TOWN OF EMPIRE,
COLORADO

ORDINANCE 265

AN ORDINANCE OF THE TOWN OF EMPIRE, COLORADO ADOPTING BY REFERENCE THE 2015 INTERNATIONAL CODE SERIES TO INCLUDE THE BUILDING, RESIDENTIAL, PLUMBING, MECHANICAL AND FUEL GAS CODES FOR THE TOWN OF EMPIRE WITH CERTAIN AMENDMENTS TO THE ABOVE REFERENCED CODES

WHEREAS, the international building and construction standards have been developed and from time to time amended and updated by International Code Council ("ICC"), as set forth in the ICC's International Code Series; and

WHEREAS, in furtherance of public health, safety, and welfare of the inhabitants of the Town of Empire, Colorado (the "Town"), the Board of Trustees of the Town of Empire (the "Board") desires to update its ordinances to include the 2015 versions of the ICC's International Code Series ("International Codes") with certain modifications as described in **Exhibit A**, attached hereto and incorporated by reference; and

WHEREAS, the Board held a public hearing, with proper notice provided, to consider the adoption of the International Codes as required by law; and

WHEREAS, copies of the International Codes are available in the Town Clerk's Office at Town Hall, 30 E Park Ave, Empire, CO 80438, for review and inspection by the public; and

WHEREAS, a public hearing was conducted on the date, time, and place noticed; and

WHEREAS, the Board has determined, based on the evidence and testimony provided at the public hearing that the adoption of the International Codes, as modified by **Exhibit A,** will further the health, safety, and welfare of the Town, its citizens, and visitors.

NOW THEREFORE BE IT RESOLVED BY THE BOARD OF TRUSTEES OF EMPIRE, COLORADO, AS FOLLOWS:

Section 1. The above recitals are incorporated by reference.

Section 2. The Board hereby adopts the 2015 International Code Series for the purpose of regulating the future construction or alteration of dwellings, buildings, and structures within the

Town with the deletions and additions reflected in the attached **Exhibit A**.

Section 3. Validity If any part or parts of this Ordinance are for any reason held to be invalid, such decision shall not affect the validity of the remaining portions of this Ordinance. The Board of Trustees hereby declares that it would have passed this Ordinance and each part or parts thereof, irrespective of the fact that any part or parts be declared invalid.

Section 4. Repeal Existing ordinances or parts of ordinances covering the same matters as embraced in this Ordinance are hereby repealed and all ordinances or parts of ordinances inconsistent with the provisions of this Ordinance are hereby repealed, except that this repeal shall not affect or prevent the prosecution or punishment of any person for any act done or committed in violation of any ordinance hereby repealed prior to the taking effect of this Ordinance. Existing ordinances or part of ordinances regulating traffic that are not inconsistent with the provisions of this Ordinance are not repealed and shall remain in full force and effect.

Section 5. Effective Date. The Provisions of the ordinance shall become effective thirty (30) days after publication following final passage.

INTRODUCED AND PASSED ON FIRST READING THIS 25th DAY OF APRIL 2022.

INTRODUCED, AMENDED, PASSED, ADOPTED, AND ORDERED PUBLISHED ON SECOND READING THIS _____ DAY OF _____ 2022.

TOWN OF EMPIRE, COLORADO

_____
Mayor

ATTEST:

_____
Town Clerk

EXHIBIT A

2015 TOWN OF EMPIRE INTERNATIONAL CODE SERIES

AMENDMENTS

TABLE OF CONTENTS

EXHIBITS

2015 INTERNATIONAL RESIDENTIAL CODE

CHAPTER 1
ADMINISTRATION

SECTION R101-TITLE, SCOPE AND PURPOSE

R101.1 Title. These provisions shall be known as the Residential Code for One- and Two-Family Dwellings of Clear Creek County, Colorado, and shall be cited as such and will be referred to herein as "this code".

SECTION R102 - APPLICABILITY

Add the following section:
R102.4.3 Referenced Codes and Standards. All references to the ICC Electrical Code shall be deleted in this code, the subject matter of which shall be permitted and regulated by the State Electrical Department.
R102.4.4 All references to the International Property Maintenance Code in this code shall be deleted.

SECTION R105 - PERMITS

Delete Number 1 under "Building" and replace with the following:
R105.2 Work Exempt from Permit.

1. One-story detached accessory structures used as tool and storage sheds, playhouses and similar uses, provided the floor area does not exceed 120 square feet ($11.15m^2$).

Add new Numbers 1 1 , 1 2 and 13 under "Building" as follows:

11. Non-permanent coverings consisting of pole and fabric.
12. All pre-manufactured single unit detached storage containers used for storage only.

Delete Section R105.5 in its entirety and replace with following:
R105.5 Expiration. Every permit for new construction or additions and alterations issued by the Building Official under the provisions of this code shall expire by limitation and become null and void two years after the issuance of such permit. Every permit for mechanical installations, re-roofs, re-sidings, window replacements, minor residential repairs, signs and fences or demolitions issued by the Building Official under the provisions of this code shall expire by limitation and become null and void six months after the issuance of such permit. All construction or installations allowed and all inspections required by the permit must be completed before expiration of the permit.

R105.5.1 Renewal Permit. A renewal for a permit may be applied for when a permit has expired and a full fee will be assessed unless the permit has received approvals from the Building Official through all of the rough inspections and provided no changes have been made to the original plans

and specification, then a ½ fee will be charged. The rough inspections include all Framing, Mechanical and Plumbing. The renewal will be subject to the provisions of the code under which it was originally issued.

R105.5.2 Permit Extension. Any permittee holding an unexpired permit may apply for an extension of the time to complete the work and inspections under that permit when the permittee is unable to complete the work within the time required by Section R.105.5.1 due to circumstances beyond the control of the permittee. The extension shall be requested in writing prior to the expiration of the permit and justifiable cause for the extension shall be demonstrated. The Building Official is authorized to grant an extension of time for a period of 180 days.

Add the following Sections;

R105.10 Transfer of Permits. An unexpired building permit may be transferred from one party to another upon written application to the Building Official by the new owner of the property or his/her authorized agent, provided there is no change in the plans and specifications. Documentation of the change in ownership must be provided by the new owner. No change shall be made in the expiration date of the original permit. A fee is required to transfer the permit, please refer to Table 1-R for the fee schedule.

R105.10.1 Owner assuming Role as Contractor. The Building Official may allow the property owner to assume the role of contractor at any time on an active building permit by providing the Building Official with a letter listing the permit number, the address of the project and stating that the original contractor is no longer in the employment of the owner, provided that no change of ownership has occurred since the permit was issued. This change may be done at no charge. No change shall be made in the expiration date of the original building permit.

SECTION R108 - FEES

R108.1.1 Payment of Fees. Add the following sentence:

Any reduction or waiver of a building permit fee must be approved by the Board of County Commissioners.

Add the following sections:

108.2.1 Schedule of Permit Fees. A fee for each building permit shall be paid to the Building Official as set forth in Table 1-R. The determination of valuation under any of the provisions of this code shall be made by the Building Official.

R108.3.1 Building Permit Valuations.

Valuation may be based on the annual average cost of construction, as published in the Buildings Safety Journal by the International Code Council. No adjustment will be made by the regional modifier.

Add the following sections:

R108.4.1 Investigation Fee. In addition to the required permit fee, any person who commences work on a building, structure, gas, mechanical or plumbing system before obtaining the necessary permits shall be subject to an Investigation Fee in an amount equal to the permit fee.

R108.4.2 Temporary Certificate of Occupancy. There shall be a fee for a Temporary Certificate of Occupancy as set forth in Table 1-R.

R108.4.3 Reinspection. A Reinspection Fee may be assessed for each inspection or reinspection when the portion of work for which inspection is called for is not complete or when corrections called for are not made. Reinspection Fees may be assessed when the inspection record card is not posted or otherwise available on the work site, the approved plans are not readily available to the Inspector, for failure to provide access on the date for which inspection is requested, or for deviating from the plans requiring the approval of the Building Official. A reinspection fee may be assessed for failure to post a readily visible address. To obtain a reinspection, the applicant shall pay the reinspection fee in accordance with Table 1-R. In instances where reinspection fees have been assessed, no additional inspection of the work shall be performed until the required fees have been paid.

R108.5 Refunds. Add the following sentence:
The Building Official may authorize refunding of any fee paid hereunder which was erroneously paid or collected. The Building Official may authorize refunding of not more than 80 percent of the permit fee paid when no work has been done under a permit issued in accordance with this code. The Building Official shall not authorize refunding of any fee paid except on written application filed by the original permittee not later than 180 days after the date of fee payment.

Add the following Table 1 -R

Table 1-R - Building Permit Fees

Total Valuation	Fee
$1.00 to $500.00	$100.00
$501.00 to $2,000.00	$100.00 for the first $500.00 plus $4.00 for each additional $100.00, or fraction thereof, to and including $2,000.00
$2,001.00 and up	$160.00 for the first $2,000.00 plus $12.00 for each additional $1,000.00, or fraction thereof

Other Inspections and Fees:

1. Mechanical and Plumbing inspections .....$100.00 per inspection
2. Re-roof inspections .....per schedule above but not less than $250.00 per permit
3. Solar permit fee $100.00
4. Inspections outside of normal business hours…….....$100.00 per hour [1] (Minimum charge - two hours)
5. Reinspection Fees assessed under provisions of Section 108.4.3.....100.00 per hour [1]
6. Inspections for which no fee is specifically indicated.....$100.00 per hour [1]
7. Additional plan review required by changes, additions or revisions to plans…….....$100.00 per hour [1]
8. Energy Code Fees:.....based on 5% of the total building permit fee
9. Wildfire Hazard mitigation development and inspection…….$100.00
10. Temporary Certificate of Occupancy……..…….$750.00
    *($500 of fee is refundable, if constructions is completed and approved prior to expiration of Temporary Certificate of Occupancy)
11. Permit Transfer Fee……$100.00
12. Board of Appeals Application Fee……$180.00

[1] Or the total hourly cost in the jurisdiction, whichever is the greatest. This cost shall include supervision, overhead, equipment, hourly wages and fringe benefits of the employees involved.

SECTION R110 – CERTIFICATE OF OCCUPANCY

R110.4.1 Temporary Occupancy. Add the following sentences:
A Temporary Certificate of Occupancy may be issued when, but not limited to, the following components of a project are complete and approved by the Building Official:

1. Kitchen operative;
2. One full bathroom with toilet, sink and tub or shower is operative as per the approved plans;
3. All smoke alarms and carbon monoxide detectors installed per code and passed final inspection;
4. The following items are complete:
   a. Address number(s) posted;
   b. Handrails at stairways;
   c. Guards (guardrails);
   d. Decks/landings where required for compliant exit;
   e. Separations between the garage and house complete, with an approved door per IRC;
5. Heat source for dwelling is operable;
6. Final electrical approval;
7. Final OWTS or confirmation of connection to public sanitation system;
8. Final on all Site Development permits or approval by the Site Development Inspector.
9. All construction or other measures required for Wildfire Hazard Mitigation. See Table 1-R for Temporary Certificate of Occupancy fee.

Delete Section R112.3 Qualifications.

CHAPTER 2
DEFINITIONS

Section R202 Definitions

Add the following sentence:

HABITABLE SPACE. All areas with minimum ceiling height are considered to be habitable space.

CHAPTER 3
BUILDING PLANNING

SECTION R301- DESIGN CRITERIA

Amend the Table R301.2(1) as follows:

Table R301.2(1) - Climatic and Geographic Design Criteria

Roof Snow Load	Wind Design		Seismic Design Category	Subject to Damage from			Winter Design Temp	Ice Shield Underlayment Requirement (b)	Flood Hazards	Air Freezing Index (c)	Mean Annual Temp
	Speed (mph) (a)	Topographic Effects		Weathering	Frost Line Depth	Termite					
Varies - See Table R301.2(3)	Varies - See Section R301.2(4)1	No	B	Severe	36"	None to Slight	-10° F	Yes	2012 FEMA Maps	2162	40° F

(a) Wind exposure category may be determined on a site-specific basis in accordance with Figure R301.2(4) B

(b) In accordance with R905:1.

(c) From the 100 year (99%) value on the National Climatic Data Center data table "Air Freezing Index - USA Method {Base 32 degree Fahrenheit)"

Add the following:
R301.2.3 Snow Loads. The roof structure shall be designed for snow loads as determined by the Snow Load Design in Table R301.2.3. No snow load reductions shall be allowed.

Basic Snow Load Design

Table R301.2.3

Roof Snow Loads Required in Pounds per Square Food (PSF)

Elevation (feet above sea level)	Basic Snow Load (PSF)	Elevation (feet above sea level)	Basic Snow Load (PSF)
6,500 to 6,750	35	9,001 to 9,250	85
6,751 to 7,000	40	9,251 to 9,500	90
7,001 to 7,250	45	9,501 to 9,750	95
7,251 to 7,500	50	9,751 to 10,000	100
7,501 to 7,750	55	10,001 to 10,250	110
7,751 to 8,000	60	10,251 to 10,500	. 120
8,001 to 8,250	65	10,501 to 10,750	128
8,251 to 8,500	70	10,751 to 11,000	135
8,501 to 8,750	75	11,001 to 11,500	150
8,751 to 9,000	80		

Add the following:
Table R301.2 (4).1 Determination of Wind Loads: Figure R301.2(4)B identifies parts of Clear Creek County to be in a Special Wind Region. The basic wind speed is 100 M PH Exposure C excepting the areas identified on the Special Wind Region Map R301.2(4).1, which are determined to be 110 MPH Exposure C.
See Exhibit 1 containing Special Wind Region Map R301.2(4).1 attached hereto and incorporated herein.

Table R301.5 Minimum Uniformly Distributed Live Loads
Add footnote (i) to live load requirement for Balconies (exterior) and decks as follows:
i. Total load design shall include Basic Snow Load per Table R301.5.1 and the deadload.

Delete Section R301.6 Roof Load in its entirety and replace with the following:
R301.6 Roofs. Roofs shall be designed to the snow load indicated in Table R301.5.1, plus the dead load.

SECTION R302 - FIRE-RESISTANT CONSTRUCTION

Delete Section R302.6 in its entirety and replace with the following:
R302.6 Dwelling/garage fire separation. The garage shall be separated from the residence and its attic area by not less than 5/8" Type X Gypsum wallboard or its equivalent applied to the garage side. Where the separation is a floor-ceiling assembly, the structure supporting the assembly shall also be protected by not less than 5/8" Type X Gypsum wallboard or its equivalent.

Delete Table R302.6 and replace with the following:

Table R302.6

Dwelling/Garage Separation

Separation	Material
From the residence and attics	Not less than 5/8" Type X Gypsum wallboard or its equivalent applied to the garage side
From all habitable rooms above the garage	Not less than 5/8" Type X Gypsum wallboard or its equivalent applied to the garage side
Structure(s) supporting floor/ceiling assemblies used for separation required by this section	Not less than 5/8" Type X Gypsum wallboard or its equivalent
Garages located less than 3 feet from a dwelling unit on the same property	Not less than 5/8" Type X Gypsum wallboard or its equivalent applied to the interior side of exterior walls that are within this area

Delete Section R302. 7 and replace with the following:
R302.7 Under-stair protection. Enclosed accessible space under stairs shall have walls, under-stair surface and any soffits protected on the enclosed side with not less than 5/8" Type X Gypsum wallboard or its equivalent.

Delete Section R303.4 Mechanical ventilation.

SECTION R313 - AUTOMATIC FIRE SPRINKLER SYSTEMS

Delete Section R313.1 and R313.2 One and two-family dwellings automatic fire systems and replace with the following:
R313.2 Two Family Dwellings Automatic Fire Systems. An automatic residential fire sprinkler system shall be installed in two family dwellings. Fire Systems shall be designed in accordance with Section P2904 or NFPA 13 D.

SECTION R315 CARBON MONOXIDE ALARMS

R315.2.2 Alterations, repairs and additions. Delete all exceptions.

CHAPTER 9 ROOF ASSEMBLIES

SECTION R902 - ROOF CLASSIFICATION

Delete Section R902.1 (do not delete exceptions) and replace with the following:
R902.1 Roofing covering materials. Roofs shall be covered with materials as set forth in Sections R904 and R905. All roofing material shall be Class A or Class B roofing materials may be used only if the material has been tested with a fire-resistive assembly and the assembly has received a Class A rating and the material is installed exactly as specified in the Class A rated assembly.

CHAPTER 11
ENERGY EFFICIENCY

Delete Chapter 11 in its entirety and substitute the 2009 International Energy Conservation Code.

CHAPTER 13

GENERAL MECHANICAL SYSTEM REQUIREMENTS

SECTION M1307 - APPLIANCE LOCATION

Add the following:

M1307.1.1 Liquid Propane Gas (LPG) Appliance. LPG appliances shall not be installed in a pit, basement, or crawl space where unburned fuel may accumulate unless an approved sensing device, with a solenoid shut off on the gas line is installed and a daylighted drain is installed. If the appliance is installed in a crawl space it must have a pad poured for the daylighted drain in addition to the above mitigation. The pad shall be a minimum of 8'x 8'.

CHAPTER 14
HEATING AND COOLING EQUIPMENT AND APPLIANCES

SECTION M1401 - GENERAL

Add the following:

M1401.1.1 Unvented Room Heaters. Unvented room heaters are prohibited in one- and two-family dwellings and in townhouses. All references to unvented room heaters in the 2015 IRC are hereby deleted.

CHAPTER 24
FUEL GAS

SECTION G2417 - INSPECTION, TESTING AND PURGING

Delete Section G2417.4.1 in its entirety and replace with the following:

G2417.4.1 (406.4.1) Test Pressure. This inspection shall include an air test, at which time the gas piping shall withstand a pressure of not less than 15 PSI for threaded pipe. See manufacturer specifications for other types of gas piping; i.e. flexible gas piping.

SECTION G2445 (641) - UNVENTED ROOM HEATERS

Delete Section G2445 (621) Unvented Room Heaters in its entirety and replace with the following:

G2445.1 Unvented Room Heaters. Unvented room heaters are prohibited and all references to unvented room heater in the 2015 IRC and Code Series are deleted.

CHAPTER 26
GENERAL PLUMBING REQUIREMENTS

SECTION P2603 - STRUCTURAL AND PIPING PROTECTION

Delete 2603.5.1 Sewer depth in its entirety and replace with the following:
P2603.5.1. Sewer Depth. Building sewers that are connected to a private sewage disposal system are regulated by the Environmental Health Department.

Delete Chapters 33 through 40 in their entirety (Electrical Sections)

The following Appendix Chapters to the 2015 International Residential Code are hereby adopted and enforced by Clear Creek County, Colorado.

Delete APPENDIX CHAPTER E and replace and adopt Appendix E as follows:

APPENDIX CHAPTER E
UNSAFE BUILDINGS

SECTION E101- UNSAFE BUILDING OR STRUCTURES

E101 Unsafe Building or Structures. All buildings or structures regulated by this code, which are structurally unsafe or not provided with adequate egress, or which constitute a fire hazard, or are otherwise dangerous to human life are, for the purpose of this section, unsafe. Any use of buildings or structures constituting a hazard to safety, health or public welfare by reason of inadequate maintenance, dilapidation, obsolescence, fire hazard, disaster, damage or abandonment is, for the purpose of this section, an unsafe use. Parapet wall, cornices, spires, towers, tanks, statuary and other appendages or structural members which are supported by, attached by, attached to, or a part of a building and which are in deteriorated condition or otherwise unable to sustain the design loads which are specified in this Code are hereby designated as unsafe building appendages.

E102 Public Nuisances. All such unsafe buildings are hereby declared to be public nuisances and shall be abated by repair, rehabilitation, demolition, or removal in accordance with the procedures specified in this chapter. As an alternative, the Building Official may institute any other appropriate action to prevent, restrain, correct or abate the violation, at the expense of the owner.

E102.2.1 Notice to Owner. The Building Official shall examine or cause to be examined every building or structure or portion thereof reported as dangerous or damaged and, if such is found to be an unsafe building as defined in this section, the Building Official shall give to the owner of such building or structure written notice stating the defects thereof. This notice may require the owner or person in charge of the building premises, within 48 hours, to commence either the required repairs or improvements or demolition and removal of the building or structure or portion thereof, and all such work shall be completed within 90 days from the date of notice unless

otherwise stipulated by the Building Official. If necessary, such notice shall also require the building, structure or portion thereof to be vacated forthwith and not re-occupied until the required repairs and improvements are completed, inspected, and approved by the Building Official.

Proper service of such notice shall be by personal service upon the owner of record, or such service may be made upon said owner by certified mail; provided that, if such notice is by certified mail, the designated period within which said owner or persons in charge is required to comply with the order of the Building Official shall begin as of the date delivery is attempted by the Postal Service. If no address can be found for the owner of said property, the notice may be served by publishing a copy of the notice once in a newspaper of general circulation within Clear Creek County, setting forth the address of the premises involved, if any, and the legal description of said premises and stating defects complained of and the time in which said defects shall be corrected. Said notice shall be considered served three (3) days after the publication of said newspaper.

E102.2.2 Posting of Signs. The Building Official shall cause to be posted at each entrance of such building a notice to read: "DANGER, KEEP OUT. THIS STRUCTURE IS UNSAFE FOR OCCUPANCY." Such notice shall remain posted until the required repairs, demolition or removals are completed. Such notice shall not be removed without permission of the Building Official, and no person shall enter the building except for the purpose of making the required repairs or demolishing the building.

E102.2.3 Right to Demolish. In case the owner shall fail, neglect, or refuse to comply with the notice to repair, rehabilitate, or to demolish and remove said building or structure or portion thereof, the Board of County Commissioners may order the owner of the building prosecuted as a violator of the provisions of the code and may order the Building Official to proceed with the work specified in such notice. A statement of the cost of such work will be transmitted to the County Commissioners who shall cause the same to be paid and levied against the property.

Adopt APPENDIX CHAPTER F as written PASSIVE RADON GAS CONTROLS

Adopt APPENDIX CHAPTER U as written SOLAR-READY PROVISIONS-DETACHED ONE- AND TWO-FAMILY DWELLINGS, MULTIPLE SINGLE-FAMILY DWELLINGS (TOWNHOUSES)

Add and adopt new APPENDIX CHAPTER W as follows:

APPENDIX W
WILDFIRE HAZARD MITIGATION

SECTION W101- GENERAL

W101.1Purpose. The purpose of this chapter is to establish minimum standards for design and construction of buildings or portions thereof for the protection of life and property from fire.

W101.2 Scope. The provisions of this chapter shall apply to all new building construction, to all additions greater than 400 square feet and to all existing driveways and proposed driveway construction. If a second or more additions are constructed within three years of the permit issuance date, the total square footage of the additions will be added together for the purposes of this chapter.

Building construction shall include manufactured homes, factory-built homes and factory-built nonresidential structures.

EXCEPTIONS: Mobile Homes to be located in Mobile Home-1 and Mobile Home-2 Zoning Districts.

Where requirements are more restrictive in other sections of this code, they will take precedence over Appendix W.

W101.3 Alternate Approval. The provisions of this code are not intended to prevent the use of any material or method of compliance not specifically prescribed by this code, provided any alternate has been approved and its use authorized by the Building Official. The Building Official shall require sufficient evidence or proof be submitted to substantiate that the material or method is, for the purpose intended, at least the equivalent of that prescribed in this code in suitability, effectiveness, fire resistance, durability and safety.

SECTION W102 - Definitions. For the purpose of this Appendix W, certain terms are defined as follows:

BUILDING SIZE is the total square footage of all buildings located on the same property. The building size is calculated on the structure's exterior perimeter, excluding decks.

EXCEPTIONS:
1. Attached private garages accessory to Group R occupancies will not be included in the building size.
2. One story detached buildings used as tool and storage sheds, playhouses, and similar uses accessory to Group R-3 occupancies will not be included in building size, provided the projected roof area does not exceed 120 square feet and the building is located at least ten (10) feet away from any other building on the same property.
3. A detached building of any occupancy group and any size will not be

included in the building size for another building on that same property provided it is at least fifty (50) feet away from any building on the same property.

DEFENSIBLE SPACE is defined in the Service in Action bulletin by the Colorado State University Cooperative Extension, No. 6.302.

DEFENSIBLE SPACE, EXPANDED is an additional area of clear space of clear space surrounding the proposed or existing structure(s) as determined by the Site Development Inspector, which is equivalent to two or more times greater than the minimum requirement defined in Service in Action bulletin by the Colorado State University Cooperative Extension, No. 6.302.

DRIVEWAY is a thoroughfare for vehicles providing access from a public or private road to a dwelling unit or to a parking area serving structures, facilities, or an approved draft site. A driveway may serve no more than five (5) single-family units.

DRIVEWAY STANDARDS shall be in conformance with Chapter 4 of the County's adopted "Roadway Design And Construction Manual." The driveway may also be approved as meeting the standard by the Site Development Inspector or the applicable Fire Marshall/Chief.

ONE-HOUR FIRE RESISTIVE THROUGHOUT means not less than one-hour fire-resistive construction throughout the entire building, including all structural frame, walls and partitions, floor/ceiling, and roof/ceilings, for the purposes of this chapter only, no opening protection is required.

PRIMARY ROADS are through roads and connections carrying heavy traffic flow into and out of subdivision and various sectors of the county. Primary roads can have either an asphalt surface and/or gravel surfaced, and are graded and drained. Roads in this category carry school bus traffic and mail routes, and receive first day maintenance by the Road and Bridge Department.

SECONDARY #1 ROADS are graveled, graded and drained roadways which are connectors carrying traffic into subdivision and various sectors of the county. This category is capable of carrying school bus traffic and mail routes at the approval of the Board of County Commissioners only. This category is subject to usually first day maintenance by the Road and Bridge Department, sometimes second day depending upon existing conditions.

SECONDARY #2 ROADS are graveled, graded and drained roadways which are not approved for school bus traffic or mail routes. Roads classified Secondary #2 receive second or third day snow removal service from the Road and Bridge Department.

SITE PLAN shall include all existing and proposed structures and improvements, property

boundaries and access all drawn to scale.

STANDPIPE, for purposes of this section, is a manual dry standpipe system that does not have a permanent water supply attached to the system. Manual dry standpipe systems require water from a fire department pumper to be pumped into the system through the fire department connection in order to supply the system demand. The standpipe must have prior Fire Marshall/Chief approval prior to using this option for points in Table W.

SUPPRESSION SYSTEM is an automatic fire-extinguishing system designed to provide life safety and some property protection by the rapid extinguishment or control of fire within buildings or structures. All required suppression systems must be approved by the applicable Fire Marshall/Chief before a permit will be issued.

WATER SUPPLY is a source of water, equipped with an approved water source hydrant, which may be used by Fire Departments for fire protection. Water sources include man-made water sources and natural water sources capable of providing required fire flow meeting requirements set forth in NFPA 1142 and/or approved by the applicable Fire Marshall/Chief.

SECTION W103 - PLANS

W103 Plans. Plans submitted as a part of the building permit application shall include an accurate site plan and proposals describing any required mitigation such as, but not limited to, construction mitigation, water supply and suppression and/or monitored smoke detection systems.

SECTION W104 - CERTIFICATE OF OCCUPANCY

W104 Certificate of Occupancy. No certificate of occupancy shall be issued prior to all construction and site modifications described or referenced in this chapter being completed, inspected and approved.

SECTION W105 - FIRE MITIGATION PLAN

W105 Fire Mitigation Plan. Fire Hazard Mitigation shall be provided for as follows:

(1) DEFENSIBLE SPACE. Defensible space in compliance with the Colorado State Forest Service specifications as determined by the Site Development Inspector or designated agent.

(2) ROOFING MATERIALS. All new roof construction and any re-roofing shall have a Class A Roof Covering.

(3) CHIMNEY AND FLUE OUTLETS. Chimney and flue outlets shall be constructed with a minimum of a (10) ten feet of clearance from all vegetation.

(4) STRUCTURE SIZE. All structures 4400 square feet or more shall be equipped with an approved monitored automatic suppression system.

EXCEPTION: Buildings within response zone 1 and within 1000 feet of an approved water source, or buildings meeting alternate mitigation measures

approved by the Building Official by recommendation from Fire Marshall/Chief.

(5) DRIVEWAY AND ROAD ACCESS REQUIREMENTS. Any building site which cannot meet all of the following requirements must acquire 300 points from "TABLE W" prior to the issuance of a building permit:

1. County driveway standards.
2. Site accessible by a Primary or Secondary #1 and #2 Roads.
   EXCEPTION: Building Official may waive requirements, if recommended to do so by the Fire Marshall/Chief for the District

TABLE W
300 POINTS REQUIRED

Category	Criteria	Points
A.	BUILDING SIZE	
	Building Size less than 1,300 Square Feet	125
	Building Size 1,300 to less than 2,400 Square Feet	100
	Building Size 2,400 to less than 3,600 Square Feet	50
	Building Size 3,600 Square Feet or more	00
B.	ROAD ACCESS	
	Primary Road	100
	Secondary #1 and #2 Roads	75
	Other County Maintained or No Maintenance	00
C.	RESPONSE ZONE	
	Response Zone 1 within 5 minutes of manned station	75
	Response Zone 2 within 10 minutes of manned station	50
	Response Zone 3 within 15 minutes of manned station	25
	(Manned station requires 4 on site fire fighters or 12 volunteers)	
D.	WATER SUPPLY	
	Pressurized Hydrant within 5 miles	100
	NFPA 1142 Water source within 1,000 feet	100
	NFPA 1142 Water source outside 1,000 feet within subdivision	75
	NFPA 1142 Water source within 5 miles 100	25
E.	FIRE-RESISTIVE CONSTRUCTION	
	Building of one-hour Fire-resistive throughout	100
	Exterior non-combustible construction	75
	One-hour Fire-resistive exterior	50
	Installation of Class A Roof System	75
	Installation of Gutter Guards	25
F.	OTHER MITIGATION CONSTRUCTION	
	Expanded Defensible Space	100
	Installation of Suppression System	175
	Monitored Suppression System	200
	Monitored Smoke Detection/Alarm System	100
	Installation of Standpipe (only when applicable)	150

Add and adopt **APPENDIX CHAPTER X** as follows: Remove, will be separate Ordinance

APPENDIX X
EXCAVATION AND GRADING

SECTION X101 - PURPOSE

The purpose of this chapter is to safeguard life, limb, property and the public welfare by regulating excavation/grading on private property.

SECTION X102 - SCOPE

This chapter sets forth rules and regulations to control excavation, grading and earthwork construction, including fills and embankments; establishes the administrative procedure for issuance of permits; and provides for approval of plans and inspection of excavation/grading construction.

SECTION X103 - STANDARDS. The standards listed below are recognized standards.

X103.1 Driveway Design Standards. All new driveways and improvements to existing driveways shall be in conformance with Chapter 4 of the "County of Clear Creek Roadway Design and Construction Manual", as adopted by Resolutions R-07-90 and R-07-97, or as may be amended.

X103.2 Testing. The following are recognized testing standards:

1.1 ASTM D 1557, Moisture-density Relations of Soils and Soil Aggregate Mixtures
1.2 ASTM D 1556, In Place Density of Soils by the Sand-Cone Method
1.3 ASTM D 2167, In Place Density of Soils by the Rubber-Balloon Method
1.4 ASTM D 2937, In Place Density of Soils by the Drive-Cylinder Method
1.5 ASTM D 2922 and D 3017, In Place Moisture Contact and Density of Soils by Nuclear Methods

SECTION X104 - PERMITS REQUIRED

X104.1 Permits Required. Except as specified in Section X104.2 of this chapter, no person shall do any excavation or grading without first having obtained an excavation or grading permit from the Site Development Inspector.

X104.2 Exempted Work. An excavation or grading permit is not required for the following:

1. When approved by the Site Development Inspector, excavation/grading in an isolated, self-contained area if there is no danger to private or public property.
2. An excavation below finished grade for basements and footings of a building, retaining wall sanitation systems or other structure authorized by a valid building or environmental health permit not exceeding 50 cubic yards. This shall not exempt any fill made with the material from such excavation or exempt any excavation having an unsupported height greater than 4 feet

{1219.2mm) after the completion of such structure.

3. Cemetery graves.

4. Refuse disposal sites controlled by other regulations.

5. Excavations for wells or tunnels or utilities.

6. Routine maintenance, including grading of state highways, county roads, city streets, or private roads, by the state, county, city or private contractors.

7. Tillage of land for agricultural or silvicultural purposes, and harvesting agricultural crops.

8. Snow plowing or removal where the snow is deposited on the shoulder or edge of the plowed road, driveway or site.

9. Mining, quarrying, excavating, processing or stockpiling of rock, sand, gravel, aggregate or clay where established and provided for by law and controlled by other regulations, provided such operations do not affect the lateral support or increase the stresses in or pressure upon any adjacent or contiguous property.

10. Exploratory excavations under the direction of soil engineers or engineering geologists controlled by other regulations.

11. An excavation that is (a) less than 2 feet (610 mm) in depth, (b) does not create a cut slope greater than 5 feet (1524 mm) in height and steeper than 1 unit vertical in 11/2 units horizontal (66.7% slope) and does not exceed 50 cubic yards, is exempt from this permit.

Exemption from the permit requirements of this chapter shall not be deemed to grant authorization for any work to be done in any manner in violation of the provisions of this chapter or any other laws or ordinances of this jurisdiction. All excavation, grading, road cut permits must follow the BMP standards as outlined in Section X107.

SECTION X105 - HAZARDS

Whenever the Site Development Inspector determines that any existing excavation or embankment or fill on private or public property has become a hazard to life and limb, or endangers property, or adversely affects the safety, use or stability of a public way or drainage channel, the owner of the property upon which the excavation or fill is located, or other person or agent in control of said property, upon receipt of notice in writing from the Site Development Inspector, shall within the period specified therein repair or eliminate such excavation or embankment to eliminate the hazard and to be in conformance with the requirements of this Code.

SECTION X106 - DEFINITIONS

X106 Definitions. For the purposes of this Appendix X, certain terms are defined as follows:

ADMINISTRATOR means the County Site Development Inspector or the Inspector's designee, who shall be responsible for administration and enforcement of this resolution.

APPROVAL shall mean that the proposed work or completed work conforms to this chapter in the opinion of the Site Development Inspector.

AS-GRADED is the extent of surface conditions on completion of grading. BEDROCK is in-place solid rock.

BENCH is a relatively level step excavated into earth material on which fill is to be placed.

BEST MANAGEMENT PRACTICES (BMPs) means permanent measures and measures taken during construction described in or adapted from the Manual to protect water quality and control runoff and erosion from earth disturbing activities.

BMP PLAN means a detailed, sight specific description of the BM Ps to be implemented both during and after the earth disturbing activity.

BORROW is earth material acquired from an off-site location for use i n grading on a site.

CIVIL ENGINEER is a professional engineer registered i n the state to practice i n the field of civil works.

CIVIL ENGINEERING is the application of the knowledge of the forces of nature, principles of mechanics and the properties of materials to the evaluation, design and construction of civil works.

COMPACTION is the densification of a fill by mechanical means.

EARTH DISTURBING ACTIVITY means any change to the natural vegetation, soil, rock, drainage, or topography, and includes all grading, filling, excavating, clearing vegetation, snow plowing or removal, snow storage, construction of buildings or other improvements. Any activity that may result in or contribute to accelerated soil erosion or sediment transport is included.

EARTH MATERIAL is any rock, natural soil or fill or any com bination thereof.

ENGINEERING GEOLOGIST is a geologist experienced and knowledgeable in engineering geology.

ENGINEERING GEOLOGY is the application of geologic knowledge and principles in the investigation and evaluation of naturally occurring rock and soil for use in the design of civil works.

EROSION is the wearing away of the ground surface as a result of the movement of wind, water or ice.

EXCAVATION means any act by which soil or rock is cut into, exposed, dug, quarried, removed or relocated.

FILL is a deposit of earth material placed by artificial means.

GEOTECHNICAL ENGINEER See "soils engineer."

GRADE is the vertical location of the ground surface.

Existing Grade is the grade prior to grading.
Finish Grade is the final grade of the site that conforms to the approved plan.
Rough Grade is the stage at which the grade approximately conforms to the approved plan.

GRADING means any alteration of the existing topography.

KEY is a designed compacted fill placed in a trench excavated in earth material beneath the toe of a proposed fill slope.

LARGE SCALE ACTIVITY means any earth disturbing activity that disturbs more than 2,500 cubic yards and/or 20,000 square feet. Earth disturbing activities at contiguous locations within one site or project, such as different lots in a subdivision under common ownership or development, will be considered together.

MANUAL means the "Clear Creek County Best Management Practices Manual" and all appendixes adopted herewith, or as may be amended.

PROFESSIONAL INSPECTION is the inspection required by this Code to be performed by the civil engineer, soils engineer or engineering geologist. Such inspections include that performed by persons supervised by such engineers or geologists and shall be sufficient to form an opinion relating to the conduct of the work.

SAND STORAGE means stockpiling salt, sand, or other substances used for deicing or improving traction on roads and parking lots.

SNOW STORAGE means stockpiling snow removed from a street, road, highway, driveway or other site off the site from which it is removed.

SITE is any lot or parcel of land or contiguous combination thereof, under the same ownership, where excavation/grading is performed or permitted.

SLOPE is an inclined ground surface the inclination of which is expressed as a ratio of horizontal distance to vertical distance.

SOIL is naturally occurring superficial deposits overlying bedrock.

SOILS ENGINEER (GEOTECHNICAL ENGINEER) is an engineer experienced and knowledgeable in the practice of soils engineering (geotechnical) engineering.

SOILS ENGINEERING (GEOTECHNICAL ENGINEERING) is the application of the principles of soils mechanics in the investigation, evaluation and design of civil works involving the use of earth materials and the inspection or testing of the construction thereof.

TERRACE is a relatively level step constructed in the face of a graded slope surface for drainage and maintenance purposes.

SECTION X107 - PERMIT REQUIREMENTS

X107.1 Permits Required. Except as exempted in Section X104.2 of this chapter, no person shall do any earth disturbing activity without first obtaining a grading, excavation, road cut, driveway, BMP or ISDS Permit. A separate permit shall be obtained for each site, and may cover both excavations and fills.

X107.2 Application. Application will be made on forms provided by the county. Additionally, the application shall state the estimated quantities of work involved.

X107.3 Best Management Practices (BMPs) Required.

1. No person shall engage in any earth disturbing activity without utilization of BMPs to prevent erosion and sedimentation which could adversely affect water quality during and after the time such activities are undertaken.
2. BMPs are described in the manual. Since the circumstances of each earth disturbing activity are different, different BMPs may be required. The administrator shall approve the selection of applicable BMPs. The administrator may approve other practices or variations from the standards of the Manual where the BMP prescribed in the Manual is not practical, or which will be at least as effective in meeting the goals of this resolution.
3. All development that includes a driveway, building footprint, or septic and leach field, shall comply with the requirements of this Appendix Chapter through the "Driveway and Building Site Excavation Permit" when the 'Driveway and Building Site Excavation Permit" is required. All other excavation and road construction with less than 2,500 cubic yards and/or 20,000 square feet of earth disturbance shall comply with the requirements of this chapter through the "Excavation" or "Road Construction" or "ISDS" Permit.
4. No person shall undertake any large scale earth-disturbing activity except pursuant to an approved BMP plan. No permit shall be issued for any activity or project that includes any large scale earth-disturbing activity without incorporating an approved BMP plan. The proposed BMP plan must be submitted by the owner of the land on which the activity is to occur. Applications for permits for large scale earth disturbing activities must have an engineered excavation, grading and drainage plan accompanying the BMP plan. BMP plans shall incorporate sufficient measures, identified in the Manual or by qualified individuals, to prevent accelerated erosion, off-site sediment transport or adverse effects on water quality.

5. Persons undertaking exempt activities are recommended to use best management practices during the activity.
6. The Manual may be amended from time to time by resolution.
7. Installation of all permanent improvements required pursuant to this chapter is required prior to issuance of final project approval or a certificate of occupancy.
8. No graded, excavated or fill material or snow shall be deposited or stockpiled in a natural watercourse or where eroded material or melted snow will directly enter a natural water course.

X107.4 Engineered Grading Requirements. Application for an excavation/grading permit shall be accompanied by two sets of plans and specifications, and supporting data consisting of a soils engineering report and engineering geology report (if required). The plans and specifications shall be prepared and signed by an individual licensed by the State of Colorado to prepare such plans or specifications when required by the Site Development Inspector. Specifications shall contain information covering construction and material requirements.

Plans shall be drawn to scale upon substantial paper or cloth and shall be of sufficient clarity to indicate the nature and extent of the work proposed and show in detail that they will conform to the provisions of this code and all relevant laws, ordinances, rules and regulations. The first sheet of each set of plans shall give location of the work, the name and address of the owner, and the person by whom they were prepared.

The plans shall include the following information:
1. General vicinity of the proposed site.
2. Property limits and accurate contours of existing ground and details of terrain and area drainage.
3. Limiting dimensions, elevations or finish contours to be achieved by the grading, and proposed drainage channels and related construction.
4. Detailed plans of all surface and subsurface drainage devices, walls, cribbing, dams and other protective devices to be constructed with, or as a part of, the proposed work, together with a map showing the drainage area and the estimated runoff of the area served by any drains.
5. Location of any buildings or structures on the property where the work is to be performed and the location of any buildings or structures on land of adjacent owners that are within 15 feet (4572 mm) of the property or that may be affected by the proposed grad i ng operations.
6. Recommendations included in the soils engineering report and the engineering geology report shall be incorporated in the grading plans or specifications. When approved by the Site Development Inspector, specific recommendations contained in the soils engineering report and the engineering geology report which are applicable to grading, may be included by reference.
7. The dates of the soils engineering and engineering geology reports together with the names, addresses and phone numbers of the firms or individuals who prepared the reports.

X107.5 Soils Engineering Report. The soils engineering report required by Section X107.4 shall include data regarding the nature, distribution and strength of existing soils, conclusions and recommendations for excavation/grading procedures and design criteria for corrective measures, including buttress fills, when necessary, and opinion on adequacy for the intended use of sites to

be developed by the proposed excavation/grading as affected by soils engineering factors, including the stability of slopes.

X107.6 Engineering Geology Report. The engineering geology report required by Section X107.4 shall include an adequate description of the geology of the site, conclusions and recommendations regarding the effect of geologic conditions on the proposed development, and opinion on the adequacy for the intended use of sites to be developed by the proposed excavation/grading, as affected by geologic factors.

X107.7 Excavation/Grading Permit Requirements. Each application for an excavation/grading permit shall be accompanied by a plan in sufficient clarity to indicate the nature and extent of the work. The plans shall give the location of the work, the name of the owner and the name of the person who prepared the plan. The plan shall include the following information:

1. General vicinity of the proposed site.
2. Limiting dimensions and depth of cut and fill.
3. Location of any buildings or structures where work is to be performed, and the location of any buildings or structures within 15 feet (4572 mm) of the proposed excavation/grading.

X107.8 Issuance. After the application, scaled site plan, and permit fee have been submitted, the Site Development Inspector will make an appointment to meet the applicant at the site for the initial excavation/grading inspection. The proposed site, property lines and adjacent property lines shall be staked out in advance of the initial inspection.

The Site Development Inspector may require that excavation/grading operations and project designs be modified, if delays occur which may result in weather-generated problems not considered at the time the permit was issued.

The Site Development Inspector may require professional inspection and testing by the soils engineer. When the Site Development Inspector has cause to believe that geologic factors may be involved, which would include but not be limited to unstable slopes, mine waste, potential rock fall hazards, improper compaction, etc., the excavation/grading will be required to conform to engineered excavation/grading.

In regards to BMP Permits, the Site Development Inspector may, at the applicant's expense, hire an engineer to review the proposed work to be performed and/or perform testing and prepare a written report of their findings.

X107.9 Expiration. A permit issued pursuant to this Appendix X by the Site Development Inspector is valid for 180 days after the issuance of such permit. The permit can be extended for another 180 days, at no fee, at the discretion of the Site Development Inspector. All work under the permit must be completed before expiration of the permit.

X107.10 Renewal Permit. A renewal for a permit may be applied for prior to the permit's expiration. The renewal will be subject to the provisions of this Appendix X under which it was originally issued provided no new significant life safety code changes affecting the proposed permitted activity have occurred. If, between the time of the original issuance of the permit 24 and the application for renewal, a new code has been adopted which includes significant life safety changes, the renewal permit must comply with the new code provisions. In all cases, the cost of a renewal permit will be an amount equal to twenty-five percent (25%) of the original permit fee.

X107.11 Permit Extension. Any permittee holding an unexpired permit may apply for an extension of the time to complete the work and inspections under that permit when the permittee is unable to complete the work within the time required by the permit due to circumstances beyond the control of the permittee. The extension shall be requested in writing prior to the expiration of the permit and must demonstrate justifiable cause for the extension. The Site Development Inspector is authorized to grant one extension of time for a period not more than 180 days.

X107. 12 Permit Transfer. An unexpired permit may be transferred from one party to another upon written application to the Site Development Inspector by the new owner of the property or his/her authorized agent, provided there is no change in the plans and specifications. Documentation of the change in ownership must be provided by the new owner. No change shall be made in the expiration date of the original permit. A Transfer Fee is required to transfer the permit and will be an amount equal to twenty-five percent (25%) of the original permit fee.

SECTION X108 - EXCAVATION/GRADING FEES

X108. 1 General. Fees shall be assessed in accordance with the provisions of this section.

X108.2 Excavation/Grading Permit Fees. A fee for each excavation/grading permit shall be paid to the Site Development Inspector as set forth Resolution R-16-82 adopted 8/16/2016 and subsequent resolutions as adopted. Separate permits and fees shall apply to retaining walls or major drainage structures as required elsewhere in this code. There shall be no separate charge for standard terrace drains and similar facilities.

SECTION X109 - PERFORMANCE GUARANTEES

The Site Development Inspector may require performance guarantees in such form and amounts as may be deemed necessary to ensure that the work, if not completed in accordance with the approved plans and specifications, will be corrected to eliminate hazardous conditions.

All performance guarantees will be either (1) in cash, together with an executed Security

Agreement approved by the Clear Creek County Board of County Commissioners or (2) by Letter of Credit issued by a bank located and physically doing business in the State of Colorado.

The performance guarantees shall be in the amount of 125% of the estimated cost of the proposed scope of work.

The work will be deemed complete for purposes of starting the warranty period upon final inspection approval by the Site Development Inspector and delivery of an acceptable as-built drawing to the Site Development Department.

A letter of credit performance guarantee will be drawn on if the conditions for its release are not satisfied within ten (10) business days before its expiration, unless prior to that time a replacement letter of credit or extension is delivered to the Site Development Department.

SECTION X110 - CUTS

X110.1 General. Unless otherwise recommended in the approved soils engineering or engineering geology report, cuts shall conform to the provisions of this section X110.

In the absence of an approved soils engineering report, these provisions may be waived for minor cuts not intended to support structures.

X110.2 Slope. The slope of cut surfaces shall be no steeper than is safe for the intended use and shall be no steeper than 1 unit vertical in 11/2 units horizontal unless the permittee furnishes a soils engineering or an engineering geology report, or both, stating that the site has been investigated and giving an opinion that a cut at a steeper slope will be stable and not create a hazard to public or private property. In areas of solid rock slopes shall not be cut steeper than 1/2:1 (V:H) without the approval of a Colorado licensed soils engineer.

SECTION X111 - FILLS

X111.1 General. Unless otherwise recommended in the approved soils engineering report, fills shall conform to the provisions of this section X111.

In the absence of an approved soils engineering report, these provisions may be waived for minor fills not intended to support structures.

X111.2 Fill Material. Detrimental amounts of organic material shall not be permitted in fills. Except as permitted by the Site Development Inspector, no rock or similar irreducible material with a maximum dimension greater than 24 inches (610 mm) shall be buried or placed in fills.

EXCEPTION: The Site Development Inspector may permit placement of larger rock when the soils engineer properly devises a method of placement, and continuously inspects its placement and approves the fill stability. The following conditions shall also apply:

1. Prior to issuance of the excavation/grading permit, potential rock disposal areas shall be delineated on the excavation/ grading plan.
2. Rock sizes greater than 24 inches (610 mm) in maximum dimension shall be 10 feet (3048 mm) or more below grade, measured vertically.
3. Rocks shall be placed so as to assure filling of all voids with well-graded soil.

X111.3 Compaction. All fills shall be compacted to a minimum of 90 percent of maximum density.

X111.4 Slope. The slope of fill surfaces shall be no steeper than is safe for the intended use. Fill slopes shall be no steeper than 1 unit vertical in 11/2 units horizontal.

SECTION X112 - EROSION CONTROL

X112.1 Slopes. The faces of cut and fill slopes shall be prepared and maintained to control against erosion. This control may consist of effective planting as per the Manual. The protection for the slopes shall be installed as soon as practicable and prior to calling for final approval. Where cut slopes are not subject to erosion due to the erosion-resistant character of the materials, such protection may be omitted.

X112.2 Other Devices. Where necessary, check dams, cribbing, rip rap or other devices or methods shall be employed to control erosion and provide safety as per the Manual.

SECTION X113 - EXCAVATION/GRADING INSPECTION

X113.1 General. Excavation/grading operations for which a permit is required shall be subject to inspection by the Site Development Inspector. Professional inspection of excavation/grading operations shall be provided by the civil engineer, soils engineer and the engineering geologist retained to provide such services for engineered excavation/grading and as required by the Site Development Inspector for regular excavation/grading.

X113.2 Civil Engineer. The civil engineer shall provide professional inspection within such engineer's area of technical specialty, which shall consist of observation and review as to the establishment of line, grade and surface drainage of the development area. If revised plans are required during the course of the work they shall be prepared by the civil engineer.

X113.3 Soils Engineer. The soils engineer shall provide professional inspection within such

engineer's area of technical specialty, which shall include observation during excavation/grading and testing for required compaction. The soils engineer shall provide sufficient observation during the preparation of the natural ground and placement and compaction of the fill to verify that such work is being performed in accordance with the conditions of the approved plan and the appropriate requirements of this chapter. Revised recommendations relating to conditions differing from the approved soils engineering and engineering geology reports shall be submitted to the permittee, the Site Development Inspector and the civil engineer.

X113.4 Engineering Geologist. The engineering geologist shall provide professional inspection within such engineer's area of technical specialty, which shall include professional inspection of the bedrock excavation to determine if conditions encountered are in conformance with the approved report. Revised recommendations relating to conditions differing from the approved engineering geology report shall be submitted to the soils engineer.

X113.5 Permittee. The permittee shall be responsible for the work to be performed in accordance with the approved plans and specifications and in conformance with the provisions of this code, and the permittee shall engage consultants, if required, to provide professional inspections on a timely basis. The permittee shall act as a coordinator between the consultants, the contractor and the Site Development Inspector. In the event of changed conditions, the permittee shall be responsible for informing the Site Development Inspector of such change and shall provide revised plans for approval.

X113.6 Site Development Inspector. The Site Development Inspector shall inspect the project at the various stages of work requiring approval to determine that adequate control is being exercised by the professional consultants.

X113.7 Notification of Noncompliance. If, in the course of fulfilling their respective duties under this chapter, the civil engineer, the soils engineer or the engineering geologist finds that the work is not being done in conformance with this chapter or the approved excavation/grading plans, the discrepancies shall be reported immediately in writing to the permittee and to the Site Development Inspector.

X113.8 Transfer of Responsibility. If the civil engineer, the soils engineer, or the engineering geologist of record is changed during excavation/grading, the work shall be stopped until the replacement has agreed in writing to accept their responsibility within the area of technical competence for approval upon completion of the work. It shall be the duty of the permittee to notify the Site Development Inspector in writing of such change prior to the recommencement of such excavation/grading.

SECTION X114 - COMPLETION OF WORK

X114.1 Final Reports. Upon completion of the rough excavation/grading work and at the final completion of the work, the following reports and drawings and supplements thereto may be required for engineered excavation/grading or when professional inspection is performed for regular excavation/grading, as applicable.

1. An as-built excavation/grading plan prepared by the civil engineer retained to provide such services in accordance with Section X113.2 showing original ground surface elevations, as- graded ground surface elevations, lot drainage patterns, and the locations and elevations of surface drainage facilities and of the outlets of subsurface drains. As-constructed locations, elevations and details of subsurface drains shall be shown as reported by the soils engineer. Civil engineers shall state that to the best of their knowledge the work within their area of responsibility was done in accordance with the final approved grading plan.
2. A report prepared by the soils engineer retained to provide such services in accordance with Section X113.3, including locations and elevations of field density tests, summaries of field and laboratory tests, other substantiating data, and comments on any changes made during excavation/grading and their effect on the recommendations made in the approved soils engineering investigation report. Soils engineers shall submit a statement that, to the best of their knowledge, the work within their area of responsibilities is in accordance with the approved soils engineering report and applicable provisions of this chapter.
3. A report prepared by the engineering geologist retained to provide such services in accordance with Section X113.4, including a final description of the geology of the site and any new information disclosed during the excavation/grading and the effect of same on recommendations incorporated in the approved excavation/grading plan. Engineering geologists shall submit a statement that, to the best of their knowledge, the work within their area of responsibility is in accordance with the approved engineering geologist report and applicable provisions of this chapter.
4. The excavation/grading contractor shall submit on a form prescribed by the Site Development Inspector a statement of conformance to said as-built plan and the specifications.

X114.2 Notification of Completion. The permittee shall notify the Site Development Inspector when the excavation/grading operation is ready for final inspection. Final approval shall not be given until all work, including installation of all drainage facilities and their protective devices, and all erosion-control measures have been completed in accordance with the final approved excavation/grading plan, and the required reports have been submitted.

COUNTY OF CLEAR CREEK ROADWAY DESIGN AND CONSTRUCTION MANUAL CHAPTER 4

See Exhibit 2 attached hereto and incorporated herein.

CLEAR CREEK COUNTY
BEST MANAGEMENT PRACTICES MANUAL

See Exhibit 3 attached hereto and incorporated herein.

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2015 INTERNATIONAL BUILDING CODE

CHAPTER 1
SCOPE AND ADMINISTRATION

SECTION 101- GENERAL

101.1 Title. These provisions shall be known as the Building Code of Clear Creek County, Colorado, and shall be cited as such and will be referred to herein as "this code".

101.4 Referenced codes.

101.4.3 Plumbing. Delete the last sentence and replace with the following:
Private sewage disposal systems are regulated by the Clear Creek County Environmental Health Department.

Delete Section 101.4.4 Property maintenance in its entirety

Delete Section 101.4.7 Existing buildings i n its entirety

SECTION 103 DEPARTMENT OF BUILDING SAFETY

103.3 Deputies. Delete the last sentence of Section 103.3

SECTION 105 - PERMITS

Delete Section 105.5 in its entirety and replace with the following:
105.5 Expiration. Every permit for new construction or additions and alterations issued by the Building Official under the provisions of this code shall expire by limitation and become null and void two years after the issuance of such permit. Every permit for re-roofs, re-sidings, window replacements, signs and fences or demolitions issued by the Building Official under the provisions of this code shall expire by limitation and become null and void six months after the issuance of such permit. All construction or installations allowed and all inspections required by the permit must be completed before expiration of the permit.

105.5.1 Permit Extension. Any permittee holding an unexpired permit may apply for an extension of the time to complete the work and inspections under that permit when the permittee is unable to complete the work within the time required by Section 105.5 due to circumstances beyond the control of the permittee. The extension shall be requested in writing prior to the expiration of the permit and justifiable cause for the extension shall be demonstrated. The Building Official is authorized to grant one extension of time, for a period not more than 180 days.

105.5.2 Renewal Permit. A renewal for a permit may be applied for only when the expired permit has received approvals from the Building Official through all of the rough inspections and provided no changes have been made to the original plans and specification. The rough inspections include all Framing, Mechanical and Plumbing. The renewal will be subject to the provisions of the code under which it was originally issued provided no new significant life safety code changes affecting the proposed permitted activity have occurred. If, between the time of the original issuance of the permit and the application for renewal, a new code has been adopted which includes significant life safety changes, the renewal permit must comply with the new code provisions. In all cases, the cost of a renewal permit will be one-half of the original permit fee.

Add the following sections:
105.8 Transfer of Permits. An unexpired building permit may be transferred from one party to another upon written application to the Building Official by the original permittee or owner of the property where no change in the plans and specifications is proposed. No change shall be made to the expiration date of the original permit. A fee is required to transfer the permit, please refer to Table 1-B fee schedule for the fee amount.

SECTION 109 - FEES

109.1 Payment of Fees. Add the following sentence:
Any reduction or waiver of a building permit fee must be approved by the Board of County Commissioners.

Delete Section 109.2 in its entirety and replace with the following:
109.2 Schedule of Permit Fees. A fee for each building permit shall be paid to the Building Official as set forth in Table 1-B.

109.2.1 Plan Review Fees. When documents are required by Section 107, a plan review fee shall be charged on all such permits. This fee may be required at time of submittal of the documents for review and permit processing. Said plan review fee shall be 65 percent of the building permit fee as shown in Table 1-B.

The plan review fees specified in this section are separate fees from the permit fees specified in Section 109.2 and are in addition to the permit fees.

When submittal documents are incomplete or changed so as to require additional plan review or when the project involves deferred submittal items as defined in Section 107.3.4.2, an additional plan review fee shall be charged at the rate shown in Table 1-B.

Delete Section 109.3 in its entirety and replace with the following:

109.3 Building Permit Valuations. The applicant for a permit shall provide an estimated value of all the work to be performed, including materials and labor, for all building, mechanical and plumbing, at the time of application. The determination of value or valuation under any of the provisions of this Code shall be made by the Building Official. The valuation to be used in computing the building permit fees shall be the total value of all construction work for which the permit is issued. Valuation may be used on the annual average cost of construction, as published in the "Buildings Safety Journal" by the International Code Council. No adjustment will be made by the regional modifier.

Delete 109.4 completely and replace with the following:

109.4 Work commencing before permit issuance. Add the following sentence: In addition to the required permit fee, any person who commences work on a building, structure, gas, mechanical or plumbing system before obtaining the necessary permits or who violates Section 110.6 shall be subject to an Investigation Fee in an amount equal to the permit fee.

109.5.1 Temporary Certificate of Occupancy. There shall be a fee for a Temporary Certificate of Occupancy as set forth in Table 1-B.

109.5.2 Reinspection. A Reinspection Fee may be assessed for each inspection or reinspection when such portion of work for which inspection is called for, is not complete or when corrections called for are not made. Reinspection Fees shall be assessed when the inspection record card is not posted or otherwise available on the work site, the approved plans are not readily available to the Inspector, for failure to provide access on the date for which the inspection is requested, or for deviating from the plans requiring the approval of the building official. A Reinspection may be assessed for failure to post a readily visible address. To obtain a reinspection, the applicant shall pay the Reinspection Fee in accordance with Table 1-B. In instances where reinspection fees have been assessed, no additional inspection of the work shall be performed until the required fees have been paid.

109.6 Refunds. Add the following sentence:

The Building Official may authorize refunding of any fee paid hereunder which was erroneously paid or collected. The Building Official may authorize refunding of not more than 80 percent of the permit fee paid when no work has been done under a permit issued in accordance with this code. The Building Official shall not authorize refunding of any fee paid except on written application filed by the original permittee not later than 180 days after the date of fee payment. Only Building Permit fees shall be eligible for refunds. No refunds will be made of Plan Review Fees.

Table 1-B. Add the following:

Table 1-B – Building Permit Fees

Total Valuation	Fee
$1.00 to $500.00	$100.00
$501.00 to $2,000.00	$100.00 for the first $500.00 pl us $3.85 for each additional $100.00, or fraction thereof, to and including $2,000.00
$2,001.00 to $25,000	$157.75 for the first $2,000.00 plus $17.75 for each additional $1,000.00, or fraction thereof, to and including $25,000.00
$25,001.00 to $50,000.00	$566.00 for the first $25,000.00 plus $12.75 for each addition fraction thereof, to and including $50,000.00
$50,001.00 to $100,000.00	$884.75 for the first $50,000.00 plus $9.25 for each addition fraction thereof, to and including $100,000.00
$100,001.00 to $500,000.00	$1347.25 for the first $100,000.00 plus $7.50 for each additional or fraction thereof, to and including $500,000.00
$500,001.00 to $1,000,000.00	$4347.25 for the first $500,000.00 pl us $6.00 for each addition fraction thereof, to and including $1,000,000.00
$1,000,001.00 and up	$7347.25 for the first $1,000,000.00 plus $4.50 for each additional $1,000.00, or fraction thereof

Other Inspections and Fees:

1. Mechanical and Plumbing inspections ..... $100.00 per inspection
2. Re-roof inspections..... per schedule above but not less than $250.00 per permit
3. Solar permit fee.....$140.00
4. Inspections outside of normal business hours .....$100.00 per hour[1]
   (Minimum charge - two hours)
5. Reinspection Fees assessed under provisions of Section 108.4.3..... $100.00 per hour[1]
6. Inspections for which no fee is specifically indicated ..... $100.00 per hour[1]
7. Additional plan review required by changes, additions or revisions to plans.....$100.00 per hour[1]
8. Energy Code Fees:.....5% of the total building permit fee.
9. Wildfire Hazard Mitigation development and inspection $150.00
10. Temporary Certificate of Occupancy.....$750.00*
    *($500 of fee is refundable, if constructions is completed and approved prior to expiration of Temporary Certificate of Occupancy)
11. Permit Transfer Fee.....$100.00
12. Board of Appeals Application Fee..... $180.00

[1] Or the total hourly cost in the jurisdiction, whichever is the greatest. This cost shall include supervision, overhead, equipment, hourly wages and fringe benefits of the employees involved

SECTION 110 - INSPECTIONS

Add the following:
110.1.1 Posting of Assigned Site Address. The address of the building site must be posted in a conspicuous place readily visible from the public road.

Add the following:
110.1.2 Inspection Record Card. Work requiring a building permit shall not be commenced until the permit holder or his agent shall have posted an inspection record card in a conspicuous place on the premises and in a position as to allow the Building Official to make the required entries conveniently thereon regarding inspection of the work. This card shall be maintained in such position by the permit holder until all inspections have been made and final approval has been granted by the building official.

SECTION 111- CERTIFICATE OF OCCUPANCY

111.3 Temporary Occupancy. Add the following sentence: See Table 1-B for Temporary Certificate of Occupancy fee.

Delete Section **113 BOARD OF APPEALS** in its entirety and replace with the following:
SECTION 113 - BOARD OF APPEALS

Adopt Section 1 13 as written in Section R11 2 of the 2009 International Residential Code

CHAPTER 4
SPECIAL DETAILED REQUIREMENTS BASED ON USE AND OCCUPANCY

Section 406.3.4.1 Separation.
Delete all reference to ½ inch gypsum board and replace with 5/8 inch Type X gypsum

CHAPTER 15
ROOF ASSEMBLIES AND ROOFTOP STRUCTURES

SECTION 1507 - REQUIREMENTS FOR ROOF COVERINGS
Add the following sentence to 1 507.1 Scope:
All roofing material shall be Class A rated except wood roofing which can be Class B fire resistant with an approved Class A assembly underlayment. Class B or Class C roofing materials may be used only if the material has been tested with a fire-resistive assembly and the assembly has received a Class A rating and the material is installed exactly as specified in the Class A rated assembly.

Add the following sentence to 1 507.9 Wood Shakes:
All wood roofing shall be a mini m um of Class B fire resistant with an approved Class A assembly underlayment.

SECTION 1510 -RE-ROOFING
Add the following sentence to 1510.1 Genera l:
All roofing material shall be Class A rated excepting wood roofing which ca n be Class B fire resistant with an approved Class A assembly underlayment.

CHAPTER 16
STRUCTURAL DESIGN

SECTION 1608 -SNOW LOADS

Delete 1608.1 and 1608.2 and replace with:
1608.1 Snow Loads. The roof structure shall be designed for snow loads as determined by the Basic Snow Load Design i n Table 1608.1.1 No snow load reductions are allowed.

Basic Snow Load Design
Table 1608.1.1
Roof Snow Loads Required in Pounds per Square Foot (PSF)

Elevation (feet above sea level)	Basic Snow Load (PSF)	Elevation (feet above sea level)	Basic Snow Load (PSF)
6,500 to 6,750	35	9,001 to 9,250	85
6,751 to 7,000	40	9,251 to 9,500	90
7,001 to 7,250	45	9,501 to 9,750	95
7,251 to 7,500	50	9,751 to 10,000	100
7,501 to 7,750	55	10,001 to 10,250	110
7,751 to 8,000	60	10,251 to 10,500	120
8,001 to 8,250	65	10,501 to 10,750	128
8,251 to 8,500	70	10,751 to 11,000	135
8,501 to 8,750	75	11,001 to 11,500	150
8,751 to 9,000	80		

SECTION 1609 WIND LOADS

Add the following to:
1609.1.1 Determination of wind loads:
Figure 1609 identifies parts of Clear Creek County to be in a Special Wind Region. The basic wind speed is 100 MPH Exposure C excepting the areas identified on the Special Wind Region Map

1609.1.1.1, these areas are determined to be 110 MPH Exposure C. See Exhibit 1 containing Special Wind Region Map 1609.1.1.1 attached hereto and incorporated herein.

CHAPTER 21
MASONRY

SECTION 2111- MASONRY FIREPLACES

Add the following:

2111.1.1 New fireplaces. Every new solid-fuel burning fireplace shall have permanently installed either: (1) approved gas logs; (2) other approved gas or alcohol specific appliances; (3) an approved fireplace insert meeting emission standards for wood stoves established under State statue and/or regulations promulgated by the State Air Quality Control Commission (AQCC} as of the time of installation of the fireplace; or (4) a solid fuel-burning device which is exempt from and not eligible for certification under U.S. Environmental Protection Agency (U.S. EPA) regulations for wood stoves but which has been tested to demonstrate its emission performance is in accordance with criteria and procedures not less stringent than those required by the U.S. EPA and/or AQCC for wood stoves manufactured after July 1, 1990. (Effective January 1, 1991-CC90-617.)

Add the following:

2111.14 Factory-built fireplaces. Every new solid-fuel burning factory-built fireplace shall have permanently installed either: (1) approved gas logs; (2) other approved gas or alcohol specific appliances; (3) an approved fireplace insert meeting emission standards for wood stoves established under State statute and/or regulations promulgated by the State Air Quality Control Commission (AQCC) as of the time of installation of the fireplace; or (4) a solid fuel-burning device which is exempt from and not eligible for certification under U.S. Environmental Protection Agency (U.S. EPA) regulations for wood stoves but which has been tested to demonstrate its emission performance is in accordance with criteria and procedures not less stringent than those required by the U.S. EPA and/or AQCC for wood stoves manufactured after July 1, 1990. (Effective January 1,1991-CC90-617.)

The following Appendix Chapters to the 2015 International Building Code are hereby adopted and enforced by Clear Creek County, Colorado.

Delete Appendix Chapter E and replace with **APPENDIX CHAPTER E UNSAFE BUILDINGS OR STRUCTURES** as written in the 2015 International Residential Code Amendments.

Delete Appendix Chapter F and replace with **APPENDIX CHAPTER F PASSIVE RADON CONTROLS** as written in the 2015 International Residential Code Amendments.

Delete Appendix Chapter M, and replace with the following:

APPENDIX CHAPTER M
MARIJUANA OPERATIONS

SECTION M101- GENERAL

M101.1 Scope. This section shall apply to all occupancies engaging in marijuana (i.e. cannabis and extract derivatives) sales locations, growing, processing, extraction, and/or testing. These occupancies shall comply with this chapter and other applicable provisions of this Code.

M101.2 Permits. Permits shall be required for all Marijuana Operations.

M101.3 Existing Operations. Buildings containing existing growing or extraction operations shall comply with this code within 6 months of adoption.

SECTION M102
EXTRACTION OPERATIONS

M102 Construction Requirements.

M102.1 Location. Extraction of Marijuana and or Hemp processes shall be performed in a room dedicated to the extraction process.

M10Z.2 Egress. Exit doors from extraction rooms utilizing hazardous materials shall swing in the direction of egress and be self-closing. Panic hardware shall be provided on doors in liquefied petroleum gas (LPG) extraction rooms. Where latching door hardware is provided on extraction rooms utilizing hazardous materials, panic hardware shall be provided.

M102.3 Extraction Rooms. Extraction room shall be fully enclosed. The floor, ceiling, and walls of extraction rooms shall be non-combustible, and smooth. Rooms designed in accordance with Section M102.4 shall be constructed to permit the free passage of exhaust air from all parts of the room.

> EXCEPTIONS: 1. Enclosed booths constructed in accordance with IFC Section 2404.3.2.1
> through 2404.3.2.3.
> 2. C02 extraction rooms and extraction rooms containing processes not utilizing hazardous materials.

M102.4 Openings and penetrations. Openings and penetrations into extraction rooms utilizing

hazardous materials shall only be provided for egress, mechanical, electrical, or plumbing systems serving the extraction room. Penetrations into LPG extraction rooms shall be sealed vapor tight. Non-operable glazing is permitted where glazing does not interfere with required exhaust systems.

M102.5 Extraction room illumination. Luminaires inside the extraction room shall comply with Section M103.3. Luminaires attached to the walls or ceilings of an extraction room or booth, but outside of any classified area and separated from the flammable vapor areas by vapor-tight glass panels, shall be suitable for use in ordinary hazard locations. Such luminaires shall be serviced from outside the flammable vapor areas.

M102.6 Fire protection. Extraction rooms, booths, or hoods, including ductwork where required for hazardous exhaust systems, shall be protected by an approved automatic fire extinguishing system complying with Chapter 9 where any of the following exist:

Extraction processes utilizing LPG or off gassing LPG from spent plant material or oil.
Vapors are released exceeding 25% of the lower flammable limit from flammable liquid extraction processes or flammable liquid post oil processing.

M103.1 Sources of ignition. Extraction or post oil processing operations which use flammable liquids or liquefied petroleum gas (LPG) shall comply with Sections M103.1 through M103.3.1

M103.2 Open flame and sparks. Smoking, open flames, direct fired heating devises, etc. shall be prohibited where flammable vapors exist.

M103.3 Electrical equipment. Electrical equipment installed in rooms designed in accordance with Section M105.1.2, hoods or booths containing LPG extraction processes shall be in accordance with NFPA 70 (NEC) as a Class I Division I location. Areas adjacent to classified locations shall be in accordance with NFPA 70 (NEC). Electrical equipment installed in areas of flammable liquid extractions or post oil processing shall be in accordance with IFC Chapter 50, as amended, and NFPA 70 (NEC).

M103.3.1 Grounding and Bonding. Precautions shall be taken within LPG extraction rooms to minimize the possibility of ignition by static electrical sparks through static bonding and grounding of extraction equipment, ducts, and piping etc. installed in accordance with NFPA 70 (NEC).

M104 Equipment. Extraction process equipment utilizing hazardous materials shall be listed or approved. No more than 5 gallons of Butane or LPG shall be stored in the building/tenant finish at any time. Storage outside must be in rated cabinets, and placed in an approved location.

M105 Exhaust required. Extraction and post oil processing, utilizing LPG or flammable liquids shall be provided with an exhaust system in accordance with Section 3903.1 or 3903.4.2. The exhaust system shall be in operation at all times when extractions or post oil processing is being

performed and until LPG is off gassed from oil and/or plant material removed from LPG extraction equipment. Fans shall be of the type approved for use when flammable or explosive vapors are present in accordance with the International Mechanical Code, Section 503. Capture and containment air velocity shall be provided across booths, hoods, or exhausted enclosures to capture and convey emissions to the exhaust system and shall be no less than 75 cfm.

M105.1 Exhaust for LPG extraction processes. An engineered hazardous exhaust system shall be provided for LPG or flammable liquids extraction processes including LPG degassing from processed plant material or oil removed from extraction equipment.

M105.1.2 Exhausted enclosure. Where the extraction room is used as the exhausted enclosure, the exhaust system shall be designed to provide capture and containment air velocity across all areas of the enclosure.

M105.1.3 Electrical Interlocks. The exhaust system shall be interlocked with the room power, such that when the exhaust system is not operating, power and lighting will be disabled.

M106 Gas Detection. A continuous gas detection system shall be provided within rooms, booths, or hoods, containing C02 or flammable liquids extraction processes. Actuation of the gas detection system shall initiate a local alarm within the room. C02 gas detection systems shall alarm at 5000 ppm. LPG gas detection system shall alarm at no greater than 20% of the LFL. Portable LPG gas detection shall be utilized by the extraction system operator to verify local hydrocarbon levels, including system leaks.

M106.1C02 Extraction Equipment Process discharge. C02 discharges shall be piped to the exterior.

M107 Refrigeration and Cooling Equipment. Refrigerators, freezers, and other cooling equipment to store or process flammable liquids shall meet NFPA 45.

SECTION M201-CARBON DIOXIDE (C02) GAS ENRICHMENT SYSTEMS USING ON-SITE SUPPLY TANKS AND/OR CYLINDERS IN PLANT GROWING (HUSBANDRY) APPLICATIONS

M201.1 General. Carbon dioxide enrichment systems with more than 100 pounds (45.4 kg) of carbon dioxide or any system using any amount of carbon dioxide (C02) below grade used in plant growing (husbandry) applications shall comply with Sections 5310.2 through 5310.8.

M201.2 Permits. Permits shall be required.

M201.3 Equipment. The storage, use, and handling of carbon dioxide shall be in accordance with IFC Chapter 53, and the applicable requirements of NFPA 55, Chapter 13. All equipment

utilized in compressed gas systems shall be compatible with the intended gas and use.

M201.3.1 Containers, cylinders and tanks. Gas storage containers, cylinders and tanks shall be designed, fabricated, tested and labeled with manufactures' specifications and shall be maintained in accordance with the regulations of DOT 49 CPR, Parts 100-185 or the ASM E Boiler and Pressure Vessel Code, Section VIII.

M201.3.1.1 Location. Location of gas storage containers, cylinders and tanks, inside or outside the building, shall be at an approved location.

M201.3.1.2 Security. Gas storage containers, cylinders and tanks shall be seemed in an approved manner to prevent overturning. Containers, cylinders and tallies located outside shall be secured and safeguarded against tampering and protected from physical damage if exposed to vehicle traffic.

M201.3.1.3 Design and construction. Bulk tank installations over 2,000 pounds will require an engineered foundation and construction permit in accordance with the County Building Code.

M201.3.2 Piping systems. Piping, tubing, fittings, valves and pressure regulating devices shall be designed and installed in accordance with approved standards and manufacturers' recommendations.

M201.3.2.1 Piping, tubing and hoses. Piping, tubing and hose materials shall be compatible with carbon dioxide and rated for the temperatures and pressures encountered in the system. All hoses and tubing used in carbon dioxide service shall be designed for a bursting pressure of at least four times their design pressure. PVC/ABS and other types of rigid plastic piping are not approved materials. Acceptable piping for carbon dioxide shall be the following:

a. Stainless steel A269 grade, which is either seamless or welded drawn over mandrel
b. Copper K grade, hard drawn seamless
c. Copper ACR grade (1/2 inch outside diameter or less) annealed seamless
d. Plastic/polymer materials rated for use with carbon dioxide
e. Additional approved piping, tubing and hoses found in the Compressed Gas Association (CGA) standards for carbon dioxide

M201.3.2.1.1 Support. Gas piping shall not be attached or supported by any electrical light supports or wiring.

M201.3.2.1.2 Identification. Markings for carbon dioxide (C02) piping systems shall consist of the content's name (carbon dioxide or C02) and direction-of-flow arrow. Markings shall be provided at each valve; at wall, floor or ceiling penetrations; at each change of direction; and at not less than every 20 feet or fraction thereof throughout the piping run.

M201.3.2.2 Fittings, joints and connections. Fittings, joints and connections shall be subject to the approval of the fire and building departments.

M201.3.2.2.1 Fittings and joints between gas supply containers and automatic shutoff valve.
Joints and fittings on the supply piping or tubing between the C02 supply source and the automatic system shutoff valve shall be threaded, compression or welded.

M201.3.2.2.2 Unused connections. Unused piping or tubing connected to the supply system shall be capped or plugged. A closed valve will not be allowed in lieu of a cap or plug.

M201.3.2.2.3 Concealed connections. All fittings and joints shall be exposed and located adjacent to the supply source or points of use and shall be protected by a detector.

M201.3.2.3 Valves. Piping systems shall be provided with valves in accordance with Sections 5307.3.2.3.1 through 5307.3.2.3.4.

M201.3.2.3.1 Pressure relief valves. Pressure relief valves shall be provided and piped to the outdoors.

M201.3.2.3.2 System shutoff valve. An automatic system shutoff valve shall be provided as near to the supply pressure regulator as possible and shall be designed to fail to a closed condition closing on loss of electrical power to the valve and gas detection. Additional automatic shutoff valves may be provided at each point of use. Automatic shutoff valves shall be designed and located so that all phases (i.e., gas, liquid and solid) of carbon dioxide (C02) will not interfere with the operation of the device.

M201.3.2.3.3 Appliance shutoff valves. Each appliance shall be provided with a shutoff valve within 3 feet of the appliance. All shutoff valves shall be capable of being locked or tagged in the closed position for servicing.

M201.3.2.3.4 Accessibility and identification. Valves and controls shall be readily accessible at all times. Normal and emergency system shut-off valves shall be clearly identified. All valves shall be designed or marked to indicate clearly whether it is open or closed.

M201.3.3 Venting. Venting of gases shall be directed to an approved location outside the building. Insulated liquid carbon dioxide systems shall have pressure relief devices vented in accordance with NFPA 55.

M201.4 Protection from damage. Carbon dioxide systems shall be installed so the storage tanks, cylinders, piping and fittings are protected from damage by occupants or equipment during normal facility operations.

M201.5 Required protection. Where carbon dioxide storage tanks, cylinders, piping and equipment are located indoors, rooms or areas containing carbon dioxide storage tanks, cylinders, piping and fittings and grow room/areas where carbon dioxide is released and can collect shall be provided with an emergency alarm system in accordance with Section 5310.5. 1.

M201.5.1 Emergency alarm system. An emergency alarm system shall comply with all of the following:

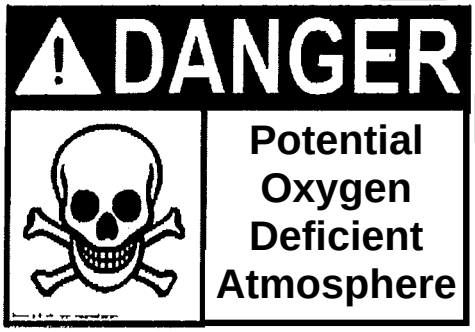
1. Continuous gas detection shall be provided to monitor areas where carbon dioxide (C02) can accumulate. Detection equipment shall be provided to indicate carbon dioxide (C02) levels in each grow cultivation area/room and interior carbon dioxide (C02) storage location.
2. Detectors shall be:
    a. listed or approved devices
    b. permanently mounted
    c. installed at a height of no more than 48 inches above the floor or as approved by the fire code official
    d. directly connected to building electrical supply and fire alarm systems and protected from accidental disconnection or damage
    e. auto calibrating and self "zeroing" devices are not permitted unless they can be zeroed and spanned
    f. located within manufacturers specified detection range for each point of use and storage location
3. Activation of the emergency alarm system shall initiate amber strobes and audible hams provided in the vicinity of each interior storage container, cylinder or tank and at each point of release. Additional amber strobes and audible hams shall be placed at the entrances to below grade locations and confined spaces. The notification devices shall be rated a minimum of 80 cd for a visible effect and 75 DBA for an audible effect and shall be mounted in accordance with NFPA 72 requirements. Provide audible visual devices at the following locations:
    - Inside an interior storage room/area and outside the room/area at each entrance.
    - Inside grow cultivation room/areas.
4. Local alarm set points shall be set at:
    a. 5,000 PPM-Latching Alarm
    - Visual and audible notification in approved locations at room or area in alarm
    - Activation of automatic system shut off valve
    - Evacuate the room in alarm and contact a qualified service company to investigate and address the condition.
    - Reset of the emergency alarm to be conducted by qualified personnel.
5. Signage shall be required adjacent to each horn/strobe as follows.

Storage area/room: "DO NOT ENTER WHEN LIGHT IS FLASHING - CARBON DIOXIDE

LEAK DETECTED"

Grow cultivation room/area dispensing: "FLASHING LIGHT MEANS CARBON DIOXIDE LEAK DETECTED- EVACUATE ROOM"
The sign shall have a minimum I-inch block lettering with a minimum Y4 -inch stroke. The sign shall be on a contrasting surface of black on yellow and shall be of durable construction.

Signage on entrance doors to grow cultivation and storage rooms: Signage shall be provided at entrance doors to each grow cultivation room/area and at each entrance to storage rooms/areas:



NFPA 704 placards for simple asphyxiates shall also be provided at the exterior main entrance and at each entrance to storage rooms/areas.

6. A minimum of one portable carbon dioxide (C02) meter shall be in use during business hours.

M201.6 Transfilling. Filling and transfilling of gases between storage containers, cylinders and tanks and delivery vehicles shall be performed by qualified personnel using equipment and operating procedures in accordance with CGA P-1. Interior storage containers, cylinders and tanks shall be filled via remote fill ports on the exterior of the building at grade level. Exterior remote fill ports shall be fitted with a vent line to the outside. Delivery personnel shall have access to interior storage areas to inspect valves and piping prior to initiating filling operations.

M201.7 Training. All employees shall receive annual training in hazard identification, physical properties, inspections, and emergency procedures. Training records shall be maintained on site and be available to inspectors upon request.

SECTION M301 CARBON DIOXIDE (C02) GAS ENRICHMENT SYSTEMS USING A NATURAL GAS BURNER IN PLANT GROWING (HUSBANDRY) APPLICATIONS

M301.1 General. Natural gas burners that are utilized to generate carbon dioxide (C02) in plant growing (husbandry) applications shall comply with Sections M301.2 through M301.6. A mechanical exhaust system shall be provided as required by the International Mechanical Code.

M301.2 Permits. Permits shall be acquired.

M301.3 Equipment. Natural gas burners shall be listed, labeled and installed in accordance with the manufacturer's installation instructions. Piping systems, combustion and ventilation air and venting for natural gas appliances shall be designed and installed in accordance with approved standards, the International Fuel Gas Code and manufacturer's recommendations.

M301.4 Required protection. Where natural gas burners are located indoors for carbon dioxide (C02) enrichment, grow room/areas shall be provided with an emergency alarm system in accordance with Section 5311.4.1 and carbon monoxide detection in accordance with Section 5311.4.2.

M301.4.1 Emergency alarm system. An emergency alarm system shall comply with all of the following:

1. Continuous gas detection shall be provided to monitor areas where carbon dioxide (C02) can accumulate. Detection equipment shall be provided to indicate carbon dioxide (C02) levels in each grow cultivation area/room.
2. Detectors shall be:
    a. listed or approved devices
    b. permanently mounted
    c. installed at a height of no more than 48 inches above the floor or as approved by the fire code official
    d. directly connected to building electrical supply and fire alarm systems and protected from accidental disconnection or damage
    e. auto calibrating and self "zeroing" devices are not permitted unless they can be zeroed and spanned
    f. located within manufacturer's specified detection range for each point of release
3. Activation of the emergency alarm system shall initiate amber strobes and audible horns provided in each room/area where carbon dioxide (C02) can accumulate. Additional amber strobes and audible horns shall be placed at the entrances to below grade locations. The notification devices shall be rated a minimum of 80cd for a visible effect and 75 DBA for an audible effect and shall be mounted in accordance with NFPA 72 requirements. Provide notification devices at the following locations:
    - Inside grow cultivation room/areas.
4. Local alarm set points shall be set at: 5,000 PPM-Latching Alarm
    - Visual and audible notification in approved locations at room or area in alarm
    - Activation of the automatic natural gas control valves to each burner to a closed position stopping the generation of carbon dioxide (C02)
    - Evacuate the room in alarm and contact a qualified service company.
    - Reset of emergency alarm to be conducted by qualified personnel.

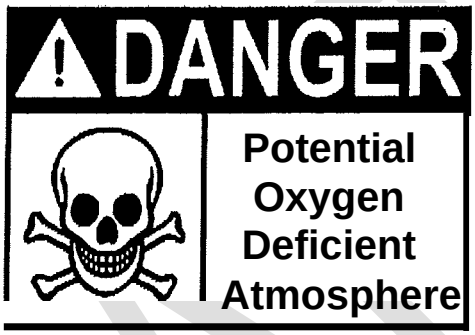
5. Signage will be required adjacent to each horn/strobe as follows:

Entrance to below grade location: "DO NOT ENTER WHEN LIGHT 15 FLASHING- CARBON DIOXIDE LEAK DETECTED"

Grow cultivation room/area dispensing: "FLASIDNG LIGHT MEANS CARBON DIOXIDE LEAK DETECTED- EVACUATE ROOM"

The sign shall have a minimum 1-inch block lettering with a minimum 1,4 -inch stroke. The sign shall be on a contrasting surface of black on yellow and shall be of durable construction.

Signage at entrance doors: Signage shall be provided at entrance doors to each grow cultivation room/area:



NFPA 704 placards for simple asphyxiants shall also be provided at the exterior main entrance.

6. All carbon dioxide (C02) burner systems shall shut down in the event of a loss of electrical power to the carbon dioxide (C02) detectors.
7. A minimum of one (1) portable carbon dioxide (C02) meter shall be in use during business hours.

M301.4.2 Carbon monoxide (CO) detection.

1. Carbon monoxide (CO) gas detection shall be provided to monitor products of combustion continuously.
2. Detectors shall be:
    a. listed or approved devices
    b. permanently mounted
    c. Installed per manufacturer's recommendations and directions
    d. directly connected to building electrical supply and fire alarm systems and protected from accidental disconnection or damage
3. CO detection shall be at set at 35 PPM and upon activation shall initiate the following:
    - Close the automatic valve to each burner
    - Activate the mechanical exhaust system
4. All carbon dioxide (C02) burner systems shall shut down in the event of a loss of electrical power to the carbon monoxide (CO) detectors.

5. A minimum of one (1) portable carbon monoxide (CO) meter shall be in use during business hours.

M301.5 Acceptance testing. Appliances and equipment shall not be placed in operation until after the detectors, notification devices, automatic gas control valves and mechanical exhaust system have been tested by a qualified service company.

M301.6 Training. All employees shall receive annual training in hazard identification, physical properties, inspections, and emergency procedures. Training records shall be maintained on site and be available to inspectors upon request.

M400 Enforcement Enacted. All of the Marijuana related regulations will be made retroactive on existing facilities and will have 6 months from the date of adoption of these amendments to comply with all of the above stated Marijuana regulations.

Adopt **APPENDIX CHAPTER W** as follows:

APPENDIX W
WILDFIRE HAZARD MITIGATION

Adopt APPENDIX CHAPTER W as written in the 2015 International Residential Code Amendments

Adopt **APPENDIX CHAPTER X** as follows: Remove, will be separate Ordinance

APPENDIX X
EXCAVATION AND GRADING

Adopt APPENDIX CHAPTER X as written in the 2015 International Residential Code Amendments

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2015 INTENTIONAL PLUMBING CODE

CHAPTER 1
ADMINISTRATION

SECTION 101- GENERAL

101.1 Title. These provisions shall be known as the Plumbing Code of Clear Creek County, Colorado, and shall be cited as such and will be referred to herein as "this code 11".

SECTION 106 PERMITS

Delete Section 106.5.3 in its entirety and replace with the following:

106.5.3 Expiration. Every permit for plumbing installations, issued by the Building Official under the provisions of this code and which is not in conjunction with an active building permit, shall expire by limitation and become null and void six months after the issuance of such permit. All construction or installations allowed and all inspections required by the permit must be completed before expiration of the permit.

106.5.4 Extensions. Delete the last sentence of Section 1 06.5.4 Add the following:
106.6.2 Permit Fees. Table 1-B from the IBC is to be used to determine the permit fees for all plumbing permits issued for work not in conjunction with an active building permit.

Delete Section 106.6.3 Fee refunds in its entirety

CHAPTER 3
GENERAL REGULATIONS

SECTION 305 - PROTECTION OF PIPES AND PLUMBING SYSTEM COMPONENTS

Delete 305.4 in its entirety and replace with the following:

305.4 Freezing. In localities having a winter design temperature of 32 Degrees Fahrenheit or lower as shown in Table R301.2 (1) of this code, a water, soil or waste pipe shall not be installed outside of a building, exterior walls, in attics or crawl spaces, or in any other place subjected to freezing temperature unless adequate provision is made to protect it from freezing by insulation, heat or burial. Outside water and soil or waste pipe shall be installed not less than 6 inches below the frost line. The Department of Building Safety is not responsible for the inspection of the protection of the water, soiled or waste outside of the perimeter of the building.

CHAPTER 9
VENTS

SECTION 903 VENT TERMINALS

Delete Section 903.1 in its entirety and replace with the following:

903.1 Roof extension. All open vent pipes which extend through a roof shall be terminated at least 6 inches (152.4 mm) above the roof or 6 inches (152.4 mm) above the anticipated snow accumulation, except that where a roof is to be used for any purpose other than weather protection, the vent extensions shall be run at least 7 feet above the roof.

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2015 INTERNATIONAL MECHANICAL CODE

CHAPTER 1
ADMINISTRATION

SECTION 101- GENERAL

101.12 Title. These provisions shall be known as the Mechanical Code of Clear Creek County, Colorado, and shall be cited as such and will be referred to herein as "this code".

SECTION 106 - PERMITS

Delete Section 1 06.4.3 in its entirety and replace with the following:

106.4.3 Expiration. Every permit for mechanical installations, issued by the Building Official under the provisions of this code and which is not in conjunction with an active building permit, shall expire by limitation and become null and void six months after the issuance of such permit. All construction or installations allowed and all inspections required by the permit must be completed before expiration of the permit.

106.4.4 Extensions. Delete the last sentence of Section 1 06.4.4

106.5.2 Permit Fees. Table 1-B of the IBC is to be used to determine the permit fees for all mechanical permits issued for work not in conjunction with an active building permit.

Delete **Section 106.5.3 Fee refunds** in its entirety

CHAPTER 3
GENERAL REGULATIONS

SECTION 303 - EQUIPMENT AND APPLICANCE LOCATION

Add the following

303.1.1 Carbon Monoxide Alarm Requirements. Installation of Carbon Monoxide alarm shall be installed as written in the 2015 IRC Section R315.3.1.

Add the following Item Number 6 for Section 303.3:

303.3 Prohibited locations. 6. Installation of Liquid Propane shall be installed as written in the 20151RC Section M1307.1.1

CHAPTER 9
SPECIFIC APPLIANCES, FIREPLACES AND SOLID FUEL-BURNING EQUIPMENT

SECTION 903 - FACTORY-BUILT FIREPLACES

903.1 General. Add the following sentence: Every new installation of a solid fuel-burning, vented decorative appliance or room heater shall meet the most stringent emission standards for woodstoves established under State statute and/or regulations promulgated by the State Air Quality Control Commission as of the time of installation of the appliance or room heater. (Effective January 1, 1991- CC90-617.)

Delete 903.3 in its entirety and replace with the following:
903.3 Unvented gas log heaters. Unvented gas log heaters or any unvented room heaters are prohibited.

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2015 INTERNATIONAL FUEL GAS CODE

CHAPTER 1
ADMINISTRATION

SECTION 101- GENERAL

101.1 Title. These provisions shall be known as the Fuel Gas Code of Clear Creek County, Colorado, and shall be cited as such and will be referred to herein as "this code 11 •

END DELETIONS AND ADDITIONS

EXHIBIT 2

County of Clear Creek
Roadway Design and Construction Manual
Chapter 4

Chapter 4 - Driveway Permit Requirements

4.1 Purpose and Intent

Driveway permits must be obtained whenever an individual proposes to construct and connect a driveway to an existing public or private roadway in unincorporated Clear Creek County. The reason for requiring driveway permits is to insure the design of the connections meets the specifications in these regulations to allow for emergency vehicle access and for proper drainage. Driveway permits are also intended to assure adequate reconstruction and/or repair of any damage caused to the County road right-of-way or roadway during construction of the connection.
Driveway permits shall be obtained before building permits may be issued. This standard supersedes Resolution 00-24.

4.2 Permits and Performance Guarantees

Any individual proposing to construct a driveway connection to an existing County roadway shall obtain an approved driveway permit as provided in Section 4.3.
Before undertaking any excavation within a County road right-of-way, an individual may be required to post a Performance Guarantee. Performance Guarantees shall be posted with the Road and Bridge Department, and permits obtained, from the Site Development Department. (Chapter 5, Section 5.2)

4.3 Procedures/Requirements for Issuance of Driveway Permits

4.3.1 Submittal Requirements for Driveway Permits:

The submittal requirements and procedure for obtaining driveway permits are stated as follows:

1. Driveway Permits are required for all roads, which are to be constructed on private property, and will be used to provide access from any public road or private road.

2. Fee scheduling will be set for various permits, inspections, and on- site approvals. Permit fees will be periodically reviewed by the County for adequacy, and when appropriate the fee schedule will be revised.

3. The property owner/owners are responsible for obtaining all necessary easements and/or COOT Access permits prior to the application of the Driveway or Private Road Cut

Permit. A copy of the easement and/or COOT Access permit must be attached to the permit application.

4. The permit applicant assumes the responsibility to have buried gas lines, telephone cable and other utilities located by contacting the Utility Notification.

5. Applicant represents all parties in interest, and affirms that the driveway approach is to be constructed for the purpose of securing access to the described property.

6. Applicant or authorized agent shall furnish all labor and materials, perform all work, and pay all costs in connection with the construction requested.

7. The Clear Creek County Site Development Inspector shall approve the type and schedule of construction. All materials and workmanship shall be of a satisfactory quality and subject to inspection and approval by the Clear Creek County Site Development Inspector.

8. No revisions or additions shall be made to the driveway or the permit without prior approval by the Site Development Inspector.

9. The property must be marked with the lot number, and the proposed driveway and building footprint shall be staked out in advance of the initial inspection.

10. Applicant shall protect the traveling public during the installation of the driveway and building site excavation with approved traffic control, as outlined by Part VI of the Manual of Uniform Traffic Control Devices. A Traffic Control Plan will be submitted to the Site Development Inspector before work affecting a county roadway may begin. This plan should illustrate the placement of devices, types of devices, stationing of flagging personnel, length of lane closure with reference to the zone dimensions, and the phone numbers of representatives to be contacted in an emergency.

11. The County shall be held harmless against any action for personal injury or property damage sustained by reason of the exercise and issuance of the permit.

12. Applicant shall notify the Site Development Inspector when the excavation is ready for a final inspection. Final approval shall not be given until all work, including installation of all drainage facilities and their prospective devices, and all erosion control measures have been completed in accordance with the approved plan, and any required reports have been submitted.

13. Failure to comply with any portion of these Driveway Design Standards and Permit Procedures shall be sufficient grounds for denial, suspension, or revocation of any necessary permit. Financial penalties may also be imposed.

14. All driveway permit applicants must submit the proper Application, Zoning Disclosure Form, and an accurately scaled Site Plan Drawing indicating all necessary detail (length, grade, property boundaries, public road dimensions etc.) prior to initial inspection. If

not otherwise required, any new driveway greater than 100 feet in length shall meet the engineered grading requirements outlined in Section X107.4 of the 2015 International Residential Code and the 2015 International Building Code.

15. The permit will be issued upon completion of the initial inspection and installation of erosion control measures as outlined in the Clear Creek County Best Management Practices Manual.

16. The permit is valid for 180 days, at which time an inspection must be arranged with the Site Development Inspector to determine further time needs for completion of the driveway /private road cut. The permit can be extended for another 180 days, at no fee, at the discretion of the Site Development Inspector. A renewal for a permit may be applied for prior to the permit's expiration. The cost of a renewal permit will be an amount equal to twenty-five percent (2 5 %) of the original permit fee.

17. Driveway permits are valid for 2 year maximum, with timely renewal, if a building permit is not applied for. A Driveway Permit will not expire as long as a current building permit is in place, but must have an inspection every 180 days. Failure to have inspection completed within the required time will result in the cancelation of the permit.

18. The applicant shall be responsible for the work to be performed in accordance with the approved plans and specifications and in conformance with the provisions of this code, and the applicant shall engage consultants, if required, to provide professional inspections on a timely basis. The applicant shall act as a coordinator between the consultants, the contractor, and the Site Development Inspector. In the event of changed conditions, the applicant shall be responsible for informing the Site Development Inspector of such change and shall provide revised plans for approval.

4.3.2 Action on Driveway Permits:

Applications for driveway permits shall be submitted to the Site Development Department for review and action. Approval shall be granted only if the proposed driveway or roadway connection meets the specifications in these regulations and the required fee has been paid. Approval of a driveway permit may be accompanied by any condition deemed reasonable by the Site Development Inspector to insure protection of health, safety and welfare and compliance with these regulations. Applications for driveway permits must be submitted at least three working days prior to planned commencement of construction, and construction cannot commence without permit approval. Building permits shall not be issued for the project until rough-in inspection (grade meets the maximum
specifications outlined in these regulations) approval for the needed driveway permit has been obtained.

4.3.3 Construction Specifications for Driveway Work:

All work undertaken to connect driveways to existing County roadways shall conform to the

Road and Bridge Design and Construction Standards contained in these regulations.

4.3.4 Construction Schedule for Driveway Work:

As part of its approval of any driveway permit, the Site Development Department shall also approve a construction schedule. The approved schedule shall not be changed after the permit is issued without the written consent of the Site Development Department and approved by the Road and Bridge Department.

4.4 Supervision of Driveway Work:

The permit applicant shall at all times conduct work within County right-of-way so as to avoid obstruction and hazard to the traveling public. Materials necessary for construction of driveway access points to the County roadway shall not be stored on the County right-of-way at any time. The roadway and roadside area where driveway access work has been performed shall be thoroughly cleared of all debris
and extraneous material and shall be restored to a condition equal to or better than the original when construction is concluded.

4.5 Inspection and Testing of Driveway Work:

Adequate inspections ensure compliance with County requirements. It is the responsibility of the permit applicant to contact the Site Development Department two working days in advance of a required inspection. In-progress inspections of all elements of work will eliminate the need of extensive post testing. At least one inspection at the conclusion of construction is required. In making this inspection, the Site Development Department shall check for compliance with these regulations and approved plans, and also for adequate cleanup of roadway surfaces and the right-of-way. Certificates of Occupancy shall not be issued by the Building Department until driveway work is determined to be satisfactory by the Site Development Department.

Any work or material which does not conform to these regulations, any pavement failures or broken asphalt, damaged signs or fencing, and remaining debris either in the roadway or adjacent property, or improper drainage shall be brought to the attention of the permit applicant both verbally and in writing. Any work in which untested or unaccepted materials are used shall be ordered removed and replaced at the permit applicant's expense. Any required corrective work shall be made at the permit applicant's expense and shall be done to the satisfaction of the Site Development Department. If immediate corrections are not made, further project construction shall be stopped.

In determining whether or not the driveway work done by the permit applicant is acceptable, the Site Development Department may consult with the Road and Bridge Department. If a determination is made that testing is required, the number and location of the tests shall be determined by the Site Development Department. If the Site Development Department determines testing by an independent lab is necessary, the cost of such testing shall be paid by the permit applicant.

4.6 Responsibility for Rework on Driveway Connections:

The permit applicant shall be fully responsible for the maintenance and correction of any faulty construction, including unstable road cuts and potholes developed during the construction period and for a period specified in Chapter 5, Section 5.10. All deficiencies shall be resolved to the satisfaction of the Road and Bridge Department. Failure to do so could be cause for denial of future permits.

4.7 Driveways and Parking Areas:

4.7.1 Requirement for Driveway Permit:

Whenever a property owner, developer, contractor or other individual proposes to connect a driveway or parking area to the public roadway, they must obtain approval for a driveway permit from the Site Development Department prior to commencing construction.

4.7.2 Requirement for Grading Permit:

When road grading of an existing road on private property is proposed the individual responsible for the construction must obtain approval for a grading permit from the Site Development Department prior to commencing construction.

4.7.3 Standards for Driveway Design:

A driveway is defined as an accessway for vehicles providing a connection from a public or private roadway to either individual single family residences or to a parking area serving multi family residences; commercial business; recreational, institutional, or industrial land uses. For purposes of this regulation only, single family residences shall be defined as individual detached houses or duplexes (two single family residences) either of which are on individual platted lots or on footprint lots with the surrounding property held in common ownership. If an accessway serves more than five (5) individual single family residences, it shall be classified as a roadway rather than a driveway and must meet the County's standards and requirements for road construction. A driveway may provide access to a common parking area for multi family residential development if the development meets all Clear Creek County regulations for multi family development. An accessway serving a working ranch or farm and any associated residence regardless of length shall be considered a driveway, and shall meet only such standards as are necessary for public health and safety and as outlined in this section.

A. Location of Driveways Relative to Intersections:

Driveways shall be placed so the following minimum distances are maintained to any street intersection, including a T-intersection on the opposite side of the street from a property where a driveway is proposed.

Where the driveway connects to a local access or low volume road, a minimum distance of SO feet from curve return to edge of right-of-way at the intersection shall be maintained.

Where a driveway connects to a collector or larger road, a minimum distance consisting of the left turn stacking distance plus 20 feet as measured from curve return to curve return, shall be maintained (see Figure 16). The left turn stacking distance shall be determined by the Road and Bridge Department based on available data from an acceptable traffic study. If a traffic study is not available, or data provided is incomplete, the Road and Bridge Department shall estimate the length of the left turn stacking distance using the following formula:

$$\text{Peak Hour Traffic} = \frac{\text{ADT}}{10}$$

Peak hour left turns = 1/6 of peak hour traffic for 4-way intersections

Peak hour left turns = 1/4 of peak hour traffic for T-intersections

phlt = Peak Hour Left Turns
dis = Driveway to Intersection Spacing

$$\text{dis} = \frac{(1.5)\ \text{phlt}\ (20) + 20}{30}$$

The Road and Bridge Department may make adjustments in the factors used in this formula for a typical situation. Examples of such situations include the intersection of low volume roads with very high volume roads, or where adjacent land uses cause traffic patterns to be skewed. If an applicant disagrees with the left turn stacking distance determined by the Road and Bridge Department, they may purpose a different distance if substantiated by a traffic study which is acceptable to the BOCC.

B. Spacing of Driveways:

Driveway openings shall be separated by at least 30 feet, as measured from curve return, or else shall be combined. More spacing may be required for traffic safety and proper traffic operation.

C. Shared Driveways:

Developers or property owners proposing the use of shared driveways shall record an easement defining the location of the driveway and either a covenant or deed restriction requiring construction of the driveway at that location.

D. Horizontal Alignment and Horizontal Curves:

1. The dimensions of driveway widths, openings, and centerline curve radii shall be as shown in Table 12. (See Figure 13 and 14) Turn Out dimensions are given in Figure 23.
2. All driveways exiting onto collector roads or roadways with average daily counts greater than 700 vehicles per day shall be designed with a vehicle turnaround to avoid vehicles having to back onto the roadway when exiting (See Figure 2 3). Single family residence driveways in excess of 100 feet in length shall provide an adequate turnaround for emergency equipment to within 50 feet of the dwelling unit. Driveways serving multi family, industrial, or commercial development shall provide a turnaround as specified in Figure 7 if the driveways dead ends.
3. Driveways serving single family residences may be either graveled or paved. Where roads are paved, driveways serving duplexes must be paved. Where a driveway is to be graveled the surface shall be constructed of four inches of road base compacted to 95 % standard proctor. Where a driveway is to be paved, the surface shall be constructed of four inches of compacted road base and two inches of asphalt that can be placed in one lift.
4. Driveways serving multifamily residences or commercial uses must be designed in accordance with Section 2.43.C., with Tl equaling 6.0. Single family and duplex residences may only have one access point onto the County road system unless a minimum separation of 250 feet can be provided. Otherwise, looped driveways are not allowed. Where a lot has two different roads to provide driveway access, access shall always be onto the road with the lowest functional classification.

E. <u>Driveway Cross Section:</u>

1. Driveways constructed on natural lateral slopes greater than 20% shall be super-elevated toward the cut slope as shown in Figure 13.
2. Driveways constructed on natural lateral slopes less than 20% may be crowned as shown in Figure 14.

F. <u>Vertical Alignment and Vertical Curves:</u>

1. Driveways shall be designed and constructed to reach the destination without adverse grades.
2. Grades less than 1.0% are not allowed.
3. Driveways shall be designed and located to provide a minimum sight distance clear of all obstructions, natural or man-made, for at least 200 feet in either direction on local access roads and 400 feet on collector roads or as outlined in Table 4 whichever is greater.
4. The maximum allowable grade on straight sections of driveway is 10%. An exception can be requested from the county where the dip of natural terrain bears between South 60 2 East, and South 45 2 West. Grades from 10% - 12 % shall not continue for lengths greater than 150 feet.
5. A maximum grade of 8 % for curves with radius of 50 feet or greater at centerline shall be maintained. Grades are measured in the center line of the road.
6. Grades through a switchback with a radius of less than 50 feet shall not exceed 4 % from point of curvature to point of tangency. Switchbacks are defined as a

curve with delta greater than 120 degrees. Grades are measured in the center line of the road.

G. Cut Slopes:

1. Cut slopes may be constructed as steep as a 1 ½ : 1, but only where lot line proximity or building site natural grade imposes restrictions (30% slope and greater).
2. Cut slopes steeper than 1 1/2 : 1 require a stability report prepared by a Geotechnical (Soils) Engineer confirming competent slope material prior to approval from the county.
3. In areas of solid rock, slopes shall not be cut steeper than 1/ 2: 1. Slopes steeper than %:1 require a stability report prepared by a Geotechnical (Soils) Engineer confirming competent slope material prior to approval from the county.
4. All slopes shall be made sufficiently stable to prevent failures. Steep driveway cut slopes not in solid rock, require retaining walls built to prevent slope failure.
5. Retaining walls require plan submittal and approval by the county. All retaining walls with a vertical height greater than 4 feet shall be of an engineer approved design.

H. Fill Slopes:

1. Fill slopes may be constructed as steep as 1 1/ 2 : 1, but only where lot line proximity or building site grade imposes restrictions (30% slope and greater).
2. Fill slopes constructed at a 1 1/ 2 : 1 slope shall be constructed so that the toe of the slope is keyed into the natural slope and/or supported by mechanical stabilization.
3. Mechanical slope stabilization devices with design heights greater than 4 feet shall be of an engineer approved design.
4. Organic materials shall not be placed in fills. Rock material with a maximum dimension greater than 24 inches shall not be buried or placed in fills.
5. Rock disposal areas are to be delineated prior to issuance of driveway and excavation permit.
6. Fills shall be compacted to a minimum of 90% of maximum density.

I. Drainage:

1. All driveway accesses from existing private or public roads, which interfere with a natural or constructed drainage course, shall provide a drainage culvert. The culvert shall be a minimum of 18" diameter, but will carry the flow of a 10-year storm event, and be positioned offset to the drainage ditch centerline, away from the traveled portion of the access road.
2. Cross road drainage will be provided at a minimum of every 800 feet or where an identifiable drainage course is defined.
3. Culverts under roads at intersections shall be of sufficient length to properly fit the radius or flare required.
4. Culvert inlets and outlets shall be designed to cause minimal erosion, and erodible soils shall be adequately protected by riprap, flares, or energy dissipators.
5. All springs, seeps or bogs evidenced within the proposed driveway shall be

treated with a subsurface drainage treatment approved by the county.

6. All driveway culverts shall have 4 to 6 inches of cover unless otherwise approved by the Site Development Department.

J. Construction Plans and Specifications:

1. All work shall be performed as specified in the latest edition of these standard specifications and any referenced manuals indicated herein.
2. Where approvals or authorization by the County is herein required, it shall mean the BOCC, or The Site Development Inspector.

K. Fire Protection and Emergency Access:

Emergency access must be maintained at all times during construction

L. Embankments and Stabilization:

Fills shall be developed generally in horizontal layers of similar materials for their length and width, and compacted to a minimum of 90% maximum density for each lift.

M. Intersections:

1. Intersections shall meet at right angles of each other. With supporting justification a relaxation of up to 15 Q can be requested from the county.
2. The portion of driveway through the right-of-way connecting the property with the physical roadway shall be the shortest perpendicular distance possible.
3. Driveways shall meet the county road at a positive 4% grade for the length of the Right-Of-Way but no less than the 10 feet (Figure 15).
4. No horizontal or vertical curves shall carry onto the existing County Right-Of)Way in the design of the driveway or private road.
5. Radii or flares are specified in Table 12.

N. Signs and Delineation:

1. All signage, delineation, and mounting devices on driveway approaches, adjacent to the county roadway but within the Right-Of-Way, shall be in conformance with the Manual of Uniform Traffic Control Devices, the most recent Colorado Supplement, and the County Sign Regulations.
2. All necessary delineation must be installed prior to County approval.
3. Stop signs shall be installed at the junction of an accessway with a roadway for all accessways serving six (6) or more residential units, commercial shopping areas, or when required by the Road and Bridge Supervisor for protection of public safety.

O. Utilities:

1. Overhead utilities shall at least meet the minimum vertical clearances specified by the utility company or PUC requirements above the driveway and in no case shall the vertical distance be less than 16 feet 6 inches.

P. Bridges: See Section 2.61 and 2.62.

Q. Maintenance:

1. The property owner/owners assumes responsibility for the maintenance of the driveway approach. All snow, ice, or sleet removal from the portion of the driveway approach, including that deposited on the driveway in the course of snow removal operations by the County Road and Bridge Department, is to be done by the property owner.
2. Pushing snow from a driveway onto a County roadway is prohibited. Snow storage for driveways shall be provided on the owners property. Use of the right-of-way for snow storage by private individuals or companies is prohibited (C.R.S. 43-5-303). The property owner/owners assumes responsibility for the replacement, maintenance, and cleaning of the culvert installed in the driveway approach. (See Section 3.3 6.D.2)
3. Road & Bridge may require owners to heat tape their culvert to insure flow during the winter months to minimize the potential of ice forming on roadways (see Chapter 6 Section 6.8 2).

R. Deviation from the Standards:

1. Request for deviation from the design standards contained herein may be submitted to the Site Development Department in writing with appropriate justification for consideration for approval. Deviation requests shall be heard and decided by the Board of County Commissioners.
2. Where, by reason of exceptional topographic conditions or other extraordinary and exceptional situation or condition of such piece of property, the strict application of any design standard enacted herein would result in peculiar and exceptional practical difficulties to, or exceptional and undue hardship upon, the owner of such property, to authorize, upon request to the County relating to said property, a deviation from such strict application so as to relieve such difficulties or hardship if such relief may be granted without substantial detriment to the public good and without substantially impairing the intent and purpose of the design standards contain herein.
3. When driveways are granted a deviation to a lesser standard, building construction must meet the criteria set forth by the Wildfire Hazard Mitigation Plan.
4. Deviation to a lesser grade standard will not exceed 18 % grade on straight sections of driveways up to 150 feet in length and 8 % grade change through a switchback from point of curvature to point of tangency.
5. Roads accessing more than 5 residences must refer to the Clear Creek County Road Design Standards and comply with the standards set forth as they apply to the expected average daily traffic.

4.7.4 Standards for Parking Areas:

A. Parking Index:

The Parking Index standards are specified in the Clear Creek County Zoning Regulations Section 14, Part 5.

B. Parking Area Grades:

Parking areas shall have a maximum grade of 4 % , and a minimum grade of 1.0% to facilitate drainage.

C. Surfacing of Parking Area:

Paving is not required for parking areas and drives serving single family units, or for duplexes where the road providing access is not paved. Where roads are paved, parking areas for duplexes must be paved. Parking areas and drives for all other types of development must be paved with a minimum of six inches of road base compacted to 9 5 % modified Proctor and three inches of asphalt. Paved parking areas for all other development shall be designed in accordance with Section 2.43.C, with Tl equaling 6.0. An applicant may request a deviation from the paving requirements listed herein from the Board of County Commissioner's

D. Provision for Drainage in Parking Areas:

Parking area design shall make adequate provision for drainage and prevention of erosion. Drainage from parking areas shall flow to roadside ditches or other approved drainageways. Drainage from parking areas shall not flow onto roadways. Collection points for runoff across parking areas shall be provided to minimize sheet flow.

E. Placement of Parking Areas on Fill:

If a parking area is to be placed on fill, the fill used shall be a suitable material as specified by a registered geotechnical engineer. The fill shall be compacted to 90% modified Proctor with slopes at no more than 1.5:1 (H:V) and protected by rip-rap to prevent erosion from snow storage. Parking areas on fill may be designed using retaining walls as an alternative with approval of the County Site Development Inspector.

F. Use of Parking Area in Lieu of Meeting Driveway Grades:

In instances where construction of a single family or duplex unit is proposed, and it is not possible to build a driveway to County standards for driveway grades because of the steepness of the lot, a parking area which does meet County standards may be built adjacent to the road which provides access to the lot in lieu of meeting driveway grades. The parking area must be outside the road right-of- way and within 150 feet of the residential structure. The parking area shall be sized so, whenever possible, vehicles can be maneuvered within the parking area so they will not be backed on to the road when exiting. The minimum size for parking areas shall be 400 square feet for each unit served. Parking areas shall not be designed so vehicles are parked end-to-end or parallel to the road, but must allow for cars to be parked side-by-side.

G. Snow-Stack Storage:

Snow storage for parking areas shall be provided on the associated private property. Use of the right-of-way for snow storage by private individuals or companies is prohibited (C.R.S. 43-5-301).

H. Parking Dimensions:

Parking space dimensions and parking lot layout are per Figure 17.

4.8 Landscaping and Erosion Control

Whenever roadway or bridge construction results in earth disturbance, revegetation and reforestation is required per the Clear Creek County Best Management Practices Manual. The site plan shall be approved by the County Site Development Inspector and shall be completed during the first planting season after construction. Native or similar horticultural material shall be used. All areas disturbed by construction operations and not otherwise covered by structures or pavement must be seeded, fertilized, mulched, planted and otherwise treated to provide an established stand of vegetation. Cut and fill slopes must be treated to prevent erosion. Areas not disturbed by construction shall be left in their present vegetative state, except that thinning of trees may be required. In no case shall landscaping in the right-of-way or on private property impede the normal maintenance operations of the Road & Bridge Department or the normal flow and operations of traffic. Specific requirements are as follows:

Erosion Control and Environmental Mitigation Efforts for Driveway Construction:

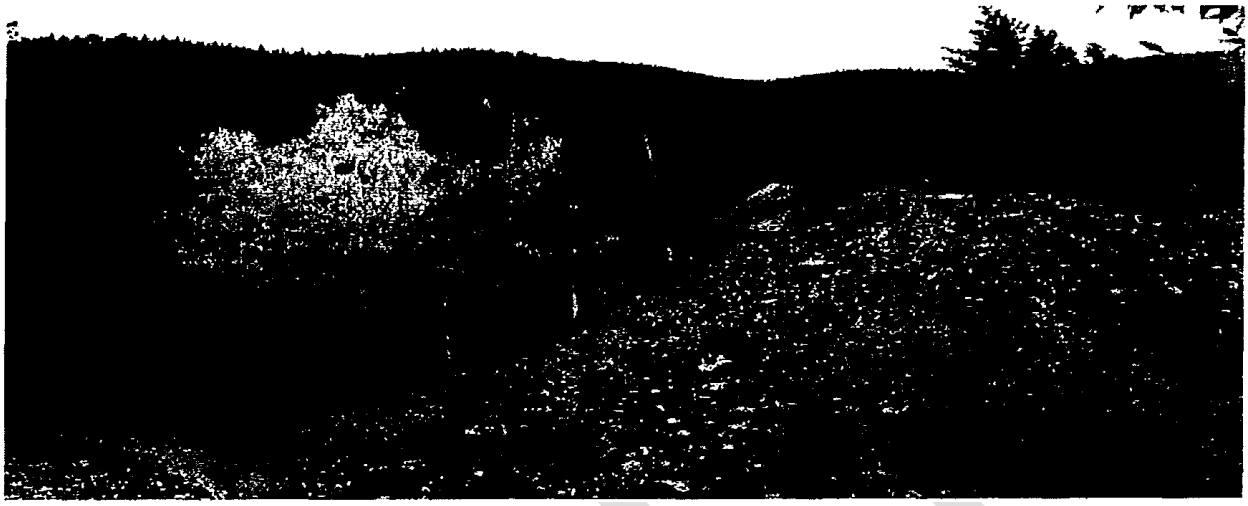
1. The faces of cut and fill slopes shall be prepared and maintained to control against erosion.
2. This control shall consist of effective planting as a permanent control measure.
3. Permanent soil stabilization measures shall be installed within thirty (30) days after final grade is reached. Planting shall occur within the next window of opportunity should construction be completed during winter months.
4. Where cut slopes are not subject to erosion due to the erosion- resistant character of the materials, such protection may be omitted.
5. Where necessary, check dams, cribbing, riprap or other devices or methods shall be employed to control erosion and provide safety.
6. Preserve existing trees, shrubs and grasses where possible to prevent erosion.
7. No work may interfere with the flow of storm water.
8. Excavations shall be constructed so they are stable.
9. Storm water runoff shall be discharged from the site in quantities and at velocities not to exceed historic levels.
10. All erosion control devices shall be maintained so that they function as designed.
11. Dust emissions (wind erosion) shall be controlled.
12. Temporary erosion protection shall be installed prior to excavation activities.
13. All topsoil shall be salvaged and redistributed.
14. Any applicant creating an earth disturbance greater than 2,500 cubic yards and/or 20,000 ft 2 shall be required to apply for a "Best Management Practices" permit.
15. A specific, scaled, site plan designed by a Colorado licensed engineer, indicating; aspects, scale, site boundary, and adjacent streets or roadways is to be submitted with the application for the "Best Management Practices" permit.
16. The site plan is to show existing drainage, rivers, streams, lakes, and wetlands. The gradient and direction of slopes before and after construction, and .· " the disturbed area of the lot, are also to be shown.

17. The site plan must indicate the types, and placement, of temporary and permanent erosion control measures. The plan shall be specific to the schedule for reseeding and replanting. For sites completed during the winter months, or when a final inspection is expected before actual re-vegetative growth occurs, a performance bond may be required.

18. A site plan should indicate a green belt that will remain around the property's perimeter.

19. Road crossings across water courses designated as "Waters of the State" by the Army Corps of Engineers must meet the requirements set forth by the Army Corps of Engineers for permitting before a County permit will be issue

EXHIBIT 3 - 2015 International Residential and Building Code



Clear Creek County
Best Management
Practices
Manual

BMP Manual Table of Contents

BMP: REVEGETATION

1. METHODS: The primary purpose of revegetation is erosion control. Grass provides the best protection for the first few years. Grasses germinate and grow quickly and provide a fast and complete ground cover. Trees and shrubs are effective for long-term erosion control, but grasses are needed for initial soil protection until the slower growing trees and shrubs become well established. Decorative landscaping with trees and shrubs can be done later.

The harshness of the mountain climate, geologic conditions, and the steepness of the terrain make it difficult for plants to become established. The steeper the slope, the more difficult it is. You will have the greatest chance of success with revegetation if you keep the area and angle of disturbed slopes to a minimum.

Before you can revegetate an area, you must first roughen or loosen the soil surface so that seeds can get a foothold in it. Use a dirt rake or tiller. Broadcast the seed by hand or with a "belly grinder." Rake the soil after seeding to cover the seeds with 1,4" - W' of soil. The Site Development Inspector may require the addition of topsoil to sites having or which generate extremely rocky soils as a good seedbed is crucial to successful revegetation. Slope degree may require hydroseed/ hydromulch as per the County's adopted revegetation policy below. Revegetation efforts shall provide for at least 70 percent coverage of the disturbed areas. The Site Development Inspector shall inspect the site periodically for two (2) years from the date revegetation work is completed to ensure compliance. If 70 percent coverage is not obtained, the property owner may be required to provide for additional revegetation.

The time of planting depends on whether or not you irrigate. If you choose to irrigate, you must continue irrigating until the grass is well established.

- If you do not irrigate:
  (a) Plant seeds as late as possible in the fall but before the ground is frozen and before snowfall. October and November are generally good months to seed. Seeds planted too early in the fall may germinate with fall rains and the young seedlings can then be killed by frost.
  Or,
  (b) Plant seeds in April or May as soon as possible after snowmelt.
- If you are legally allowed to irrigate:
  Plant seeds as soon as possible after grading is completed and the area can be closed to vehicle traffic. During the germination period (at least the first 2 weeks), irrigate often enough to keep the seedbed moist. You may have to water more than once per day. Water with fine spray to avoid washing away seeds and soil. Water only long enough to moisten the first 2" of soil. You can discontinue irrigating when the grass is about 6" tall.

2. MATERIALS: The following grass seed mixtures are suggested for the three major habitats encountered in higher elevations of Colorado.

- Roadside Mix - Drought tolerant grasses for roadside stabilization consisting of tall and low growing bunchgrasses for rapid establishment and long term persistence.

•

SEED	VARIETY	(LB per ¼ Acre)
Slender wheat grass	San Luis, Revenue	2 ¼
Mountain Brome	Broman	2 ¼
Orchard grass	Paiute, Potomac	1
Hard Fescue	Durar	1
Sheep Fescue	Covar	1
		7 ½

• Landscape Mix - Low growing grasses comprised of bunchgrasses and sod formers giving a varied texture for transitional areas adjacent to buildings.

SEED	VARIETY	(LB per ¼ Acre)
Chewing Fescue	Shadow	2 ¼
Red Fescue	Pennlawn	2 ¼
Hard Fescue	Durar	1 ½
Sheep Fescue	Covar	1 ½
		7 ½

• Meadow Mix - For wetter sites adjacent to streams and in meadow areas where there is a high water table.

SEED	VARIETY	(LB per ¼ Acre)
Meadow Foxtail		¾
Smooth Brome	Manchar	1 ½
Tufted Hairgrass		½
Red Fescur	Pennlawn	3/4
Timothy		1/2
Kentucky Bluegrass	Park	1
		5

3. MAINTENANCE TIPS: Fertilizing: Apply 5 lbs./ 1000 sq. ft. of 16-20-0 fertilizer with 15% sulfur (ammonium phosphate sulfate) at the time of seeding. Reapply once per year in the spring until the soil is well protected with grass. Do not over fertilize. Excess fertilizer will wash away and can pollute downstream water resources.

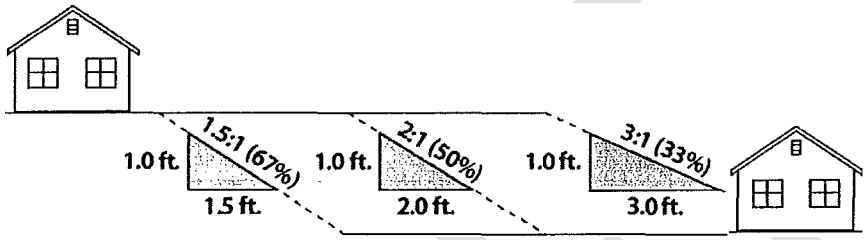
4. TEMPORARY OR PERMANENT USE: Revegetation can be a temporary or permanent BMP.

Clear Creek County's Revegetation requirement is: 1) S lopes constructed at >3:1 (horizontal to vertical) can be hand seeded and mulched. 2) Slopes constructed at 3:1 to 2:1 to must be hydroseeded/hydromulched. 3) S lopes constructed at 2:1 to 1%:1 must be hydroseeded/hydromulched and have

slope netting/erosion control blankets installed (or equivalent erosion control measure with the approval of the Site Development Inspector). S lopes steeper than 1%:1 are not permitted or require retaining walls.

Permanent soil stabilization measures shall be installed within thirty days after final grade is reached. If construction is completed during winter months, planting should occur within the next window of opportunity. Silt fence or brush barrier to be installed on downhill side of excavation.

Determining Steepness of Grade



More Difficult To Revegetate Less Difficult To Revegetate

BMP: MULCHING

1. METHODS: Mulch is essential for revegetation success. Mulch protects bare soil from erosion until new vegetation grows large enough to do the job. It also holds seed and fertilizer in place, keeps soil moist and shades seedlings, helping them to become established.

Straw is the best mulch material. Apply 1 bale of straw per 1,000 sq. ft. Distribute the straw evenly so that it forms a layer 1" to 2" thick. Soil should still be visible through the straw mat. If you apply too much mulch, it may produce a mat too dense for seedlings to penetrate.

Anchor the straw by punching it into the soil every 1' to 2' with a dull, round-nosed shovel to avoid cutting the straw) or by covering it with netting (jute, plastic mesh, woven paper, or chicken wire). Fasten the netting to the ground with wire staples. Because the soils in many areas are quite hard, you may have to use netting to anchor the straw.

Wood fibers, wood chips, and pine needles are other usable mulch materials. Wood fiber mulch is applied hydraulically in a slurry that also contains the seed and fertilizer. It is suitable for use on steep slopes or large areas and must be applied by a contractor. (The application rate for wood fiber mulch is 3,000 lbs/ acre.) Wood chips and pine needles can protect the soil from erosion, but they also inhibit plant growth. They can only be used where a grass cover is not desired. Apply wood chips so that the soil is completely covered. Apply pine needles in a layer 2" to 3" thick. You can save the pine needles from graded areas on your property to use as a mulch later, but you will probably have to supplement them with wood chips to achieve an adequate ground cover.

2. MATERIALS:

- Straw, wood fibers, wood chips, or pine needles.

3. MAINTENANCE TIPS:

- Replace as required.

4. TEMPORARY OR PERMANENT USE: Mulching is a temporary BMP.

BMP: SLOPE NETTING/ EROSION CONTROL BLANKETS

1. METHODS: Netting or erosion control blankets are often used to hold mulch in place on steeper slopes. Netting can be used by itself to protect seeds and soils from washing away during watering or rain storms. The following installation procedures should be used.

A. Starting above the mulched area, bury top end of strip of netting material in a trench at least 4" deep.

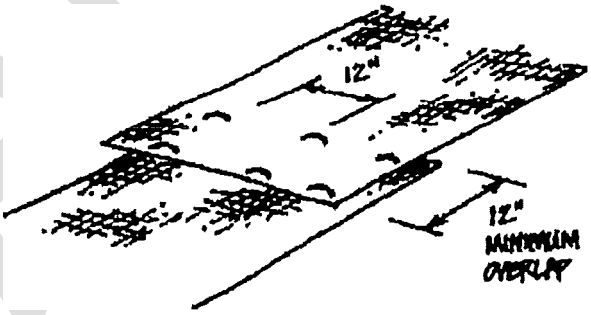
B. Fill trench with soil and tamp firmly. Fasten with a row of staples 12" apart.

C. Overlap lower end of uphill strip over next strip at least 12" and secure with staples 12" apart.

D. Continue adding strips of material until entire mulched area is covered. Overlap sides of strip at least 4" and staple as shown.

2. MATERIALS:

- Jute, excelsior, fiberglass, or plastic netting. (Do not use plastic sheeting or filter fabric.)
- Wire staples, no.11 gauge or heavier, 6" to 10" long. (Use longer staples on loose soils.)
-



Outermost edge of mulched area

3. MAINTENANCE TIPS:

- Inspect and repair as needed.

4. TEMPORARY OR PERMANENT USE:

- Slope netting is a temporary BMP. Remove non-biodegradable netting and staples when vegetation is stabilized.

BMP: TREE PROTECTION

1. METHODS: Trees and other native vegetation must be protected against construction damage. Protect vegetation by following these guidelines:

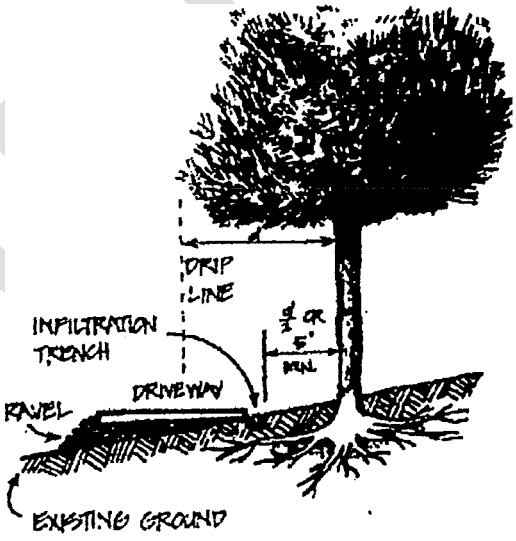
A. Do not nail boards, filter fabric, or anything else to trees.

B. Grading, paving, or placing fill within a tree's drip line are not allowed except when all of the following are met:

- encroachment is only on one side of tree; encroachment is no closer than 5' from the trunk or no more than % the distance between the drip line and the trunk;
- a drainage system that allows air and water to circulate through the root zone is placed under all fills over 1' deep within the drip line; and
- care is taken not to cut tree roots unnecessarily or to compact the soil around them.

C. Remove low tree limbs that are likely to be broken by construction activities. Cut the limb flush to the trunk or main branch. Paint cut or damaged limbs, trunks or roots with a good grade of tree paint.

D. When planting new vegetation, water frequently and protect from adverse weather conditions.



2. MATERIALS:
None required but materials such as plastic construction fence or silt fence could be used to delineate the area of non-disturbance.

3. MAINTENANCE TIPS:
Water as required and wrap if necessary.

4. TEMPORARY OR PERMANENT USE:
Tree protection can be a temporary or permanent BMP.

BMP: SURFACE ROUGHENING

1. METHODS: Surface roughening involves roughening previously disturbed soils. Surface roughening is used to reduce the speed of runoff, increase infiltration, reduce erosion, trap sediment and prepare the soil for seeding by capturing moisture for the seed. The soil surface is considered roughened if depressions are created 2 to 4 inches deep and spaced approximately 4 to 6 inches apart. Revegetation is required within 30 days of surface roughening or the next window of opportunity.

2. MATERIALS:

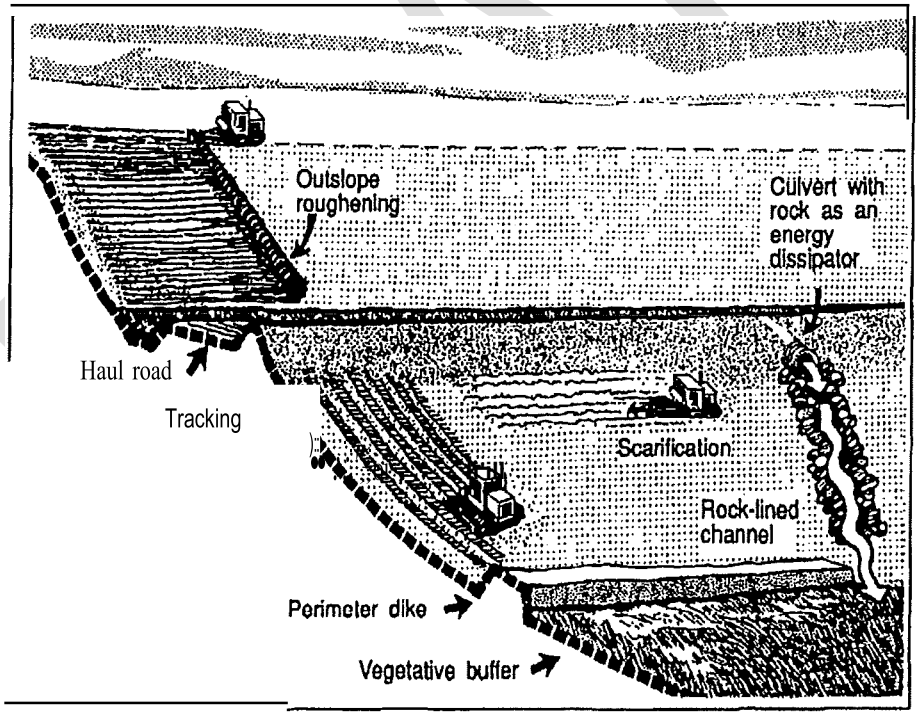
- Dozer, tracked machine or tiller.
- Seed, mulch and/ or erosion control blankets.

3. MAINTENANCE TIPS:

- Do not drive over areas that have been treated.
- Revegetation must occur within 30 days or next window of opportunity.

4. TEMPORARY OR PERMANENT USE:

- Surface roughening is a temporary BMP until revegetation occurs.



BMP: BERMS AND DITCHES

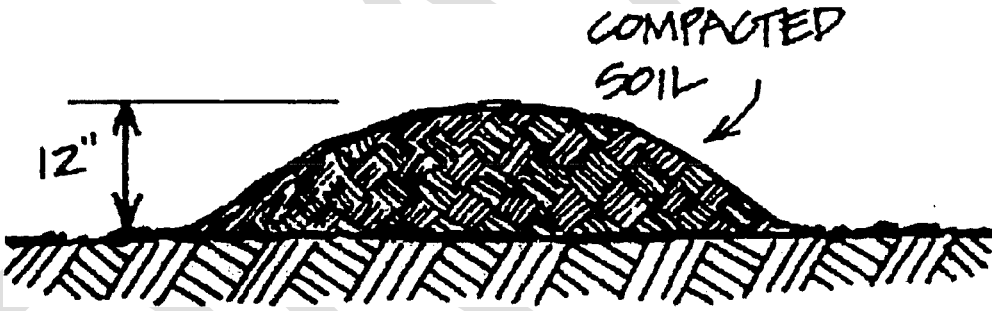
1. METHODS: A berm is a ridge of compacted soil. A ditch is a small drainageway. Both of these structures have similar purposes. Berms and ditches should be used:

- Above disturbed slopes
- Around graded areas (to keep clean runoff out and to contain sediment-laden runoff within)
- Along slope benches
- Above leach fields when required.

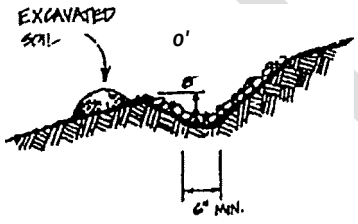
The most common use of berms and ditches is to divert upland runoff away from exposed soil to a protected outlet (such as an infiltration trench, storm drain, or stable channel) . When a berm or ditch is used to contain runoff from a disturbed area, you must route the sediment-laden water to a sediment trapping device (see section on sediment basins).

The following method should be used to construct a berm:

A. Deposit a ridge of soil about 18" high with a shovel or backhoe.
B. Compact the soil by rolling or tamping until it has the dimensions shown.
C. Vegetate permanent berms with installation of an erosion control blanket.



The following method should be used to construct a ditch:



A. If the drainage area to the ditch is % acre or less, dig the channel 8" deep. If the drainage area is 1/4 to 2 acres, dig the channel 12" deep. Deposit the excavated soil where it will not wash into a drainage way (such as on the downhill side of the ditch).
B. Compact the channel by tamping or rolling.
C. Line temporary ditches with rock, filter fabric, plastic sheeting or jute netting. Do not construct a temporary ditch at a slope exceeding 15%.
D. Line permanent ditches with rock, asphalt or concrete. Install a rock lining as shown here. Do not install a rock lining on a ditch steeper than 15% slope.
E. Install an outlet protector or infiltration system at the end of the ditch.

2. MATERIALS:

- Use rock, filter fabric, plastic sheeting or jute netting for temporary ditches.
- Use rock, asphalt or concrete for permanent ditches.

3. MAINTENANCE TIPS:

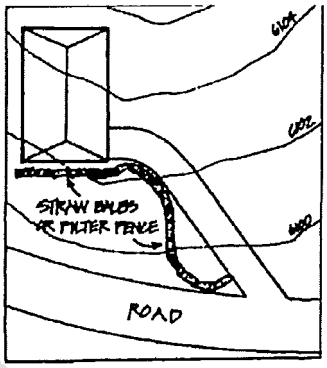
- Clean out upstream side of berms after snowmelt or storm event.
- Inspect dikes and ditches after each storm.
- Re-compact any loose soil on berms and ditches periodically.
- Fill gaps and low spots (such as tire tracks across a dike) .
- If an unlined channel is eroding, line it with a suitable material.
- Repair damaged linings immediately.

4. TEMPORARY OR PERMANENT USE: Berms and ditches can be temporary or permanent BMPs.

BMP: SEDIMENT BARRIERS

1. METHODS: Sediment barriers are temporary structures that slow runoff and trap small amounts of sediment. Sediment barriers can be built with:

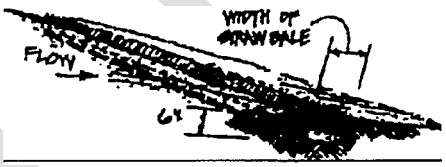
- Straw bales
- Silt fence or filter fabric attached to a wire fence or to straw bales
- Erosion Control Log/ wattle
- Native Erosion Control Log, or
- Sandbags



Sediment barriers should be used:

- Below small disturbed areas;
- At the base of exposed slopes;
- Along streets, curbs, and property lines (below disturbed areas).

The following method should be used to install straw bales:

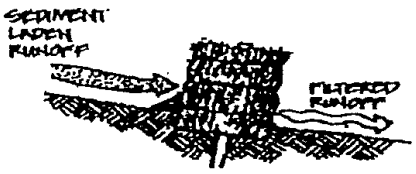


A. Dig a 6-inch deep by 2-foot wide trench. Align trench along contour but curved slightly uphill so runoff cannot escape around the end bales.

B. Place bales in trench with ends tightly abutted.

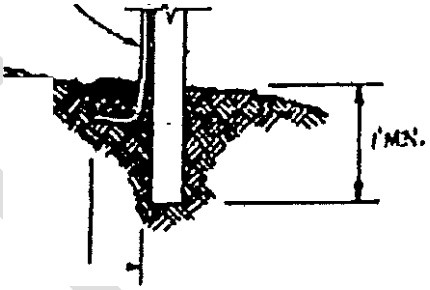
C. Anchor each bale with 2 re-bars or wood stakes hammered ½ to 2 feet into the ground. Angle first stake in each bale toward the previously laid bale.

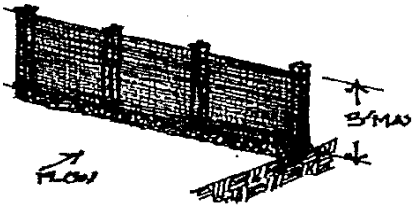
D. Wedge loose straw between bales. Backfill and compact the excavated soil against the uphill side of the barrier.



E. When installing bales on pavement, you can

pile gravel or rock behind the bales to hold them in place.



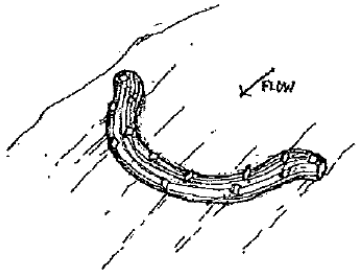


SILT FENCE: Silt fence is required when excavation occurs next to any watercourse and must be installed prior to any earthwork.

The following method should be used to install silt fence or filter fence:

A. Space posts no more than 10’ apart and drive them at least 1' into the ground, align the fence along the slope of the contour, curving it slightly uphill to avoid end runs.

B. The fabric should not extend more than 3' above the ground. Cut filter fabric from a continuous roll to avoid having joints. Where joints are necessary, splice the fabric only at a post, with at least a 6" overlap, and fasten both ends securely to the post.



C. Fasten mesh to uphill side of posts with staples or wire, extend mesh to bottom of trench.(Do not attach mesh or fabric to trees.)

D. Dig a 4" x 4" trench on the uphill side of the fence.

E. Backfill trench and compact the soil.

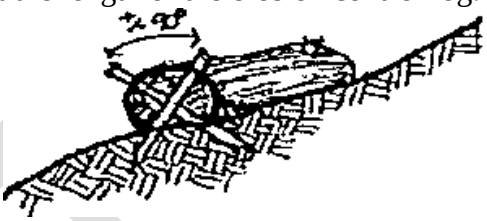
Note: Silt fences will not withstand high-volume of water, snow loading and high wind environments and often require higher maintenance.

The following method should be used to install an erosion control log:

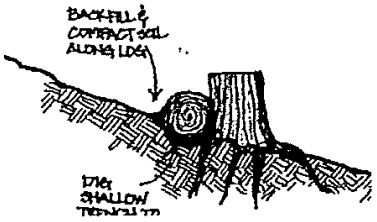
A. Erosion control logs should conform to the slope and must maintain contact with the

ground the entire length of the log. When installed in series as a wattle, ends should be tightly fastened together with plastic ties.

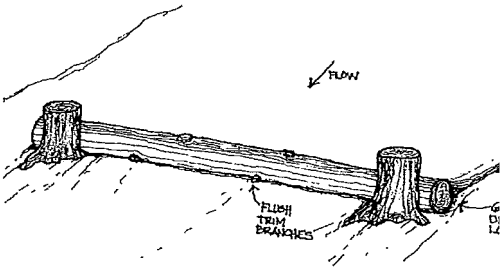
B. Install using 1 312" x 1 W' x min. 24" wood stakes. Locate stakes at all ends or joints, otherwise on 24" centers. . Alternate orientation throughout the length of the erosion control log. Proper staking is essential for erosion control log function.



The following method should be used to install a native erosion control log:



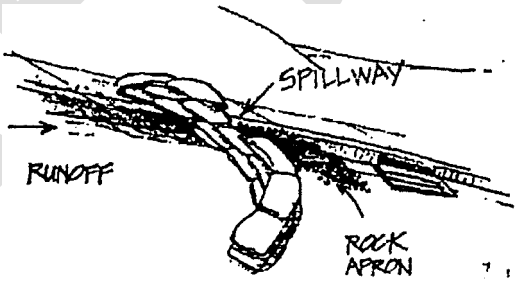
A. Cut a native log to length, allowing for some overlap past each of the supporting tree stumps. Flush trim the branches.



B. Dig a shallow trench, slightly wider and longer than the log, on the uphill side of the tree stumps. Set the log into trench and against the supporting tree stumps.

C. Backfill and compact the excavated soil along uphill side of the log barrier.

The following method should be used to install a sandbag sediment barrier:



A. Place a row of sandbags from the top of the curb to at least 3' into the driveway. Curve the barrier so the ends point uphill.

B. Place a second layer of bags overlapping the first. Press the bags tightly together to eliminate any spaces between the bags.

C. Place a third layer of bags on top leaving a 611 wide spill way near the center of the row.

D. If the driveway is unpaved, construct a rock apron below the downhill side of the spillway (see section on outlet protectors).

E. Add 1 or 2 more layers of bags, if necessary, to accommodate higher flow. If using more than 3 layers, place a second row of bags behind the first for reinforcement. Leave a gap in the top layer as a spillway.

2. MATERIALS:

- For a straw bale sediment barrier, use straw bales (bound with wire or twine) and wood or steel stakes, minimum 4- foot long (2" X 2" wood, re-bars or steel pickets) , 2 stakes per bale.
- For a filter fence, use filter fabric (42 inches wide, tensile strength = 120 lbs., equivalent opening size 70); posts, minimum 5 feet long (4" X 4" wood or 1.3 lbs/ ft steel); wire mesh (42 inches wide, 6 inch mesh maximum, 14-guage wire minimum); staples for wood posts (heavy duty, 1 inch long minimum); and wire

for steel posts. Note: Some types of filter fence have stakes included and do not require all the above materials.

- For an erosion control log sediment barrier, use 9 to 18 inch diameter tubular mesh encased straw, coir or excelsior erosion logs, and 1 ½ x 1 ½" wood or rebar stakes, minimum 24 inches long, placed every 24 inches along length.
- For a natural erosion control log sediment barrier, use a minimum 6 to 8 inch diameter site harvested log with all branches trimmed flush to trunk.
- For a sandbag barrier, use sandbags and add rocks if needed.

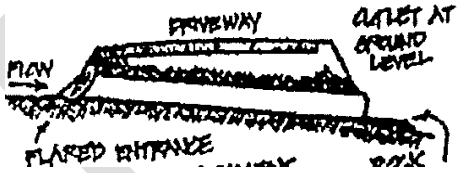
3. **MAINTENANCE**:
   - Inspect periodically and after each storm, and before the winter season.
   - Replace damaged bales or logs; re-anchor displaced ones.
   - Clean out accumulated sediment before it reaches the top of the bales or logs.
   - Deposit the sediment where it will not enter a drainage way.
   - To winterize a site adequately, all loose fill material should be protected from erosion. Cover fill material necessary for backfilling during the next grading season with sheeting of straw and install a sediment barrier around it. Remove loose material and rocks from the road and from drainage ditches or gutters. Gravel or pave driveways and access roads before the grading season ends. Where slope stabilization is necessary as a permanent erosion control measure, it should be installed before the winter season to prevent undue erosion.

4. **TEMPORARY OR PERMANENT USE**: Sediment barriers are temporary BMPs.

BMP: DRIVEWAY AND PARKING AREA STABILIZATION

1. METHODS: As soon as driveways and parking areas are graded, pave them or cover them with gravel to prevent soil erosion. Spread a 4" layer of W' to %" gravel over these areas. Size culverts to handle the peak flow during a heavy storm. Generally, the Site Development Department, Road and Bridge Department or private engineer will size the culvert necessary for installation in roadside ditches along public roads. Where sizing requirements are not provided, as a rule-of-thumb, use a culvert with twice the cross-sectional area of the channel draining into it. The extra capacity is needed because of flow efficiency loss at the culvert's inlet.

Erosion frequently occurs at culvert entrances. It is best to



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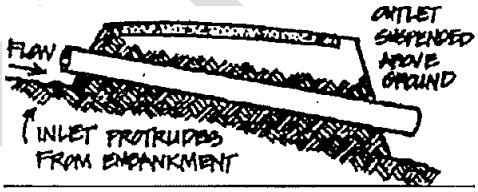
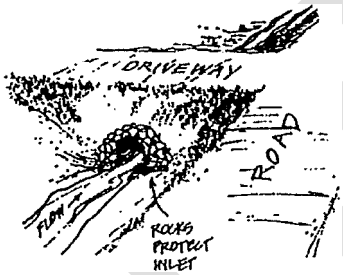
install a culvert with its inlet flush to the embankment. The edge of the pipe should be rounded or flared to improve flow into it. Place rocks or sandbags around the inlet to prevent scour. As flow volumes and velocities increase, outlet protection is usually needed. An outlet protector, such as a rock apron, is a device for absorbing the energy of water discharging from a pipe or channel. Outlet protectors should be used:



- Below culverts.
- Below sediment trap outlets.
- Where a steep or paved channel drains into an unlined or natural drainageway.



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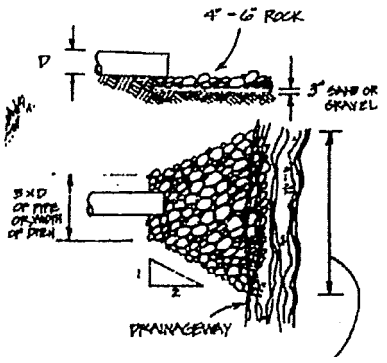
2.MATERIALS: The following method should be used to construct a rock apron outlet protector. (Note: The following description applies to a ditch or culvert discharging at the side of a drainageway.) The ditch or culvert should end at the top of the bank of this drainageway if you are constructing a driveway and culvert across a natural drainageway.



A. Place a 3" layer of sand or gravel in a trapezoidal-shaped apron from the ditch or culvert to the middle of the drainageway. The apron width at a ditch should be as wide as the ditch. The apron width at a culvert should be 3 times the culvert's diameter. The apron should flare out at a ratio of 1' sideways for each 2' of length until the apron is 5 times the width of the ditch or culvert.

B. Place a layer of 4" to 611 rock on the top of the apron. The top of the finished apron should be at the same level as the inflowing ditch or culvert and should slope at the existing grade.

3. MAINTENANCE:

- Inspect inlets and outlets during and after each storm.
- Replace dislodged stones with larger ones.
- Enlarge the apron if erosion is occurring around its edges.

4. TEMPORARY OR PERMANENT USE: Driveway and parking area stabilization can be temporary or permanent BMPs.

BMP: INFILTRATION SYSTEMS

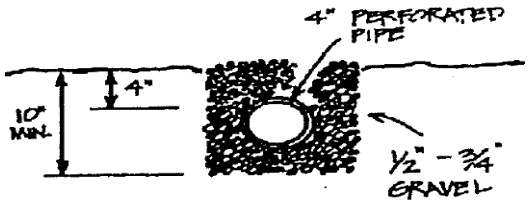
1. METHODS: An infiltration system is a device used to percolate runoff into the soil. A typical system is a rock-filled trench/ basin (called a dry well) or Infiltrator Chambers. Both mechanisms are similar to a septic system's leach field. The rock-filled trench is limited in storage capacity compared to the Infiltrator Chamber. You should infiltrate runoff from all impervious surfaces, including roof tops, driveways, and areas where the soil has been packed down.

An infiltration system should be used:

- Below roof drip lines;
- In conjunction with downspouts/ gutters;
- Along driveways and walkways;
- Along dikes and ditches;
- Below sediment trap outlets; and
- On flat or gently-sloping ground.

Infiltration systems are required on all BMP Permits and for all development where the roof square footage area is greater than 1,750 square feet.

The capacity of infiltration trenches decreases as the slope of the trench increases. Don't build infiltration trenches with drain slopes steeper than 15%. Where a roof drip line or driveway exceeds 15% slope, install a lined ditch to convey the runoff to a dry well or lateral infiltration trench located along a slope contour.



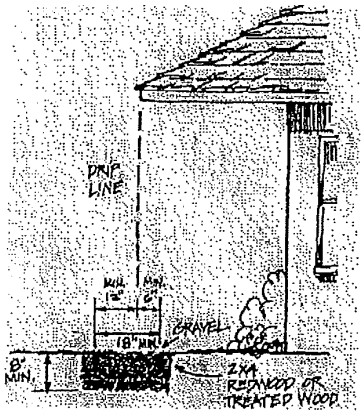
A French drain is a trench containing a perforated pipe surrounded by gravel.

Where water dripping from a roof will fall on a slope above a house's foundation, install a French drain to convey the roof drip to an infiltration system away from the house. The French drain will prevent water from seeping under the foundation and weakening it.

Where an infiltration system is located below a disturbed area, install a sediment barrier to remove the soil before it reaches the system.

Removing sediment from the runoff will increase the efficiency of the infiltration system and reduce maintenance costs.

The size of the infiltration system depends on soil permeability,

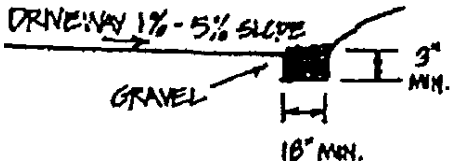


runoff area and is sized according to storm events. The system must be able to infiltrate at a minimum 0.5" of precipitation per hour, which is 90% of the precipitation from storm events. A more effective system would be designed for l" of precipitation which is 95% of the annual storm events. If you have hired an architect or engineer to prepare the plans for your house, he or she can calculate the size of the infiltration system needed.
The following method should be used to construct a roof drip line infiltration trench:

A. Dig a trench of the required size along the roof drip line as shown. Allow 3" extra width for the border boards.

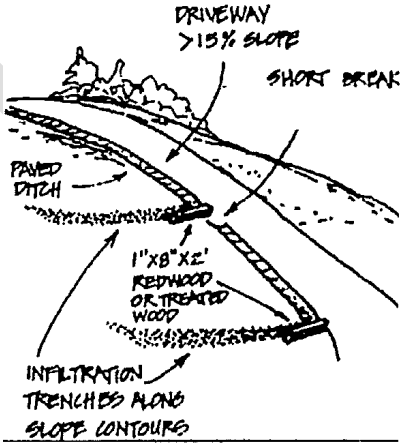
B. Add the border boards (which are optional) and gravel to fill the trench to ground level.

C. Downspout/ gutter infiltration devices are designed per project. Either an engineer, contractor or the County's Site Development Department can assist on a design. See diagrams for examples of these devices.



The following method should be used to construct a driveway infiltration trench when the driveway surface is paved or non-erodible:

A. 'Grade the driveway with a 1%-5% slope towards the trench.



B. If the driveway slope is less than 15%, size and construct a trench along the low side of the driveway as described above.

C. If driveway slope is 15% or more, install a paved ditch or trench drain along the low side of the driveway and route the runoff to lateral infiltration trenches located along slope contours or to dry wells located in more level areas. Install a 2' long water bar between each section of ditch to prevent runoff from continuing down slope.

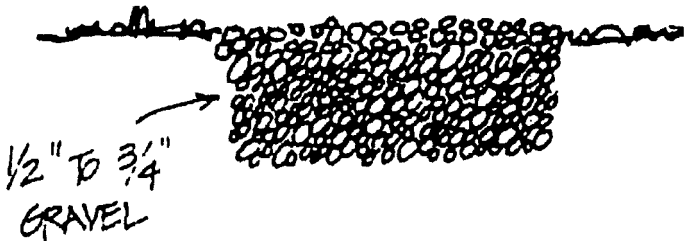
D. Do not install lateral infiltration trenches on fill slopes steeper than 4 horizontal to 1 vertical (4: 1). Do not locate a driveway on top of an infiltration trench. Avoid placing infiltration trenches where their construction will damage tree roots.

The following method should be used to construct a dry well:

A. Determine the required dry well size.

B. Dig a basin of the required size and fill it with gravel. You may want to cover the top of the dry well with a shallow layer of sand or wood chips to create a more pleasing appearance.

Lateral Infiltration trenches



2. MATERIALS:

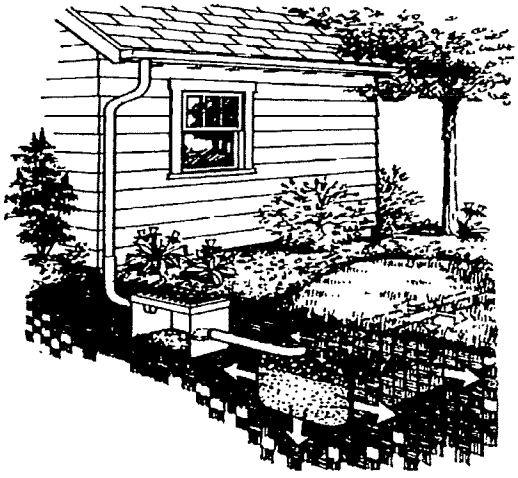
- Catch basin
- Perforated pipe
- Gravel
- Wood, cinderblock, etc.

3. MAINTENANCE:

- Clean out accumulated sediment and debris when the dry well fails to infiltrate storm runoff.

4. TEMPORARY OR PERMANENT USE: Infiltration systems are permanent BMP's.

Dry Well (seepage pit)

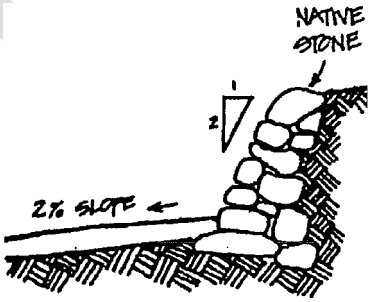


BMP: SLOPE STABILIZATION

1. METHODS: Rip rapping is the use of cobble-size rock, generally 6"- 10" in size, placed closely together on disturbed soils to prevent erosion. Rock riprap is generally the most effective erosion control device for slopes greater than 30%. It can also be used on less steep slopes and works well with seeding. Concrete can be used to fill in between the rocks to hold the riprap securely in place, a common practice on steep slopes.

Slopes that are cut for building or driveway construction are sometimes so steep that vegetation or rip rapping alone cannot adequately protect them. Runoff from these over-steepened slopes often erodes the toe of the slope, causing continued slope slippage. Retaining walls prevent toe erosion and slope slippage.

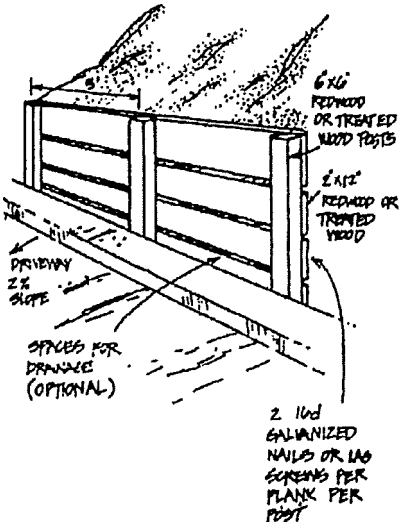
The following method should be used to construct a native rock retaining wall. (Note: Any retaining wall over 4' high shall be designed by a licensed Colorado engineer and require a retaining wall permit.



A. Remove all large rocks from the eroding slope and stockpile on site.
B. Dig a footing trench along the toe of the slope.
C. Place the largest rocks in the trench with their longest axes perpendicular to the slope.
D. The face of the wall may vary from vertical to a 1:2 slope.
E. Fill the space behind the rock wall with leftover soil excavated from the site.
F. Slope the ground at the base of the wall at a 2% grade away from the wall and stabilize it with vegetation or mulch. If a driveway is located at the base of the wall, pave it up to the wall or install a curb.

The following method should be used to construct a wood retaining wall. Note: Any retaining wall over 4' high and shall be designed by a licensed Colorado engineer and require a retaining wall.

A. Set 611 x 611 wood posts into concrete foundations at least 2' into ground. Space the posts 5' apart.
B. Nail 2" x 12" wood planks to the upslope side of posts. Leave a small vertical space between planks to allow drainage at the base of the wall and between planks. You may want to backfill the space behind the wall with surplus soil from excavations.
C. Slope the ground at base of the wall at a 2% grade away from the wall and stabilize it with vegetation or mulch. If a driveway is located at the base of the wall, pave it up to the wall or install a curb.



2. MATERIALS:

- Rocks
- Redwood, cedar, or treated wood
- Rock-filled baskets (gabions)
- Railroad ties
- Concrete
- Steel

3. MAINTENANCE: Inspect periodically for erosion, slippage, sloughing, or other damage. Repair as needed.

4. TEMPORARY OR PERMANENT USE: Slope stabilization can be a temporary or permanent BMP.

BMP: INLET AND OUTLET PROTECTION

1 METHODS: The primary function of stormwater inlet protection is to decrease sedimentation/ siltation impacts to these devices, which increases their functionality and longevity. Outlet protection, such as rip-raping drainage ways, reduces channelization and decreases erosion. Once a stormwater device is installed, protection to both inlets and outlets should then also be installed.

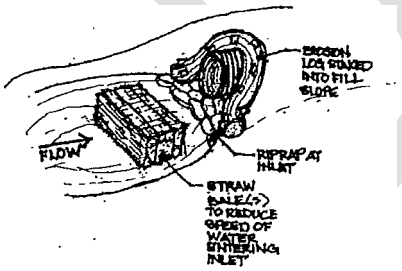
2 MATERIALS:

- Straw bales, erosion control logs, silt fence, sand bags and rip- rap.

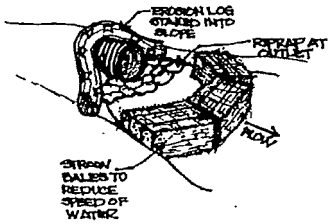
3 MAINTENANCE:

- Silt and sediment must be removed on a regular basis.
- Devices installed should be inspected after each storm event.

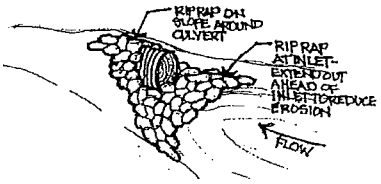
4 TEMPORARY OR PERMANENT USE: Inlet and outlet protection can be a temporary or permanent BMP.



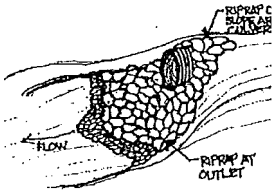
Temporary
Inlet Protection



Temporary
Outlet Protection



Permanent Inlet Protection



Permanent Outlet Protection

BMP: SNOW REMOVAL

1. METHODS: Snow removal is essential for the safe and efficient operation of roads, parking areas and driveways. In rural areas and along highways, snow is usually plowed to the sides of roads and allowed to melt there. In more densely developed areas, particularly in commercial areas and parking lots, snow must be removed and transported by truck to separate storage areas. Because of the concentration of petroleum products (from oil and gasoline) and salt in snow on roads and parking areas, the runoff from stockpiled snow can have significant impacts on water quality. Suggested methods for minimizing these impacts are:

- Where conditions permit, plow snow to the center of roadways and parking areas prior to removal by truck. This reduces the clogging of storm drains and reduces damage to curbing and other structures.
- Create a snow storage area that prevents contaminated snowmelt from reaching stream channels and groundwater. The size of the area will be vary with the needs of the municipality, but in general should be of sufficient size to allow evaporation. The area should be lined and bermed to prevent runoff, and incorporate a settling pond if necessary.
- If snow storage area is located near a waterway it should be surrounded by a sand berm for the snowmelt to percolate through.
- Do not dump or plow snow into or adjacent to stream channels, storm drains or other drainage ways.
- Remove plowed snow as soon as possible following storm to minimize on-site runoff.

2. MATERIALS: Silt fence, berms, hay bales, riprap, see other BMP's.

3. MAINTENANCE: Storage area(s) should be checked annually, and any necessary repairs to liners, berms or settling ponds. Sand and other foreign materials should periodically be removed as needed.

4. TEMPORARY OR PERMANENT USE: Permanent installation recommended.

BMP: SANDING PROCEDURES

1. **METHODS**: Wintertime sanding during storms is a necessity for roads and driveways in the upper Clear Creek watershed. Since road sand typically contains some percentage of salt (5 to 20%), snow melt can have negative effects on water quality. Recommended methods include:
   - Use the minimum amount of sand needed to accomplish the job.
   - Use the lowest feasible content of salt.
   - Sweep sand from paved roads as soon as possible following storm.
   - Recycle sand if feasible.
   - Store sand on lined, curbed or bermed site and under shelter if possible.

2. **MATERIALS**: Sand with salt. Alternate materials to reduce fugitive dust and reduce the need for salt are being evaluated by various municipalities and the Department of Transportation. Contact CDOT for more information.

3. **MAINTENANCE**: Sand should be removed from paved streets as soon as feasible following storm.

4. **TEMPORARY OR PERMANENT USE**: This is a permanent BMP.

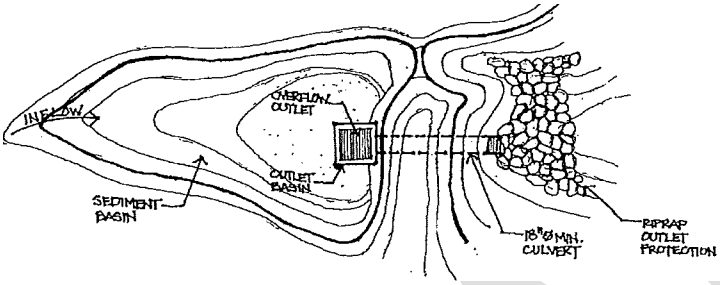
BMP: SEDIMENT BASINS

1. METHODS: Sediment basins are small impoundments that allow sediment to settle out of stormwater runoff. The outlet from the sediment basin should be designed to empty its volume over an extended period of time.

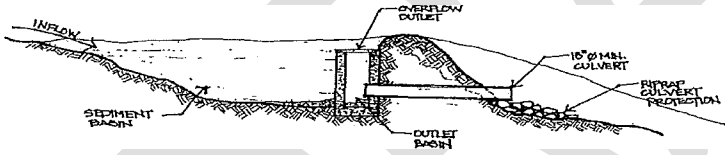
2. MATERIALS: Inlet structure and pipe, riprap and compacted earth.

3. MAINTENANCE: Remove sediment as required.

4. TEMPORARY OR PERMANENT USE: Permanent.



Sediment Basin



Sediment Basin Section

BMP: CONSTRUCTION FENCE

1. **METHOD**: Construction fence is required on slopes greater than 20° when adjacent to a public / private road, adjacent to any structures or if determined it is needed to provide for the health, safety or welfare of the general public.

There are several types of construction fence that can be used. They vary in strength and integrity. On steeper, rockier slopes, a chain link fence and metal post will be required. Gentler, less rocky
slopes can use the welded wire fence and in some cases, the orange plastic construction fence will be required.

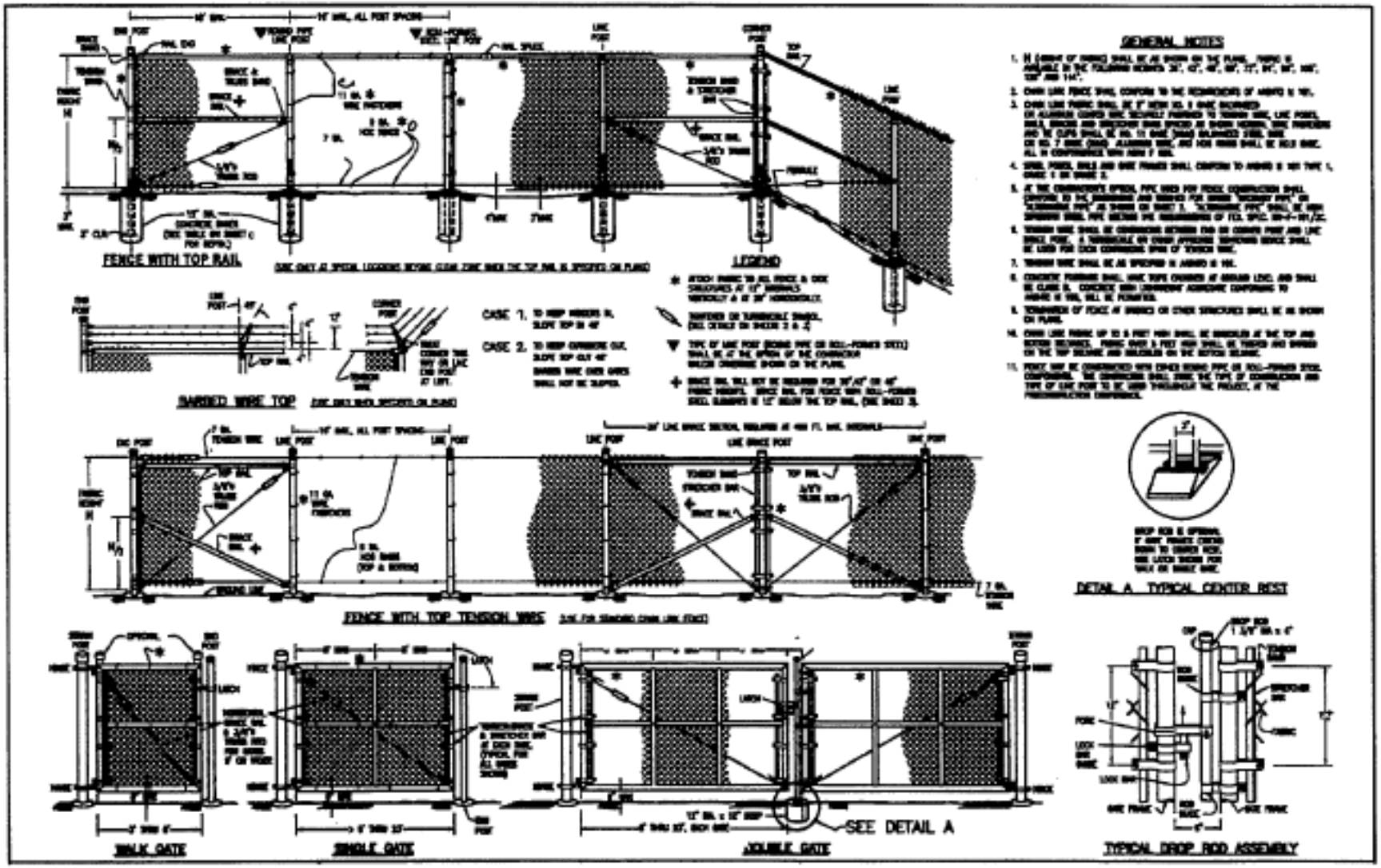
Brush barriers are also a mechanism that can be used in place of a construction fence. A brush barrier is the tree material removed from the site and placed on the downside of all excavation, relatively close to the ground. Trees are a great tool for decreasing rock fall from the property and should be used where appropriate.

2. **MATERIALS:**
   - 4' - 2"x4" Welded Wire Fence and standard 6' Fence Posts
   - 4' or 6' Chain Link Fence with Steel Posts
   - Native tree material used from site for a Brush Barrier

The individual permit will specify what type of safety barrier to use. These devices must be installed prior to any excavation.

3. **MAINTENANCE TIPS:**
   - Repair or replace fence as needed
   - Repair or replace any fence posts
   - Inspect daily after excavation
   - Add additional tree material when needed

4. **TEMPORARY OF PERMANENT USE:** The fence or brush barrier is a temporary BMP. The fence or brush barrier can be removed after excavation is completed and the slope has been stabilize.



Clear Creek County Chain Link Fence Detail

BMP: PAVING

1. METHODS: Paving is required on private roads, driveways and parking areas when they are accessed by a paved road. Parking areas and drives must be paved with a minimum of 6 inches of road base compacted to 95% modified Proctor and 3 inches of asphalt, see figure. Paved parking areas for all other development shall be designed in accordance with Section 2.43. C, with TI equaling 6.0, as per Clear Creek County's Roadway Design and Construction Manual.

The County may also require pavement that drinks, or porous pavement. This requirement will be contingent upon any land use case stipulation / condition and will be designed by a Colorado licensed engineer.

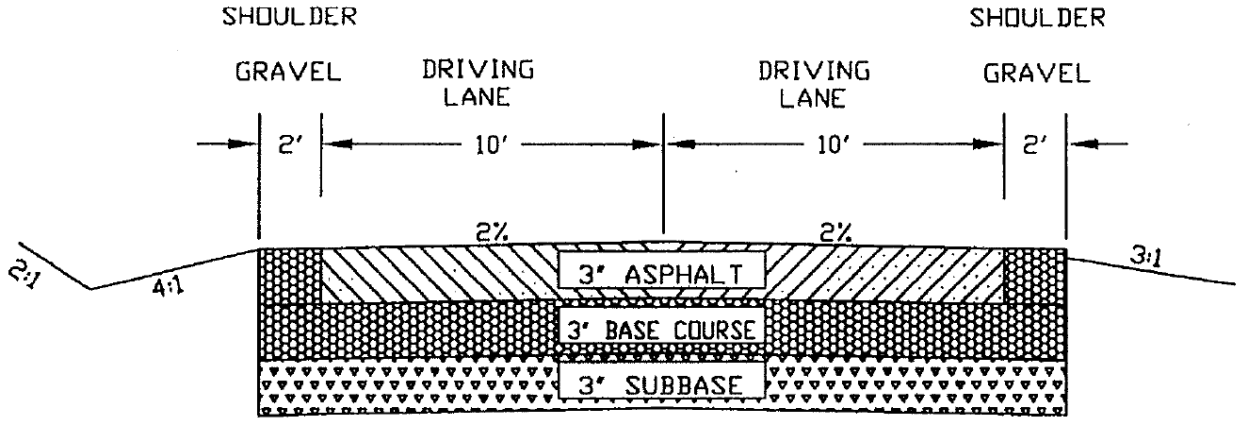
2. MATERIALS:

- 3" asphalt, 3" base course, 3" subbase, as per figure 6, Clear Creek County's Roadway Design and Construction Manual.

3. MAINTENANCE TIPS:

- Replace/ repair as required.

4. TEMPORARY OR PERMANENT USE: Paving is a temporary and Permanent BMP.



Typical Cross Section for a Primitive Status Road

- The Primitive Road Standard can be either one (1) or two (2) lanes as per Clear Creek County Roadway Design and Construction Manual .
- Parking areas are required to meet the same criteria as above (3" Asphalt, 3" Base Course and 3" Sub Base) with a maximum of 4% grade.