USDA NRCS
United States Department of Agriculture
Natural Resources Conservation Service

Grass Seeding Planned and Applied Worksheet

Grass Seeding PART I - Planned

Cooperator	Fremont County DOT	Date	4/12/2018
Tract/Field No	n/a	Acres	8.3
Soil Survey Area	49	Map Unit (s)	22
Contract No.	n/a	CIN	n/a

Seeding dates	Jun 15 - Jul 15; Oct 1 - Apr 30	Purpose	Other
Seedbed preparation	Limited: less than 3 tillage operations	Seed rate	Non-irrigated broadcast (40 seeds/sq ft)
Drill type	broadcast spreader	Acres to be seeded	8.30
Planting depth-Drill spacing (in)	1/4-1/2 in.		

	N	P_2O_5	K_2O
Planned fertilizer application (lb/ac)	n/a	n/a	n/a

A Nutrient Management Plan is not required for the establishment of vegetative conservation practices.

Planned weed control activities: Description; Date(s)

Attach WIN-PST Soil-Pesticide Interaction Risk Report for all chemical suppression activities

Planned residue cover or mulch: Type; Amount (lb/ac); Application method

Seed Mix Recommendation, † ‡

(PLS = Pure Live Seed)

Common name N=native, I=introduced		Genus, species	Recommended Cultivar	% of seed mix	Total Pounds PLS	Pounds PLS per acre
Grasses, forbs						
Grama, Blue	N	*Bouteloua gracilis*	Hachita	25.0	5.19	0.63
Grama, Sideoats	N	*Bouteloua curtipendula*	Vaughn	25.0	18.88	2.28
Indian ricegrass - Nezpar, Rimrock	N	*Achnatherum hymenoides*	Nezpar Rimrock	25.0	15.36	1.85
Wheatgrass, Western	N	*Pascopyrum smithii*	Arriba	25.0	33.20	4.00
				100.0		
Shrubs (add shrub seed to grass - forb seed mix)						
				Shrubs	0.00	
				Grasses, Forbs	72.63	
				Total lbs PLS	72.63	
				Seed Rate (Pounds PLS per acre)		8.75

† Certified Seed is required for all NRCS cost share programs

‡ Complete a Tree and Shrub Establishment 612 Job Sheet for bare-root shrub plantings

Additional Recommendations

Certified Planner	Jeremy Buss	**Date**	4/12/2018

Grass Seeding **PART II - Applied** (Seed tags must be attached)

Cooperator	Fremont County DOT	Seed rate	Non-irrigated broadcast (40 seeds/sq ft)
Acres seeded			
Seedbed preparation		Seeding date	
Weed control		Suppression date(s)	
Residue cover or mulch type			
Residue/mulch amount (lb/ac)			

Common name		Cultivar	Bulk pounds	Percent Germination	Percent Purity	Percent PLS	Total Pounds PLS	Pounds PLS per acre
Grasses, forbs								
Shrubs								

Bulk Pounds per acre

Grasses, forbs 0.00
Shrubs 0.00
Total lbs PLS 0.00

Cost Information

Common name		lbs PLS /ac	lbs PLS/ac 100% seed rate	PLS % of seed rate	Bulk seed cost $	PLS cost $/lb	PLS cost $/ac
Grasses, forbs							
Shrubs							

Grasses, forbs	0.00	**% of seed rate**	0.00		$ -
Shrubs	0.00				$ -
Seed rate (lbs PLS/ac)	0.00	**Total cost of bulk seed**	$ -	**PLS ($/ac)**	$ -
		Max $/ac CRP	$ -	**Max $ CRP**	$ -
		Max $/ac NRCS	$ -	**Max $ NRCS**	$ -

Approved By

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Fremont County Area, Colorado

Fremont Co.

April 12, 2018

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map

Map Scale: 1:2,270 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 30 60 120 180

Feet
0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 13N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: Fremont County Area, Colorado
Survey Area Data: Version 15, Oct 12, 2017

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

Date(s) aerial images were photographed: Data not available.

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
22	Coaldale very gravelly sandy loam, 20 to 45 percent slopes	13.2	100.0%
Totals for Area of Interest		**13.2**	**100.0%**

Map Unit Descriptions

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

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

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

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

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

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

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

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

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

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

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

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

Fremont County Area, Colorado

22—Coaldale very gravelly sandy loam, 20 to 45 percent slopes

Map Unit Setting

National map unit symbol: jqhr
Elevation: 6,700 to 7,700 feet
Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 43 to 46 degrees F
Frost-free period: 85 to 105 days
Farmland classification: Not prime farmland

Map Unit Composition

Coaldale and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Coaldale

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Residuum weathered from granite and/or residuum weathered from gneiss

Typical profile

A - 0 to 3 inches: very gravelly sandy loam
Bt - 3 to 10 inches: very gravelly sandy clay loam
Bk - 10 to 18 inches: very gravelly sandy loam
R - 18 to 22 inches: bedrock

Properties and qualities

Slope: 20 to 45 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Natural drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Available water storage in profile: Very low (about 1.3 inches)

Interpretive groups

Land capability classification (irrigated): 7e
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Other vegetative classification: Twoneedle pinyon - oneseed juniper/mountain mahogany (PIED-JUMO/CEMO2) (W0407)
Hydric soil rating: No

Minor Components

Bronell

Percent of map unit: 5 percent
Landform: Mountain slopes, drainageways
Landform position (three-dimensional): Mountainbase
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: No

Rock outcrop

Percent of map unit: 5 percent
Landform: Mountain slopes
Landform position (three-dimensional): Mountainflank
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Soil Information for All Uses

Soil Reports

The Soil Reports section includes various formatted tabular and narrative reports (tables) containing data for each selected soil map unit and each component of each unit. No aggregation of data has occurred as is done in reports in the Soil Properties and Qualities and Suitabilities and Limitations sections.

The reports contain soil interpretive information as well as basic soil properties and qualities. A description of each report (table) is included.

Construction Materials

This folder contains a collection of tabular reports that present soil interpretations related to sources of construction materials. The reports (tables) include all selected map units and components for each map unit, limiting features and interpretive ratings. Construction materials interpretations are tools designed to provide guidance to users in selecting a site for potential source of various materials. Individual soils or groups of soils may be selected as a potential source because they are close at hand, are the only source available, or they meets some or all of the physical or chemical properties required for the intended application. Example interpretations include roadfill, sand and gravel, topsoil and reclamation material.

Source of Sand and Gravel

This table gives information about the soils as potential sources of gravel and sand. Normal compaction, minor processing, and other standard construction practices are assumed.

Sand and gravel are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. Only the likelihood of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material. The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the Unified classification of the soil), the thickness of suitable material, and the content of rock fragments. If the bottom layer of the soil contains sand or gravel, the soil is considered a likely source regardless of thickness. The assumption is that the sand or gravel layer below the depth of observation exceeds the minimum

thickness. The ratings are for the whole soil, from the surface to a depth of about 6 feet.

The soils are rated *good*, *fair*, or *poor* as potential sources of sand and gravel. A rating of *good* or *fair* means that the source material is likely to be in or below the soil. The bottom layer and the thickest layer of the soils are assigned numerical ratings. These ratings indicate the likelihood that the layer is a source of sand or gravel. The number 0.00 indicates that the layer is a poor source. The number 1.00 indicates that the layer is a good source. A number between 0.00 and 1.00 indicates the degree to which the layer is a likely source.

Information in this table is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil between the surface and a depth of 5 to 7 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this table. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Report—Source of Sand and Gravel

[Onsite investigation may be needed to validate the interpretations in this table and to confirm the identity of the soil on a given site. The numbers in the value columns range from 0.00 to 0.99. The larger the value, the greater the likelihood that the bottom layer or thickest layer of the soil is a source of sand or gravel]

Source of Sand and Gravel–Fremont County Area, Colorado					
Map symbol and soil name	Pct. of map unit	Potential as a source of gravel		Potential as a source of sand	
		Rating class and limiting features	Value	Rating class and limiting features	Value
22—Coaldale very gravelly sandy loam, 20 to 45 percent slopes					
Coaldale	90	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.03
		Thickest layer	0.00	Thickest layer	0.07

Vegetative Productivity

This folder contains a collection of tabular reports that present vegetative productivity data. The reports (tables) include all selected map units and components for each map unit. Vegetative productivity includes estimates of potential vegetative production for a variety of land uses, including cropland,

forestland, hayland, pastureland, horticulture and rangeland. In the underlying database, some states maintain crop yield data by individual map unit component. Other states maintain the data at the map unit level. Attributes are included for both, although only one or the other is likely to contain data for any given geographic area. For other land uses, productivity data is shown only at the map unit component level. Examples include potential crop yields under irrigated and nonirrigated conditions, forest productivity, forest site index, and total rangeland production under of normal, favorable and unfavorable conditions.

Rangeland and Forest Vegetation Classification, Productivity, and Plant Composition

In areas that have similar climate and topography, differences in the kind and amount of rangeland or forest understory vegetation are closely related to the kind of soil. Effective management is based on the relationship between the soils and vegetation and water.

This table shows, for each soil that supports vegetation, the ecological site, plant association, or habitat type; the total annual production of vegetation in favorable, normal, and unfavorable years; the characteristic vegetation; and the average percentage of each species. An explanation of the column headings in the table follows.

An *ecological site, plant association, or habitat type* is the product of all the environmental factors responsible for its development. It has characteristic soils that have developed over time throughout the soil development process; a characteristic hydrology, particularly infiltration and runoff that has developed over time; and a characteristic plant community (kind and amount of vegetation). The hydrology of the site is influenced by development of the soil and plant community. The vegetation, soils, and hydrology are all interrelated. Each is influenced by the others and influences the development of the others. The plant community on an ecological site, plant association, or habitat type is typified by an association of species that differs from that of other ecological sites, plant associations, or habitat types in the kind and/or proportion of species or in total production. Descriptions of ecological sites are provided in the Field Office Technical Guide, which is available in local offices of the Natural Resources Conservation Service (NRCS). Descriptions of plant associations or habitat types are available from local U.S. Forest Service offices.

Total dry-weight production is the amount of vegetation that can be expected to grow annually in a well managed area that is supporting the potential natural plant community. It includes all vegetation, whether or not it is palatable to grazing animals. It includes the current year's growth of leaves, twigs, and fruits of woody plants. It does not include the increase in stem diameter of trees and shrubs. It is expressed in pounds per acre of air-dry vegetation for favorable, normal, and unfavorable years. In a favorable year, the amount and distribution of precipitation and the temperatures make growing conditions substantially better than average. In a normal year, growing conditions are about average. In an unfavorable year, growing conditions are well below average, generally because of low available soil moisture. Yields are adjusted to a common percent of air-dry moisture content.

Characteristic vegetation (the grasses, forbs, shrubs, and understory trees that make up most of the potential natural plant community on each soil) is listed by common name. Under *rangeland composition and forest understory*, the expected

percentage of the total annual production is given for each species making up the characteristic vegetation. The percentages are by dry weight for rangeland. Percentages for forest understory are by either dry weight or canopy cover. The amount that can be used as forage depends on the kinds of grazing animals and on the grazing season.

Range management requires knowledge of the kinds of soil and of the potential natural plant community. It also requires an evaluation of the present range similarity index and rangeland trend. Range similarity index is determined by comparing the present plant community with the potential natural plant community on a particular rangeland ecological site. The more closely the existing community resembles the potential community, the higher the range similarity index. Rangeland trend is defined as the direction of change in an existing plant community relative to the potential natural plant community. Further information about the range similarity index and rangeland trend is available in the "National Range and Pasture Handbook," which is available in local offices of NRCS or on the Internet.

The objective in range management is to control grazing so that the plants growing on a site are about the same in kind and amount as the potential natural plant community for that site. Such management generally results in the optimum production of vegetation, control of undesirable brush species, conservation of water, and control of erosion. Sometimes, however, an area with a range similarity index somewhat below the potential meets grazing needs, provides wildlife habitat, and protects soil and water resources.

Reference:
United States Department of Agriculture, Natural Resources Conservation Service, National range and pasture handbook.

Rangeland and Forest Vegetation Classification, Productivity, and Plant Composition–Fremont County Area, Colorado								
Map unit symbol and soil name	**Ecological Site, Plant Association, or Habitat Type**	**Total dry-weight production**			**Characteristic rangeland or forest understory vegetation**	**Composition**		
		Favorable year	**Normal year**	**Unfavorable year**			**Rangeland**	**Forest understory**
		Lb/ac	*Lb/ac*	*Lb/ac*			*Pct dry wt*	*Pct dry wt*
22—Coaldale very gravelly sandy loam, 20 to 45 percent slopes								
Coaldale	Twoneedle pinyon - oneseed juniper/mountain mahogany (PIED-JUMO/CEMO2) (W0407)	250	200	150	blue grama		20	
					Scribner needlegrass		20	
					mountain mahogany		15	
					Indian ricegrass		5	
					needleandthread		5	
					pinyon ricegrass		5	
					sedge		5	

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STATE OF COLORADO

Cazier - DNR, Tim <tim.cazier@state.co.us>

Fw: Seed/grass mix

1 message

Annette Ortega <annette.ortega@fremontco.com> Fri, Apr 13, 2018 at 4:23 PM
To: "Cazier - DNR, Tim" <tim.cazier@state.co.us>
Cc: Tony Adamic <tony.adamic@fremontco.com>, Sterling Rife <sterling.rife@fremontco.com>, Don Moore <don.moore@fremontco.com>, Matt Koch <matt.koch@fremontco.com>

Hi Tim,

Attached is the seed mix from NRCS. Let me know if you need anything else.

Thank you,

Annette Ortega
Phone: 719-276-7430
Fax: 719-275-2120
annette.ortega@fremontco.com<mailto:annette.ortega@fremontco.com>

_____
From: Buss, Jeremy - NRCS, Canon City, CO <jeremy.buss@co.usda.gov>
Sent: Thursday, April 12, 2018 5:16 PM
To: Annette Ortega
Cc: Tony Adamic; Sterling Rife; Mitchell, Deborah - NRCS-CD, Canon City, CO
Subject: Seed/grass mix

Hi Annette,

Attached is a soils report and a seed mix with recommendations for the gravel pit permit. Let me know if you need anything else.

Jeremy Buss
Soil Conservationist
USDA Natural Resources Conservation Service
248 Dozier Ave
Canon City CO 81212
719-315-3420
[cid:image003.jpg@01CE1674.2F362CA0]

From: Annette Ortega [mailto:annette.ortega@fremontco.com]
Sent: Thursday, April 12, 2018 3:41 PM
To: Buss, Jeremy - NRCS, Canon City, CO <jeremy.buss@co.usda.gov>
Cc: Tony Adamic <tony.adamic@fremontco.com>; Sterling Rife <sterling.rife@fremontco.com>
Subject: RE: [CAUTION: Suspicious Link]FW: Seed/grass mix

Hi Jeremy,

Attached is the legal description off of SH69, as well as a map. Let me know if you need anything else, and thank you for responding so quickly!

Thank you,

Annette Ortega
Phone: 719-276-7430
Fax: 719-275-2120
Annette.ortega@fremontco.com<mailto:Annette.ortega@fremontco.com>

Nothing leaves us more hollow than being full of ourselves. We have no greater burden than our own egos. ~Beth Moore

From: Buss, Jeremy - NRCS, Canon City, CO [mailto:jeremy.buss@co.usda.gov]
Sent: Thursday, April 12, 2018 3:37 PM
To: Annette Ortega
Subject: RE: [CAUTION: Suspicious Link]FW: Seed/grass mix

Hi Annette,

I apologize for not responding faster, what is the exact location of the gravel pit? Would you have an address or legal description? Once I have that I can do a soils report and appropriate seed mix for the specific location.

Jeremy Buss
Soil Conservationist
USDA Natural Resources Conservation Service
248 Dozier Ave
Canon City CO 81212
719-315-3420
[cid:image003.jpg@01CE1674.2F362CA0]

From: Annette Ortega [mailto:annette.ortega@fremontco.com]
Sent: Thursday, April 12, 2018 2:07 PM
To: Buss, Jeremy - NRCS, Canon City, CO <jeremy.buss@co.usda.gov<mailto:jeremy.buss@co.usda.gov>>
Cc: Mitchell, Deborah - NRCS-CD, Canon City, CO <deborah.mitchell@co.nacdnet.net<mailto:deborah.mitchell@co.nacdnet.net>>
Subject: [CAUTION: Suspicious Link]FW: Seed/grass mix

PROCEED WITH CAUTION: This message triggered warnings of potentially malicious web content. Evaluate this email by considering whether you are expecting the message, along with inspection for suspicious links.

Questions: Spam.Abuse@wdc.usda.gov<mailto:Spam.Abuse@wdc.usda.gov>
Hi Jeremy,

Please see email correspondence below. I found this email in my records, so I hope this is the correct email! Fremont County is trying to get a gravel pit permitted on SH 69, and are in need of a seed mix report. The State is asking for the report before they are able to make a decision. I have not heard back from NRCS yet, and am reaching out to you to find out what is needed from us to get a seed mix report from you.

Thank you in advance for your help!

Annette Ortega
Phone: 719-276-7430
Fax: 719-275-2120
Annette.ortega@fremontco.com<mailto:Annette.ortega@fremontco.com>

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named recipient you should not disseminate, distribute or copy this email or any attachment.

From: Annette Ortega
Sent: Thursday, April 12, 2018 1:57 PM
To: 'Mitchell, Deborah - NRCS-CD, Canon City, CO'; 'info@fremontcd.org'
Subject: RE: Seed/grass mix

Hi Debbie!

I hate to bother you, but I have never heard back from Jeremy Buss about the seed mix we discussed previously (see email below). I do not have contact info for Jeremy.....would you be able to provide that information to me? The State is asking for the seed mix report for the gravel pit permit.

Thank you!

Annette Ortega
Phone: 719-276-7430
Fax: 719-275-2120
Annette.ortega@fremontco.com<mailto:Annette.ortega@fremontco.com>

Nothing leaves us more hollow than being full of ourselves. We have no greater burden than our own egos. ~Beth Moore

From: Mitchell, Deborah - NRCS-CD, Canon City, CO [mailto:deborah.mitchell@co.nacdnet.net]
Sent: Wednesday, March 28, 2018 9:18 AM
To: Annette Ortega
Subject: RE: Seed/grass mix

Good morning!!

I have forwarded your question to Jeremy Buss who should be able to better answer your questions. He is out of the office today, but, should send you an answer as soon as he can.

Thanks!!

Debbie Mitchell
District Manager
Fremont Conservation District
248 Dozier Avenue
Canon City, CO 81212
719-275-4465 X3417
info@fremontcd.org<mailto:info@fremontcd.org> OR
Deborah.mitchell@co.nacdnet.net<mailto:Deborah.mitchell@co.nacdnet.net>

From: Annette Ortega [mailto:annette.ortega@fremontco.com]
Sent: Wednesday, March 28, 2018 9:08 AM
To: Mitchell, Deborah - NRCS-CD, Canon City, CO <deborah.mitchell@co.nacdnet.net<mailto:deborah.mitchell@co.nacdnet.net>>
Subject: Seed/grass mix

Good morning!

I am contacting you to find out if you would know how deep topsoil would need to be for seed/grass growth over rock? Also, would you be able to email me information on the seed/grass mix if we were to revegetate a gravel pit? I appreciate any help you could provide!

Thank you,

Annette Ortega
Phone: 719-276-7430

Fax: 719-275-2120
Annette.ortega@fremontco.com<mailto:Annette.ortega@fremontco.com>

Nothing leaves us more hollow than being full of ourselves. We have no greater burden than our own egos. ~Beth Moore

3 attachments

image001.jpg
2K

Soil_Report.pdf
835K

CO-ECS-05_SEED_MIX.xlsm
159K