

Devil's Gate Reservoir Restoration Project



Public Works
LOS ANGELES COUNTY



Presented by: Mark Gim & Brittany Barker

Agenda

- Construction Overview
- Habitat Restoration
- 2019 Sediment Hauling Season
- Hauling Routes
- Trail Closures
- Best Management Practices
- Traffic Impacts
- Air Monitoring
- Haul Truck Monitoring
- ASF/PAS Settlement Agreement
- Ongoing Communication
- Questions



Construction

Phase 1 – **Habitat Restoration**

(On-going)

Side Slopes and EMA (On-going)

Phase 2 – **Vegetation Removal**

(Completed January 2019)

Access Road Construction

(Completed April 2019)

Phase 3 – **Sediment Removal**

May 21, 2019 – November 15, 2019

June 4, 2020 – November 30, 2020

April – November (2021, 2022)





Phase 1: Habitat Restoration

- Ongoing weed abatement
- Irrigation installation
- Planted to date:
 - 300 coast live oak acorns
 - 10,346 container plants
 - ~713 lbs. of seed





Taking a Community-First Approach



Before weeding invasives



After weeding invasives and planting natives



Non-Native plants



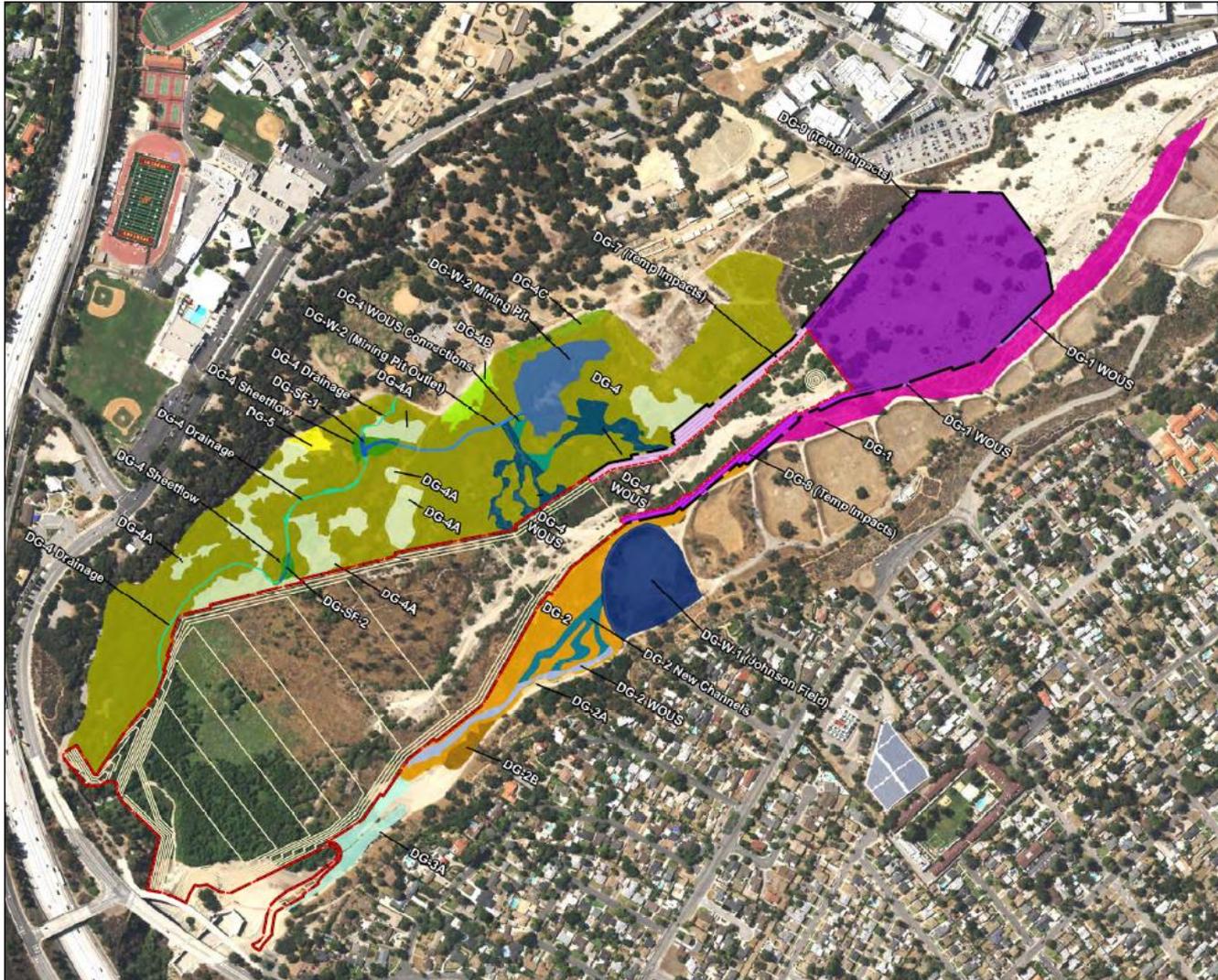
Weed removal



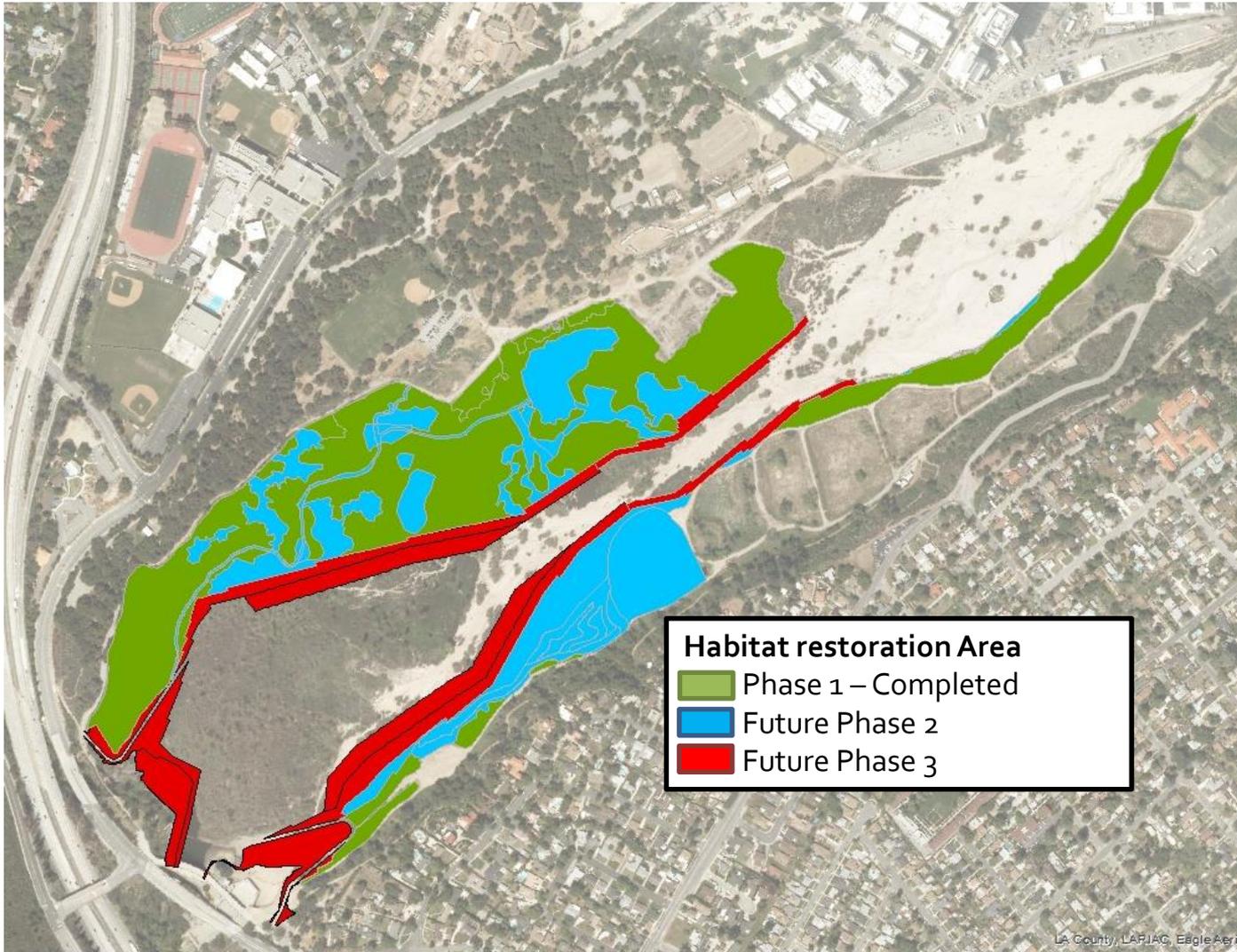
Taking a Community-First Approach



Contrast between steamed vs. unsteamed area



CDFW and USACE approved Habitat Restoration



Modified Project footprint and Habitat Restoration



Taking a Community-First Approach



A SUSTAINABLE DEVIL'S GATE RESERVOIR



Taking a Community-First Approach



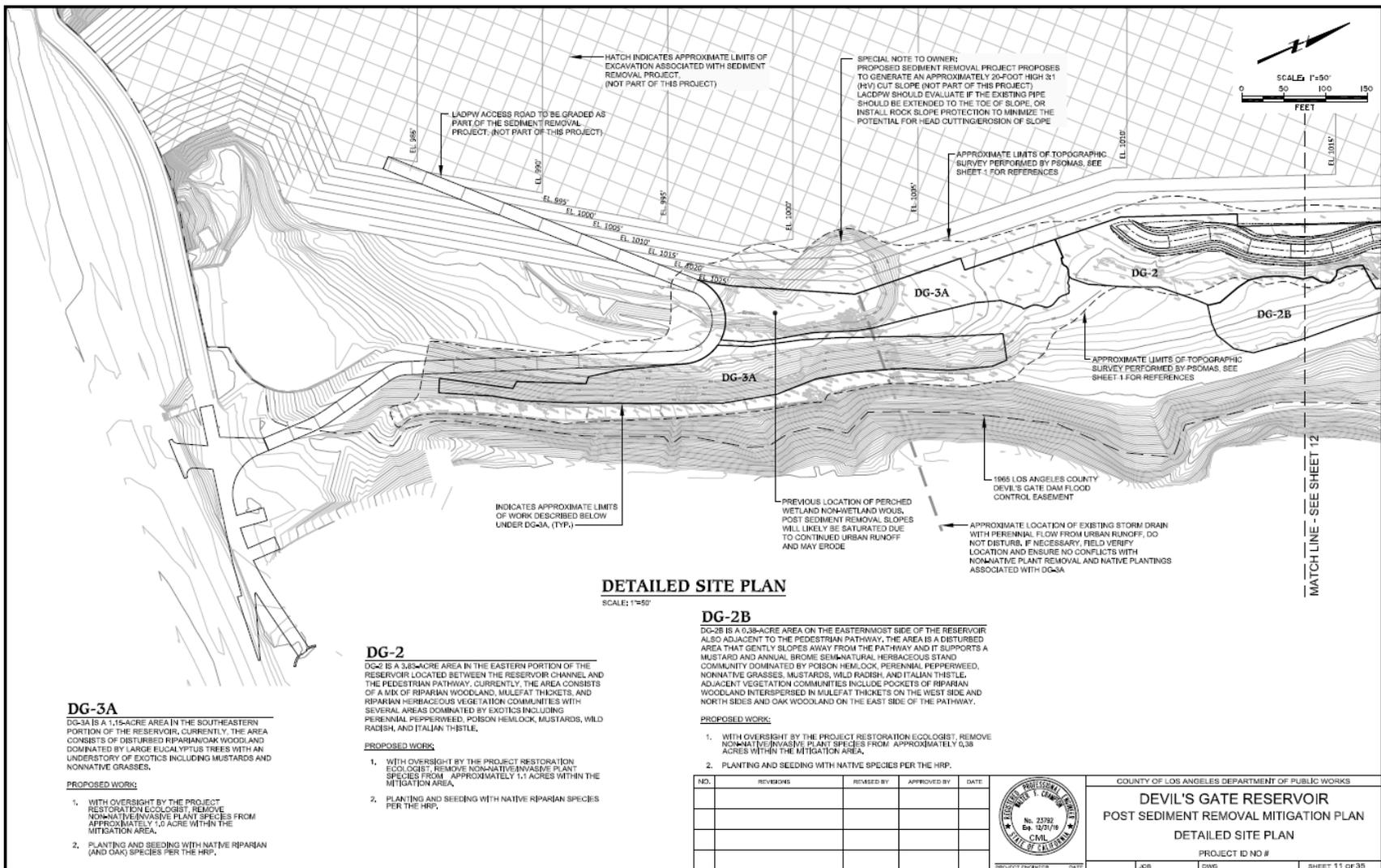
A SUSTAINABLE DEVIL'S GATE RESERVOIR



East Access at La Canada Verdugo cul-de-sac



Taking a Community-First Approach



DETAILED SITE PLAN

SCALE: 1"=50'

DG-3A
 DG-3A IS A 1.16-ACRE AREA IN THE SOUTHEASTERN PORTION OF THE RESERVOIR, CURRENTLY THE AREA CONSISTS OF DISTURBED RIPARIAN/OAK WOODLAND DOMINATED BY LARGE EUCALYPTUS TREES WITH AN UNDERSTORY OF EXOTICS INCLUDING MUSTARDS AND NONNATIVE GRASSES.

PROPOSED WORK:

- WITH OVERSIGHT BY THE PROJECT RESTORATION ECOLOGIST, REMOVE NONNATIVE/INVASIVE PLANT SPECIES FROM APPROXIMATELY 1.0 ACRE WITHIN THE MITIGATION AREA.
- PLANTING AND SEEDING WITH NATIVE RIPARIAN (AND OAK) SPECIES PER THE HRP.

DG-2
 DG-2 IS A 3.85-ACRE AREA IN THE EASTERN PORTION OF THE RESERVOIR LOCATED BETWEEN THE RESERVOIR CHANNEL AND THE PEDESTRIAN PATHWAY. CURRENTLY, THE AREA CONSISTS OF A MIX OF RIPARIAN WOODLAND, MULEFAT THICKETS, AND RIPARIAN HERBACEOUS VEGETATION COMMUNITIES WITH SEVERAL AREAS DOMINATED BY EXOTICS INCLUDING PERENNIAL PEPPERWEED, POISON HEMLOCK, MUSTARDS, WILD RADISH, AND ITALIAN THISTLE.

PROPOSED WORK:

- WITH OVERSIGHT BY THE PROJECT RESTORATION ECOLOGIST, REMOVE NONNATIVE/INVASIVE PLANT SPECIES FROM APPROXIMATELY 1.1 ACRES WITHIN THE MITIGATION AREA.
- PLANTING AND SEEDING WITH NATIVE RIPARIAN SPECIES PER THE HRP.

DG-2B
 DG-2B IS A 0.38-ACRE AREA ON THE EASTERNMOST SIDE OF THE RESERVOIR ALSO ADJACENT TO THE PEDESTRIAN PATHWAY. THE AREA IS A DISTURBED AREA THAT GENTLY SLOPES AWAY FROM THE PATHWAY AND IT SUPPORTS A MUSTARD AND ANNUAL BROOME SEMI-NATURAL HERBACEOUS STAND COMMUNITY DOMINATED BY POISON HEMLOCK, PERENNIAL PEPPERWEED, NONNATIVE GRASSES, MUSTARDS, WILD RADISH, AND ITALIAN THISTLE. ADJACENT VEGETATION COMMUNITIES INCLUDE POCKETS OF RIPARIAN WOODLAND INTERSPERSED IN MULEFAT THICKETS ON THE WEST SIDE AND NORTH SIDES AND OAK WOODLAND ON THE EAST SIDE OF THE PATHWAY.

PROPOSED WORK:

- WITH OVERSIGHT BY THE PROJECT RESTORATION ECOLOGIST, REMOVE NONNATIVE/INVASIVE PLANT SPECIES FROM APPROXIMATELY 0.38 ACRES WITHIN THE MITIGATION AREA.
- PLANTING AND SEEDING WITH NATIVE SPECIES PER THE HRP.

NO.	REVISIONS	REMOVED BY	APPROVED BY	DATE



COUNTY OF LOS ANGELES DEPARTMENT OF PUBLIC WORKS	
DEVIL'S GATE RESERVOIR	
POST SEDIMENT REMOVAL MITIGATION PLAN	
DETAILED SITE PLAN	
PROJECT ID NO #	
JOB	DWG
SHEET 11 OF 38	



Taking a Community-First Approach



A SUSTAINABLE DEVIL'S GATE RESERVOIR



Taking a Community-First Approach

Altadena Drain





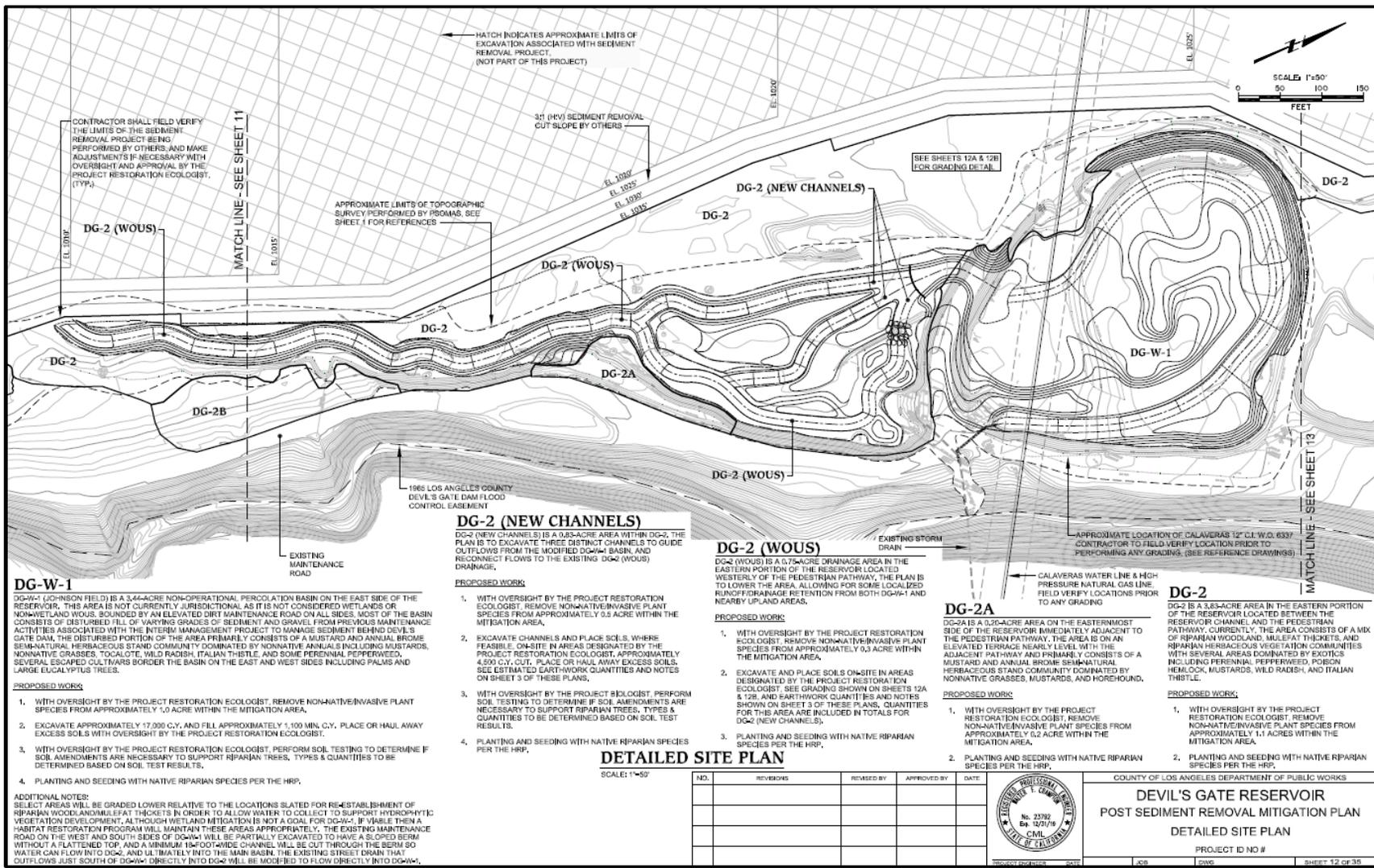
Taking a Community-First Approach

180 Degree View at Altadena Drain





Taking a Community-First Approach



DG-W-1
 DG-W-1 (JOHNSON FIELD) IS A 3.44-ACRE NON-OPERATIONAL PERCOLATION BASIN ON THE EAST SIDE OF THE RESERVOIR. THIS AREA IS NOT CURRENTLY JURISDICTIONAL, AS IT IS NOT CONSIDERED WETLANDS OR NONWETLAND WOUS. BOUNDED BY AN ELEVATED DIRT MAINTENANCE ROAD ON ALL SIDES, MOST OF THE BASIN CONSISTS OF DISTURBED FILL OF VARYING GRADES OF SEDIMENT AND GRAVEL FROM PREVIOUS MAINTENANCE ACTIVITIES ASSOCIATED WITH THE INTERIM MANAGEMENT PROJECT TO MANAGE SEDIMENT BEHIND DEVIL'S GATE DAM. THE DISTURBED PORTION OF THE AREA PRIMARILY CONSISTS OF A MUSTARD AND ANNUAL BROME SEMI-NATURAL HERBACEOUS STAND COMMUNITY DOMINATED BY NONNATIVE ANNUALS INCLUDING MUSTARDS, NONNATIVE GRASSES, TOCOTOE, WILD RADISH, ITALIAN THISTLE, AND SOME PERENNIAL PEPPERWEED. SEVERAL ESCAPED CULTIVARS BORDER THE BASIN ON THE EAST AND WEST SIDES INCLUDING PALMS AND LARGE EUCALYPTUS TREES.

- PROPOSED WORK:**
1. WITH OVERSIGHT BY THE PROJECT RESTORATION ECOLOGIST, REMOVE NON-NATIVE/INVASIVE PLANT SPECIES FROM APPROXIMATELY 1.0 ACRE WITHIN THE MITIGATION AREA.
 2. EXCAVATE APPROXIMATELY 17,000 C.Y. AND FILL APPROXIMATELY 1,100 MIN. C.Y. PLACE OR HAUL AWAY EXCESS SOILS WITH OVERSIGHT BY THE PROJECT RESTORATION ECOLOGIST.
 3. WITH OVERSIGHT BY THE PROJECT RESTORATION ECOLOGIST, PERFORM SOIL TESTING TO DETERMINE IF SOIL AMENDMENTS ARE NECESSARY TO SUPPORT RIPARIAN TREES, TYPES & QUANTITIES TO BE DETERMINED BASED ON SOIL TEST RESULTS.
 4. PLANTING AND SEEDING WITH NATIVE RIPARIAN SPECIES PER THE HRP.

ADDITIONAL NOTES:
 SELECT AREAS WILL BE GRADED LOWER RELATIVE TO THE LOCATIONS SLATED FOR RE-ESTABLISHMENT OF RIPARIAN WOODLAND/MULLEFAT THICKETS IN ORDER TO ALLOW WATER TO COLLECT TO SUPPORT HYDROPHYTIC VEGETATION DEVELOPMENT. THOUGH WETLAND MITIGATION IS NOT A GOAL FOR DG-W-1, IF WABLE THEN A HABITAT RESTORATION PROGRAM WILL MAINTAIN THESE AREAS APPROPRIATELY. THE EXISTING MAINTENANCE ROAD ON THE WEST AND SOUTH SIDES OF DG-W-1 WILL BE PARTIALLY EXCAVATED TO HAVE A SLOPED BERM WITHOUT A FLATTENED TOP, AND A MINIMUM 14'-00" WIDE CHANNEL WILL BE CUT THROUGH THE BERM SO WATER CAN FLOW INTO DG-2, AND ULTIMATELY INTO THE MAIN BASIN. THE EXISTING STREET DRAIN THAT OUTFLOWS JUST SOUTH OF DG-W-1 DIRECTLY INTO DG-2 WILL BE MODIFIED TO FLOW DIRECTLY INTO DG-W-1.

DG-2 (NEW CHANNELS)
 DG-2 (NEW CHANNELS) IS A 0.83-ACRE AREA WITHIN DG-2. THE PLAN IS TO EXCAVATE THREE DISTINCT CHANNELS TO GUIDE OUTFLOWS FROM THE MODIFIED DG-W-1 BASIN, AND RECONNECT FLOWS TO THE EXISTING DG-2 (WOUS) DRAINAGE.

- PROPOSED WORK:**
1. WITH OVERSIGHT BY THE PROJECT RESTORATION ECOLOGIST, REMOVE NON-NATIVE/INVASIVE PLANT SPECIES FROM APPROXIMATELY 0.5 ACRE WITHIN THE MITIGATION AREA.
 2. EXCAVATE CHANNELS AND PLACE SOILS, WHERE FEASIBLE, ON-SITE IN AREAS DESIGNATED BY THE PROJECT RESTORATION ECOLOGIST, APPROXIMATELY 4,800 C.Y. CUT, PLACE OR HAUL AWAY EXCESS SOILS. SEE ESTIMATED EARTHWORK QUANTITIES AND NOTES ON SHEET 3 OF THESE PLANS.
 3. WITH OVERSIGHT BY THE PROJECT RESTORATION ECOLOGIST, PERFORM SOIL TESTING TO DETERMINE IF SOIL AMENDMENTS ARE NECESSARY TO SUPPORT RIPARIAN TREES, TYPES & QUANTITIES TO BE DETERMINED BASED ON SOIL TEST RESULTS.
 4. PLANTING AND SEEDING WITH NATIVE RIPARIAN SPECIES PER THE HRP.

DG-2 (WOUS)
 DG-2 (WOUS) IS A 0.75-ACRE RESERVE AREA IN THE WESTERN PORTION OF THE RESERVOIR LOCATED WESTERLY OF THE PEDESTRIAN PATHWAY. THE PLAN IS TO LOWER THE AREA, ALLOWING FOR SOME LOCALIZED RUNOFF/DRAINAGE RETENTION FROM BOTH DG-W-1 AND NEARBY UPLAND AREAS.

- PROPOSED WORK:**
1. WITH OVERSIGHT BY THE PROJECT RESTORATION ECOLOGIST, REMOVE NON-NATIVE/INVASIVE PLANT SPECIES FROM APPROXIMATELY 0.3 ACRE WITHIN THE MITIGATION AREA.
 2. EXCAVATE AND PLACE SOILS ON-SITE IN AREAS DESIGNATED BY THE PROJECT RESTORATION ECOLOGIST. SEE GRADING QUANTITIES AND NOTES SHOWN ON SHEET 3 OF THESE PLANS. QUANTITIES FOR THIS AREA ARE INCLUDED IN TOTALS FOR DG-2 (NEW CHANNELS).
 3. PLANTING AND SEEDING WITH NATIVE RIPARIAN SPECIES PER THE HRP.

DG-2A
 DG-2A IS A 0.20-ACRE AREA ON THE EASTERNMOST SIDE OF THE RESERVOIR IMMEDIATELY ADJACENT TO THE PEDESTRIAN PATHWAY. THE AREA IS ON AN ELEVATED TERRACE NEARLY LEVEL WITH THE ADJACENT PATHWAY AND PRIMARILY CONSISTS OF A MUSTARD AND ANNUAL BROME SEMI-NATURAL HERBACEOUS STAND COMMUNITY DOMINATED BY NONNATIVE GRASSES, MUSTARDS, AND HOREHOUND.

- PROPOSED WORK:**
1. WITH OVERSIGHT BY THE PROJECT RESTORATION ECOLOGIST, REMOVE NON-NATIVE/INVASIVE PLANT SPECIES FROM APPROXIMATELY 0.2 ACRE WITHIN THE MITIGATION AREA.
 2. PLANTING AND SEEDING WITH NATIVE RIPARIAN SPECIES PER THE HRP.

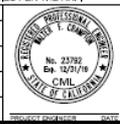
DG-2
 DG-2 IS A 3.63-ACRE AREA IN THE EASTERN PORTION OF THE RESERVOIR LOCATED BETWEEN THE RESERVOIR CHANNEL AND THE PEDESTRIAN PATHWAY. CURRENTLY, THE AREA CONSISTS OF A MIX OF RIPARIAN WOODLAND, MULEFAT THICKETS, AND RIPARIAN HERBACEOUS VEGETATION COMMUNITIES WITH SEVERAL AREAS DOMINATED BY EXOTICS INCLUDING PERENNIAL PEPPERWEED, POISON HEMLOCK, MUSTARDS, WILD RADISH, AND ITALIAN THISTLE.

- PROPOSED WORK:**
1. WITH OVERSIGHT BY THE PROJECT RESTORATION ECOLOGIST, REMOVE NON-NATIVE/INVASIVE PLANT SPECIES FROM APPROXIMATELY 1.1 ACRES WITHIN THE MITIGATION AREA.
 2. PLANTING AND SEEDING WITH NATIVE RIPARIAN SPECIES PER THE HRP.

DETAILED SITE PLAN

SCALE: 1"=50'

NO.	REVISIONS	REVISED BY	APPROVED BY	DATE



COUNTY OF LOS ANGELES DEPARTMENT OF PUBLIC WORKS

DEVIL'S GATE RESERVOIR
 POST SEDIMENT REMOVAL MITIGATION PLAN

DETAILED SITE PLAN

PROJECT ID NO #

DATE: 12/18/18

DESIGNED BY: JCB

DRAWN BY: DWS

SHEET 12 OF 35



Taking a Community-First Approach

130 Degree View at Johnson Field





Taking a Community-First Approach

DG-2 South of Johnson Field





Phase 3: Sediment Removal

Completion of the 2019
Hauling Season:

Total Days of Hauling – 96

Total Truck Trips – 31,284

Volume Removed ~445,460 cy
26% of 1.7 MCY

Trucks Used Daily – up to 85

Maximum Roundtrip
Truck Trips - 425





Hauling Schedule

- Removal of 1.7 MCY of sediment, in addition to any inflows over 4 years
- April - November (2020 – 2022)
- Approximately 95 trucks will be used to make a maximum of 425 roundtrip truck trips daily
- Hauling Hours:
 - Monday-Friday, 7:00 am to 3:30 pm
 - No work:
 - Weekends
 - Holidays
 - Red Flag Warning Days
 - Major Rose Bowl events





Taking a Community-First Approach



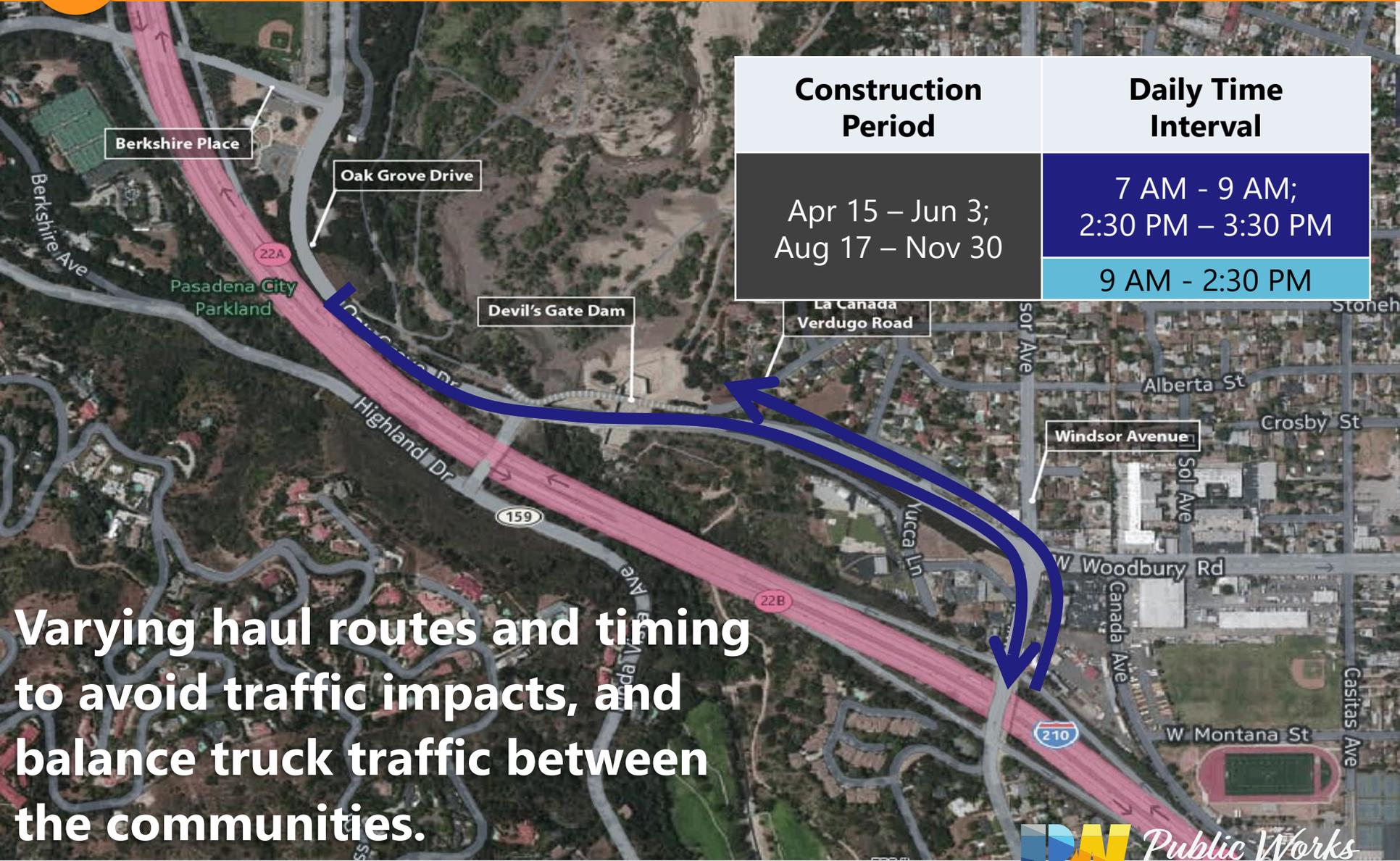
Construction Period	Daily Time Interval
Jun 4 – Aug 14	7 AM – 3:30 PM

Varying haul routes and timing to avoid traffic impacts, and balance truck traffic between the communities.





Taking a Community-First Approach



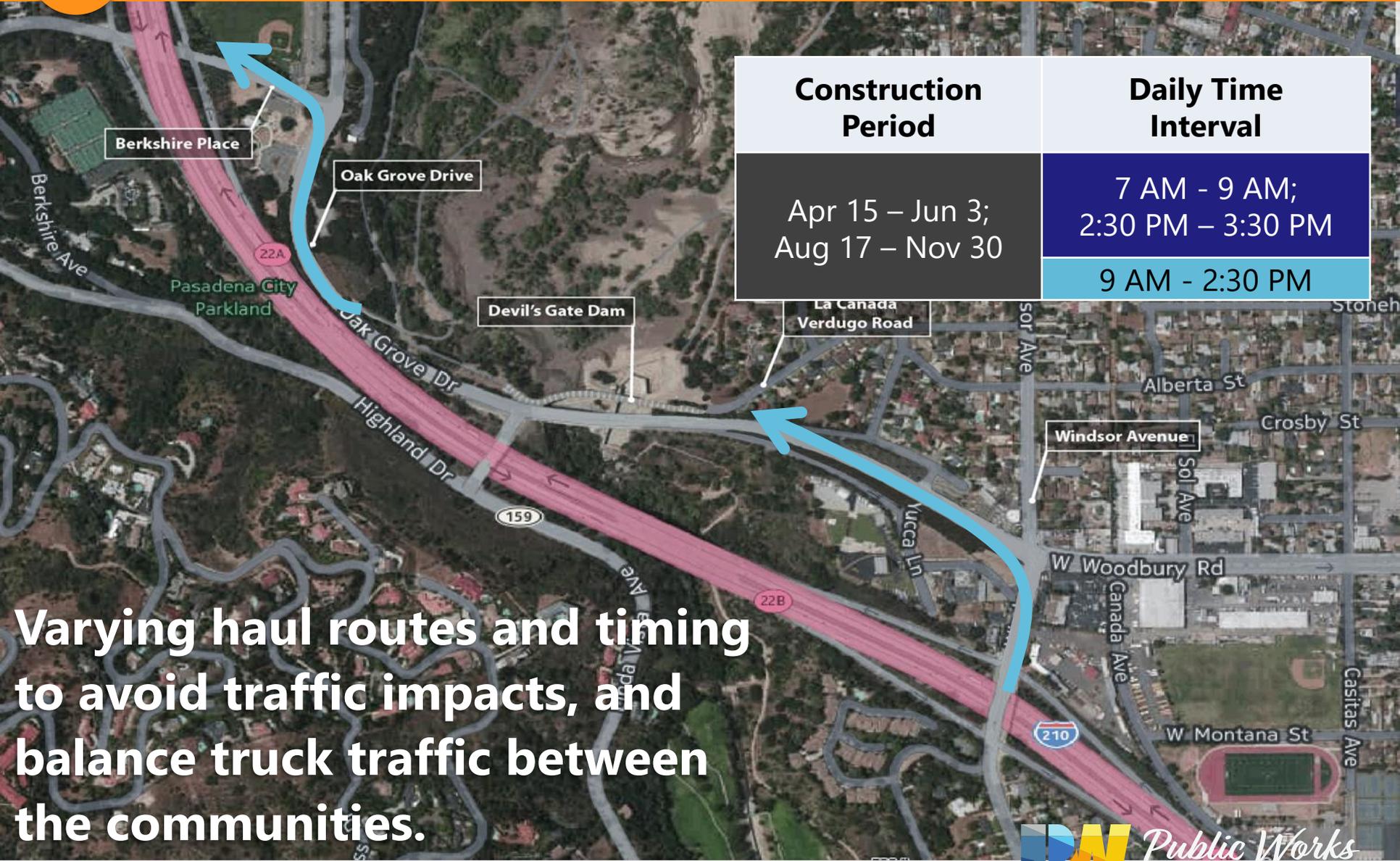
Construction Period	Daily Time Interval
Apr 15 – Jun 3; Aug 17 – Nov 30	7 AM - 9 AM; 2:30 PM – 3:30 PM
	9 AM - 2:30 PM

Varying haul routes and timing to avoid traffic impacts, and balance truck traffic between the communities.





Taking a Community-First Approach



Construction Period	Daily Time Interval
Apr 15 – Jun 3; Aug 17 – Nov 30	7 AM - 9 AM; 2:30 PM – 3:30 PM
	9 AM - 2:30 PM

Varying haul routes and timing to avoid traffic impacts, and balance truck traffic between the communities.



Trail Closures

- Trails temporarily closed during weekdays, from 6:45 am to 4 pm, daily.
- Trails open on the weekends.





Responsible Sediment Hauling



Maintaining Proper Freeboard



Responsible Sediment Hauling



Cleaning outside of trucks



Dust Control Measures Inside Reservoir



Watering at excavation operations



Dust Mitigation Measures Implemented



Double tire wash at Devil's Gate Reservoir exit



Traffic Impacts

Current Distance Learning

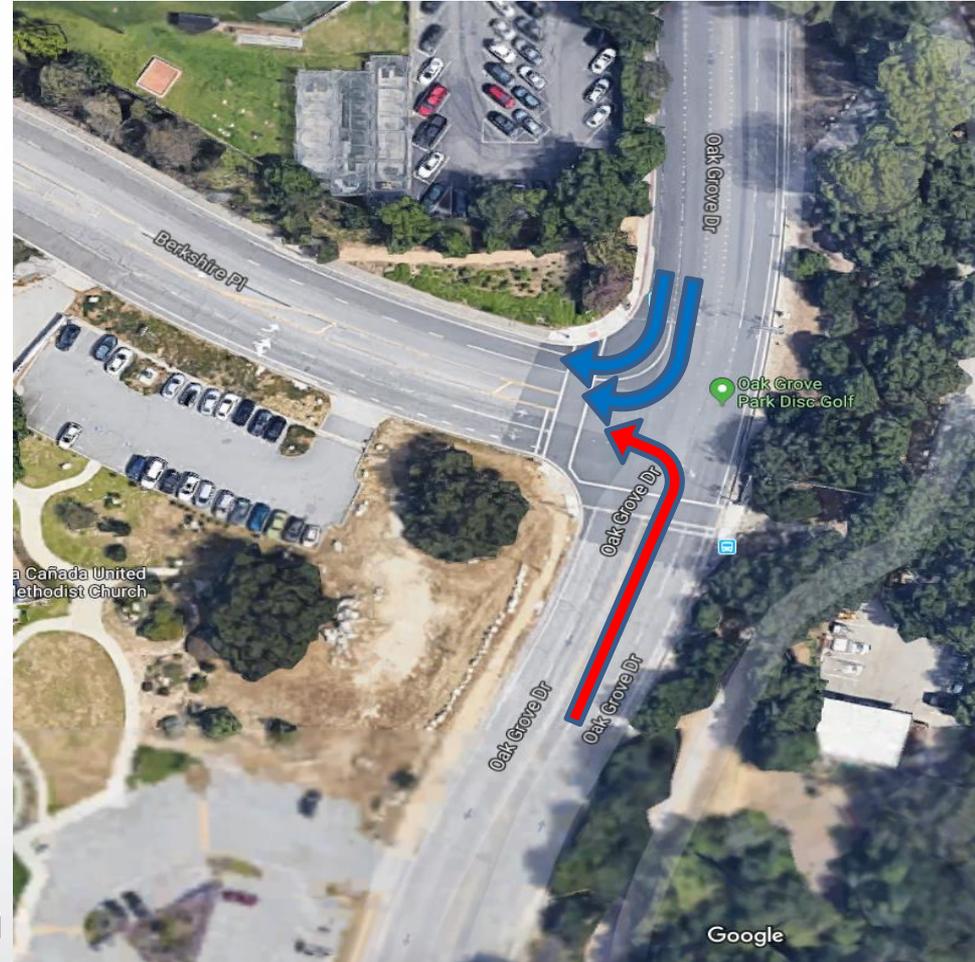
- No traffic impacts reported.

Windsor/Oak Grove Intersection -

- Left turn signal installed on 6/1/2019.

Oak Grove/Berkshire Intersection Improvements -

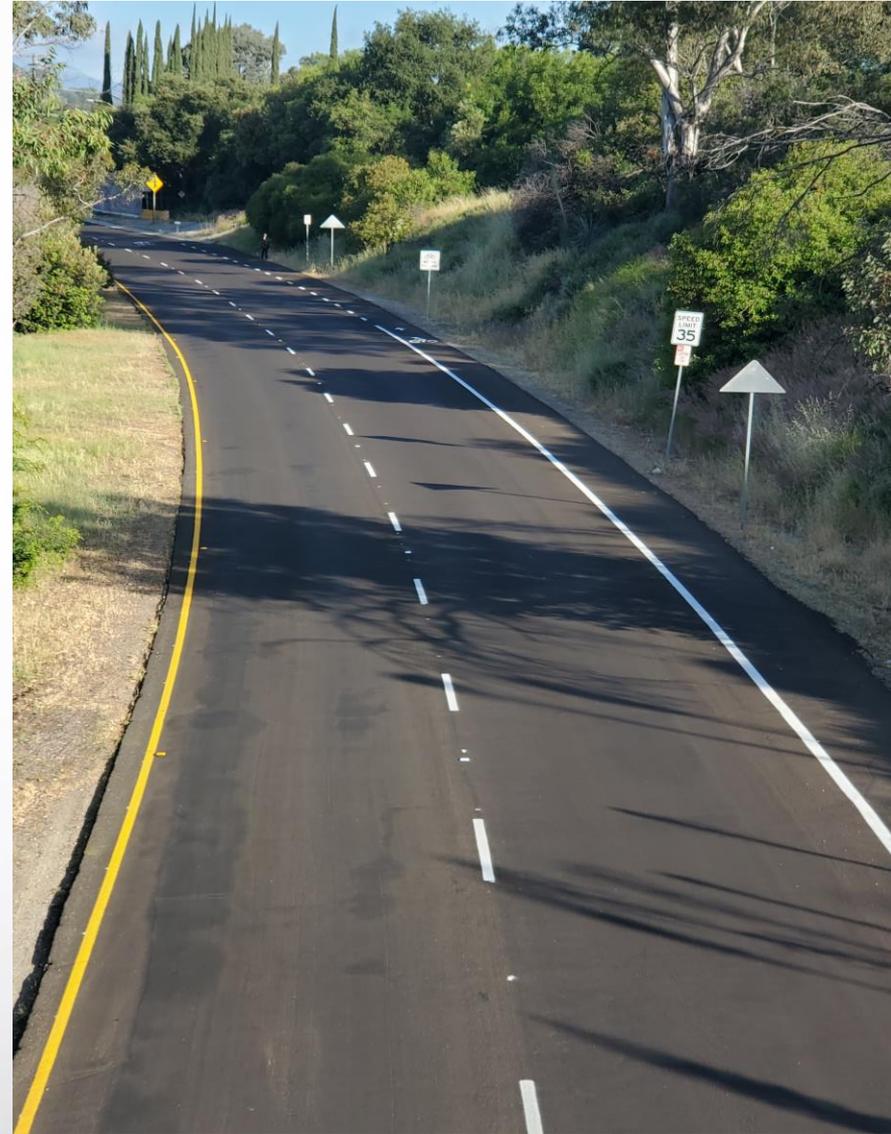
- Left turn signal and improvements completed on 4/15/2020.





Haul Route Pavement Improvements

- The existing pavement was in poor to fair condition when our Project began.
- To minimize the urgency and frequency of pothole patching, a microsurfacing treatment was completed on 4/17/20.
- Additional signage and pavement markings were added for improved safety of roadway users.





Draft Air Quality Monitoring Workplan

Station ID	Sampling Station	Parameter Measured
1	Ambient/Community Monitoring <i>[Upwind of 210-FWY (afternoon) / upwind of Site (night)]</i>	- PM ₁₀ , PM _{2.5} , and BC - NO ₂ and O ₃ - Wind speed, wind direction, temperature, humidity
2	Ambient/Community Monitoring <i>[Upwind of 210-FWY (afternoon) / downwind from Site (night)]</i>	- PM ₁₀ , PM _{2.5} , and BC - NO ₂ and O ₃ - Wind speed, wind direction, temperature, humidity
3	Site Compliance Monitoring	- PM ₁₀ and PM _{2.5} - NO ₂ and O ₃ - Wind speed, wind direction, temperature, humidity
4	Site Compliance Monitoring	- PM ₁₀ and PM _{2.5} - NO ₂ and O ₃ - Wind speed, wind direction, temperature, humidity
5	Site Compliance Monitoring	- PM ₁₀ and PM _{2.5} - NO ₂ and O ₃ - Wind speed, wind direction, temperature, humidity
6	Ambient/Community Monitoring <i>[Source monitoring]</i>	- PM ₁₀ , PM _{2.5} , and BC - NO ₂ and O ₃ - Wind speed, wind direction, temperature, humidity
7	Ambient/Community Monitoring <i>[Source monitoring]</i>	- PM ₁₀ , PM _{2.5} , and BC - NO ₂ and O ₃ - Wind speed, wind direction, temperature, humidity





Air Quality Monitoring Additional Location #7

- Community requested additional Air Monitoring Station be placed in Altadena, adjacent to haul route.
- Station to be located at Options for Learning Preschool on corner of Windsor Ave. & Oak Grove Dr.
- Complications gaining access to the closed facility as a result of COVID-19. Air Monitor is expected to be powered and fully operational before haul route shifts on August 17.





“Real-Time” Air Monitoring Website

- On June 2, 2020, Public Works launched a “Real-Time” Air Monitoring Website.
- The link for the nearest South Coast Air Quality Management District Monitor can be used for regional information in the West San Gabriel Valley Area

Select a Site
Station #5 ▼ <https://www.devilsgateairquality.com/>

Monitored Parameter	*Current Value		State Standard	Federal Standard
	1-hr Average	Units		
PM ₁₀	25.38	µg/m ³	50 (24-hr avg)	150 (24-hr avg)
PM _{2.5}	17.39	µg/m ³	-	35 (24-hr avg)
NO ₂	9	ppb	180 (1-hr avg)	-
Wind Direction	S	Direction From	-	-
Wind Speed	2.42	m/s	-	-
Temperature	26.1	°C	-	-
Relative Humidity	48.9	%	-	-

Last date/time of values: 7/23/2020 3:00 PM

Note: *Preliminary data that has not been validated, which may affect hourly or daily average concentration.
 *PM10 State and Fed standards are based on a 24-hour average
 *PM2.5 Fed standard is based on a 24-hour average
 *NO2 State Standard is based on 1-hour average
 *BC no State or Fed standard

For information on the Region 8 – West San Gabriel Valley, which includes La Canada-Flintridge, Altadena, and Pasadena on the following link.
[View SCAQMD AQI](#) South Coast Air Quality Management District (AQMD) Air Quality Index (AQI) for Region 8 Valley (including La Canada-Flintridge, Altadena, and Pasadena area)



Haul Truck Monitoring

- Public Works is planning to implement a Phase II monitoring program, in coordination with:
 - California Air Resources Board
 - University of California, Riverside Center for Environmental Research and Technology
 - Community stakeholders (LCF4HealthyAir)
- Phase II will track and measure emissions coming directly from haul trucks working on the Project.



Haul Truck Monitoring

- Phase II monitoring program consists of 2 parts:
 - Part A –
 - Perform a diagnostic reading download
 - Install a device to record performance and emissions during one roundtrip haul trip
 - Part B –
 - Installing a sensor to measure emissions directly from tailpipe during one roundtrip haul trip

Estimated to begin Part A in August 2020



Settlement Agreement

- Board of Supervisors approved Settlement Agreement with ASF & PAS on July 7, 2020.
- Tim Brick with Arroyo Seco Foundation (ASF) will share details of the Settlement in following presentation.



For Immediate Release
July 7, 2020

Michelle Vega, Communications Director
Office: (213) 974-5555 / Cell: (818) 652-1268

ARROYO SECO FOUNDATION AND PASADENA AUDUBON SOCIETY REACH SETTLEMENT AGREEMENT WITH L.A. COUNTY ON RESERVOIR RESTORATION AT DEVIL'S GATE DAM

Project now underway to increase and sustain flood protection for downstream communities while restoring plant and wildlife habitat within the Hahamongna Watershed

LOS ANGELES COUNTY —Today, Supervisor Kathryn Barger announced approval by the Board of Supervisors for a settlement agreement with the Arroyo Seco Foundation and Pasadena Audubon Society on the Devil's Gate Reservoir Restoration Project in Pasadena.

"We're very pleased to reach this agreement with our environmental partners and key stakeholders," Supervisor Kathryn Barger said. "In close collaboration with our communities and environmental leaders, we made significant progress to complete this critical work. Since





Ongoing Communication

- Dedicated Website
 - Resources Tab
- Email blast project updates
- Newsletters
- Continued community engagement with regular updates



DevilsGateProject.com



Talk to Us

Questions?

For More Information:

Subscribe to our e-mail list to receive updates on the project.



DevilsGateProject.com



devilsgateproject@pw.lacounty.gov



Hotline: (626) 458-2507

