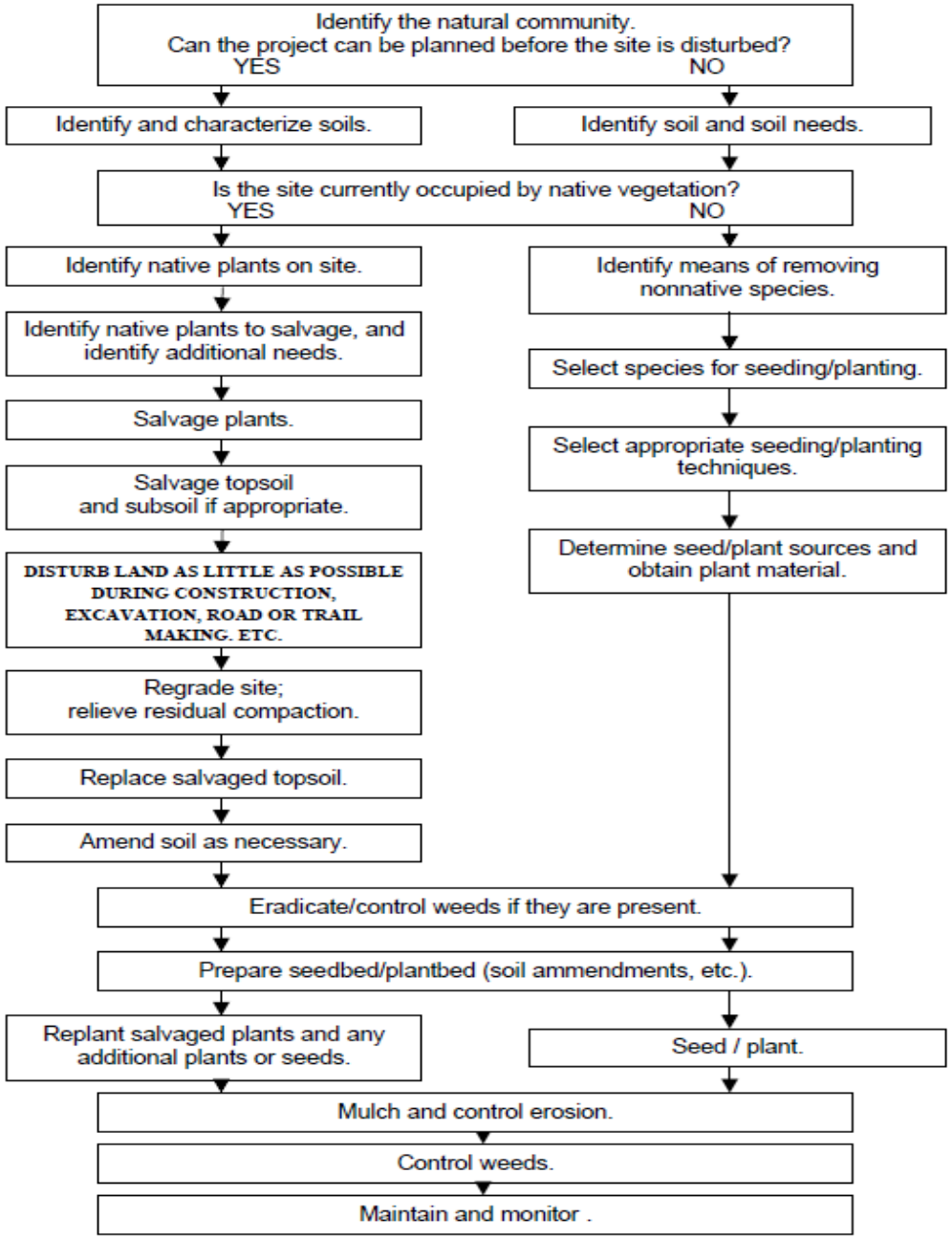
SEEDING RESTORATION PRACTICES AND PRINCIPLES

USDA United States Department of Agriculture

Overview

- Getting Started
- Flowchart
- Soils
- Assess the Site
- Cover Crop
- Seed mixes
- Seedbed preparation
- Seeding
- Management

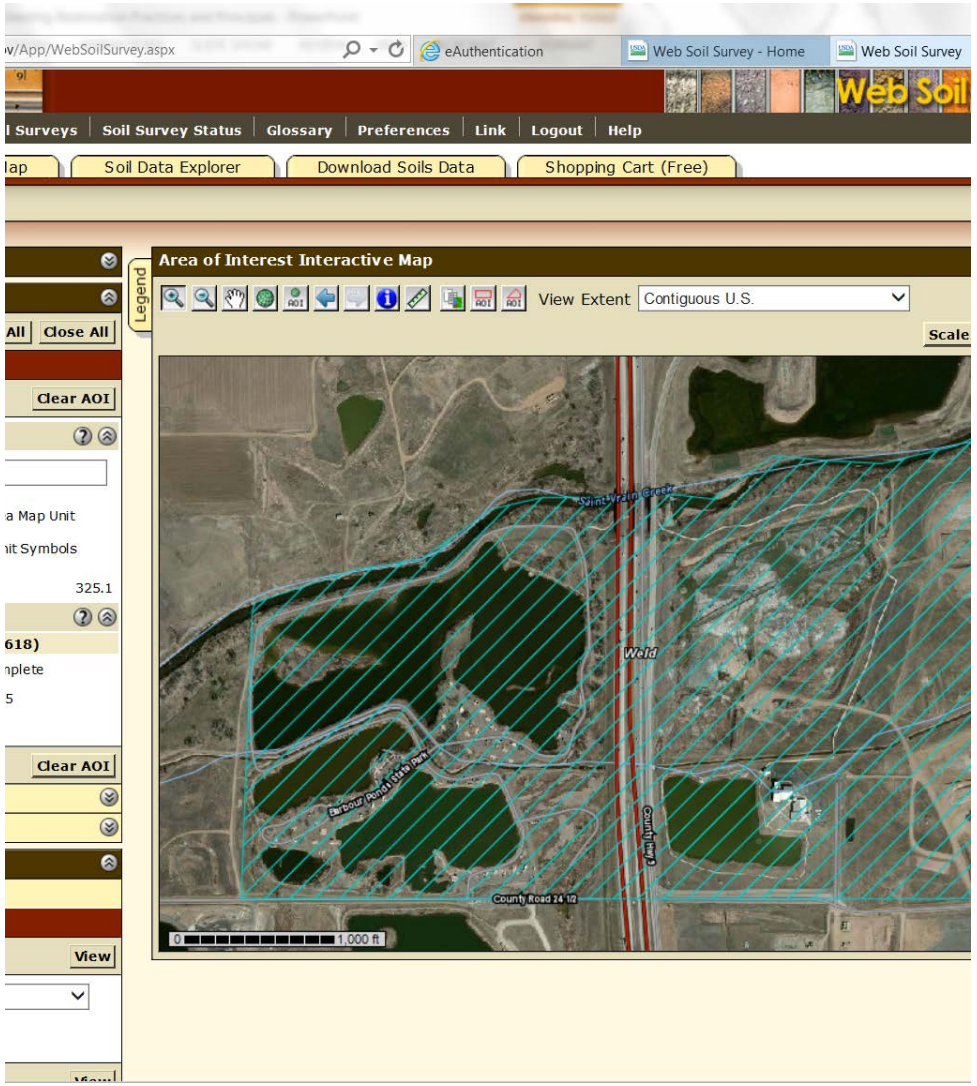

Identify the natural community.
Can the project can be planned before the site is disturbed?
YES
NO
Identify and characterize soils.
Identify soil and soil needs.
Is the site currently occupied by native vegetation?
YES
NO
Identify native plants on site.
Identify native plants to salvage, and identify additional needs.
Salvage plants.
Salvage topsoil and subsoil if appropriate.
DISTURB LAND AS LITTLE AS POSSIBLE DURING CONSTRUCTION, EXCAVATION, ROAD OR TRAIL MAKING. ETC.
Regrade site; relieve residual compaction.
Replace salvaged topsoil.
Amend soil as necessary.
Identify means of removing nonnative species.
Select species for seeding/planting.
Select appropriate seeding/planting techniques.
Determine seed/plant sources and obtain plant material.
Eradicate/control weeds if they are present.
Prepare seedbed/plantbed (soil ammendments, etc.).
Replant salvaged plants and any additional plants or seeds.
Seed / plant.
Mulch and control erosion.
Control weeds.
Maintain and monitor .

RESTORATION SEEDING PROJECTS ARE LIKE A TWO YEAR OLD

KNOW YOUR INGREDIENTS

SOILS – YES THERE IS AN APP FOR THAT

SOIL WEB APP



WEB SOIL SURVEY

United States Department of Agriculture
Natural Resources Conservation Service

Web Soil Survey

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Area of Interest (AOI) | Soil Map | Soil Data Explorer | Download Soils Data | Shopping Cart (Free)

Printable Version | Add to Shopping Cart

Search

Map Unit Legend

Weld County, Colorado, Southern Part (CO618)

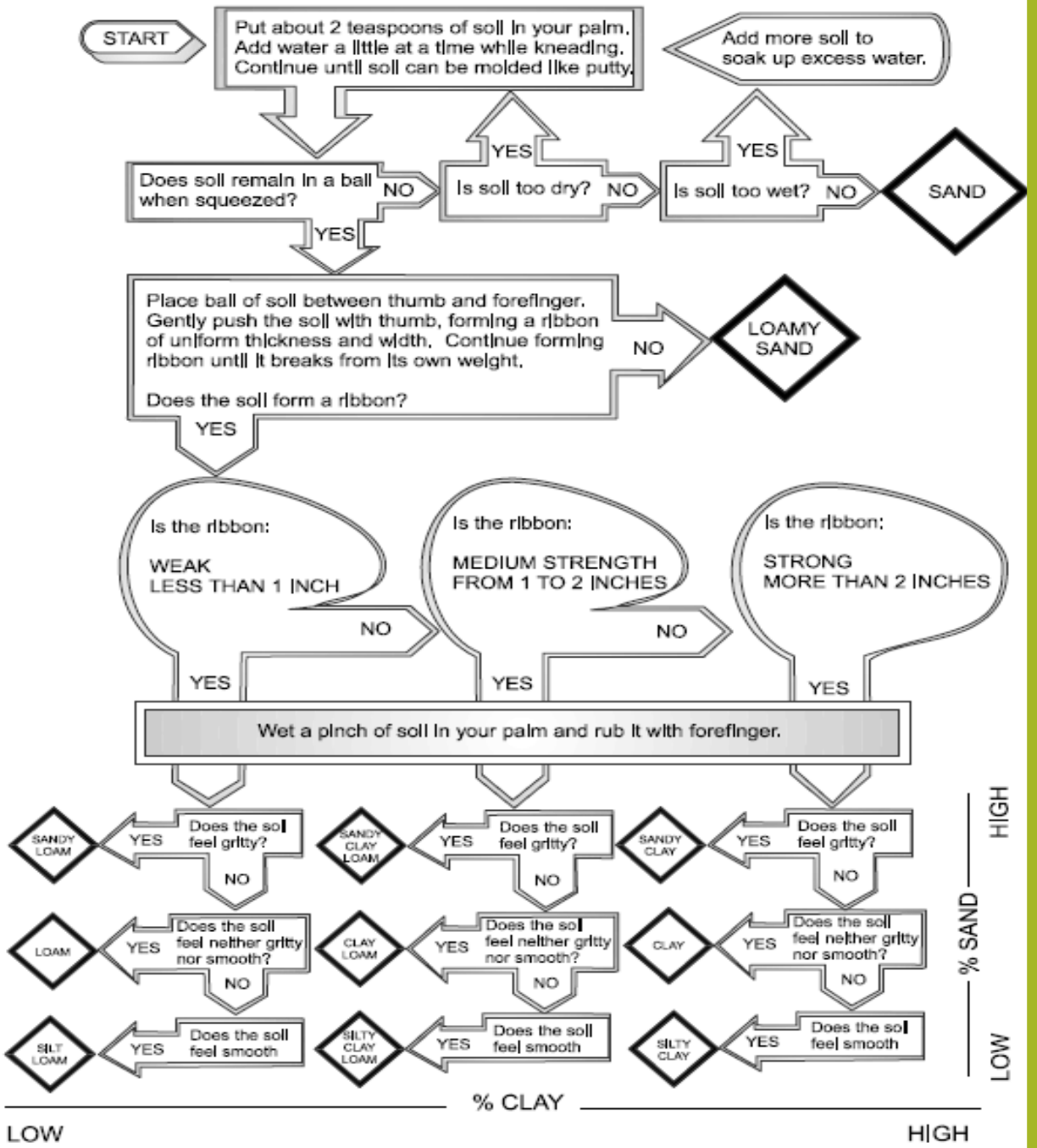
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
3	Aquolls and Aquents, gravelly substratum	220.5	67.8%
10	Bankard sandy loam, 0 to 3 percent slopes, frequently flooded	5.6	1.7%
85	Water	99.0	30.5%
Totals for Area of Interest		**325.1**	**100.0%**

Legend

Soil Map

Scale (not to scale)

Soil Texture



:DA Agronomic Division 4300 Reedy Creek Road Raleigh, NC 27607-6465 (919) 733-2655

Soil Test Report

Farm:

3/12/04 SERVING N.C. CITIZENS FOR OVER 50 YEARS Watauga County

gronomist Comments:

d Information		Applied Lime			Recommendations					
iple No.	Last Crop	Mo	Yr	T/A	Crop or Year	Lime	N	P_2O_5	K_2O	
)1	No Crop				1st Crop: Garden,Veg	0	(1.0 lbs Nitrogen or EQUIV PER 10			
					2nd Crop: Garden,Veg	0	(1.0 lbs Nitrogen or EQUIV PER 10			

Results

Class	HM%	W/V	CEC	BS%	Ac	pH	P-I	K-I	Ca%	Mg%	Mn-I	Mn-Al (1)	Mn-Al (2)	Zn
IIN	0.6	0.56	49.9	100.0	0.0	8.0	443	1254	67.0	21.0	583			8

d Information		Applied Lime			Recommendations					
iple No.	Last Crop	Mo	Yr	T/A	Crop or Year	Lime	N	P_2O_5	K_2O	
)2	No Crop				1st Crop: Garden,Veg	0	(1.0 lbs Nitrogen or EQUIV PER 10			
					2nd Crop: Garden,Veg	0	(1.0 lbs Nitrogen or EQUIV PER 10			

Results

Class	HM%	W/V	CEC	BS%	Ac	pH	P-I	K-I	Ca%	Mg%	Mn-I	Mn-Al (1)	Mn-Al (2)	Zn
I-O	0.46	0.50	97.2	100.0	0.0	8.0	144	1627	76.0	16.0	1421			12

d Information		Applied Lime			Recommendations					
iple No.	Last Crop	Mo	Yr	T/A	Crop or Year	Lime	N	P_2O_5	K_2O	
)3	No Crop				1st Crop: Garden,Veg	0	(1.0 lbs Nitrogen or EQUIV PER 10			
					2nd Crop: Garden,Veg	0	(1.0 lbs Nitrogen or EQUIV PER 10			

Results

Class	HM%	W/V	CEC	BS%	Ac	pH	P-I	K-I	Ca%	Mg%	Mn-I	Mn-Al (1)	Mn-Al (2)	Zn
IIN	0.22	0.65	77.2	100.0	0.0	8.0	107	1101	80.0	13.0	1094			6

SOIL TEST

Soil Test Factor	Suitable Range	Unsuitable Range
pH	6.0 to 8.4	<5.0 & > 9.0
EC Electrical Conductivity	0-4	8-16
SAR – Sodium Absorption Ratio	<6	>15
% OM	> 2	Poor is < 0.5

Assess the site

Cover Crops

SEED MIX

COMMON/GROUP NAME	SCIENTIFIC NAME	SYMBOL	Blue Grama, Prairie Sandreed, Sand Bluestem (HCPC)		
			Group	lbs./acre	% Comp
GRASSES & GRASS-LIKES			*1*	*1155 - 1403*	*70 - 85*
blue grama	Bouteloua gracilis	BOGR2	1	330 - 495	20 - 30
prairie sandreed	Calamovilfa longifolia	CALO	1	330 - 495	20 - 30
sand bluestem	Andropogon hallii	ANHA	1	83 - 248	5 - 15
needleandthread	Hesperostipa comata ssp. comata	HECOC8	1	83 - 165	5 - 10
switchgrass	Panicum virgatum	PAVI2	1	83 - 165	5 - 10
western wheatgrass	Pascopyrum smithii	PASM	1	17 - 116	1 - 7
Indiangrass	Sorghastrum nutans	SONU2	1	17 - 83	1 - 5
little bluestem	Schizachyrium scoparium	SCSC	1	17 - 83	1 - 5
sideoats grama	Bouteloua curtipendula	BOCU	1	17 - 83	1 - 5
thickspike wheatgrass	Elymus elymoides ssp. elymoides	ELELE	1	0 - 83	0 - 5
prairie junegrass	Koeleria macrantha	KOMA	1	17 - 50	1 - 3
sand dropseed	Sporobolus cryptandrus	SPCR	1	17 - 50	1 - 3
Indian ricegrass	Achnatherum hymenoides	ACHY	1	17 - 33	1 - 2
red threeawn	Aristida purpurea var. longiseta	ARPUL	1	0 - 17	0 - 1
sand paspalum	Paspalum setaceum	PASE5	1	0 - 17	0 - 1
sun sedge	Carex inops ssp. heliophila	CAINH2	1	17 - 83	1 - 5
other native grasses		2GP	1	0 - 83	0 - 5
FORBS			*2*	*165 - 248*	*10 - 15*
American vetch	Vicia americana	VIAM	2	17 - 33	1 - 2
dotted gayfeather	Liatris punctata	LIPU	2	17 - 33	1 - 2
narrowleaf penstemon	Penstemon angustifolius	PEAN4	2	17 - 33	1 - 2
pacific peavine	Lathyrus polymorphus	LAPO2	2	17 - 33	1 - 2
prairie spiderwort	Tradescantia occidentalis	TROC	2	17 - 33	1 - 2
purple prairie clover	Dalea purpurea var. purpurea	DAPUP	2	17 - 33	1 - 2
scarlet globemallow	Sphaeralcea coccinea	SPCO	2	17 - 33	1 - 2
upright prairie coneflower	Ratibida columnifera	RACO3	2	17 - 33	1 - 2
cutleaf evening-primrose	Oenothera coronopifolia	OECO2	2	0 - 17	0 - 1
hairy goldaster	Heterotheca villosa	HEVI4	2	0 - 17	0 - 1
heath aster	Symphyotrichum ericoides	SYERE	2	0 - 17	0 - 1
Louisiana sagewort	Artemisia ludoviciana	ARLU	2	0 - 17	0 - 1
nuttails evolvulus	Evolvulus nuttallianus	EVNU	2	0 - 17	0 - 1
rush skeletonplant	Lygodesmia juncea	LYJU	2	0 - 17	0 - 1
silverleaf scurfpea	Pediomelum argophyllum	PEAR6	2	0 - 17	0 - 1
slimflower scurfpea	Psoralidium tenuiflorum	PSTE5	2	0 - 17	0 - 1
stickleaf mentzelia	Mentzelia decapetala	MEDE2	2	0 - 17	0 - 1
Texas croton	Croton texensis	CRTE4	2	0 - 17	0 - 1
western ragweed	Ambrosia psilostachya	AMPS	2	0 - 17	0 - 1
winged buckwheat	Eriogonum alatum	ERAL4	2	0 - 17	0 - 1

ECOLOGICAL SITE DESCRIPTION

- Plant community composition
- Reference Plant community

Characteristics

Conservation Plant Characteristics

Bouteloua gracilis **(Willd. ex Kunth) Lag. ex Griffiths**
blue grama
BOGR2

Summary

Duration	Perennial	Federal T/E Status	
Growth Habit	Graminoid	National Wetland Indicator	
Native Status	L48 (N), CAN (N)		

Growth Requirements

Adapted To Coarse Textured Soils	Yes	Moisture Use	Medium
Adapted To Medium Textured Soils	Yes	pH, Minimum	6.6
Adapted To Fine Textured Soils	Yes	pH, Maximum	8.4
Anaerobic Tolerance	None	Planting Density Per Acre, Minimum	
CaCO3 Tolerance	Medium	Planting Density Per Acre, Maximum	
Cold Stratification Required	No	Precipitation, Minimum	8
Drought Tolerance	High	Precipitation, Maximum	22
Fertility Requirement	Low	Root Depth, Minimum	16
Fire Tolerance	High	Salinity Tolerance	Medium
Frost Free Days, Minimum	142	Shade Tolerance	Intolerant
Hedge Tolerance	None	Temperature, Minimum (°F)	-43

SEEDBED PREPARATION

Seedbed Preparation

SEEDING

MULCHING

Monitoring and management

THANK YOU!
Questions?