Appendix C.7
Leidos Vegetation Verification Reports

Section **Page**

Phillips 66 Project, Verification of Arcadis 2015 Sensitive Resources Report
-Vegetation (February 2015, revised March 2015) C.7-1
Phillips 66 Project, Peer Review of Arcadis July 2015 Sensitive Resources Report
-Biological Addendum.....C.7.14

April 27, 2015

Mr. John Peirson
Marine Research Specialists
3140 Telegraph Canyon Road, Suite A
Ventura, CA 93003-3238

Subject: Phillips 66 Project, Verification of Arcadis 2015 Sensitive Resources Report – Vegetation

Dear Mr. Peirson

Leidos Senior Botanist, Lauren Brown, visited the Phillips 66 proposed Rail Spur project area on March 9, 2015, for the purpose of verifying the vegetation mapping and classification as presented in the Phillips 66 Sensitive Resources Report – Vegetation, Santa Maria Refinery Project Site, Rail-Spur Modification, San Luis Obispo County, California, prepared by Arcadis U.S. Inc., February 2015, and revised March 2015 (referred to as the Vegetation Report). Results of data collected (Table A) and Photos are included at the end of this document.

In general, the vegetation map and analyses presented in the report were found to be correctly applied and the classification system followed the accepted system described in the Manual of California Vegetation, 2nd edition (MCV2, Sawyer *et al.*, 2009). Additional explanation is needed, however, to support and justify the identification of sensitive/non-sensitive vegetation types. The following are comments on the report followed by observations and notes from the site visit.

1. The Vegetation Report should include a description of why the report was prepared and how it is to be used. Since this report is being used as part of a CEQA analysis, then the identification of sensitive vegetation types needs to recognize that the California Natural Diversity Database (CNDDB), maintained by the CDFW, includes Central Dune Scrub as a sensitive vegetation type (CDFW 2015) and the report needs to identify the MCV2 vegetation types that could potentially be considered Central Dune Scrub.

2. Based on the site visit and data collection, the vegetation mapping and classification methods presented in the Arcadis Vegetation Report were found to be correct and followed the MCV2 (Sawyer et al, 2009) and the CDFW (2015) Natural Communities list, including the identification of Sensitive Vegetation Types. However, since the vegetation types that typically occur in the dune habitats of the Central Coast have not yet been studied as part of the MCV program, there is a concern that trying to "fit" the vegetation into existing categories or using Provisional categories may result in some types that would more appropriately be considered degraded (such as shrub areas that support a high cover of non-native or invasive plant species in the understory) may be

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considered sensitive. Additionally, areas that are of limited distribution in the dunes (such as scrub areas that support a high cover and diversity of shrub species) would not be considered sensitive because they are more common elsewhere in California. Also, vegetation types identified as sensitive using previous classification systems may not be recognized as sensitive if they are "fit" into MCV2 types that are not identified as sensitive. The latter seems to be the case where the *Salvia mellifera-Ericameria ericoides* Association (sensitive type) was changed to *Salvia mellifera* Shrubland Alliance. The Vegetation Report indicates the 5% mean cover threshold for inclusion of *Ericameria ericoides* in any association name. However, this standard was not consistently applied based on data presented in the Arcadis Report Table 1; i.e., the cover of *Ericameria ericoides* under the *Salvia mellifera-Ericameria ericoides* Association in Table 1, for both absolute and relative cover, is greater than the *Lupinus chamissonis – Ericameria ericoides* Shrubland Alliance.

3. The limitations of the MCV2 had been acknowledged in the Botanical Assessment (Arcadis 2013) for the proposed project area and Provisional alliances were assigned (by Arcadis) in both the 2013 report and in the current 2015 Vegetation Report. Based on the site visit, the vegetation within the disturbance corridor mapped as *Salvia mellifera* Shrubland Alliance is more of a mosaic with denser areas dominated by *Salvia mellifera* (Photo 1) and a diverse association of shrubs and the more disturbed areas dominated by *Ericameria ericoides* (Photo 2). In the current mapping, the *Ericameria ericoides* component (which is important in defining a dune vegetation type) is lost. It is my opinion that the previously assigned *Salvia mellifera-Ericameria ericoides* Association (Provisional) more accurately defines the vegetation classification for these areas. For the purposes of CEQA review, although the *Salvia mellifera* dominated areas may be considered transitional to more inland scrub or chaparral types, these areas should be identified as representative of Central Dune Scrub, which is a sensitive resource according to the CNDDB report (CDFW 2015). If the CDFW was consulted and agreed the Central Dune Scrub category included in the CNDDB was not applicable to the site or project, the report should include a copy of any written agreement and/or citations for personal communications.

4. Recommend either reclassifying the *Salvia mellifera* Shrubland Alliance to *Salvia mellifera-Ericameria ericoides* Association (Provisional), as was done in the Botanical Assessment (Arcadis 2013), and indicate this vegetation classification as a sensitive vegetation resource. It should also be noted that *Delphinium parryi* subsp. *blochmaniae* (Dune Larkspur, California Rare Plant Rank 1B.2 –rare and endangered in California and elsewhere) was found during the March 9 survey in an area mapped as *Salvia mellifera* Shrubland Alliance (Photos 3 and 4). This is a perennial herb, endemic to California, and known to occur in the Central Coast dunes and has been historically reported near the survey area (CDFW 2015). The species dies back each year and sometimes very few or none will come up in drought years, such as 2013 and 2014 (L. Brown, personal observation). It typically blooms April to May, but individuals were blooming at the time

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of the March 9 survey. The presence of a California Rare Plant Rank 1B.2 species in this vegetation type supports identifying this classification as a sensitive resource.

5. Other notes on the Arcadis Report Table 1:
    - Data for several vegetation types are presented in Table 1; it would be beneficial to use multiple tables to more easily distinguish between the data for each type.
    - I assume the *Salvia mellifera-Ericameria ericoides* Association was reclassified as the *Salvia mellifera* Shrubland Alliance. Although this was not indicated in Table 1 (as it was for other vegetation types).

The following pages include my observations and notes from the site visit. Please feel free to contact me if you have any questions or need clarification on the above comments or support information (brownla@leidos.com, 805-570-7993).

Sincerely,

Lauren M. Brown
Senior Botanist

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Phillips 66 Project, Verification of Arcadis 2015 Vegetation Report March 9, 2015.

Methods:

Review of existing information:

A review of the existing information was conducted. The review included the Vegetation Report, the alliance descriptions in the MCV2, and the California Department of Fish and Wildlife (CDFW, formerly California Department of Fish and Game) Natural Communities website (CDFW 2015). The vegetation types along the disturbance corridor included the following (from the 2015 Vegetation Report):

- *Lupinus chamissonis – Ericameria ericoides* Shrubland Alliance [silver dune lupine – mock heather scrub]
    - *Ericameria ericoides – Eriogonum parvifolium – Salvia mellifera* Association[1]
    - *Salvia mellifera* Shrubland alliance [Black sage scrub]
- *Baccharis pilularis* Shrubland Alliance [Coyote brush scrub]
    - *Baccharis pilularis* Association
    - *Baccharis pilularis – Ericameria ericoides* Association (Provisional)[1]
- *Brassica tournefortii* (Saharan mustard) Semi-Natural Herbaceous Stands (Provisional)[2]
- *Ehrharta calycina* (veldt grass) Semi-Natural Herbaceous Stands (Provisional) [2]
- *Erodium botrys* (storkbill filaree) Semi-Natural Herbaceous Stands (Provisional) [2]

Notes:

1. Indicates vegetation categories identified as a sensitive vegetation type in the Vegetation Report.
2. The term "Provisional" was used in the Vegetation Report for vegetation alliances that are not currently included in the MCV2. Provisional alliances are also included in the MCV2 (page 48) to describe associations that have sufficient information to include as a vegetation type, but have not yet been verified with sufficient data.

As discussed in the Overview chapters to the MCV2, the classification of California vegetation types is a work in progress and not all of the possible vegetation alliances or associations are included in MCV2 or on the CDFW Natural Communities list. The dune habitat of the Central Coast have not yet been studied in depth, which is evidenced by the lack of any reference to *Ehrharta calycina* (veldt grass), a highly invasive species that was introduced for forage and erosion control in the 1960s and has invaded the Central Coast dune habits causing a shift from shrub dominated habitats to grassland (Bossard *et al.*, 2000). Only recently have there been efforts to apply the MCV2 vegetation alliances and associations to the central coastal dune habitats and the assignment of Provisional vegetation types is appropriate.

Site visit:

The site visit focused on the proposed project impact area plus a 100-foot buffer area and included observations as well as collection of vegetation data to confirm the mapping and vegetation classification presented in the Vegetation Report. Ms. Brown was accompanied by Mr. Wayne Ferren, Arcadis biologist, who answered questions and provided field support under the direction of

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Ms. Brown. Notes on the field visit, including methods, results of data collection, and observation are presented below

The survey area included the proposed rail spur disturbance area, as presented in the Vegetation Report, plus a 100-foot buffer area. The proposed rail spur is partly within the existing facility fence-line (developed and disturbed areas) and partly in semi-natural areas that include leased grazed lands. The survey area was initially driven over, using existing dirt roads, to get an overview of the area and the mapping, then the botanists walked the survey area using a meandering walking pattern.

Four additional transects were established and data collected using the same methods as described in the Vegetation Report, in addition to observational notes and photos. The transects were 20 meters in length with 10 one-meter square quadrats placed every 2 meters on alternating sides of the transect. The cover for each species identified within the quadrat was visually estimated by Ms. Brown, followed by an estimate for total vegetative cover, litter and bare ground (Table A). Transect locations were selected by Ms. Brown and focused on the habitats included in or adjacent to the *Lupinus chamissonis – Ericameria ericoides* Shrubland Alliance. The transects were selected based on the presence of species that would be representative of the vegetation category (not random) and independent of transects that were noted and mapped in the Vegetation Report. No data were taken in the *Baccharis pilularis – Ericameria ericoides* Association or the Semi-Natural Herbaceous Stands dominated by *Brassica tournefortii* (Sahara mustard) and *Ehrharta calycina* but these areas were visited and observational notes taken.

Results:

Based on the results of the site visit and independent vegetation analysis, the Leidos botanist determined the vegetation mapping and classification of vegetation types to be correct and appropriate within the disturbance corridor and 100-foot buffer area. All vegetation types within the disturbance plus buffer survey area had greater than 20 percent total vegetation cover. Areas included under shrubland alliances (i.e., *Lupinus chamissonis – Ericameria ericoides* Shrubland Alliance, *Baccharis pilularis* Shrubland Alliance, and *Salvia mellifera* Shrubland Alliance had a minimum of 10 percent cover of shrubs evenly distributed across the stand. The herbaceous dominated communities had greater than 20 percent total vegetation cover and layers for shrubs and trees, when present, were lower cover than herbs and less than 10 percent. This is consistent with the MCV2 Key to the Main Vegetation Categories (page 51).

Shrubland Alliances and Associations:

The *Salvia mellifera* Shrubland Alliance was correctly mapped, although the *Salvia mellifera-Ericameria ericoides* Association classification used in the 2013 Arcadis Vegetation Report seems more appropriate. The cover and dominance of shrub species within the areas mapped as this vegetation type were extremely variable. Dense stands with nearly 100 percent shrub canopy dominated by *Salvia mellifera* (black sage) and a diverse assemblage of native shrubs (Leidos Transect 1, Photo 5) were interspersed with areas where the shrub canopy was more open, less diverse and dominated by *Ericameria ericoides* (mock heather) and *Frangula californica* (coffee berry) (Leidos Transect 2, total shrubs was 11.2 percent with *Ericameria ericoides* 5.8 percent cover,

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Photo 6). In some areas, evidence of long-term grazing management practices was apparent (i.e. areas where vegetation had been scraped and old clumps of hay were observed). The disturbances create a crisscross pattern through the shrubs (based on aerial photo review using Google Earth, 1994 to March 2015) and it would be difficult to map the smaller more open areas within the *Salvia mellifera* Alliance. Therefore including both the denser stands and more open areas in the polygon was appropriate (Arcadis indicated they used a 1-acre minimum mapping unit for determining polygon boundaries). Figure 1 in Vegetation Report indicated this vegetation type was formerly classified by Arcadis as *Salvia mellifera-Ericameria ericoides* Association (indicated as a sensitive resource), although it is not clear why this was changed other than to fit a category currently included in the MCV2. Since Provisional alliances were used in the Vegetation Report for other vegetation types, it seems using the former vegetation category as a Provisional alliance would more appropriately capture the vegetation within the survey area and this type should be reclassified as *Salvia mellifera-Ericameria ericoides* Association and indicated as a sensitive resource.

The *Lupinus chamissonis – Ericameria ericoides* alliance has a low cover of shrub species and *Lupinus chamissonis* (dune silver lupine) was notably absent, except for occasional seedlings. However, the areas mapped as this alliance did support the minimal cover of 10 percent shrubs, primarily *Ericameria ericoides* (Photo 7), and therefore meet the MCV2 membership rule (page 584) for this shrubland alliance.

The *Baccharis pilularis – Ericameria ericoides* Association is also identified as Provisional because this alliance is not included in the MCV2 or in the CDFW Natural Communities List. Based on visual observation, *Baccharis pilularis* and *Ericameria ericoides* were co-dominant within the shrub layer and shrubs contributed more than 10 percent of the vegetative cover, with an understory dominated by veldt grass. Because the alliance did support the minimal cover of 10 percent shrubs, which included *Ericameria ericoides*, it was determined to be similar to the MCV2 membership rule for *Lupinus chamissonis – Ericameria ericoides* alliance and was identified as a sensitive vegetation type in the Vegetation Report. In the absence of specific information on this vegetation type, this assessment is appropriate.

Herbaceous stands:

The herbaceous stands included in the Vegetation Report were all identified as Provisional because suitable vegetation types were not included in MCV2 or the CDFW Natural Communities List. All were dominated by non-native species and two of the categories were dominated by invasive species. The latter are classified accordingly as *Brassica tournefortii* Semi-Natural Herbaceous Stands (Provisional) and *Ehrharta calycina* Semi-Natural Herbaceous Stands (Provisional), the *Brassica tournefortii* and *Ehrharta calycina* were clearly dominant with very little cover of other herbaceous species and little to no shrub cover (Photos 8 and 9). Based on observations, these areas were correctly mapped and classified.

The areas mapped as *Erodium botrys* (storkbill filaree) Semi-Natural Herbaceous Stands (Provisional) were dominated by storkbill filaree, although a wide variety of native and non-native herbs and grasses were also present. During this survey conducted on March 9, the storkbill filaree was beginning to dry up and other species that may not have been present or conspicuous during

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previous surveys were flowering. Scattered mock heather shrubs were common in this vegetation association and, based solely on appearance, seemed like they would meet the minimal requirements for 10 percent shrub cover. Leidos Transect 4 was established in an area that seemed to support more shrubs than elsewhere and results were 10 percent cover of mock heather (Photo 10). However, combining this with the data included in the Vegetation Report, where average shrub cover was 6.5 percent, indicated that the shrubs were not evenly distributed over the site (the small clumps of shrubs were few and widely spaced), and that the storkbill filaree was the dominant species in this alliance, which was therefore properly classified in my opinion.

References:

Arcadis. 2015. Phillips 66 Sensitive Resources Report – Vegetation, Santa Maria Refinery Project Site, Rail-Spur Modification, San Luis Obispo County, California. Prepared by Arcadis U.S. Inc., February 2015, revised March 2015.

Arcadis. 2013. Phillips 66 Botanical Assessment, Santa Maria Rail Project, San Luis Obispo County, California. Prepared by Arcadis U.S. Inc., June 2013. [Included As Appendix C.1 Phillips 66 Company Rail Spur Extension and Crude Unloading Project, Revised Public Draft Environmental Impact Report and Vertical Coastal Access Project Assessment. Prepared by Marine Research Specialists, October 2014.]

Bossard, C.C., J. M. Randall, and M. C. Hoshovsky, editors. 2000. Invasive Plants of California Wildlands. University of California Press, Berkeley, CA.

CDFW (California Department of Fish and Wildlife), 2015. Natural Communities website: (http://www.dfg.ca.gov/biogeodata/vegcamp/natural_communities.asp). Accessed March, 2015.

Sawyer, John 0., Todd Keeler-Wolf, and Julie M. Evens. 2009. Manual of California Vegetation, 2nd Edition. California Native Plant Society. Sacramento, California. 1300pp.

Table A: Leidos Transect Results - March 9, 2015

Species Name	Common Name	Transect Number			
		L-1	L-2	L-3	L-4
Shrubs/Subshrubs	***Total shrubs (native)***	**73.3**	**11.2**	**23**	**9.9**
Artemisia californica	California sagebrush	17.5			
Baccharis pilularis	Coyote brush	1.9			
Corethrogyne filaginifolia	California-aster		0.4		
Ericameria ericoides	mock heather	3.2	5.8	23	9.9
Frangula californica	California coffeeberry	5	4.1		
Lupinus arboreus	yellow bush lupine		0.6		
Lupinus chamissonis	silver lupine		0.1		
Salvia mellifera	black sage	41.6			
Toxicodendron diversilobum	Poison oak	4.1	0.2		
Herbs/Grasses (native)	***Total Native Herbs***	**5.7**	**18.4**	**8.8**	**5.9**
Acmispon maritimus	coastal lotus			0.5	
Amsinkia spectablils	fiddleneck		0.1		
Camissonia strigulosa	contorted primrose			0.2	0.3
Camissoniopsis micrantha	*evening-primrose*	0.5	0.1	0.1	0.2
Castelleja exserta	Purple owl's clover		0.8		
Chenopodium californicum	California goosefoot	1.6			
Chorizanthe sp.	spineflower		5	0.6	2.8
Croton californicus	California croton			0.3	0.1
Cryptantha clevelandii	Cleveland's cryptantha			0.8	
Deinandra increscens	tarweed			2.2	0.1
Eriastrum densifolium	woolly-star	0.5			
Galium californicum	California bedstraw	1.2			
Horkelia cuneata	wedge-leaved horkelia		2.8		
Lastarriaea coriacea	leather-spineflower		1.1	3.2	0.1
Lupinus bicolor	miniature lupine		4.8	0.3	
Melica imperfecta	California melic	1.4	1.4		
Nuttallanthus texanus	blue toadflax		1	0.5	0.1
Plantago erecta	annual plantain		0.3		2.2
Pterostegia drymarioides	fairy mist	0.1	0.1	0.1	
Pseudognaphalium californica	Ca. everlasting	0.1	0.1		
Silene laciniata	Indian pink	0.3	0.3		
Stephanomeria sp.			0.5		
Herbs/Grasses (non-native)	***TOTAL Non-Native Herbs***	**3.7**	**69.7**	**58**	**53**
Brassica tournefortii	Saharan mustard		0.2		3
Bromus diandrus	ripgut brome		1.6	6.8	4.6
Bromus madritensis subsp. rubens	red brome	0.5			
Centaurea melitensis	tocalote		0.6		
Conicosia pugioniformis	slender-leaved iceplant				14.6
Ehrharta calycina	veldt grass	3.2	10.7	20	9.7
Erodium cicutarium	redstem filaree		27.5	1.3	
Erodium botrys	storkbill filaree		26.5	29	20.5
Festuca myuros	rattail sixweeks fescue		2		0.6
Hypochaeris glabra	smooth cat's ear		0.6	2	
Spergula arvensis	corn spurry			0.1	
Total All Plant Species		**82.7**	**99.9**	**92**	**69.4**
Vegetation Cover		66	73.5	73	53.5
Non-vegetation Cover					
	Litter	16	12.8	8.8	14
	Bare	12	14.2	19	32
	Crust	4			

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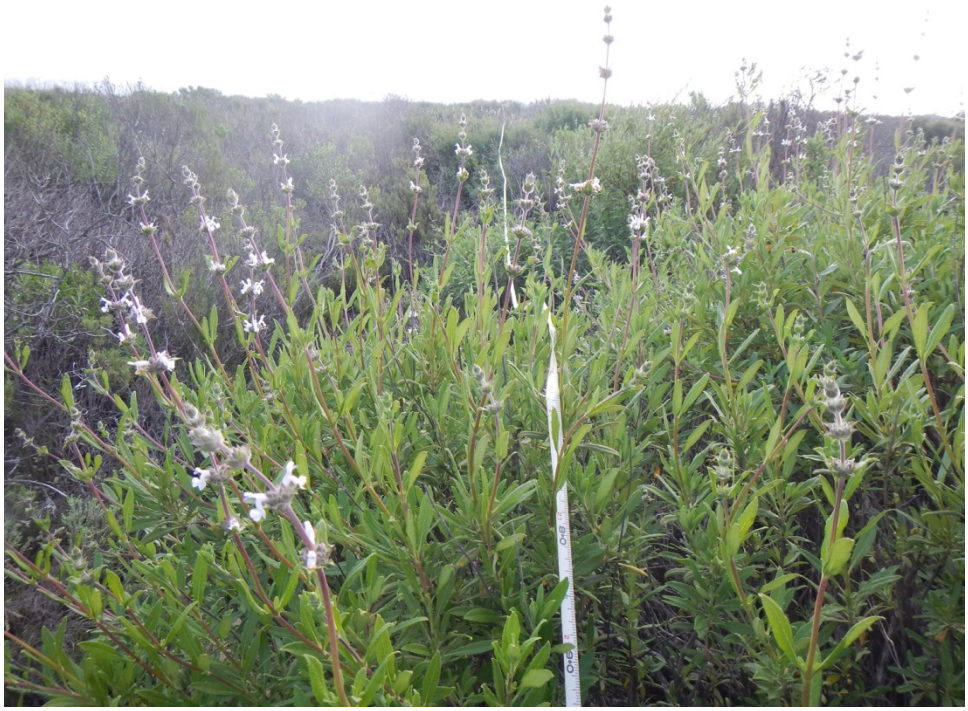
Photos

(All photos are from March 9, 2015.)

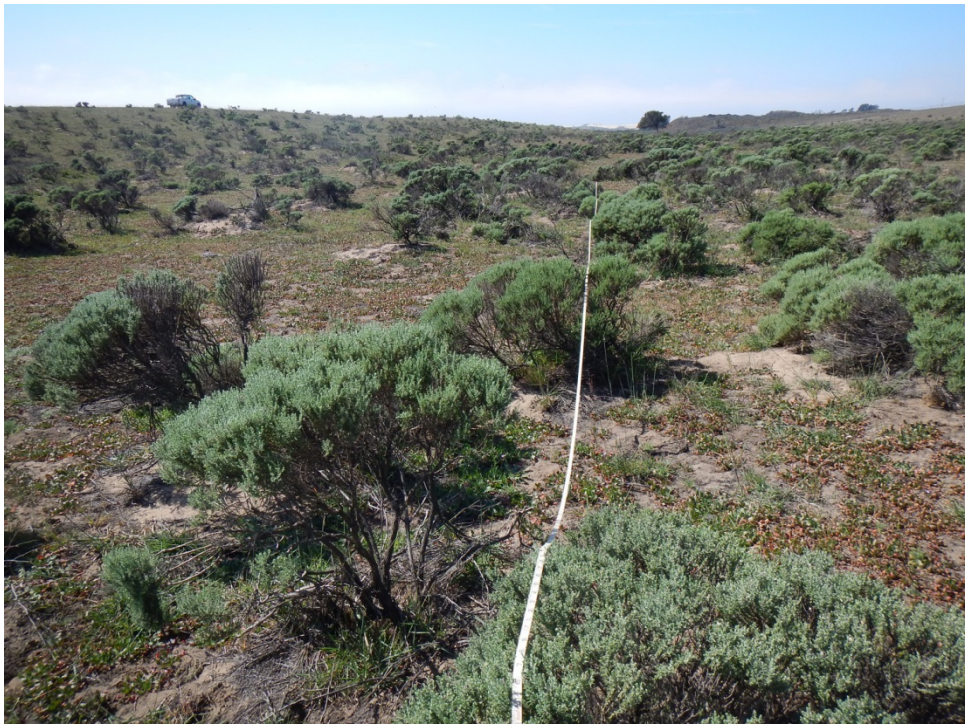
Photos 1 and 2 depict the vegetation mapped as *Salvia mellifera* Shrubland Alliance. Photo 1, above, is an area dominated by *Salvia mellifera* and a diverse association of shrubs. Photo 2, below, shows an area with a much more open shrub canopy dominated by *Ericameria ericoides*. The more open areas appear to be associated with past disturbance.

Photo 3 is *Delphinium parryi* subsp. *blochmaniae* (Dune Larkspur, California Rare Plant Rank 1B.2 –rare and endangered in California and elsewhere), which was found during the March 9 survey in one of the more open areas mapped as *Salvia mellifera* Shrubland Alliance. Individuals and small clumps of this species were noted in Photo 4 below.



Leidos Transects 1 and 2 were located within an area mapped as *Salvia mellifera* Shrubland Alliance. Leidos Transect 1, Photo 5 above, had nearly 100 percent shrub canopy dominated by *Salvia mellifera* and a diverse assemblage of native shrubs.

Leidos Transect 2, Photo 6 below, was in an area where the shrub canopy was more open, less diverse and dominated by *Ericameria ericoides* (mock heather) and *Frangula californica* (coffee berry).



The *Lupinus chamissonis – Ericameria ericoides* alliance has a low cover of shrub species and *Lupinus chamissonis* (dune silver lupine) was notably absent, except for occasional seedlings (Leidos Transect 3, Photo 7 above). However, the areas mapped as this alliance did support the minimal cover of 10 percent shrubs, primarily *Ericameria ericoides*, and therefore met the MCV2 membership rule for this shrubland alliance.

Photo 8 below shows the *Ehrharta calycina* Semi-Natural Herbaceous Stand (Provisional) dominated by *Ehrharta calycina* (veldt grass) in the foreground with *Baccharis pilularis – Ericameria ericoides* Association (Provisional) visible in the background at the base of the slope in front of the row of trees.

Photo 9, above, depicts the *Brassica tournefortii* Semi-Natural Herbaceous Stand (Provisional), an area dominated by *Brassica tournefortii* (Sahara mustard) visible as the light green patch surrounding the trees in the photo. Both the *Ehrharta calycina* and *Brassica tournefortii* are invasive species that dominate areas where they have become established with very little cover of other herbaceous species and little to no shrub cover.

Leidos Transect 4 (Photo 10 below) was established in an area that seemed to support more shrubs than elsewhere, but the average shrub cover was less than 10 percent. Storkbill filaree was the dominant species therefore this area was classified as Erodium botrys Semi-Natural Stand (Provisional).

November 6, 2015

Mr. John Peirson
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Ventura, CA 93003-3238

Subject: Phillips 66 Project, Peer Review of Arcadis July 2015 Sensitive Resources Report – Botanical Addendum

Dear Mr. Peirson

The following are comments on the *Phillips 66 Company Sensitive Resources Report –Botanical Addendum, Santa Maria Refinery Rail-Spur Project, San Luis Obispo County, California,* prepared by Arcadis U.S. Inc., July 2015 (referred to as the Addendum). The Addendum supplements information presented in the Vegetation Report (Arcadis 2015), which was verified in a letter report (Leidos 2015) prepared by Lauren Brown (Senior Botanist, Leidos) and submitted to MRS April 27, 2015 (referred to as Verification Letter Report).

The stated purpose of the Addendum is "…(1) to compare vegetation east and west of the railroad to determine if there is equivalency of environmental sensitivity; and (2) to further evaluate the previously mapped *Saliva mellifera* Shrubland Alliance, and the relationship between *Ericameria* and *Saliva*-dominated vegetation."

Comments/Questions:

1. The Addendum is not clear in the presentation of information, data and conclusions. Additionally, comparing the locations of transects on Figure 1 with the data presented in Table 2, there appear to be several discrepancies or errors. For example, under the *Salvia mellifera* shrubland alliance, Transects 5, 7, 22, and 23 are depicted in Figure 1 in the *Ehrharta* semi-natural herbaceous stand community. It also appears that the locations of Transects 15 and 16 are mapped in the *Salvia mellifera* shrubland alliance, but information on these transects is not included with the data under that vegetation type.

   Note/Request: The Vegetation Report (Arcadis 2015) included summaries of the vegetation transect data and did not identify transects by number in either the data tables or on the Figures included in those reports. The results of the vegetation data analyses and mapping corresponded to the observations presented in the Verification letter report (Leidos 2015) and it did not appear to be necessary to request additional details on the locations and data for each transect. However, based on the results presented in Table 2

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of the Addendum, we request that Arcadis provide a list of the transects, by number, and their corresponding vegetation type to enable verification that the information presented in the Addendum is the most up to date and correct information.

2. With regard to the comparison of vegetation east and west of the railroad tracks and designation as Environmentally Sensitive Habitat Area (ESHA), the document concludes:

> "Results of the initial and additional studies confirm that vegetation east of the railroad is not equivalent in terms of composition or habitat function to the vegetation mapped as ESHA west of the railroad, and that the eastern area has been properly treated as non-ESHA by the County."

There is insufficient information in the document to support this conclusion. I agree that the *Lupinus chamissonis–Ericameria ericoides* Shrubland Alliance vegetation within the project area east of the railroad tracks supports lower diversity and cover of native species than it does on the west side. However, the *Salvia mellifera* Shrubland Alliance east of the tracks (in the project area) supports a high diversity and cover of native shrub species indicating this is high quality habitat. In addition, some of the areas that could be identified as degraded or low quality habitat are those that support special status plant species and therefore should not be considered low functioning habitat, absent compelling additional information to support this conclusion. Additionally, if the Addendum is providing an assessment of habitat function, it needs to consider more than the vegetation types and condition (such as wildlife use and the ability to support sensitive animal species).

Please provide references or other supporting information (e.g., County maps, other determinations, etc.) for the statement that the vegetation types in the project area have been properly treated as non-ESHA by the County. If the area is considered unmapped ESHA, and the Addendum is recommending the vegetation within the project area should not be considered ESHA based on habitat quality, then additional information is needed on how the quality of the of the habitat affects a determination of whether or not there is an ESHA, with appropriate references and examples to support the conclusion.

3. The Addendum also states the vegetation west of the tracks supports colonies of locally endemic and sensitive plant species including *Erigeron blochmaniae* and *Senecio blochmaniae,* whereas the vegetation east of the tracks in general lacks local endemic species. This statement is very misleading because the following sensitive plant species were mapped within the project area east of the tracks (the map depicts these species only within the project area; these or other sensitive plant species may be present in areas outside the project area east of the tracks also) (Arcadis 2013, DEIR Appendix C1):
   - Blochman's leafy daisy (*Erigeron blochmaniae*), California Rare Plant Rank (CRPR) List 1B;

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- suffrutescent wallflower (*Erysimum suffrutescens*), CRPR List 4;
- California spineflower (*Mucronea californica*), CRPR List 4;
- sand almond (*Prunus fasciculata* var. *punctata*), CRPR List 4;
- Blochman's groundsel (*Senecio blochmaniae*), CRPR List 4; and
- dune larkspur (*Delphinium parryi* subsp. *blochmaniae*), CRPR List 1B (found during the Leidos survey, March 9, 2015).

To be objective, if sensitive plant species are to be used as a measure for comparing the quality of vegetation types on the east and west side of the railroad tracks, there needs to be a full comparison involving all sensitive species present, supported by more complete and systematic sensitive plant species surveys and analyses than are presented in the Addendum.

It should also be noted that Nipomo lupine (*Lupinus nipomensis*), one of the rarest and most endangered species within San Luis Obispo County, occurs within the Phillips 66 property in a vegetation type that would likely be considered low quality and disturbed.

4. With regard to the evaluation of the previously mapped *Saliva mellifera* Shrubland Alliance and the relationship between *Ericameria* and *Saliva*-dominated vegetation, the comparison discussed in Section 5.3 of the report used the criterion that *Ericameria ericoides* is conspicuous (5 percent or greater cover). The Manual of California Vegetation (Sawyer *et al*., 2009, page 21, Section titled Dominance, Existing Vegetation, and Refinements) also states that in some cases the presence of indicator species that are representative, diagnostic, or characteristic, may be used to define an alliance even though their cover may be relatively low (Sawyer *at al*., 2009). Because *Ericameria ericoides* is a characteristic species of many of the Central Dune Scrub habitats in the project vicinity, the presence of *Ericameria ericoides* in the *Saliva mellifera* Shrubland Alliance is arguably representative, diagnostic, and characteristic even though it falls slightly below the 5 percent cover threshold of a conspicuous species (*Ericameria ericoides* is 4.2 percent cover based on the results presented in Table 2 of the Addendum).

My review does not provide an assessment or opinion of whether the habitat types within the Phillips 66 Rail Spur project area should be identified as ESHA. Additional review of agency documents and other projects that contain a determination of unmapped ESHA would be required to make a recommendation.

The data and information presented in the Addendum do not alter the comments or recommendations stated in the Leidos Verification letter report (Leidos 2015), which include:

- the mapped boundaries and classification of vegetation types as presented in the Arcadis 2015 Vegetation Report appear to be correct;
- concurrence with Arcadis that the areas mapped as *Lupinus chamissonis–Ericameria ericoides* Shrubland Alliance and the *Ericameria ericoides–Eriogonum parvifolium–*

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Salvia mellifera Association are sensitive vegetation types, as presented in Figure 1 of the Arcadis 2015 Vegetation Report; and,

- the recommendation that the *Salvia mellifera* Shrubland Alliance should also be considered a sensitive vegetation type.

Please feel free to contact me if you have any questions or need clarification on the above comments (brownla@leidos.com, 805-570-7993).

Sincerely,

Lauren M. Brown
Senior Botanist

References:

Arcadis. 2015. Phillips 66 Sensitive Resources Report – Vegetation, Santa Maria Refinery Project Site, Rail-Spur Modification, San Luis Obispo County, California. Prepared by Arcadis U.S. Inc., February 2015, revised March 2015. (Vegetation Report)

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