February 11, 2016

TO: Members of the Facility & Plan Review Subcommittee
Los Angeles County Solid Waste Management Committee/
Integrated Waste Management Task Force

FROM: Russell Bukoff, Staff

STAFF REPORT
FOURTH QUARTER 2015 VEGETATION PROJECT STATUS REPORT
AT SUNSHINE CANYON CITY/COUNTY LANDFILL

Republic Services, Inc. (Republic) submitted the Fourth Quarter 2015 Vegetation Project Status Report for the Sunshine Canyon City/County Landfill, dated February 4, 2016 (attached). The Status Report is a requirement of Condition No. 18 of the Finding of Conformance granted to the Landfill by the Task Force on December 18, 2008.

The Status Report provides the progress of revegetation projects undertaken during the fourth quarter of 2015 as well as revegetation projects anticipated to be implemented during the first quarter of 2016.

General Update

- Conditions remain unchanged in the City Side Sage Mitigation Pilot Project and County Sage Mitigation areas.
- No hydroseeding activities are planned for the first quarter of 2016.
- A portion of the Landfill east of the County Sage Mitigation Area and west of the City Sage Mitigation Area has recently been designated as a non-permanent cut slope.
- Irrigation in the Pilot Project area has been terminated as of October 20, 2015.
- Soil samples were collected in the Pilot Project Area on January 12, 2016, from areas where there is little to no growth. Results of the analyses will be compared to those of the pre-plant sampling that was done in May 2013 and will be included in the vegetation report for the first quarter of 2016, if available.

Summary of the City Side Sage Mitigation Pilot Project (Pilot Project) Area

At the November 19, 2015, Facility & Plan Review Subcommittee of the Integrated Waste Management Task Force, Public Works informed the Subcommittee that Public Works will request Republic Services to provide a summary of the Pilot Project in the Fourth Quarter 2015 Vegetation Report. On December 1, 2015, an email was sent to Republic Services requesting that the summary report should include the following:

- Lessons learned from the Pilot Project
- Successful practices developed
- List of the specific remaining data needed to complete the Pilot Project
- Estimation on additional time needed to collect the remaining data before Republic Services applies the lessons learned and practices developed to other areas [City Sage Mitigation Area (Decks A & B) and County Sage Mitigation Area].

Successful practices are listed in Attachment 5 of the Vegetation Report, such as, selective pruning of the Saltbush to make room for other plant species to grow. However, the list of remaining data and time needed to complete the Pilot Project were not provided. Republic Services indicates that the Pilot Project is an on-going project and requires additional monitoring, maintenance, and enhancements; therefore the end of the project cannot be estimated. However, sufficient criteria for determining the end of the project has not been provided.

If you have any questions, please contact me at (626) 458-2186, Monday through Thursday, 7 a.m. to 5:30 p.m.

RWB
Attach.

SUNSHINE CANYON LANDFILL

February 4, 2016

Mr. Martins Aiyetiwa
Senior Civil Engineer, Environmental Programs Division
County of Los Angeles| Department of Public Works,
900 S. Fremont
Alhambra, CA 91803

Subject: Sunshine Canyon Landfill, Quarterly Vegetation Report - REVISED
Fourth Quarter 2015 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 fourth quarter of 2015. The intent of these reports will continue to be 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

As reported in the vegetation report for the first quarter of 2015, hydroseeding activities were conducted on approximately 12 acres of interim slopes (Drawing 1).

As of the date of this report, no vegetation growth has been observed on the 12 acres of hydroseeded areas.

No hydroseeding activities are planned for the first quarter of 2016.

2.0 Permanent Slopes

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

2.1 City

The permanent slopes on the City portion of Sunshine Canyon Landfill are located on the closed City South and City North areas of the site where no overliner will be placed during future cell development (Drawing 1 – Sage Mitigation Area). No vegetation activities were conducted on the permanent slopes on the City portion of the site during the fourth quarter of 2015.

2.2 County

No vegetation activities were conducted on the permanent slope areas on the County portion of the site during the fourth quarter of 2015. Slope areas at the site formerly designated as permanent are being reviewed to determine which of these slopes are in fact permanent and require vegetation efforts.

3.0 Non-Permanent Cut Slopes

Prior quarterly vegetation reports have illustrated areas located just north of the County portion of the site and one area above the front terminal sedimentation basin as "non-permanent cut slopes". An evaluation of these areas will be conducted to determine if these areas have been categorized correctly, and what, if any vegetation activities are appropriate for these areas. Non-permanent cut slopes are shown on Drawing 1.

As of the date of this report, no determination has been made with respect to an evaluation of these areas or any proposed actions.

4.0 Activities Conducted in Sage Mitigation Areas – 4Q2015

During the fourth quarter of 2015, the following activities were conducted in the sage mitigation areas at the landfill.

4.1 City South Sage Pilot Project Area – Deck C

The following activities were conducted:

- Maintenance activities including minor repairs to the irrigation system and weeding activities.
- Selective pruning of saltbush.

4.2 City South Decks B and A

No activities were conducted on City South Decks A and B.

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). No revegetation activities were conducted in this area during the fourth quarter of 2015, and, as noted in multiple JMA progress reports, the conditions in this mitigation area have remained unchanged for some time.

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 JMA (City and County sage mitigation areas) and Architerra (City South Sage Pilot Project Area (Deck C) and the proposed actions in response to the recommendations.

5.1 JMA Recommendations for City Sage Mitigation Areas

JMA's progress reports for the City Sage Mitigation Areas for the fourth quarter of 2015 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 – JMA Recommendations and Proposed Actions – City Sage Mitigation Areas, Fourth Quarter 2015

AREA	RECOMMENDATION		PROPOSED ACTION
LOWER DECK (Deck C)	1	Selectively thin Atriplex vegetation where coastal sage scrub seedlings are present	The contractor hired to perform maintenance activities will continue to address this recommendation throughout 2016
LOWER DECK (Deck C)	2	Terminate irrigation and monitor. Shut off all irrigation	Irrigation has been shut off as of October 2015
DECKS B AND A (Middle and Upper Decks)	3	Improve root zone and soil conditions	This will be addressed when the plans for Decks B and A are developed. Actions were taken to address improving the root zone in the pilot project area (Deck C); it is expected these same actions will be incorporated into the plans for Decks B and A
DECKS B AND A (Middle and Upper Decks)	4	Plant Natives in Areas Dominated with Non-Natives. Use various planting methods (i.e. container plants and hydroseeding) to re-establish native plants on the middle and upper decks where non-natives currently dominate	This will be addressed when the plans for Decks B and A are developed. Various planting methods were used for the construction of the Pilot project on Deck C; it is expected these same actions will be incorporated into the plans for Decks B and A
DECKS B AND A	5	Weed Control - implement a year-round weed control program to control non-native species	A weed control program is currently in place on Deck C as part of the pilot project and will continue for the duration of the pilot project. A weed control program on Decks B and A will be implemented along with the mitigation plans for these areas
DECKS B AND A	6	Reseeding - apply native seeds during the rainy season after soil mounds have been established	This will be addressed when the plans for Decks B and A are developed
DECKS B AND A	7	Prohibit access - continue to prohibit vehicle access to mitigation areas	Repairs to the T-post fencing will be made as needed

JMA 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.

5.2 JMA Recommendations for County Sage Mitigation Area

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

Table 2 – JMA Recommendations and Proposed Actions – County Sage Mitigation Area, Fourth Quarter 2015

AREA	RECOMMENDATION		PROPOSED ACTION
COUNTY SAGE MITIGATION AREA	1	Create benches to control soil erosion and improve soil conditions to improve plant establishment and seed dispersal	This recommendation will be considered at a later date
COUNTY SAGE MITIGATION AREA	2	Reseed and plant container plants	This recommendation will be considered at a later date
COUNTY SAGE MITIGATION AREA	3	Plant within view sheds	This recommendation will be considered at a later date
COUNTY SAGE MITIGATION AREA	4	Use soil amendments	This recommendation will be considered at a later date
COUNTY SAGE MITIGATION AREA	5	Signage	This recommendation will be considered at a later date
COUNTY SAGE MITIGATION AREA	6	Weed control	This recommendation will be considered at a later date
COUNTY SAGE MITIGATION AREA	7	Prohibit access	This recommendation will be considered at a later date
COUNTY SAGE MITIGATION AREA	8	Employee awareness	This recommendation will be considered at a later date

5.3 Architerra Inspection and Recommendations for City South Sage Mitigation Pilot Project Area – Fourth Quarter 2015

Architerra personnel inspected the pilot project area during the fourth quarter of 2015. The inspection report is included in Attachment 3.

Soil samples were collected on January 12, 2015 from areas where there is little to no growth. A map showing the locations where soil samples were collected is included in Attachment 3. Results of the analyses will be compared to those of the pre-plant sampling that was done in May 2013 and will be included in the vegetation report for the first quarter of 2016 if available.

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 JMA was included in the first quarter 2015 Vegetation Report. The evaluation report for the fourth quarter of 2015 based on this methodology is included in Attachment 4.

5.5 Additional Information Requested by DPW

By email dated December 1, 2015, DPW personnel requested the following information be included in this vegetation report:

- Lessons learned from the pilot project
- Successful practices developed
- List of the specific remaining data needed to complete the pilot project
- Estimation on additional time needed to collect the remaining data before Republic Services applies the lessons learned and practices developed to other areas (City Sage Mitigation Area and County Sage Mitigation Area)

A summary of the trial site to date has been prepared by Architerra and is included in Attachment 5. This summary includes a discussion of the successful strategies used to develop the overall project plan as well as those employed during the construction of the project area.

With respect to a 'list' of the specific remaining data needed to complete the pilot project, we feel the pilot project is an on-going development that will require continued monitoring, maintenance and enhancements as deemed appropriate through inspections and monitoring. An estimation of the time needed to collect

remaining data and when this will be completed cannot be stated at this time. Most habitat restoration sites typically have a maintenance/monitoring period of five years. Part of the evaluation of success for the trial site will be determining that CSS is the dominant species at the site; it cannot be predicted when this will occur. However, as part of the overall site planning process each year, we will evaluate including additional acreage of coastal sage scrub mitigation as site development plans allow.

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 trees continue to be monitored and maintenance activities will be conducted in this mitigation area for the remainder of 2016.

Please do not hesitate to contact me at (818) 362-2075 if you have any questions.

Sincerely,

Ricky Dhupar
Environmental Specialist
Sunshine Canyon Landfill

Cc: Mr. David Thompson, SCL LEA
Mr. Gerardo Villalobos,SCL LEA
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	JMA Progress Report, City-Side Sage Mitigation Area
Attachment 2	JMA Progress Report, County-Side Sage Mitigation Area
Attachment 3	Architerra Design Group, Field Observation Report, South City Sage Mitigation Pilot Project – 4Q2015
Attachment 4	JMA Quarterly Monitoring Report - Coastal Sage Scrub Pilot Study, 4Q2015
Attachment 5	Architerra Design Group, Trial Site Summary To Date, South City Sage Mitigation Pilot Project

Drawings

Drawing 1	4Q2015 Site Vegetation Areas

ATTACHMENT 1

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SUNSHINE CANYON LANDFILL MITIGATION SITES

Progress Report

City-Side Sage Mitigation Area

Submittal Date: January 21, 2016	**Inspection Date:** January 19, 2016
To: Patti Costa	**From:** Greg Ainsworth, Monitoring Biologist **Prepared on behalf of Republic Services*

Lower Deck

General Comments:
Based on a qualitative visual assessment, the saltbush (*Atriplex polycarpa and A. lentiformis*) cover continues to increase and is the dominate vegetation cover. Other native species such as *Encelia Californica* and *Artemisia californica* are also prevalent and interspersed throughout; however, in much less densities. Seedlings of native plants can be found within the Atriplex canopy. Recent thinning of Atriplex has enabled seedlings to grow, and control of Russian thistle (*Salsola kali*) and other non-natives has decreased competition. Continued thinning of Atriplex will be beneficial for recruitment and will allow established natives to expand.

Numerous avian species continue to be observed within the pilot study area, as well as evidence of terrestrial species including deer, brush rabbits, and reptiles such as side-blotched lizard and whiptail.

Native Plant Cover:	**Plant Health Issues:**	**Height of Native Species:**	**Native Species Richness:**
[ ] Dense	[ ] Disease/pests	[X] 0" – 12"	[X] Low
[X] Moderate	[ ] Plant stress	[X] 12" – 24"	[ ] Medium
[ ] Minimal	[ ] Herbivory	[X] 24" and above	[ ] High

Weed Conditions

[ ] Dense weed coverage	[ ] Weeds germinating /vegetative growth
[ ] Moderate weed coverage (seeding in high density)	[ ] Weeds flowering
[X] Minimal weed coverage	[ ] Weeds setting seed
	[ ] Weed desiccant/dormant

Comments: Russian thistle and barnyard grass (*Echinochloa crus-galli)* have been adequately controlled throughout the lower deck mitigation area, and irrigation has been shut off since the last monitoring period.

Middle Deck

General Comments:

There is no change to report on the Middle Deck from previous monitoring reports. Evidence of

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seed mix coverage is no longer discernible.

Currently, approximately 30% of the middle deck is dominated by sage scrub plantings/seedlings, 35% by non-native grasses, and approximately 35% is bare ground, much of which appears to be a result of recent grading near the southwest corner for an apparent installation of a gas pipeline. The vegetated areas within the Middle Deck continue to be dominated by non-native herbaceous species such as (but not limited to) brome grasses, wild oats, mustards, and Russian thistle. Russian thistle and desiccant and emergent mustard plants and brome grasses currently dominate the non-native cover. There is a decent mixture of native species to note consisting of California buckwheat (*Eriogonum fasciculatum foliosium*), black sage (*Salvia mellifera*), purple needlegrass (*Nessella pulchra*), California sagebrush, and chamise (*Adenostoma fasciculatum*).

Native Plant Cover:	**Plant Health Issues:**	**Height of Species:**	**Native Species Richness:**
[ ] Dense [ ] Moderate [X] Minimal	[ ] Disease/pests [ ] Plant stress [ ] Excessive herbivory	[ ] 0" – 12" [ ] 12" – 24" [X] 24" and above	[X] Low [ ] Medium [ ] High

Weed Conditions

[X] Dense weed coverage [ ] Moderate weed coverage (seeding in high density) [ ] Minimal weed coverage	[X] Weeds germinating /vegetative growth [ ] Weeds flowering [ ] Weeds setting seed [X] Weed desiccant/dormant

Comments: Non-native grasses and forbs consisting of brome grasses, wild oats (*Avena fatua*), mustard, and Russian thistle dominate the vegetation cover within the middle deck. Annual grasses are currently dormant, while Russian thistle is thriving.

UPPER DECK

General Comments: 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. Specifically, the soils to the north of the central access road are heavily compacted and gravelly and vegetation coverage in this area is especially sparse. Evidence of previous seeding is no longer discernible.

Additionally, evidence of vehicle use and ongoing disturbances is apparent on the western portion of the upper deck. With the exception of Russian thistle and brome grasses, virtually no other vegetation has emerged in the areas that have been disturbed within the past couple of years. Like the middle deck, annual grasses are currently dormant, while Russian thistle is thriving.

Native Plant Cover:	**Plant Health Issues:**	**Height of Species:**	**Native Species Richness:**
[ ] Dense [ ] Moderate	[ ] Disease/pests [ ] Plant stress	[ ] 0" – 12" [ ] 12" – 24"	[X] Low [ ] Medium

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[X] Minimal	[ ] Excessive herbivory	[X] 24" and above	[ ] High

Weed Conditions	
[X] Dense weed coverage [ ] Moderate weed coverage (seeding in high density) [ ] Minimal weed coverage	[X] Weeds germinating /vegetative growth [ ] Weeds flowering [ ] Weeds setting seed [X] Weed desiccant/dormant
Comments: Weeds continue to grow without any level of control within the upper deck. Currently, Russian thistle is abundant.	

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RECOMMENDATIONS

Lower Deck

• **Selectively thin Atriplex vegetation where coastal sage scrub seedlings are present.** Closely monitor the seedlings that are growing within the understory of the Atriplex plants. Currently, the Atriplex plants are providing shade and good growing conditions for seedlings of coastal sage scrub species to become established. However, as the seedlings grow, the Atriplex plants should be thinned to reduce completion for space, water and available nutrients and to allow sunlight to reach the seedlings to increase photosynthesis.

• **Terminate irrigation and monitor.** Shut off all irrigation. It may be necessary to irrigate during extensive periods of hot and dry weather conditions; however, this should be determined based on close inspection of the soil moisture.

Middle and Upper Decks

• **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 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 on-borrow sites within the landfill that have the appropriate, 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 middle deck that are currently dominated with annual, non-native species have decent soil-texture conditions. These areas are not near as compacted as adjacent areas that are gravelly and mostly void 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 middle and upper decks where non-natives currently dominate. A temporary irrigation source would aid in establishing container plants and a consistent weed abatement program is important to control non-native species so that native can thrive and regenerate.

• **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 monitoring biologist should be present during weed control activities or flag the native plants that should remain to ensure only non-native species are removed. A biologist should verify that

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the weed removal methodology is sound and does not encourage re-colonizing of non-natives. 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, where 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. 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.

- **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.

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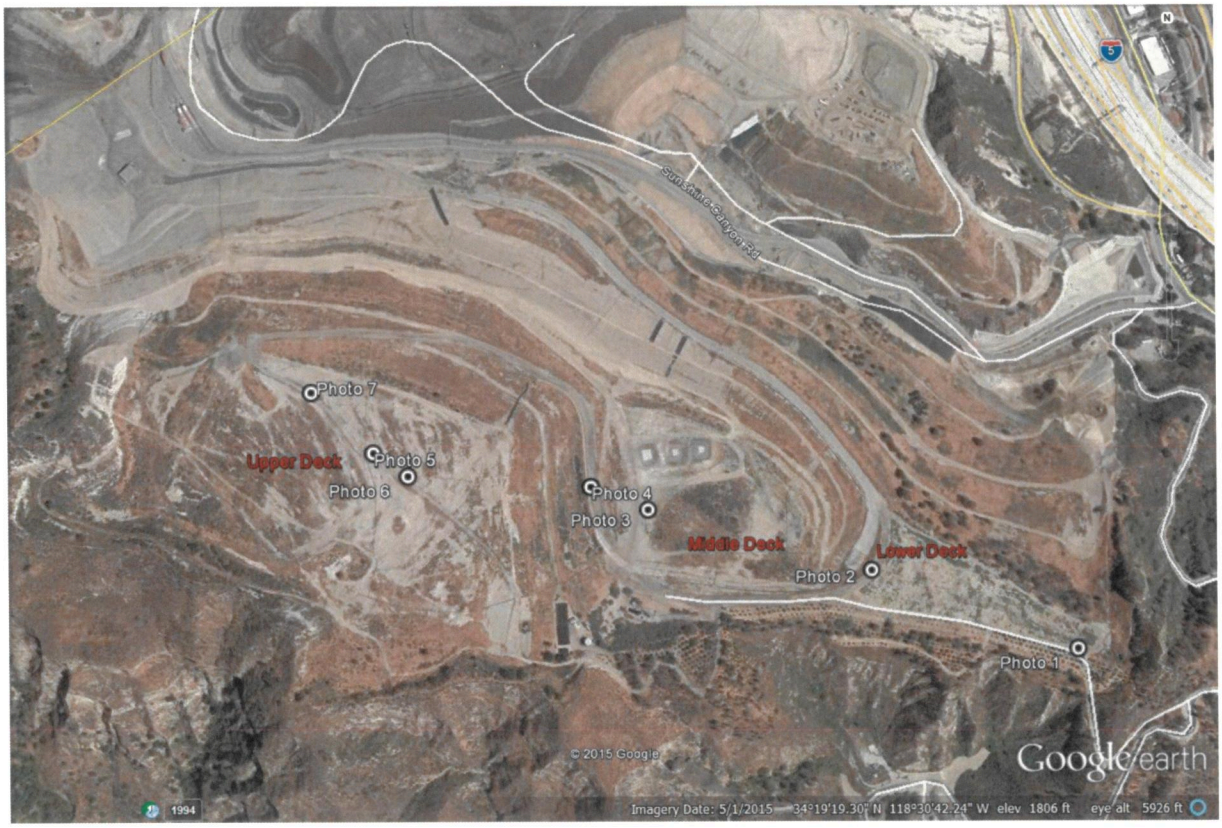
Progress Report

City-Side Sage Mitigation Area

Photo Locations



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Progress Report

City-Side Sage Mitigation Area

Photo 1. Facing west at lower deck at Atriplex species that dominate the vegetation cover.

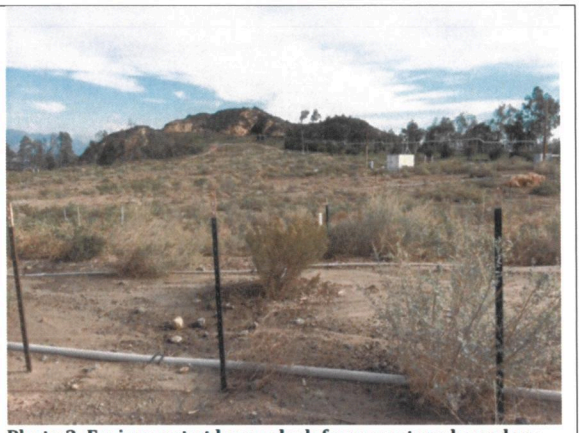

Photo 2. Facing east at lower deck from western boundary.

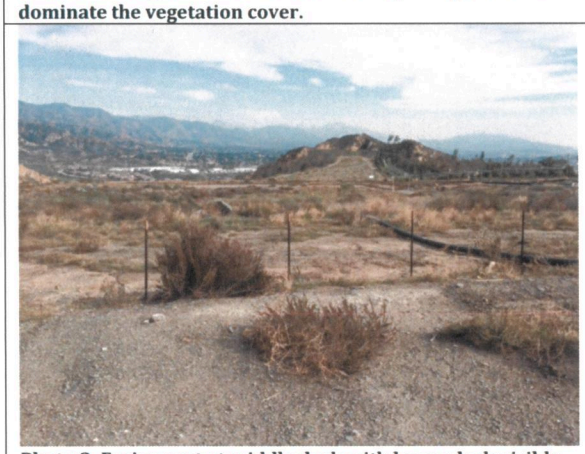

Photo 3. Facing east at middle deck with lower deck visible in background. View of non-native and native plant composition with areas of bare ground in the foreground.

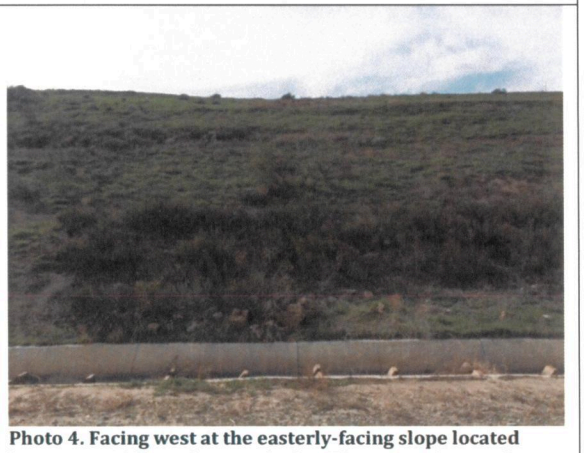

Photo 4. Facing west at the easterly-facing slope located between middle and upper decks. The vegetation on the slopes below the upper deck are dominated with mustard and brome grass seedlings. CA buckwheat is present in patches as depicted in the foreground of this photograph.

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City-Side Sage Mitigation Area

Photo 5. Facing northeast at upper deck. This area is compacted and gravelly and continues to be problematic for supporting vegetation. Non-native grasses and some CA buckwheat shrubs are evident in the background.

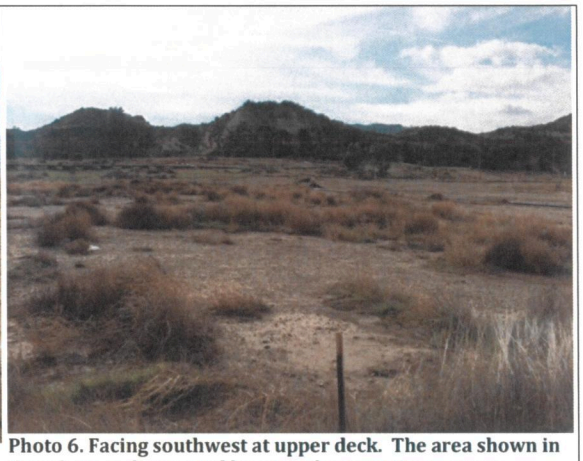

Photo 6. Facing southwest at upper deck. The area shown in this photo is dominated by annual non-native grasses.

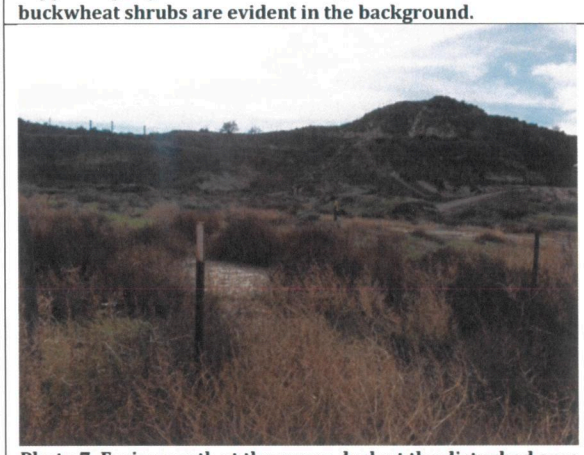

Photo 7. Facing south at the upper deck at the disturbed area that is currently dominated with desiccant Russian thistle and brome grass seedlings.

ATTACHMENT 2

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SUNSHINE CANYON LANDFILL MITIGATION SITES

Progress Report

County-Side Sage Mitigation Area

Submittal Date: April 24, 2015	**Inspection Date:** April 22, 2015
To: Patti Costa	**From:** Greg Ainsworth, Monitoring Biologist ***Prepared on behalf of Republic Services***

STATUS OF HYDROSEEDING

Conditions:

[ ] Fully covered [ ] Moderately covered [X] Barely covered

Comments:

Conditions on the county-side sage mitigation area remain unchanged. Areas that are moderately covered with vegetation (native and non-native) are concentrated. A substantial portion of the county-side mitigation area continues to be bare and problematic for establishment of vegetation, primarily because of highly eroded soils, steep slopes and toxic soils (See Recommendations).

Native plant coverage is similar to the previous quarterly monitoring reports. The southern-half of the mitigation area contains the most vegetation that is noteworthy, which consists of the highest concentration of native species (mostly buckwheat, *Eriogonum*). Native plant coverage is assumed to be a direct result of hydroseeding; however, some natural recruitment is apparent based on the dense cover where native vegetation is present and the various sizes of shrubs. Due to rocky (hydrophobic) soil conditions, soil erosion and Boron toxic soils on the northern-half of the county-side mitigation area, minimal plant growth is present.

SEED MIX

Conditions:	
[ ] No sign of germination [ ] No cover of native plants from seed mix [ ] Sparse cover of native plants from seed mix	[ ] Dense cover of native plants from seed mix [X] Moderate cover of native plants from seed mix (where vegetation is present)

Comments:

Similar to the hydroseeded areas, the other areas that are moderately covered with vegetation are concentrated. A substantial portion of the county-side 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 (*Erioginum fasciculatum*).

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Germination and plant growth from hydroseeding or seed mix is not discernible. Similar to the Q1 monitoring period, a moderate cover of native plants exists within vegetated areas. Annual non-native grasses and forbs currently dominate the understory and serve as ground cover in most of the vegetated areas. Brome grasses and mustard seedlings comprise of approximately 25 percent of the total cover. California buckwheat dominates the native vegetation with California sagebrush (*Artemisia californica*) as a co-dominant; comprising 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 millifera*), laurel sumac (Malosma laurina) and a small cluster of arroyo willow (*Salix lasiolepis*) trees that continue to thrive along the v-ditch that extends east-west through the center of the mitigation site.

OVERALL NATIVE PLANT CONDITIONS

Plant Cover:	**Plant Health Issues:**	**Height:**	**Species Richness:**
[ ] Dense [X] Moderate [ ] Minimal	[ ] Disease/pests [ ] Plant stress [ ] Excessive herbivory	[ ] 0" – 12" [X] 12" – 24" [ ] 24" and above	[ ] Low [X] Medium [ ] High

Comments:

It should be noted that the plant cover rating above applies where vegetation is dominant in the southeastern portion of the mitigation area. Vegetation cover is moderate in the southeastern portion of the county-sage mitigation area and sparser along the upper slopes where rocky conditions occur. The majority of the northern and upper portions of the mitigation area continue to have minimal coverage. Bare areas and non-native annual grasses are intermixed; however, the northern and upper areas continue to be mostly bare where erosion and rocks are apparent. 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.

As indicated previously, California buckwheat dominants the native cover with *Encelia californica* 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.

WEED CONDITIONS

Conditions:	
[ ] Dense weed coverage [X] Moderate weed coverage (seeding in high density) [ ] Minimal weed coverage	[ ] Weeds germinating [ ] Weeds flowering [ ] Weeds setting seed [X] Weed desiccant/dormant

Comments:

Annual, non-native weed species consist primarily of brome grasses (*Bromus* sp.), shortpod mustard (*Hirschfeldia incana*), and wild oats (*Avena fatua*). Other established weeds that were observed include red-stemmed filaree (*Erodium cicutarium*) and (native) telegraph weed

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(*Heterotheca grandiflora*). Russian thistle (*Salsola kali*) and tree tobacco (*Nicotiana glauca*), which are scattered within the vegetated areas, but in less densities.

MISCELLANEOUS

Conditions:

[ ] Trash [ ] Vandalism [ ] Erosion

Comments:

None

RECOMMENDATIONS

• **Create benches.** Consider creation of 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 and broadcast seeding just before a forecasted rain event and planting with container plants with supplemental irrigation during the period of establishment. Container plants should only be planted if temporary irrigation source is available.

• **Plant within view sheds**. Consider planting native species on upper portion of the slope that is visible from public view sheds with appropriate native species. Planting should occur prior to fall/winter rains.

• **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.** Continue to prohibit vehicle access to mitigation area. Extend fencing around southeastern and southern boundary of lower deck and review fencing on the upper deck to determine if additional area can be reasonably enclosed.

• **Employee awareness.** Conduct an employee awareness program to inform staff on the importance of preserving all restoration areas.

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Progress Report

County-Side Sage Mitigation Area

Photo Locations

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Progress Report

County-Side Sage Mitigation Area

Photo 1. Facing west at established sage scrub on the southern half of the county-side mitigation area. Vegetation is dominated with CA buckwheat, with scattered California sunflower (*Encelia californica*). Annual, non-native grasses and forbs dominate the ground cover, as well as Russian thistle.

Photo 2. Facing west at the bare slope on the northern-half of the county-sage mitigation area. Plant growth remains to be problematic due to erosion, a hard soil surface layer, and boron toxicity.

ATTACHMENT 3

ARCHITERRA design group
landscape architecture and planning

ARCHITERRA DESIGN GROUP **FIELD OBSERVATION REPORT**

DATE OF VISIT:	1/12/15
PROJECT:	**Sunshine Canyon Mitigation Sites**
PROJECT NUMBER:	1214
PROJECT MANAGER:	Gregg Denson
SITE INSPECTION #:	
PURPOSE OF VISIT:	Review site conditions/Photo Catalog/Soil Sampling
TIME OF SITE VISIT:	8:00am
WEATHER/TEMPERATURE:	Clear, Windy 60°
ESTIMATED % COMPLETED:	100%
CONFORMANCE WITH SCHEDULE (+, -)	

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

A walk through was held this date to review plant establishment of Trial Site, Photo Catalog current growth and review weed abatement. Additional items noted during the site visit are as follows:

City-Side Sage Mitigation (Trial Site):

- Irrigation was shut off in October and rain has been average to below average. As a result some of the species have responded by defoliation. Some of the *Encelia californica* that were uncovered by the selective pruning done in the fall, are more exposed and have showed signs of stress. This may have lead to some defoliation due to the microclimate change. However, with the recent rains in Early January, many of the natives are beginning to push new foliage and as precipitation continues (as forecasted), native species should rebound well and flourish this spring.
- Sage species have responded well from the recent pruning of the Saltbush. Some are beginning to branch out laterally now that there is more exposure. As mentioned above, *Encelia c.* seem to be more sensitive to this sudden change in exposure.
- The ±25 flagged areas of Saltbush that have been selectively pruned will be reviewed in Spring 2016. Should additional removals be needed, ADG will flag those new areas and coordinate with the landscape maintenance personnel so that removals occurs prior to the rising summer temperatures.
- I have observed an abundance of new California Sagebrush (Artemisia California) and California Sunflower (*Encelia californi*a) seedlings growing within the bioswales throughout the trial site.
- Maintenance personnel did a great job of removing and spraying the Russian Thistle (*Salsola* ssp.) that invaded the site during the late summer months. Some older plants have blown in and should be removed from the site. The Thistle is an on-going issue and will need to be managed; but overall, the site looks much better.
- Some new *Encelia c.* and *Saliva* species have emerged from the Saltbush areas and should be monitored so that selective pruning can take sooner and allow these plants to spread out more rapidly.
- A collection of soil sampling was completed to compare the current soils conditions to those of the pre-plant sampling that was done in May 2013 prior to any leaching by irrigation. The same three areas will receive an analysis for comparison (See soil sampling Map). All areas where soils were collected showed minimal to no plant growth. Results will be available next quarter.

Example of Black Sage (*Salvia mellifera*) rebounding from drought stress and beginning to push new growth

Example of California Sunflower (*Encelia californica*) defoliating due to exposure. New growth though is beginning to emerge.

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Coast Sunflower (*Encelia californica*) seedling growing adjacent to existing Saltbush.

Example of Black Sage (*Salvia mellifera*) benefitting from more exposure from selective pruning

New California Sagebrush (*Artemisia californica*) emerging from crack in boulder.

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New Black Sage (*Salvia mellifera*) emerging from boulder

Soil imprinting pattern still visible after almost 3 years.

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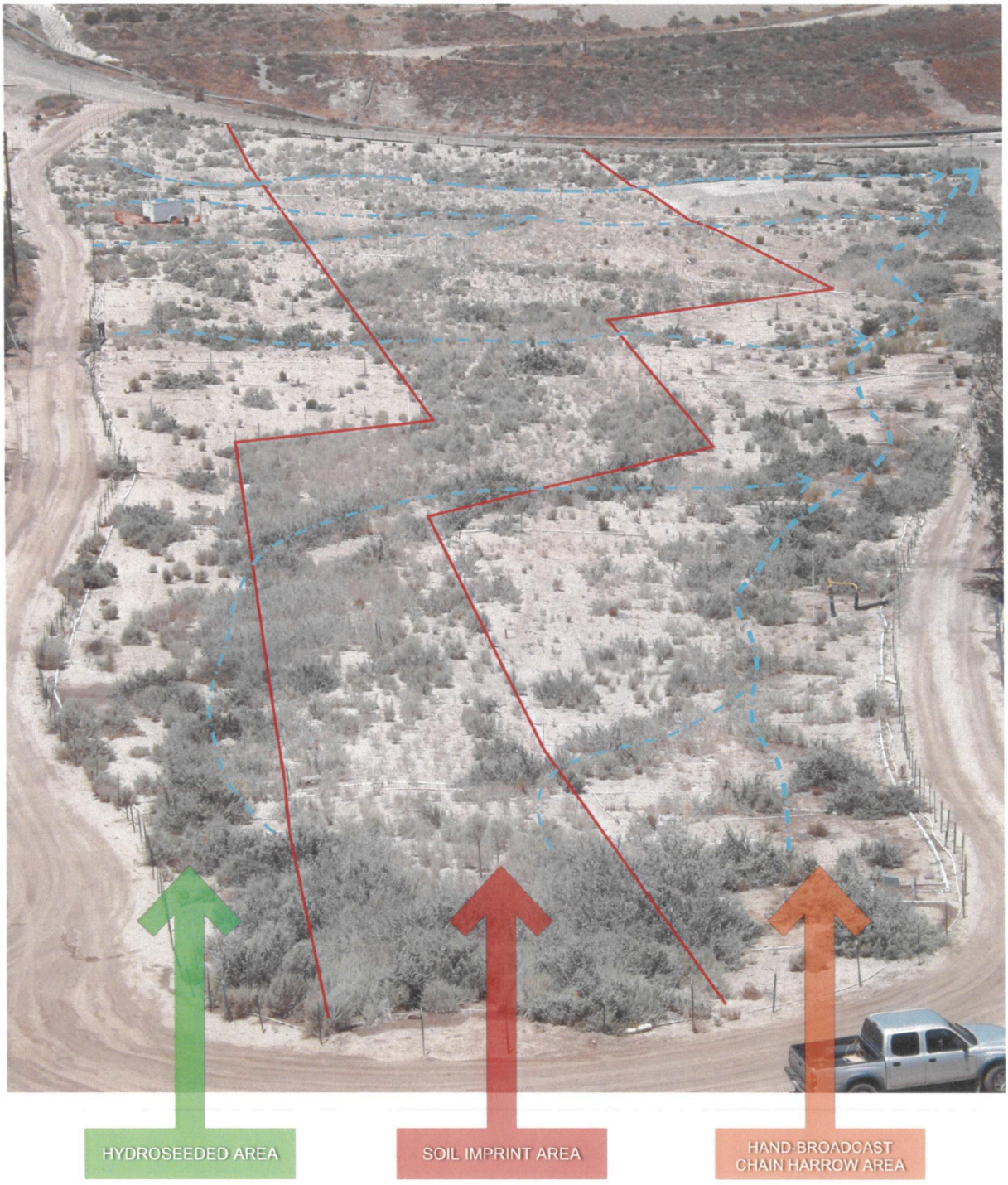
TRIAL SITE JULY 2014
(VIEWING LOOKING WEST)



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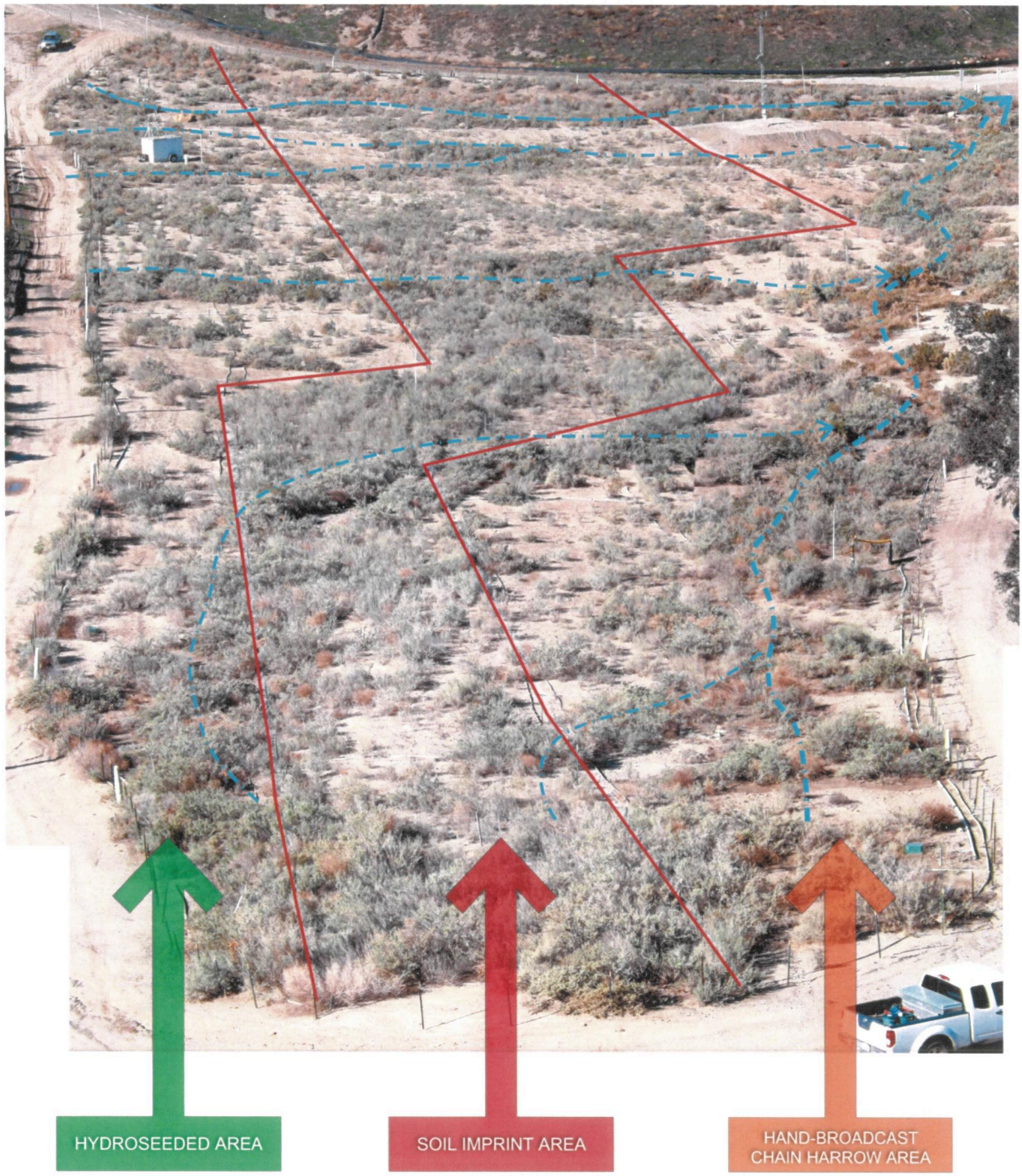
TRIAL SITE JANUARY 2016
(VIEWING LOOKING WEST)



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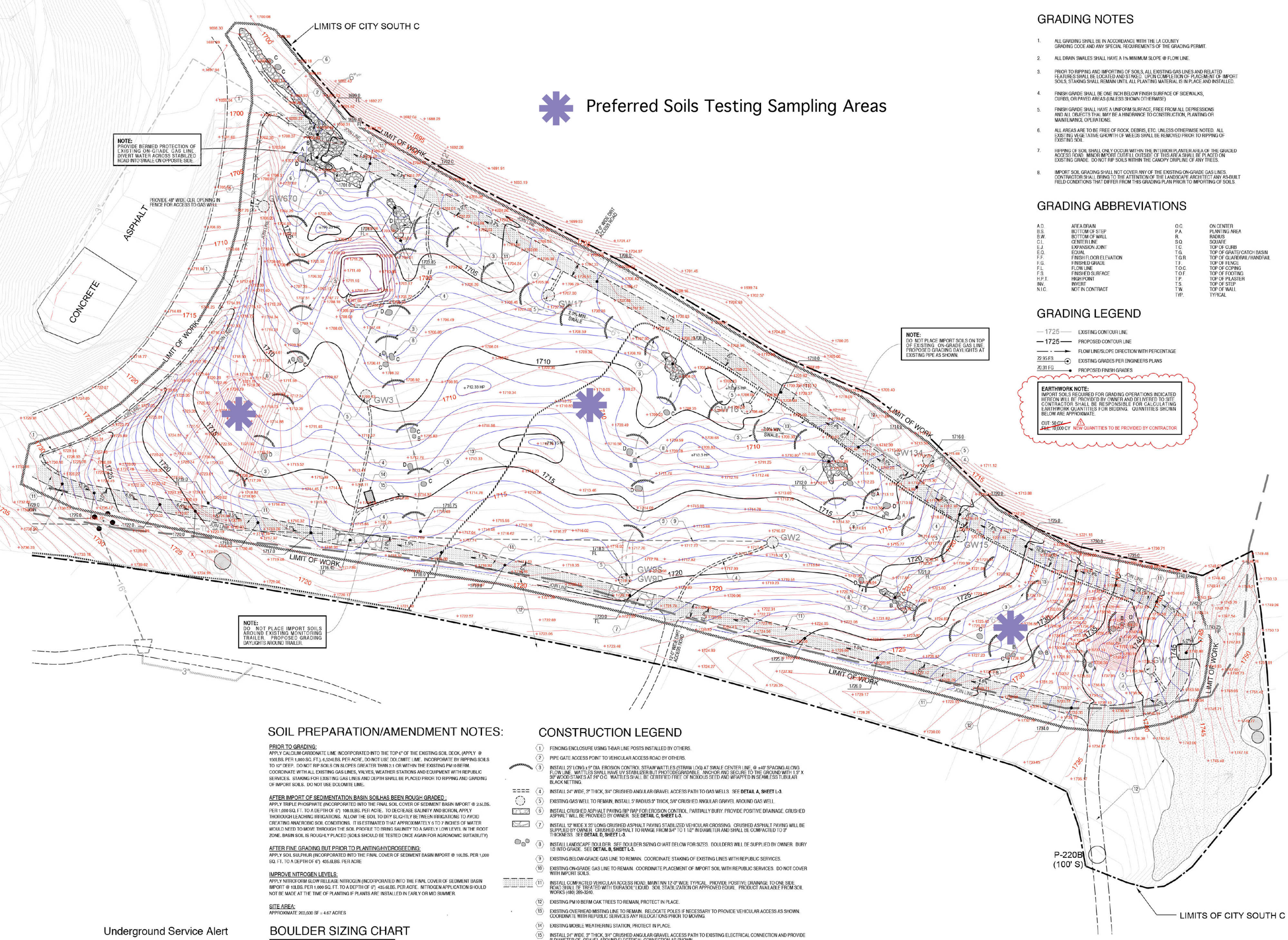

GRADING NOTES

1. ALL GRADING SHALL BE IN ACCORDANCE WITH THE LA COUNTY GRADING CODE AND ANY SPECIAL REQUIREMENTS OF THE GRADING PERMIT.
2. ALL DRAIN SWALES SHALL HAVE A 1% MINIMUM SLOPE @ FLOW LINE.
3. PRIOR TO RIPPING AND IMPORTING OF SOILS, ALL EXISTING GAS LINES AND RELATED FEATURES SHALL BE LOCATED AND STAKED. UPON COMPLETION OF PLACEMENT OF IMPORT SOILS, STAKING SHALL REMAIN UNTIL ALL PLANTING MATERIAL IS IN PLACE AND INSTALLED.
4. FINISH GRADE SHALL BE ONE INCH BELOW FINISH SURFACE OF SIDEWALKS, CURBS, OR PAVED AREAS (UNLESS SHOWN OTHERWISE)
5. FINISH GRADE SHALL HAVE A UNIFORM SURFACE, FREE FROM ALL DEPRESSIONS AND ALL OBJECTS THAL MAY BE A HINDRANCE TO CONSTRUCTION, PLANTING OR MAINTENANCE OPERATIONS.
6. ALL AREAS ARE TO BE FREE OF ROCK, DEBRIS, ETC. UNLESS OTHERWISE NOTED. ALL EXISTING VEGETATIVE GROWTH OF WEEDS SHALL BE REMOVED PRIOR TO RIPPING OF EXISTING SOIL.
7. RIPPING OF SOIL SHALL ONLY OCCUR WITHIN THE INTERIOR PLANTER AREA OF THE GRADED ACCESS ROAD. MINOR IMPORT CUT/FILL OUTSIDE OF THIS AREA SHALL BE PLACED ON EXISTING GRADE. DO NOT RIP SOILS WITHIN THE CANOPY DRIPLINE OF ANY TREES.
8. IMPORT SOIL GRADING SHALL NOT COVER ANY OF THE EXISTING ON-GRADE GAS LINES. CONTRACTOR SHALL BRING TO THE ATTENTION OF THE LANDSCAPE ARCHITECT ANY AS-BUILT FIELD CONDITIONS THAT DIFFER FROM THIS GRADING PLAN PRIOR TO IMPORTING OF SOILS.

GRADING ABBREVIATIONS

A.D.	AREA DRAIN	O.C.	ON CENTER
B.S.	BOTTOM OF STEP	P.A.	PLANTING AREA
B.W.	BOTTOM OF WALL	R.	RADIUS
C.L.	CENTER LINE	SQ.	SQUARE
E.J.	EXPANSION JOINT	T.C.	TOP OF CURB
E.Q.	EQUAL	T.G.	TOP OF GRATE/ CATCH BASIN
F.F.	FINISH FLOOR ELEVATION	T.G.R.	TOP OF GUARDRAIL/ HANDRAIL
F.G.	FINISHED GRADE	T.F.	TOP OF FENCE
F.L.	FLOW LINE	T.O.C.	TOP OF COPING
F.S.	FINISHED SURFACE	T.O.F.	TOP OF FOOTING
H.P.T.	HIGH POINT	T.P.	TOP OF PILASTER
INV.	INVERT	T.S.	TOP OF STEP
N.I.C.	NOT IN CONTRACT	T.W.	TOP OF WALL
		TYP.	TYPICAL

GRADING LEGEND

- 1725 — EXISTING CONTOUR LINE
- 1725 — PROPOSED CONTOUR LINE
- FLOW LINE/SLOPE DIRECTION WITH PERCENTAGE
- 72.95 FS — EXISTING GRADES PER ENGINEERS PLANS
- 70.31 FG — PROPOSED FINISH GRADES

EARTHWORK NOTE:
IMPORT SOILS REQUIRED FOR GRADING OPERATIONS INDICATED HEREON WILL BE PROVIDED BY OWNER AND DELIVERED TO SITE. CONTRACTOR SHALL BE RESPONSIBLE FOR CALCULATING EARTHWORK QUANTITIES FOR BIDDING. QUANTITIES SHOWN BELOW ARE APPROXIMATE.

CUT: 50 CY
FILL: 10,000 CY — NEW QUANTITIES TO BE PROVIDED BY CONTRACTOR

SOIL PREPARATION/AMENDMENT NOTES:

PRIOR TO GRADING:
APPLY CALCIUM CARBONATE LIME INCORPORATED INTO THE TOP 6" OF THE EXISTING SOIL DECK, (APPLY @ 150LBS. PER 1,000 SQ. FT.), 6,534 BS. PER ACRE., DO NOT USE DOLOMITE LIME. INCORPORATE BY RIPPING SOILS TO 12" DEEP. DO NOT RIP SOILS ON SLOPES GREATER THAN 3:1 OR WITHIN THE EXISTING PM10 BERM. COORDINATE WITH ALL EXISTING GAS LINES, VALVES, WEATHER STATIONS AND EQUIPMENT WITH REPUBLIC SERVICES. STAKING FOR EXISTING GAS LINES AND DEPTH SHALL BE PLACED PRIOR TO RIPPING AND GRADING OF IMPORT SOILS. DO NOT USE DOLOMITE LIME.

AFTER IMPORT OF SEDIMENTATION BASIN SOILHAS BEEN ROUGH GRADED :
APPLY TRIPLE PHOSPHATE (INCORPORATED INTO THE FINAL SOIL COVER OF SEDIMENT BASIN IMPORT @ 2.5LBS. PER 1,000 SQ. FT. TO A DEPTH OF 6") 108.9LBS. PER ACRE. TO DECREASE SALINITY AND BORON, APPLY THOROUGH LEACHING IRRIGATIONS. ALLOW THE SOIL TO DRY SLIGHTLY BETWEEN IRRIGATIONS TO AVOID CREATING ANAEROBIC SOIL CONDITIONS. IT IS ESTIMATED THAT APPROXIMATELY 6 TO 7 INCHES OF WATER WOULD NEED TO MOVE THROUGH THE SOIL PROFILE TO BRING SALINITY TO A SAFELY LOW LEVEL IN THE ROOT ZONE. BASIN SOIL IS ROUGHLY PLACED (SOILS SHOULD BE TESTED ONCE AGAIN FOR AGRONOMIC SUITABILITY)

AFTER FINE GRADING BUT PRIOR TO PLANTING/HYDROSEEDING:
APPLY SOIL SULPHUR (INCORPORATED INTO THE FINAL COVER OF SEDIMENT BASIN IMPORT @ 10LBS. PER 1,000 SQ. FT. TO A DEPTH OF 6") 435.6LBS. PER ACRE

IMPROVE NITROGEN LEVELS:
APPLY NITROFORM SLOW RELEASE NITROGEN (INCOPORATED INTO THE FINAL COVER OF SEDIMENT BASIN IMPORT @ 10LBS. PER 1,000 SQ. FT. TO A DEPTH OF 6") 435.6LBS. PER ACRE. NITROGEN APPLICATION SHOULD NOT BE MADE AT THE TIME OF PLANTING IF PLANTS ARE INSTALLED IN EARLY OR MID SUMMER.

SITE AREA:
APPROXIMATE 203,600 SF = 4.67 ACRES

CONSTRUCTION LEGEND

1. FENCING ENCLOSURE USING T-BAR LINE POSTS INSTALLED BY OTHERS.
2. PIPE GATE ACCESS POINT TO VEHICULAR ACCESS ROAD BY OTHERS.
3. INSTALL 25' LONG x 9" DIA. EROSION CONTROL STRAW WATTLES (STRAW LOG) AT SWALE CENTER LINE @ +40' SPACING ALONG FLOW LINE. WATTLES SHALL HAVE UV STABILIZER BUT PHOTODEGRADABLE. ANCHOR AND SECURE TO THE GROUND WITH 1.5" X 30" WOOD STAKES AT 24" O.C. WATTLES SHALL BE CERTIFIED FREE OF NOXIOUS SEED AND WRAPPED IN SEAMLESS TUBULAR BLACK NETTING.
4. INSTALL 24" WIDE, 3" THICK, 3/4" CRUSHED ANGULAR GRAVEL ACCESS PATH TO GAS WELLS. SEE **DETAIL A, SHEET L-3**.
5. EXISTING GAS WELL TO REMAIN, INSTALL 5' RADIUS 3" THICK, 3/4" CRUSHED ANGULAR GRAVEL AROUND GAS WELL.
6. INSTALL CRUSHED ASPHALT PAVING RIP RAP FOR EROSION CONTROL. PARTIALLY BURY. PROVIDE POSITIVE DRAINAGE. CRUSHED ASPHALT WILL BE PROVIDED BY OWNER. SEE **DETAIL C, SHEET L-3.**
7. INSTALL 12' WIDE X 35' LONG CRUSHED ASPHALT PAVING STABILIZED VEHICULAR CROSSING. CRUSHED ASPHALT PAVING WILL BE SUPPLIED BY OWNER. CRUSHED ASPHALT TO RANGE FROM 3/4" TO 1 1/2" IN DIAMETER AND SHALL BE COMPACTED TO 3" THICKNESS. SEE **DETAIL D, SHEET L-3**
8. INSTALL LANDSCAPE BOULDER. SEE BOULDER SIZING CHART BELOW FOR SIZES. BOULDERS WILL BE SUPPLIED BY OWNER. BURY 1/3 INTO GRADE. SEE **DETAIL B, SHEET L-3.**
9. EXISTING BELOW-GRADE GAS LINE TO REMAIN. COORDINATE STAKING OF EXISTING LINES WITH REPUBLIC SERVICES.
10. EXISTING ON-GRADE GAS LINE TO REMAIN. COORDINATE PLACEMENT OF IMPORT SOIL WITH REPUBLIC SERVICES. DO NOT COVER WITH IMPORT SOILS.
11. INSTALL COMPACTED VEHICULAR ACCESS ROAD, MAINTAIN 12'-0" WIDE TYPICAL. PROVIDE POSITIVE DRAINAGE TO ONE SIDE ROAD SHALL BE TREATED WITH 'DURASOIL' LIQUID SOIL STABILIZATION OR APPROVED EQUAL. PRODUCT AVAILABLE FROM SOIL WORKS (480) 289-3240.
12. EXISTING PM10 BERM OAK TREES TO REMAIN, PROTECT IN PLACE.
13. EXISTING OVERHEAD MISTING LINE TO REMAIN. RELOCATE POLES IF NECESSARY TO PROVIDE VEHICULAR ACCESS AS SHOWN. COORDINATE WITH REPUBLIC SERVICES ANY RELOCATIONS PRIOR TO MOVING.
14. EXISTING MOBILE WEATHERING STATION, PROTECT IN PLACE.
15. INSTALL 24" WIDE, 3" THICK, 3/4" CRUSHED ANGULAR GRAVEL ACCESS PATH TO EXISTING ELECTRICAL CONNECTION AND PROVIDE 3' DIAMETER OF GRAVEL AROUND ELECTRICAL CONNECTION AS SHOWN.

BOULDER SIZING CHART

LABEL	SIZE RANGE
A	18" x 24"
B	24" x 36"
C	36" x 42"
D	42" x 48"

Underground Service Alert
Call: TOLL FREE
1-800 422-4133
TWO WORKING DAYS BEFORE YOU DIG

PLAN CROSS REFERENCES

FOR NOTES AND LEGENDS, SEE THIS SHEET
FOR DETAILS, SEE SHEET L-3
FOR CORRESPONDING IRRIGATION PLAN SEE SHEET L-5
FOR CORRESPONDING PLANTING PLAN SEE SHEET L-7

0 15' 30' 60' 120'
1"= 30'-0"

NORTH

ARCHITERRA DESIGN GROUP
LANDSCAPE ARCHITECTURE
SITE PLANNING
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Fax (909) 484-2802
Richard Krumwiede CA Lic # 6834
AZ Lic # 29115
NV Lic # 445
TX Lic # 1884

L.A. SEAL

LICENSED LANDSCAPE ARCHITECT
Richard W. Krumwiede 6834
Registered 7.31.14
Renewal Date 11-26-12
Date
STATE OF CALIFORNIA

PROJECT / CLIENT

CITY SOUTH C TRIAL PLOT
SUNSHINE CANYON LANDFILL
14747 SAN FERNANDO ROAD
SYLMAR, CA 91342

SHEET TITLE

GRADING AND CONSTRUCTION PLAN

REVISIONS
1 3-5-13 GRADING REVISION

DRAWN BY
GPD

CHECKED BY
JRC

DATE
9/28/12

SCALE
1" = 30'

JOB NUMBER
1214

SHEET NUMBER
L-2
2 OF 8 SHTS.

Signed: Gregg Denson Date: 1-21-16

DISTRIBUTION

Republic Services	☑	Contractor	☑
File ☑ Project Manager (Gregg Denson)	☑	Other	☐

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Photo Station #1 - January 2015 (East)

Photo Station #1 - January 2016 (East)

Photo Station #1 - January 2015 (North)

Photo Station #1 - January 2016 (North)

Photo Station #1 - January 2015 (West)

Photo Station #1 - January 2016 (West)

Photo Station #2 - January 2015 (East)

Photo Station #2 - January 2016 (East)

Photo Station #2 - January 2015 (North)

Photo Station #2 - January 2016 (North)

Photo Station #2 - January 2015 (South)

Photo Station #2 - January 2016 (South)

Photo Station #3 - January 2015 (East)

Photo Station #3 - January 2016 (East)

Photo Station #3 - January 2015 (North)

Photo Station #3 - January 2016 (North)

Photo Station #2 - January 2015 (West)

Photo Station #2 - January 2016 (West)

Photo Station #4 - January 2015 (South)

Photo Station #4 - January 2016 (South)

Photo Station #4 - January 2015 (East)

Photo Station #4 - January 2016 (East)

Photo Station #4 - January 2015 (West)

Photo Station #4 - January 2016 (West)

Photo Station #5 - January 2015 (East)

Photo Station #5 - January 2016 (East)

Photo Station #5 - January 2015 (North)

Photo Station #5 - January 2016 (North)

Photo Station #5 - January 2015 (West)

Photo Station #5 - January 2016 (West)

Photo Station #6 - January 2015 (East)

Photo Station #6 - January 2016 (East)

Photo Station #6 - January 2015 (North)

Photo Station #6 - January 2016 (North)

Photo Station #6 - January 2015 (West)

Photo Station #6 - January 2016 (West)

Photo Station #7 - January 2015 (South)

Photo Station #7 - January 2016 (South)

Photo Station #7 - January 2015 (West)

Photo Station #7 - January 2015 (West)

Photo Station #7 - January 2015 (North)

Photo Station #7 - January 2016 (North)

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Photo Station #8 - January 2016 (North)

Photo Station #8 - January 2015 (West)

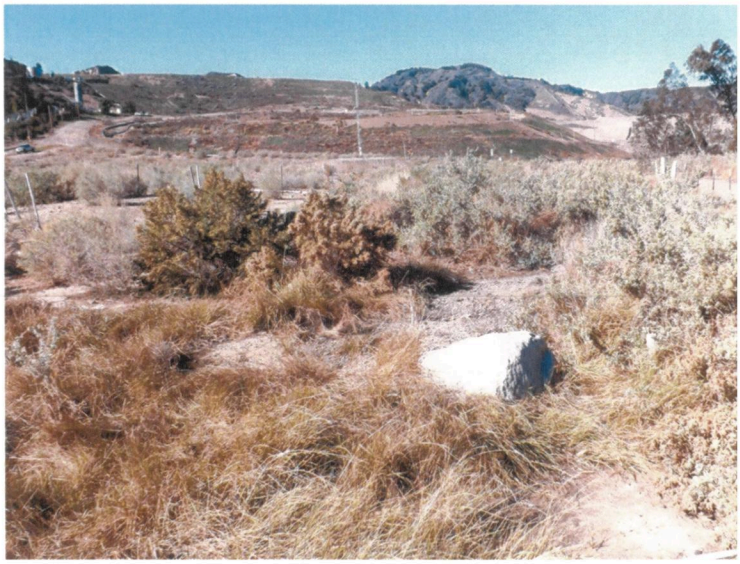


Photo Station #8 - January 2016 (West)

Photo Station #9 - January 2015 (East)

Photo Station #9 - January 2016 (East)

Photo Station #9 - January 2015 (South)

Photo Station #9 - January 2016 (South)

Photo Station #9 - January 2015 (West)

Photo Station #9 - January 2016 (West)

ATTACHMENT 4

memorandum

date January 25, 2016

to Patty Costa, Sunshine Canyon Landfill

from Greg Ainsworth, Consulting Biologist

subject Coastal Sage Scrub City South C Trial Plot Monitoring Report, Sunshine Canyon Landfill - 4th Quarter, 2015

INTRODUCTION

On January 19, 2016, biologist Greg Ainsworth monitored the coastal sage scrub revegetation area at the Landfill's City South 'C' Trial Plot, which constitutes the fourth quarter monitoring of the trial plot for 2015. The sampling generally followed the methodology described in 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). However, some modifications to the methodology were implemented. The **quadrat** sampling included four 50-meter quadrats that were randomly sampled within each of the three seeded areas: hydroseed, imprint and hand broadcast. These quadrats were randomly selected from a grid that was placed over the entire trial plot and each quadrat was delineated with wood stakes and flagging prior to sampling. As shown on the attached planting plan, each quadrat that was sampled was given a corresponding letter from A-L.

A total of 200 meters was sampled for each of the three seeded areas. The following data was collected for each quadrat:

- **Percent basil cover (shrubs)** –Visual estimate of the amount of basil cover within each quadrat for all shrub species.
- **Percent basil cover (herbs)** – Visual estimate of the amount of basil 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.

To obtain estimate cover of each species, the **point intercept** method was conducted at 50 meter transects along the perimeter of each 50 square meter quadrats (A-L). A total of four transects were walked within each planting method (hydroseed, imprint and hand broadcast). Points were taken at approximately every 0.5 meters, while moving clockwise from the southwest corner of each quadrat. The species located precisely at every 0.5 meter point was noted.

RESULTS

Below are the average data collected for the hydroseed, imprint, and hand broadcast application areas. The number in parenthesis represents the previous quarterly monitoring results.

Quadrat Sampling:

Average Hydroseed – Quadrats A, B, C, D

Percent basil cover (shrubs) – 11% (10%)

Percent basil cover (herbs) – 4% (2%)

Percent bare ground – 48% (50%)

Percent rock or other – 4% (4%)

Percent canopy (shrub) – 58% (56%)

Percent canopy (herb) – 1% (2%)

Average Imprint – Quadrats E, F, G H

Percent basil cover (shrubs) – 15% (15%)

Percent basil cover (herbs) – 6% (3%)

Percent bare ground – 61% (61%)

Percent rock or other – 6% (8%)

Percent canopy (shrub) – 47% (52%)

Percent canopy (herb) – 1% (2%)

Average Hand Broadcast – Quadrats I, J, K L (average)

Percent basil cover (shrubs) – 21% (21%)

Percent basil cover (herbs) – 19% (14%)

Percent bare ground – 34% (34%)

Percent rock or other – 4% (4%)

Percent canopy (shrub) – 68% (56%)

Percent canopy (herb) – 13% (10%)

Point Intercept

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 on the point intercept method is as follows:

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

Species	% Cover Shrub	% Cover Herb
Acmispon glaber	1%	
Adenostema fasciculatum		
Achillia mellifoluim		
Artemisia californica	1%	
Atriplex lentiformis	35%	
Atriplex polycarpa	14%	
Atriplex spinosa	1%	
Baccharis pilularis	1%	
Encelia californica	1%	
Eschscholzia californica		
Leymus triticoides		1%
Mimulus aurantiacus longiflorus		
Nasella pulchra		
Other herb		1%
Salvia mellifera	1%	
Sisyrinchium bellum		
Vulpia microstachys		
Echinochloa crus-galli		
Salsola ssp.		

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

Species	% Cover Shrub	% Cover Herb
Adenostema fasciculatum		
Achillia mellifoluim		
Artemisia californica	1%	
Atriplex lentiformis	21%	
Atriplex polycarpa	18%	
Atriplex spinosa	1%	
Baccharis pilularis	1%	
Encelia californica	1%	
Eschscholzia californica		
Eriogonum fasciculatum	1%	
Leymus triticoides		
Mimulus aurantiacus longiflorus		
Nasella pulchra		
Other herb		2%

Sisyrinchium bellum		
Salvia apiana	1%	
Salvia leucophylla	1%	
Salvia mellifera	1%	
Echinochloa crus-galli		
Salsola ssp,		

Hand Broadcast – Quadrats I, J, K L (average)

Species	**% Cover Shrub**	**% Cover Herb**
Adenostema fasciculatum	1%	
Achillia mellifoluim		
Artemisia californica	1%	
Atriplex lentiformis	38%	
Atriplex polycarpa	15%	
Atriplex spinosa		
Baccharis pilularis	5%	
Encelia californica		
Eschscholzia californica		
Leymus triticoides		1%
Mimulus aurantiacus longiflorus		
Nasella pulchra		
Other herb		4
Salvia apiana	1%	
Salvia leucophylla	1%	
Salvia mellifera	1%	
Sisyrinchium bellum		
Echinochloa crus-galli		
Vulpia microstachys		
Salsola ssp.		

DISCUSSION

There was very little visual change in the percent cover of shrub species overall, whereas the herbaceous cover of both native and non-native species is low due to seasonal timing and weed control, respectively. The overall native shrub canopy continues to be dominated by saltbush throughout the pilot study area. Selective thinning of *Atriplex* has helped native shrubs to fill out, and recent clearing of Russian thistle has increased the amount of available space in the plots. In some plots, the *Atriplex* cover may have decreased due to recent thinning of shrubs, and recent weed control has removed most of the non-native barnyard grass and Russian thistle from the pilot study area. The hand broadcasted area only experienced a one percent increase in the percent canopy cover of shrub species, and the herbaceous cover decreased, since many herbs are dormant and non-native were recently removed. Quadrat H continues to have the greatest amount of relative cover, mostly comprised of *Atriplex lentiformis*. Both the quadrat method and the point intercept method confirm that *Atriplex lentiformis* has the greatest amount of relative cover throughout the trial site, with *Atriplex polycarpa* as a co-dominant. The abundant cover of these two *Atriplex* species is also evident by a general visual observation of the plant cover throughout the trial site. Seedlings of planted coastal sage scrub natives are visible within the canopy of Atriplex in several of the plots where *Atriplex* is dominant, and appear to be thriving following the recent thinning of *Atriplex* from the pilot study area. Continued thinning of dense stands of *Atriplex* will be beneficial, allowing the

natives to continue to fill in and regenerate the study area. Photographs of each quadrat are provided on the following pages, as well as the raw data obtained within each quadrat sampled.

Photograph Log

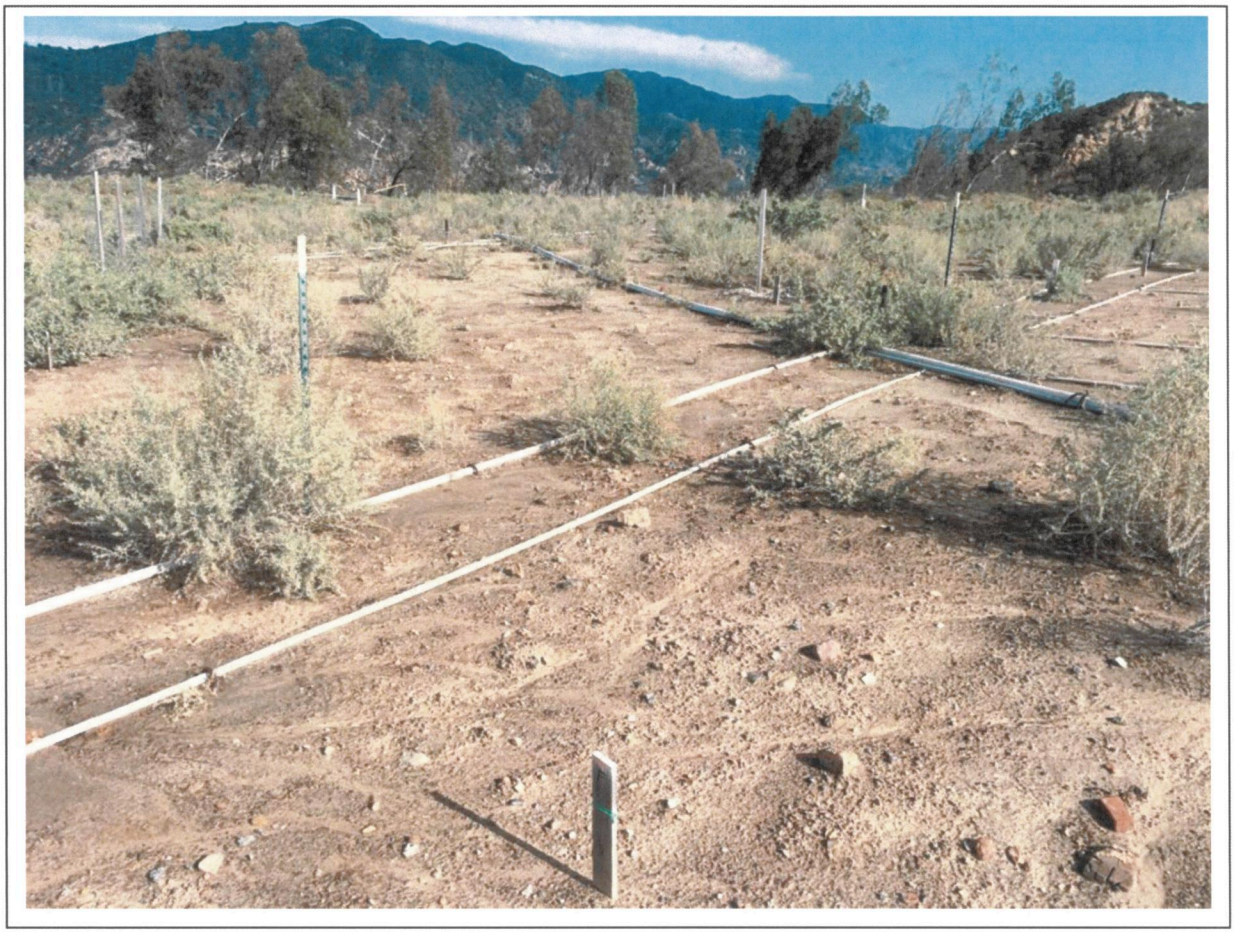
Quadrat A. Facing northeast from southwest corner.

Quadrat B. Facing northeast from southwest corner.

Quadrat C. Facing northeast from southwest corner.

Quadrat D. Facing northeast from southwest corner.

Quadrat E. Facing northeast from southwest corner.



Quadrat F. Facing northeast from southwest corner.

Quadrat G. Facing northeast from southwest corner.

Quadrat H. Facing northeast from southwest corner.

Quadrat I. Facing northeast from southwest corner.

Quadrat J. Facing northeast from southwest corner.

Quadrat K. Facing northeast from southwest corner.

Quadrat L. Facing northeast from southwest corner.

Quadrat Method: Raw Data

Quadrat	Species	Size (sq. meters)	% basal (shrub)	% basal (herb.)	% Bare	% Rock/ unusable	% canopy (shrub)	% canopy (herb.)	Photo #
A		50	7%	3%	50%	10%			1
	Atriplex lentiformis						35%		
	Atriplex polycarpa						20%		
	Atriplex spinosa						1%		
	Baccharis pilularis						1%		
	Echinochloa crus-galli								
	Other herb							2%	
Quadrat	Species	Size (sq. meters)	% basal (shrub)	% basal (herb.)	% Bare	% Rock/ unusable	% canopy (shrub)	% canopy (herb.)	Photo #
B		50	20%	1%	15%	2%			2
	Atriplex lentiformis						75%		
	Atriplex polycarpa						12%		
	Encelia californica						3%		
	Sisyrinchium bellum								
	Echinochloa crus-galli								
	Other herb								
Quadrat	Species	Size (sq. meters)	% basal (shrub)	% basal (herb.)	% Bare	% Rock/ unusable	% canopy (shrub)	% canopy (herb.)	Photo #
C		50	1%	<1%	>75%	1%			3
	Atriplex lentiformis						3%		
	Atriplex polycarpa						15%		
	Acmispon glaber						1%		
	Salvia millifera								
	Mimulus aurantiacus longiflorus								

Quadrat	Species	Size (sq. meters)	% basal (shrub)	% basal (herb.)	% Bare	% Rock/ unusable	% canopy (shrub)	% canopy (herb.)	Photo #
D		50	15%	1%	50%	1%			4
	Atriplex lentiformis						40%		
	Atriplex polycarpa						15%		
	Achillia mellifoluim								
	Artemisia californica						1%		
	Acmispon glaber								
	Nassella pulchra								
	Salsola ssp.								
Quadrat	Species	Size (sq. meters)	% basal (shrub)	% basal (herb.)	% Bare	% Rock/ unusable	% canopy (shrub)	% canopy (herb.)	Photo #
E		50	15%	1%	60%	5%			5
	Atriplex lentiformis						25%		
	Atriplex polycarpa						20%		
	Atriplex spinosa						1%		
	Salsola ssp.								
Quadrat	Species	Size (sq. meters)	% basal (shrub)	% basal (herb.)	% Bare	% Rock/ unusable	% canopy (shrub)	% canopy (herb.)	Photo #
F		50	3%	1%	>75%	5%			6
	Atriplex lentiformis						7%		
	Atriplex polycarpa						10%		
	Atriplex spinosa								
	Artemisia californica						1%		
	Echinochloa crus-galli								
Quadrat	Species	Size (sq. meters)	% basal (shrub)	% basal (herb.)	% Bare	% Rock/ unusable	% canopy (shrub)	% canopy (herb.)	Photo #
G		50	15%	1%	>75%	5%			7
	Atriplex lentiformis						12%		
	Atriplex polycarpa						35%		

	Atriplex spinosa						3%		
	Salvia apiana						1%		
	Achillia mellifoluim								
	Salsola ssp.								
	Echinochloa crus-galli								
Quadrat	Species	Size (sq. meters)	% basal (shrub)	% basal (herb.)	% Bare	% Rock/ unusable	% canopy (shrub)	% canopy (herb.)	Photo #
H		50	25%	10%	35%	15%			8
	Atriplex lentiformis						35%		
	Atriplex polycarpa						20%		
	Baccharis pilularis						3%		
	Eriogonum fasciculatum						1%		
	Mimulus aurantiacus longiflorus						1%		
	Salvia leucophylla						3%		
	Acmispon glaber								
	Encelia californica						1%		
	Salvia mellifera						1%		
	Leymus triticoides							3%	
	Echinochloa crus-galli								
Quadrat	Species	Size (sq. meters)	% basal (shrub)	% basal (herb.)	% Bare	% Rock/ unusable	% canopy (shrub)	% canopy (herb.)	Photo #
I		50	30%	20%	25%	5%			9
	Atriplex polycarpa						30%		
	Atriplex lentiformis						40%		
	Baccharis pilularis						1%		
	Artemisia californica						1%		
	Encelia californica						5%		
	Salvia mellifera						3%		
	Vulpia microstachys							1%	
	Sisyrinchium bellum							1%	
	Nasella pulchra							1%	
	Leymus triticoides								

	Salsola ssp.						10%		
Quadrat	Species	Size (sq. meters)	% basal (shrub)	% basal (herb.)	% Bare	% Rock/ unusable	% canopy (shrub)	% canopy (herb.)	Photo #
J		50	35%	15%	10%	5%			10
	Atriplex lentiformis						75%		
	Atriplex polycarpa						15%		
	Encelia californica						5%		
	Artemisia californica						3%		
	Vulpia microstachys								
	Eriogonum fasciculatum						1%		
	Salsola ssp.								
	Other herb							12%	
Quadrat	Species	Size (sq. meters)	% basal (shrub)	% basal (herb.)	% Bare	% Rock/ unusable	% canopy (shrub)	% canopy (herb.)	Photo #
K		50	10%	20%	50%	3%			11
	Atriplex lentiformis						5%		
	Adenostema fasciculatum								
	Artemisia californica						1%		
	Baccharis pilularis						15%		
	Atriplex polycarpa						25%		
	Encelia farinosa								
	Vulpia microstachys								
	Salsola ssp.								
	Leymus triticoides								
	Echinochloa crus-galli								
	Leymus triticoides							10%	
	Other herb							2%	
Quadrat	Species	Size (sq. meters)	% basal (shrub)	% basal (herb.)	% Bare	% Rock/ unusable	% canopy (shrub)	% canopy (herb.)	Photo #
L		50	10%	<1%	50%	3%			12
	Atriplex lentiformis						35%		

	Atriplex polycarpa						20%		
	Baccharis pilularis						1%		
	Artemisia californica						1%		
	Encelia californica						1%		
	Salvia apiana						1%		
	Salvia leucophylla						10%		
	Salvia mellifera						1%		
	Poa annua							1%	
	Salsola ssp.								
	Leymus triticoides							1%	

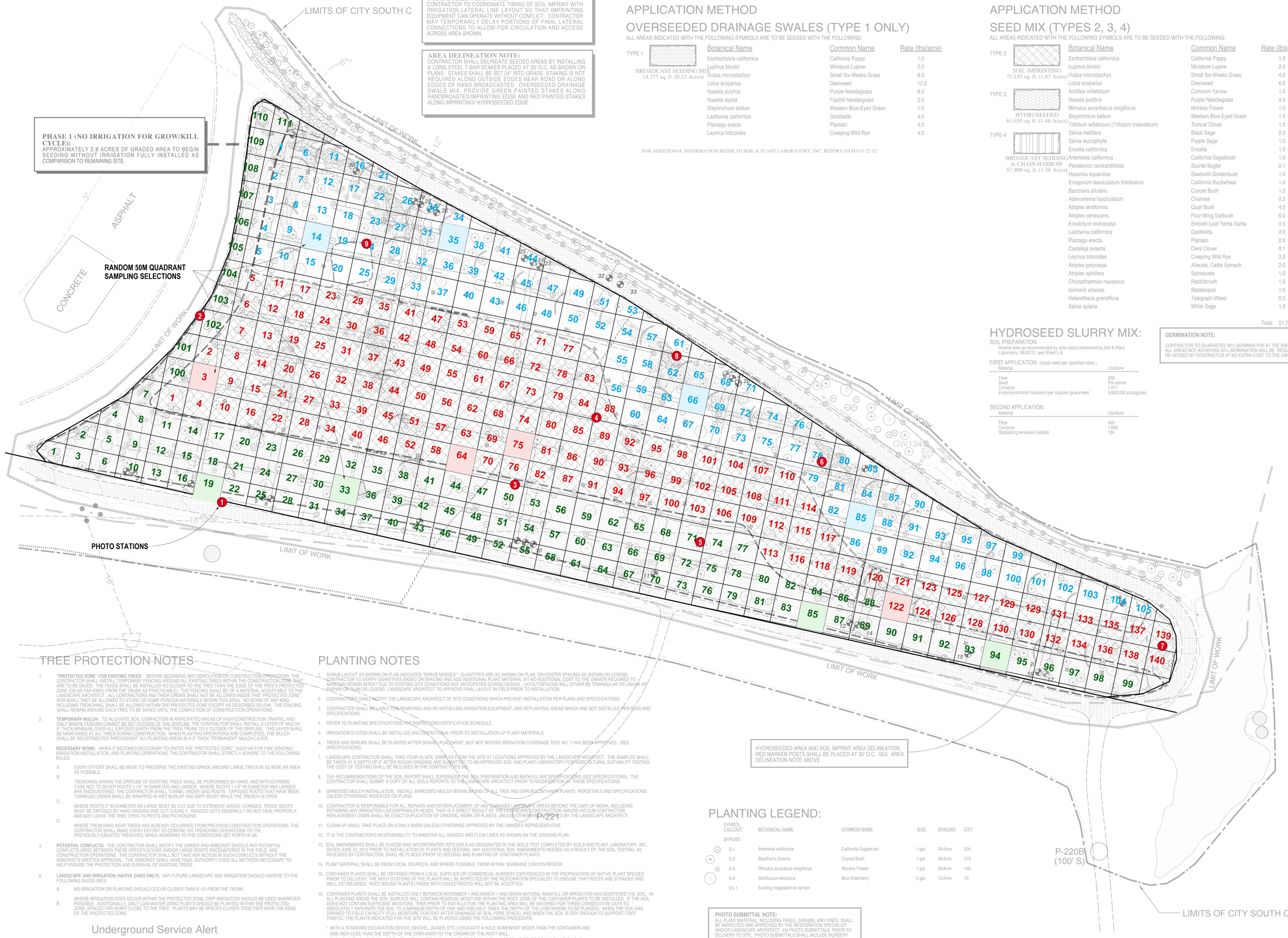
Quadrat Method: Averaged Data

Hydroseed (A,B,C,D)	Species	Size (sq. meters)	% basal (shrub)	% basal (herb.)	% Bare	% Rock/ unusable	% canopy (shrub)	% canopy (herb.)	Photo #
Average		**200**	**11%**	**4%**	**48%**	**4%**	**58%**	**<1**	**1-4**
	Acmispon glaber								
	Adenostema fasciculatum								
	Achillia mellifoluim						1%		
	Artemisia californica						1%		
	Atriplex lentiformis						36%		
	Atriplex polycarpa						14%		
	Atriplex spinosa						1%		
	Baccharis pilularis						1%		
	Encelia californica								
	Eschscholzia californica								
	Leymus triticoides								
	Mimulus aurantiacus longiflorus								
	Nasella pulchra								
	Salsola ssp.						1%		
	Salvia mellifera								
	Sisyrinchium bellum								
	Echinochloa crus-galli						1%		
	Other herb							1%	

Imprint (E,F,G,H)	Species	Size (sq. meters)	% basal (shrub)	% basal (herb.)	% Bare	% Rock/ unusable	% canopy (shrub)	% canopy (herb.)	Photo #
Average		**200**	**15%**	**6%**	**61%**	**6%**	**47%**	**1%**	**5-8**
	Adenostema fasciculatum								
	Achillia mellifoluim								
	Artemisia californica						1%		
	Atriplex lentiformis						20%		
	Atriplex polycarpa						21%		
	Atriplex spinosa						1%		
	Baccharis pilularis						1%		
	Encelia californica						1%		
	Eschscholzia californica								
	Eriogonum fasciculatum						1%		
	Leymus triticoides						1%		
	Mimulus aurantiacus longiflorus						1%		
	Nasella pulchra								
	Echinochoa crus-galli								
	Sisyrinchium bellum								
	Salvia apiana						1%		
	Salvia leucophylla						1%		
	Salvia mellifera						1%		
	Vulpia microstachys								
	Other herb							1%	

Hand Broadcast (I,J,K,L) Average	Species	Size (sq. meters)	% basal (shrub)	% basal (herb.)	% Bare	% Rock/ unusable	% canopy (shrub)	% canopy (herb.)	Photo #
		200	**21%**	**19%**	**34%**	**4%**	**68%**	**13%**	**`9-12**
	Adenostema fasciculatum						1%		
	Achillia mellifoluim								
	Artemisia californica						2%		
	Atriplex lentiformis						39%		
	Atriplex polycarpa						23%		
	Atriplex spinosa								
	Baccharis pilularis						3%		
	Encelia californica						1%		
	Eschscholzia californica								
	Leymus triticoides							9%	
	Mimulus aurantiacus longiflorus								
	Nasella pulchra								
	Salsola spp.								
	Salvia apiana						1%		
	Salvia leucophylla						1%		
	Salvia mellifera						1%		
	Sisyrinchium bellum								
	Echinochloa crus-galli								
	Other herb							4%	

City South 'C' Trial Plot Planting Plan and Quadrat Layout



TYPE 2 SEED MIX NOTE:
CONTRACTOR TO COORDINATE TIMING OF SOIL IMPRINT WITH IRRIGATION LATERAL LINE LAYOUT SO THAT IMPRINTING EQUIPMENT CAN OPERATE WITHOUT CONFLICT. CONTRACTOR MAY TEMPORARILY DELAY PORTIONS OF FINAL LATERAL CONNECTIONS TO ALLOW FOR CIRCULATION AND ACCESS ACROSS AREA SHOWN.

AREA DELINEATION NOTE:
CONTRACTOR SHALL DELINEATE SEEDED AREAS BY INSTALLING 9' LONG STEEL T-BAR STAKES PLACED AT 30' O.C. AS SHOWN ON PLANS. STAKES SHALL BE SET 24" INTO GRADE. STAKING IS NOT REQUIRED ALONG OUTSIDE EDGES NEAR ROAD OR ALONG EDGES OF HAND BROADCASTED OVERSEEDED DRAINAGE SWALE MIX. PROVIDE GREEN PAINTED STAKES ALONG HANDBROASTED/IMPRINTING EDGE AND RED PAINTED STAKES ALONG IMPRINTING/ HYDROSEEDED EDGE.

APPLICATION METHOD
OVERSEEDED DRAINAGE SWALES (TYPE 1 ONLY)

ALL AREAS INDICATED WITH THE FOLLOWING SYMBOLS ARE TO BE SEEDED WITH THE FOLLOWING:

TYPE 1
BROADCAST SEEDING MIX
14,375 sq. ft. (0.33 Acres)

Botanical Name	Common Name	Rate (lbs/acre)
Eschscholzia californica	California Poppy	1.0
Lupinus bicolor	Miniature Lupine	2.0
Vulpia microstachys	Small Six-Weeks Grass	8.0
Lotus scoparius	Deerweed	12.0
Nasella pulchra	Purple Needlegrass	8.0
Nasella lepida	Foothill Neddelgrass	2.0
Sisyrinchium bellum	Western Blue-Eyed Grass	1.0
Lasthenia californica	Goldfields	4.0
Plantago erecta	Plantain	4.0
Leymus triticoides	Creeping Wild Rye	4.0

FOR ADDITIONAL INFORMATION REFER TO SOIL & PLANT LABORATORY, INC. REPORT DATED 6-22-12

APPLICATION METHOD
SEED MIX (TYPES 2, 3, 4)

ALL AREAS INDICATED WITH THE FOLLOWING SYMBOLS ARE TO BE SEEDED WITH THE FOLLOWING:

TYPE 2
SOIL IMPRINTING
71,145 sq. ft. (1.63 Acres)

TYPE 3
HYDROSEEDED
63,650 sq. ft. (1.46 Acres)

TYPE 4
BROADCAST SEDDING & CHAIN HARROW
67,800 sq. ft. (1.56 Acres)

Botanical Name	Common Name	Rate (lbs/acre)
Eschscholzia californica	California Poppy	1.0
Lupinus bicolor	Miniature Lupine	2.0
Vulpia microstachys	Small Six-Weeks Grass	4.0
Lotus scoparius	Deerweed	6.0
Achillea millefolium	Common Yarrow	1.0
Nasella pulchra	Purple Needlegrass	4.0
Mimulus aurantiacus longiflorus	Monkey Flower	1.0
Sisyrinchium bellum	Western Blue-Eyed Grass	1.0
Trifolium willdenovii (Trifolium tridentatum)	Tomcat Clover	1.0
Salvia mellifera	Black Sage	2.0
Salvia leucophylla	Purple Sage	1.0
Encelia californica	Encelia	1.0
Artemesia californica	California Sagebrush	1.0
Penstemon centranthifolia	Scarlet Bugler	0.1
Hazardia squarrosa	Sawtooth Goldenbush	1.0
Eriogonum fasciculatum foliolosium	California Buckwheat	1.0
Baccharis pilularis	Coyote Bush	1.0
Adenostema fasciculatum	Chamise	0.5
Atriplex lentiformis	Quail Bush	4.0
Atriplex canescens	Four-Wing Saltbush	6.0
Eriodictyon trichocalyx	Smooth-Leaf Yerba Santa	0.5
Lasthenia californica	Goldfields	2.0
Plantago erecta	Plantain	2.0
Casteleja exserta	Owls Clover	0.1
Leymus triticoides	Creeping Wild Rye	2.0
Atriplex polycarpa	Allscale, Cattle Spinach	2.0
Atriplex spinifera	Spinescale	1.0
Chrysothamnus nauseous	Rabbitbrush	1.0
Isomeris arborea	Bladderpod	1.0
Heterotheca grandiflora	Telegraph Weed	0.5
Salvia apiana	White Sage	1.0
	Total:	51.7

HYDROSEED SLURRY MIX:

SOIL PREPARATION:
Amend soils as recommended by soils report performed by Soil & Plant Laboratory, 06/22/12, see Sheet L-8.

FIRST APPLICATION: (Apply seed per specified rates.)

Material	Lbs/Acre
Fiber	268
Seed	Per above
Compost	1,071
Endomycorrhizal Inoculum (per supplier guarantee)	3,600,000 propagules

SECOND APPLICATION:

Material	Lbs/Acre
Fiber	400
Compost	1,600
Stabalizing emulsion (solids)	134

GERMINATION NOTE:
CONTRACTOR TO GUARANTEE 90% GERMINATION AT THE END OF 90 DAYS. ALL AREAS NOT ACHIEVING 90% GERMINATION WILL BE REQUIRED TO BE RE-SEEDED BY CONTRACTOR AT NO EXTRA COST TO THE OWNER.

TREE PROTECTION NOTES

1. **"PROTECTED ZONE" FOR EXISTING TREES:** BEFORE BEGINNING ANY DEMOLITION OR CONSTRUCTION OPERATIONS, THE CONTRACTOR SHALL INSTALL TEMPORARY FENCING AROUND ALL EXISTING TREES WITHIN THE CONSTRUCTION ZONE THAT ARE TO BE SAVED. THE FENCE SHALL BE INSTALLED NO CLOSER TO THE TREE THAN THE EDGE OF THE TREE'S PROTECTED ZONE (OR AS FAR AWAY FROM THE TRUNK AS PRACTICABLE). THE FENCING SHALL BE OF A MATERIAL ACCEPTABLE TO THE LANDSCAPE ARCHITECT. ALL CONTRACTORS AND THEIR CREWS SHALL NOT BE ALLOWED INSIDE THIS "PROTECTED ZONE", NOR SHALL THEY BE ALLOWED TO STORE OR DUMP FOREIGN MATERIALS WITHIN THIS AREA. NO WORK OF ANY KIND, INCLUDING TRENCHING, SHALL BE ALLOWED WITHIN THE PROTECTED ZONE EXCEPT AS DESCRIBED BELOW. THE FENCING SHALL REMAIN AROUND EACH TREE TO BE SAVED UNTIL THE COMPLETION OF CONSTRUCTION OPERATIONS.
2. **TEMPORARY MULCH:** TO ALLEVIATE SOIL COMPACTION IN ANTICIPATED AREAS OF HIGH CONSTRUCTION TRAFFIC, AND ONLY WHERE FENCING CANNOT BE SET OUTSIDE OF THE DRIPLINE THE CONTRACTOR SHALL INSTALL A LAYER OF MULCH, 9" THICK MINIMUM, OVER ALL EXPOSED EARTH FROM THE TREE TRUNK TO 5' OUTSIDE OF THE DRIPLINE. THIS LAYER SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION. WHEN PLANTING OPERATIONS ARE COMPLETED, THE MULCH SHALL BE REDISTRIBUTED THROUGHOUT ALL PLANTING AREAS IN A 3" THICK "PERMANENT" MULCH LAYER.
3. **NECESSARY WORK:** WHEN IT BECOMES NECESSARY TO ENTER THE "PROTECTED ZONE", SUCH AS FOR FINE GRADING, IRRIGATION INSTALLATION, AND PLANTING OPERATIONS, THE CONTRACTOR SHALL STRICTLY ADHERE TO THE FOLLOWING RULES:
   A. EVERY EFFORT SHALL BE MADE TO PRESERVE THE EXISTING GRADE AROUND LARGE TREES IN AS WIDE AN AREA AS POSSIBLE.
   B. TRENCHING WITHIN THE DRIPLINE OF EXISTING TREES SHALL BE PERFORMED BY HAND, AND WITH EXTREME CARE NOT TO SEVER ROOTS 1-1/2" IN DIAMETER AND LARGER. WHERE ROOTS 1-1/2" IN DIAMETER AND LARGER ARE ENCOUNTERED, THE CONTRACTOR SHALL TUNNEL UNDER SAID ROOTS. EXPOSED ROOTS THAT HAVE BEEN TUNNELED UNDER SHALL BE WRAPPED IN WET BURLAP AND KEPT MOIST WHILE THE TRENCH IS OPEN.
   C. WHERE ROOTS 2" IN DIAMETER OR LARGE MUST BE CUT DUE TO EXTENSIVE GRADE CHANGES, THOSE ROOTS MUST BE EXPOSED BY HAND DIGGING AND CUT CLEANLY. RAGGED CUTS GENERALLY DO NOT HEAL PROPERLY, AND MAY LEAVE THE TREE OPEN TO PESTS AND PATHOGENS.
   D. WHERE TRENCHING NEAR TREES HAS ALREADY OCCURRED FROM PREVIOUS CONSTRUCTION OPERATIONS, THE CONTRACTOR SHALL MAKE EVERY EFFORT TO CONFINE HIS TRENCHING OPERATIONS TO THE PREVIOUSLY-CREATED TRENCHES, WHILE ADHERING TO THE CONDITIONS SET FORTH IN 3B.
4. **POTENTIAL CONFLICTS:** THE CONTRACTOR SHALL NOTIFY THE OWNER AND ARBORIST SHOULD ANY POTENTIAL CONFLICTS ARISE BETWEEN THESE SPECIFICATIONS AND/OR LARGE ROOTS ENCOUNTERED IN THE FIELD, AND CONSTRUCTION OPERATIONS. THE CONTRACTOR SHALL NOT TAKE ANY ACTION IN SUCH CONFLICTS WITHOUT THE ARBORIST'S WRITTEN APPROVAL. THE ARBORIST SHALL HAVE FINAL AUTHORITY OVER ALL METHODS NECESSARY TO HELP ENSURE THE PROTECTION AND SURVIVAL OF EXISTING TREES.
6. **LANDSCAPE AND IRRIGATION (NATIVE OAKS ONLY):** ANY FUTURE LANDSCAPE AND IRRIGATION SHOULD ADHERE TO THE FOLLOWING GUIDELINES:
   A. NO IRRIGATION OR PLANTING SHOULD OCCUR CLOSER THAN 8'-10' FROM THE TRUNK.
   B. WHERE IRRIGATION DOES OCCUR WITHIN THE PROTECTED ZONE, DRIP IRRIGATION SHOULD BE USED WHEREVER POSSIBLE. ADDITIONALLY, ONLY LOW-WATER USING PLANTS SHOULD BE PLANTED WITHIN THE PROTECTED ZONE, SPACED FAR APART CLOSE TO THE TREE. PLANTS MAY BE SPACED CLOSER TOGETHER NEAR THE EDGE OF THE PROTECTED ZONE.

Underground Service Alert
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1-800 422-4133
TWO WORKING DAYS BEFORE YOU DIG

PLANTING NOTES

1. SHRUB LAYOUT AS SHOWN ON PLAN INDICATES "SHRUB MASSES." QUANTITIES ARE AS SHOWN ON PLAN, ON-CENTER SPACING AS SHOWN ON LEGEND. CONTRACTOR TO VERIFY QUANTITIES BASED ON SPACING AND ADD ADDITIONAL PLANT MATERIAL (AT NO ADDITIONAL COST TO THE OWNER) REQUIRED TO MAINTAIN DESIGN INTENT DUE TO EXISTING SITE CONDITIONS NOT ANTICIPATED DURING DESIGN. LAYOUT/SPACING WILL EITHER BE TRIANGULAR OR LINEAR AS SHOWN ON PLAN OR LEGEND. LANDSCAPE ARCHITECT TO APPROVE FINAL LAYOUT IN FIELD PRIOR TO INSTALLATION.
2. CONTRACTORS SHALL NOTIFY THE LANDSCAPE ARCHITECT OF SITE CONDITIONS WHICH PREVENT INSTALLATION PER PLANS AND SPECIFICATIONS.
3. CONTRACTOR SHALL BE LIABLE FOR REMOVING AND RE-INSTALLING IRRIGATION EQUIPMENT, AND REPLANTING AREAS WHICH ARE NOT INSTALLED PER PLAN AND SPECIFICATIONS.
4. REFER TO PLANTING SPECIFICATIONS FOR INSPECTION/CERTIFICATION SCHEDULE.
5. IRRIGATION SYSTEM SHALL BE INSTALLED AND OPERATIONAL PRIOR TO INSTALLATION OF PLANT MATERIALS.
6. TREES AND SHRUBS SHALL BE PLANTED AFTER GRAVEL PLACEMENT, BUT NOT BEFORE IRRIGATION COVERAGE TEST NO. 1 HAS BEEN APPROVED. (SEE SPECIFICATIONS).
7. LANDSCAPE CONTRACTOR SHALL TAKE FOUR (4) SOIL SAMPLES FROM THE SITE AT LOCATIONS APPROVED BY THE LANDSCAPE ARCHITECT. THE SAMPLES SHALL BE TAKEN AT A DEPTH OF 6" AFTER ROUGH GRADING AND SUBMITTED TO AN APPROVED SOIL AND PLANT LABORATORY FOR AGRICULTURAL SUITABILITY TESTING. THE COST OF TESTING SHALL BE INCLUDED IN THE CONTRACTOR'S BID.
8. THE RECOMMENDATIONS OF THE SOIL REPORT SHALL SUPERSEDE THE SOIL PREPARATION AND BACKFILL MIX SPECIFICATIONS (SEE SPECIFICATIONS). THE CONTRACTOR SHALL SUBMIT A COPY OF ALL SOILS REPORTS TO THE LANDSCAPE ARCHITECT PRIOR TO MODIFICATION OF THESE SPECIFICATIONS.
9. SHREDDED MULCH INSTALLATION: INSTALL SHREDDED MULCH WITHIN BASINS OF ALL TREE AND SHRUB CONTAINER PLANTS PERDETAILS AND SPECIFICATIONS UNLESS OTHERWISE INDICATED ON PLANS.
10. CONTRACTOR IS RESPONSIBLE FOR ALL REPAIRS AND/OR REPLACEMENT OF ANY DAMAGED LANDSCAPE AREAS BEYOND THE LIMIT OF WORK, INCLUDING REPAIRING ANY IRRIGATION LINES/SPRINKLER HEADS, THAT IS A DIRECT RESULT OF THE LANDSCAPE CONSTRUCTION AND/OR HIS SUB-CONTRACTOR. REPLACEMENT ITEMS SHALL BE EXACT DUPLICATION OF ORIGINAL WORK OR PLANTS, UNLESS OTHERWISE APPROVED BY THE LANDSCAPE ARCHITECT.
11. CLEAN-UP SHALL TAKE PLACE ON A DAILY BASIS UNLESS OTHERWISE APPROVED BY THE OWNER'S REPRESENTATIVE.
12. IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN ALL GRADES AND FLOW LINES AS SHOWN ON THE GRADING PLAN.
13. SOIL AMENDMENTS SHALL BE PLACED AND INCORPORATED INTO SOILS AS DESIGNATED IN THE SOILS TEST COMPLETED BY SOILS AND PLANT LABORATORY, INC. DATED JUNE 22, 2012 PRIOR TO INSTALLATION OF PLANTS AND SEEDING. ANY ADDITIONAL SOIL AMENDMENTS NEEDED AS A RESULT OF THE SOIL TESTING, AS REQUIRED BY CONTRACTOR, SHALL BE PLACED PRIOR TO SEEDING AND PLANTING OF CONTAINER PLANTS.
14. PLANT MATERIAL SHALL BE FROM LOCAL SOURCES, AND WHERE POSSIBLE, FROM WITHIN SUNSHINE CANYON REGION.
15. CONTAINER PLANTS SHALL BE OBTAINED FROM A LOCAL SUPPLIER OR COMMERCIAL NURSERY EXPERIENCED IN THE PROPAGATION OF NATIVE PLANT SPECIES. PRIOR TO DELIVERY, THE ROOT SYSTEMS OF THE PLANTS WILL BE INSPECTED BY THE RESTORATION SPECIALIST TO ENSURE THAT ROOTS ARE STRAIGHT AND WELL ESTABLISHED. ROOT-BOUND PLANTS (THOSE WITH COILED ROOTS) WILL NOT BE ACCEPTED.
16. CONTAINER PLANTS SHALL BE INSTALLED ONLY BETWEEN NOVEMBER 1 AND MARCH 1 AND WHEN NATURAL RAINFALL OR IRRIGATION HAS MOISTENED THE SOIL. IN ALL PLANTING AREAS THE SOIL SURFACE WILL CONTAIN RESIDUAL MOISTURE WITHIN THE ROOT ZONE OF THE CONTAINER PLANTS TO BE INSTALLED. IF THE SOIL DOES NOT CONTAIN SUFFICIENT MOISTURE, THEN PRIOR TO INSTALLATION THE PLANTING AREA WILL BE WATERED FOR THREE CONSECUTIVE DAYS TO ADEQUATELY SATURATE THE SOIL TO A MINIMUM DEPTH OF ONE AND ONE-HALF TIMES THE DEPTH OF THE CONTAINERS TO BE PLANTED. WHEN THE SOIL HAS DRAINED TO FIELD CAPACITY (FULL MOISTURE CONTENT AFTER DRAINAGE OF SOIL PORE SPACE), AND WHEN THE SOIL IS DRY ENOUGH TO SUPPORT FOOT TRAFFIC, THE PLANTS INDICATED FOR THE SITE WILL BE PLANTED USING THE FOLLOWING PROCEDURE:
   - WITH A STANDARD EXCAVATION DEVICE (SHOVEL, AUGER, ETC.) EXCAVATE A HOLE SOMEWHAT WIDER THAN THE CONTAINER AND ONE INCH LESS THAN THE DEPTH OF THE CONTAINER TO THE CROWN OF THE ROOT BALL.
   - EACH PLANTING HOLE WILL BE FILLED WITH WATER AND ALLOWED TO DRAIN UNTIL NO FREE MOISTURE REMAINS IN THE HOLE.
   - IMMEDIATELY AFTER DRAINING, THE PLANT WILL BE REMOVED CAREFULLY FROM ITS CONTAINER AND THE ROOT VOLUME LOOSENED SOMEWHAT WITH GENTLE PRESSURE ON THE SIDES OF THE ROOT MASS.
   - THE PLANT WILL IMMEDIATELY BE PLACED IN THE PLANTING HOLE SO THAT THE TOP OF THE CONTAINER SURFACE WILL BE SLIGHTLY HIGHER THAN THE SOIL SURFACE AFTER REFILLING.
   - BACKFILL THE HOLE WITH NATIVE SOIL, MINIMIZING LARGE ORGANIC AND ROCK MATTER THAT MAY INHIBIT ROOT GROWTH.
   - FIRMLY PRESS DOWN SOIL AROUND THE ROOT-BALL TO ELIMINATE AIR SPACE WITHIN THE SOIL AND TO ENSURE GOOD ROOT TO SOIL CONTACT.
   - MAKE SURE THAT THE CROWN OF THE ROOT MASS IS AT OR SLIGHTLY ABOVE GRADE.
   - CREATE A STRUCTURAL BASIN AT THE OUTSIDE EDGE OF THE ROOT BALL TO SEQUESTER RAINWATER IN A LOCATION WHERE IT WILL INFILTRATE THE ROOT BALL.
   - DO NOT CREATE A DEPRESSION THAT WILL CAUSE WATER TO POND IN DIRECT CONTACT WITH THE STEM OF THE PLANT.

HYDROSEEDED AREA AND SOIL IMPRINT AREA DELINEATION, RED MARKER POSTS SHALL BE PLACED AT 30' O.C. SEE AREA DELINEATION NOTE ABOVE.

PLANTING LEGEND:

SYMBOL CALLOUT	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	QTY
SHRUBS					
S-1	Artemisia californica	California Sagebrush	1 gal.	50/Acre	234
S-2	Baccharis pilularis	Coyote Bush	1 gal.	45/Acre	210
S-3	Mimulus auranticus longiflorus	Monkey Flower	1 gal.	30/Acre	140
S-4	Sambucus mexicana	Blue Elderberry	5 gal.	15/Acre	70
EX-1	Existing Vegetation to remain				

PHOTO SUBMITTAL NOTE:
ALL PLANT MATERIAL, INCLUDING TREES, SHRUBS, AND VINES, SHALL BE INSPECTED AND APPROVED BY THE RESTORATION SPECIALIST AND/OR LANDSCAPE ARCHITECT, VIA PHOTO SUBMITTALS, PRIOR TO DELIVERY TO SITE. PHOTO SUBMITTALS SHALL INCLUDE NURSERY SUPPLIER AND DATE OF PHOTOS. ANY MATERIAL DELIVERED TO SITE WITHOUT APPROVAL IS SUBJECT TO REJECTION. PHOTO SUBMITTALS SHALL BE SENT TO RESTORATION SPECIALIST AND/OR LANDSCAPE ARCHITECT A MINIMUM OF 48 HOURS PRIOR TO SHIPMENT OF MATERIAL. SUBMITTALS SHOULD INCLUDE SOME TYPE OF SCALE REFERENCE IN PHOTO (I.E. PERSON, MEASURING TAPE, ETC.). TREES SHALL BE NOTED WITH HEIGHT (FROM FINISH GRADE IN CONTAINER) AND CANOPY HEAD SIZE. LANDSCAPE ARCHITECT SHALL BE NOTIFIED OF SCHEDULED NURSERY DELIVERY TIMES A MINIMUM OF 24 HOURS PRIOR TO SHIPMENT. REFER TO PLANTING SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS REGARDING QUALITY OF NURSERY STOCK.

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PLAN CROSS REFERENCES

FOR NOTES AND LEGENDS, SEE THIS SHEET
FOR DETAILS, SEE SHEET L-8
FOR CORRESPONDING GRADING PLAN SEE SHEET L-2
FOR CORRESPONDING IRRIGATION PLAN SEE SHEET L-5

NORTH

ARCHITERRA DESIGN GROUP
LANDSCAPE ARCHITECTURE
SITE PLANNING
10221-A Trademark Street
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(909) 484-2800
Fax (909) 484-2802
Richard Krumwiede
CA Lic.# 3934
AZ Lic.# 32615
NV Lic.# 446
TX Lic.# 1684

L.A. SEAL

LICENSED LANDSCAPE ARCHITECT Richard W. Krumwiede 3934 Signature 7-31-14 Renewal Date 4-30-12 Date STATE OF CALIFORNIA

PROJECT / CLIENT

CITY SOUTH C TRIAL PLOT
SUNSHINE CANYON LANDFILL
14747 SAN FERNANDO ROAD
SYLMAR, CA 91342

SHEET TITLE

PLANTING PLAN

REVISIONS

DRAWN BY
GPD/JGG

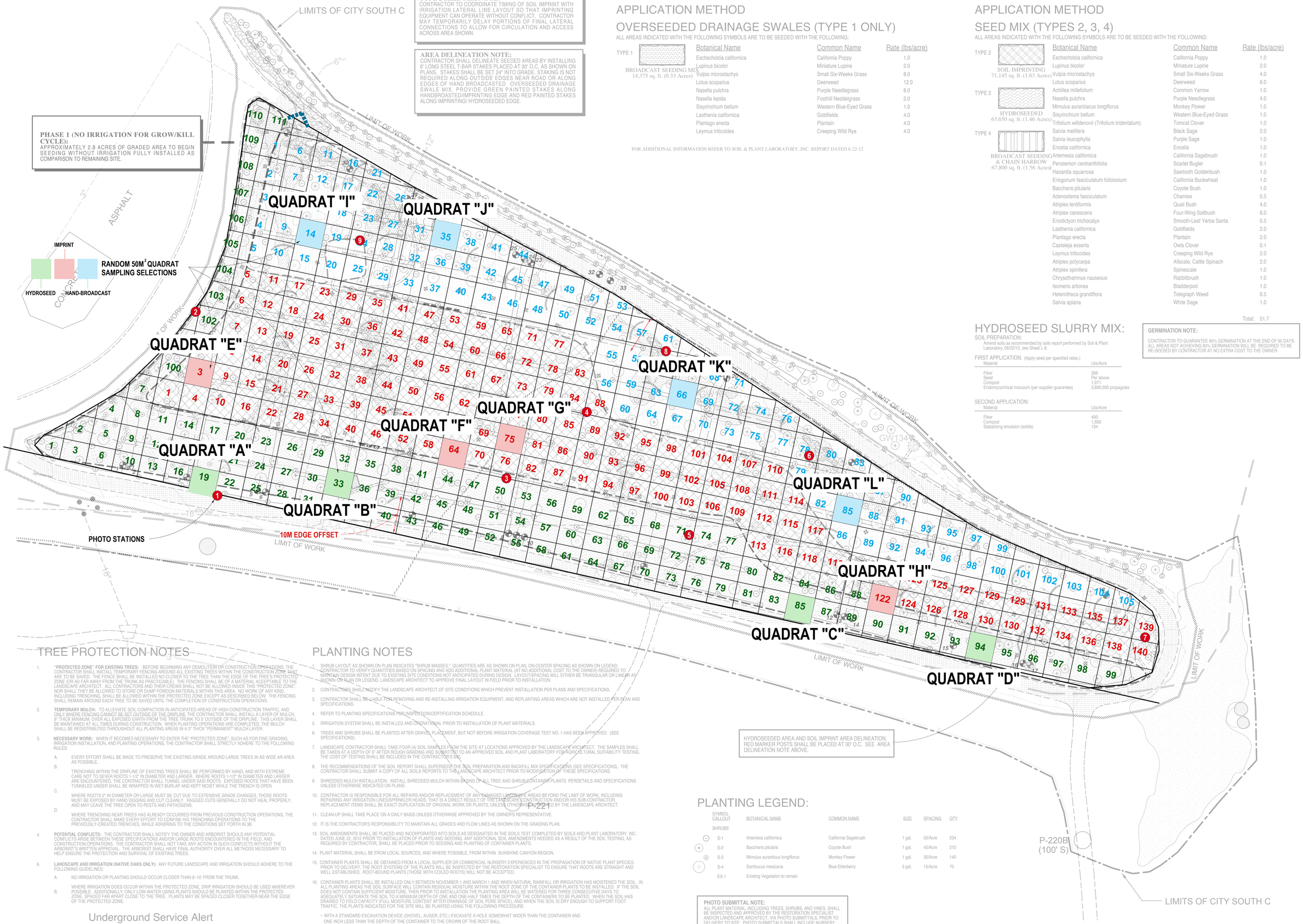
CHECKED BY
JRC

DATE
9/28/12

SCALE
1" = 30'

JOB NUMBER
1214

SHEET NUMBER
L-7
7 OF 8 SHTS.



APPLICATION METHOD

OVERSEEDED DRAINAGE SWALES (TYPE 1 ONLY)

ALL AREAS INDICATED WITH THE FOLLOWING SYMBOLS ARE TO BE SEEDED WITH THE FOLLOWING:

TYPE 1 — BROADCAST SEEDING 14,375 sq. ft. (0.33 Acres)

Botanical Name	Common Name	Rate (lbs/acre)
Eschscholzia californica	California Poppy	1.0
Lupinus bicolor	Miniature Lupine	2.0
Vulpia microstachys	Small Six-Weeks Grass	8.0
Lotus scoparius	Deerweed	12.0
Nasella pulchra	Purple Needlegrass	8.0
Nasella lepida	Foothill Neddelgrass	2.0
Sisyrinchium bellum	Western Blue-Eyed Grass	1.0
Lasthenia californica	Goldfields	4.0
Plantago erecta	Plantain	4.0
Leymus triticoides	Creeping Wild Rye	4.0

FOR ADDITIONAL INFORMATION REFER TO SOIL & PLANT LABORATORY, INC. REPORT DATED 6-22-12

APPLICATION METHOD

SEED MIX (TYPES 2, 3, 4)

ALL AREAS INDICATED WITH THE FOLLOWING SYMBOLS ARE TO BE SEEDED WITH THE FOLLOWING:

TYPE 2 — SOIL IMPRINTING 71,145 sq. ft. (1.63 Acres)
TYPE 3 — HYDROSEEDED 63,650 sq. ft. (1.46 Acres)
TYPE 4 — BROADCAST SEDDING & CHAIN HARROW 67,800 sq. ft. (1.56 Acres)

Botanical Name	Common Name	Rate (lbs/acre)
Eschscholzia californica	California Poppy	1.0
Lupinus bicolor	Miniature Lupine	2.0
Vulpia microstachys	Small Six-Weeks Grass	4.0
Lotus scoparius	Deerweed	6.0
Achillea millefolium	Common Yarrow	1.0
Nasella pulchra	Purple Needlegrass	4.0
Mimulus aurantiacus longiflorus	Monkey Flower	1.0
Sisyrinchium bellum	Western Blue-Eyed Grass	1.0
Trifolium willdenovii (Trifolium tridentatum)	Tomcat Clover	1.0
Salvia mellifera	Black Sage	2.0
Salvia leucophylla	Purple Sage	1.0
Encelia californica	Encelia	1.0
Artemesia californica	California Sagebrush	1.0
Penstemon centranthifolia	Scarlet Bugler	0.1
Hazardia squarrosa	Sawtooth Goldenbush	1.0
Eriogonum fasciculatum foliolosium	California Buckwheat	1.0
Baccharis pilularis	Coyote Bush	1.0
Adenostema fasciculatum	Chamise	0.5
Atriplex lentiformis	Quail Bush	4.0
Atriplex canescens	Four-Wing Saltbush	6.0
Eriodictyon trichocalyx	Smooth-Leaf Yerba Santa	0.5
Lasthenia californica	Goldfields	2.0
Plantago erecta	Plantain	2.0
Casteleja exserta	Owls Clover	0.1
Leymus triticoides	Creeping Wild Rye	2.0
Atriplex polycarpa	Allscale, Cattle Spinach	2.0
Atriplex spinifera	Spinescale	1.0
Chrysothamnus nauseous	Rabbitbrush	1.0
Isomeris arborea	Bladderpod	1.0
Heterotheca grandiflora	Telegraph Weed	0.5
Salvia apiana	White Sage	1.0
	Total:	51.7

HYDROSEED SLURRY MIX:

SOIL PREPARATION:
Amend soils as recommended by soils report performed by Soil & Plant Laboratory, 06/22/12, see Sheet L-8.

FIRST APPLICATION: (Apply seed per specified rates.)

Material	Lbs/Acre
Fiber	268
Seed	Per above
Compost	1,071
Endomycorrhizal Inoculum (per supplier guarantee)	3,600,000 propagules

SECOND APPLICATION:

Material	Lbs/Acre
Fiber	400
Compost	1,600
Stabalizing emulsion (solids)	134

GERMINATION NOTE:
CONTRACTOR TO GUARANTEE 90% GERMINATION AT THE END OF 90 DAYS. ALL AREAS NOT ACHIEVING 90% GERMINATION WILL BE REQUIRED TO BE RE-SEEDED BY CONTRACTOR AT NO EXTRA COST TO THE OWNER.

TREE PROTECTION NOTES

1. **"PROTECTED ZONE" FOR EXISTING TREES:** BEFORE BEGINNING ANY DEMOLITION OR CONSTRUCTION OPERATIONS, THE CONTRACTOR SHALL INSTALL TEMPORARY FENCING AROUND ALL EXISTING TREES WITHIN THE CONSTRUCTION ZONE THAT ARE TO BE SAVED. THE FENCE SHALL BE INSTALLED NO CLOSER TO THE TREE THAN THE EDGE OF THE TREE'S PROTECTED ZONE (OR AS FAR AWAY FROM THE TRUNK AS PRACTICABLE). THE FENCING SHALL BE OF A MATERIAL ACCEPTABLE TO THE LANDSCAPE ARCHITECT. ALL CONTRACTORS AND THEIR CREWS SHALL NOT BE ALLOWED INSIDE THIS "PROTECTED ZONE", NOR SHALL THEY BE ALLOWED TO STORE OR DUMP FOREIGN MATERIALS WITHIN THIS AREA. NO WORK OF ANY KIND, INCLUDING TRENCHING, SHALL BE ALLOWED WITHIN THE PROTECTED ZONE EXCEPT AS DESCRIBED BELOW. THE FENCING SHALL REMAIN AROUND EACH TREE TO BE SAVED UNTIL THE COMPLETION OF CONSTRUCTION OPERATIONS.
2. **TEMPORARY MULCH:** TO ALLEVIATE SOIL COMPACTION IN ANTICIPATED AREAS OF HIGH CONSTRUCTION TRAFFIC, AND ONLY WHERE FENCING CANNOT BE SET OUTSIDE OF THE DRIPLINE, THE CONTRACTOR SHALL INSTALL A LAYER OF MULCH, 9" THICK MINIMUM, OVER ALL EXPOSED EARTH FROM THE TREE TRUNK TO 5' OUTSIDE OF THE DRIPLINE. THIS LAYER SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION. WHEN PLANTING OPERATIONS ARE COMPLETED, THE MULCH SHALL BE REDISTRIBUTED THROUGHOUT ALL PLANTING AREAS IN A 3" THICK "PERMANENT" MULCH LAYER.
3. **NECESSARY WORK:** WHEN IT BECOMES NECESSARY TO ENTER THE "PROTECTED ZONE", SUCH AS FOR FINE GRADING, IRRIGATION INSTALLATION, AND PLANTING OPERATIONS, THE CONTRACTOR SHALL STRICTLY ADHERE TO THE FOLLOWING RULES:
   - A. EVERY EFFORT SHALL BE MADE TO PRESERVE THE EXISTING GRADE AROUND LARGE TREES IN AS WIDE AN AREA AS POSSIBLE.
   - B. TRENCHING WITHIN THE DRIPLINE OF EXISTING TREES SHALL BE PERFORMED BY HAND, AND WITH EXTREME CARE NOT TO SEVER ROOTS 1-1/2" IN DIAMETER AND LARGER. WHERE ROOTS 1-1/2" IN DIAMETER AND LARGER ARE ENCOUNTERED, THE CONTRACTOR SHALL TUNNEL UNDER SAID ROOTS. EXPOSED ROOTS THAT HAVE BEEN TUNNELED UNDER SHALL BE WRAPPED IN WET BURLAP AND KEPT MOIST WHILE THE TRENCH IS OPEN.
   - C. WHERE ROOTS 2" IN DIAMETER OR LARGE MUST BE CUT DUE TO EXTENSIVE GRADE CHANGES, THOSE ROOTS MUST BE EXPOSED BY HAND DIGGING AND CUT CLEANLY. RAGGED CUTS GENERALLY DO NOT HEAL PROPERLY, AND MAY LEAVE THE TREE OPEN TO PESTS AND PATHOGENS.
   - D. WHERE TRENCHING NEAR TREES HAS ALREADY OCCURRED FROM PREVIOUS CONSTRUCTION OPERATIONS, THE CONTRACTOR SHALL MAKE EVERY EFFORT TO CONFINE HIS TRENCHING OPERATIONS TO THE PREVIOUSLY-CREATED TRENCHES, WHILE ADHERING TO THE CONDITIONS SET FORTH IN 3B.
4. **POTENTIAL CONFLICTS:** THE CONTRACTOR SHALL NOTIFY THE OWNER AND ARBORIST SHOULD ANY POTENTIAL CONFLICTS ARISE BETWEEN THESE SPECIFICATIONS AND/OR LARGE ROOTS ENCOUNTERED IN THE FIELD, AND CONSTRUCTION OPERATIONS. THE CONTRACTOR SHALL NOT TAKE ANY ACTION IN SUCH CONFLICTS WITHOUT THE ARBORIST'S WRITTEN APPROVAL. THE ARBORIST SHALL HAVE FINAL AUTHORITY OVER ALL METHODS NECESSARY TO HELP ENSURE THE PROTECTION AND SURVIVAL OF EXISTING TREES.
6. **LANDSCAPE AND IRRIGATION (NATIVE OAKS ONLY):** ANY FUTURE LANDSCAPE AND IRRIGATION SHOULD ADHERE TO THE FOLLOWING GUIDELINES:
   - A. NO IRRIGATION OR PLANTING SHOULD OCCUR CLOSER THAN 8'-10' FROM THE TRUNK.
   - B. WHERE IRRIGATION DOES OCCUR WITHIN THE PROTECTED ZONE, DRIP IRRIGATION SHOULD BE USED WHEREVER POSSIBLE. ADDITIONALLY, ONLY LOW-WATER USING PLANTS SHOULD BE PLANTED WITHIN THE PROTECTED ZONE, SPACED FAR APART CLOSE TO THE TREE. PLANTS MAY BE SPACED CLOSER TOGETHER NEAR THE EDGE OF THE PROTECTED ZONE.

Underground Service Alert
Call: TOLL FREE
1-800 422-4133
TWO WORKING DAYS BEFORE YOU DIG

PLANTING NOTES

1. SHRUB LAYOUT AS SHOWN ON PLAN INDICATES "SHRUB MASSES." QUANTITIES ARE AS SHOWN ON PLAN, ON-CENTER SPACING AS SHOWN ON LEGEND. CONTRACTOR TO VERIFY QUANTITIES BASED ON SPACING AND ADD ADDITIONAL PLANT MATERIAL (AT NO ADDITIONAL COST TO THE OWNER) REQUIRED TO MAINTAIN DESIGN INTENT DUE TO EXISTING SITE CONDITIONS NOT ANTICIPATED DURING DESIGN. LAYOUT/SPACING WILL EITHER BE TRIANGULAR OR LINEAR AS SHOWN ON PLAN OR LEGEND. LANDSCAPE ARCHITECT TO APPROVE FINAL LAYOUT IN FIELD PRIOR TO INSTALLATION.
2. CONTRACTORS SHALL NOTIFY THE LANDSCAPE ARCHITECT OF SITE CONDITIONS WHICH PREVENT INSTALLATION PER PLANS AND SPECIFICATIONS.
3. CONTRACTOR SHALL BE LIABLE FOR REMOVING AND RE-INSTALLING IRRIGATION EQUIPMENT, AND REPLANTING AREAS WHICH ARE NOT INSTALLED PER PLAN AND SPECIFICATIONS.
4. REFER TO PLANTING SPECIFICATIONS FOR INSPECTION/CERTIFICATION SCHEDULE.
5. IRRIGATION SYSTEM SHALL BE INSTALLED AND OPERATIONAL PRIOR TO INSTALLATION OF PLANT MATERIALS.
6. TREES AND SHRUBS SHALL BE PLANTED AFTER GRAVEL PLACEMENT, BUT NOT BEFORE IRRIGATION COVERAGE TEST NO. 1 HAS BEEN APPROVED. (SEE SPECIFICATIONS).
7. LANDSCAPE CONTRACTOR SHALL TAKE FOUR (4) SOIL SAMPLES FROM THE SITE AT LOCATIONS APPROVED BY THE LANDSCAPE ARCHITECT. THE SAMPLES SHALL BE TAKEN AT A DEPTH OF 6" AFTER ROUGH GRADING AND SUBMITTED TO AN APPROVED SOIL AND PLANT LABORATORY FOR AGRICULTURAL SUITABILITY TESTING. THE COST OF TESTING SHALL BE INCLUDED IN THE CONTRACTOR'S BID.
8. THE RECOMMENDATIONS OF THE SOIL REPORT SHALL SUPERSEDE THE SOIL PREPARATION AND BACKFILL MIX SPECIFICATIONS (SEE SPECIFICATIONS). THE CONTRACTOR SHALL SUBMIT A COPY OF ALL SOILS REPORTS TO THE LANDSCAPE ARCHITECT PRIOR TO MODIFICATION OF THESE SPECIFICATIONS.
9. SHREDDED MULCH INSTALLATION: INSTALL SHREDDED MULCH WITHIN BASINS OF ALL TREE AND SHRUB CONTAINER PLANTS PERDETAILS AND SPECIFICATIONS UNLESS OTHERWISE INDICATED ON PLANS.
10. CONTRACTOR IS RESPONSIBLE FOR ALL REPAIRS AND/OR REPLACEMENT OF ANY DAMAGED LANDSCAPE AREAS BEYOND THE LIMIT OF WORK, INCLUDING REPAIRING ANY IRRIGATION LINES/SPRINKLER HEADS, THAT IS A DIRECT RESULT OF THE LANDSCAPE CONSTRUCTION AND/OR HIS SUB-CONTRACTOR. REPLACEMENT ITEMS SHALL BE EXACT DUPLICATION OF ORIGINAL WORK OR PLANTS, UNLESS OTHERWISE APPROVED BY THE LANDSCAPE ARCHITECT.
11. CLEAN-UP SHALL TAKE PLACE ON A DAILY BASIS UNLESS OTHERWISE APPROVED BY THE OWNER'S REPRESENTATIVE.
12. IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN ALL GRADES AND FLOW LINES AS SHOWN ON THE GRADING PLAN.
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NORTH

PLANTING PLAN

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Richard Krumwiede
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L.A. SEAL

LICENSED LANDSCAPE ARCHITECT Richard W. Krumwiede 3934 Signature 7-31-14 Renewal Date 4-30-12 Date STATE OF CALIFORNIA

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JRC

DATE
9/28/12

SCALE
1" = 30'

JOB NUMBER
1214

SHEET NUMBER
L-7
7 OF 8 SHTS.

ATTACHMENT 5

ARCHITERRA design group
landscape architecture and planning

January 25, 2016

Patti K. Costa, P.E.
Environmental Manager
Republic Services
14747 San Fernando Road
Sylmar, CA 91342

RE: TRIAL SITE SUMMARY TO DATE, SUNSHINE CANYON LANDFILL, SYLMAR, CA
ADG Job #1214

Dear Ms. Costa:

This letter provides a summary of the steps that have been taken since Summer 2012 to date to reestablish native Coastal Sage Scrub (CSS) vegetation within the boundaries of the closed City South C deck, referred to as the "Trial Site". Initially a review and analysis was completed for all of the decks (A, B and C) and it was determined at that time that a Trial Site should be established in an effort to test and analyze a variety of restoration planting techniques. Successful results and strategies applied at the Trial Site will then be applied to the remaining decks and slopes.

Summer 2012 – Established an overall Conceptual Landscape Master Plan for the City Deck restoration areas. This included various site visits, photo inventory of existing native species, invasive plants and soil sampling of all decks.

Strategies for successful establishment of CSS vegetation included: ripping of existing soil to 12" depth, soil amendments based off soils testing/growth trails and recommendations, inclusion of existing on-site soil from sedimentation basin (soil was tested also for compatibility and amended per recommendations), evaluation of existing power and water service for on-grade irrigation system. Other operational strategies included restricted access onto decks and routine maintenance and observations to identify any outstanding issues.

Fall 2012 – Construction Document plans were prepared utilizing aerial topography mapping and CAD base information and package included:

Grading Plan to illustrate contour berming, drainage swales and provide more undulation, soil cover and micro-topography. This was done to alleviate soil compaction and provide a more suitable soil condition for plant growth. In addition, on-site boulders were proposed in groupings and swales were stabilized utilizing recycled asphalt grind material.

Construction Plan to define vehicular access road alignment and use of protective staking to eliminate vehicular access within restoration areas. Gravel maintenance pathways and clearances around existing gas wells were also illustrated and mapped out. On-site utilities were identified and noted to avoid conflicts with construction efforts.

Irrigation Plan and Irrigation Master Plan were provided so that temporary irrigation could be provided to restoration Trial Site. Irrigation techniques included overhead rotor spray and bubbler "point to point" system. An Irrigation Master Plan was also provided for overall site context, future connections and to tie into existing water tank facility at Nursery site. It should be noted that originally the site was designed for reclaimed on-site water, but after testing, it was determined that the on-site was unsuitable for plant establishment. The irrigation system was changed over to a potable system utilizing the existing DWP line and a booster pump, master valve and flow sensor were designed for optimal performance. System also includes a rain sensor and "Smart" controller system for maximized irrigation control. The irrigation is designed as a temporary system to establish the restoration areas, and will be removed once the vegetation is established.

Planting Plan to identify series of seeding techniques applied across the Trial Site area as well as container shrubs planted within those zones. Four (4) seeding techniques were chosen for analysis and include: Hydroseeding, Imprinting, Hand Broadcast/Chain Harrowing and Hand Broadcast Overseeding of swale areas. The approved 2011 DPW Seed Mix palette was utilized at the Trial Site at the specified quantities (lbs./acre) listed for all of the seeding areas. The site was divided into three main zones running east to west with T-Bar staking used to define the limits of each seeding area. Within each seeding area, container plants (inoculated with mycorrhizae) were placed randomly to help establish species more adapted to container planting.

Irrigation/Planting Details and Specifications were prepared to accompany plans.

Winter 2012 – Plans went out to bid and a contractor was selected.

Winter/Spring 2013 – Construction began and the project installation was completed by June 2014.

Summer 2012 prior to construction of Trial Site.

Winter/Spring 2013 Grading of Trial Site

Spring 2013 Irrigation completed at Trial Site

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June 2013 Planting Completed at Trial Site

June 2014 – 1 year after completion

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June 2015 – 2 years after completion

January 2016

Trial site has been monitored over the past 30 months with successful establishment of CSS natives.

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Successful practices developed during the past 30 months:

- Use of straw wattles have provided a condition where loose soil sediment and seeds deposit and collect at the backside of these areas where moisture also tends to be available for a longer period of time. As a result of these microclimate conditions, diversity of species is greatest within the bioswale areas.
- The use of boulders has also helped to provide a sheltered condition for seedlings to establish.
- Crushed aggregate/asphalt at bioswale junctions has helped to minimize erosion and scouring of soils during heavy rains.
- Seasonal targeting of invasive weed species has helped to allow the CSS natives to establish within the trial site.
- During the 2015 season, selective pruning of the Saltbush has helped the CSS seedlings expand out and grow into their predictable sizes. The Saltbush has acted as a pioneer species and provided a sheltered environment for new seedlings to establish.
- Temporary irrigation system has helped to establish the pioneer Saltbush and CSS species during the last two years of drought where rainfall has been extremely minimal. Without this system in place, the establishment of cover may have been limited and unsuccessful. Now that there is good established cover on the deck, the irrigation system has been turned off and plants are strong enough to adapt to the limited seasonal precipitation.
- Restricting vehicles to designated access roads has eliminated the compaction issues seen on the other decks. Through signage and staking, access has still been maintained without compromising the habitat areas.

Continued practices:

- Weed abatement will continue to be an on-going task with personnel out at the site monthly targeting the seasonal invasive species.
- Selective pruning has shown to provide benefit to new seedlings and will continue to be part of the on-going maintenance and will be scheduled during the cooler periods of the year (Late Fall/Winter) so that new seedlings have the necessary shelter and protection during the hottest times of the year (Spring/Summer).
- New soil samples have been collected from the same locations tested prior to the seeding of the trial site back in 2013. The new testing will be analyzed and compared to the previous testing to see if any improvements have resulted from irrigation leaching.

Should you have any questions, please call or email me.

Sincerely,

Gregg Denson

Director of Design

ARCHITERRA Design Group, Inc.

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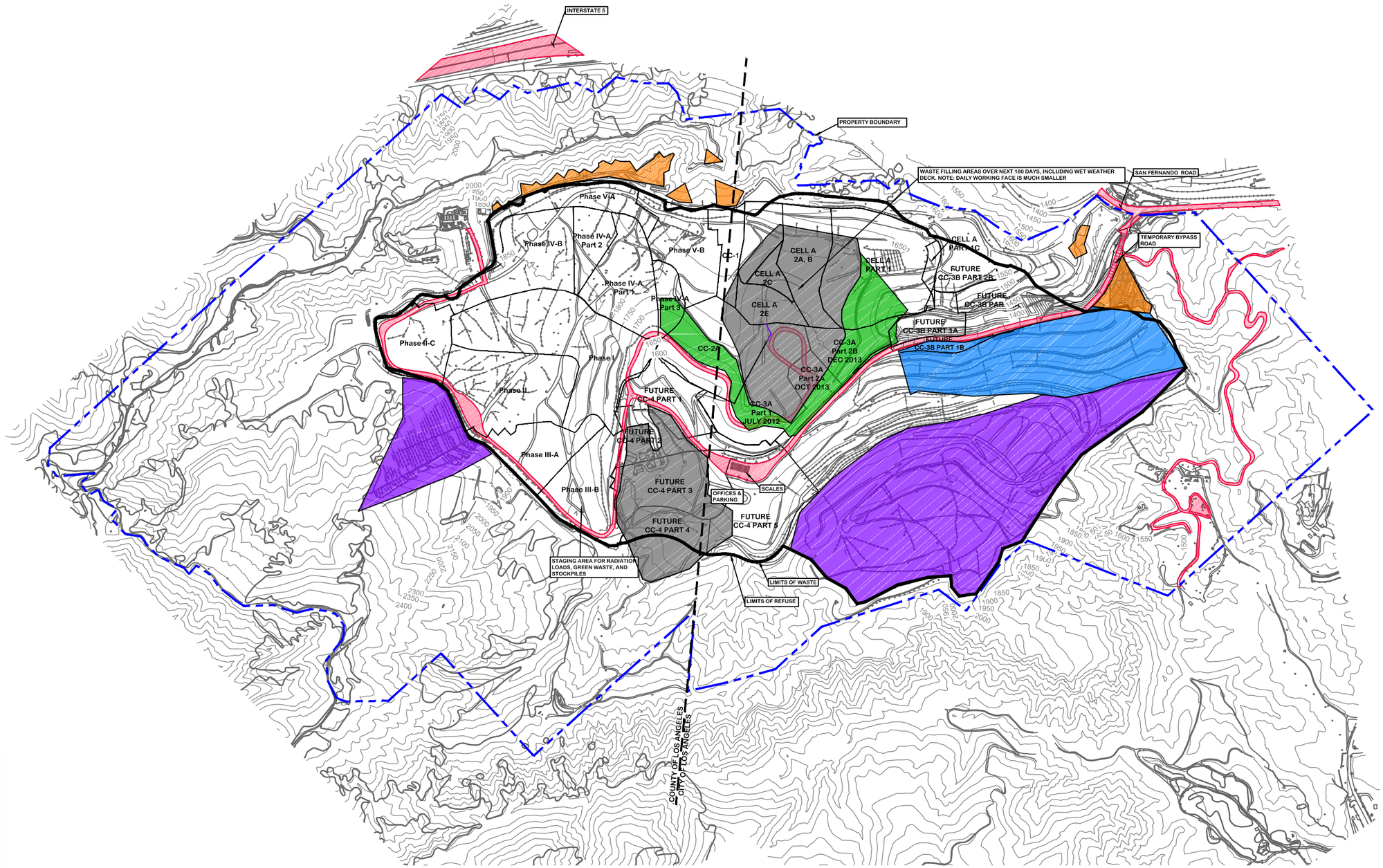

NORTH

GRAPHIC SCALE

500' 0' 250' 500' 1000' 2000'

LEGEND

- 1500 EXISTING 10 FT CONTOUR
- EXISTING 2 FT CONTOUR
- PROPERTY BOUNDARY
- EXISTING APPROVED LINERS
- EXISTING ROADS
- LIMITS OF REFUSE

VEGETATION STATUS MD ACTIVITY 4TH QUARTER 2015	
	NON-PERMANENT CUT SLOPES WITH JUTE MATE OR STRAW WATTLES, SAGE SEED MIX (NOT MITIGATION AREA)
	SAGE MITIGATION AREA, FINAL SLOPES
	INTERIM COVER HYDROSEEDING (PRE-2008)
	CURRENT AND NEXT QUARTER ACTIVE AREAS. ALSO INCLUDES ROADS AND BUILDINGS.
	INTERIM COVER HYDROSEEDING, AMENDMENTS, AND COMPOST AND/OR MULCH (COMPLETED IN 1ST QUARTER 2015)

FOR_REVIEW_ONLY

EXISTING TOPOGRAPHY PREPARED BY COOPER AERIAL SURVEYS DATED FEBRUARY 9, 2015

REV. NO.	DATE	DESCRIPTION	APPROVED BY
REV1	DATE1	DESCRIPTION	DRAWN1
REV2	DATE2	DESCRIPTION2	DRAWN2
REV3	DATE3	DESCRIPTION3	DRAWN3
REV4	DATE4	DESCRIPTION4	DRAWN4
REV5	DATE5	DESCRIPTION5	DRAWN5
REV6	DATE6	DESCRIPTION6	DRAWN6

DATE OF ISSUE: FEB 2016
DESIGNED BY: C BARRETT
DRAWN BY: C BARRETT
CHECKED BY: C BARRETT
APPROVED BY: C BARRETT

DIGALERT 811

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REPUBLIC SERVICES

SUNSHINE CANYON LANDFILL
SYLMAR, CALIFORNIA
SITE VEGETATION STATUS AND ACTIVITY
Q4 2015

DWG NO. 1
PROJECT NO. 2014.0023

E:\My Files(CAD-1)\Native\D\Projects\2014\2014.0023 - VEGETATION STATUS AND ACTIVITY\01_CAD\B_SLR-DWGS\2014.0023-SCL-04-Vegitation Status Map.dwg Feb 04, 2016 - 12:2pm By: glo-user