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1149 SOUTH BROADWAY, 10TH FLOOR
LOS ANGELES, CA 90015
TEL: (213) 485-0587
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WWW.LACITYSAN.ORG

November 28, 2018

Deborah Smith, Executive Officer
Los Angeles Regional Water Quality Control Board
320 W. 4th Street, Suite 200
Los Angeles, CA 90013

Attention: Renee Purdy / Ivar Ridgeway

Dear Ms. Smith:

REQUEST FOR TIME EXTENSION TO COMPLETE THE IMPLEMENTATION OF LOAD REDUCTION STRATEGIES FOR SEGMENT B OF LOS ANGELES RIVER AND ARROYO SECO

The City of Los Angeles, the City of Pasadena, and the County of Los Angeles are requesting the Los Angeles Water Board a time extension for completing the implementation of the Load Reduction Strategies (LRS) for Los Angeles River Segment B and Arroyo Seco. While several projects have already been completed and are in operation, others are facing unexpected challenges that necessitate this request. The following sections provide an update on the current status of implementation and the proposed steps for completing the LRS projects.

Background

The Los Angeles River Watershed Bacteria Total Maximum Daily Load (Bacteria TMDL) provides the Load Reduction Strategies (LRS) as an optional dry-weather compliance approach. The LRS for Segment B of the Los Angeles River and Arroyo Seco were submitted to your Board on June 25, 2015 and March 23, 2016, respectively. By developing and implementing the optional LRS approach, the Upper Los Angeles River Enhanced Watershed Management Program (ULAR EWMP) Group qualifies for a second phase of Bacteria TMDL implementation, if needed. The LA River Segment B LRS for the ULAR EWMP Group addresses portions of the cities of Los Angeles, Alhambra, South Pasadena, and Monterey Park, unincorporated Los Angeles County, and Los Angeles County Flood Control District. The Arroyo Seco LRS for the ULAR EWMP Group

addresses portions of the cities of Los Angeles, Glendale, Pasadena, La Canada-Flintridge, and South Pasadena, unincorporated Los Angeles County, and Los Angeles County Flood Control District. The LRS for Los Angeles River Segment B and Arroyo Seco specify completion dates of March 2019 and September 2020, respectively.

The LRS process is based on identification of, and implementation actions for, two categories of outfalls:

- Priority Outfalls have relatively consistent, problematic discharges that drive storm drain loading rates above the Wasteload Allocations (WLAs). As such, Priority Outfalls are the highest priority for source abatement and are subject to *specific implementation actions* in the LRS.
- Outlier Outfalls have episodic, high loading-rate *E. coli* discharges that may infrequently drive storm drain *E. coli* loading rates above the WLA. As such, Outlier Outfalls are subject to *follow-up investigations* during LRS implementation.

LA River Segment B LRS Status

For the LA River Segment B LRS, four Priority Outfalls were identified for specific implementation actions: R2-A, R2-K, R2-02, and R2-04. The table below, taken from the submitted LRS document, shows the current status of the projects.

LA River Segment B Priority Outfall Analysis: Monte Carlo *E. Coli* Loading versus the Final WLA

Priority Outfall	Proposed LRS Action	Lead Agency	Expected *E. Coli* Loading Rate from Outfall after Proposed LRS Actions (10^9 MPN per day)	Expected *E. Coli* Loading Rate from all ULAR EWMP Group outfalls to Segment B after Proposed LRS Actions (10^9 MPN per day)	Status
Baseline Loading Prior to LRS Actions = 929					
R2-A	Low Flow Diversion	Los Angeles	0 (100% removal)	532	**Completed**
R2-K	Low Flow Diversion	Los Angeles	0 (100% removal)	406	**Completed**
R2-02	Reuse and Removal Urban Flow System	Los Angeles	0 (100% removal)	313	**Design**
R2-04	Infiltration Wetland	Uninc. County and LACFCD	0 (100% removal)	274*	**Pre-Design**

* - Below WLA of 281 billion MPN per day

To date, the City of Los Angeles has completed two of the three projects (the LFDs at Priority Outfalls R2-A and R2-K) and they are fully operational. One project expanded its scope to create the Ed P. Reyes River Greenway, which transformed a former Brownfield site into a recreational greenspace and ecological resource in an underserved community that lacked any access to open space (see Exhibit A). In addition to setting the standard for diversion projects adjacent to LA River, the Ed P. Reyes Greenway has received two awards of excellence: 1) 2014 Storm Water Solutions "top Project;" and 2) 2015 National Association of Clean Water Agencies (NACWA) Operations and Environmental Performance Award. The City of Los Angeles' third project is at Priority Outfall R2-02 and it recently underwent concept design revisions to address utility conflicts and traffic mitigation issues in the project area. This project currently is in design, and it is anticipated that it will be completed by September 2022 (see Exhibit B).

The County of Los Angeles submitted a project concept for an infiltration wetland to divert dry weather flow from Priority Outfall R2-04. This project is located within the Los Angeles Department of Water and Power's (LADWP) right-of-way. The County of Los Angeles and LADWP have discussed potential collaboration opportunities to expand the project to not only divert and capture dry weather flow, but to also divert and capture wet weather flow. However, soil investigations at the project site indicated lead contamination originating from the Exide facility. Currently, the Department of Toxic Substances Control is cleaning up the contamination and this effort will extend beyond the original LRS deadline of March 23, 2019. As an alternative to the infiltration wetland, the County of Los Angeles proposes to divert dry weather flow into an existing sewer line owned and operated by the Los Angeles County Sanitation Districts (Districts). The County of Los Angeles and the Districts have already determined that there is sufficient capacity in the sewer line to accept the dry weather flow. The County of Los Angeles has recently developed the 30-percent design plans and is working towards the final design plans (see Exhibit C). The County anticipates it will require an additional five years to finalize the design plans and complete the construction of the project at Priority Outfall R2-04.

Arroyo Seco LRS Status

For the Arroyo Seco LRS, four Priority Outfalls were identified for specific implementation items: AS-21+AS-22, AS-15, AS-41, and ARS-234. The table below, taken from the submitted LRS document, shows the current status of the projects.

Arroyo Seco Priority Outfall Analysis: Monte Carlo *E. Coli* Loading versus the Final WLA

Priority Outfall	Proposed LRS Action	Lead Agency	Expected *E. Coli* Loading Rate from Outfall after Proposed LRS Actions (10^9 MPN per day)	Expected *E. Coli* Loading Rate from all ULAR EWMP Group outfalls to Segment B after Proposed LRS Actions (10^9 MPN per day)	Status
Baseline Loading Prior to LRS Actions = 61.4					
AS-21 +AS-22	Low Flow Diversion	Los Angeles	0 (100% removal)	42.2	**Design**
AS-15	Low Flow Diversion	Los Angeles	0 (100% removal)	27.8	**Design**
AS-41	Diversion to dry well system	Pasadena	0 (100% removal)	17.0	**Pre-Design**
ARS-234	Diversion to dry well	Uninc. County	0 (100% removal)	12.6*	**Pre-Design**

* - Below WLA of 16.41 billion MPN per day

The City of Los Angeles recently revised the concept reports for the two LFD projects at Priority Outfalls AS-21+AS-22 and AS-15 to address the constraints of the project sites as they are located in a heavily urbanized residential corridor adjacent to the Arroyo Seco. The two projects are anticipated to be completed and operational by December 2022 (see Exhibit B).

The County of Los Angeles submitted a proposal to divert dry weather flows at Priority Outfall ARS-234 into a dry-well at a nearby California Department of Transportation (Caltrans) facility yard. Unfortunately, during feasibility investigations, an existing underground storage tank was identified that cannot be removed. In addition, the construction of a dry-well or other best management practices within the Caltrans facility would greatly disrupt the daily activity of the yard. As an alternative, the County of Los Angeles investigated diverting dry weather flow into dry-wells between the Brookside Golf and Country Club and Rosemont Avenue (see Exhibit D). The County of Los Angeles met with the City of Pasadena at the project site to discuss logistics for soil investigation, timeline, and potential project impacts to the area, and obtained an encroachment permit to perform the soil investigation. Unfortunately, soil engineers discovered a black odorous organic material at the project site, which was determined to be the result of illegal dumping. Therefore, infiltration in this area would require costly environmental investigations and remediation, which was determined to be not feasible. The County of Los Angeles is now investigating a third alternative that includes diversion to an existing sewer line.

The City of Pasadena has been engaged in extensive research to determine the best course of action for Priority Outfall AS-41, which has a large tributary drainage area of 697 acres that includes the Annandale Golf Course, Johnston Lake, and San Rafael Creek. They have performed source investigations, televised various storm drains for illicit connections, performed additional water

quality monitoring, and conducted soil/percolation tests at Lower Arroyo Park (see Exhibit E). The City of Pasadena is constrained by a high water table at the termination point, reducing infiltration possibilities. Opportunities to divert the flow to the sewer system are limited due to the outfall's location near a creek and distant from the nearest sewer mains. Additionally, the outfall area itself is in a multi-jurisdictional area (Pasadena, South Pasadena, Los Angeles, and LACFCD), which will require extensive outreach with multiple community organizations and various stakeholders. The City of Pasadena anticipates it will require a minimum of five years to identify the most effective design, as well as to investigate grant and funding opportunities to provide a source of revenue.

Request

As demonstrated in the previous sections, the City of Los Angeles, the City of Pasadena, and the County of Los Angeles have made significant progress in fulfilling their commitments to abating flows from the Priority Outfalls in Los Angeles River Segment B and Arroyo Seco. However, despite our best efforts, it has become apparent that not all projects will be completed and operational by the required deadline as stated in the LRS submitted to the Los Angeles Water Board (March 2019 and September 2020 for Segment B and Arroyo Seco, respectively.)

Therefore, the City of Los Angeles, the City of Pasadena, and the County of Los Angeles respectfully request that the Los Angeles Water Board consider a five year time extension to allow us to complete the projects at Priority Outfalls R2-02, AS-21+AS22, AS-15, AS-41, and ARS-234. As explained in previous sections, this extension is necessary to address unforeseen contamination issues, explore alternative designs, conduct public and stakeholder outreach, mitigate road and traffic issues, and address other site constraints that have been identified during the design of these projects. The additional 5-year period will also allow us to investigate grant and funding opportunities to support the development and construction of the projects.

If you have any questions about this request or wish to discuss this further, please contact me at (213) 485-0587 or Shahram.Kharaghani@lacity.org or your staff may contact Alfredo Magallanes at (213) 485-3958 or Alfredo.Magallanes@lacity.org.

Sincerely,

SHAHRAM KHARAGHANI, PHD, PE, BCEE
Program Manager

SK:AM:am
WPDCR9461

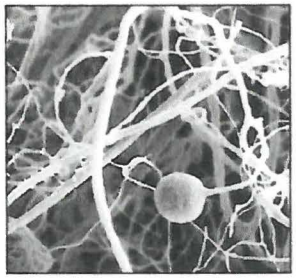
Attachment

cc: Barry Berggren, City of Los Angeles, LASAN
Alfredo Magallanes, City of Los Angeles, LASAN
Paul Alva, Los Angeles County
Mark Lombos, Los Angeles County
Kris Markanian, City of Pasadena
Sean Singletary, City of Pasadena

EXHIBIT A

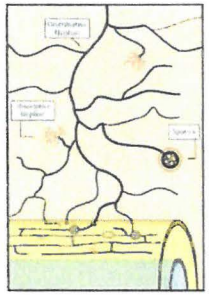
Arroyo Seco Load Reduction Strategy
Ed P. Reyes River Greenway
Fact Sheet

Green infrastructure relies on the power of sunlight, and the organisms in soils and on plant roots to treat pollutants in stormwater runoff. Because it is economical and provides recreational and habitat benefits, it is the City's preferred approach to maintain healthy waters and to support sustainable communities. Unlike traditional storm drain systems, which rely on pipes to move and to dispose of rainwater, green infrastructure directs runoff to locations where vegetation and natural processes help to control pollution. Infiltration and reuse also helps to reduce flooding downstream. Replacing concrete with living soils and other permeable surfaces, and providing more space for natural processes to flourish within our urban environments, enhances flood management, air quality, habitat, and recreational opportunities. The Ed P. Reyes River Greenway at the terminus of Humboldt Street is one of the first among many greenways proposed to extend the natural benefits of green infrastructure upstream into our urban watersheds.



Mycorrhizae

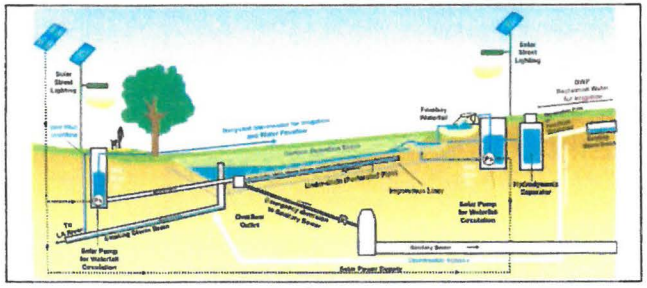
While infiltration and evaporation reduce the volumes of water that flow downstream, specialized fungi called "mycorrhizae" create a vast network of cells called "hyphae" in the soil. The hyphae seek out water and nutrients bringing them nearer to root zones where bacteria, working in association with plant root hairs, naturally degrade or absorb pollutants.



Plant Root with Mycorrhizal Fungi

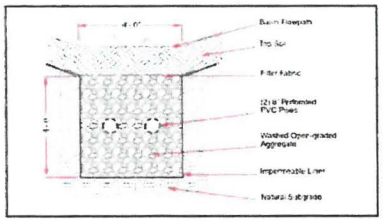
THE ED P. REYES RIVER GREENWAY

The project is located in the Lincoln Heights community and within a sub-drainage area of the 870 square-mile Los Angeles River Watershed, where it helps to meet the City's water quality, natural open space, and river revitalization goals.

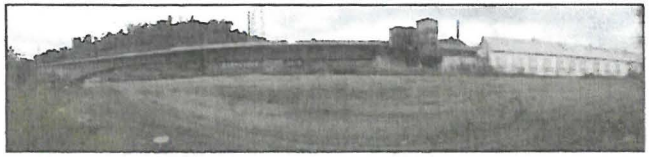


Prior to the natural treatment process large quantities of trash and sediment are removed with a structure called a hydrodynamic separator. This allows large sized pollutants to be easily collected and removed. Next, dry-weather runoff and a managed volume of the most polluted stormwater runoff called the "first-flush" enters the basin. Larger storm volumes either bypass the hydrodynamic separator, or enter the basin to overflow back to the original storm drain. Solar panels drive the pumps that circulate stormwater to areas where it can be further treated, or "polished" by bacterial organisms, and used to water plants in the landscape.

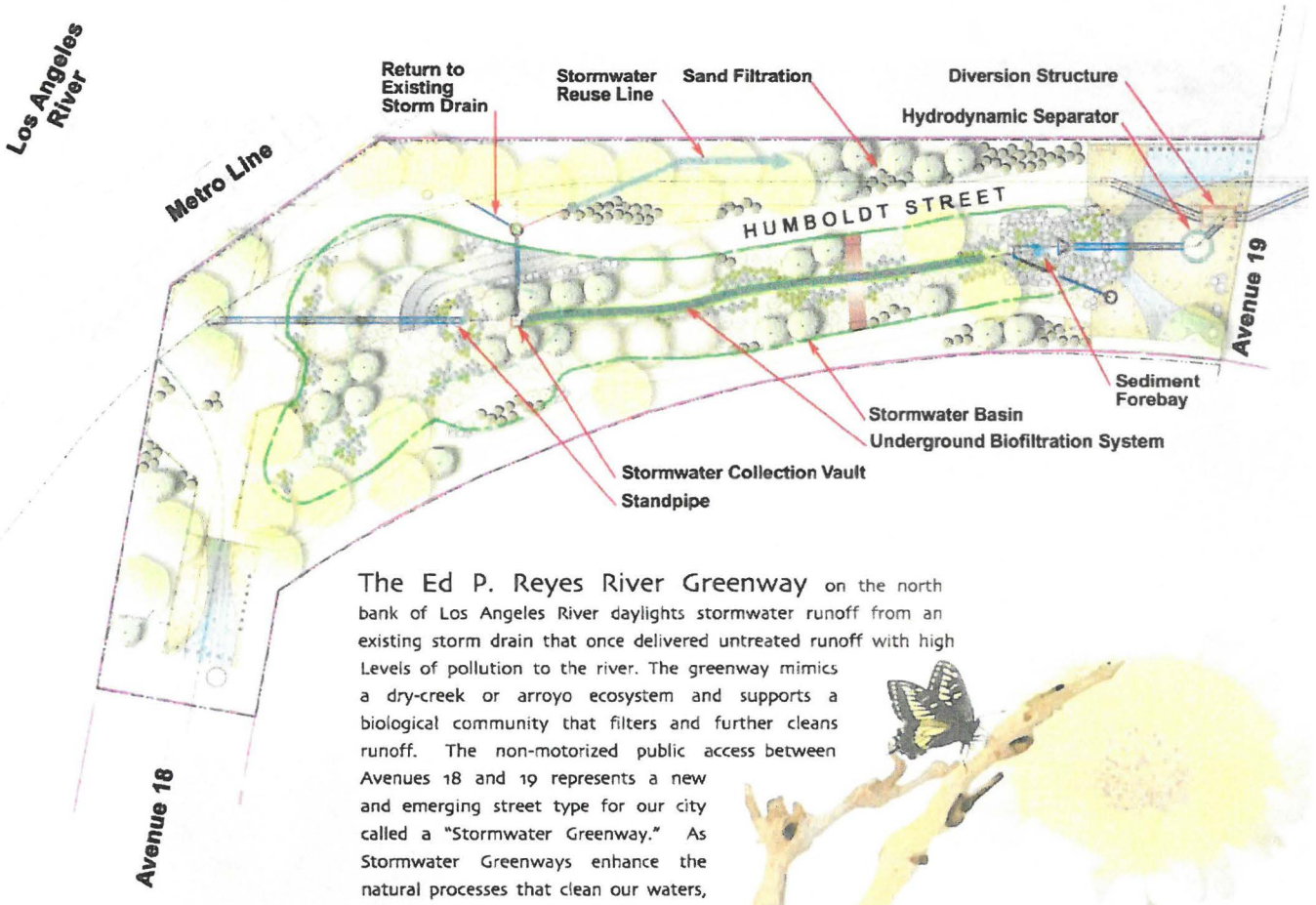
Project Site



Cross Section
Underground Biofiltration System



Site Before Construction



The Ed P. Reyes River Greenway on the north bank of Los Angeles River daylights stormwater runoff from an existing storm drain that once delivered untreated runoff with high Levels of pollution to the river. The greenway mimics a dry-creek or arroyo ecosystem and supports a biological community that filters and further cleans runoff. The non-motorized public access between Avenues 18 and 19 represents a new and emerging street type for our city called a "Stormwater Greenway." As Stormwater Greenways enhance the natural processes that clean our waters, they also transform our streets by offering new economic, environmental, and social opportunities.

2013

EXHIBIT B

Bureau of Engineering
Los Angeles River Segment B and Arroyo Seco
Proposed LFD Design and Construction Schedule

FORM GEN. 160 (Rev. 11-02)

CITY OF LOS ANGELES
INTERDEPARTMENTAL CORRESPONDENCE

DATE: July 19, 2018

TO: Enrique C. Zaldivar, Director
LA Sanitation and Environment

FROM: Gary Lee Moore, City Engineer
Bureau of Engineering

SUBJECT: IMPLEMENTATION FOR DESIGN AND CONSTRUCTION MANAGEMENT OF FIVE (5) LOW FLOW DIVERSION PROJECTS ALONG THE LOS ANGELES RIVER AND ARROYO SECO

The Bureau of Engineering (BOE) has reviewed the "Concept Report Revisions for the Three Downtown and Two Highland Park Low Flow Diversion Systems" (Concept Report) provided by LA Sanitation (LASAN). As confirmed in the meeting attended by staff from both bureaus on July 3, 2018, BOE will provide project implementation including pre-design, design, bid and award, and construction management for the five (5) Low Flow Diversion (LFD) systems along the Los Angeles River and Arroyo Seco.

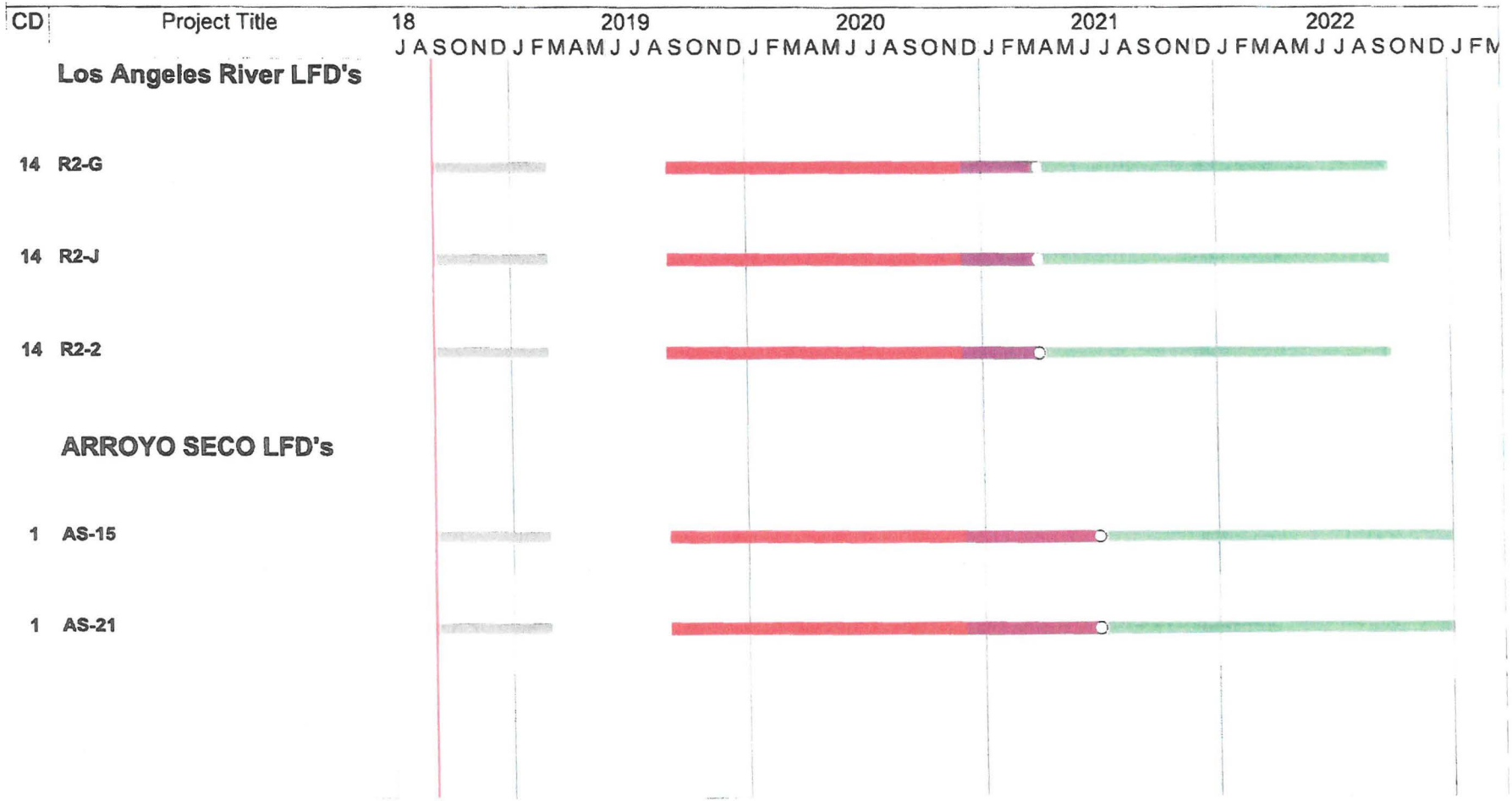
To ensure attainment of water quality standards per Total Maximum Daily Load (TMDL) regulations, the BOE understands the necessity of the five proposed LFD systems intended to direct the dry weather flows to the nearby sanitary sewer system to meet water quality goals and standards set forth by the Los Angeles Regional Water Quality Control Board (LARWQCB). BOE has also reviewed the stringent regulatory compliance timeline set forth by the LARWQCB. Based on our review of the Concept Report, our knowledge and experience gained from the delivery of previous Proposition O Clean Water Division LFD Projects in the Palisades, we have developed feasible yet efficient delivery schedules with a 49 month and a 52 month project delivery duration for the Los Angeles River and Arroyo Seco LFD Projects respectively. The project schedules anticipate the delivery of each of the five LFD systems to occur in parallel with the projects starting in September 2018 and construction phase completions in September 2022 (Los Angeles River LFDs) and December 2022 (Arroyo Seco LFDs). See attached schedule which is subject to Program Review Committee authorization.

Should you have any questions or need additional information, please contact Christopher Johnson at (213) 485-1165, or Andy Flores at (213) 485-4496.

Attachment
CJ/CAF/: nk

cc: Adel Hagekhalil, LASAN
Lisa Mowrey, LASAN
Shahram Kharaghani, LASAN
Alfredo Magallanes, LASAN
Ken Redd, BOE
Chris Johnson, BOE
Andy Flores, BOE

PROPOSED SCHEDULE FOR FIVE (5) LOW FLOW DIVERSION SYSTEMS
ALONG THE LOS ANGELES RIVER AND ARROYO SECO



Status Date: Sun 9/2/18
Printed Date: Tue 7/17/18

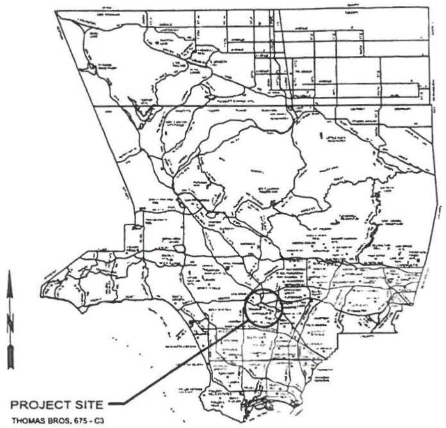
No Schedule	Approvals	Manual Summary Rollup	
PreDesign	Progress	Manual Summary	
Design	Inactive Milestone	Start-only	
BidAward	Inactive Summary	Finish-only	
Cons	Manual Task	External Tasks	
TOS Development	Duration-only	External Milestone	

EXHIBIT C

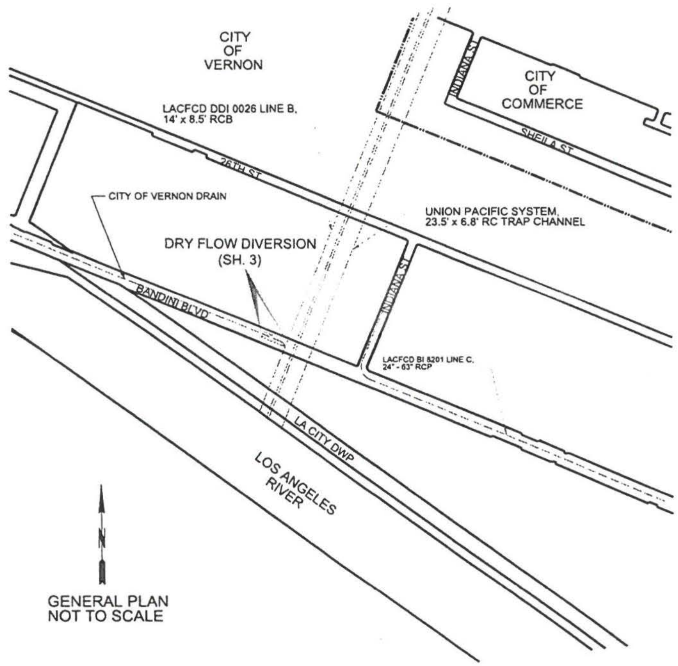
Los Angeles River Segment B Load Reduction Strategy
30 Percent Design Plans
Diversion into existing Los Angeles County Sanitation Districts' sewer line

COUNTY OF LOS ANGELES
DEPARTMENT OF PUBLIC WORKS

DDI 26



LOCATION MAP



GENERAL PLAN
NOT TO SCALE

INDEX TO PROJECT PLANS

SH. NO.	DESCRIPTION
1	TITLE SHEET
2	GENERAL NOTES AND INDEX TO STANDARD PLANS
3	PLAN AND PROFILE

UTILITIES

WATER:	CALIFORNIA WATER SERVICE COMPANY
GAS:	SOUTHERN CALIFORNIA GAS COMPANY (SOCAL) CITY OF VERNON GAS AND ELECTRIC (VERNON)
CABLE:	AT&T
TELEPHONE:	AT&T
SEWER:	SANITATION DISTRICT OF LOS ANGELES COUNTY
STORM DRAIN:	LOS ANGELES COUNTY FLOOD CONTROL DISTRICT (LACFCD) CITY OF VERNON (VERNON)

REFERENCES

SURVEY FIELD NOTES: PWFB 1122, PG. 1-8
AS-BUILT DRAWINGS: 118-FD3.2
118-FD3.5
118-FD4

RESURFACING SCHEDULE

SYMBOL	EXISTING PAVEMENT	NEW PAVEMENT
(diagonal hatch)		
(cross hatch)		

RESURFACING NOTES:

1. AC PAVEMENT AND BASE FOR TRENCH RESURFACING SHALL EXTEND A MINIMUM OF 12 INCHES BEYOND THE TRENCH WALL.

ABBREVIATIONS

ABBREVIATION	WORD OR WORDS	ABBREVIATION	WORD OR WORDS
AC	ASPHALT CONCRETE	LACDPW	LOS ANGELES COUNTY DEPARTMENT OF PUBLIC WORKS
BM	BENCH MARK	MH	MANHOLE
℄	CENTER LINE	PT.	POINT
CLF	CHAIN LINK FENCE	R/W	RIGHT OF WAY
CMP	CORRUGATED METAL PIPE	RC	REINFORCED CONCRETE
CONST.	CONSTRUCT, CONSTRUCTION	S	SLOPE
CY	CUBIC YARD	SD	STORM DRAIN
DIA.	DIAMETER	SF	SQUARE FOOT
D/S	DOWNSTREAM	SPEC.	SPECIFICATIONS
DWG	DRAWING	SWR	SANITARY SEWER
EC	END OF CURVE	ST.	STREET
EL.	ELEVATION	STA.	STATION
EXIST.	EXISTING	STD.	STANDARD
FL	FLOW LINE	TYP.	TYPICAL
GC	GRADE CHANGE	U/S	UPSTREAM
INT.	INTERSECTION	VERT.	VERTICAL
HORIZ.	HORIZONTAL	W	WIDTH
INV.	INVERT		
L	LENGTH		

30% PLANS
Los Angeles County
DEPARTMENT OF PUBLIC WORKS
06-20-2017
THE INFORMATION SHOWN HEREON IS
PRELIMINARY
UNOFFICIAL AND SUBJECT TO CHANGE

DRAFTER: L. MITCHELL | DESIGNER: L. MITCHELL | CHECKER: M. TERRELL | CADD PROJECT FILE NAME: WMU0000012 | REVIEWED BY | DATE

811 Know what's below. Call 811 before you dig.

APPROVED MARK PESTRELLA DIRECTOR OF PUBLIC WORKS
BY ________ DEPUTY DIRECTOR ________ DATE
RECOMMENDED
BY ________ ASSISTANT DEPUTY DIRECTOR ________ DATE
SUBMITTED
BY ________ DATE

DATE	MK	DESCRIPTION
REVISIONS		

REGISTERED PROFESSIONAL ENGINEER LUKE MITCHELL No. 78630 CIVIL STATE OF CALIFORNIA

PROJECT ENGINEER ________ DATE

COUNTY OF LOS ANGELES DEPARTMENT OF PUBLIC WORKS
DDI 26
SEGMENT B LOAD REDUCTION
TITLE SHEET

ID WMU0000012 | PCA F21816I24 | DWG | SHEET 1 OF 3

GENERAL NOTES

1. ELEVATIONS SHOWN ARE IN FEET BASED ON THE HOLLYDALE 2005 ADJUSTMENT, NAVD 88.
2. STATIONS SHOWN ON THE PLANS ARE ALONG CENTER LINE OF CONDUIT OR ON A LINE NORMAL TO CENTER LINE OF CONDUIT.
3. ALL PIPE IN OPEN TRENCH SHALL BE BEDDED ACCORDING TO LACDPW STANDARD PLAN 3080-3, CASE III, EXCEPT BELL AND SPIGOT PIPE WHICH SHALL BE CASE II BEDDING, UNLESS OTHERWISE SHOWN. "W" VALUES SHALL BE AS SPECIFIED ON STANDARD PLAN 3080-3 FOR CASE III BEDDING, NOTES (A) AND (B). IF THE "W" VALUE AT THE TOP OF THE PIPE IS EXCEEDED, THE BEDDING SHALL BE MODIFIED, AND/OR PIPE OF ADDITIONAL STRENGTH SHALL BE PROVIDED. THE PROPOSED MODIFICATION SHALL BE APPROVED BY THE AGENCY.
4. CONCRETE BACKFILL SHALL BE PROVIDED AROUND PIPE 21 INCHES IN DIAMETER OR LESS WHERE THE COVER IS EQUAL TO OR LESS THAN 2'-0", AROUND PIPE GREATER THAN 21 INCHES IN DIAMETER BUT LESS THAN 39 INCHES WHERE THE COVER IS LESS THAN 1'-3", AND FOR PIPE 39 INCHES OR GREATER WHERE THE COVER IS LESS THAN 1'-0". THE CONCRETE BACKFILL SHALL BE AS SPECIFIED ON LACDPW STANDARD PLAN 3080-3, NOTE 4.
5. ALL EXISTING UTILITIES SHOWN ON THE PLANS ARE THE PROPERTY OF THE OWNERS LISTED ON SHEET 1, UNLESS OTHERWISE NOTED.
6. EXISTING UTILITIES SHALL BE PROTECTED IN PLACE BY THE CONTRACTOR, UNLESS OTHERWISE NOTED.
7. THE CONTRACTOR SHALL MAKE EXPLORATORY EXCAVATIONS TO DETERMINE THE DEPTH AND LOCATION OF EXISTING UTILITIES WHERE SO INDICATED BY THE SYMBOL "Δ".
8. UTILITIES DESIGNATED BY THE SYMBOL "•" WILL BE ABANDONED IN PLACE AND THE OWNER WILL INSTALL A NEW SECTION OF THE AFFECTED UTILITY AT A LOCATION IN CLOSE PROXIMITY TO, BUT WHICH DOES NOT PHYSICALLY INTERFERE WITH, THE PROPOSED STORM DRAIN CONDUIT AND APPURTENANT STRUCTURES.
9. EXISTING UTILITIES SHALL BE MAINTAINED IN PLACE BY THE CONTRACTOR, UNLESS OTHERWISE NOTED, AND ALL UTILITIES CROSSING THE TRENCH SHALL BE TEMPORARILY SUPPORTED TO SATISFACTION OF THE OWNER.
10. WHERE THE UTILITIES ARE INDICATED ON THE PLANS TO BE SUPPORTED, SAID SUPPORTS SHALL BE IN ACCORDANCE WITH SPPWC STANDARD PLAN 224-2 UNLESS OTHERWISE INDICATED
11. ALL OPENINGS RESULTING FROM THE CUTTING OR PARTIAL REMOVAL OF EXISTING CULVERTS, PIPES OR SIMILAR STRUCTURES SHALL BE SEALED WITH 8 INCHES OF BRICK AND MORTAR OR 6 INCHES OF CONCRETE, UNLESS OTHERWISE SHOWN.
12. ALL RESURFACING, CURBS, GUTTERS, SIDEWALKS, DRIVEWAYS, AND OTHER EXISTING IMPROVEMENTS TO BE RECONSTRUCTED SHALL BE CONSTRUCTED AT THE SAME ELEVATION AND LOCATION AS THE EXISTING IMPROVEMENTS, UNLESS OTHERWISE NOTED.
13. MANHOLES SHALL USE THE SPPWC STANDARD PLAN FOR PUBLIC WORKS CONSTRUCTION 630-4 FOR THE "FRAME AND COVER" AND 635-3 OR 636-2 FOR THE "STANDARD DROP STEP". STORM DRAIN MANHOLE COVERS SHALL BE CAST WITH THE LETTERS, "L.A.C.F.C.D.". THE LETTER SIZE SHALL BE 1-INCH HIGH AND PLACED BELOW THE LETTER "D" IN THE CENTER OF THE COVER. CATCH BASIN MANHOLE COVERS SHALL BE CAST WITHOUT THE LETTERS, "L.A.C.F.C.D.".
14. TEMPORARY SUPPORTS FOR WATER LINES SHALL BE IN ACCORDANCE WITH DWP STANDARD PLAN A-3615-A OR B-1453-1A, UNLESS OTHERWISE SHOWN.
15. OVERHEAD UTILITY LINES ARE NOT SHOWN ON THE PROJECT PLANS WHICH MAY IMPACT THE CONTRACTOR'S OPERATIONS. PROSPECTIVE BIDDERS ARE ADVISED TO VISIT THE PROJECT SITE BEFORE PREPARING A BID.
16. STRUCTURAL NOTES WILL BE FOUND ON THE APPLICABLE STRUCTURAL SHEETS.
17. EXISTING TREES SHALL BE REMOVED ONLY IF SO DESIGNATED BY SYMBOL R. THOSE TREES NOT INTERFERING WITH CONSTRUCTION SHALL BE PROTECTED IN PLACE.
18. ALL FIELD BOOK REFERENCES ARE TO LOS ANGELES COUNTY DEPARTMENT OF PUBLIC WORKS FIELD BOOKS, UNLESS OTHERWISE NOTED.
19. LOCATIONS SHOWN ON THE PLANS FOR EXISTING SANITARY SEWER HOUSE CONNECTIONS ARE APPROXIMATE ONLY.
20. SANITARY SEWER AND HOUSE CONNECTION REMODEL AND RECONNECTION SHALL BE IN ACCORDANCE WITH SPPWC STANDARD PLAN NO. 223-1.
21. SANITARY SEWERS AND HOUSE CONNECTIONS CROSSING OVER THE STORM DRAIN SHALL BE SUPPORTED IN ACCORDANCE WITH SPPWC STANDARD PLAN NO. 224-1. IN THE CASE OF SANITARY SEWER SUPPORTS PER CASES 1, 2, AND 4. THE SEWER SHALL BE ENCASED. THE ENCASEMENT SHALL BE A MINIMUM OF 6 INCHES WIDER ON EACH SIDE OF THE SEWER (O.D. PLUS 12 INCHES) AND A MINIMUM OF 6 INCHES ABOVE THE TOP OF THE SEWER, THE SUPPORT BEAM OR SUPPORT WALL SHALL BE WIDENED TO THE SIDE OF THE ENCASEMENT AND SHALL BE LENGTHENED TO FULLY SUPPORT THE ENCASEMENT.
22. WHEN INDICATED ON THE PLANS, SANITARY SEWERS AND HOUSE CONNECTIONS SHALL BE PROTECTED IN ACCORDANCE WITH SPPWC STANDARD PLAN NO. 225-1.
23. THE WORK SHOWN ON THESE PLANS REQUIRES THE PRIME CONTRACTOR TO HAVE A VALID CLASS A OR C42 LICENSE ISSUED BY THE STATE OF CALIFORNIA.

INDEX TO STANDARD PLANS

LACDPW

STD. PLAN	TITLE
3080-3	PIPE BEDDING IN TRENCHES
3090-1	CRITERICA FOR THE DESIGN OF SHORING FOR EXCAVATIONS
3091-1	SAMPLE SHEET FOR USE AS A GUIDE IN PREPARING CALCULATIONS FOR SHORING OF EXCAVATIONS
3093-1	UNIFIED SOIL CLASSIFICATION SYSTEM
6002-1	PORTABLE SECURITY FENCE FOR OPEN TRENCHES
6008-1	MINIMUM PUBLIC SAFETY REQUIREMENT FOR OPEN EXCAVATIONS

SPPWC

STD. PLAN	TITLE
224-2	SUPPORTS FOR CONDUITS ACROSS TRENCHES
323-2	MANHOLE - CONCRETE BOX STORM DRAIN
327-2	MANHOLE FOR EXISTING RCB
331-3	JUNCTION STRUCTURE - PIPE TO PIPE
335-2	PIPE CONNECTIONS TO EXISTING STORM DRAINS

DIVERSION FLOW CAPACITY	
FLOW	VOLUME
18 GPM	15,400 GAL

DRAFTER L. MITCHELL | DESIGNER L. MITCHELL | CHECKER M. TERRELL | CADD PROJECT FILE NAME | REVIEWED BY | DATE

DATE	MK	DESCRIPTION
REVISIONS		

REGISTERED PROFESSIONAL ENGINEER LUKE MITCHELL No 78630 CIVIL STATE OF CALIFORNIA

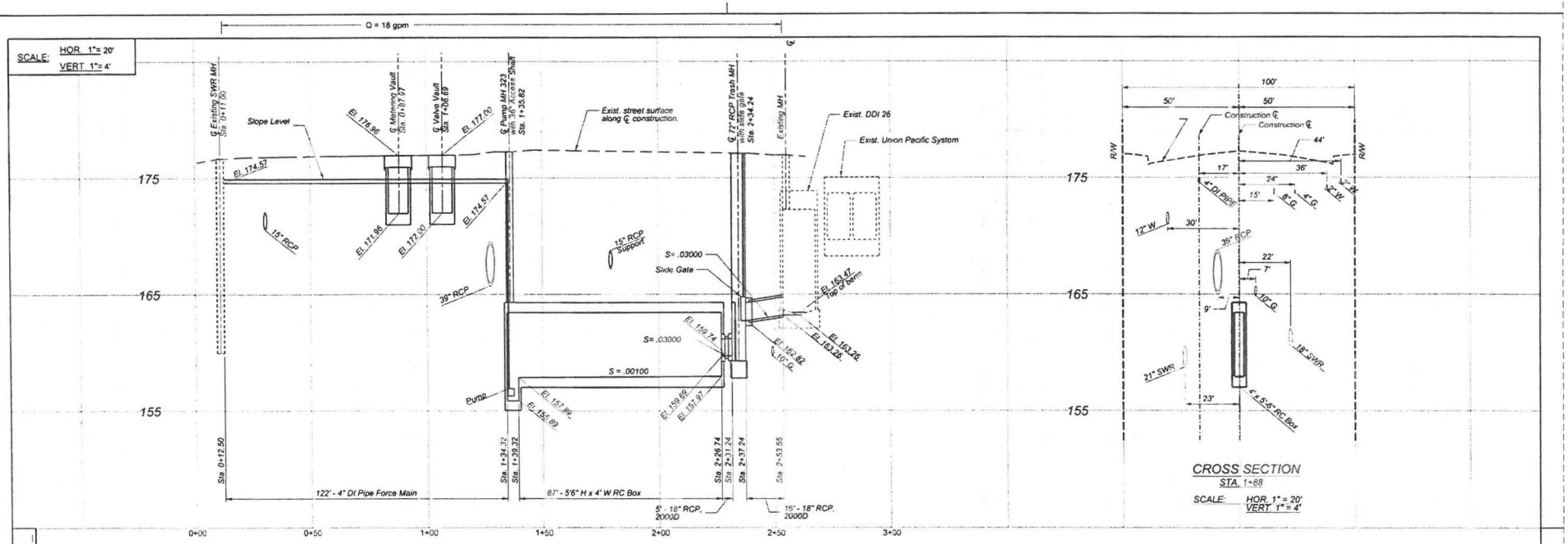
PROJECT ENGINEER — DATE

COUNTY OF LOS ANGELES DEPARTMENT OF PUBLIC WORKS

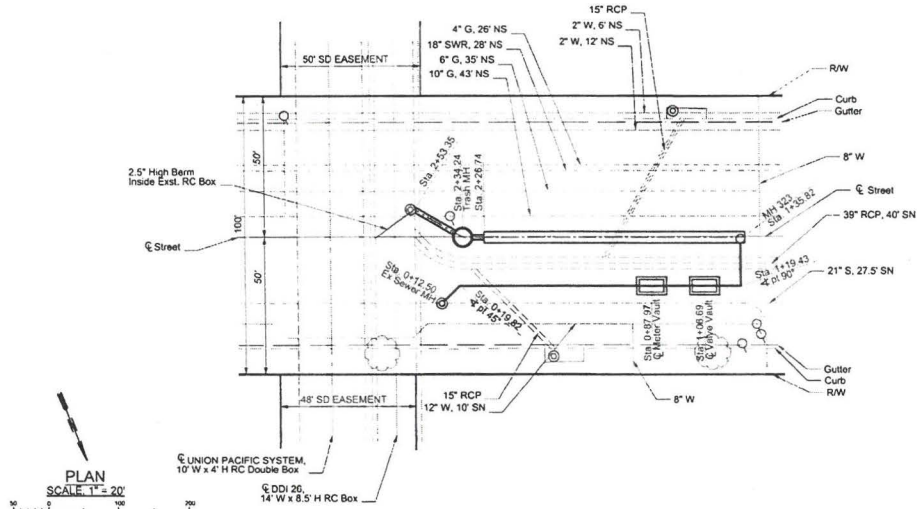
DDI 26
SEGMENT B LOAD REDUCTION

GENERAL NOTES AND INDEX TO STANDARD PLANS

ID WMU0000012 | PCA F21816i24 | DWG | SHEET 2 OF 3



CROSS SECTION
STA. 1+88
SCALE: HOR. 1" = 20'
VERT. 1" = 4'



PLAN
SCALE: 1" = 20'

DRAFTER: L. MITCHELL
DESIGNER: L. MITCHELL
CHECKED: M. TERRELL
CADD PROJECT FILE NAME: LA River Bacteria TMDL Segment B.dgn
REVIEWED BY
DATE

DATE	MK	DESCRIPTION
		REVISIONS

PROJECT ENGINEER — DATE

COUNTY OF LOS ANGELES DEPARTMENT OF PUBLIC WORKS

DDI 26
SEGMENT B LOAD REDUCTION

DRY FLOW DIVERSION
PLAN AND PROFILE

ID WMU0000012 | PCA F21816I24 | DWG | SHEET 3 OF 3

EXHIBIT D

Arroyo Seco Load Reduction Strategy
Third Project Concept:
Diversion to Existing Sewer Line

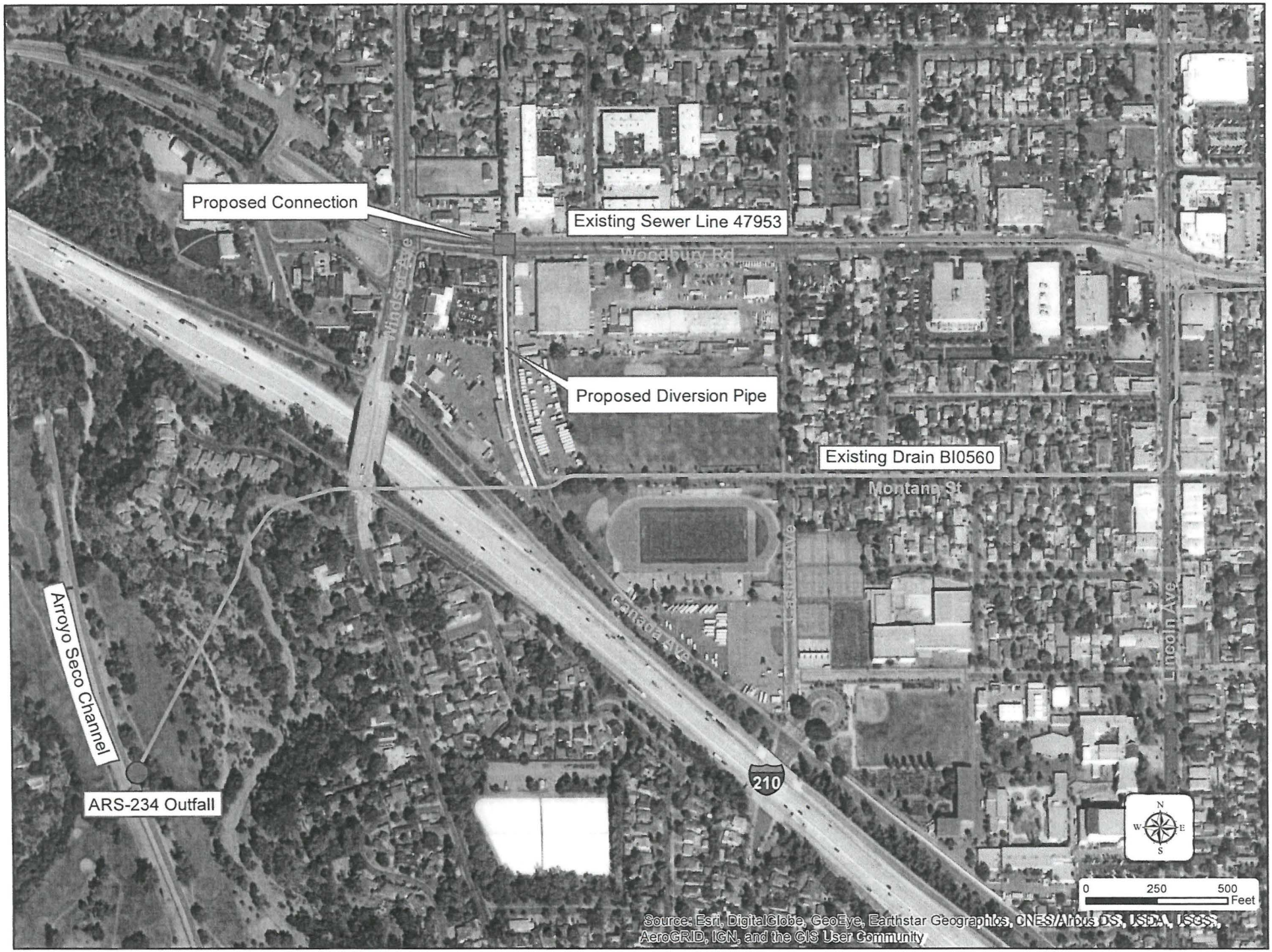

Proposed Connection
Existing Sewer Line 47953
Woodbury Rd
Proposed Diversion Pipe
Existing Drain BI0560
Montana St
Arroyo Seco Channel
ARS-234 Outfall
Canada Ave
Lincoln Ave
210
N
W
E
S
0
250
500
Feet
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

EXHIBIT E

Arroyo Seco Load Reduction Strategy
Johnston Lake and San Raphael Creek
Monitoring Data

KINNETIC LABORATORIES INCORPORATED

10377 LOS ALAMITOS BLVD.
LOS ALAMITOS, CA 90720
(562) 357-4685

Data Report

Johnston Lake Sampling

April 25, 2018

This report presents the results from the collection of dry weather water samples from Johnston Lake and San Raphael Creek in the City of Pasadena. Dry weather sampling consisted of grab sampling by Kinnetic Laboratories, Inc. and a representative from John L. Hunter and Associates on March 16, 2018. Four water samples were collected from three monitoring locations shown on Figure 1. One sample was collected at an outfall prior to its discharge point to Johnston Lake (Site 2). Another sample plus a field duplicate sample (identified as Site 5) were collected from the lake prior to its discharge point to San Raphael Creek (Site 3). The last sample was collected was collected in San Raphael Creek (Site 4). There was no discharge from the Annandale County Club (Site 1) to the storm drain system (Figure 3), so a sample from this site could not be collected.

At the time of sampling, observations, photographs and water quality measurements were made at each site. These photographs are presented in Figures 2 through 7. Temperature, pH, percent dissolved oxygen, specific conductance, and turbidity measurements were made using a Multi-Parameter Sonde. Water quality measurements and observations are provided in Table 1.

The four water samples collected were submitted to Weck Laboratories, Inc. in the City of Industry immediately following sampling. These samples were analyzed for *E. Coli* by Method SM 9221F and the results are provided in Table 2.

The *E. Coli* data were checked for completeness, accuracy and precision. All samples were analyzed within the EPA recommended holding time and laboratory blanks were performed as necessary. Blank results were non-detect (ND). The Site 3 sample and corresponding field duplicate had a relative percent difference (RPD) of 0, indicating very good precision. However, no data qualifications were necessary.

The *E. Coli* results were compared to criteria from the Los Angeles Regional Water Quality Board (LARWQCB) Basin Plan, which sets numerical objectives that must be attained or maintained to protect the designated beneficial uses and conform to the state's antidegradation policy, and implements programs to protect all waters in the LA Region. All *E. Coli* results were less than the Single Sample Limit for Fresh Waters Designated for Water Contact Recreation (REC-1) and all

results were well below the Single Sample Limit for Fresh Waters Designated for Limited Contact Recreation (LREC-1).

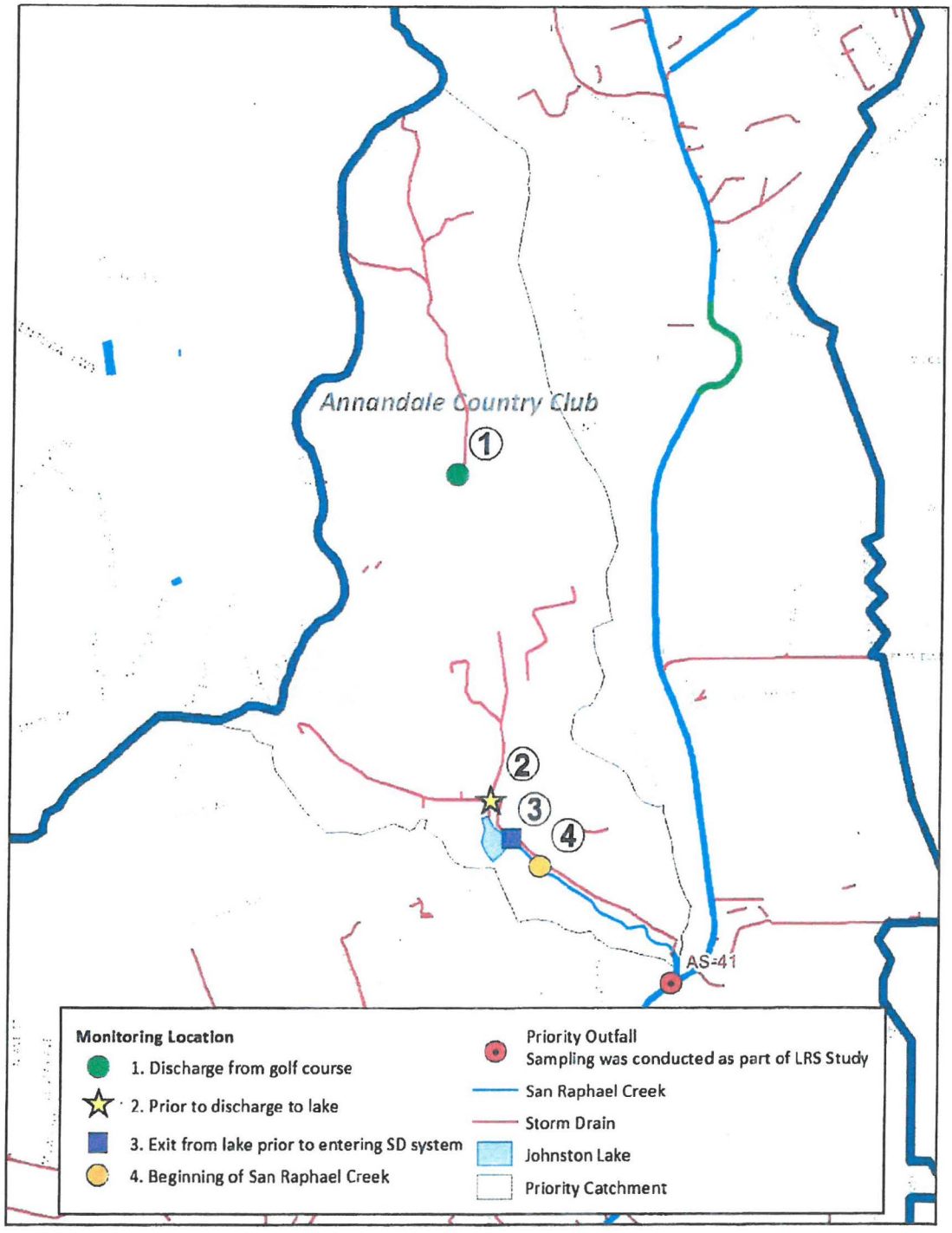


Figure 1. Map of Sampling Locations

LEGEND

B3 BORING LOCATION & NUMBER

0 100' 200'

GEOCON WEST, INC.	SITE PLAN
ENVIRONMENTAL GEOTECHNICAL MATERIALS 3303 N. SAN FERNANDO BLVD. - SUITE 100 - BURBANK, CA 91504 PHONE (818) 841-8388 - FAX (818) 841-1704	ARROYO SECO TRAIL NORTH OF SAN PASCUAL STABLES PASADENA, CALIFORNIA
DRAFTED BY: RP / CHECKED BY: JTA/NDB	APRIL 2018 / PROJECT NO. A9175-06-13 / FIG. 1