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## PROJECT MEMORANDUM SDG&E'S SUNRISE POWERLINK PROJECT

**To:** Billie Blanchard, Project Manager, CPUC **From:** Vida Strong, Aspen Project Manager

**Date:** July 22, 2011

**Subject:** Weekly Report 43 – July 10 to July 16, 2011

## INTRODUCTION

This report provides a summary of the construction and compliance activities associated with the SDG&E Sunrise Powerlink Project. This report is organized as follows:

- Transmission Line Construction
- Substation Construction and Upgrades
- Construction Yards and Other Workspaces

A summary of the Notices to Proceed with construction and Variance Request activity are also provided (see Tables 1 and 2, respectively, near the end of this report). Finally, a summary of Temporary Extra Workspace and non-compliance activity are provided in Tables 3 and 4, respectively.

CPUC/Aspen Environmental Monitors (EM): Cassandra Garza, Brian Woodward and Valerie Yep

## TRANSMISSION LINE CONSTRUCTION

## **Summary of Activity:**

1. Link 1, 500 kV Overhead Transmission Line:

## Non-Federal Lands:

- Grading of access roads to Towers EP255 through EP258
- Conventional drilling was conducted at EP240.
- Caisson installation and welding occurred at EP240.
- Various foundation work including capping, curing, cage installation, etc., took place at EP240.
- QA/QC performed at EP208 and EP209.

## **BLM Lands:**

- Grading occurred at:
  - Tower sites: EP302-1, EP303-2 crane pads, EP313, EP322, and EP323.
  - Pull Sites: EP313/EP314PS, EP322/EP323-1, and EP323/EP324
  - Existing Southwest Powerlink (SWPL) access roads: from EP295 through EP330-1
- Conventional drilling was conducted at EP297, EP298, EP299, and EP300-1.
- Tower assembly took place at EP313, EP316, EP320, EP321, EP322, EP327, EP328, EP330 through EP341, EP343, EP344, EP345, EP348, EP350 through EP355, and EP357 through EP360.
- Micropile drilling took place at EP310, EP311-1, EP312, EP314, EP317, and EP324.
- Various foundation activities including capping, curing, cage installation, etc., occurred at EP295, EP297, EP298, EP300, and EP301 (see Figure 1).
- Concrete pouring was conducted at EP295, EP297, EP298, EP299, and EP300-1.
- Ground rod installation took place at EP296, EP297, EP329, EP333, EP357, and EP360.





- Ground resistance testing and drilling occurred at EP316, EP318, EP321, EP331, EP342, EP345, EP348, EP350 to EP357, and EP359.
- Rebar installation and grounding was conducted at EP297, EP298, and EP299.
- Grounding took place at EP316-2, EP318-1, EP329, EP331, EP333, EP345, EP348, EP350, EP351, and EP352 to EP357.
- Grouting and ultimate testing occurred at EP324.
- Form removal took place at EP295 and EP299.
- Site cleanup occurred at EP297, EP299, EP320, EP331, EP343, and EP355.
- Equipment was removed from EP300-1 and mobilized to EP301.
- QA/QC was performed at EP331, EP332, EP334, EP336, EP337, EP338, EP 343, EP344, EP345, EP348, EP353, EP354, and EP355.
- Raven perching deterrents were installed at EP316-2.

#### 2. Link 2, 500 kV Overhead Transmission Line:

## Non-Federal Lands:

- No work activity occurred on Link 2 during this reporting period.
- 3. Link 4, 220 kV Underground Transmission Line (non-federal lands only):
  - Potholing/Redevelopment/Revitalization occurred at Tavern Road and Alpine Boulevard (near Alpine Elementary School).
  - Excavation occurred at Vaults V11R and V20L.
  - Transitions (Ins and Outs) occurred at V14R.
  - Trenching occurred between V4R to V5R, V6R to V8R, V10L to V11L, and V12R to V16R.
  - Pre-drilling/drilling occurred between V8R and V19R and V20R.
  - Pouring of encasement occurred from V14R to V17R.
  - Pre-racking and cleaning manholes occurred at V5R, V7R, V8L, V13R, V15R, V15L and V18L.
  - Proofing occurred from V2R to V3R, V4L to V5L, and V6R to V7R.
  - Milling and setting plates occurred at V6R to V8R, V10L to V11L, and V14R to V16R.
  - Paving (including preparation) occurred near V6R to V7R, V9R to V10R, and V15R to V17R.
  - A vault was set at V20R (see Figure 2).
  - Cable pulling (and cable testing) occurred from V4L to V6L.
  - The Interstate 8 bore site (Caltrans bore site) was demobilized.
  - Grading and foundation work occurred at the Loritz Property.
  - Vegetation clearing occurred at the Vieias Bridge.
  - Equipment was delivered via El Monte Road to Bauer Bridge.

#### 4. Link 5:

## Non-Federal Lands, 220 kV Overhead Transmission Line:

- Grading occurred on the access road leading to CP20 through CP24.
- Conventional drilling occurred at CP20 and CP41-2 (see Figure 3).
- Rebar was installed at CP20.
- Concrete was poured at CP20 and CP41-2.
- Forms were stripped and cleaned up at CP41-2.
- Micropile drilling occurred at CP23 and CP42-1.
- Grouting occurred at CP42-1.

- Tower assembly occurred at CP22-1.
- Grounding was installed at CP20 and CP41-2.
- Equipment was demobilized from CP41-2.

## MCAS Miramar (Federal) Lands, 69 kV Reconductoring Line

- TL639:
  - Location 7 was set.
  - Conductor was replaced between Location 1 and the Sycamore Substation.
- TL6916:
  - Saw was checked and frame measurements taken between Location 5 and 25.
  - Wire was dead-ended at Location 43.
  - Poles were reframed and rollers installed between Location 5 and 7; and between Location 10 and 14.

## **Environmental Compliance:**

- 1. Biological, Cultural, and Native American monitors were present as applicable during all transmission line construction activities.
- 2. Trail closures and reroute signs were posted at EP304, EP330, and EP354 (Link 1).
- 3. BMPs were installed or refreshed on access roads, TSAPs, and pads associated with structures on Link 1:

#### Non-Federal Lands:

• EP227 and EP232-1.

#### **BLM Lands:**

- EP294, EP296 through EP363, EP301 pull site West, EP313/EP314 pull site, EP317 TSAP, EP322/EP321-1 pull site, EP323-1 TSAP, EP324 TSAP, EP330 pull site East and West, EP338/EP339 pull site, EP343/EP344 pull site, EP348/EP349 pull site, EP355/EP356 pull site, and along the SWPL road from EP295 through EP363.
- 4. BMPs were installed or refreshed on access roads, TSAPs, and pads associated with structures on Link 2 (non-federal lands only):
  - BMPs were maintained from EP79, EP84 to EP87-1, and EP89-1 to EP93.
  - BMPs were maintained on access roads associated with EP89-1 to EP93.
- 5. BMPs were installed or refreshed on Link 4 (non-federal lands only):
  - BMPs were maintained at Bauer Bridge.
  - Street sweeping occurred along Alpine Boulevard.
- 6. BMPs were installed or refreshed on access roads, TSAPs, and pads associated with structures on Link 5 (non-federal lands):
  - 69 kV:
    - BMPs were refreshed along TL6916 from Location 1 to 19.
  - 230 kV:
    - BMPs were maintained from CP17-1 through CP26, CP29-1, and CP40 through CP42.
- 7. Three unanticipated paleontological fossil discoveries were made on Link 1. Samples were collected and the appropriate agencies were notified in accordance with the approved Paleontological Monitoring and Discovery Treatment Plan.
- 8. Rumble plates were cleaned and re-set on each side of Painted Gorge Road, along the SWPL access road between EP316-2 and EP317, and at EP295. (Link 1)

- 9. Three flat-tailed horned lizards (*Phrynosoma mcalli*) were found dead within construction limits on the spur road to EP355, on the SWPL access road between EP345 and EP348, and on the SWPL access road between EP344 and EP345. Thirteen adult flat-tailed horned lizards (*Phrynosoma mcalli*) were relocated from the EP322/EP323 pull site spur road, EP345, SWPL access road between EP346 and EP347, EP352, EP353 spur road, EP354, EP355, EP358, and EP359. (Link 1)
- 10. It was noted to the Link Lead that plumes of dust were observed at EP312 as a result from micropile drilling (see Figure 4). Immediate corrective action was taken to reduce dust. (Link 1)
- 11. On Link 4, three southern pacific rattlesnakes were relocated: two from Vault 20R and one from Viejas Creek Bridge.
- 12. On July 16, 2011, unexploded ordinance was discovered while reframing on TL6919. The appropriate parties were notified and the ordinance was removed from the worksite. (Link 5)
- 13. On Link 5, one red diamond rattlesnake (*Crotalus ruber ruber*) was found on the access road to CP23 to CP24. It appeared to have been run over by a vehicle.
- 14. Pre-Construction surveys were performed throughout Link 1, 2 and 5 with appropriate monitors.

No Non-Compliance Reports or Project Memoranda were issued during the subject period for Transmission Line Construction activities. Non-Compliance activities for the project to date are summarized in Table 4.

## **Agency Representatives during Construction (other than EMs):**

None.

## **Substation Construction AND UPGRADES**

## **Summary of Activity:**

- 1. Suncrest Substation, Link 3 (non-federal lands): Rough grading continued along Bell Bluff Truck Trail (BBTT) and on the substation pad. Rock was crushed to make select fill material. Permanent drainage system and culverts were installed along BBTT. Concrete headwalls were poured along BBTT. Rock and soil was hauled from the northern and eastern portions of the pad to the southern portion of the pad. Select fill material was hauled from the center of the pad to the northeast quadrant of the pad. Piers were drilled for foundations. Forms were constructed and concrete was poured for foundation pads. Drilling occurred on the eastern section of the pad with blasting in the afternoon in the eastern and western sections of the pad.
- 2. Imperial Valley Substation Upgrade (BLM lands): Work on the wiring in the control house in the 500 kV portion of the substation occurred. Conventional tower assembly was conducted and moved outside of the substation.
- 3. San Luis Rey Substation (non-federal lands): The 230 kV conduit installation was completed and cable was prepared to be pulled. Control house wiring and underground wire preparation work occurred. Disconnects were opened and switching work conducted in preparation to activate Bank 70.
- 4. Encina Substation (non-federal lands): Excavation around pads was conducted for wire pull boxes between Bays 1 and 8. Work continued on concrete pads for two new transformers in Bay 11. Wiring, conduit installation, and grounding occurred. A crew installed wiring panels in new control house. Demolition of two switch stand pads occurred.
- 5. Sycamore Substation (non-federal lands): Work was conducted below grade at Bays 21 and 26. Wire rebar cages were installed near the 69 kV rack. Holes were drilled in Bay 26.
- 6. Scripps Ranch Substation (non-federal lands): No construction activity occurred during this reporting period.

## **Environmental Compliance:**

- 1. All applicable Biological, Cultural, Paleontological, and Native American monitors have been present during ground disturbing activities at all substations.
- 2. Wattles were installed for slope stabilization on completed sections of the substation pad (see Figure 5). (Link 3)
- 3. One flat-tailed horned lizard (*Phrynosoma* mcalli) was relocated from the Imperial Valley Substation. (Link 1)
- 4. One Barn owl (*Tyto alba*) was found dead at the Sycamore Substation.

No Non-Compliance Reports or Project Memoranda were issued during the subject period for Substation Construction and Upgrade activities. Non-Compliance activities for the project to date are summarized in Table 4.

## Agency Representatives during Construction (Other than CPUC EMs):

None.

## CONSTRUCTION YARDS AND OTHER WORKSPACES:

## **Summary of Activity:**

Non-Federal Lands:

- 1. Alpine Construction Yard Materials staging, steel deliveries, and hand clearing/vegetation maintenance with Avian Biological Monitors as needed.
- 2. Alpine Headquarters No significant activity occurred during the reporting period.
- 3. Bartlett-Hauser Yard Helicopter operations, foundation work staging, weed maintenance (see Figures 6 and 7) and tower assembly occurred.
- 4. Jacumba Valley Ranch (JVR) Yard Foundation work staging took place.
- 5. Hartung Yard Tower assembly occurred.
- 6. Helix Yard Helicopter operations occurred.
- 7. Kreutzkamp Yard Tower assembly occurred.
- 8. Rough Acres Yard Helicopter operations, tower assembly, materials staging, and steel deliveries occurred in the yard.
- 9. SWAT Yard Tower assembly occurred.
- 10. Sycamore Yard Helicopter operations (see Figure 8) and foundation work staging occurred.
- 11. Thomas Yard Materials staging and steel deliveries were made.
- 12. Wilson Yard Tower assembly and QC took place, and materials were staged for Suncrest Substation.
- 13. S2 Yard Nighttime tower assembly commenced on July 13, 2011 at 10pm. Daytime tower assembly and QC occurred.
- 14. AER Yard Driveway installation and grading occurred at the entrance to AER Yard.

#### **BLM Lands:**

- 15. Dunaway Yard Helicopter operations were conducted.
- 16. Imperial Valley (IV) Yard Used as a water supply for surrounding areas only.
- 17. Plaster City Yard Helicopter activities, foundation work staging, and tower assembly and QC occurred.

## **Environmental Compliance:**

- 1. Biological, Cultural, and Native American monitors have worked with crews at the construction yards to define approved work areas and sites to avoid (see Figure 9).
- 2. As required per the approval letter issued with the Modified Construction Lighting Plan, flat tailed horned lizard exclusionary fencing was installed on July 10, 2011 at S-2, Plaster City and Dunaway Construction Yards. (Link 1)
- 3. A matrix of found, relocated, injured, and dead flat tailed horned lizard has not been provided as required per the approval letter issued with the Modified Construction Lighting Plan.
- 4. At the Kreutzcamp Construction Yard, four Baja California chorus frogs, one western toad, and one Southwest speckled rattlesnake were relocated from the project limits. One Southern Pacific rattlesnake was relocated from the access road. Four western toads were relocated from the drain trap of the noxious weed wash station within the yard. (Link 2)
- 5. One western fence lizard was relocated at the Sycamore Construction Yard. (Link 5)
- 6. Helicopters avoided sensitive land owners by use of their GPS units, which are updated daily to reflect any changes in sensitive areas along the alignment (see Figure 10).

No Non-Compliance Reports or Project Memorandums were issued during the subject period for Construction Yards and other workspace activities. Non-Compliance activities for the project to date are summarized in Table 4.

## Agency Representatives during Construction (other than CPUC EMs):

None.

## **CPUC NOTICES TO PROCEED (NTPs)**

Table 1 summarizes the CPUC Notice to Proceed activity for the SDG&E Sunrise Powerlink Project to date.

## TABLE 1 CPUC NTPs

(Updated 07/22/2011)

(Optaica 07/22/2011)				
	Date	Date	Segment	
NTP#	Requested	Issued	#	Description
#1	01/04/10	04/28/10	25	San Luis Rey Substation Upgrades
#2	02/08/10	04/29/10	23	South Bay Substation Upgrades
#3	02/26/10	05/20/10	Yard	Alpine Yard 18
#4	01/26/10	05/28/10	Yard	Alpine Yard 18A
#5	02/05/10	09/28/10	Yard	Rough Acres Yard, Phase 1
#6	05/26/10	09/28/10	24	Encina Substation Upgrades
#7	05/28/10	09/28/10	Telecomm	White Star Communication Facility
#8	06/09/10	10/06/10	Substation	Pomerado Substation Upgrades
#9	06/09/10	10/06/10	Substation	Scripps Switchyard/Substation Upgrades
#10	10/13/10	11/23/10	15	Link 4, Alpine 230 kV Underground Construction
#11	10/19/10	12/15/10	13	Link 3, Suncrest Substation/Wilson Construction Yard
#12	11/30/10	12/23/10	Yard	Rough Acres Yard, Phase 2
#13	11/09/10	01/14/11	2-18,	Links 1, 2, and 5, overhead construction on non-federal
			20-22	lands
BLM #1	01/19/11	02/03/11	1	Imperial Valley Substation upgrades.
BLM #2	03/28/11	04/04/11	2-12,	Links 1, 2, and 5 overhead construction on BLM Lands.
			16-17	
Miramar	01/20/11	06/28/11	22	Overhead and substation construction.

## VARIANCE & TEMPORARY EXTRA WORKSPACE REQUESTS

Variance and Temporary Extra Workspace (TEWS) requests submitted to date are presented in Tables 2 and 3, respectively.

## TABLE 2 VARIANCE REQUESTS

(Updated 07/22/2011)

			(Opdated	07/22/2011)
	Date			
Variance	Requeste	Date Issued	Cogmont #	Description
Request	11/04/10		Segment #	Description Thereas York (FL Captus, CA)
#1		11/10/10	Yard	Thomas Yard (El Centro, CA)
#2	12/22/10	03/18/11	Yard	Sycamore Estates Construction Yard. Response to inquiry received 02/23.
#3	01/06/10	01/18/11	All	Modification to tree trimming requirements.
#3 MOD	01/25/11	01/26/11	All	Modification to brush clearing requirements.
#4	01/13/11	03/01/11	Yard	Helicopter Temporary Landing Pad area at the Alpine Regional Field Offices.
#5	02/01/11	02/09/11	Yard	Site improvements at the Wilson Construction yard and along Bell Bluff Trail
#6	02/01/11	03/01/11	Link 5	Variance from Mitigation Measure H-1a (CC) to allow work outside of the dry season.
#7	02/11/11	02/17/11	Link 3	Additional work areas for construction trailers, parking, etc.
#8	03/02/11	03/08/11	Link 2	Alternate access route to Structure EP 27.
#9	03/29/11	04/06/11	All	Perform construction activities outside of hours allowed by local ordinances with local jurisdiction approval.
#10	04/04/11 (revised)	04/14/11	Link 4	Additional construction work space at Viejas Creek Bridge.
#11	04/06/11	04/22/11	Link 1	Additional workspace east of EP215.
#12	04/15/11	04/25/11	Link 1	Additional turnaround along the access road to EP 220-1.
#13	04/13/11	05/06/11	Links 1 & 2	Two fiber optic regeneration sites.
#14	04/28/11	05/03/11	Yards	Change visual screening at Project construction yards from slats to fabric.
#15	05/12/11	05/19/11	Link 2	Alternate access to EP 84.
#16	05/16/11	05/21/11	Link 4	Additional parking space for use during underground construction.
#17	05/18/11	05/24/11	Encina Substation	Driveway improvement.
#18	6/27/11	07/14/11	Link 1	Gate installation between mile markers 38.5 and 39.5.
#19	6/27/11	06/29/11	Link 1	Installation of training tower at Rough Acres Construction Yard.
#20	6/28/11	Under Review	Link 5	Additional disturbance for access, pull sites and topsoil stockpile at CP48-2 to CP51-2.

Variance Request	Date Requeste d	Date Issued	Segment #	Description
#21	07/07/11	07/15/11	Link 1	Guard structure from EP255 to Imperial Valley Substation.
#22	07/08/11	Under Review	Link 1	Fromm Construction Yard.
BLM VR #1	07/19/11	Under Review	Link 1	Minor modifications to portions of the Project on Bureau of Land Management lands.

## TABLE 3 TEMPORARY EXTRA WORKSPACE (TEWS) REQUESTS (Updated 07/19/2011)

TEWS	Date	Date		
Request	Requested	Approved	Segment #	Description
TEWS #1	11/01/10	11/01/10	White Star	Asphalt paved area for vehicle parking and staging
TEWS #2	03/17/11	03/18/11	Link 4	Parking on Puetz Valley and Alpine Blvd
TEWS #3	03/17/11	03/18/11	Link 4	Parking on Harbison Canyon and Alpine Blvd
TEWS #4	03/22/11	03/23/11	Link 5	Storage on One Father Junipero Sierra Trail
TEWS #5	03/24/11	03/24/11	Link 4	Parking at 3900 Willows Rd. West
TEWS #6	03/24/11	03/24/11	Link 4	Parking at 5840 Willows Rd. East
TEWS #7	04/06/11	04/07/11	Link 2	Northern access road to EP 79
TEWS #8	04/14/11	04/14/11	Link 2	Northeast spur of access road to EP 84
TEWS #9	05/17/11	05/24/11	Link 1	Use of SWPL tower sites for parking (EP331-341)
TEWS #10	05/24/11	05/24/11	Link 5	Parking and pullsite adjacent to Alliant University
TEWS #11	06/16/11	06/16/11	Link 1	Use of alternative access to EP 240, per the request of the landowner at JVR
TEWS #12	06/20/11	06/20/11	Link 1	Use of SWPL tower sites for parking (EP295-299)
TEWS #13	06/30/11	07/01/11	Link 1	Use of SWPL tower site for parking (EP324)
TEWS #14	07/01/11	07/01/11	Link 1	Use of SWPL tower sites for parking (EP300, EP302, EP306, EP307, EP312)
TEWS #15	07/06/11	07/06/11	Link 1	Use of SWPL tower sites for parking (EP294, EP303, EP304, EP305)
TEWS #16	07/11/11	07/12/11	Link 5	Parking near CP20
TEWS #17	07/11/11	07/12/11	Link 5	Parking near CP24
TEWS #18	07/11/11	07/12/11	Link 5	Parking near CP29
TEWS #19	07/18/11	07/19/11	Link 1	Parking near EP314

## **NON-COMPLIANCES & INCIDENTS**

CPUC Project Memorandum (PM) and Non-Compliance Reports (NCR), and Corps Non-Compliances (NC) that have been issued to date are presented in Table 4.

TABLE 4
NON-COMPLIANCES (NC) AND PROJECT MEMORANDA (PM)

(Updated 07/22/2011)

Туре	Date	Location	Description
PM #1	12/07/10	Thomas Yard	Failure to report unanticipated biological resources within 48 hours.
PM #2	02/11/11	EP 242, Link 1	Unauthorized ground disturbance at EP 242
NC #1	03/08/11	Suncrest Substation	Army Corp of Engineers issued NC for not complying with Special Conditions 19, 21 and 23 of DA Permit SPL-2007-00704-SAS.
PM #3	03/15/11	CP 67-3, Link 5	Staking crews operating and delivered by helicopters within Golden Eagle Buffer area.
PM #4	04/06/11	SWAT Yard	Unauthorized Nest Removal from a water truck at SWAT Construction yard.
PM #5	05/16/11	EP 340, Link 1	Operation of water trucks outside of approved disturbance areas at EP 340.

Other compliance incidents identified by SDG&E monitoring staff and/or crews are presented in Table 5.

# TABLE 5 PROJECT INCIDENTS

(Updated 07/22/2011)

Туре	Date	Location	Description
Incident	11/01/10	White Star	Delivery of a rebar cage outside of the approved disturbance area.
Incident	02/17/11	EP 244, Link 1	Nest incorrectly marked at entrance to EP 244.
Incident	02/18/11	Alpine HQ	Emergency weather landing and storage of 3 helicopters at Alpine HQ.
Incident	03/12/11	EP 252, Link 1	Bulldozer was delivered at site prior to CPUC clearance being given.
Incident	03/15/11	EP 214, Link 1	Dewatering approximately 1 gal of groundwater from an excavation hole without having submitted a dewatering plan to the CPUC.
Incident	04/06/11	JVR 12 kV, Link 1	Confusion on approved work areas due to varying maps having been distributed to workers and monitors.
Incident	04/07/11	JVR 12 kV, Link 1	A site was worked on prior to CPUC EM construction release having been received for the area, no resources were damaged.
Incident	05/05/11	Link 4	Three small fires were reported on Link 4 Underground. Fire tools were used by the on-site fire patrol to immediately respond per the Sunrise Fire Plan. Notification to Alpine Fire was made.
Incident	05/17/11	Link 1	BMP crew drove off the road between EP345 and EP346 and park within the ESA boundary.

Туре	Date	Location	Description
Incident	06/07/11	Link 1	During the aerial delivery of a structure body to EP339, approximately 200 ft outside of Plaster City Yard, the piece fell from the Aircrane. No injuries have been reported.
Incident	06/10/11	Link 1	During the aerial delivery of a structure layback to EP 339, at the EP 339 construction site, 3 of the 4 hooks released and caused an emergency placement of the steel at the site. While in the process of placing on the ground, the 4 <sup>th</sup> hook released and the tower fell to the ground. No injuries have been reported.
Incident	07/07/11	Link 1	A project water tanker was stuck on the side of Evan Hughes Highway and released approximately 1,000 gallons of potable water into Coyote Wash, after pulling over to evaluate a bridge crossing. All necessary notifications were made.
Incident	07/07/11	Link 5	Construction vehicles, including project fire truck, were noted to be outside of approved disturbance areas at CP40 and CP41. Link leads were notified and immediate corrective action was taken.
Incident	07/11/11	Link 1	A skid fell off the KMax Helicopter while en route to a tower site. The skid was within the Project ROW and no injuries were reported. The item was retrieved on foot.

## PROJECT PHOTOGRAPHS



**Figure 1:** Setting corrugated pipe to stabilize the hole at EP298, Link 1.



**Figure 2:** Installation of Vault 20R. (Link 4)



**Figure 3:** Conventional drilling at CP 41-2; San Vicente Reservoir in the background. (Link 5)



**Figure 4:** Dust from micropile drilling at EP312, Link 1.



Figure 5: BMP installation on finished slope at Suncrest Substation, Link 3.



**Figure 6:** Mowing for weed maintenance at Bartlett-Hauser Construction Yard. (Link 2).



Figure 7: Tower assembly at Bartlett-Hauser Construction Yard. (Link 5)



Figure 8: K-Max helicopter leaving Sycamore Construction Yard. (Link 5)



**Figure 9:** A biologist inspects a water tower for bird nests at SWAT Construction Yard. (Link 2)



**Figure 10:** GPS unit display in helicopter showing tracks to Helix Construction Yard and avoidance of sensitive land owner property. (Link 5)