
Ceanothus gloriosus	Point Reyes Creeper	S	L	4	L	2	L	2	L	8
Ceanothus velutinus	Snowbrush	S	L	8	M	1	M	1	M	10
Cercocarpus breviflorus	Mountain Mahogany, Little Flowered	S	VL	19	VL	5	VL	4	VL	28
Chaenomeles japonica	Quince, Japanese Flowering	S	M	28	L	4	L	3	L	35
Chaenomeles speciosa	Quince, Flowering	S	M	23	L	3	L	3	L	29
Chaenomeles x superba	Quince, Hybrid Flowering	S	L	15	L	1	L	1	L	17
Chamaebatiaria millefolium	Fernbush	S	VL	25	VL	4	VL	4	VL	33
Chamaecyparis obtusa	Cypress, Hinoki	S	M	13	M	1	M	1	M	15
Chilopsis linearis	Desert Willow	S	L	12	VL	3	L	2	L	17
Chitalpa tashkentensis	Chitalpa	S	L	8	L	2	L	2	L	12
Chrysothamnus nauseosus	Rabbitbrush	S	VL	36	VL	9	VL	5	VL	50
Chrysothamnus viscidiflorus	Rabbitbrush, Sticky	S	VL	24	VL	6	VL	2	VL	32
Clethra alnifolia	Summersweet	S	H	8	H	2	H	1	H	11
Colutea arborescens	Bladder Pod	S	L	8	L	2	M	1	L	11
Cornus alba	Dogwood, Tatarian	S	M	21	M	2	M	2	M	25
Cornus anomum	Dogwood, Silky	S	M	7	H	1	H	1	H	9
Cornus canadensis	Dogwood, Bunchberry	S	M	11	M	2	M	3	M	16
Cornus pumila	Dogwood, Dwarf Red Tipped	S	M	12	H	1	H	1	M	14
Cornus sericea (stolonifera)	Dogwood, Redosier	S	M	23	M	3	H	4	M	30
Cornus sericea (stolonifera)	Dogwood, Kelsey Dwarf	S	M	28	M	4	M	2	M	34
Corylus avellana 'Contorta'	Harry Lauder's Walkingstick	S	M	21	M	3	M	2	M	26
Corylus cornuta	Filbert, Beaked	S	M	10	M	2	M	2	M	14
Cotinus coggygria	Smoke Tree	S	M	27	L	4	L	2	M	33
Cotoneaster adpressa praecox	Cotoneaster, Creeping	S	M	13	M	3	L	2	M	18
Cotoneaster apiculatus	Cotoneaster, Cranberry	S	L	33	M	5	L	3	L	41
Cotoneaster congestus	Cotoneaster, Pyrenees	S	L	8	L	1	L	1	L	10
Cotoneaster dammeri	Cotoneaster, Bearberry	S	M	24	M	3	L	2	M	29
Cotoneaster divaricatus	Cotoneaster, Spreading	S	L	27	L	5	L	5	L	37
Cotoneaster glaucophyllus	Cotoneaster, Grey	S	L	10	L	1	L	1	L	12
Cotoneaster horizontalis	Cotoneaster, Rock	S	M	27	L	2	L	2	M	31
Cotoneaster lacteus /parneyi	Cotoneaster, Parney's Red	S	M	10	L	2	L	2	M	14
Cotoneaster lucidus /acutifolius	Cotoneaster, Peking	S	L	33	L	5	L	4	L	42
Cotoneaster multiflorus	Cotoneaster, Many Flowered	S	L	18	L	2	L	2	L	22
Cotoneaster nanshan	Cotoneaster, Creeping	S	L	9	L	1	L	1	L	11
Cowania mexicana	Cliffrose	S	VL	28	VL	5	VL	5	VL	38
Cytisus purgans 'Spanish Gold'	Broom, Spanish Gold	S	L	31	VL	3	L	3	L	37
Cytisus scoparius	Broom, Scotch	S	L	23	L	2	L	3	L	28
Cytisus x praecox	Broom, Warminster	S	L	22	L	2	L	1	L	25
Daphne cneorum	Daphne, Rose	S	M	15	L	3	M	3	M	21
Daphne x burkwoodi	Daphne, Burkwood	S	M	31	L	3	M	3	M	37
Dasyliroon wheeleri	Sotol Yucca	S	L	10	L	2	M	1	L	13
Deutzia gracilis	Deutzia, Slender	S	M	10	M	2	M	2	M	14
Dierilla lonicera	Honeysuckle, Bush	S	L	20	L	4	L	2	L	26
Elaeagnus commutata	Silverberry	S	L	19	L	2	L	3	L	24
Ephedra torreyana	Joint Fir, Torrey	S	VL	16	VL	4	VL	4	VL	24
Ephedra viridis	Mormon Tea	S	VL	22	VL	4	VL	4	VL	30
Euonymus alatus	Burning Bush	S	M	33	M	5	M	3	M	41
Euonymus fortunei	Euonymus	S	M	30	M	4	M	3	M	37
Euonymus kiautschovica 'Manhattan'	Euonymus, Manhattan	S	M	28	M	4	M	2	M	34
Brassica oleracea	Ornamental Cabbage or Kale	A	M	14			M	3	M	17
Browallia speciosa	Bush Violet	A	M	11			H	1	M	12
Calendula officinalis	Calendula	A	M	19	M	1	L	2	M	22
Canna x generalis	Canna	A	H	19	H	1	H	1	H	21
Carex comans	Sedge, New Zealand Hair	A	M	4				0	M	4
Catharanthus roseus	Periwinkle, Madagascar	A	L	14	L	1	L	2	L	17
Celosia argentea plumosa	Cockscomb	A	M	19	M	1	L	2	M	22
Centaurea cyanus	Bachelor Button	A	L	25	L	3	L	3	L	31
Cleome hassleriana	Spiderflower	A	M	15	M	1	H	2	M	18
Cleome serrulata	Rocky Mountain Beeplant	A	L	10	L	1	L	3	L	14
Coleus spp.	Coleus	A	M	25			M	3	M	28
Coreopsis tinctoria	Coreopsis, Plains	A	L	19	L	1	L	2	L	22
Cosmos bipinnatus	Cosmos	A	L	27	L	1	L	2	L	30
Cuphea spp.	Cigar Flower	A	M	7			M	1	M	8
Dahlia pinnata	Dahlia	A	M	21			M	2	M	23
Datura sp.	Angel's Trumpet	A	L	16			M	1	L	17
Dianthus x chinensis	Border Pink	A	M	17			L	2	M	19
Diascia barberae	Twinspur	A	M	15	L	1		0	L	16
Dyssodia tenuiloba	Daisy, Dahlberg	A	L	6				0	L	6
Gazania rigens	Treasure Flower	A	L	12			L	1	L	13
Gomphrena globosa	Globe Amaranth	A	L	15			L	2	L	17
Helichrysum bracteatum	Strawflower	A	L	11			L	1	L	12
Heliotropium arborescens	Heliotrope	A	M	13	M	2	M	1	M	16
Impatiens walleriana	Impatiens	A	H	23	H	1	M	2	H	26
Ipomea batatas	Sweet Potato Vine	A	M	17			L	1	M	18
Lantana spp.	Lantana	A	L	18			L	2	L	20
Lathyrus odoratus	Sweet Pea, Annual	A	M	19			M	1	M	20
Limonium sinuatum	Statice	A	L	14	L	1	L	1	L	16
Liriope muscari	Lily Turf	A	M	9			M	1	M	10
Lobelia sp.	Lobelia	A	M	20			M	3	M	23
Lobularia maritima	Sweet Alyssum	A	M	16				0	M	16
Lunaria annua	Money Plant	A	L	9			L	1	L	10
Melini (Rhynchelytrum) nervigulmis	Grass, Ruby	A	M	10			M	1	M	11
Mimulus spp.	Monkey Flower, Annual	A	H	7			H	2	H	9
Mirabilis jalapa	Four O'Clock, Annual	A	L	22	L	1	VL	1	L	24
Molucella laevis	Bells of Ireland	A	M	9			M	1	M	10
Nicotiana spp.	Flowering Tobacco	A	M	21			M	2	M	23
Nierembergia hippomanica	Cup Flower	A	M	8			M	1	M	9
Ocimum basilicum	Basil	A	M	21			M	2	M	23

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Botanic Name	Common Name	Plant Type	East Slope	East Slope Votes	West Slope	West Slope Votes	Mountain	Mountain Votes	All Regions	Total Votes
Lonicera involucrata	Honeysuckle, Twinberry	S	M	19	L	4	L	5	M	28
Lonicera korolkowii v. floribunda 'Blue Velvet'	Honeysuckle, Blue Velvet Blueleaf	S	L	24	L	3	L	4	L	31
Lonicera syringantha 'Wolfii'	Honeysuckle, Tiny Trumpet	S	M	16	L	2	L	3	M	21
Lonicera tartarica 'Arnold's Red'	Honeysuckle, Arnold's Red Tartarian	S	L	24	L	4	L	4	L	32
Lonicera x 'Honeyrose'	Honeysuckle, Honeyrose	S	M	14	M	3	L	4	M	21
Lonicera x xylosteoides	Honeysuckle, European Fly	S	L	19	L	4	L	3	L	26
Magnolia grandiflora	Magnolia, Large-flowered	S	M	6	M	1	M	1	M	8
Magnolia kobus	Magnolia, Kobus	S	M	8	M	2	M	1	M	11
Magnolia virginiana	Magnolia, Sweetbay	S	M	7	M	3	M	2	M	12
Magnolia x loebneri	Magnolia, Loebner	S	M	11	M	1	M	1	M	13
Mahonia aquifolium	Oregon Grape Holly	S	L	34	L	5	L	2	L	41
Mahonia fremonti	Fremont Holly Grape	S	L	18	VL	5	L	2	VL	25
Microbiota decussata	Cypress, Siberian	S	M	10	L	2	M	3	M	15
Myrica pennsylvanica	Bayberry	S	M	7	L	2	L	2	M	11
Nandina domestica	Bamboo, Heavenly	S	M	20	M	1	M	2	M	23
Perovskia atriplicifolia	Sage, Russian	S	L	35	VL	6	VL	6	VL	47
Philadelphus coronarius	Mockorange, Sweet	S	L	19	L	2	L	3	L	24
Philadelphus lewisii	Mockorange, Lewis	S	L	22	L	5	L	3	L	30
Philadelphus microphyllus	Mockorange, Littleleaf	S	L	20	VL	5	L	3	L	28
Philadelphus x 'Buckley's Quill'	Mockorange, Buckley's Quill	S	M	15	L	3	L	3	M	21
Philadelphus x cymosus 'Bouquet Blanc'	Mockorange, Bouquet Blanc	S	M	14	L	2	L	3	M	19
Philadelphus x 'Snowbelle'	Mockorange, Snowbelle	S	M	9	L	2	L	3	L	14
Philadelphus x virginialis	Mockorange, Virginal	S	M	19	L	4	L	3	M	26
Physocarpus monogynus	Ninebark, Native	S	L	24	VL	5	L	7	L	36
Physocarpus opulifolius	Ninebark	S	L	23	L	5	L	5	L	33
Pieris japonica	Pieris, Japanese	S	H	11	M	2	M	2	M	15
Pieris taiwanensis	Pieris, Taiwan	S	H	6	M	2	M	2	M	10
Pinus cembra	Pine, Compact Swiss Stone	S	L	15	L	5	L	4	L	24
Pinus mugo	Pine, Mugo	S	L	36	L	6	L	6	L	48
Platycladus orientalis 'Aurea Nana'	Arbovitae, Dwarf Golden Oriental	S	M	16	M	3	M	2	M	21
Potentilla fruticosa	Potentilla, Shrub	S	L	36	L	6	L	8	L	50
Prinsepia sinensis	Prinsepia, Cherry	S	M	4	M	1	M	1	M	6
Prunus besseyi	Cherry, Western Sand	S	L	36	L	6	L	5	L	47
Prunus fruticosa	Cherry, European Dwarf	S	M	11	L	2	L	2	L	15
Prunus glandulosa 'Rosea Plena'	Almond, Pink Flowering	S	M	23	L	3	L	2	M	28
Prunus pennsylvanica saximontana	Cherry, Pin	S	M	11	L	1	L	1	M	13
Prunus tenella	Almond, Dwarf Russian	S	L	14	L	4	L	3	L	21
Prunus tomentosa	Cherry, Nanking	S	L	29	L	4	L	3	L	36
Prunus triloba	Rose Tree of China	S	M	17	L	4	L	2	M	23
Prunus virginiana melanocarpa	Chokecherry	S	L	32	L	5	L	7	L	44
Prunus x 'Snow Fountains'	Cherry, Weeping White	S	M	10	L	2	L	2	M	14
Purshia tridentata	Bitterbrush Antelope	S	VL	22	VL	4	VL	6	VL	32
Pyracantha angustifolia	Firethorn, Narrowleaf	S	M	19	L	3	L	2	L	24
Pyracantha coccinea	Firethorn, Scarlet	S	L	22	L	4	L	2	L	28
Quercus turbinella	Oak, Shrub Liveoak	S	VL	13	L	2	L	2	VL	17
Rhamnus catharticus	Buckthorn, Common	S	L	29	L	3	L	2	L	34
Rhamnus frangula 'Asplenifolius'	Buckthorn, Glossy Cutleaf	S	M	19	L	4	L	3	L	26
Rhamnus frangula 'Columnaris'	Buckthorn, Tall Hedge	S	L	26	L	5	L	2	L	33
Rhamnus saxatile	Buckthorn, Rock	S	L	10	L	2	L	2	L	14
Rhamnus smithii	Buckthorn, Smith's Alder	S	L	16	VL	5	L	2	L	23
Rhododendron	Rhododendron	S	H	19	M	4	H	2	H	25
Rhus aromatica	Sumac, Fragrant	S	L	24	L	5	L	4	L	33
Rhus glabra	Sumac, Smooth	S	L	28	L	6	L	4	L	38
Rhus lanceolata	Sumac, Flameleaf	S	L	8	L	4	L	3	L	15
Rhus microphylla	Sumac, Little Leaf Desert	S	VL	12	L	4	L	3	VL	19
Rhus trilobata	Sumac, Three-Leaf	S	VL	33	L	6	VL	7	VL	46
Rhus typhina	Sumac, Staghorn	S	L	28	L	6	L	4	L	38
Ribes alpinum	Currant, Alpine	S	L	33	L	7	L	6	L	46
Ribes aureum	Currant, Yellow Flowering	S	L	26	L	6	L	6	L	38
Ribes cereum	Currant, Squaw	S	L	22	L	6	L	7	L	35
Ribes hirtellum 'Pixwell'	Gooseberry, Pixwell	S	L	20	L	5	L	6	L	31
Ribes inerme	Gooseberry, Whitestem	S	L	10	L	5	L	6	L	21
Ribes leptanthum	Currant, Black	S	L	12	L	3	L	4	L	19
Ribes nigrum	Currant, Black	S	L	9	L	3	L	3	L	15
Ribes odoratum	Currant, Clove	S	L	19	L	5	L	4	L	28
Ribes sanguineum	Currant, Red Flowering	S	L	7	L	1	L	1	L	9
Ribes silvestre 'Red Lake'	Currant, Red Lake	S	L	19	L	3	L	4	L	26
Ribes uva-crispa 'Red Jacket'	Gooseberry, Red Jacket	S	L	14	L	3	L	3	L	20
Rosa	Rose, Shrub	S	M	21	L	3	L	4	M	28
Rosa foetida 'Bicolor'	Rose, Austrian Copper	S	L	23	L	4	L	4	L	31
Rosa foetida 'Persiana'	Rose, Persian Yellow	S	L	21	L	4	L	4	L	29
Rosa glauca	Rose, Red-Leaved	S	L	22	L	4	L	5	L	31
Rosa pomifera	Rose, Apple	S	L	9	L	3	L	3	L	15
Rosa rugosa	Rose, Rugosa	S	L	23	L	3	L	5	L	31
Rosa woodsii	Rose, Native Pink	S	L	25	L	4	L	5	L	34
Rosa xanthina hugonis	Rose, Yellow Shrub	S	L	16	L	3	L	3	L	22
Rubus deliciosus	Boulder Raspberry	S	L	28	L	4	L	6	L	38
Rubus idaeus	Raspberry	S	M	16	L	1	L	2	M	19
Rubus odoratus	Raspberry, Purple-flowering	S	L	12	L	2	L	2	L	16
Rubus parviflorus	Thimbleberry	S	M	15	L	4	L	5	L	24
Salix arenaria	Willow, Silver Creeping	S	M	11	M	3	M	3	M	17
Salix bebbiana	Willow, Bebb's	S	M	9	M	2	M	3	M	14
Salix caprea	Willow, Goat	S	H	10	H	1	H	1	H	12
Salix discolor	Willow, Pussy	S	H	21	H	3	M	3	H	27
Salix drummondiana	Willow, Drummond	S	H	8	M	2	M	3	M	13
Salix exigua	Willow, Coyote	S	M	19	M	3	H	4	M	26
Salix fragilis	Willow, Crack	S	H	10	M	3	H	4	H	17
Salix geyeriana	Willow, Geyer's	S	H	8	M	2	M	3	M	13
Salix integra 'Hakuro Nishiki'	Willow, Dappled	S	H	11	H	2	H	2	H	15
Salix irrorata	Willow, Blue Stem	S	M	20	M	3	M	5	M	28
Salix lutea ligulifolia	Willow, Strapleaf Yellow	S	M	9	M	2	M	2	M	13
Salix monticola	Willow, Yellow Mountain	S	H	11	M	4	M	5	M	20
Salix purpurea	Willow, Basket	S	H	18	M	4	M	3	M	25
Salix repens	Willow, Creeping	S	M	13	M	3	M	3	M	19
Salix scouleriana	Willow, Scoulers	S	M	7	M	2	M	2	M	11
Sambucus canadensis	Elder, American	S	M	26	M	5	M	5	M	36
Sambucus nigra 'Marginata'	Elder, Variegated	S	M	16	M	3	M	4	M	23
Sambucus pubens	Elder, Native Red Berried	S	M	18	L	4	L	6	M	28
Sambucus racemosa	Elder, European Red	S	M	15	M	4	M	4	M	23
Shepherdia canadensis	Buffalobery, Russet	S	L	19	VL	5	L	6	L	30
Shepherdia rotundifolia	Buffalobery, Roundleaf	S	VL	15	VL	5	VL	4	VL	24

Appendix E
Plan Water Requirement Estimates (GreenCO-CSU Crop Coefficient Survey 2004)

Estimated Water Usage for Plant: VL=Very Low < 25%; ETO L=Low 25%-50%; ETO M=Medium 50%-75%; ETO H=High >75% ETO Plant Type: A=Annual ; P=Perennial; T=Tree; V=Vine; GC=Ground Cover; S=Shrub; TU=Turf											
Botanic Name	Common Name	Plant Type	East Slope	East Slope Votes	West Slope	West Slope Votes	Mountain	Mountain Votes	All Regions	Total Votes	
Sibiraea laevigata	Sibiraea	S	L	11	L	3	L	3	L	17	
Sorbaria sorbifolia	Spirea, Ural False	S	L	22	M	3	M	4	M	29	
Sorbus hybrida	Mountain Ash, Oak Leaf	S	M	9	L	2	L	2	M	13	
Spiraea albiflora	Spirea, Japanese White	S	M	15	M	3	M	2	M	20	
Spiraea arguta 'Compacta'	Spirea, Compact Garland	S	L	9	M	2	M	2	M	13	
Brassica oleracea	Ornamental Cabbage or Kale	A	M	14			M	3	M	17	
Browallia speciosa	Bush Violet	A	M	11			H	1	M	12	
Calendula officinalis	Calendula	A	M	19	M	1	L	2	M	22	
Canna x generalis	Canna	A	H	19	H	1	H	1	H	21	
Carex comans	Sedge, New Zealand Hair	A	M	4				0	M	4	
Catharanthus roseus	Periwinkle, Madagascar	A	L	14	L	1	L	2	L	17	
Celosia argentea plumosa	Cockscomb	A	M	19	M	1	L	2	M	22	
Centaurea cyanus	Bachelor Button	A	L	25	L	3	L	3	L	31	
Cleome hassleriana	Spiderflower	A	M	15	M	1	H	2	M	18	
Cleome serrulata	Rocky Mountain Beeplant	A	L	10	L	1	L	3	L	14	
Coleus spp.	Coleus	A	M	25			M	3	M	28	
Coreopsis tinctoria	Coreopsis, Plains	A	L	19	L	1	L	2	L	22	
Cosmos bipinnatus	Cosmos	A	L	27	L	1	L	2	L	30	
Cuphea spp.	Cigar Flower	A	M	7			M	1	M	8	
Dahlia pinnata	Dahlia	A	M	21			M	2	M	23	
Datura sp.	Angel's Trumpet	A	L	16			M	1	L	17	
Dianthus x chinensis	Border Pink	A	M	17			L	2	M	19	
Diascia barberae	Twinspur	A	M	15	L	1		0	L	16	
Dyssodia tenuiloba	Daisy, Dahlberg	A	L	6				0	L	6	
Gazania rigens	Treasure Flower	A	L	12			L	1	L	13	
Gomphrene globosa	Globe Amaranth	A	L	15			L	2	L	17	
Helichrysum bracteatum	Strawflower	A	L	11			L	1	L	12	
Heliotropium arborescens	Heliotrope	A	M	13	M	2	M	1	M	16	
Impatiens wallerana	Impatiens	A	H	23	H	1	M	2	H	26	
Ipomea batatas	Sweet Potato Vine	A	M	17			L	1	M	18	
Lantana spp.	Lantana	A	L	18			L	2	L	20	
Lathyrus odoratus	Sweet Pea, Annual	A	M	19			M	1	M	20	
Limonium sinuatum	Statice	A	L	14	L	1	L	1	L	16	
Liriope muscari	Lily Turf	A	M	9			M	1	M	10	
Lobelia sp.	Lobelia	A	M	20			M	3	M	23	
Lobularia maritima	Sweet Alyssum	A	M	16				0	M	16	
Lunaria annua	Money Plant	A	L	9			L	1	L	10	
Melinis (Rhynchelytrum) nerviglumis	Grass, Ruby	A	M	10			M	1	M	11	
Mimulus spp.	Monkey Flower, Annual	A	H	7			H	2	H	9	
Mirabilis jalapa	Four O'Clock, Annual	A	L	22	L	1	VL	1	L	24	
Molucella laevis	Bells of Ireland	A	M	9			M	1	M	10	
Nicotiana spp.	Flowering Tobacco	A	M	21			M	2	M	23	
Nierembergia hippomanica	Cup Flower	A	M	8			M	1	M	9	
Ocimum basilicum	Basil	A	M	21			M	2	M	23	
Pelargonium hybrids	Geranium	A	M	22			M	2	M	24	
Pennisetum setaceum	Grass, Annual Fountain	A	M	21			L	2	M	23	
Petunia x hybrida	Petunia	A	M	22	L	1	M	4	M	27	
Phacelia campanularia	California Bluebell	A	L	6			L	1	L	7	
Plectranthus argentatus	Silver Dollar Plant	A	L	10			VL	1	L	11	
Portulaca grandiflora	Moss Rose, Portulaca	A	L	21	VL	1	L	3	L	25	
Ricinus communis	Castor Bean	A	M	9				0	M	9	
Salvia farinacea	Mealycup sage	A	M	10			L	1	M	11	
Salvia splendens	Scarlet Salvia	A	M	11			L	2	M	13	
Sanvitalia procumbens	Creeping Zinnia	A	L	11			L	2	L	13	
Scaevola aemula	Fan Flower	A	M	11			M	2	M	13	
Senecio cineraria	Dusty Miller	A	L	22	L	1	L	2	L	25	
Sutera cordata	Bacopa	A	L	9			M	2	M	11	
Tagetes spp.	Marigold	A	L	23	L	1	L	3	L	27	
Tithonia rotundifolia	Sunflower, Mexican	A	L	15			L	1	L	16	
Tropaeolum majus	Nasturtium	A	L	21			L	2	L	23	
Verbena bonariensis	Verbena, Tall	A	L	16	VL	1		0	L	17	
Verbena x hybrida	Verbena, Garden	A	L	16	L	1	L	3	L	20	
Viola tricolor	Viola, Johnny-jump-up	A	M	22			M	2	M	24	
Viola x wittrockiana	Pansy	A	M	21			M	3	M	24	
Zinnia elegans	Zinnia	A	L	23	L	1	L	2	L	26	
Anchusa spp.	Bugloss	A	P	M	17	L	2	L	1	M	20
Bellis perennis	Daisy, English	A	P	M	10		M	1	M	11	
Campanula medium	Canterbury Bells	A	P	M	16	M	3	H	2	M	21
Dianthus cultivars	Pinks	A	P	M	24	L	2	L	3	M	29
Diascia integerrima 'Coral Canyon'	Twinspur, Coral Canyon	A	P	L	26	L	2	L	2	L	30
Gazania krebsiana Tanager	Gazania, Orange Hardy	A	P	L	19		L	1	L	20	
Rosmarinus officinalis	Rosemary	A	P	L	16		L	1	L	17	
Salvia sclarea	Clary Sage	A	P	L	21	VL	1	M	1	L	23
Ajuga genevensis 'Pink Beauty'	Carpet Bugle, Pink Beauty	GC	M	19	M	3	L	2	M	24	
Ajuga pyramidalis 'Metallica Crispa'	Carpet Bugle, Pyramid	GC	M	19	M	2		0	M	21	
Ajuga reptans	Carpet Bugle, Green	GC	M	26	M	2	M	2	M	30	
Euonymus kewensis	Euonymus, Kew	GC	M	13	M	1		0	M	14	
Thymus praecox 'Pseudolanuginosus'	Thyme, Woolly	GC	L	6	L	1	VL	1	L	8	
Aegopodium podagraria	Bishop's Weed	GCP	M	26	M	4	M	3	M	33	
Convallaria majalis	Lily-of-the-Valley	GCP	M	25	M	1	M	1	M	27	
Euonymus fortunei 'Coloratus'	Wintercreeper, Purpleleaf	GCP	L	21	L	2	M	1	L	24	
Fragaria americana	Strawberry, Wild	GCP	L	21	L	2	L	2	L	25	
Fragaria cultivars	Strawberry	GCP	M	22	M	1	M	1	M	24	
Fragaria vesca	Strawberry, Runnerless	GCP	M	13			M	1	M	14	
Geranium x cantabrigiense	Cranesbill, Cambridge	GCP	L	16	M	1	M	1	M	18	
Glechoma hederacea	Ivy, Ground	GCP	M	11			L	1	L	12	
Globularia cordifolia	Daisy, Dwarf Globe	GCP	L	12			L	1	L	13	
Hypericum calycinum	St. John's Wort, Mounding	GCP	M	13	M	1		0	M	14	
Hypericum reptans	St. John's Wort, Creeping	GCP	L	14	M	1		0	L	15	
Iberis gibraltarica	Candytuft, Lilac	GCP	L	13			M	1	L	14	
Iberis sempervirens	Candytuft, Evergreen	GCP	L	26	M	1	M	1	L	28	
Lamium galeobdolon	Yellow archangel	GCP	M	14	M	1	M	1	M	16	
Lamium maculatum	Nettle, Spotted	GCP	M	20	M	1	M	1	M	22	
Marrubium rotundifolium	Horehound, Silvery	GCP	VL	10				0	VL	10	
Mazus reptans	Mazus	GCP	M	5				0	M	5	
Pachysandra terminalis	Spurge, Japanese	GCP	M	15	M	2	M	1	M	18	
Phlox douglasii	Phlox, Cushion	GCP	L	9			L	1	L	10	
Phlox procumbens	Phlox, Creeping	GCP	L	5	M	1	M	1	M	7	
Phlox stolonifera	Phlox, Creeping	GCP	M	10				0	M	10	
Phlox subulata	Phlox, Creeping	GCP	L	25	M	2	L	2	L	29	
Potentilla neumanniana	Cinquefoil, Creeping	GCP	L	13	L	1	L	2	L	16	

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Estimated Water Usage for Plant: VL=Very Low < 25%; ET0 L=Low 25%-50%; ET0 M=Medium 50%-75%; ET0 H=High >75% ET0 Plant Type: A=Annual ; P=Perennial; T=Tree; V=Vine; GC=Ground Cover; S=Shrub; TU=Turf										
Botanic Name	Common Name	Plant Type	East Slope	East Slope Votes	West Slope	West Slope Votes	Mountain	Mountain Votes	All Regions	Total Votes
Juniperus scopulorum	Juniper, Rocky Mountain	ST	VL	42	VL	9	VL	10	VL	61
Juniperus utahensis	Juniper, Utah	ST	VL	28	VL	8	VL	6	VL	42
Magnolia stellata	Magnolia, Star	ST	M	28	M	6	M	4	M	38
Magnolia x soulangeana	Magnolia, Saucer	ST	M	28	M	6	M	4	M	38
Picea abies	Spruce, Norway	ST	M	32	L	6	L	6	M	44
Picea glauca 'Conica'	Spruce, Dwarf Alberta	ST	M	35	M	7	M	6	M	48
Picea pungens	Spruce, Colorado	ST	M	44	L	7	M	11	M	62
Pinus aristata	Pine, Bristlecone	ST	L	41	L	8	VL	11	L	60
Pinus densiflora	Pine, Tanyosho	ST	L	21	L	6	L	5	L	32
Pinus heldreichii (leucodermis)	Pine, Bosnian	ST	L	28	L	6	L	4	L	38
Prunus americana	Plum, American	ST	L	41	L	8	L	7	L	56
Prunus virginiana 'Shubert'	Chokeberry, Canada Red	ST	M	42	L	8	L	8	L	58
Prunus x cistena	Plum, Purple-Leaf	ST	M	38	L	8	L	5	M	51
Pseudotsuga menziesii	Fir, Douglas	ST	M	35	L	6	L	10	M	51
Quercus gambelii	Oak, Gambel	ST	L	42	VL	9	VL	6	VL	57
Robinia neomexicana	Locust, New Mexico	ST	L	35	VL	9	VL	5	L	49
Salix alba 'Tristis'	Willow, Golden Weeping	ST	H	32	H	6	M	4	H	42
Salix alba vitellina	Willow, Russian Golden	ST	H	23	M	5	M	6	H	34
Salix amygdaloides	Willow, Peach Leaf	ST	M	26	M	6	M	7	M	39
Salix matsudana 'Umbraculifera'	Willow, Globe	ST	H	29	H	6	M	3	H	38
Sapindus drummondii	Soapberry, Western	ST	L	8	L	3	L	2	L	13
Shepherdia argentea	Buffaloberry	ST	L	35	VL	8	VL	7	VL	50
Sorbus aucuparia	Mountain Ash, European	ST	M	35	M	6	L	5	M	46
Sorbus scopulina	Mountain Ash, Native	ST	M	24	M	3	M	4	M	31
Syringa pekinensis	Lilac, Peking	ST	L	28	L	6	L	5	L	39
Syringa reticulata	Lilac, Japanese Tree	ST	M	34	L	7	L	5	L	46
Viburnum lantana	Wayfaringtree	ST	L	34	L	7	L	4	L	45
Celastrus scandens	American Bittersweet	SV	L	20	L	3	L	2	L	25
Lonicera japonica	Honeysuckle, Japanese	SV	L	23	M	3	L	3	L	29
Vitis cultivars	Grape cultivars	SV	M	22	M	4	M	1	M	27
Vitis riparia	Grape, Frost	SV	M	11	M	3	M	1	M	15
Abies balsamea 'Nana'	Fir, Dwarf Globe Balsam	T	M	17	M	3	M	2	M	22
Abies concolor	Fir, White	T	M	43	M	10	M	12	M	65
Abies fraseri	Fir, Fraser	T	M	16	M	4	M	4	M	24
Abies koreana 'Horstmann's Silberlocke'	Fir, Silver Korean	T	M	7	M	3	M	3	M	13
Abies lasiocarpa	Fir, Subalpine	T	M	19	M	7	M	9	M	35
Acer campestre	Maple, Hedge	T	M	24	L	7	M	5	M	36
Acer griseum	Maple, Paperbark	T	M	19	M	4	M	3	M	26
Acer miyabei	Maple, Miyabi	T	M	11	M	3	L	2	M	16
Acer negundo	Box Elder	T	L	34	M	9	L	4	L	47
Acer nigrum 'Greencolumn'	Maple, Greencolumn Black	T	M	9	M	2	M	1	M	12
Acer palmatum	Maple, Japanese	T	M	25	H	3	H	2	H	30
Acer platanoides	Maple, Norway	T	M	36	M	5	M	3	M	44
Brassica oleracea	Ornamental Cabbage or Kale	A	M	14			M	3	M	17
Browallia speciosa	Bush Violet	A	M	11			H	1	M	12
Calendula officinalis	Calendula	A	M	19	M	1	L	2	M	22
Canna x generalis	Canna	A	H	19	H	1	H	1	H	21
Carex comans	Sedge, New Zealand Hair	A	M	4				0	M	4
Catharanthus roseus	Periwinkle, Madagascar	A	L	14	L	1	L	2	L	17
Celosia argentea plumosa	Cockscomb	A	M	19	M	1	L	2	M	22
Centaurea cyanus	Bachelor Button	A	L	25	L	3	L	3	L	31
Cleome hassleriana	Spiderflower	A	M	15	M	1	H	2	M	18
Cleome serrulata	Rocky Mountain Beeplant	A	L	10	L	1	L	3	L	14
Coleus spp.	Coleus	A	M	25			M	3	M	28
Coreopsis tinctoria	Coreopsis, Plains	A	L	19	L	1	L	2	L	22
Cosmos bipinnatus	Cosmos	A	L	27	L	1	L	2	L	30
Cuphea spp.	Cigar Flower	A	M	7			M	1	M	8
Dahlia pinnata	Dahlia	A	M	21			M	2	M	23
Datura sp.	Angel's Trumpet	A	L	16			M	1	L	17
Dianthus x chinensis	Border Pink	A	M	17			L	2	M	19
Diascia barberae	Twinspur	A	M	15	L	1		0	L	16
Dyssodia tenuiloba	Daisy, Dahlberg	A	L	6				0	L	6
Gazania rigens	Treasure Flower	A	L	12			L	1	L	13
Gomphrene globosa	Globe Amaranth	A	L	15			L	2	L	17
Helichrysum bracteatum	Strawflower	A	L	11			L	1	L	12
Heliotropium arborescens	Heliotrope	A	M	13	M	2	M	1	M	16
Impatiens walleriana	Impatiens	A	H	23	H	1	M	2	H	26
Ipomea batatas	Sweet Potato Vine	A	M	17			L	1	M	18
Lantana spp.	Lantana	A	L	18			L	2	L	20
Lathyrus odoratus	Sweet Pea, Annual	A	M	19			M	1	M	20
Limonium sinuatum	Statice	A	L	14	L	1	L	1	L	16
Liriope muscari	Lily Turf	A	M	9			M	1	M	10
Lobelia sp.	Lobelia	A	M	20			M	3	M	23
Lobularia maritima	Sweet Alyssum	A	M	16				0	M	16
Lunaria annua	Money Plant	A	L	9			L	1	L	10
Melinis (Rhynchelytrum) nerviglumis	Grass, Ruby	A	M	10			M	1	M	11
Mimulus spp.	Monkey Flower, Annual	A	H	7			H	2	H	9
Mirabilis jalapa	Four O'Clock, Annual	A	L	22	L	1	VL	1	L	24
Molucella laevis	Bells of Ireland	A	M	9			M	1	M	10
Nicotiana spp.	Flowering Tobacco	A	M	21			M	2	M	23
Nierembergia hippomanica	Cup Flower	A	M	8			M	1	M	9
Ocimum basilicum	Basil	A	M	21			M	2	M	23
Pelargonium hybrids	Geranium	A	M	22			M	2	M	24
Pennisetum setaceum	Grass, Annual Fountain	A	M	21			L	2	M	23
Petunia x hybrida	Petunia	A	M	22	L	1	M	4	M	27
Phacelia campanularia	California Bluebell	A	L	6			L	1	L	7
Plectranthus argentatus	Silver Dollar Plant	A	L	10			VL	1	L	11
Portulaca grandiflora	Moss Rose, Portulaca	A	L	21	VL	1	L	3	L	25
Ricinus communis	Castor Bean	A	M	9				0	M	9
Salvia farinacea	Mealycup sage	A	M	10			L	1	M	11
Salvia splendens	Scarlet Salvia	A	M	11			L	2	M	13
Sanvitalia procumbens	Creeping Zinnia	A	L	11			L	2	L	13
Scaevola aemula	Fan Flower	A	M	11			M	2	M	13
Senecio cineraria	Dusty Miller	A	L	22	L	1	L	2	L	25
Sutera cordata	Bacopa	A	L	9			M	2	M	11
Tagetes spp.	Marigold	A	L	23	L	1	L	3	L	27
Tithonia rotundifolia	Sunflower, Mexican	A	L	15			L	1	L	16
Tropaeolum majus	Nasturtium	A	L	21			L	2	L	23
Verbena bonariensis	Verbena, Tall	A	L	16	VL	1		0	L	17
Verbena x hybrida	Verbena, Garden	A	L	16	L	1	L	3	L	20
Viola tricolor	Viola, Johnny-jump-up	A	M	22			M	2	M	24

Appendix E
Plan Water Requirement Estimates (GreenCO-CSU Crop Coefficient Survey 2004)

Estimated Water Usage for Plant: VL=Very Low < 25%; ETO L=Low 25%-50%; ETO M=Medium 50%-75%; ETO H=High >75% ETO										
Plant Type: A=Annual ; P=Perennial; T=Tree; V=Vine; GC=Ground Cover; S=Shrub; TU=Turf										
Botanic Name	Common Name	Plant Type	East Slope	East Slope Votes	West Slope	West Slope Votes	Mountain	Mountain Votes	All Regions	Total Votes
Liquidambar styraciflua	Sweetgum, American	T	M	14	M	3	L	2	M	19
Liriodendron tulipifera	Tulip Tree	T	M	21	M	2	L	2	M	25
Maackia amurensis	Amur Maackia	T	M	20	M	3	L	4	M	27
Malus crabapple	Crabapple	T	M	41	M	5	L	4	M	50
Malus sylvestris	Apple, Orchard	T	M	27	L	3	L	2	M	32
Malus x zumi 'Calocarpa'	Crab, Zumi	T	M	10	L	2	L	2	M	14
Metasequoia glyptostroboides	Redwood, Dawn	T	M	14	M	4	M	3	M	21
Morus alba	Mulberry	T	M	25	M	3	M	3	M	31
Nyssa sylvatica	Sourgum	T	H	11	H	2	M	2	M	15
Ostrya virginiana	American Hophornbeam	T	M	16	M	3	M	3	M	22
Parrotia persica	Persian Parrotia	T	M	7	M	2	L	2	M	11
Picea engelmannii	Spruce, Engelmann	T	M	31	L	6	M	9	M	46
Picea glauca 'Densata'	Spruce, Black Hills	T	M	29	M	5	M	7	M	41
Picea omorika	Spruce, Serbian	T	M	17	M	3	M	4	M	24
Picea orientalis	Spruce, Oriental	T	M	9	M	2	M	2	M	13
Pinus bungeana	Pine, Lacebark	T	L	15	M	4	L	4	L	23
Pinus contorta latifolia	Pine, Lodgepole	T	L	26	L	7	L	11	L	44
Pinus edulis	Pine, Pinon	T	VL	41	VL	8	VL	8	VL	57
Pinus flexilis	Pine, Limber	T	L	36	L	6	L	10	L	52
Pinus nigra	Pine, Austrian	T	L	40	L	7	L	6	L	53
Pinus parviflora	Pine, Lacebark	T	L	9	L	3	L	3	L	15
Pinus ponderosa	Pine, Ponderosa	T	L	41	L	8	L	10	L	59
Pinus resinosa	Pine, Red	T	M	11	L	2	L	2	M	15
Pinus strobiformis	Pine, Border	T	L	20	L	4	L	4	L	28
Pinus strobus	Pine, Eastern White	T	M	32	L	5	M	4	M	41
Pinus sylvestris	Pine, Scotch	T	L	34	L	7	L	7	L	48
Pinus thunbergii	Pine, Japanese Black	T	L	10	L	4	L	4	L	18
Pinus virginiana 'Wates Golden'	Pine, Wates Golden Virginia Scrub	T	M	5	M	2	M	2	M	9
Platanus occidentalis	Sycamore	T	M	22	M	4	M	3	M	29
Platanus x acerifolia	Planetree, London	T	M	16	M	6	M	3	M	25
Populus alba	Poplar, Silver	T	M	27	M	6	L	4	M	37
Populus angustifolia	Cottonwood, Narrowleaf	T	M	42	M	7	M	8	M	57
Populus balsamifera	Poplar, Balsam	T	M	14	H	3	H	3	H	20
Populus deltoides 'Siouxland'	Cottonwood, Siouxland	T	M	38	M	8	M	4	M	50
Populus fremontii	Cottonwood, Fremont	T	M	26	M	6	M	4	M	36
Populus nigra	Poplar, Lombardy Black	T	H	16	H	6	H	2	H	24
Populus sargentii	Cottonwood, Plains	T	M	40	M	7	M	4	M	51
Populus tremuloides	Aspen	T	M	45	M	8	M	11	M	64
Populus x acuminata	Cottonwood, Lanceleaf	T	M	35	M	8	M	6	M	49
Populus x canescens	Cottonwood, Gray	T	M	16	M	5	M	4	M	25
Prunus armeniaca	Apricot	T	M	28	L	7	L	4	M	39
Prunus avium	Cherry, Sweet	T	M	25	L	6	L	3	M	34
Prunus cerasifera	Plum, Cherry	T	M	30	L	6	L	4	M	40
Prunus cerasus	Cherry, Sour	T	M	23	L	4	L	2	M	29
Prunus maackii	Chokecherry, Amur	T	M	30	L	4	L	4	M	38
Prunus maritima	Plum, Beach	T	M	6	L	1	L	1	M	8
Prunus nigra 'Princess Kay'	Plum, Princess Kay Canadian	T	M	28	L	4	L	3	M	35
Prunus padus	Mayday Tree	T	M	28	L	5	L	5	M	38
Prunus pesica	Peach	T	M	23	M	4	L	2	M	29
Prunus sargentii	Cherry, Sargent	T	M	14	L	3	L	3	M	20
Prunus serrulata 'Kwanzan'	Cherry, Kwanzan Japanese Flowering	T	M	15	M	3	M	3	M	21
Prunus subhirtella 'Pendula'	Cherry, Weeping Spring	T	M	13	M	3	L	2	M	18
Prunus x americana 'Toka'	Plum, Toka	T	M	16	M	3	L	4	M	23
Prunus x domestica 'Stanley'	Plum, Stanley Prune	T	M	19	L	2	L	2	M	23
Ptelea trifoliata	Ash, Wafer	T	L	27	L	5	L	4	L	36
Pyrus calleryana	Pear, Ornamental	T	M	32	L	3	L	3	M	38
Pyrus communis	Pear, Orchard	T	M	18	L	4	L	4	M	26
Pyrus fauriei	Pear, Korean Wild Pear	T	L	11	L	4	L	4	L	19
Pyrus ussuriensis	Pear, Ussurian	T	L	24	L	6	L	5	L	35
Quercus acutissima	Oak, Sawtooth	T	M	12	M	3	L	2	M	17
Quercus alba	Oak, White	T	M	25	L	5	L	2	M	32
Brassica oleracea	Ornamental Cabbage or Kale	A	M	14			M	3	M	17
Browallia speciosa	Bush Violet	A	M	11			H	1	M	12
Calendula officinalis	Calendula	A	M	19	M	1	L	2	M	22
Canna x generalis	Canna	A	H	19	H	1	H	1	H	21
Carex comans	Sedge, New Zealand Hair	A	M	4				0	M	4
Catharanthus roseus	Periwinkle, Madagascar	A	L	14	L	1	L	2	L	17
Celosia argentea plumosa	Cockscomb	A	M	19	M	1	L	2	M	22
Centaurea cyanus	Bachelor Button	A	L	25	L	3	L	3	L	31
Cleome hassleriana	Spiderflower	A	M	15	M	1	H	2	M	18
Cleome serrulata	Rocky Mountain Beeplant	A	L	10	L	1	L	3	L	14
Coleus spp.	Coleus	A	M	25			M	3	M	28
Coreopsis tinctoria	Coreopsis, Plains	A	L	19	L	1	L	2	L	22
Cosmos bipinnatus	Cosmos	A	L	27	L	1	L	2	L	30
Cuphea spp.	Cigar Flower	A	M	7			M	1	M	8
Dahlia pinnata	Dahlia	A	M	21			M	2	M	23
Datura sp.	Angel's Trumpet	A	L	16			M	1	L	17
Dianthus x chinensis	Border Pink	A	M	17			L	2	M	19
Diascia barbaeae	Twinspur	A	M	15	L	1		0	L	16
Dyssodia tenuiloba	Daisy, Dahlberg	A	L	6				0	L	6
Gazania rigens	Treasure Flower	A	L	12			L	1	L	13
Gomphrena globosa	Globe Amaranth	A	L	15			L	2	L	17
Helichrysum bracteatum	Strawflower	A	L	11			L	1	L	12
Heliotropium arborescens	Heliotrope	A	M	13	M	2	M	1	M	16
Impatiens walleriana	Impatiens	A	H	23	H	1	M	2	H	26
Ipomea batatas	Sweet Potato Vine	A	M	17			L	1	M	18
Lantana spp.	Lantana	A	L	18			L	2	L	20
Lathyrus odoratus	Sweet Pea, Annual	A	M	19			M	1	M	20
Limonium sinuatum	Statice	A	L	14	L	1	L	1	L	16
Liriope muscari	Lily Turf	A	M	9			M	1	M	10
Lobelia sp.	Lobelia	A	M	20			M	3	M	23
Lobularia maritima	Sweet Alyssum	A	M	16				0	M	16
Lunaria annua	Money Plant	A	L	9			L	1	L	10
Melinis (Rhynchelytrum) nervigulmis	Grass, Ruby	A	M	10			M	1	M	11
Mimulus spp.	Monkey Flower, Annual	A	H	7			H	2	H	9
Mirabilis jalapa	Four O'Clock, Annual	A	L	22	L	1	VL	1	L	24
Molucella laevis	Bells of Ireland	A	M	9			M	1	M	10
Nicotiana spp.	Flowering Tobacco	A	M	21			M	2	M	23
Nierembergia hippomanica	Cup Flower	A	M	8			M	1	M	9
Ocimum basilicum	Basil	A	M	21			M	2	M	23
Pelargonium hybrids	Geranium	A	M	22			M	2	M	24

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Plant Type: A=Annual ; P=Perennial; T=Tree; V=Vine; GC=Ground Cover; S=Shrub; TU=Turf										
Botanic Name	Common Name	Plant Type	East Slope	East Slope Votes	West Slope	West Slope Votes	Mountain	Mountain Votes	All Regions	Total Votes
Agropyron cristatum	Crested Wheatgrass	TU	L	20	L	3	L	2	L	25
Agrostis palustris	Bentgrass	TU	H	10			H	1	H	11
Bromus inermis	Smooth Brome	TU	L	10	VL	1	M	3	L	14
Buchloe dactyloides	Buffalograss	TU	VL	28	VL	4	VL	2	VL	34
Festuca arundinacea	Tall Fescue	TU	M	17	M	3	M	3	M	23
Festuca ovina duriuscula	Hard Fescue	TU	M	8	H	1	H	1	M	10
Festuca rubra	Fescue, Red	TU	M	12	M	2	H	1	M	15
Lolium perenne	Perennial Ryegrass	TU	M	12	M	2	H	1	M	15
Poa praetensis	Bluegrass	TU	H	25	H	2	M	2	H	29
Actinidia kolomikta	Kiwi, Variegated	V	M	10				0	M	10
Akebia quinata	Chocolate Vine	V	M	7				0	M	7
Ampelopsis brevipedunculata	Porcelain Berry Vine	V	M	16	M	1		0	M	17
Aristolochia durior	Dutchman's Pipe	V	M	13				0	M	13
Hedera helix	Ivy, English	V	M	25	L	2	M	1	M	28
Hydrangea anomala petiolaris	Hydrangea, Climbing	V	M	11				0	M	11
Lonicera periclymenum	Woodbine, Yellow Flowering	V	M	7				0	M	7
Lonicera sempervirens 'Magnifica'	Honeysuckle, Scarlet Trumpet	V	M	18	L	1	L	1	M	20
Lonicera x brownii 'Dropmore Scarlet'	Honeysuckle, Dropmore Scarlet Brown's	V	M	15	L	1	L	1	M	17
Parthenocissus quinquefolia	Virginia Creeper	V	L	26	L	3	L	2	L	31
Wisteria floribunda	Japanese Wisteria	V	L	2				0	L	2
Wisteria sinensis	Wisteria, Chinese	V	M	16				0	M	16