

Smith, Sandra

Subject: FW: Addendum to S3 2013 Revegetation Report
Attachments: S313N Reveg Review Memo 7 2015.pdf

From: Alec Hart [<mailto:alhart@csu.org>]
Sent: Wednesday, July 15, 2015 12:14 PM
To: Armstrong, Joan
Cc: Mark Pifher; Allison Mosser; Kevin Binkley
Subject: Addendum to S3 2013 Revegetation Report

Joan;
Attached is a brief addendum to the 2014 revegetation report for S3 2013 N indicating that the diversity and percent cover of the Group C soils in the staging area has progressed to 48.7%. As stated in the report, the 90% standard for these areas is 31.5%.

Please review and provide any questions or comment to Mark or Kevin at your earliest convenience.

Best regards,

Alec Hart

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Memo

To: Alec Hart, MWH

From: Joe Stevens, Colorado Natural Heritage Program
David Buckner, ESCO Associates, Inc. (Sub consultant to CNHP)

CC: Allison Mosser, Colorado Springs Utilities
Mark Pifher, Colorado Springs Utilities

Date: 7/10/2015

Re: Review of Revegetation in SDS Segment S3-13N

Ecologists from ESCO Assoc., Inc. conducted repeat sampling of the revegetation on S3-13N (the "laydown area" south of Antelope Road) on June 30th, 2015. Analysis of the data collected at that time show average cover of acceptable species is 48.7%. The 90% standard for that area (Group C soils) is 31.5%. Based on these results, we conclude that the revegetation on that site exceeds the required revegetation standard.

The pipeline segment S3-13N is located south of Antelope Road, and north of the north boundary of the Walker property. This area includes the pipeline alignment and a laydown area to the west of the pipeline alignment. The area is dominated by Group C soils (Soils deep on early Pleistocene alluvium) and initial sampling conducted in 2014 showed cover in the area did not meet the 90% standard. For full details on the initial sampling see the CNHP (2014) report

Data from repeat sampling were collected at ten randomly selected points in the S3-13N area using the established protocols. Those data were collected on June 30th, 2015 and are attached herewith. The data show average cover of acceptable species to be 48.7% within the S3-13N area. Photos from each of the ten locations, taken at the time of sampling, are also attached.

Table 1. Revegetation Cover in Work Segment S3-13N as of June 30, 2015

Soil Group	Soil Group	% of Work Unit	% Base Veg. Cover	90% Perf. Std. (0.9 x Base)	% Cover by Acc. Spp.
C	Soils deep on early Pleistocene alluvium	100	35.0	31.5	48.7

Southern Delivery System - Cover Data S313N - June 2015

PLANT SPECIES	AVG. COVER (%)	FREQ (%)	RELATIVE VEGETATIO N	AVG. COVER- ALL (%)	RELATIVE VEGETATIO N	Percent Foliar Cover*									
			COVER		COVER-ALL	----- Sample Number -----									
			(%)		(%)	1	2	3	4	5	6	7	8	9	10
NATIVE ANNUAL & BIENNIAL FORBS															
Chenopodium berlandieri	0.10	60.00	0.15	0.10	0.14	P	P	1	P					P	P
Chenopodium leptophyllum	0.00	10.00	0.00	0.00	0.00							P			
Coreopsis tinctoria	0.00	10.00	0.00	0.00	0.00				P						
		100.0													
Dyssodia aurea	1.80	0	2.69	2.10	3.00	P	4	2(2)	P	P	3	1	P	1	7(1)
Hedeoma hispidum	0.10	30.00	0.15	0.10	0.14			P			P	1			
Helianthus annuus	0.40	90.00	0.60	0.40	0.57	P	P	2		P	P	2	P	P	P
Helianthus petiolaris	0.00	20.00	0.00	0.00	0.00			P	P						
Lappula occidentalis	0.00	20.00	0.00	0.00	0.00	P			P						
Machaeranthera tanacetifolia	0.00	10.00	0.00	0.00	0.00			P							
Nuttallia decapetala	0.00	20.00	0.00	0.00	0.00	P						P			
Poinsettia dentata	0.00	10.00	0.00	0.00	0.00	P									
		100.0													
Verbesina encelioides ssp. encelioides	0.60	0	0.90	0.60	0.86	1	1	P	P	P	P	3	1	P	P
TOTAL NATIVE ANN. & BIEN. FORBS	3.0	100.0	4.5	3.3	4.7	1	5	5(2)	P	P	3	7	1	1	7(1)
INTRODUCED ANNUAL & BIENNIAL FORBS															
		100.0													
Bassia sieversiana	6.00	0	8.97	6.60	9.43	P	6(1)	18(3)	5(1)	7	3	2	7	8	4(1)
Medicago lupulina	0.00	30.00	0.00	0.00	0.00			P						P	P
Melilotus officinalis	0.00	20.00	0.00	0.00	0.00	P									P
		100.0				20(5)		16(1)	15(2)			16(3)			14(3)
Salsola collina	12.10	0	18.09	13.70	19.57)	6))	11	13)	4(2)	6)
Tragopogon dubius ssp. major	0.00	10.00	0.00	0.00	0.00						P				
TOTAL INTRO. ANN. & BIEN. FORBS	18.1	100.0	27.1	20.3	29.0	20(5)	12(1)	34(4)	20(3)	18	16	18(3)	11(2)	14	18(4)
)))))))
INTRODUCED ANNUAL GRASSES															
Bromus japonicus	0.10	10.00	0.15	0.10	0.14										1
Triticum aestivum	0.00	20.00	0.00	0.00	0.00	P					P				
TOTAL INTRO. ANN. GRASSES	0.1	30.0	0.1	0.1	0.1	P	---	---	---	---	P	---	---	---	1

Southern Delivery System - Cover Data S313N - June 2015

PLANT SPECIES	AVG. COVER (%)	FREQ (%)	RELATIVE VEGETATIO N COVER (%)	AVG. COVER- ALL (%)	RELATIVE VEGETATIO N COVER-ALL (%)	Percent Foliar Cover*									
						----- Sample Number -----									
						1	2	3	4	5	6	7	8	9	10
NATIVE PERENNIAL FORBS															
Achillea millefolium	0.00	20.00	0.00	0.00	0.00						P			P	
Astragalus bisulcatus	0.00	10.00	0.00	0.00	0.00				P						
Astragalus shortianus	0.00	30.00	0.00	0.00	0.00	P			P					P	
Chamaesaracha coronopus	0.30	50.00	0.45	0.40	0.57	(1)		P	1					1	1
Gaillardia pinnatifida	0.00	30.00	0.00	0.00	0.00						P	P			P
Glandularia bipinnatifida	0.00	80.00	0.00	0.00	0.00	P	P	P	P	P	P		P	P	
Lepidium alyssoïdes var. alyssoïdes	0.10	20.00	0.15	0.10	0.14							1	P		
Leucelene ericoides	0.00	10.00	0.00	0.00	0.00			P							
Machaeranthera pinnatifida	0.00	10.00	0.00	0.00	0.00								P		
		100.0													
Sphaeralcea coccinea	0.00	0	0.00	0.00	0.00	P	P	P	P	P	P	P	P	P	P
Vexibia nuttalliana	0.10	40.00	0.15	0.10	0.14		P		P				1	P	
Zinnia grandiflora	0.10	10.00	0.15	0.10	0.14								1		
TOTAL NATIVE PERENNIAL FORBS	0.6	100.0	0.9	0.7	1.0	(1)	P	P	1	P	P	1	2	1	1
INTRODUCED PERENNIAL FORBS															
Convolvulus arvensis	0.00	20.00	0.00	0.00	0.00		P						P		
Potentilla recta	0.00	10.00	0.00	0.00	0.00										P
Rumex crispus	0.10	40.00	0.15	0.10	0.14	P					P			P	1
Taraxacum officinale	0.00	10.00	0.00	0.00	0.00										P
Trifolium pratense	0.10	10.00	0.15	0.10	0.14									1	
TOTAL INTRO. PERENNIAL FORBS	0.2	60.0	0.3	0.2	0.3	P	P	---	---	---	P	---	P	1	1
NATIVE PERENNIAL GRASSES (cool)															
Achnatherum hymenoides	0.10	10.00	0.15	0.10	0.14					1					
Elymus elymoides	0.30	80.00	0.45	0.30	0.43	P	1	P	1	P			P	1	P
Elymus trachycaulus	1.10	30.00	1.64	1.10	1.57					4	1		6		
		100.0													
Pascopyrum smithii	9.10	0	13.60	9.20	13.14	11	7	7(1)	7	10	13	7	7	11	11
Poa compressa	0.00	10.00	0.00	0.00	0.00										P
TOTAL NATIVE PERENNIAL GRASSES (c)	10.6	100.0	15.8	10.7	15.3	11	8	7(1)	8	15	14	7	13	12	11

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PLANT SPECIES	AVG. COVER (%)	FREQ (%)	RELATIVE VEGETATIO N COVER (%)	AVG. COVER- ALL (%)	RELATIVE VEGETATIO N COVER-ALL (%)	Percent Foliar Cover*									
						----- Sample Number -----									
						1	2	3	4	5	6	7	8	9	10
INTRODUCED PERENNIAL GRASSES (cool)															
Bromopsis inermis	0.00	10.00	0.00	0.00	0.00										P
Dactylis glomerata	0.00	10.00	0.00	0.00	0.00										P
TOTAL INTRO. PERENNIAL GRASSES (c)	0.0	10.0	0.0	0.0	0.0	---	---	---	---	---	---	---	---	---	P
NATIVE PERENNIAL GRASSES (warm)															
Bouteloua curtipendula	10.90	100.0 0	16.29	10.90	15.57	6 26(1)	19 16(2)	6	11	18	16	11	10	4	8
Chondrosum gracile	12.60	0	18.83	13.00	18.57			9	19	7	6	12	13	13	5(1)
Distichlis stricta	0.00	10.00	0.00	0.00	0.00			P							
Pleuraphis jamesii	4.40	0	6.58	4.40	6.29	P	4	2	3	5	11	4	7	6	2
Schedonnardus paniculatus	0.00	20.00	0.00	0.00	0.00		P								P
Sporobolus airoides	2.80	90.00	4.19	2.80	4.00	3	4	P	4	1	3	3	6	4	
Sporobolus cryptandrus	3.50	90.00	5.23	3.50	5.00	3	2	5	3	1		2	2	4	13
TOTAL NATIVE PERENNIAL GRASSES (w)	34.2	100.0	51.1	34.6	49.4	38(1)	45(2)	22	40	32	36	32	38	31	28(1)
NATIVE SUBSHRUBS															
Gutierrezia sarothrae	0.10	30.00	0.15	0.10	0.14	P								P	1
TOTAL NATIVE SUBSHRUBS	0.1	30.0	0.1	0.1	0.1	P	---	---	---	---	---	---	---	P	1
NATIVE SHRUBS															
Atriplex canescens	0.00	10.00	0.00	0.00	0.00		P								
Chrysothamnus viscidiflorus	0.00	10.00	0.00	0.00	0.00						P				
TOTAL NATIVE SHRUBS	0.0	20.0	0.0	0.0	0.0	---	P	---	---	---	P	---	---	---	---
SUCCULENTS															
Opuntia polyacantha	0.00	10.00	0.00	0.00	0.00								P		

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			COVER		COVER-ALL	----- Sample Number -----									
			(%)		(%)	1	2	3	4	5	6	7	8	9	10
TOTAL SUCCULENTS	0.0	10.0	0.0	0.0	0.0	---	---	---	---	---	---	---	P	---	---
Standing dead	2.70	90.00		2.70		1		4	4	2	2	3	3	6	2
Litter	13.00	100.0 0		13.00		17	6	17	12	11	11	8	23	9	16
Bare soil	16.70	100.0 0		16.70		10	24	11	14	22	18	23	9	23	13
Rock	0.70	50.00		0.70		2			1			1		2	1
TOTALS	100.0			103.1		100	100	100	100	10 0	10 0	100	100	10 0	100
TOTAL VEGETATION COVER	66.9 (s=3.1)		100.0	70.0 (s=5.2)	100.0	70(7)	70(3)	68(7)	69(3)	65	69	65(3)	65(2)	60	68(6)
GROUND COVER (Litter+Rock+Veg+St. Dead)	83.3			86.4		90(7)	76(3)	89(7)	86(3)	78	82	77(3)	91(2)	77	87(6)
SPECIES DENSITY (# of species/100 sq.m.) (AVERAGE= 20.9 Std.Dev.= 3.1)						24	19	22	21	16	20	17	21	23	26









