

December 5, 2012

Approved *Christopher Stone*  
Christopher Stone

TO: Christopher Stone  
FROM: Patricia Wood *P.W.*  
Facilities Section  
Water Resources Division

**WILLIAMS FIRE (2012)  
BURNED AREA REPORT**

The Williams Fire started on September 2, 2012, and was contained on September 12, 2012. The fire burned 4,162 acres entirely within the Angeles National Forest. This report focuses on potential mudflow impacts to County-owned/maintained facilities and to residences below the burned areas.

Recommendations

1. Authorize us to send a copy of this report to Road Maintenance Division (RMD) as confirmation of the potential sediment impacts to East Fork Road, Shoemaker Canyon Road, and the underlying culverts associated with these facilities; and our recommendations to RMD for the culverts at Shoemaker Canyon. It is our understanding that RMD's standard routines call for monitoring these facilities for postfire sediment impacts during storms and cleaning them as necessary, and that RMD will implement the recommended measures at Shoemaker Canyon. The measures, monitoring, and as-needed cleanouts are expected to be needed for the next four to five years until the watershed has significantly recovered from the burn.
2. Authorize us to send a copy of this report to Flood Maintenance Division (FMD) as confirmation of the potential sediment impacts to San Gabriel Reservoir below the burned area.
3. Authorize us to send a copy of this report to the United States Forest Service (USFS), the County of Los Angeles Fire Department, and the City of Industry as confirmation of the potential sediment impacts to the streambed of the East Fork of the San Gabriel River.

Attachments

- A. Burned Area Map
- B. Description of Burn and Potential Sediment Impact
- C. Mudflow Phase Map

### Summary of Potential Sediment Impact

On September 13, 2012, Water Resources Division (WRD) staff conducted a field reconnaissance of the burned area to determine if residences and/or County-owned/maintained facilities could be potentially impacted by debris flows during significant storm events. The burned area, which is located in Debris Production Area (DPA) Zone 1, is subdivided into 28 subarea watersheds (see Attachment A for the Burned Area Map). During moderate to severe storm events, debris flow from the burned canyons may cause flooding and sediment depositions on East Fork Road and Shoemaker Canyon Road. Debris that flows beyond the roads may potentially inundate the San Gabriel River, the riverbed of the East Fork of the San Gabriel River, and deposit in the San Gabriel Reservoir. The debris flows from the burned area may also impact numerous underlying culverts along East Fork Road and Shoemaker Canyon Road. The two roads and the culverts are maintained by RMD (MD1).

Detailed descriptions of each subarea are contained in Attachment B.

### Coordination

#### *USFS*

RMD and WRD attended the USFS's Burned Area Emergency Response (BAER) Team's meeting that was held on September 14, 2012. USFS noted the following that are of interest to Public Works:

- East Fork Road will be subject to debris deposition during storms. USFS gave the opinion that the areas behind the culverts for a couple of large canyons may be large enough and the elevation of the East Fork Road high enough to provide significant attenuation of debris.
- Shoemaker Road will be subject to debris deposition during storms.
- The bridge at Camp 19 may get overwhelmed with debris during storms. The USFS believes the bridge is on its property and thus under its regulatory jurisdiction.
- USFS concluded an emergency does not exist at San Gabriel Reservoir.

WRD requested the USFS to include in its BAER report consideration of the cumulative impacts to the San Gabriel Canyon Reservoir system from fires over the last few years.

San Gabriel Reservoir is one of three Los Angeles County Flood Control District (LACFCD) reservoirs in San Gabriel Canyon that provide flood protection and water conservation storage for millions of residents downstream. WRD noted that almost 90 percent of the watershed to Cogswell Reservoir was burned by the 2009 Station Fire. The burned watershed has delivered significant volumes of sediment to the reservoir. LACFCD has not been able to clean out the reservoir because it is still in the midst of environmental regulatory processes. The 2009 Morris Fire burned almost 40 percent of the watershed of Morris Reservoir. Therefore, the Williams Fire sediment will further decrease the total capacity in the canyon for flood protection and water conservation.

Subsequent to the BAER meeting, WRD's consultation with Survey/Mapping and Property Management Division (SMP) staff revealed that although the County Assessor's Map shows LACFCD, not USFS, as the underlying property owner of Camp 19, SMP's files are incomplete and therefore SMP cannot confirm the accuracy of the Assessor's Map. The USFS may be the Camp 19 property owner. Establishing ownership within Public Works is within SMP's purview, as Camp 19 does not impact WRD's reservoir operations, nor FMD's and RMD's maintenance activities.

#### *Local Property Owners/Managers*

On September 20, 2012, WRD also met with the manager of a privately owned property and with County of Los Angeles Fire Department personnel at Camp 19 to discuss potential postfire mudflow impacts at their facilities. Postfire debris impacts to the City of Industry's facility (formerly Follows Camp) are not anticipated.

#### *RMD*

On October 29, 2012, WRD met with RMD (MD1) and again with the manager for the private property to discuss potential postfire debris impacts at the culverts at Shoemaker Canyon. WRD reiterated its advice to the property owner and provided recommendations to RMD on measures to take at the culverts (keeping culverts clear and installing at one culvert a tower, k-rails, and berms).


#### Mudflow Phase Map and Mudflow Forecasts

The phase map for the fire area is found in Attachment C. The phase map (Phases 1, 2, and 3) identifies the critical locations of potential debris impacts below the burned areas for varying storm magnitudes. This map and the rest of the Burned Area Report, when approved, can be accessed through the Internet at

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<http://dpw.lacounty.gov/wrd/Fire/>. WRD will post debris flow potential forecasts on the Internet at the aforementioned site for each significant forecasted storm event throughout this storm season and the four subsequent storm seasons.

If you have any questions regarding this fire report, please contact Kenneth Rickard at Extension 6154 or Hans Riedel at Extension 6300.

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Attach.

cc: Disaster Services  
Flood Maintenance (Lee, Sheridan)  
Road Maintenance (MacGregor, Daly)  
Survey/Mapping and Property Management (Hennessee)

**WILLIAMS FIRE  
DESCRIPTION OF BURN AND POTENTIAL SEDIMENT IMPACT**

Fire Name: Williams Fire  
Date of Fire: September 2, 2012  
Burned Area: 4,162 Acres  
Location: The fire occurred on the steep slopes north of East Fork Road, east of State Highway 39 near San Gabriel Reservoir. The burned area boundary is entirely within the Angeles National Forest and is located within the Los Angeles County Flood Control District (LACFCD). Refer to Attachment A and Thomas Guide Pages 510 and 4730.

Vegetation Type before Burn

Medium to heavy brush, primarily chaparral and some conifers.

Fire History

Our fire history records indicate that there have been three significant fires that have previously occurred in the same area as the Williams Fire. The 2002 Curve-Williams Fire burned approximately 58,140 acres and overlapped 21 percent of the Williams Fire burned area. The 1975 Village Fire burned approximately 19,021 acres and overlapped 19 percent of the Williams Fire burned area. The 1960 San Gabriel Fire burned approximately 15,116 acres and overlapped 74 percent of the Williams Fire burned area.

Summary of Potential Sediment Impact

On September 13, 2012, Water Resources Division (WRD) staff conducted a field reconnaissance of the burned area to determine if residential properties and/or Public Works maintained facilities could potentially be impacted by the flooding/debris flows during storms. The burned area is divided into 28 subareas across one Debris Production Area Zone 1. The sediment volumes noted herein are those resulting from a moderate to severe storm event.

Postfire sediment potentially impacts the East Fork Road and Shoemaker Canyon Road. The roads and their culverts are maintained by Road Maintenance Division (RMD).

Subarea 1

Subarea 1 (Bichota Canyon) consists of a total of 727 acres and was 21 percent burned creating an adjusted debris potential of 82,200 cubic yards (cy). During moderate to severe storms, it is anticipated that debris from the higher elevations of the subarea would flow into the natural watercourse of Bichota Canyon and spread out along the streambed. No homes exist within the burned canyon.

### Subareas 2 and 3

Subarea 2 (Devil Gulch) consists of a total of 1,080 acres and was 54 percent burned creating an adjusted debris potential of 146,800 cy. Subarea 3 (Rattlesnake Canyon) consists of a total of 394 acres and was 16 percent burned creating an adjusted debris potential of 47,600 cy. During moderate to severe storms, debris may potentially flow from the higher elevations of the canyon's slopes into the riverbed of the East Fork of the San Gabriel River. The natural gradient of the riverbed, within this reach of the East Fork, is less than one percent, so the sediments are expected to settle along the wide, flat riverbed.

### Subarea 4

Subarea 4 (Shoemaker Canyon) consists of a total of 696 acres and was 37 percent burned creating an adjusted debris potential of 90,200 cy. During moderate to severe storms, debris from the burned canyon may potentially plug the existing culvert under Shoemaker Canyon Road. The collection area behind the road embankment does not have adequate capacity to retain the potential sediment flow produced by the subarea. As a result, flooding and sediment deposition may occur on Shoemaker Canyon Road and may overflow the road and flow down to the East Fork of the San Gabriel River. RMD has established criteria to monitor and clear plugged culverts and the road as needed. The monitoring and clearing should continue for the next four to five years until the watershed has significantly recovered from the burn.

### Subarea 5

Subarea 5 consists of a total of 24 acres and was 25 percent burned creating an adjusted debris potential of 5,600 cy. During moderate to severe storms, debris may potentially flow down the slopes above the Shoemaker Canyon Road Tunnel No. 1 (maintained by RMD) and is expected to settle along the riverbed of the East Fork of the San Gabriel River below the burned slopes.

### Subarea 6

Subarea 6 consists of a total of 30 acres and was 50 percent burned creating an adjusted debris potential of 8,300 cy. During moderate to severe storms, debris is expected to flow toward the culvert inlet below Shoemaker Canyon Road. If the culvert plugs, the collection area behind the road embankment located below the subarea has adequate capacity to retain the estimated sediment production. It is not anticipated that flooding and sediment deposition will occur on Shoemaker Canyon Road at this location, provided the capacity of the collection area is maintained. RMD has established criteria to monitor and clear plugged culverts as needed. The monitoring and clearing should continue for the next four to five years until the watershed has significantly recovered from the burn.

### Subarea 7

Subarea 7 consists of a total of 67 acres and was 72 percent burned creating an adjusted debris potential of 21,200 cy. During moderate to severe storms, debris from the burned subarea may potentially plug the existing culvert under Shoemaker Canyon Road. The collection area behind the culvert headwall does not have adequate capacity to retain the potential sediment flow produced by the subarea. As a result, flooding and sediment deposition may occur on Shoemaker Canyon Road and may overflow the road embankment and flow down to the riverbed of the East Fork of the San Gabriel River. RMD has established criteria to monitor and clear plugged culverts and the road as needed. The monitoring and clearing should continue for the next four to five years until the watershed has significantly recovered from the burn.

### Subareas 8, 8a, and 8b

Subarea 8 consists of a total of 158 acres and was 82 percent burned creating an adjusted debris potential of 33,000 cy. Subarea 8a consists of a total of 29 acres and was 29 percent burned creating an adjusted debris potential of 7,000 cy. Subarea 8b consists of a total of 17 acres and was 100 percent burned creating an adjusted debris potential of 6,400 cy. During moderate to severe storms, debris from Subarea 8 may potentially plug the existing culvert under Shoemaker Canyon Road. The collection area behind the road embankment does not have adequate capacity to retain the potential sediment flow produced by the subarea. Debris from Subarea 8b may potentially flow down the slopes above the Shoemaker Canyon Road and potentially combine with sediment deposition from Subarea 8. As a result, flooding and sediment deposition may occur along the Shoemaker Canyon Road. At the lower elevation of Subarea 8b, debris may overflow the road embankment and flow down to the riverbed of the East Fork of the San Gabriel River. RMD has established criteria to monitor and clear plugged culverts and the road as needed. The monitoring and clearing should continue for the next four to five years until the watersheds have significantly recovered from the burn.

During moderate to severe storms, debris from Subarea 8a may potentially flow directly from the burned slopes into the riverbed of the East Fork of the San Gabriel River and settle along the riverbed.

### Subareas 9 and 10

Subarea 9 consists of a total of 38 acres and was 60 percent burned creating an adjusted debris potential of 11,400 cy. Subarea 10 consists of a total of 94 acres and was 78 percent burned creating an adjusted debris potential of 26,700 cy. During moderate to severe storms, debris from the burned subareas may potentially plug the existing culverts under Shoemaker Canyon Road. The collection areas behind the culverts' headwalls do not have adequate capacity to retain the potential sediment flow produced by the subareas. As a result, flooding and sediment deposition may occur on the Shoemaker Canyon Road causing flooding and sediment deposition along the

roadway and may overflow the road into the streambeds below the burned area and then into the riverbed of the East Fork of the San Gabriel River. RMD has established criteria to monitor and clear plugged culverts and the road as needed. The monitoring and clearing should continue for the next four to five years until the watersheds have significantly recovered from the burn.

#### Subarea 11

Subarea 11 (Williams Canyon) consists of a total of 510 acres and was 98 percent burned creating an adjusted debris potential of 100,000 cy. During moderate to severe storms, the collection area behind the Shoemaker Canyon Road embankment below the subarea has adequate capacity to retain the sediment produced from the subarea, provided the capacity of the collection area is maintained. RMD has established criteria to monitor and clear plugged culverts and the road as needed. It is recommended that RMD clean out the collection area as necessary to maintain its capacity. The monitoring and clearing should continue for the next four to five years until the watershed has significantly recovered from the burn.

#### Subareas 11a and 11b

Subarea 11a consists of a total of 24 acres and was 100 percent burned creating an adjusted debris potential of 9,000 cy. Subarea 11b consists of a total of 2 acres and was 100 percent burned creating an adjusted debris potential of 750 cy. During moderate to severe storms, debris from Subarea 11a may potentially plug the existing culvert under Shoemaker Canyon Road. The collection area behind the culvert headwall does not have adequate capacity to retain the potential sediment flow produced by the subarea. Debris from Subarea 11b is expected to flow directly onto Shoemaker Canyon Road. As a result, flooding and sediment deposition may occur along the Shoemaker Canyon Road. RMD has established criteria to monitor and clear plugged culverts and the road as needed. The monitoring and clearing should continue for the next four to five years until the watersheds have significantly recovered from the burn.

#### Subareas 12 and 13

Subarea 12 consists of a total of 24 acres and was 98 percent burned creating an adjusted debris potential of 8,700 cy. Subarea 13 consists of a total of 22 acres and was 99 percent burned creating an adjusted debris potential of 8,300 cy. During moderate to severe storm events, debris from the burned subareas may potentially plug the existing culverts under Shoemaker Canyon Road. The collection areas behind the culverts' headwalls do not have adequate capacity to retain the potential sediment flow produced by the subareas. As a result, flooding and sediment deposition may occur on the Shoemaker Canyon Road causing flooding and sediment deposition along the roadway. A 2-foot high stone and mortar wall along the southerly side of the Shoemaker Canyon Road may prevent sediments from overtopping the road embankment. At the lower end of the stone wall, a channel directs debris flows down



to the riverbed of the East Fork of the San Gabriel River. RMD has established criteria to monitor and clear plugged culverts, the road, and the channel as needed. The monitoring and clearing should continue for the next four to five years until the watersheds have significantly recovered from the burn.

#### Subarea 14

Subarea 14 consists of a total of 11 acres and was 96 percent burned creating an adjusted debris potential of 4,000 cy. During moderate to severe storms, debris from the burned subarea may potentially plug the existing culvert under the heliport access road. The access road and culvert are owned and maintained by the owner of a private property within the subarea. At the time of the field reconnaissance, WRD staff observed that the culvert inlet was damaged and would require the inlet be restored to a fully open condition. WRD met with the main office employees of the property owner to discuss the potential impacts of the debris from the burned canyons located above their facility (which includes occupied buildings). The collection area behind the access road embankment does not have adequate capacity to retain the potential sediment produced by the subarea. As a result, debris from the burned canyon may overtop the road embankment and flow toward the property owner's water supply tank at the base of the access road. It was recommended to the manager that the inlet of the upper culvert be repaired, monitored during storms, and cleared as needed. An information packet including the *Homeowner's Guide for Flood, Debris, and Erosion Control* booklet was provided to employees at the property owner's main office.

Debris flows may potentially reach Shoemaker Canyon Road causing sediment deposition on the roadway. A diversion channel on Shoemaker Canyon Road is expected to direct flows toward the culvert under Shoemaker Canyon Road. The channel is also maintained by RMD. The debris may potentially plug the culvert inlet, overtop the inlet headwall, and cause flooding and sediment deposition on Shoemaker Canyon Road. Across from the aforementioned water tank, along the southerly side of the Shoemaker Canyon Road, a dirt embankment is expected to prevent debris from overtopping the road embankment and dropping toward the property owner's buildings at the base of the slope. WRD and RMD (MD1) concurred that RMD should install k-rails along the southerly side of Shoemaker Canyon Road to enhance the dirt embankment. Debris may continue flowing along Shoemaker Canyon Road and toward the intersection of the East Fork Road (also maintained by RMD), causing flooding and sediment deposition along both roadways. RMD routinely monitors Shoemaker Canyon Road and the East Fork Road during storms and has established criteria to clear plugged culverts and the road as needed. The monitoring and clearing should continue for the next four to five years until the watershed has significantly recovered from the burn. The k-rails should likewise remain for the next four to five years.

### Subarea 15

Subarea 15 consists of a total of 18 acres and was 93 percent burned creating an adjusted debris potential of 6,500 cy. During a moderate to severe storm event, debris from the burned subarea may potentially plug the existing culvert under the intersection of Shoemaker Canyon Road and East Fork Road. The collection area behind the culvert headwall does not have adequate capacity to retain the potential sediment flow produced by the subarea. As a result, flooding and sediment deposition may occur at the intersection of the East Fork Road and the Shoemaker Canyon Road. RMD has established criteria to monitor and clear plugged culverts and the road as needed. The monitoring and clearing should continue for the next four to five years until the watershed has significantly recovered from the burn.

### Subarea 16

Subarea 16 consists of a total of 31 acres and was 100 percent burned creating an adjusted debris potential of 11,800 cy. During a moderate to severe storm event, debris from the burned subarea may potentially plug the existing culvert under the East Fork Road. The collection area behind the culvert headwall does not have adequate capacity to retain the potential sediment flow produced by the subarea. As a result, flooding and sediment deposition may occur on the East Fork Road. RMD has established criteria to monitor and clear plugged culverts and the road as needed. The monitoring and clearing should continue for the next four to five years until the watershed has significantly recovered from the burn.

### Subareas 17, 18, 18a, and 18b

Subarea 17 consists of a total of 14 acres and was 99 percent burned creating an adjusted debris potential of 5,200 cy. Subarea 18 consists of a total of 8 acres and was 100 percent burned creating an adjusted debris potential of 3,000 cy. Subarea 18a consists of a total of 9 acres and was 100 percent burned creating an adjusted debris potential of 3,300 cy. Subarea 18b consists of a total of 6 acres and was 100 percent burned creating an adjusted debris potential of 2,400 cy. During a moderate to severe storms, debris material from the burned subareas may potentially flow directly from the burned slopes onto the East Fork Road and is expected to settle on the roadway. RMD has established criteria to monitor and clear the road as needed. The monitoring and clearing should continue for the next four to five years until the watersheds have significantly recovered from the burn.

### Subarea 19

Subarea 19 (Graveyard Canyon) consists of a total of 1,963 acres and was 100 percent burned creating an adjusted debris potential of 324,500 cy. During moderate to severe storms, debris is expected to flow down from the burned canyon and merge with the East Fork of the San Gabriel River. The East Fork Road bridge over Graveyard Canyon has sufficient clearance to pass the anticipated debris flows. The bridge is also

maintained by RMD. RMD has established criteria to monitor the bridge abutments for potential damage. The monitoring should continue for the next four to five years until the watershed has significantly recovered from the burn.

#### Subareas 20 and 20a

Subarea 20 consists of a total of 12 acres and was 89 percent burned creating an adjusted debris potential of 4,100 cy. Subarea 20a consists of a total of 1 acre and was 15 percent burned creating an adjusted debris potential of 280 cy. During moderate to severe storm events, debris material from the burned subareas may potentially plug the existing culvert under East Fork Road. The collection area behind the culvert headwall does not have adequate capacity to retain the potential sediment flow produced by the subareas. As a result, flooding and sediment deposition may occur on the East Fork Road. RMD has established criteria to monitor and clear plugged culverts and the road as needed. The monitoring and clearing should continue for the next four to five years until the watersheds have significantly recovered from the burn.

#### Subarea 21

Subarea 21 (Susanna Canyon) consists of a total of 1,464 acres and was 17 percent burned creating an adjusted debris potential of 144,000 cy. During moderate to severe storm events, debris may potentially flow from the burned canyon, under the East Fork Road bridge over the canyon, and into the riverbed of the East Fork of the San Gabriel River at the mouth of the canyon. The bridge is maintained by RMD. The natural gradient of the streambed near the mouth of the subarea's canyon is less than three percent. There is consequently a strong possibility of significant sediment deposition under the East Fork Road bridge. The bulk of the debris is expected to merge with the East Fork of the San Gabriel River several yards upstream of the Fire Camp 19 access bridge over the East Fork and deposit significant quantities of sediment in the riverbed at the access bridge. The access bridge is maintained by the County of Los Angeles Fire Department. County Assessor's records show LACFCD as the underlying landowner, but United States Forest Service's records show it is the landowner. On September 20, 2012, WRD staff met with Fire Department personnel at Fire Camp 19 and verbally discussed protective measures, which may be employed to protect the facilities and structures of the fire camp from potential debris impacts. It is recommended that personnel at the fire camp monitor river flows at the access bridge during storms and clear obstructions as necessary to maintain the flow. The monitoring and clearing should continue for the next four to five years until the burned watershed has significantly recovered.

## Cumulative Impacts on the San Gabriel Canyon Flood Protection and Water Conservation System

Postfire sediment depositing in the East Fork of the San Gabriel River will likely eventually make its way to the LACFCD's San Gabriel Reservoir. San Gabriel Reservoir is one of three LACFCD reservoirs in San Gabriel Canyon that provide flood protection and water conservation storage for millions of residents downstream. Almost 90 percent of the watershed to Cogswell Reservoir was burned by the 2009 Station Fire. The burned watershed has delivered significant volumes of sediment to the reservoir, thus reducing its capacity. LACFCD has not been able to clean out the reservoir because it is still in the midst of environmental regulatory processes. The 2009 Morris Fire burned almost 40 percent of the watershed of Morris Reservoir. Therefore, the Williams Fire sediment will further decrease the total capacity in the canyon for flood protection and water conservation.

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