October 31, 2021

Mr. Martins Aiyetiwa, P.E. Senior Civil Engineer County of Los Angeles, Department of Public Works 900 South Fremont Avenue Alhambra, CA 91803-1331

Subject: Sunshine Canyon Landfill, Quarterly Vegetation Report

Third Quarter 2021 Vegetation Report

Mr. Aiyetiwa,

This report has been prepared in accordance with the following:

- Condition 18B of the Finding of Conformance
- Condition 44A of the Condition Use Permit (CUP)
- Los Angeles City Condition [Q] C.8 of the Ordinance No. 172,933

This report presents the progress of the site's landscaping and revegetation activities for the third quarter of 2021. The intent of these reports is to provide detailed information regarding the site's efforts related to vegetation including vegetation of interim and permanent slopes and activities conducted for the on-site sage mitigation areas.

Architerra Design Group continues to assist site personnel in evaluating current site conditions relating to vegetation and provide recommendations for future efforts. This report includes their assessment of the pilot sage vegetation area as well as recommendations for this area. Architerra's evaluation is in addition to the required quarterly monitoring performed by our consulting biologist.

#### 1.0 Interim Slopes

For the purposes of this report, interim slopes are those defined as slope areas where no activities have taken place for 180 days or longer. CUP Condition 44A requires "a temporary hydroseed vegetation cover on any slope or landfill area that is projected to be inactive for a period of greater than 180 days".

#### 1.1 Hydroseeding Activities

Based on the results of the trial project completed in August 2017, a 57-acre vegetative cover project using the approved seed mix was completed in mid-December 2017. Additionally, the site completed hydroseeding approximately 155 acres; application of the approved seed mix was completed during 2019. The increase in hydroseeding application is a result of our normal winterization efforts along with slope revegetation as a result of the Saddle Ridge Fire that impacted Sylmar, CA on October 2019. These areas had successful vegetation growth after the recent rains. The winterization activities for 2021 was completed in third quarter 2021 during the month of October.

### 2.0 Permanent Slopes

Permanent slopes are defined as those where no landfilling activities will be conducted in the future.

As part of our Saddle Ridge Fire recovery efforts both the City and County permanent slopes of the landfill had hydroseed applied as necessary. This application of hydroseed was completed for soil stabilization purposes.

#### 3.0 Non-Permanent Cut Slopes

Prior quarterly vegetation reports have illustrated one area above the front terminal sedimentation basin and one area near the temporary bypass road as "non-permanent cut slopes". An evaluation of these areas has been conducted and it has been determined that these areas are "permanent slopes" because no landfilling activities will be conducted against these slopes in the future.

#### 4.0 Activities Conducted in Sage Mitigation Areas – 3Q2021

During the third quarter of 2021, the following activities were conducted in the sage mitigation areas at the landfill.

#### 4.1 City South Sage Pilot Project Area – Deck C

The lower Deck C mitigation project area was impacted by the Saddle Ridge fire in October 2019. As noted in Rincon's (formerly JMA) City-Side Sage Mitigation Area Lower Deck report a substantial amount of the lower deck was burned or scorched. However, in previous reports they note that because this was an established site, they expect natural re-establishment of the native vegetation within the first two to three years. Rincon has noted a substantial amount of regrowth has occurred following the fire and included the most prevalent natives

such as California Sunflower, Saltbush, Horseweed, and pockets of Wild Ryegrass. Rincon also indicated the intense weeding efforts implemented has greatly reduced the cover of the noxious non-native annual species.

During their most recent visit, Architerra Design Group indicates that there has been an abundance of Venturan CSS species germinating and crown-sprouting since the fire. The species following the rebound include Purple Sage, Coast Sunflower, White Sage, Creeping Wild Rye, Deerweed, Black Sage, and Mexican Elderberry. Surprisingly there are also new species from the original seed mix are now sprouting up in decent numbers and included in the list below:

- Purple Sage (Salvia leucophylla)
- Coast Sunflower (Encelia californica)
- White Sage (Salvia apiana)
- Creeping Wild Rye (Leymus triticoides)
- Deerweed (Lotus scoparius)
- Black Sage (Salvia mellifera)
- Mexican Elderberry (Sambucus mexicana)
- Scarlet Bugler (Penstemon centranthifolia)
- Telegraph Weed (Heterotheca grandiflora)
- Monkey Flower (Mimulus aurantiacus)
- Smooth-Leaf Yerba Santa (Eriodictyon trichocalyx)
- Thickleaf Yerba Santa (Eriodictyon crassifolium)
- Sunflower (Helianthus annuus)
- California Bush Sunflower (Encelia californica)
- California Sagebrush (Artemisia californica)
- California Buckwheat (Eriogonum fasciculatum)
- Quail Bush (Atriplex lentiformis)
- Four-Wing Saltbush (Atriplex canescens)
- Cattle Spinach (Atriplex polycarpa)
- Spinescale (Atriplex spinifera)
- Toyon (Heteromeles arbutifolia)
- Foothill Needlegrass (Nassella lepida)
- Coyote Bush (Baccharis pilularis)
- Showy Penstemon (Penstemon spectabilis)
- Wright's Cudweed (Pseudognaphalium microcephalum)
- White Horehound (Marrubium vulgare) Non-Native
- Australian Saltbush (Atriplex semibaccata) Non-Native

As reported from Architerra, most native plants are in their summer/fall dormancy period, but new growth is starting to emerge from some of the Encelia californica.

#### 4.2 City South Deck B

The Deck B sage mitigation project began on April 9, 2018 and planting was completed by the end of the fourth guarter 2018. Soil samples indicated low pH and high salinity, as a result Deck B underwent a leaching schedule. Additional soil amendments and resampling were completed before planting began, which took place during the fourth quarter 2018. Pacific Restoration Group, Inc (PRG) has been working with Architerra for the completion of project. A summary of the progress is included in Attachment 3. The northwest portion of the Middle Deck burned during the Saddle Ridge Fire in October 2019. Architerra Design Group (ADG) indicates Deck B is doing guite well and there is evidence of desiccation of the seedlings especially the Common Yarrow and other native species that have recently spouted and are beginning to harden off and defoliate. Architerra have indicated the plant diversity on Deck B is impressive and many of the species in the seed mix have germinated and the containerized plants also are doing well and are blooming or just finished which are the White Sage, Mexican Elderberry, Menzie's Goldenbush, and Prickly Pear.

Architerra has reported several bird and lizard species were actively moving around the deck during their inspection. It was reported the vegetative coverage has a closed canopy in several locations for wildlife species to conceal themselves. A San Diegan Whiptail Lizard and Common Side-Blotched Lizard were seen while walking through the deck vegetation.

Architerra reported a large portion of Deck B that burned in the Saddle Ridge Fire, has rebounded back over the last 18 months and has an abundance of new seedlings filling in what was barren dirt. Architerra indicates within a few years, evidence of the fire will be virtually unnoticeable in this area. The fire ecology working within the landfill area and the weeding within this zone has also helped to build this area back to its pre-fire condition.

Rincon has noted a large amount of sage scrub has resprouted and some of which are flowered this past Spring following the damage from the fire. Rincon has mentioned the weed cover is generally low-to-moderate and most annual species are currently dormant or have desiccated.



Western Kingbird (*Tyrannus verticalis*) found on City South Deck B Mitigation area.

#### 4.3 County Sage Mitigation Area

The County sage mitigation area is located on the western side of the County portion of Sunshine Canyon Landfill (Drawing 1). As noted in the third quarter Rincon County-Side Sage Mitigation Area report the upper half of the mitigation site was burned in the Saddle Ridge fire in October of 2019. No revegetation activities were conducted in this area during the third quarter of 2021, and as noted in multiple Rincon progress reports, the conditions in this mitigation area have remained unchanged for some time. Rincon notes in their attached 2021 first quarter vegetation report that this area remains problematic for establishment of vegetation. Soil samples from this location indicate low pH, high salinity, and Boron present in native soils. A trail test pilot plan is being evaluated at this time with Architerra.

#### 5.0 Assessments of Sage Mitigation Areas

Assessments of the site's sage mitigation areas are conducted by a qualified biologist on a quarterly basis. The following sections present a summary of the recommendations for the sage mitigation areas from Rincon (City and County sage mitigation areas) and Architerra (City South Sage Pilot Project Area (Deck C) and Middle Deck (Deck B) and the proposed actions in response to the recommendations.

5.1 Rincon Recommendations for City Sage Mitigation Areas

Rincon's progress reports for the City Sage Mitigation Areas for the third quarter of 2021 are provided in Attachment 1. These reports include recommendations based on the assessments. Table 1 presents a summary of these recommendations and the proposed actions.

Table 1 – Rincon Recommendations and Proposed Actions – City Sage Mitigation Areas, Third Quarter 2021

AREA		RECOMMENDATION	PROPOSED ACTION		
Lower, Middle, and Upper Decks (Decks C, B, and A)	1	Weed Control – Implement a year-round weed control program to control non- native species.	A weed control program is already in place on Deck C and B as part of the pilot project and will continue. A weed control program on A will be implemented along with the mitigation plans for these areas.		
Lower, Middle, and Upper Decks (Decks C, B, and A)	2	Prohibit Access – Continue to prohibit vehicle access to mitigation areas.	Repairs to the T-post fencing will be made as needed.		
Upper Deck (Deck A)	3	Improve root zone and soil conditions	This will be addressed when the plans for Deck A is developed. Actions were taken to address improving the root zone in Decks B & C; it is expected that similar actions will be incorporated into the plans for Deck A.		
Upper Deck (Deck A)	4	Plant natives in areas dominated with non- natives	This will be addressed when the plans for Deck A are developed. Various planting methods were used for the construction of the pilot project on Decks B & C; it is expected that similar actions will be incorporated into the plans for Deck A.		
Upper Deck (Deck A)	5	Reseeding – apply native seeds during the rainy season after soil mounds have been established	This will be addressed when plans for Deck A are developed.		

Rincon also recommended that a monitoring biologist should be present during weed control activities or the native plants should be flagged to ensure only non-native species are removed. A monitoring biologist will be consulted prior to any weed control activities to ensure native plants are protected.

Architerra and Rincon continues to provide support to the Oakridge maintenance personnel to assist in removal of the invasive weeds on both Deck B and C. Architerra has pointed out some of the more aggressive weeds that have flourished since the Saddle Ridge Fire. Architerra provided them with images of the invasive weeds to help identify and target these invasive species. Oakridge Landscape have been diligently removing Russian Thistle, Wild Oat, Shortpod Mustard, Red Brome Grass, False Barley, Tree Tobabcco, and Yellow Star Thistle that took hold in the burned barren areas.

## 5.2 Rincon Recommendations for County Sage Mitigation Area

Table 2 presents a summary of the recommendations proposed by Rincon based on the assessment of the County Sage Mitigation Area and the proposed actions. Please refer to the full recommendations in the Rincon reports in Attachment 2.

Table 2 – Rincon Recommendations and Proposed Actions – County Sage Mitigation Area, Third Quarter 2021

AREA	REG	COMMENDATION	PROPOSED ACTION		
County Sage Mitigation Area	1	Create benches to control soil erosion and improve soil conditions to improve plant establishment and seed dispersal	Rincon and ADG are evaluating recommendations from the County Task Force and UltraSystems.		
County Sage Mitigation Area	2	Reseed and plant container plants	A trail test pilot plan will be discussed with California Native shrubs.		
County Sage Mitigation Area	3	Plant within view sheds	A trail test pilot plan will be discussed with California Native shrubs.		
County Sage Mitigation Area	4	Use soil amendments	A trial test plot would need to be developed. This recommendation will be considered at a later date.		
County Sage Mitigation Area		Signage – Install signage indicating revegetation efforts.	Due to the slopes, stormwater channel and overall difficulty to access this area, personnel are limited to access this area.		
County Sage Mitigation Area	6	Weed Control – Continue weeding as needed on a quarterly basis.	Personnel continues to evaluate the current status.		

County Sage Mitigation Area	7	Prohibit Access – continue to prohibit vehicle access to mitigation deck.	Upper entrance has a locked gate, no further action is required.
County Sage Mitigation Area	8	Employee Awareness  - conduct employee awareness training.	This is currently being done as part of our Environmental Communication efforts.

5.3 Architerra Inspection for City South Sage Mitigation Pilot Project Area
– Third Quarter 2021

The inspection report is included in Attachment 3 along with photos of the area taken at the photo stations.

### 5.4 Quarterly Assessment of City South Sage Pilot Project Area

The methodology for assessment of the City South Sage Pilot Project Area developed by Rincon (formerly JMA) was included in the first quarter 2015 Vegetation Report. The evaluation report for the third quarter of 2021 based on this methodology is included in Attachment 4 and Attachment 5 for Deck C and Deck B, respectively.

## 6.0 Status of Other Vegetated Areas

#### Big Cone Douglas Fir Tree Mitigation

As reported in the vegetation report for the first quarter of 2015, 200 Big Cone Douglas fir tree saplings were planted the third week of March 2015. These big cone douglas fir pine trees continue to be monitored and maintenance activities will be conducted in this mitigation area for 2021 and into the future.

A meeting with Rincon biologist and the Los Angeles County forester was conduct on October 21, 2021 at the Big Cone Mitigation area. Some important topics were assistance from local nurseries and universities to help replace and replant some of the existing dead big cone pine and canyon oak, also to establish a new location for planting more big cone pines and canyon oak in this area, and finally to establish healthy big cone pine and canyon oak in a timely established schedule. We look forward to working the LA County forester, local nurseries and universities.

#### PM10 Berm

Republic Services hosted an Adopt-A-Tree event for employees and their family members. On Saturday, November 14<sup>th</sup>, 2020 at 2:00 pm, Fourteen (14) Coast Live Oak trees were planted in critical areas of the PM10 Berm that

was damaged during the Saddleridge Fire. Architerra and JMA (i.e. Rincon) assisted in the planting efforts with their expertise and knowledge of tree growth and ideal planting locations. Republic Services will consider hosting more Adopt-A-Tree events in the near future.



#### Front Entrance Toe Berm

The proposed project involves the development of a landfill termination berm and construction of a roadway. There were 20 coast live oak trees surveyed within the project footprint by Rincon and project leads. One of the oak trees was dead, and all of them would be removed by the project activities. There are currently 48 coast live oak trees in the landfill's mitigation bank. As noted the 20 coast live oak trees would be removed by the proposed project, therefore at a mitigation ratio of 2:1, a total of 40 coast live oak trees will be deducted from the landfill's oak tree mitigation bank, leaving 4 oak trees remaining in the bank for future removals at the landfill, if needed. A report detailing the survey is located in Attachment 6.

City of San Fernando Arbor Day with Sun Valley Hauling

In preparation of Arbor Day on April 30<sup>th</sup>, 2021 the City of San Fernando and Sun Valley Hauling requested Coast Live Oaks trees from the Sunshine Canyon Landfill Nursery. As we do every year, except for last year due to the coronavirus pandemic, Republic Services assist the City of San Fernando in celebrating Arbor Day with planting trees during their event. During this year on April 27<sup>th</sup> four (4) Coast Live Oak trees were planted in celebration. For more information regarding these events please contact the City of San Fernando and Republic Services Sun Valley Hauling Division.



## **Donation to Local Community**

As part of community outreach, a rancher in the area asked if he could plant some oaks trees on his ranch nearby, and Sunshine Canyon agreed it would be a great idea. Thereafter on September 9<sup>th</sup> 2021, twenty-two (22) coast live oaks and two sycamores were donated from the Sunshine Canyon nursery and given to the rancher. The rancher mentioned the oak trees shall provide shade for his livestock and beautify the surrounding private property and was very pleased with the trees.



Please do not hesitate to contact me at (818) 362-2096 if you have any questions.

Sincerely,

Tuong Pha ngo

Tuong-Phu Ngo, P.E. Environmental Manager Sunshine Canyon Landfill

Cc: Ms. Dorcas Dee Hanson-Lugo, SCL LEA

Mr. David Thompson, SCL LEA

Ms. Tiffany Butler, City of Los Angeles, Department of City Planning

Ms. Devon Zatorski, City of Los Angeles Department of City Planning

Ms. Ly Lam, City of Los Angeles, Department of City Planning

Mr. Nicholas Hendricks, City of Los Angeles, Department of City Planning

Dr. Wen Yang, Los Angeles Regional Water Quality Control Board

Ms. Maria Masis, County of Los Angeles, Department of Regional Planning

Mr. Wayde Hunter, SCL CAC

Mr. Jim Aidukus, UltraSystems

County DPW Landfill Unit

#### **Attachments**

Attachment 1 Rincon Progress Report, City-Side Sage Mitigation Area

Attachment 2 Rincon Progress Report, County-Side Sage Mitigation

Area

Attachment 3 Architerra Design Group, Field Observation Report,

South City Sage Mitigation Pilot Project - 3Q2021 with

Photo Log

Attachment 4 Rincon Quarterly Monitoring Report - Coastal Sage

Scrub Deck C Pilot Study, 3Q2021

Attachment 5 Rincon Quarterly Monitoring Report - Coastal Sage

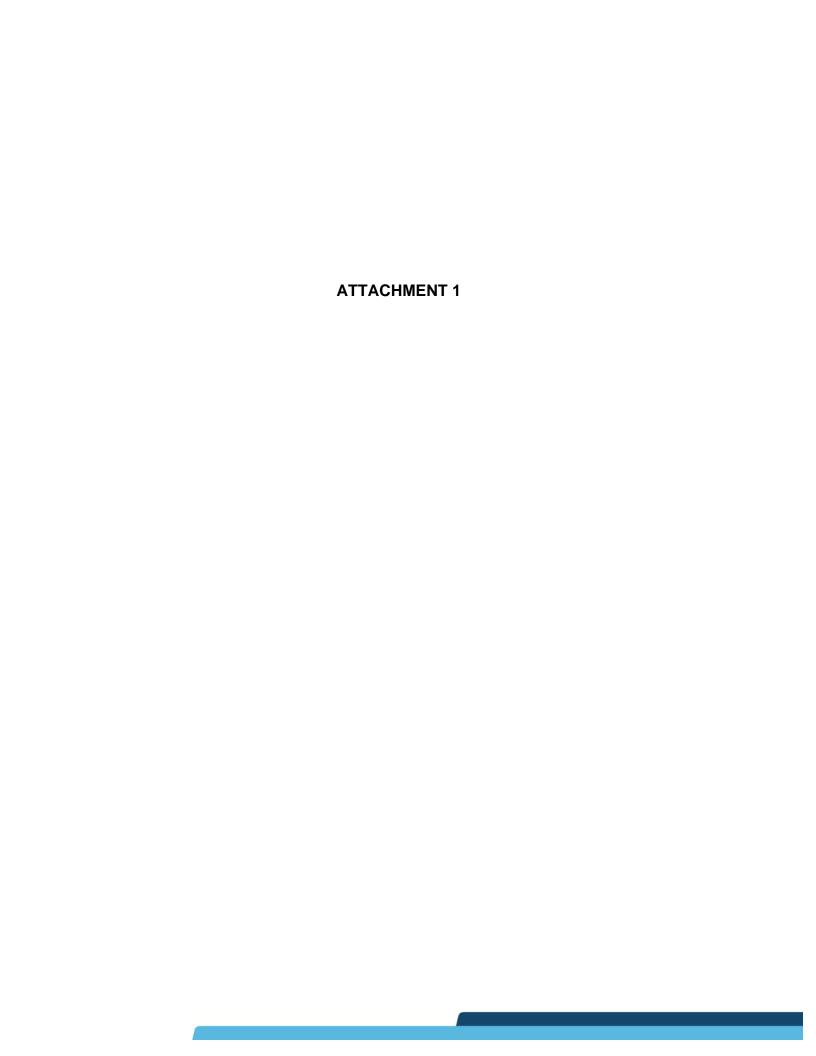
Scrub Deck B Pilot Study, 3Q2021

Attachment 6 Rincon Sunshine Canyon Landfill Ultimate Entry

Improvement Project, Oak Tree Survey Report

## Drawing

Drawing 1 3Q2021 Site Vegetation Status and Activity





#### City-Side Sage Mitigation Area Qualitative Progress Report – 3rd Quarter, 2021

October 26, 2021 Project No: 21-11086

Tuong-phu Ngo Environmental Manager Republic Services 14747 San Fernando Road Sylmar, California 91342

Via email: tngo@republicservices.com

Subject: Qualitative Progress Report – 3<sup>rd</sup> Quarter, 2021 for the Republic Services City-Side Sage

Mitigation Area at the Sunshine Canyon Landfill in Sylmar, California

Dear Mr. Ngo,

On September 29, 2021, Rincon Biologist Kyle Gern conducted the third quarter qualitative progress report of 2021 for the Republic Services City-Side Sage Mitigation Area. This memorandum qualitatively documents the current conditions of the City-Side Sage Mitigation Area with regards to the Landfill's coastal sage scrub restoration efforts. The City-Side Sage Mitigation Area consists of the Lower Deck, Middle Deck, and Upper Deck (including surrounding slope), which are discussed in detail below.

## General Conditions

#### Lower Deck

In 2014, the Landfill initiated a pilot study at the Lower Deck to assess three different seeding applications of native species that included hand broadcasting, imprint, and hydroseed. Some container plants were also planted at the Lower Deck, but in low quantities. Germination, establishment, and natural recruitment of native plants ensued; however, the Lower Deck and surrounding area burned during the Saddleridge Fire in October 2019. The fire burned a substantial amount of the Lower Deck, scorching some of the vegetation entirely and partially burning some vegetation as well. The fire also burned the irrigation system, and the vegetation has been without supplemental water ever since.

A substantial amount of regrowth has occurred following the fire that includes germination from the seed bank in the soil and resprouting of below- and above-ground plant parts. The most prevalent native plant species observed within the Lower Deck in the third quarter of 2021 was California sunflower (*Encelia californica*). In 2020 following the Saddleridge Fire, areas that were previously dominated with saltbush species such as big saltbush (*Atriplex lentiformis*) and allscale saltbush (*Atriplex polycarpa*) were largely replaced by mats of non-native brome grasses (i.e., red brome [*Bromus madritensis*], ripgut brome [*Bromus diandrus*]) and foxtail barley (*Hordeum murinum*). Currently, saltbush species have resprouted and showed signs of new growth, and large stands of blooming common sunflower (*Helianthus annuus*) were observed. Exotic annual plant species such as foxtail barley and ripgut brome have showed minimal change since the second monitoring event of 2021. Exotic annual plants were removed through weeding treatment that was applied to the landscape prior to the second quarter monitoring event. Exotic annual plants have remained at low cover since the weeding treatment. Additionally, natural senescence of exotic annual plants has occurred due to their annual life cycle, and their abundance is expected to remain low until Spring following winter storm events typical to southern

California. While exotic plant cover has not changed since the second quarter monitoring event, they are still dominant in the herbaceous layer. Notably, Italian thistle (Salsola tragus) was observed flowering within the lower deck. Exotic plants should continue to be maintained periodically throughout the remainder of the 2021 growing season to prevent further dispersal within the mitigation area.

#### Middle Deck

In 2019, the Landfill initiated a pilot study at the Middle Deck to assess germination and establishment rates (e.g., percent cover) of soil imprinting and broadcast seeding methods. Some container plants were also planted at the Middle Deck, but in low quantities. Germination and establishment of native plants ensued; however, there was not much evidence of natural recruitment due to the short timeframe from when the deck was seeded to when it burned during the Saddleridge Fire that also decimated its irrigation system.

Before the Saddleridge Fire, the vegetation composition was approximately 35% of sage scrub plantings/seedlings and 30% non-native grasses, with the remainder of the area comprised of bare ground and/or rock substrate. A substantial amount of the planted vegetation on the Middle Deck completely burned in the fire; however, a large amount has resprouted, consisting of woody species such as brittlebush (Encelia farinosa), scarlet burglar (Penstemon centranthifolius), California buckwheat (Eriogonum fasciculatum), California sagebrush (Artemisia californica), coastal goldenbush (Isocoma menziesii), and white sage (Salvia apiana), and herbaceous species such as alkali rye (Elymus triticoides). Of all the observed native species, brittlebush and coastal goldenbush have shown the greatest increase in abundance between 2020 and the third quarter of 2021. Coastal goldenbush and coyote brush (Baccharis pilularis) were observed flowering during the third quarter of 2021, and brittlebush had completed flowering and was setting seed. Non-native plant establishment was also observed within the Middle Deck; however, this establishment is much lower than what has been observed within the lower deck. Non-native plants observed include exotic grasses such as foxtail barley (Hordeum murinum), Mediterranean grass (Schismus arabicus), red brome (Bromus madritensis), and forbs such as short podded mustard (Hirschfeldia incana). In general, the weed cover is generally low to moderate, and has not changed since the second quarter of 2021.

## Upper Deck

Overall, the Upper Deck continues to be sparsely covered with native vegetation, and total vegetation coverage is sparse due to compacted and poor soil conditions. However, in the southern-center of the revegetation area, vegetation cover is higher than in other areas and includes native species such as California buckwheat (Eriogonum fasciculatum) as well as non-native species such as foxtail barley, redstem filaree (Erodium cicutarium), and Australian saltbush (Atriplex semibaccata). The presence of vegetation in the southern-center portion of the Upper Deck generally demonstrates that the soils in this area are suitable for supporting vegetation, both native and exotic. However, the soils elsewhere on the Upper Deck appear to be heavily compacted and gravelly, and vegetation coverage in these areas is sparse. Evidence of previous seeding is no longer discernible within the portions of the Upper Deck where plant establishment is visibly poor.

Non-native herbaceous species that dominate the vegetation on the Upper Deck currently include wild oats (Avena fatua), Russian thistle (Salsola tragus), ripgut brome, red brome, and short podded mustard. California buckwheat is the most dominant native perennial woody plant species on the Upper Deck,

#### City-Side Sage Mitigation Area Qualitative Progress Report – 3rd Quarter, 2021

and it was observed in flower and setting seed; however, overall natural recruitment of native plant species within the Upper Deck is low due to poor and dry soil conditions.

Table 1 Summary of Observations in the Lower, Middle, and Upper Decks in Quarter 3, 2021

	Native Plant Vegetation				Exotic Plant Vegetation	
Location	Native Plant Cover	Plant Health Issues	Height of Native Species	Native Species Richness	Exotic Plant Cover	Phenological State
Lower Deck	Moderate	Recovering from fire, drought	12"-24"	Low	Moderate	Setting seed
Middle Deck	Minimal	Recovering from fire, drought	12"-24"	Low	Moderate	Setting seed
Upper Deck	Minimal	Poor soils, drought	12"-24"	Low	Moderate	Setting seed

## **Recommendations**

#### Lower and Middle Decks

#### **Weed Control**

- Implement a year-round weed control program to control non-native species. The weed control program should incorporate both chemical and mechanical control practices. Following weed control, any dead material harboring seeds should be removed to an off-site location to the extent feasible. Dense areas covered with red brome, ripgut brome, foxtail barley, and short podded mustard should be controlled by removing flowers and immature seeds heads before they drop. These areas should be reseeded with native herbaceous species that are known to grow well in the Lower (and Middle) Decks, particularly alkali rye and yarrow (Achillea millefolium).
- A qualified biologist should be present during weed control activities or flag the native plants
  that should remain prior to weed control activities to ensure only non-native species are
  removed and to minimize damage to native plant species to the greatest extent feasible. A
  biologist should verify that the weed removal methodology does not encourage re-colonizing of
  non-native plant species.
- Weeding is best performed just before, or at the onset of flowering, but before seed set. If seeds are already present, additional care should be taken to remove the plants with the seeds attached, or the seeds should be removed from the plants prior to the plant removal. A consistent weed abatement schedule will reduce the potential for non-natives to set seed. Soil disturbance should be limited by hand weeding, wherever possible, and weeds should be disposed of off-site to avoid any reinfestation through reseeding or from plant propagules. If hand weeding is not possible, the monitoring biologist should be consulted regarding the appropriate method of weed removal. For example, using mechanical equipment to remove flowers and immature seed heads may be appropriate where dense mats of non-native grasses

#### City-Side Sage Mitigation Area Qualitative Progress Report – 3rd Quarter, 2021

have established. If there continues to be high incidence of weed infestation, weed control may need to be increased to every four to six weeks. Otherwise, weeds should continue to be monitored and controlled on a quarterly basis.

### **Irrigation**

The Lower and Middle Decks burned during the Saddleridge Fire in October 2019. The fire
burned the irrigation system that was installed prior to the fire, and the vegetation has been
without supplemental water ever since. Vegetation within the Lower and Middle Decks are
showing signs of desiccation stress due to the persistent drought occurring in southern
California. If drought conditions persist, it is recommended that the irrigation system within the
Lower and Middle Decks are re-installed to promote germination and growth of native plant
species.

#### **Prohibit Access**

Continue to prohibit vehicle access to mitigation areas.

## Upper Deck

#### Improve Root Zone and Soil Conditions

- Continue to investigate ways to import the soil layer to improve the root penetration and saturation zone to enable plant growth in heavily compacted areas. Consider applying soil in random undulations or uneven mounds to improve soil porosity and filtration and to control soluble salts from leaching from existing layer.
- If permissible, prior to seeding (broadcast, hydroseeding, or drilling) native species, incorporate a soil amendment or mulch with high organic content by tilling it into the top 12 inches of the existing compacted soils to improve soil texture, drainage, porosity, and aerobic conditions. If an organic mulch or soil amendment is not feasible or available, incorporate available soil from borrow sites within the landfill that have the appropriate soil properties, so long as these borrowed soils have been determined to not have toxic conditions, such as boron or high salinity.

#### Plant Natives in Areas Dominated with Non-natives

• The vegetated areas on the Upper Deck that are currently dominated with non-native annual species have decent soil-texture conditions. These areas are less compacted than adjacent areas that are gravelly and mostly devoid of vegetation. In general, the soil texture within the vegetated areas with non-native vegetation is friable down to approximately 8-12 inches in depth. Various planting methods (i.e., planting container plants and hydroseeding) may be used to re-establish native plants on the Upper Deck where non-natives currently dominate.

#### **Weed Control**

• Implement a year-round weed control program to control non-native species. The weed control program should incorporate both chemical and mechanical control practices. Following weed



control, any dead material harboring seeds should be removed to an off-site location to the extent feasible.

- A qualified biologist should be present during weed control activities or flag the native plants
  that should remain prior to weed control activities to ensure only non-native species are
  removed and to minimize damage to native plant species to the greatest extent feasible. A
  biologist should verify that the weed removal methodology does not encourage re-colonizing of
  non-native plant species.
- Weeding is best performed just before, or at the onset of flowering, but before seed set. If seeds are already present, additional care should be taken to remove the plants with the seeds attached, or the seeds should be removed from the plants prior to the plant removal. A consistent weed abatement schedule will reduce the potential for non-natives to set seed. Soil disturbance should be limited by hand weeding, wherever possible, and weeds should be disposed of off-site to avoid any reinfestation through reseeding or from plant propagules. If hand weeding is not possible, the monitoring biologist should be consulted regarding the appropriate method of weed removal. For example, using mechanical equipment to remove flowers and immature seed heads may be appropriate where dense mats of non-native grasses have established. If there continues to be high incidence of weed infestation, weed control frequency may need to be increased. Otherwise, weeds should continue to be monitored and controlled on a quarterly basis.

## Reseeding

 Following the application of soil mounds as previously described, apply native seed (by means of broadcast seeding, hydroseeding or drilling) during the rainy season, between December and March, or prior to a forecasted rain event.

#### **Prohibit Access**

Continue to prohibit vehicle access to mitigation areas.

Thank you for the opportunity to work with you on this important project. Please contact Greg Ainsworth if you have questions concerning the contents of this report. He may be reached by telephone at (818) 564-5544, or by email at gainsworth@rinconconsultants.com.

Sincerely,

Rincon Consultants, Inc.

Greg Ainsworth

**Natural Resources Director** 

Kyle Gern Biologist



## Republic Services Sunshine Canyon Landfill City-Side Sage Mitigation Area Qualitative Progress Report – $3^{rd}$ Quarter, 2021

## **Attachments**

Figure 1. Photograph Locations Attachment A

Site Photographs Attachment B



## Attachment A

Figure 1. Photograph Locations



Figure 1 Photograph Locations



# Attachment B

Site Photographs





Photograph 1. Facing west at lower deck. View of eastern limits that was dominated by Atriplex sp. and California sunflower prior to the Saddleridge Fire (September 29, 2021).



**Photograph 2.** Facing east at lower deck from western boundary (September 29, 2021).





Photograph 3. Facing east at the Middle Deck from western boundary (September 29, 2021).



Photograph 4. Facing west at the easterly-facing slope located between the Middle and Upper Decks. The vegetation on the slopes between the Upper Deck is dominated by California buckwheat (currently in flower and setting seed) and non-native annual grasses (September 29, 2021).





**Photograph 5.** Facing northeast at the Upper Deck. This area is compacted and gravelly and continues to be problematic for supporting vegetation. Non-native annual grasses and forbs, and California buckwheat shrubs are evident in the background (September 29, 2021).

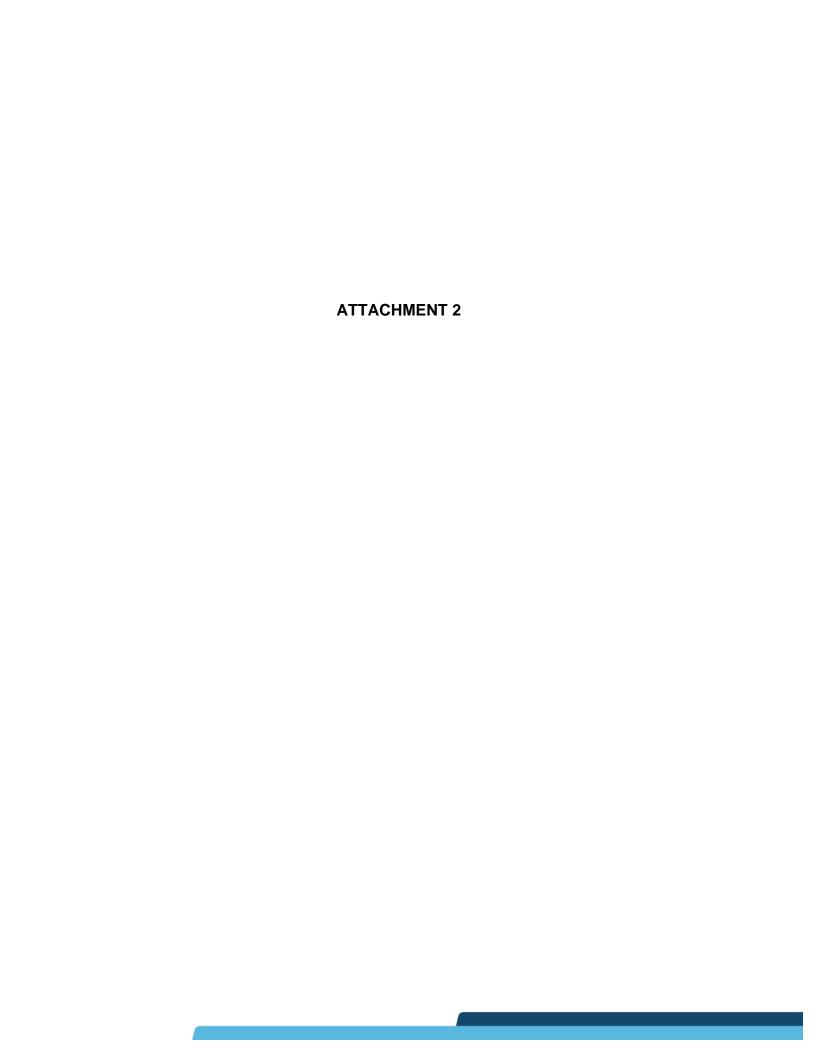


**Photograph 6.** Facing southwest at the Upper Deck. This area is dominated by wild oats and California buckwheat, which are currently flowering and setting seed (September 29, 2021).





Photograph 7. Facing southeast at the western portion of the Upper Deck. This area is dominated by short podded mustard and Australian saltbush (September 29, 2021).





October 26, 2021 Project No: 21-11086

Tuong-phu Ngo Environmental Manager Republic Services 14747 San Fernando Road Sylmar, California 91342

Via email: <a href="mailto:tngo@republicservices.com">tngo@republicservices.com</a>

Subject: Qualitative Progress Report – 3<sup>rd</sup> Quarter, 2021 for the Republic Services County-Side Sage

Mitigation Area at the Sunshine Canyon Landfill in Sylmar, California

Dear Mr. Ngo,

On September 29, 2021, Rincon biologist Kyle Gern conducted the third quarter qualitative monitoring report of 2021 for the Republic Services County-Side Sage Mitigation Area. This report qualitatively documents the current conditions of the County-Side Sage Mitigation Area.

## General Conditions

## Hydroseeded Areas

Germination and plant growth from hydroseeding that occurred several years ago is not discernible. Conditions on the County-Side Sage Mitigation Area remain relatively unchanged since the second quarter of 2021. Areas that are moderately covered with native and non-native vegetation are concentrated. A substantial portion of the mitigation area continues to be bare and problematic for establishment of vegetation, primarily because of highly eroded soils, steep slopes, and Boron-toxic soils (See *Recommendations* section). Overall, the hydroseeded areas are covered with native vegetation in generally the southern-half of the mitigation area.

Native plant coverage is similar to the previous quarterly monitoring reports. The southern-half of the mitigation area has relatively good coverage of native species, mostly California buckwheat (*Eriogonum fasciculatum*) and California sunflower (*Encelia californica*). California buckwheat was observed flowering and beginning to set seed in the third quarter. Established laurel sumac (*Malosma laurina*) individuals are present as well. The native vegetation coverage is assumed to be a direct result of seeding; however, some natural recruitment of native plant species is apparent based on the various sizes of shrubs and the presence of California sunflower seedlings within the understory. Due to rocky (hydrophobic) soil conditions, soil erosion and Boron-toxic soils on the northern-half (and upper portions) of the mitigation area, minimal plant growth is present. Annual non-native grasses and forbs currently dominate the understory and serve as ground cover in most of the vegetated areas. Brome grasses (*Bromus* spp.), wild oats (*Avena fatua*), short podded mustard (*Hirschfeldia incana*), and Russian thistle (*Salsola tragus*) are the dominant non-native vegetation present, which comprises approximately 20 percent of the total cover. California buckwheat dominates the native vegetation coverage with California sagebrush (*Artemisia californica*) and California sunflower as co-dominants. These native

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#### County-Side Sage Mitigation Area Qualitative Progress Report – 3rd Quarter, 2021

species comprise of approximately 75 percent of the native vegetation cover in areas where vegetation is present. Other less dominant native species observed include golden bush (*Ericameria linearifolia*), coyote brush (*Baccharis pilularis*), black sage (*Salvia mellifera*) and laurel sumac.

## Seed Mix Areas

Like the hydroseeded areas, germination and plant growth from the seed mix areas that occurred several years ago is not discernible. A substantial portion of the mitigation area continues to be bare and problematic for vegetation to become established. However, in areas where vegetation is present, there is a moderate coverage of native species, mostly California buckwheat and California sunflower.

As indicated during previous monitoring periods, a moderate cover of native plants exists within vegetated areas and annual non-native grasses and forbs currently dominate the understory as described in the Hydroseeded Areas discussion above.

#### Native Plant Conditions

The plant cover rating indicated further below in

#### County-Side Sage Mitigation Area Qualitative Progress Report – 3rd Quarter, 2021

Table 1 applies where vegetation is dominant in the southeastern portion of the mitigation area. Vegetation cover is moderate in the southeastern portion of the mitigation area and sparse along the upper slopes where rocky and eroded soil conditions occur. As a result, most of the northern and upper portions of the mitigation area continue to have minimal coverage. Native vegetation coverage is good in vegetated areas and the amount of non-native grasses that are present is expected when compared to sparsely covered areas of California buckwheat in the region. Bare areas and non-native annual grasses are intermixed; however, as noted the northern and upper areas continue to be mostly bare where erosion and rocks are apparent.

California buckwheat dominants the native cover with California sunflower as a co-dominant. Establishment of vegetation is problematic due to rocky soils with poor soil structure, and Boron toxicity has made plant growth (i.e., seed germination and recruitment) difficult. The species richness is low to medium within vegetated areas; however, species richness is considerably low when considering the entire county-sage mitigation area.

#### **Exotic Plant Conditions**

Annual, non-native weed species consist primarily of brome grasses, wild oats, and mustards, which have already set seed, as well as patches of Russian thistle which are currently flowering. Other established weeds that were observed include redstem filaree (*Erodium cicutarium*), telegraph weed (*Heterotheca grandiflora*), which is a weedy native plant species, and tocalote (*Centaurea melitensis*).

County-Side Sage Mitigation Area Qualitative Progress Report – 3rd Quarter, 2021

Table 1 Summary of Observations in the County-Side Sage Mitigation Area in Quarter 3, 2021

	Native Plant Vegetation				Exotic Plant Vegetation		
Location	Native Plant Cover	Plant Health Issues	Height of Native Species	Native Species Richness	Exotic Plant Cover	Phenological State	
County-Side Sage Mitigation Area	Moderate	None	12"-24"	Medium	Moderate	Setting seed	

## Recommendations

The following recommendations within the County-Side Sage Mitigation are suggested based upon the field survey conducted on September 29, 2021.

- Create benches. Consider creation of several benches throughout the mitigation area to control soil erosion and to improve soil conditions to improve plant establishment and seed dispersal. This technique has been widely used on steep slopes and in areas where soil erosion is problematic. This technique also allows for opportunities to introduce a high-quality soil layer above the poor soils that exist.
- Reseed and Plant Container Plants. If creation of benches is feasible, planting methods should include hydroseeding, broadcast seeding, and/or imprinting no more than 10 days prior to a forecasted rain event, unless an irrigation system is installed. Planting with container plants with supplemental irrigation should also be considered.
- Use Soil Amendments. Incorporate a soil amendment or mulch with high organic content in select areas as determined by a restoration specialist.
- **Signage.** Install signs indicating that the area is undergoing revegetation.
- Weed Control. Continue weed control program as needed on a quarterly basis.
- Prohibit Access. Prohibit equipment access to mitigation area.

Thank you for the opportunity to work with you on this important project. Please contact Greg Ainsworth if you have questions concerning the contents of this report. He may be reached by telephone at (818) 564-5544, or by email at <a href="mailto:gainsworth@rinconconsultants.com">gainsworth@rinconconsultants.com</a>.

Sincerely,

Rincon Consultants, Inc.

Greg Ainsworth

Natural Resources Director

Kyle Gern Biologist

#### **Attachments**

Attachment A Figure 1. Photograph Locations

Attachment B Site Photographs



#### Rincon Consultants, Inc.

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## Attachment A

Figure 1. Photograph Locations



Figure 1 Photograph Locations



# Attachment B

Site Photographs

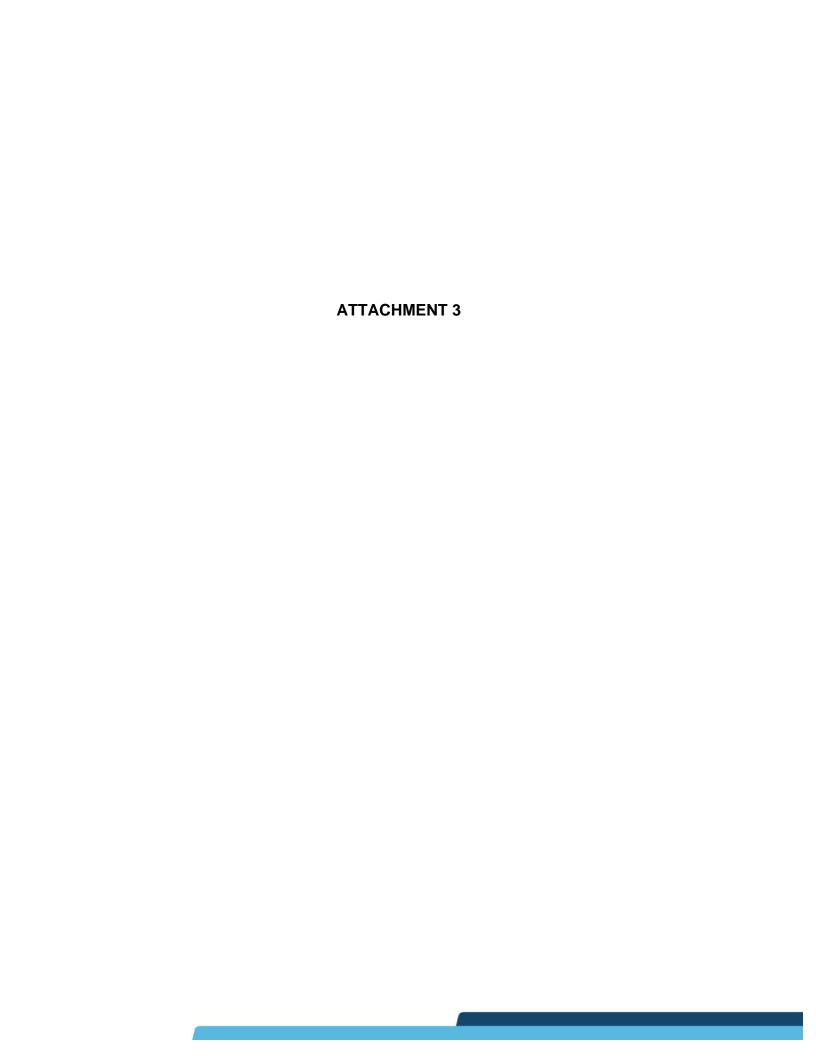




**Photograph 1.** Facing west at the County-Side Sage Mitigation Area (June 23, 2021).



Photograph 2. Facing west at the northern portion of the County-Side Sage Mitigation Area where plant growth has been problematic due to poor soil conditions (June 23, 2021).



#### ARCHITERRA DESIGN GROUP

### **FIELD OBSERVATION REPORT**

DATE OF VISIT:	10/1/21
PROJECT:	Sunshine Canyon Mitigation Sites
PROJECT NUMBER:	1214
PROJECT MANAGER:	Gregg Denson
SITE INSPECTION #:	
PURPOSE OF VISIT:	Review site conditions/Photo Catalog
TIME OF SITE VISIT:	12:30pm
WEATHER/TEMPERATURE:	Sunny 80°
ESTIMATED % COMPLETED:	100%
CONFORMANCE WITH SCHEDULE (+, -)	

WORK IN PROGRESS:	Weed abatement / Monitoring Period / Construction Observation
PRESENT ON SITE:	Gregg Denson

A site visit walk and evaluation has been completed to review the Venturan CSS vegetation establishment on the Trial Site (Deck C), Deck B and County Mitigation Slopes. Additional items noted during the site visit are as follows:

#### City-Side Sage Mitigation (Trial Site Deck C):

Weeding efforts have helped to limit the amount of summer weed growth and seeding. Most native plants are in their summer/fall dormancy period, but new growth is starting to emerge from some of the Encelia californica. A few Fall rainy days and cooler temperatures have allowed some of the native plants to wake up from that dormancy period. Some Russian Thistle (*Salsola* ssp.) is growing on the decks, but it is very limited. More robust growth can be found on the adjacent PM10 Berm, and should be removed as quickly as possible.

As part of the maintenance of the decks, it will be important to increase the frequency of weeding since seasonal rains will add to the germination of weed seed.

Much of the Venturan CSS vegetation that was burned in 2019 has now regenerated and the deck vegetation canopy is closing once again. This is helping to limit the amount of weeds that germinate in the open space areas.



Side by Side - Native Plant Coast Sunflower (Summer/Fall dormant)



Dormant Coast Sunflower and Saltbush in the background





ARCHITERRA DESIGN GROUP 10221-A TRADEMARK STREET, RANCHO CUCAMONGA, CA 91730 Phone (909) 484-2800, Fax (909) 484-2802



Dormant California Sagebrush (Artemesia California)



California Sunflower (Encelia California) emerging with new growth



Up close new foliage emerging from California Sunflower (Encelia California)



Dormant Purple Sage (Salvia leucophylla) in the shade of Smooth-Leaf Yerba Santa (Eriodictyon trichocalyx)



Seed and leaf debris of Four-Wing Saltbush (Atriplex canescens)

### City-Side Sage Mitigation (Trial Site Deck B):

• Weeding efforts on smaller herbaceous species have allowed the new growth of the Venturan Coastal Sage Scrub. However, three large California Peppers (*Schinus molle*), need to be removed from the center portion of the deck. These trees were identified in the last report and grow rapidly. Priority should be taken to remove as soon as possible.



ARCHITERRA DESIGN GROUP 10221-A TRADEMARK STREET, RANCHO CUCAMONGA, CA 91730 Phone (909) 484-2800, Fax (909) 484-2802

# Invasive California Pepper Trees on Deck B





Dry flower blooms of California Buckwheat in the foreground with flowering Menzie's Goldenbush, Brittlebrush and Coyote Bush



Reestablished Venturan CSS on previous burned portion of Deck B



Black Sage (Salvia mellifera)



Coast Prickly Pear (Opuntia littoralis) that survived Saddle Ridge Fire



Bladderpod (Peritoma arborea)

Signed: Gregg Denson		Date: 10/27/21	
	<u>DISTRIBU</u>	<u>rion</u>	
Republic Services		Contractor	
Project Manager (Gregg Denson)	$   \overline{\mathbf{v}} $	Other	



Photo Station #1 - October 2020 (East)



Photo Station #1 - October 2021 (East)



Photo Station #1 - October 2020 (North)



Photo Station #1 - October 2021 (North)



Photo Station #1 - October 2020 (West)



Photo Station #1 - October 2021 (West)



Photo Station #2 - October 2020 (East)



Photo Station #2 - October 2021 (East)



Photo Station #2 - October 2020 (North)



Photo Station #2 - October 2021 (North)



Photo Station #2 - October 2020 (South)



Photo Station #2 - October 2021 (South)



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Photo Station #3 - October 2020 (North)



Photo Station #3 - October 2021 (North)



Photo Station #3 - October 2020 (West)



Photo Station #3 - October 2021 (West)



Photo Station #4 - October 2020 (South)



Photo Station #4 - October 2021 (South)



Photo Station #4 - October 2020 (East)

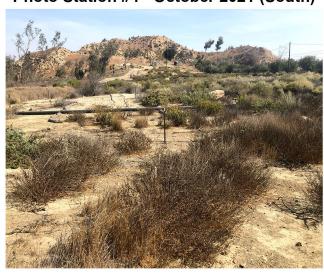


Photo Station #4 - October 2021 (East)



Photo Station #4 - October 2020 (West)



Photo Station #4 - October 2021 (West)



Photo Station #5 - October 2020 (East)



Photo Station #5 - October 2021 (East)



Photo Station #5 - October 2020 (North)



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Photo Station #6 - October 2021 (East)



Photo Station #6 - June 2021 (West)



Photo Station #6 - October 2021 (West)



Photo Station #7 - June 2021 (North)



Photo Station #7- October 2021 (North)



Photo Station #7 - June 2021 (East)



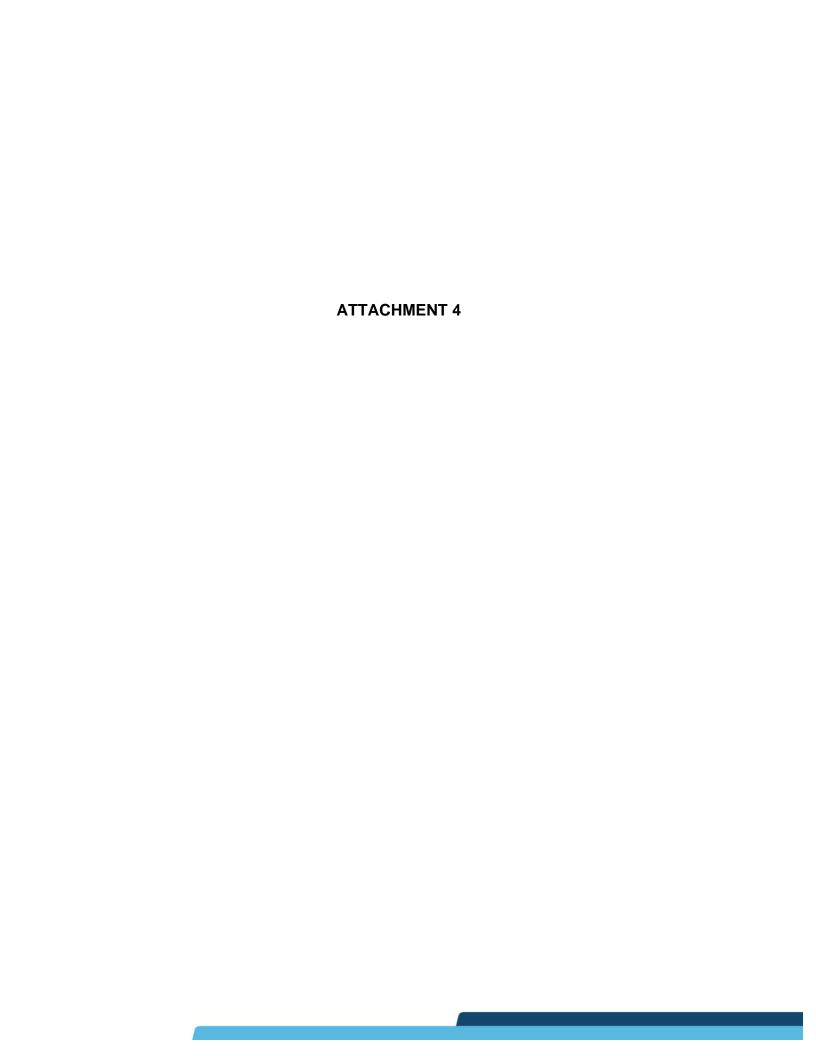
Photo Station #7 - October 2021 (East)



Photo Station #7 - June 2021 (West)



Photo Station #7 - October 2021 (West)





October 25, 2021 Project No: 21-11086

Tuong-phu Ngo **Environmental Manager Republic Services** 14747 San Fernando Road Sylmar, California 91342

Via email: tngo@republicservices.com

Subject: Coastal Sage Scrub City South C Trial Plot Monitoring Report, Sunshine Canyon Landfill – 3<sup>rd</sup> Quarter, 2021

Dear Mr. Ngo,

This monitoring report has been prepared by Rincon Consultants, Inc. (Rincon) to inform Republic Services on the status of coastal sage scrub restoration at the Sunshine Canyon Landfill located at 14747 San Fernando Road, Sylmar, California 91342. Specifically, this letter report serves to document the abundance of vegetation at the Coastal Sage Scrub City South C Trial Plot in the third quarter of 2021.

### Methods

On September 29, 2021, Rincon biologist Kyle Gern monitored the Coastal Sage Scrub City South C Trial Plot at the Sunshine Canyon Landfill, which constitutes the third quarter monitoring for 2021. The sample methodology generally followed the Methodology for Monitoring Percent Cover and Species Richness within Each Seeded Application Method on the Coastal Sage Scrub Pilot Project at the Sunshine Canyon Landfill (JMA, April 23, 2014). Quadrat sampling of the Coastal Sage Scrub City South C Trial Plot consists of four 50-meter<sup>2</sup> quadrats that are randomly sampled within each of the following three seeded areas: hydroseed, imprint, and hand broadcast. The twelve quadrats sampled were randomly selected prior to the first initial monitoring event from a grid that was placed over the entire trial plot, and each quadrat was given a letter (A-L) and delineated in the field with wooden stakes (Attachment A).

As shown in Attachment A, three different seeding methods were used as follows:

- Hydroseed (Quadrats A, B, C, and D)
- Imprint (Quadrats E, F, G, and H)
- Hand broadcast (Quadrats I, J, K, and L)

### Absolute Cover

The following qualitative data was collected in each quadrat to determine the absolute cover of native and non-native herbaceous and woody species:

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# Coastal Sage Scrub City South C Trial Plot, Sunshine Canyon Landfill Monitoring Report 3<sup>rd</sup> Quarter, 2021

- Percent basal cover (shrubs). Visual estimate of the amount of basal cover within each quadrat for all shrub species.
- Percent basal cover (herbs). Visual estimate of the amount of basal cover within each quadrat for all herb species.
- Percent bare ground. Visual estimate of the amount of available bare ground with no vegetation, but suitable for plant growth.
- Percent rock or other. Visual estimate of the amount of unavailable ground for supporting plant growth. Inhibitors generally included rocks and boulders, irrigation lines and valve boxes, and mulch.
- **Percent canopy.** Visual estimate of the percent canopy of each shrub and herbaceous species.
- Photographs. A photograph was taken from the southwest corner (facing northeast) of each quadrat.

### Percent Cover

The following quantitative data was collected in each quadrat to determine the percent cover of native and non-native species.

• **Point intercept method.** Sampling began at the southwest corner of each quadrat and continued around the quadrat in a clockwise direction. The species located precisely at every meter point was tallied, including areas of bare ground, rock and other.

### Field Results

Below are the average data collected for each planting method.

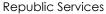
# Absolute Cover (Qualitative)

Hydroseed – Quadrats A, B, C, and D (average)

- Percent basal cover (shrubs) 14%
- Percent basal cover (herbs) 6%
- Percent bare ground 36%
- Percent rock or other 5%
- Percent canopy (shrubs) 38%
- Percent canopy (herbs) 11%

#### Imprint – Quadrats E, F, G, and H (average)

- Percent basal cover (shrubs) 16%
- Percent basal cover (herbs) 6%
- Percent bare ground 44%
- Percent rock or other 5%
- Percent canopy (shrubs) 31%
- Percent canopy (herbs) 9%





# Coastal Sage Scrub City South C Trial Plot, Sunshine Canyon Landfill Monitoring Report 3<sup>rd</sup> Quarter, 2021

### Hand broadcast – Quadrats I, J, K, and L (average)

- Percent basal cover (shrubs) 10%
- Percent basal cover (herbs) 26%
- Percent bare ground 24%
- Percent rock or other 3%
- Percent canopy (shrubs) 16%
- Percent canopy (herbs) 38%

# Percent Cover (Quantitative)

The representation of each species within a quadrat was estimated by broad cover classes (<1%, 1-5%, 5-25%, 25-50%, 50-75%, and >75%). The percent cover of each species based upon the point intercept method is presented in Table 1 through Table 3 below.



## Table 1 Hydroseed – Quadrats A, B, C, and D (Average)

	Plot A		Plo	Plot B		Plot C		Plot D	
	mber Hits	Percent Cover	Number of Hits	Percent Cover	Number of Hits	Percent Cover	Numbe of Hits		
Native Shrubs									
Acmispon glaber					3	6%	2	4%	
Artemisia californica									
Atriplex lentiformis	15	30%	9	18%	2	4%	6	12%	
Atriplex polycarpa	3	6%	12	24%	2	4%			
Atriplex spinosa									
Baccharis pilularis									
Diplacus aurantiacus									
Encelia californica	8	16%	4	8%	5	10%	4	8%	
Salvia apiana									
Salvia mellifera									
Native Herbs									
Achillea millefolium									
Cryptantha intermedia									
Helianthus annuus					1	2%	6	12%	
Elymus triticoides			9	18%					
Nasella pulchra									
Sisyrinchium bellum									
Vulpia microstachys									
Non-Native Herbs									
Bromus madritensis							3	6%	
Bromus diandrus					1	2%			
Centaurea melitensis									
Echinochloa crus-galli									
Erodium cicutarium									
Hirschfeldia incana									
Hordeum murinum	4	8%	1	2%	1	2%			
Salsola tragus									
Bare ground	20	40%	15	30%	35	70%	29	58%	
		Plot A	Pl	ot B	Plot C	Plot	D I	A,B,C,D Percent Cover	
Percent Cover Native Shrub		52%	5	0%	24%	24%	6	38%	
Percent Cover Native Herb		0%	1	.8%	2%	12%	6	8%	
Percent Cover Non-Native Shr	ub	0%		0%	0%	0%	6	0%	
				201			,	=0/	
Percent Cover Non-Native Her	rb	8%		2%	4%	6%	Ó	5%	



Republic Services
Coastal Sage Scrub City South C Trial Plot, Sunshine Canyon Landfill
Monitoring Report 3<sup>rd</sup> Quarter, 2021

Table 2 Imprint – Quadrats E, F, G, and H (Average)

	Plo	Plot E		Plot F		Plot G		Plot H	
Species	Number of Hits	Percent Cover	Number of Hits	Percent Cover	Number of Hits	Percent Cover	Number of Hits	Percent Cover	
Native Shrubs									
Adenostema fasciculatum									
Artemisia californica							1	2%	
Atriplex lentiformis			10	20%	3	6%			
Atriplex polycarpa	4	8%	13	26%	3	6%	7	14%	
Atriplex spinosa									
Baccharis pilularis									
Diplacus aurantiacus									
Encelia californica	8	16%	2	4%	14	28%	23	46%	
Salvia leucophylla									
Salvia mellifera									
Native Herbs									
Achillea millefolium									
Cryptantha intermedia									
Helianthus annuus							2	4%	
Elymus triticoides							1	2%	
Nasella pulchra									
Sisyrinchium bellum									
Vulpia microstachys									
Non-Native Herbs									
Bromus diandrus									
Bromus madritensis			2	4%	1	2%			
Centaurea melitensis									
Echinochloa crus-galli									
Erigeron canadensis									
Erodium cicutarium									
Hirschfeldia incana									
Hordeum murinum	12	24%	2	4%					
Salsola tragus									
Bare ground	26	52%	21	42%	29	58%	16	32%	
		DI-A-E			Di-+ C	-Dl-t-1		E,F,G,H	
Percent Cover Native Shrub		Plot E 24%	<b>Plot</b> 1 50%		Plot G 40%	Plot F 62%	Per	cent Cover	
Percent Cover Native Herb		0%	0%		0%	6%		2%	
Percent Cover Non-Native S	hruh	0%	0%		0%	0%		0%	
Percent Cover Non-Native F		24%	8%		2%	0%		9%	
Percent Bare Ground	ici D	52%	42%		58%	32%		46%	
reiteiit bare Ground		J270	42%		J0%	32%		40%	



Republic Services
Coastal Sage Scrub City South C Trial Plot, Sunshine Canyon Landfill
Monitoring Report 3<sup>rd</sup> Quarter, 2021

Table 3 Hand Broadcast – Quadrats I, J, K, and L (Average)

	Plot I		Plot J		Plot K		Plo	Plot L	
Species	Number of Hits	Percent Cover							
Native Shrubs									
Adenostema fasciculatum									
Artemisia californica			2	4%					
Atriplex lentiformis	4	8%							
Atriplex polycarpa							3	6%	
Atriplex spinosa									
Baccharis pilularis							2	4%	
Diplacus aurantiacus									
Encelia californica	6	12%	1	2%			18	36%	
Salvia apiana									
Salvia mellifera									
Native Herbs									
Achillia mellifoluim									
Cryptantha intermedia									
Helianthus annuus	3	6%	9	18%	1	2%			
Elymus triticoides					30	60%	7	14%	
Nasella pulchra									
Sisyrinchium bellum									
Vulpia microstachys									
Non-Native Herbs									
Bromus diandrus			2	4%					
Bromus madritensis	3	6%							
Centaurea melitensis									
Echinochloa crus-galli									
Erigeron canadensis									
Erodium cicutarium									
Hirschfeldia incana									
Hordeum murinum	10	20%	9	18%					
Salsola tragus									
Bare ground	24	48%	27	54%	19	38%	20	40%	
		Plot I	Plot J		Plot K	Plot L		,L Percent Cover	
Percent Cover Native Shrub		20%	6%		0%	46%		18%	
Percent Cover Native Herb		6%	18%		62%	14%		25%	
Percent Cover Non-Native S	Shrub	0%	0%		0%	0%		0%	
Percent Cover Non-Native H	Herb	26%	22%		0%	0%		12%	
Percent Bare Ground		48%	54%		38%	40%		45%	



# Discussion

Table 4 below provides a summary of the vegetation cover of shrubs and herbs, including areas of bare ground. The percent cover of native and non-native species is summarized above in Tables 1-3.

Table 4 Summary of vegetation cover for each planting method

	,	roseed A, B, C, and D)		orint , F, G, and H)	Hand Broadcast (Quadrats I, J, K, and L)		
	Qualitative	Quantitative	Qualitative	Quantitative	Qualitative	Quantitative	
Percent Cover Shrub	38%	38%	31%	44%	16%	18%	
Percent Cover Herb	11%	13%	9%	11%	38%	37%	
Percent Bare Ground	36%	50%	44%	46%	24%	45%	

The majority of the trial plot substantially burned during the Saddleridge Fire in October 2019. With the exception of quadrats A, B E, F and G, the remainder of the quadrats burned entirely. Fire equipment, such as bulldozers, removed and/or crushed much of the vegetation that did not burn in quadrats A, B E, F and G. Non-native species, most notably brome grasses (Bromus spp.) and foxtail barley (Hordeum murinum) have established in areas that were previously dominated by saltbush (Atriplex spp.). The trial plot is slowly recovering from the fire; however, seed germination and natural recruitment has been suppressed due to establishment of non-native species and ongoing drought conditions occurring throughout southern California.

Native shrub species such as California sunflower (Encelia californica) and California sagebrush (Artemisia californica) within the areas that burned appear to be recovering, including the saltbush species that dominated the overall cover of the restoration before the fire, including allscale saltbush (Atriplex polycarpa) and big saltbush (Atriplex lentiformis). The quantitative percent cover of native shrub species currently has an average of 38% within the hydroseed quadrats, 44% within the imprint quadrats, and 18% within the hand broadcast quadrats (Tables 1-3). Shrub species that were flowering (e.g., California sunflower) during the first and second quarter of monitoring in 2021 have set seed. Native annual herbs and grasses such as alkali rye (Elymus triticoides) and annual sunflower (Helianthus annuus) were observed setting seed within the sampled quadrats in the Coastal Sage Scrub City South C Trial Plot. Native herb cover calculated qualitatively was relatively low (hydroseed quadrats: 8% cover; imprint quadrats: 2% cover; hand broadcast quadrats: 25% cover). Native plant species cover declined slightly between the second and third quarter of 2021, as water availability from precipitation has been sparse, and the majority of native plant species in flower in quarter two have set seed, and lack of open inflorescences has resulted in slightly lower cover.

Non-native plants did not make any notable changes in cover within the Coastal Sage Scrub City South C Trial Plot between the second and third quarter of 2021. The majority of non-native species observed in the second quarter were early-season annual plants such foxtail barley (Hordeum murinum), Mediterranean grass (Schismus arabicus), and red brome (Bromus madritensis). These non-native species were removed using a weedwhacker prior to the second quarter of monitoring, and have remained at low cover since the weedwhacking treatment. Additionally, lack of rainfall events between the second and third quarter of 2021 has kept non-native plant species cover low. Total non-native herbaceous cover currently has an average of 5% within the hydroseed quadrats (down from 31% in the first quarter), 9% within the imprint quadrats (down from 27% in the first quarter), and 12% (down from 46% in the first quarter) within the hand broadcast quadrats (Tables 1-3).





## Recommendations

Wildfires in Southern California have become more common in recent years and have impacted on the native landscape including established restoration sites. Direction that has been provided from such organizations as the California Department of Fish and Wildlife Service and the California Society of Ecological Restoration, recommending that revegetation efforts be focused on non-native weed control for reestablishing restoration sites, including previously undisturbed areas. Successional regrowth of herbaceous non-native species is to be expected within the first two to three years following a wildfire, and native shrubs will recover over a longer period of time through germination of existing seed within the topsoil and basal growth from charred plants. Successional growth of herbaceous species is important for providing natural erosion of topsoil. To control the spread non-native herbaceous species such as foxtail barley and red brome and minimize competition with native species for water, nutrients and sunlight, weed maintenance should occur no less than every four months, and special attention should be afforded to minimizing impacts to native seedlings and resprouts.

Drought conditions have been persistent since the Saddleridge Fire, limiting germination of seedlings and recovery through natural recruitment. If drought conditions continue, an irrigation system within the trial plot area should be installed to create conditions that are suitable for seed germination and reestablishment of native vegetation.

Thank you for the opportunity to work with you on this important project. Please contact Greg Ainsworth if you have questions concerning the contents of this report. He may be reached by telephone at (818) 564-5544, or by email at gainsworth@rinconconsultants.com.

Sincerely,

Rincon Consultants, Inc.

Greg Ainsworth

**Natural Resources Director** 

Kyle Gern Biologist

#### **Attachments**

Attachment A Deck C Revegetation Area Quadrat Layout and Planting Plan

Attachment B Representative Site Photographs





Coastal Sage Scrub City South C Trial Plot, Sunshine Canyon Landfill Monitoring Report 3<sup>rd</sup> Quarter, 2021

# References

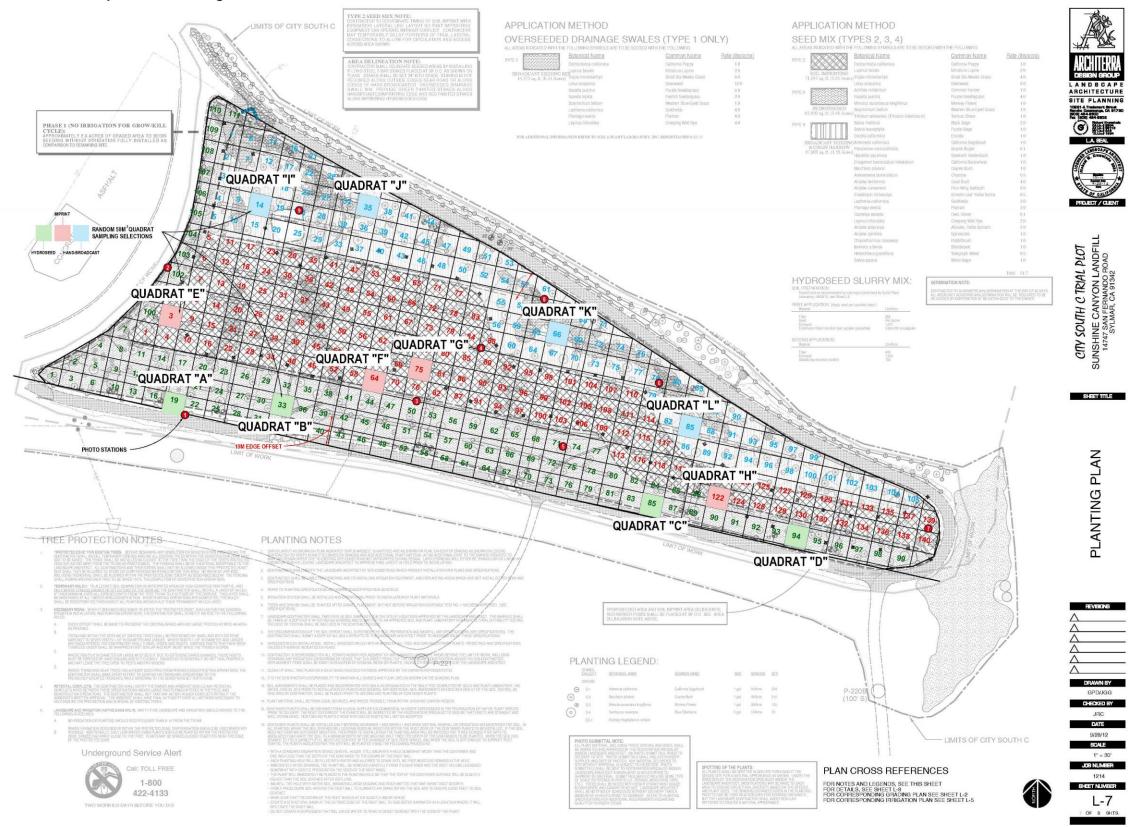
John Minch and Associates, Inc. (JMA). 2014. Methodology for Monitoring Percent Cover and Species Richness within Each Seeded Application Method on the Coastal Sage Scrub Pilot Project at the Sunshine Canyon Landfill.



Deck C Revegetation Area Quadrat Layout and Planting Plan



## Deck C Revegetation Area Quadrat Layout and Planting Plan





Representative Site Photographs



Photograph 1. Quadrat A facing northeast from southwest corner (September 29, 2021).



Photograph 2. Quadrat B facing northeast from southwest corner (September 29, 2021).



Photograph 3. Quadrat C facing northeast from southwest corner (September 29, 2021).



Photograph 4. Quadrat D facing northeast from southwest corner (September 29, 2021).

rincon



Photograph 5. Quadrat E facing northeast from southwest corner (September 29, 2021).



Photograph 6. Quadrat F facing northeast from southwest corner (September 29, 2021).



Photograph 7. Quadrat G facing northeast from southwest corner (September 29, 2021).



Photograph 8. Quadrat H facing northeast from southwest corner (September 29, 2021).



Photograph 9. Quadrat I facing northeast from southwest corner (September 29, 2021).



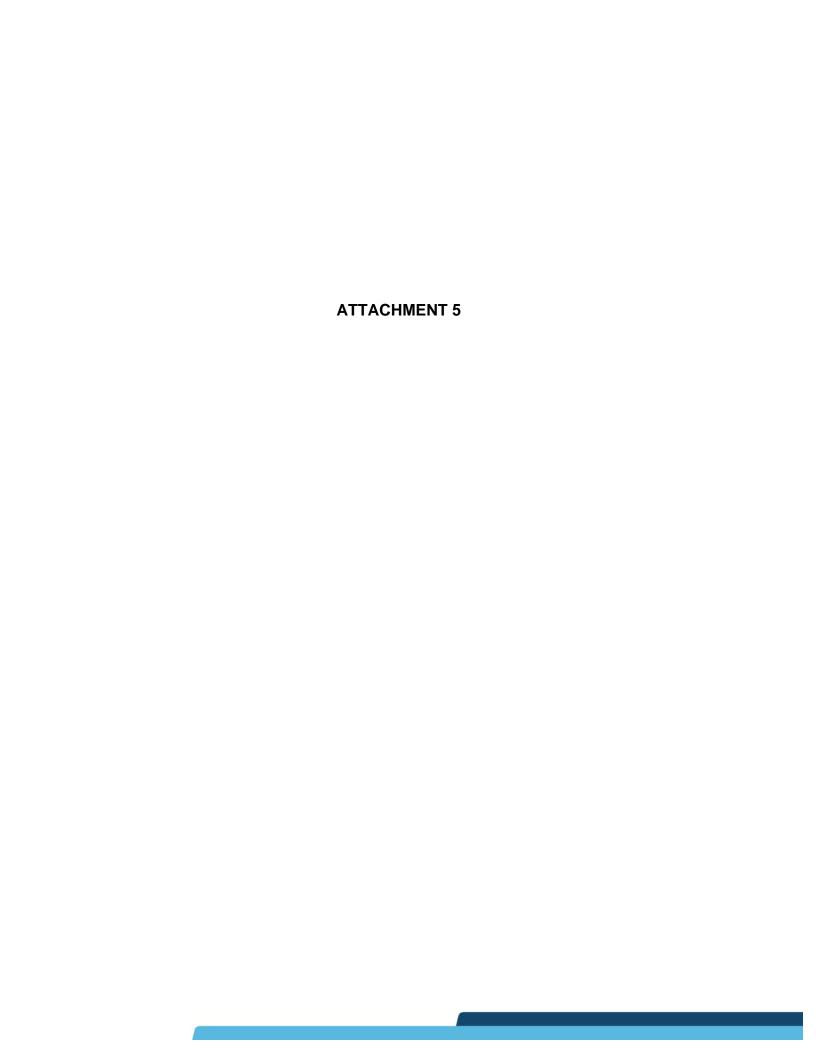
**Photograph 10.** Quadrat J facing northeast from southwest corner (September 29, 2021).



**Photograph 11.** Quadrat K facing northeast from southwest corner (September 29, 2021).



Photograph 12. Quadrat L facing northeast from southwest corner (September 29, 2021).





October 25, 2021 Project No: 21-11086

Tuong-phu Ngo Environmental Manager Republic Services 14747 San Fernando Road Sylmar, California 91342

Via email: <a href="mailto:tngo@republicservices.com">tngo@republicservices.com</a>

Rincon Consultants, Inc.

180 North Ashwood Avenue

Ventura, California 93003

805 644 4455 OFFICE AND FAX

info@rinconconsultants.com www.rinconconsultants.com

Subject: Coastal Sage Scrub City South B Trial Plot Monitoring Report, Sunshine Canyon Landfill – 3<sup>rd</sup> Quarter, 2021

Quarter, 20

Dear Mr. Ngo,

This monitoring report has been prepared by Rincon Consultants, Inc. (Rincon) to inform Republic Services on the status of coastal sage scrub restoration at the Sunshine Canyon Landfill located at 14747 San Fernando Road, Sylmar, California 91342. Specifically, this letter report serves to document the abundance of vegetation at the Coastal Sage Scrub City South B Trial Plot in the third quarter of 2021.

# Methods

On September 29, 2021, Rincon biologist Kyle Gern monitored the Coastal Sage Scrub City South B Trial Plot at the Sunshine Canyon Landfill, which constitutes the third quarter of monitoring for 2021. The sample methodology generally followed the *Methodology for Monitoring Percent Cover and Species Richness within Each Seeded Application Method on the Coastal Sage Scrub Pilot Project at the Sunshine Canyon Landfill* (JMA, April 23, 2014). Quadrat sampling of the revegetation area consists of nine 50-meter<sup>2</sup> quadrats that are randomly located throughout the revegetation area. The quadrats were randomly selected prior to the first initial monitoring event from a grid that was placed over the entire trial plot, and each quadrat was given a letter (A-I) and delineated in the field with wooden stakes. As shown in Attachment A, five different planting methods were used as follows:

- Soil imprinting with hand broadcast overseeded drainage swales (Quadrats A and G)
- Soil imprinting (Quadrats B, F and H)
- Broadcast seeding (Quadrat C)
- Broadcast seeding with soil imprinting (Quadrat D and I)
- Soil imprinting and hand broadcast (Quadrat E)

# **Absolute Cover**

The following qualitative data was collected in each quadrat to determine the absolute cover of native and non-native herbaceous and woody species:

 Percent basal cover (shrubs). Visual estimate of the amount of basal cover within each quadrat for all shrub species.

# Coastal Sage Scrub City South B Trial Plot, Sunshine Canyon Landfill Monitoring Report 3<sup>rd</sup> Quarter, 2021

- Percent basal cover (herbs). Visual estimate of the amount of basal cover within each quadrat for all herbaceous species.
- Percent bare ground. Visual estimate of the amount of available bare ground with no vegetation.
- Percent rock or other. Visual estimate of the amount of unavailable ground for supporting plant growth. Inhibitors generally included rocks and boulders, irrigation lines and valve boxes, and mulch.
- Percent canopy. Visual estimate of the percent canopy of each shrub and herbaceous species.
- Photographs. A photograph was taken from the southwest corner (facing northeast) of each quadrat.

# Percent Cover

The following quantitative data was collected in each quadrat to determine the percent cover of native and non-native species.

• **Point intercept method.** Sampling began at the southwest corner of each quadrat and continued around the quadrat in a clockwise direction. The species located precisely at every meter point was tallied, including areas of bare ground, rock and other.

# Field Results

Below are the average data collected for each planting method.

# Absolute Cover (Qualitative)

Soil imprinting with hand broadcast overseeded drainage swales – Quadrats A and G (average)

- Percent basal cover (shrubs) 3%
- Percent basal cover (herbs) 3%
- Percent bare ground 89%
- Percent rock or other 3%
- Percent canopy (shrubs) 12%
- Percent canopy (herbs) 6%

Soil imprinting – Quadrats B, F, and H (average)

- Percent basal cover (shrubs) 8%
- Percent basal cover (herbs) 1%
- Percent bare ground 78%
- Percent rock or other 3%
- Percent canopy (shrubs) 15%
- Percent canopy (herbs) 5%

## Broadcast seeding – Quadrat C

■ Percent basal cover (shrubs) – 7%



# Coastal Sage Scrub City South B Trial Plot, Sunshine Canyon Landfill Monitoring Report 3<sup>rd</sup> Quarter, 2021

- Percent basal cover (herbs) 3%
- Percent bare ground 75%
- Percent rock or other 3%
- Percent canopy (shrubs) 20%
- Percent canopy (herbs) 3%

# Broadcast seeding with soil imprinting – Quadrats D and I (average)

- Percent basal cover (shrubs) 2%
- Percent basal cover (herbs) 2%
- Percent bare ground 92%
- Percent rock or other 7%
- Percent canopy (shrubs) 8%
- Percent canopy (herbs) 4%

# Soil Imprinting and hand broadcast – Quadrat E

- Percent basal cover (shrubs) 5%
- Percent basal cover (herbs) 2%
- Percent bare ground 82%
- Percent rock or other 1%
- Percent canopy (shrubs) 16%
- Percent canopy (herbs) 4%

# Percent Cover (Quantitative)

The representation of each species within each quadrat was estimated by broad cover classes (<1%, 1-5%, 5-25%, 25-50%, 50-75%, and >75%). The percent cover of each species based upon the point intercept method is presented in Table 1 through Table 5 below.



Percent Bare Ground

88%

Coastal Sage Scrub City South B Trial Plot, Sunshine Canyon Landfill
Monitoring Report 3<sup>rd</sup> Quarter, 2021

Table 1 Soil Imprinting with Hand Broadcast Overseeded Drainage Swales – Quadrats A and G (Average)

	Quad	Irat A	Quad	lrat G
Species	Number of Hits	Percent Cover	Number of Hits	Percent Cover
Native Shrubs				
Acmispon glaber	1	2%		
Artemisia californica			1	2%
Atriplex lentiformis			4	8%
Atriplex polycarpa			4	8%
Atriplex spinosa				
Baccharis pilularis	1	2%		
Baccharis salicifolia	1	2%		
Encelia californica				
Salvia apiana				
Salvia mellifera				
Non-Native Shrubs				
Atriplex semibaccata			2	4%
Native Herbs				
Achillea millefolium				
Eschscholzia californica				
Elymus triticoides	3	6%	4	8%
Nasella pulchra				
Sisyrinchium bellum				
Non-Native Herbs				
Bromus madritensis				
Hirschfeldia incana				
Bare ground	44	88%	36	72%
	Quadrat A	Quadrat G	A and G (	% Cover)
Percent Cover Native Shrub	6%	16%	119	%
Percent Cover Native Herb	6%	8%	79	%
Percent Cover Non-Native Shrub	0%	4%	29	%
Percent Cover Non-Native Herb	0%	0%	09	%

72%

80%



Table 2 Soil Imprinting – Quadrats B, F, and H (Average)

	Quadrat B Quadrat F		lrat F	Quadrat H		
Species	Number of Hits	Percent Cover	Number of Hits	Percent Cover	Number of Hits	Percent Cover
Native Shrubs						
Acmispon glaber	5	10%			2	4%
Artemisia californica	13	26%	1	2%		
Atriplex lentiformis			1	2%	1	2%
Atriplex polycarpa						
Atriplex spinosa						
Baccharis pilularis					1	2%
Encelia californica	1	2%				
Encelia farinosa	4	8%				
Eriogonum fasciculatum	1	2%	2	4%	3	6%
Isocoma menziesii	6	12%				
Lepidospartum squamatum	1	2%				
Salvia apiana	2	4%				
Salvia mellifera	2	4%				
Non-Native Shrubs						
Atriplex semibaccata			2	4%		
Native Herbs						
Elymus triticoides						
Helianthus annuus	1	2%				
Sisyrinchium bellum						
Vulpia microstachys						
Non-Native Herbs						
Bromus madritensis			1	2%		
Erodium botrys						
Hirschfeldia incana						
Hordeum vulgare						
Salsola tragus						
Schismus arabicus			3	6%	2	4%
Mesembryanthemum nodiflorum						
Bare ground	14	28%	40	80%	41	82%

Bare ground	14	28%	40	80%	41	82%
	Quadra	t B	Quadrat F	Quadrat H		B, F, H (% cover)
Percent Cover Native Shrub	70%	)	8%	14%		31%
Percent Cover Native Herb	2%	)	0%	0%		1%
Percent Cover Non-Native Shrub	0%	)	4%	0%		1%
Percent Cover Non-Native Herb	0%	)	8%	4%		4%
Percent Bare Ground	28%	)	80%	82%		63%



# Table 3 Broadcast Seeding – Quadrat C

	Quadrat C					
Species	Number of Hits	Percent Cover				
Native Shrubs						
Adenostoma fasciculatum						
Artemisia californica	11	22%				
Atriplex lentiformis						
Atriplex polycarpa						
Atriplex spinosa						
Baccharis pilularis						
Encelia californica						
Acmispon glaber	7	14%				
Encelia farinosa						
Isocoma menziesii	1	2%				
Salvia apiana	3	6%				
Salvia mellifera						
Native Herbs						
Achillea millefolium						
Eschscholzia californica						
Elymus triticoides						
Nasella pulchra						
Sisyrinchium bellum						
Vulpia microstachys						
Non-Native Herbs						
Centaurea melitensis						
Echinochloa crus-galli						
Erodium cicutarium	2	4%				
Hirschfeldia incana						
Hordeum vulgare						
Marrubium vulgare	1	2%				
Bare ground	25	50%				
	Quadrat	t C (% cover)				
Percent Cover Native Shrub		44%				
Percent Cover Native Herb		0%				
Percent Cover Non-Native Shrub		0%				
Percent Cover Non-Native Herb		6%				
Percent Bare Ground		50%				



Table 4 Broadcast Seeding with Soil Imprinting – Quadrats D and I (Average)

	Quad	rat D	Q	uadrat I
Species	Number of Hits	Percent Cover	Number of Hits	Percent Cover
Native Shrubs				
Acmispon glaber			2	4%
Artemisia californica	3	6%		
Atriplex lentiformis	3	6%	1	2%
Atriplex polycarpa	2	4%	2	4%
Atriplex spinosa				
Baccharis pilularis				
Encelia californica				
Eriogonum fasciculatum			1	2%
Diplacus aurantiacus				
Isocoma menziesii	1	2%		
Opuntia littoralis				
Non-Native Shrubs				
Atriplex semibaccata			2	4%
Native Herbs				
Achillea millefolium				
Eschscholzia californica				
Elymus triticoides			3	6%
Nasella pulchra				
Sisyrinchium bellum				
Vulpia microstachys				
Non-Native Herbs				
Bromus diandrus	1	2%		
Bromus madritensis			1	2%
Echinochloa crus-galli				
Erodium cicutarium				
Hirschfeldia incana				
Hordeum vulgare				
Salsola tragus	1	2%		
Schismus arabicus			6	12
Bare ground	40	80%	32	64%
	Quadi	at D	Quadrat I	D and I (% cover)
Percent Cover Native Shrub	16	5%	12%	14%
Percent Cover Native Herb	(	0%	6%	3%
Percent Cover Non-Native Shru	b (	0%	4%	2%
Percent Cover Non-Native Herb	) 4	1%	14%	9%
Percent Bare Ground	80	)%	64%	72%



Table 5 Soil Imprinting and Hand Broadcast – Quadrat E

	Quadrat E							
Species	Number of Hits	Percent Cover						
Native Shrubs								
Acmispon glaber								
Artemisia californica	2	4%						
Atriplex lentiformis	3	6%						
Atriplex polycarpa	4	8%						
Atriplex spinosa								
Baccharis pilularis								
Encelia farinosa	1	2%						
Eriogonum fasciculatum	5	10%						
Isocoma menziesii	6	12%						
Opuntia littoralis								
Salvia apiana								
Salvia mellifera								
Native Herbs								
Achillia mellifoluim								
Eschscholzia californica								
Elymus triticoides								
Nasella pulchra								
Sisyrinchium bellum								
Vulpia microstachys								
Non-Native Herbs								
Bromus diandrus								
Centaurea melitensis								
Echinochloa crus-galli								
Erodium cicutarium								
Hirschfeldia incana								
Hordeum vulgare								
Salsola tragus								
Schismus arabicus	1	2%						
Bare ground	28	56%						
	Q	uadrat E (% cover)						
Percent Cover Native Shrub		42%						
Percent Cover Native Herb		0%						
Percent Cover Non-Native Shrub		0%						
Percent Cover Non-Native Herb		2%						
Percent Bare Ground		56%						



Table 6 below provides a summary of the percent cover of native and non-native shrubs and herbs, including areas of bare ground.

Table 6 Summary of Percent Cover for Each Planting Method using the Point Intercept Method

	Soil Imprinting with Hand Broadcast Overseeded Drainage Swales (Quadrats A and G)	Soil Imprinting (Quadrats B, F, and H)	Broadcast Seeding (Quadrat C)	Broadcast Seeding with Soil Imprinting (Quadrats D and I)	Soil Imprinting and Hand Broadcast (Quadrat E)
Percent Cover Native Shrub	11%	31%	44%	14%	42%
Percent Cover Native Herb	7%	1%	0%	3%	0%
Percent Cover Non-Native Shrub	2%	1%	0%	2%	0%
Percent Cover Non-Native Herb	0%	4%	6%	9%	2%
Percent Bare Ground	80%	63%	50%	72%	56%

The Deck B Revegetation Area was established in November 2018. The Saddleridge Fire that occurred in October 2019 burned a large portion of the revegetation area, but mostly spared the sample plots. The intense heat from the fire appeared to have dried out a lot of the vegetation within the sample plots and the irrigation throughout the Deck B area was damaged and is no longer functioning.

Native species have established since the fire, and include species such as brittlebush (Encelia farinosa), coast prickly pear (Opuntia littoralis), big saltbush (Atriplex lentiformis), California buckwheat (Eriogonum fasciculatum), California sagebrush (Artemisia californica), and white sage (Salvia apiana). The native plants within the areas that burned appear to be well established during the third quarter monitoring event of 2021. However, drought conditions observed throughout southern California during the 2021 growing season appears to be negatively influencing native shrubs. Some shrubs (e.g., big saltbush) show indications of desiccation stress such as yellowing, brittle leaves. The majority of shrub species that were flowering within the Coastal Sage Scrub City South B Trial Plot during the second quarter such as California brittlebush (Encelia californica) are now setting seed. Non-native plant cover declined slightly in the Coastal Sage Scrub City South B Trial Plot Area since the second quarter of monitoring. The majority of non-native plant species within Deck B are early-season annual plants such as foxtail barley (Hordeum murinum), Mediterranean grass (Schismus arabicus), red brome (Bromus madritensis), and short podded mustard (Hirschfeldia incana). The majority of these plants have set seed and senesced, and vegetative growth is no longer visible, resulting in lower cover and abundance.

Broadcast seeding (Quadrat C) had the highest percent cover of native shrubs using the point intercept method (44%), followed by soil imprinting and hand broadcast (Quadrat E; 42%) and soil imprinting (Quadrats B, F, and H; 31%) (Table 6). Percent cover of native herbaceous plant species was low in all seeding methods, ranging between 0% and 7%. The lack of substantial rain events in the winter of 2020 and spring of 2021 likely played a role in the low cover of native herbaceous plant species, in particular annual plants such as yarrow that require rain to establish and that have been previously observed in high quantities in Quadrat B. Percent cover of non-native herbs was low in all seeding methods, ranging between 0% and 2%. Non-native herbaceous species abundance is expected to be lowest during the third and fourth quarter of monitoring when water availability is low, and highest during the first



# Coastal Sage Scrub City South B Trial Plot, Sunshine Canyon Landfill Monitoring Report 3<sup>rd</sup> Quarter, 2021

quarter of monitoring following winter precipitation events. Native herbaceous species abundance is expected to remain the same, as the majority of native herbaceous species observed within the Deck B Revegetation Area are perennials, such as beardless wild rye (*Elymus triticoides*).

# **Recommendations**

Wildfires in Southern California have become more common in recent years and have impacted on the native landscape including established restoration sites. Direction that has been provided from such organizations as the California Department of Fish and Wildlife Service and the California Society of Ecological Restoration, recommend that revegetation efforts be focused on non-native weed control for reestablishing restoration sites, including previously undisturbed areas. Under natural conditions where a seed bank is present in upper soil layer, successional regrowth of herbaceous non-native species is to be expected within the first two to three years following a wildfire, and native shrubs will recover over a longer period of time through germination of existing seed within the topsoil and basal growth from charred plants. Successional growth of herbaceous species is important for providing natural erosion of topsoil. Drought conditions have been persistent since the Saddleridge Fire, limiting germination of seedlings and recovery through natural recruitment. If drought conditions continue, the irrigation system within the trial plot area should be reinstalled to create conditions that are suitable for seed germination and re-establishment of native vegetation.

As native shrubs begin to establish in the Deck B Revegetation Area, it is essential to control the spread non-native herbaceous species such as foxtail barley and red brome to minimize competition for water, nutrients, and sunlight. Therefore, during the first two to three years following the fire, weed maintenance should occur no less than every four months, and special attention should be afforded to minimizing impacts to native seedlings and resprouts.

Thank you for the opportunity to work with you on this important Project. Please contact Greg Ainsworth if you have questions concerning the contents of this report. He may be reached by telephone at (818) 564-5544, or by email at <a href="mailto:gainsworth@rinconconsultants.com">gainsworth@rinconconsultants.com</a>.

Sincerely,

Rincon Consultants, Inc.

Greg Ainsworth

Natural Resources Director

Kyle Gern Biologist

#### **Attachments**

Attachment A Deck B Revegetation Area Quadrat Layout

Attachment B Representative Site Photographs





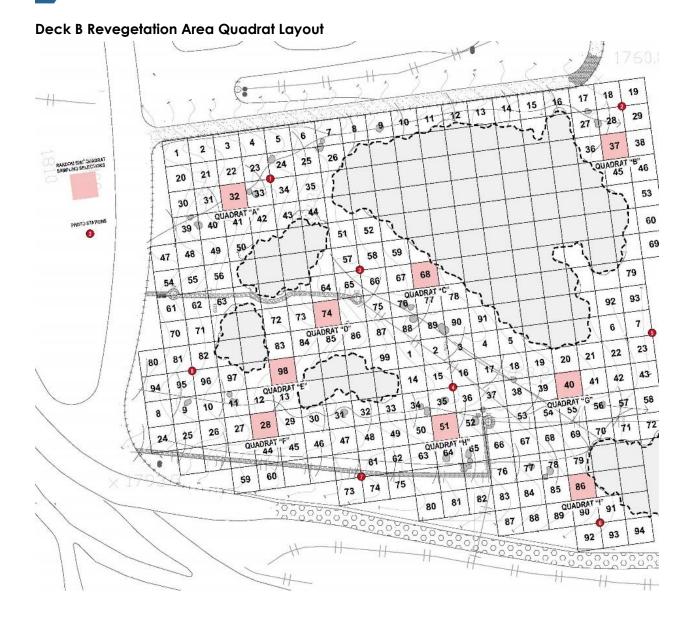
Coastal Sage Scrub City South B Trial Plot, Sunshine Canyon Landfill
Monitoring Report 3<sup>rd</sup> Quarter, 2021

# References

John Minch and Associates, Inc. (JMA). 2014. Methodology for Monitoring Percent Cover and Species Richness within Each Seeded Application Method on the Coastal Sage Scrub Pilot Project at the Sunshine Canyon Landfill.



Deck B Revegetation Area Quadrat Layout





Representative Site Photographs



Photograph 1. Quadrat A facing northeast from southwest corner (September 29, 2021).



Photograph 2. Quadrat B facing northeast from southwest corner (September 29, 2021).



Photograph 3. Quadrat C facing northeast from southwest corner (September 29, 2021).



Photograph 4. Quadrat D facing northeast from southwest corner (September 29, 2021).



Photograph 5. Quadrat E facing northeast from southwest corner (September 29, 2021).



Photograph 6. Quadrat F facing northeast from southwest corner (September 29, 2021).



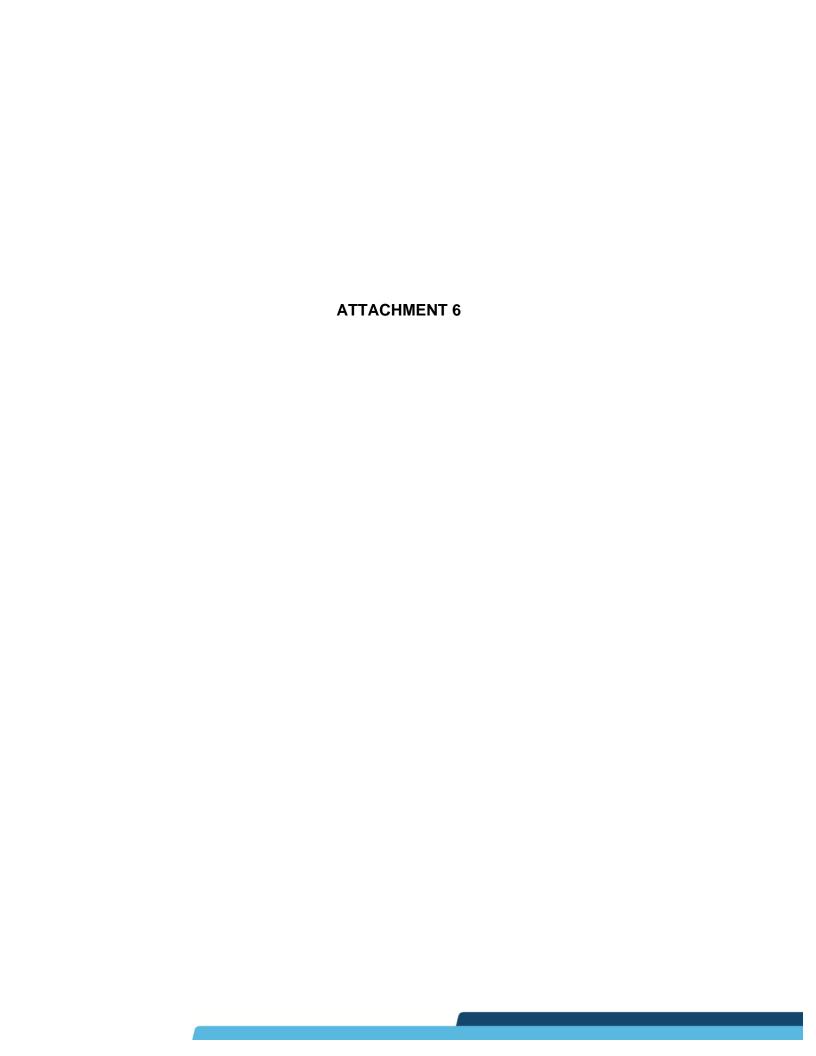
Photograph 7. Quadrat G facing northeast from southwest corner (September 29, 2021).



Photograph 8. Quadrat H facing northeast from southwest corner (September 29, 2021).



Photograph 9. Quadrat I facing northeast from southwest corner (September 29, 2021).





March 22, 2021 Project No: 21-11086

Tuong-phu Ngo Republic Services 14747 San Fernando Road Sylmar, California 91342 Via email: <u>email address</u>

#### Rincon Consultants, Inc.

180 North Ashwood Avenue Ventura, California 93003

805 644 4455 OFFICE AND FAX

info@rinconconsultants.com www.rinconconsultants.com

Subject: Sunshine Canyon Landfill Ultimate Entry Improvement Project, Oak Tree Survey

14747 San Fernando Road, Sylmar, California, 91342

Dear Mr. Ngo:

Rincon Consultants, Inc. (Rincon) prepared this report for the Ultimate Entry Improvement Project (project) located at the Sunshine Canyon Landfill (landfill) in Sylmar, Los Angeles County, California. This report, prepared by ISA certified arborist Greg Ainsworth, documents the results of an oak tree survey and assessment of impacts to protected oak trees from the project and provides a current tally on the remaining oak trees in the landfills' s oak tree mitigation bank.

# Introduction

This oak tree report was prepared to disclose information on native oak (*Quercus sp.*) trees that would be removed by the proposed project.

Pursuant to the Los Angeles County Oak Tree Ordinance, any tree of the oak genus that is 25 inches in circumference (8 inches in diameter) or has a combined trunk circumference of any two trunks of at least 38 inches (12 inches in diameter), as measured 4.5 feet above the mean natural grade (i.e., diameter at breast height [DBH]), is considered a "protected tree" (Ordinance 88-0157 1, 82-0168 2, Section 22.56.2050, 1988). An oak tree that has a trunk DBH equal to or greater than 36 inches is considered a heritage tree, as defined in the Los Angeles County Oak Tree Ordinance. In accordance with the Ordinance, no damage shall occur within the protective zone (the area within the dripline of an oak tree and extending to a point at least 5 feet outside the dripline, or 15 feet from the trunk[s] of the tree, whichever distance is greater) of a protected oak tree. Damage is defined as any act causing or tending to cause injury to the root system or other parts of an oak tree, including, but not limited to, burning, application of toxic substances, operation of equipment or machinery, paving, changing of natural grade, and trenching or excavating.

# Sunshine Canyon Landfill Oak Tree Mitigation Bank

In accordance with landfill's Conditional Use Permit (CUP) and Oak Tree Permit (OTP) #86312-(5) (dated February 19, 1991) for the Sunshine Canyon Landfill Extension Project, all native oak trees that will be removed for any project-related impact shall be mitigated at a ratio of 2:1, and heritage-size oak trees (36-inch DBH or greater) shall be mitigated at a ratio of 10:1. All mitigation oaks shall be monitored for 7 years after the tree reaches 0.5 inches in diameter.



A surplus of coast live oak trees was previously planted in the landfill's mitigation areas, which now serves as a mitigation bank for the landfill to draw from for future removals of coast live oak trees. There are currently 48 coast live oaks remaining in the mitigation bank (JMA, Sunshine Canyon Landfill Oak Tree and Bigcone Douglas Fir Monitoring Report No. 28, March 8, 2021).

# **Project Description**

The proposed project involves the development of a landfill termination berm and cut/fill graded entrance roadway that will provide a down-slope buttress and access for a proposed landfill expansion. The nearly 190-foot-high proposed roadway and berm embankment across the mouth of the main canyon of Sunshine Canyon Landfill is designed to buttress the expanded landfill refuse prism that will be situated to the west. This new road embankment includes the associated cut and fill grading, three retaining walls, and a sedimentation basin with stormwater controls.

# Methods

All oak trees located within and immediately adjacent to the project footprint that could be impacted by the proposed project were surveyed by certified arborist Greg Ainsworth (I.S.A. Cert# WE-7473A). The tree survey was conducted on March 4, 2021. Using a forester's diameter-equivalent tape, the diameter of all native oak trees having a trunk diameter of 8 inches or greater (or combined trunk diameter of 12 inches or greater) were measured at 4.5 feet above the mean natural grade to obtain the DBH. The location of each tree was recorded from the base of the tree using a Global Positioning System (GPS) with sub-meter accuracy. The following parameters were assessed from the base of each tree (or from the nearest vantage point):

## **Tree Characteristics**

- Trunk diameter (DBH)
- Height
- Crown radius in all directions (north, south, east, and west).
- Balance or symmetry of the tree based on the crown radius measurements and whether the tree leans or is unstable.

## **Physical Condition**

- Identification of damage caused by pathogens or insect pests, by natural causes such as lightning, or by human activity.
- Evaluation of vigor based on such parameters as amount of new growth, leaf color, abnormal bark, dead wood, evidence of wilt, excessive necrosis or leaf chlorosis, thinning of crown, etc.
- Assessment of the overall health of the tree based on the evaluation of vigor, presence of damage, and comparison to the typical archetype tree of the same species.



#### Health Grade

A subjective alphabetical ranking was assigned for overall health (vigor, aesthetic value, and balance) for each native oak and big cone fir tree based on the criteria described below:

- "A" = Excellent: A healthy and vigorous tree characteristic of its species and reasonably free of any visible signs of stress, disease, or pest infestation.
- "B" = Good: A healthy and vigorous tree with minor visible signs of stress, disease, and/or pest infestation. Some maintenance measures may need to be implemented, such as pruning of dead wood or broken branches.
- "C" = Fair: Although healthy in overall appearance, there is abnormal amount of stress or disease/insect infestation, and a substantial amount of maintenance may be needed.
- "D" = Poor: A tree that may be exhibiting a substantial amount of stress, disease, or insect damage than what the amount that is expected for the species. The tree may be in a state of rapid decline, and may show various signs of dieback, necrosis, or other symptoms caused by pathogens or insect pests.
- "F" = Dead: This tree has no foliage and exhibits no sign of life or vigor.

# Results

There are 20 coast live oak trees located within the project footprint, one of which is dead, and all of which would be removed by the proposed project. No other oak trees would be encroached or otherwise impacted by the proposed project. Data on these 20 oak trees is presented in Table 1 below.

Table 1 Oak Tree Survey Data

Troo # Species		DBH		Canopy	Spread		Hoolth	Physical	Impact	Reason for
Tree #	Species	DBH	North	West	South	East	- Health	Condition	Status	Impact
1	Coast live oak	13	14	3	8	21	Fair		Removal	Grading
2	Coast live oak						Dead		Removal	Grading
3	Coast live oak	16	3	8	25	35	Poor	fire scar	Removal	Grading
4	Coast live oak	12	12	7	18	15	Good	fire scar	Removal	Grading
5	Coast live oak	18	11	15	30	7	Good	fire scar	Removal	Grading
6	Coast live oak	9	4	8	18	2	Fair	fire scar	Removal	Grading
7	Coast live oak	15	7	16	15	8	Fair	fire scar	Removal	Grading
8	Coast live oak	9	7	3	18	8	Good	fire scar	Removal	Grading
9	Coast live oak	18	30	15	22	10	Good	fire scar	Removal	Grading
10	Coast live oak	16	8	17	15	6	Fair	fire scar	Removal	Grading
11	Coast live oak	10	15	14	1	2	Fair	fire scar	Removal	Grading
12	Coast live oak	10	20	6	4	2	Fair	fire scar	Removal	Grading
13	Coast live oak	22	18	21	16	10	Fair	fire scar	Removal	Grading
14	Coast live oak	10	19	1	1	1	Fair	fire scar	Removal	Grading
15	Coast live oak	21	10	7	18	22	Fair	fire scar	Removal	Grading

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T # C	Species	DRU		Canopy	Spread		Haalth	Physical Impact	Impact	Reason for
Tree #	Species DBH ————— Heal North West South East		- Health	Condition	Status	Impact				
16	Coast live oak	18	1	22	19	8	Fair	fire scar, split trunk	Removal	Grading
17	Coast live oak	19	15	11	15	10	Fair	fire scar	Removal	Grading
18	Coast live oak	12	15	7	15	7	Fair	fire scar	Removal	Grading
19	Coast live oak	12	17	10	4	8	Good		Removal	Grading
20	Coast live oak	8	4	12	6	1	Fair		Removal	Grading

# Mitigation

There are currently 48 coast live oak trees in the landfill's mitigation bank. As noted in Table 1, 20 coast live oak trees would be removed by the proposed project. Therefore, at a mitigation ratio of 2:1, 40 coast live oak trees will be deducted from the landfill's oak tree mitigation bank, leaving 4 oak trees remaining in the bank for future removals at the landfill.

Please contact Greg Ainsworth at (818) 564-5544 or email at gainsworth@rinconconsultants.com if you have any question or comments regarding the information provided in this report.

Sincerely,

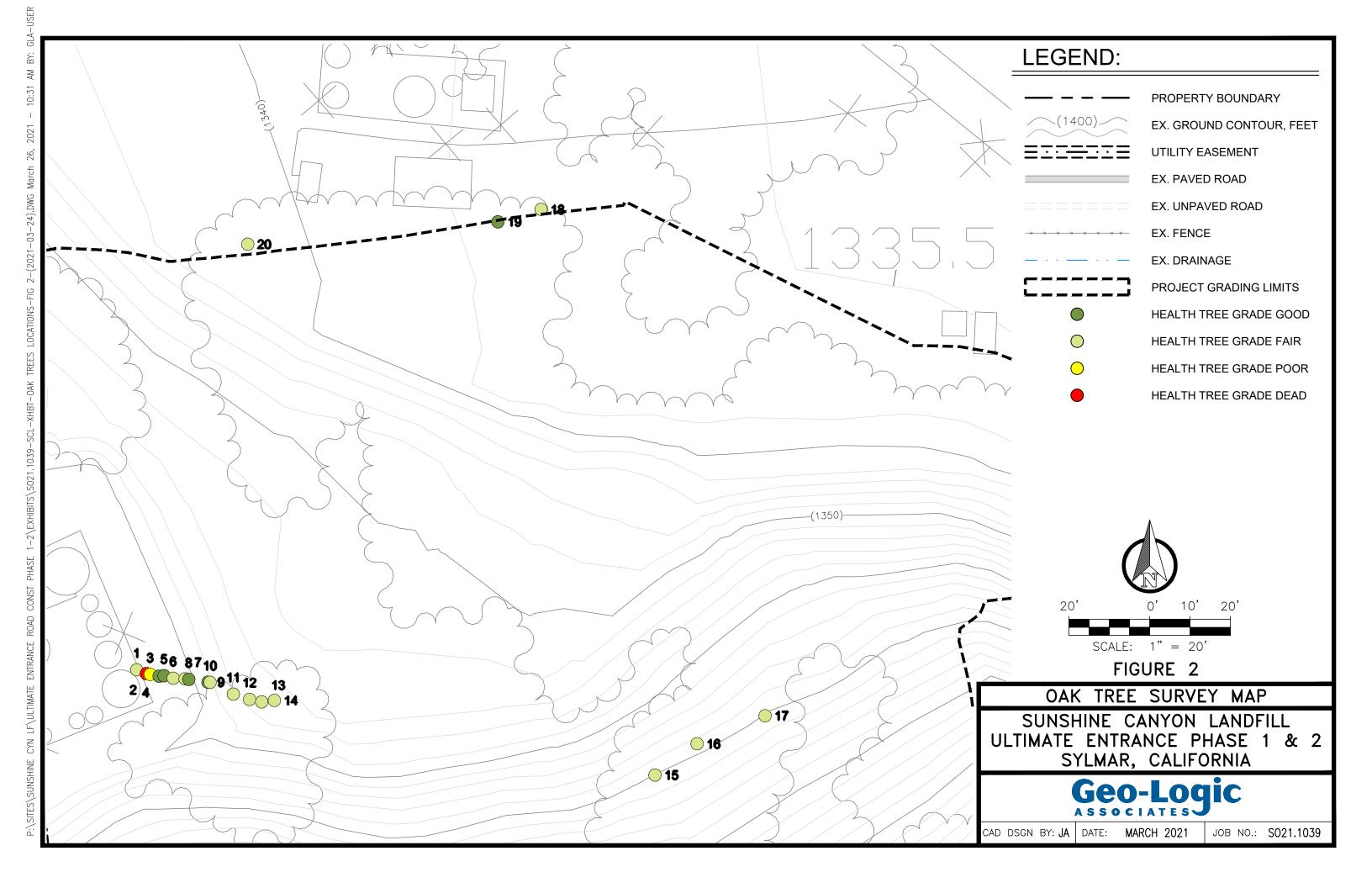
Rincon Consultants, Inc.

Greg Ainsworth, I.S.A. Cert # WE-7473A

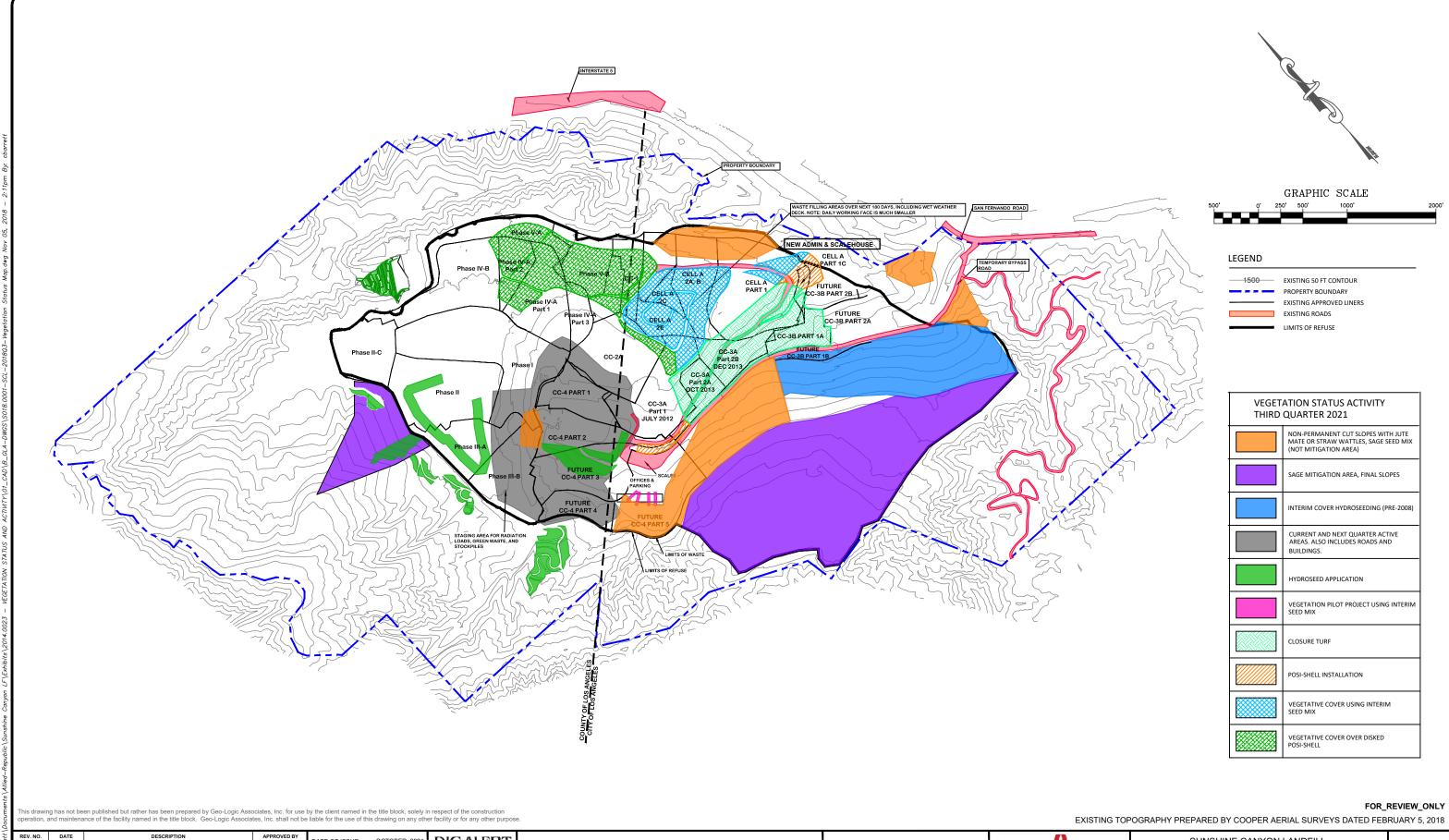
Director of Urban Forestry

## **Attachments**

Oak Tree Map



# DRAWING 1



DATE OF ISSUE: OCTOBER\_2021 DESIGNED BY: DESCRIPTION DRAWN2 DRAWN5 DESCRIPTION6 DRAWN6 APPROVED BY: C\_BARRETT



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