ROAD REPAIR AND ACCOUNTABILITY ACT OF 2017
PROJECT BASELINE AGREEMENT
Goods Movement Rt.605/91 & Cherry Avenue

Resolution TCEP-P-2021-072B
(will be completed by CTC)

1. FUNDING PROGRAM

- ☐ Active Transportation Program
- ☐ Local Partnership Program (Competitive)
- ☐ Solutions for Congested Corridors Program
- ☐ State Highway Operation and Protection Program
- ☒ Trade Corridor Enhancement Program

2. PARTIES AND DATE

2.1 This Project Baseline Agreement (Agreement) for the *Goods Movement Rt.605/91 & Cherry Avenue*, effective on, June 23, 2021 (will be completed by CTC), is made by and between the California Transportation Commission (Commission), the California Department of Transportation (Caltrans), the Project Applicant, *Los Angeles County Metropolitan Transportation Authority*, and the Implementing Agency, *Los Angeles County Metropolitan Transportation Authority*, sometimes collectively referred to as the "Parties".

3. RECITAL

3.2 Whereas at its December 2, 2020 meeting the Commission approved the Trade Corridor Enhancement Program, and included in this program of projects the *Goods Movement Rt.605/91 & Cherry Avenue*, the parties are entering into this Project Baseline Agreement to document the project cost, schedule, scope and benefits, as detailed on the Project Programming Request Form attached hereto as Exhibit A and the Project Report attached hereto as Exhibit B, as the baseline for project monitoring by the Commission.

3.3 The undersigned Project Applicant certifies that the funding sources cited are committed and expected to be available; the estimated costs represent full project funding; and the scope and description of benefits is the best estimate possible.

4. GENERAL PROVISIONS

The Project Applicant, Implementing Agency, and Caltrans agree to abide by the following provisions:

4.1 To meet the requirements of the Road Repair and Accountability Act of 2017 (Senate Bill [SB] 1, Chapter 5, Statutes of 2017) which provides the first significant, stable, and on-going increase in state transportation funding in more than two decades.

4.2 To adhere, as applicable, to the provisions of the Commission:

- ☐ Resolution *Insert Number* , "Adoption of Program of Projects for the Active Transportation Program", dated
- ☐ Resolution *Insert Number* , "Adoption of Program of Projects for the Local Partnership Program", dated
- ☐ Resolution *Insert Number* , "Adoption of Program of Projects for the Solutions for Congested Corridors Program", dated
- ☐ Resolution *Insert Number* , "Adoption of Program of Projects for the State Highway Operation and Protection Program", dated
- ☒ Resolution G-20-77, "Adoption of Program of Projects for the Trade Corridor Enhancement Program", dated December 2, 2020

4.3 All signatories agree to adhere to the Commission's Trade Corridor Enhancement Program, Guidelines. Any conflict between the programs will be resolved at the discretion of the Commission.

4.4 All signatories agree to adhere to the Commission's SB 1 Accountability and Transparency Guidelines and policies, and program and project amendment processes.

4.5 The Los Angeles County Metropolitan Transportation Authority agrees to secure funds for any additional costs of the project.

4.6 The Los Angeles County Metropolitan Transportation Authority agrees to report to Caltrans on a quarterly basis; after July 2019, reports will be on a semi-annual basis on the progress made toward the implementation of the project, including scope, cost, schedule, outcomes, and anticipated benefits.

4.7 Caltrans agrees to prepare program progress reports on a quarterly basis; after July 2019, reports will be on a semi-annual basis and include information appropriate to assess the current state of the overall program and the current status of each project identified in the program report.

4.8 The Los Angeles County Metropolitan Transportation Authority agrees to submit a timely Completion Report and Final Delivery Report as specified in the Commission's SB 1 Accountability and Transparency Guidelines.

4.9 All signatories agree to maintain and make available to the Commission and/or its designated representative, all work related documents, including without limitation engineering, financial and other data, and methodologies and assumptions used in the determination of project benefits during the course of the project, and retain those records for four years from the date of the final closeout of the project. Financial records will be maintained in accordance with Generally Accepted Accounting Principles.

4.10 The Transportation Inspector General of the Independent Office of Audits and Investigations has the right to audit the project records, including technical and financial data, of the Department of Transportation, the Project Applicant, the Implementing Agency, and any consultant or sub-consultants at any time during the course of the project and for four years from the date of the final closeout of the project, therefore all project records shall be maintained and made available at the time of request. Audits will be conducted in accordance with Generally Accepted Government Auditing Standards.

5. SPECIFIC PROVISIONS AND CONDITIONS

5.1 Project Schedule and Cost
See Project Programming Request Form, attached as Exhibit A.

5.2 Project Scope
See Project Report or equivalent, attached as Exhibit B. At a minimum, the attachment shall include the cover page, evidence of approval, executive summary, and a link to or electronic copy of the full document.

5.3 Other Project Specific Provisions and Conditions
Approval of this baseline agreement is contingent upon the following actions:
• CTC approval of an allocation amendment for the SR 605/91 Interchange – Gateway Cities project at the May 2021 CTC meeting.
• The successful filing of the Notice of Declaration for SR 91 Auxiliary Lane – Atlantic to Cherry project on or before June 30, 2021.
• In the event of a cost overrun the state will cover a share proportionate to the state contribution of the TCEP funding identified in the Project Programming Request (PPR) submitted with this baseline agreement. (For example, if the state/regional TCEP funding share was a 40/60 ratio, the state may fund no more than 40% of the cost overrun.)
• The 605/91 (PPNO 5388) project received Cycle 1 SB1 Funding. This baseline agreement does not supersede the cycle 1 baseline agreement or cycle 1 guidelines. SB1 funds are subject to the guidelines for the cycle in which they were programmed, and the baseline agreement provisions for the cycle of funding.

Attachments:

Exhibit A: Project Programming Request Form
Exhibit B: Project Report

SIGNATURE PAGE
TO
PROJECT BASELINE AGREEMENT

Goods Movement Rt.605/91 & Cherry Avenue

Resolution TCEP-P-2021-07B

Fanny Pan — Digitally signed by Fanny Pan Date: 2021.04.28 16:36:22 -07'00' — April 28, 2021

Phillip A. Washington — Date

Chief Executive Officer

Project Applicant

Fanny Pan — Digitally signed by Fanny Pan Date: 2021.04.28 16:36:34 -07'00' — April 28, 2021

Phillip A. Washington — Date

Chief Executive Officer

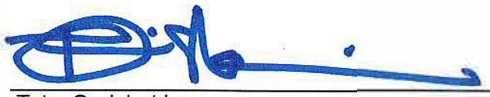
Implementing Agency

Tony Tavares — Digitally signed by Tony Tavares Date: 2021.04.30 16:00:16 -07'00' — April 30, 2021

Tony Tavares — Date

District Director

California Department of Transportation



6.3.21

Toks Omishakin — Date

Director

California Department of Transportation

07/16/21

Mitchell Weiss — Date

Executive Director

California Transportation Commission

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST (PPR)

PRG-0010 (REV 08/2020)

PPR ID
ePPR-6065-2020-0031 v0

Amendment (Existing Project) ☐ YES ☒ NO					Date	05/05/2021 12:13:05
Programs ☐ LPP-C ☐ LPP-F ☐ SCCP ☑ TCEP ☐ STIP ☒ Other						
District	EA	Project ID	PPNO	Nominating Agency		
07	29811	0716000284	5388	Los Angeles County Metropolitan Transportation Authority		
County	Route	PM Back	PM Ahead	Co-Nominating Agency		
Los Angeles	91	16.900	19.800	Caltrans District 7		
Los Angeles	605	5.000	5.800	MPO	Element	
				SCAG	Capital Outlay	
Project Manager/Contact			Phone	Email Address		
Carlos Montez			213-814-3241	montezc@metro.net		

Project Title

Route 605/91 Interchange Improvement: Gateway Cities Freight Crossroads Project

Location (Project Limits), Description (Scope of Work)

In the cities of Artesia and Cerritos, Route 91 from Shoemaker Avenue to I-605 Interchange and on I-605 from Alondra Blvd to the I-605/SR-91 interchange.

The project would add one new mixed-flow lane on SR-91 in the westbound direction from the Artesia Boulevard on-ramp to I-605 Connector ramp joining at the point where the westbound SR-91 to the northbound I-605 connector ramp flares from one to two lanes.

Component	Implementing Agency
PA&ED	Los Angeles County Metropolitan Transportation Authority
PS&E	Los Angeles County Metropolitan Transportation Authority
Right of Way	Los Angeles County Metropolitan Transportation Authority
Construction	Los Angeles County Metropolitan Transportation Authority

Legislative Districts

Assembly:	58	Senate:	32	Congressional:	38

Project Milestone	Existing	Proposed
Project Study Report Approved		
Begin Environmental (PA&ED) Phase		06/20/2016
Circulate Draft Environmental Document Document Type (ND/MND)/FONSI		08/24/2018
Draft Project Report		07/01/2018
End Environmental Phase (PA&ED Milestone)		01/18/2019
Begin Design (PS&E) Phase		03/30/2019
End Design Phase (Ready to List for Advertisement Milestone)		07/26/2022
Begin Right of Way Phase		03/30/2019
End Right of Way Phase (Right of Way Certification Milestone)		07/25/2022
Begin Construction Phase (Contract Award Milestone)		01/25/2023
End Construction Phase (Construction Contract Acceptance Milestone)		12/01/2025
Begin Closeout Phase		01/01/2026
End Closeout Phase (Closeout Report)		12/31/2027

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PROJECT PROGRAMMING REQUEST (PPR)

PRG-0010 (REV 08/2020)

PPR ID
ePPR-6065-2020-0031 v0

Date 05/05/2021 12:13:05

Purpose and Need

The 2020 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) projects a 46% increase in bidirectional daily truck trips on SR-91 between 2016 and 2045. By improving existing operational conditions including congestion and bottlenecks, operation deficiencies, and safety issues, the project aims to ensure the corridor has the ability to adequately accommodate future increases in freight travel demand. With the existing and anticipated corridor truck volumes, truck-involved safety incidents will continue to be a concern unless physical and operational improvements are made to address the outdated design standards and congested conditions that lead to safety incidents.

Purpose - The purpose of the project is to reduce congestion and improve freeway operations (both mainline and ramps), improve safety, and improve local and system interchange operations.

Need - Westbound SR-91 approaching the connector ramp for both northbound and southbound I-605 currently experiences substantial congestion, which will continue in the future No Build condition. This congestion, as a result of inadequate capacity of the existing two-lane connector for westbound SR-91 to northbound and southbound I 605 as well as the closely spaced freeway entrance and exit ramps, contributes to a high concentration of accidents.

NHS Improvements ☒ YES ☐ NO	Roadway Class 1	Reversible Lane Analysis ☒ YES ☐ NO

Inc. Sustainable Communities Strategy Goals ☒ YES ☐ NO Reduce Greenhouse Gas Emissions ☒ YES ☐ NO

Project Outputs

Category	Outputs	Unit	Total
Pavement (lane-miles)	Mixed flow mainline constructed	Miles	2.9
Operational Improvement	Interchange modifications	EA	1
Bridge / Tunnel	Modified / Improved interchanges	SQFT	31,981
Operational Improvement	Auxiliary lanes	Miles	2.9

Date 05/05/2021 12:13:05

Additional Information

Earlier project phases were funded through the State Transportation Improvement Program (STIP) with Regional Improvement Program (RIP) funds for PS&E and through the Trade Corridor Enhancement Program (TCEP) Cycle 1 for PS&E and ROW. In March 2019, the project was allocated RIP and TCEP funds for PS&E and ROW. At this time, the programming and subsequent allocation were revised down based on updated project costs for these phases (representing a savings). This PPR shows the actual amount allocated.

This PPR is being amended now to reflect the TCEP Cycle 2 funding request for Construction funding. Included here is a total TCEP funding request for $69.67 million, including a $41.802 million request for Regional TCEP funds and a $27.868 million for State TCEP funds.

Due to COVID-19, the project has experienced a 7-month delay to the design phase since submittal of the application. Specifically, the geotechnical report was delayed due to the Covid-19 shut downs in March 2020, and resultant local sales tax revenue short falls. The late submittal of the geotechnical reports further delayed submittal of the 65% design package, and as a consequence delayed the start of the ROW appraisal process.

Additionally, this PPR has been amended to include the latest project schedule, and add $3.1 million in Regional TCEP funds from cycle 1. These TCEP funds were awarded in Cycle 1, but not allocated, this request will reduce project savings from $15 million to $11.9 million. The increase cost anticipates possible R/W costs due to damages related to reduced access due to the curbed medians we are constructing on Pioneer and Norwalk. Also, acquisition of 4 residential properties will be demolished prior to construction to prevent squatters given the area has a high homeless population. LA Metro plans on requesting to allocate these funds and request expenditure extension for R/W and PS&E phases at the May 2021 CTC meeting.

An error in the Category and Outputs section has been updated; output units have been updated based on what is available in the Cycle 2 available matrix from what was previously in CTIPS.

PPR ID
ePPR-6065-2020-0031 v0

Performance Indicators and Measures						
Measure	**Required For**	**Indicator/Measure**	**Unit**	**Build**	**Future No Build**	**Change**
Congestion Reduction	TCEP	Daily Vehicle Hours of Travel Time Reduction	Hours	1,998.15	0	1,998.15
	TCEP	Daily Truck Trips	# of Trips	17,311.55	15,541.03	1,770.52
	TCEP	Daily Truck Miles Traveled	Miles	19,700.54	17,685.69	2,014.85
Throughput	TCEP	Change in Truck Volume That Can Be Accommodated	# of Trucks	126,374,317	113,449,524	12,924,793
	TCEP	Change in Rail Volume That Can Be Accommodated	# of Trailers	0	0	0
			# of Containers	0	0	0
	TCEP	Change in Cargo Volume That Can Be Accommodated	# of Tons	0	0	0
			# of Containers	0	0	0
System Reliability	TCEP	Truck Travel Time Reliability Index	Index	1.68	1.54	0.14
	TCEP	Daily Vehicle Hours of Travel Time Reduction	Hours	1,998.15	0	1,998.15
Velocity	TCEP	Travel Time or Total Cargo Transport Time	Hours	2,664,688	3,909,805	-1,245,117
Air Quality & GHG	LPPF, LPPC, SCCP, TCEP	Particulate Matter	PM 2.5 Tons	3.4	2.7	0.7
			PM 10 Tons	3.7	2.9	0.8
	LPPF, LPPC, SCCP, TCEP	Carbon Dioxide (CO2)	Tons	366,104	357,991	8,113
	LPPF, LPPC, SCCP, TCEP	Volatile Organic Compounds (VOC)	Tons	23	31	-8
	LPPF, LPPC, SCCP, TCEP	Sulphur Dioxides (SOx)	Tons	3.9	3.9	0
	LPPF, LPPC, SCCP, TCEP	Carbon Monoxide (CO)	Tons	771	909	-138
	LPPF, LPPC, SCCP, TCEP	Nitrogen Oxides (NOx)	Tons	210	307	-97
Safety	LPPF, LPPC, SCCP, TCEP	Number of Non-Motorized Fatalities and Non-Motorized Serious Injuries	Number	0	0	0
	LPPF, LPPC, SCCP, TCEP	Number of Fatalities	Number	8	9	-1
	LPPF, LPPC, SCCP, TCEP	Fatalities per 100 Million VMT	Number	0.613	0.744	-0.131
	LPPF, LPPC, SCCP, TCEP	Number of Serious Injuries	Number	70	98	-28
	LPPF, LPPC, SCCP, TCEP	Number of Serious Injuries per 100 Million VMT	Number	5.397	8.433	-3.036
Economic Development	LPPF, LPPC, SCCP, TCEP	Jobs Created (Direct and Indirect)	Number	1,587	0	1,587
Cost Effectiveness	LPPF, LPPC, SCCP, TCEP	Cost Benefit Ratio	Ratio	1.22	0	1.22

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PROJECT PROGRAMMING REQUEST (PPR)

PRG-0010 (REV 08/2020)

PPR ID
ePPR-6065-2020-0031 v0

District	County	Route	EA	Project ID	PPNO
07	Los Angeles, Los Angeles	91, 605	29811	0716000284	5388

Project Title

Route 605/91 Interchange Improvement: Gateway Cities Freight Crossroads Project

Existing Total Project Cost ($1,000s)								
Component	Prior	20-21	21-22	22-23	23-24	24-25	25-26+	Total	Implementing Agency
E&P (PA&ED)									Los Angeles County Metropolitan Tra
PS&E									Los Angeles County Metropolitan Tra
R/W SUP (CT)									Los Angeles County Metropolitan Tra
CON SUP (CT)									Los Angeles County Metropolitan Tra
R/W									Los Angeles County Metropolitan Tra
CON									Los Angeles County Metropolitan Tra
TOTAL									
Proposed Total Project Cost ($1,000s)									Notes
E&P (PA&ED)	8,000							8,000	
PS&E	12,000							12,000	
R/W SUP (CT)									
CON SUP (CT)									
R/W	20,000	3,100						23,100	
CON				114,300				114,300	
TOTAL	40,000	3,100		114,300				157,400	

Fund #1:	Local Funds - Agency (Committed)								Program Code
Existing Funding ($1,000s)									
Component	Prior	20-21	21-22	22-23	23-24	24-25	25-26+	Total	Funding Agency
E&P (PA&ED)									Los Angeles County Metropolitan Tra
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON									
TOTAL									
Proposed Funding ($1,000s)									Notes
E&P (PA&ED)	8,000							8,000	Program code: 20.10.400.100
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W	6,000							6,000	
CON				44,630				44,630	
TOTAL	14,000			44,630				58,630	

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST (PPR)

PRG-0010 (REV 08/2020)

PPR ID
ePPR-6065-2020-0031 v0

Fund #2:	RIP - National Hwy System (Committed)								Program Code
Existing Funding ($1,000s)									
Component	Prior	20-21	21-22	22-23	23-24	24-25	25-26+	Total	Funding Agency
E&P (PA&ED)									
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON									
TOTAL									
Proposed Funding ($1,000s)									Notes
E&P (PA&ED)									Adjusted PSE support estimate base on the updated need. $13 Million saving to revert to the County Share. Program code: 20.XX.075.600
PS&E	9,000							9,000	
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON									
TOTAL	9,000							9,000	

Fund #3:	State SB1 TCEP - Trade Corridors Enhancement Account (Committed)								Program Code
Existing Funding ($1,000s)									
Component	Prior	20-21	21-22	22-23	23-24	24-25	25-26+	Total	Funding Agency
E&P (PA&ED)									
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON									
TOTAL									
Proposed Funding ($1,000s)									Notes
E&P (PA&ED)									Regional TCEP-Preconstruction funded with TCEP cycle 1(adjusted due to cost savings). Requesting CON funding in Cycle 2. Metro requests to add $3.1M in TCEP for ROW phase in FY21 . 20.XX.723.200
PS&E	3,000							3,000	
R/W SUP (CT)									
CON SUP (CT)									
R/W	14,000	3,100						17,100	
CON									
TOTAL	17,000	3,100						20,100	

PPR ID
ePPR-6065-2020-0031 v0

Fund #4:	State SB1 TCEP - Trade Corridors Enhancement Account (Committed)								Program Code
	Existing Funding ($1,000s)								
Component	Prior	20-21	21-22	22-23	23-24	24-25	25-26+	Total	Funding Agency
E&P (PA&ED)									
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON									
TOTAL									
	Proposed Funding ($1,000s)								Notes
E&P (PA&ED)									State TCEP . Request for CON funding in Cycle 2. Program Code: 20.XX.723.100
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON				27,868				27,868	
TOTAL				27,868				27,868	

Fund #5:	State SB1 TCEP - Trade Corridors Enhancement Account (Committed)								Program Code
	Existing Funding ($1,000s)								
Component	Prior	20-21	21-22	22-23	23-24	24-25	25-26+	Total	Funding Agency
E&P (PA&ED)									
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON									
TOTAL									
	Proposed Funding ($1,000s)								Notes
E&P (PA&ED)									Regional TCEP - Requesting CON funding in Cycle 2. Program code: 20.XX.723.200
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON				41,802				41,802	
TOTAL				41,802				41,802	

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST (PPR)

PRG-0010 (REV 08/2020)

PPR ID
ePPR-6065-2020-0012 v4

Amendment (Existing Project) ☒ YES ☐ NO | Date 06/02/2021 11:49:54

Programs ☐ LPP-C ☐ LPP-F ☐ SCCP ☒ TCEP ☐ STIP ☐ Other

District	EA	Project ID	PPNO	Nominating Agency	
07	35460	0718000343	5496	Los Angeles County Metropolitan Transportation Authority	
County	**Route**	**PM Back**	**PM Ahead**	**Co-Nominating Agency**	
Los Angeles	91	11.800	13.200	Caltrans District 7	
				MPO	**Element**
				SCAG	Capital Outlay

Project Manager/Contact	Phone	Email Address
Lucy Delgadillo	213-922-7099	DelgadilloLu@Metro.net

Project Title

EB SR-91 Atlantic Ave to Cherry Ave. Aux Lane Project

Location (Project Limits), Description (Scope of Work)

In the City of Long Beach on SR-91 from I-710 to Cherry Avenue undercrossing. The proposed improvements consist of adding one auxiliary lane in the eastbound direction, extending the outside #5 lane beyond the Atlantic Ave EB off-ramp to Cherry Ave. then dropping it before the Cherry Ave. undercrossing, and widening the Orange Ave. and Walnut Ave. undercrossings.

Component	Implementing Agency
PA&ED	Los Angeles County Metropolitan Transportation Authority
PS&E	Los Angeles County Metropolitan Transportation Authority
Right of Way	Los Angeles County Metropolitan Transportation Authority
Construction	Los Angeles County Metropolitan Transportation Authority

Legislative Districts

Assembly:	64,63	Senate:	33	Congressional:	44

Project Milestone	Existing	Proposed
Project Study Report Approved		
Begin Environmental (PA&ED) Phase	02/20/2019	02/20/2019
Circulate Draft Environmental Document Document Type (ND/MND)/FONSI	12/17/2020	12/17/2020
Draft Project Report	12/17/2020	12/17/2020
End Environmental Phase (PA&ED Milestone)	06/30/2021	06/30/2021
Begin Design (PS&E) Phase	06/01/2019	06/01/2019
End Design Phase (Ready to List for Advertisement Milestone)	03/11/2022	03/11/2022
Begin Right of Way Phase	04/10/2020	04/10/2020
End Right of Way Phase (Right of Way Certification Milestone)	01/01/2022	01/01/2022
Begin Construction Phase (Contract Award Milestone)	03/01/2023	03/01/2023
End Construction Phase (Construction Contract Acceptance Milestone)	08/31/2026	08/31/2026
Begin Closeout Phase	09/30/2026	09/30/2026
End Closeout Phase (Closeout Report)	08/31/2028	08/31/2028

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST (PPR)

PRG-0010 (REV 08/2020)

PPR ID
ePPR-6065-2020-0012 v4

Date 06/02/2021 11:49:54

Purpose and Need

The 2020 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) projects a 46% increase in bidirectional daily truck trips on SR-91 between 2016 and 2045. By improving existing operational conditions including congestion and bottlenecks, operation deficiencies, and safety issues, the project aims to ensure the corridor has the ability to adequately accommodate future increases in freight travel demand. With the existing and anticipated corridor truck volumes, truck-involved safety incidents will continue to be a concern unless physical and operational improvements are made to address the outdated design standards and congested conditions that lead to safety incidents.

Purpose - The purpose of the Eastbound (EB) State Route 91 (SR-91) Atlantic Avenue to Cherry Avenue Auxiliary Lane Improvements Project (Project) is to enhance safety conditions on the EB SR-91 mainline, reduce congestion, and improve EB freeway operations (both mainline and ramps).

Need - Eastbound SR-91 experiences substantial congestion due to operational deficiencies within the Project Area, which is forecast to increase if no physical and operational improvements are made to the facility. The Project is needed to address operational safety due to the short weaving distance along EB SR-91 between the closely spaced interchanges of the I-710 on-ramps, Atlantic Avenue, and Cherry Avenue which impacts mainline congestion.

NHS Improvements ☒ YES ☐ NO	Roadway Class NA	Reversible Lane Analysis ☒ YES ☐ NO

Inc. Sustainable Communities Strategy Goals ☒ YES ☐ NO Reduce Greenhouse Gas Emissions ☒ YES ☐ NO

Project Outputs

Category	Outputs	Unit	Total
Operational Improvement	Auxiliary lanes	Miles	1.4

Date 06/02/2021 11:49:54

Additional Information

For Eastbound SR-91 Atlantic Avenue to Cherry Avenue. The minor R/W costs account for utility potholing during the design phase.

An increase to the funding plan was made to match the current project report, this increase will be paid for by LA Metro with local funds. The cost increase is due to increases in unit costs for materials, and cost increases associated with demolition activities.

The final Project Report and filing the NOD was completed as of May 28, 2021.

LA Metro will request a CON award extension in November or December 2022 if necessary.
Local funds for ROW and CON were adjusted to be consistent with the Final PR. $19K increase in local funds for R/W is due to additional documentation for an aerial easement from the City of Long Beach. Scope of work is unchanged.

Performance Indicators and Measures						
Measure	**Required For**	**Indicator/Measure**	**Unit**	**Build**	**Future No Build**	**Change**
Congestion Reduction	TCEP	Daily Vehicle Hours of Travel Time Reduction	Hours	611.83	0	611.83
	TCEP	Daily Truck Trips	# of Trips	2,311	2,256	55
	TCEP	Daily Truck Miles Traveled	Miles	4,779	4,665	114
Throughput	TCEP	Change in Truck Volume That Can Be Accommodated	# of Trucks	16,871,384	16,467,524	403,860
	TCEP	Change in Rail Volume That Can Be Accommodated	# of Trailers	0	0	0
			# of Containers	0	0	0
	TCEP	Change in Cargo Volume That Can Be Accommodated	# of Tons	0	0	0
			# of Containers	0	0	0
System Reliability	TCEP	Truck Travel Time Reliability Index	Index	1.47	1.49	-0.02
	TCEP	Daily Vehicle Hours of Travel Time Reduction	Hours	611.83	0	611.83
Velocity	TCEP	Travel Time or Total Cargo Transport Time	Hours	3,062,062	3,281,644	-219,582
Air Quality & GHG	LPPF, LPPC, SCCP, TCEP	Particulate Matter	PM 2.5 Tons	4.6	4.4	0.2
			PM 10 Tons	5	4.8	0.2
	LPPF, LPPC, SCCP, TCEP	Carbon Dioxide (CO2)	Tons	525,726	514,102	11,624
	LPPF, LPPC, SCCP, TCEP	Volatile Organic Compounds (VOC)	Tons	34	34	0
	LPPF, LPPC, SCCP, TCEP	Sulphur Dioxides (SOx)	Tons	5.7	5.5	0.2
	LPPF, LPPC, SCCP, TCEP	Carbon Monoxide (CO)	Tons	1,172	1,203	-31
	LPPF, LPPC, SCCP, TCEP	Nitrogen Oxides (NOx)	Tons	309	343	-34
Safety	LPPF, LPPC, SCCP, TCEP	Number of Non-Motorized Fatalities and Non-Motorized Serious Injuries	Number	0	0	0
	LPPF, LPPC, SCCP, TCEP	Number of Fatalities	Number	0	0	0
	LPPF, LPPC, SCCP, TCEP	Fatalities per 100 Million VMT	Number	0	0	0
	LPPF, LPPC, SCCP, TCEP	Number of Serious Injuries	Number	52	64	-12
	LPPF, LPPC, SCCP, TCEP	Number of Serious Injuries per 100 Million VMT	Number	2.758	3.51	-0.752
Economic Development	LPPF, LPPC, SCCP, TCEP	Jobs Created (Direct and Indirect)	Number	844	0	844
Cost Effectiveness	LPPF, LPPC, SCCP, TCEP	Cost Benefit Ratio	Ratio	1.1	0	1.1

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST (PPR)

PRG-0010 (REV 08/2020)

PPR ID
ePPR-6065-2020-0012 v4

District	County	Route	EA	Project ID	PPNO
07	Los Angeles	91	35460	0718000343	5496

Project Title

EB SR-91 Atlantic Ave to Cherry Ave. Aux Lane Project

Existing Total Project Cost ($1,000s)									
Component	Prior	21-22	22-23	23-24	24-25	25-26	26-27+	Total	Implementing Agency
E&P (PA&ED)	2,731							2,731	Los Angeles County Metropolitan Tra
PS&E	4,589							4,589	Los Angeles County Metropolitan Tra
R/W SUP (CT)									Los Angeles County Metropolitan Tra
CON SUP (CT)									Los Angeles County Metropolitan Tra
R/W	23							23	Los Angeles County Metropolitan Tra
CON			79,293					79,293	Los Angeles County Metropolitan Tra
TOTAL	7,343		79,293					86,636	
Proposed Total Project Cost ($1,000s)									Notes
E&P (PA&ED)	2,872							2,872	
PS&E	4,702							4,702	
R/W SUP (CT)									
CON SUP (CT)									
R/W		11	32					43	
CON		87,133						87,133	
TOTAL	7,574	87,144	32					94,750	

Fund #1:	Local Funds - Agency (Committed)								Program Code
Existing Funding ($1,000s)									20.10.400.100
Component	Prior	21-22	22-23	23-24	24-25	25-26	26-27+	Total	Funding Agency
E&P (PA&ED)	2,731							2,731	Los Angeles County Metropolitan Tra
PS&E	4,589							4,589	
R/W SUP (CT)									
CON SUP (CT)									
R/W	23							23	
CON			30,961					30,961	
TOTAL	7,343		30,961					38,304	
Proposed Funding ($1,000s)									Notes
E&P (PA&ED)	2,872							2,872	
PS&E	4,702							4,702	
R/W SUP (CT)									
CON SUP (CT)									
R/W		11	32					43	
CON		38,801						38,801	
TOTAL	7,574	38,812	32					46,418	

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST (PPR)

PRG-0010 (REV 08/2020)

PPR ID
ePPR-6065-2020-0012 v4

Fund #2:	State SB1 TCEP - Trade Corridors Enhancement Account (Committed)								Program Code
Existing Funding ($1,000s)									20.XX.723.200
Component	Prior	21-22	22-23	23-24	24-25	25-26	26-27+	Total	Funding Agency
E&P (PA&ED)									
PS&E									Regional
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON			29,000					29,000	
TOTAL			29,000					29,000	
Proposed Funding ($1,000s)									Notes
E&P (PA&ED)									
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON		29,000						29,000	
TOTAL		29,000						29,000	

Fund #3:	State SB1 TCEP - Trade Corridors Enhancement Account (Committed)								Program Code
Existing Funding ($1,000s)									20.XX.723.100
Component	Prior	21-22	22-23	23-24	24-25	25-26	26-27+	Total	Funding Agency
E&P (PA&ED)									
PS&E									State
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON			19,332					19,332	
TOTAL			19,332					19,332	
Proposed Funding ($1,000s)									Notes
E&P (PA&ED)									
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON		19,332						19,332	
TOTAL		19,332						19,332	

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST (PPR)

PRG-0010 (REV 08/2020)

PPR ID
ePPR-6065-2020-0012 v4

Complete this page for amendments only Date 06/02/2021 11:49:54

District	County	Route	EA	Project ID	PPNO
07	Los Angeles	91	35460	0718000343	5496

SECTION 1 - All Projects

Project Background

This amendment reflects a change in the project's cost estimate. The cost increased between the time of application and the final project report to account for increases to the unit costs of materials.

Programming Change Requested

An $8,114 increase to the project funding plan. LA Metro will utilize local funds to cover this cost increase.

Reason for Proposed Change

This amendment reflects a change in the project's cost estimate. The cost increased between the time of application and the final project report to account for increases to the unit costs of materials.

If proposed change will delay one or more components, clearly explain 1) reason for the delay, 2) cost increase related to the delay, and 3) how cost increase will be funded

Other Significant Information

SECTION 2 - For SB1 Project Only

Project Amendment Request (Please follow the individual SB1 program guidelines for specific criteria)

This amendment reflects a change in the project's cost estimate. The cost increased between the time of application and the final project report to account for increases to the unit costs of materials.

Approvals

I hereby certify that the above information is complete and accurate and all approvals have been obtained for the processing of this amendment request.

Name (Print or Type)	Signature	Title	Date

SECTION 3 - All Projects

Attachments
1) Concurrence from Implementing Agency and/or Regional Transportation Planning Agency
2) Project Location Map

7-LA-91-PM R16.9/R19.8
7-LA-605-PM R5.0/R5.8
EA 07-298110
EFIS 0716000284
January 2019

Project Report

For Project Approval

IN LOS ANGELES COUNTY

On Route 91

From SHOEMAKER AVENUE

To INTERSTATE 605 (I-605)

On Route 605

From STATE ROUTE 91 (SR-91)

To ALONDRA BOULEVARD

I have reviewed the right-of-way information contained in this report and the Right-Of-Way Data Sheet attached hereto, completed by Los Angeles County Metropolitan Transportation Authority (Metro) and its consultant and find the data to be complete as to form and procedures:

Andrew P. Nierenberg, *DEPUTY DISTRICT DIRECTOR OF RIGHT OF WAY*

APPROVAL RECOMMENDED:

Tin Dinh, *PROJECT MANAGER*

APPROVED:

for John Bulinski, *DISTRICT DIRECTOR*

1/18/19
DATE

Vicinity Map

This Project Report has been prepared under the direction of the following registered civil engineer. The registered civil engineer attests to the technical information contained herein and the engineering data upon which recommendations, conclusions, and decisions are based.

Eric Spangler

01/11/19

Eric Spangler
REGISTERED CIVIL ENGINEER

DATE

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List of Acronyms:

A	
AADT	Annual Average Daily Traffic
ACMs	Asbestos-Containing Materials
ACOE	United States Army Corps of Engineers
ADL	Aerially Deposited Lead
APN	Assessor's Parcel Number
APS	Advanced Planning Studies
B	
BMPs	Best Management Practices
Br. No.	Bridge Number
BSA	Biological Study Area
C	
Caltrans	California Department of Transportation
CCP	Construction Contingency Plan
C-D	Collector-Distributor
CDFW	California Department of Fish and Wildlife
CEC	Certificate of Environmental Compliance
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CHP	California Highway Patrol
CIP	Corridor Improvement Project
CNE's	Common Noise Environment
CSMP	Corridor System Management Plan
CSS	Coastal Sage Scrub
CWA	Clean Water Act
D	
DPGR	District Preliminary Geotechnical Report
DPR	Draft Project Report
E	
EB	Eastbound
ECR	Environmental Commitments Records
EIR/EIS	Environmental Impact Report/Environmental Impact Statement
F	
FHWA	Federal Highway Administration
ft	Feet
FTA	Federal Transit Administration
FTIP	Federal Transportation Improvement Program

G

GP	General Purpose

H

HCP	Habitat Conservation Plan
HDM	Highway Design Manual
HMA	Hot Mix Asphalt with Asphalt
HOT	High Occupancy Toll
HOV	High Occupancy Vehicle

I

ISA	Initial Site Assessment
ITS	Intelligent Transportation Systems

L

LBPs	Lead Based Paints
LCCA	Life Cycle Cost Analysis
LOS	Level of Service

M

mi	Miles
MPAH	Master Plan of Arterial Highways
mph	Miles Per Hour
MSE	Mechanically Stabilized Earth

N

NADR	Noise Abatement Decision Report
NB	Northbound
NCCP	Natural Communities Conservation Plan
NES	Natural Environment Study
NNL	National Natural Landmark
NOI	Notice of Intent
NOT	Notice of Termination
NPDES	National Pollutant Discharge Elimination System
NSR	Noise Study Report

O

OC	Over Crossing
O-D	Origin and Destination

P

PA/ED	Project Approval/Environmental Document
PDPM	Project Development Procedures Manual
PDT	Project Development Team
PeMS	Caltrans Freeway Performance Measurement System
PM	Post Mile
$PM_{2.5}$	Particulate matter less than 2.5 microns in size
PM_{10}	Particulate Matter 10.0 microns or less in diameter
POAQC	Project of Air Quality Concern
PPDG	Project Planning and Design Guide
PS&E	Plans, Specifications and Estimate

PSR-PDS	Project Study Report-Project Development Support
R	
RCR	Route Concept Report
RHMA	Rubberized Hot Mix Asphalt
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Board
S	
SB	Southbound
SCAG	Southern California Association of Governments
SCE	Southern California Edison
SCG	Southern California Gas Company
SHELL	State Highway Extra Legal Load
SHS	State Highway System
SMC	Systems Management Concept
SPGR	Structures Preliminary Geotechnical Reports
SR	State Route
SSD	Stopping Sight Distance
STAA	Surface Transportation Assistance Act
SWDR	Storm Water Data Report
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
T	
TASAS	Traffic Accident Surveillance and Analysis System
TCEs	Temporary Construction Easements
TCWG	Transportation Conformity Working Group
TI	Traffic Indices
TMP	Transportation Management Plan
TMT	Caltrans Transportation Management Team
U	
UC	Undercrossing
USDOT	United States Department of Transportation
USFWS	United States Fish and Wildlife Service
V	
VA	Value Analysis
VMT	Vehicle Miles Traveled
W	
WB	Westbound
Y	
YOE	Year of Expenditure

1. INTRODUCTION

The California Department of Transportation (Caltrans) District 7 and the Los Angeles County Metropolitan Transportation Authority (Metro), in collaboration with the Gateway Cities Council of Governments (GCCOG) and the Cities of Cerritos and Artesia, propose to widen and improve approximately 3 miles (mi) of freeway along westbound State Route 91 (SR-91) between approximately Shoemaker Avenue and the Interstate 605 (I-605) interchange, and at the I-605 northbound exit to Alondra Boulevard.

The Study Area includes westbound SR-91 (Post Miles [PM] R16.9–R19.8) and northbound I-605 (PM R5.0–R5.8) and traverses the cities of Cerritos and Artesia. Caltrans, as assigned by the Federal Highway Administration (FHWA), is the Lead Agency for compliance under the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). The Project Location Map is shown in Attachment A.

The proposed project includes widening approximately 3 miles of westbound State Route 91 (SR-91) between the Artesia Boulevard on-ramp and the Interstate 605 (I-605) interchange through the cities of Cerritos and Artesia. The project would add one new mixed-flow lane on SR-91 in the westbound direction from the Artesia Boulevard on-ramp to I-605 Connector ramp joining at the point where the westbound SR-91 to the northbound I-605 connector ramp flares from one to two lanes. This would create a three-lane exit from westbound SR-91 to I-605: a one-lane I-605 southbound connector, and a two-lane I-605 northbound connector.

The project will also maintain the existing auxiliary lanes between Bloomfield Avenue and Norwalk Boulevard; Norwalk Boulevard and Pioneer Boulevard; and Pioneer Boulevard and the westbound SR-91 to the northbound and southbound I-605 connector ramps. The project also proposes to eliminate the southbound Norwalk and Pioneer Boulevard to westbound SR-91 slip on-ramp, by creating a Type L-7 interchange rather than the current Type L-9. This will improve weaving distance between the closely spaced Norwalk Boulevard and Pioneer Boulevard as well as Pioneer Boulevard and SR-91/I-605 connector interchanges.

The existing outside lane of the westbound SR-91 to the northbound I-605 two-lane connector ramp terminates at I-605 northbound Alondra Boulevard exit. Modifications are proposed at the Alondra Boulevard exit point to provide a single lane exit movement and carry the outside lane past the exit point and merge with the northbound I-605 mainline prior to the Alondra Boulevard Undercrossing (UC).

Project Limits	*7-LA-91-PM R16.9/R19.8* *7-LA-605-PM R5.0/R5.8*	
Number of Alternatives	*2 Alternatives (one Build and one No Build)*	
	Current Cost Estimate	**Escalated Cost Estimate**
Capital Outlay Support	$27.9 million	$29.8 million
Capital Outlay Construction	$95.3 million	$105.3 million
Capital Outlay Right-of-Way	$14.0 million	$16.1 million
Funding Source	*County of Los Angeles Measure R sales tax funds*	
Funding Year	FY 2021/2022	
Type of Facility	Freeway, Freeway Interchange	
Number of Structures	Nine (four new, five widen)	
Environmental Determination or Document	Initial Study / Environmental Assessment (IS/EA) leading to a Negative Declaration/Finding of No Significant Impact (ND/FONSI)	
Legal Description	In Los Angeles County, On Route 91 from Shoemaker Avenue to Interstate 605, And On Interstate 605 from State Route 91 To Alondra Boulevard.	
Project Development Category	*4A*	

2. RECOMMENDATION

It is recommended that the project be approved using the Preferred Alternative (Alternative 2, Option 1 and 3), and that the project proceed to the next phase. Local agency concurrence has been achieved based on the following (1) the affected local agencies have been consulted with respect to the recommended plan, that (2) their views have been considered, and (3) that the local agencies are in general accord with the plan as presented.

3. BACKGROUND

Project History

In 2012 Metro and the GCCOG initiated the SR-91/I-605/I-405 “Congestion Hot Spots Feasibility Study.” The feasibility study identified freeway and arterial “Hot Spots” throughout the corridor. Building off those findings, in 2013, Metro initiated a Project Study Report-Project Development Support (PSR-PDS) for the I-605/SR-91 interchange. The PSR-PDS served as the Project Initiation Document, identified Alternatives and Design Options that would improve mobility within the study area, and estimated the capital outlay support cost necessary to complete the technical studies and analyses for the Project Approval & Environmental Document phase (PA/ED or the “environmental phase”).

The PSR-PDS found that the SR-91 currently experiences significant congestion, which is forecasted to increase in the absence of physical and operational improvements. The existing westbound approach of SR-91 to the I-605/SR-91 interchange has insufficient capacity for the projected traffic volumes and would provide substandard levels of service in the future. Additional freeway capacity and other improvements can reduce congestion, improve the flow of traffic, increase safety, and better accommodate projected regional

growth. The Westbound SR-91 Improvement Project (project) is funded by County of Los Angeles Measure R sales tax funds, which are administered by Metro. However, both State and federal environmental reviews are conducted in case federal funds are programmed in the future.

Community Interaction

Metro and Caltrans conducted two Open House Meetings to initiate the Westbound State Route 91 (SR-91) Improvement Project environmental process, on October 18, 2016 in the City of Artesia and October 19, 2016 in the City of Cerritos. The purpose of the meetings were to provide an opportunity for residents and stakeholders in the project area to learn about the project and the environmental process, ask questions, and submit comments that can be used to refine the design options and environmental analyses. 130 people attended the meetings and signed in. A total of 61 public comments were received.

Additional public Open House Meetings were held on January 30, 2018 in the City of Cerritos and on January 31, 2018 in the City of Artesia. The purpose of these meetings was to give the public an update on the project, and to receive additional public input. 190 people attended the meetings and signed in. A total of 66 public comments were received.

Public hearing meetings were conducted on August 1, 2018 and August 2, 2018 in the Cities of Cerritos and Artesia, respectively. The Draft IS/EA was circulated for public review and comment for a period of 30 days, from July 18, 2018, to August 16, 2018.

Existing Facility

SR-91 is a major east-west freeway facility used for commuting, goods movement and interregional travel, and provides vital connections to Los Angeles County to the west and Riverside County to the east. SR-91 within the proposed project limits was designed utilizing a 70-mile per hour (mph) design speed with a posted speed limit of 65 mph. I-605 is a major north-south transportation route. I-605 within the proposed project limits was designed utilizing a 75-mph design speed with a posted speed limit of 65 mph.

Existing I-605 Lane Configuration

Beginning on the southern portion of the project limit heading in the northbound direction, the I-605 facility has three mixed flow lanes and one high occupancy vehicle (HOV) lane. An additional mixed-flow lane is added at the EB SR-91/NB I-605 connector merge point and a second mixed-flow lane is added at the WB SR-91/NB I-605 connector merge point. An auxiliary lane is added at the WB SR-91/NB I-605 connector merge point terminating at Alondra Boulevard. The I-605/Alondra Boulevard interchange is a partial cloverleaf with single and multilane on- and off-ramps. The off-ramps at Alondra Boulevard interchange terminate at a signalized intersection for the northbound and southbound direction. Beginning on the northern portion of the project limit heading in the southbound direction, I-605 facility has five mixed-flow lanes and one HOV lane. An auxiliary lane is added at the Alondra Boulevard SB direct on ramp. The auxiliary lane and one mixed-flow lane diverge to the SB I-605/WB SR-91 connector.

Existing SR-91 Lane Configuration

Beginning in the western portion of the project limit heading in the eastbound direction, the SR-91 facility has four mixed-flow travel lanes and one HOV lane with an auxiliary lane beginning at the NB I-605/EB SR-91 connector merge point. In the westbound direction the SR-91 facility has four mixed-flow travel lanes and one HOV lane with an auxiliary lane beginning at Bloomfield Avenue.

Existing Ramps and Interchanges

The SR-91/Artesia Boulevard westbound off-ramp terminus is located at the eastern end of the Study Area. The exit ramp splits into one left-turn lane and one right-turn lane. The Artesia Boulevard westbound on-ramp currently is a direct ramp from Artesia Boulevard that merges onto SR-91 just east of the Bloomfield Avenue Overcrossing.

The SR-91/Bloomfield Avenue westbound on-ramp is located northwest of the SR-91/Artesia Boulevard westbound off-ramp. The Bloomfield Avenue westbound on-ramp currently is a direct ramp from Bloomfield Avenue that joins SR-91 just west of Bloomfield Avenue.

The SR-91/Norwalk Boulevard Interchange has a partial cloverleaf configuration. The westbound ramps consist of a one-lane off-ramp exit at Norwalk Boulevard that flares to two off-ramp lanes, a one-lane on-ramp from southbound Norwalk Boulevard, and a one-lane loop on-ramp from northbound Norwalk Boulevard.

The SR-91/Pioneer Boulevard interchange also has a partial cloverleaf configuration. The westbound ramps consist of a one-lane off-ramp exit at Pioneer Boulevard that flares to two off-ramp lanes, a two-lane direct on-ramp from southbound Pioneer Boulevard (with one dedicated HOV by pass lane), and a one-lane loop on-ramp from northbound Pioneer Boulevard.

The SR-91/Studebaker Road westbound off-ramp splits into two lanes after a one-lane exit and is located immediately west (downstream) of the SR-91/I-605 freeway-to-freeway connector.

The existing outside lane of the westbound SR-91 to the northbound I-605 two-lane connector ramp terminates as a trapped auxiliary lane for the northbound I-605 exit to Alondra Boulevard. The northbound I-605 Alondra Boulevard off-ramp splits into two lanes.

Structures

The following existing structures are within the project limits:

- Alondra Boulevard bridge number (Br. No) 53-1645 is an Undercrossing (UC) at I-605.
- Two bridges are located at Studebaker Road. Br. No. 53-1706 for the SR-91 traffic is an UC and Br. No. 53-1707F for the WB SR-91/NB and SB I-605 connector traffic is also an UC.
- Gridley Road Br. No 53-1324 is an Overcrossing (OC) supported by columns over SR-91.
- Pioneer Boulevard Br. No 53-1335 is an UC at SR-91.
- Norwalk Boulevard Br. No 53-1334 is an UC at SR-91.
- Bloomfield Avenue Br. No 53-1433 is an OC supported by columns over SR-91.
- Artesia Boulevard Br. No 53-1434 is an OC supported by columns over SR-91.

Soundwalls

Eight existing soundwalls are located along SR-91 WB and eight existing soundwalls are located along SR-91 EB within the project limits. Traffic noise was modeled and evaluated for potential noise impacts in the Noise Study Report (NSR). The NSR is summarized in Section 6H.

Retaining Walls

Four existing retaining walls are located within the proposed project limits. Along NB I-605 Alondra Boulevard off-ramp, an east facing retaining wall is approximately 650 ft in length. Along SB I-605 Alondra Boulevard on-ramp, a west facing wall is approximately 950 ft in length. Along WB SR-91 at 170th Street, a north facing wall is approximately 1,800 ft in length. Along WB SR-91 between Bloomfield Avenue on ramp and Norwalk Boulevard off ramp, a north facing wall is approximately 950 ft in length.

Drainage Facilities

Existing drainage facilities located within the project limits include:

- Four regional drainage systems, Cerritos Line C (F01004153), U3 Line A – Artesia (F01003820), U2 Line A – Artesia Norwalk (F01003336), and U1 Line A – Ely Avenue (F01005063) Storm Drains. The project site is also in the vicinity of the San Gabriel River (F02000367) and Alondra Storm Drain (F01002203).
- Existing storm drain facilities located on the edge of the roadways. Curb opening inlets, grate inlets, overside drains, parkway drains, water carrying barriers, risers, and down drains were found to be within the area of the project

4. PURPOSE AND NEED

Purpose:

The purpose of the project is to reduce congestion and improve freeway operations (both mainline and ramps), improve safety and improve local and system interchange operations.

Proposed improvements include: (1) additional freeway mainline capacity leading to the westbound SR-91 connector ramp to the northbound and southbound I-605, (2) improvements to freeway entrance and exit ramps in the westbound direction on SR-91, and (3) operational improvements for the northbound I-605 at the Alondra Boulevard off-ramp. Associated improvements are also anticipated on the arterial streets in the vicinity of the freeway ramp intersections.

Need:

A. Problems, Deficiencies, Justifications

The westbound SR-91 approaching the connector ramp for both northbound and southbound I-605 currently experiences substantial congestion, which will continue in the future under No Build condition. This congestion, as a result of inadequate capacity of the existing two-lane connector for the westbound SR-91 to northbound and southbound I-

605, as well as the closely spaced freeway entrance and exit ramps, contributes to a high concentration of accidents.

B. Regional and System Planning

Identify Systems

The Artesia Freeway, State Route 91 (SR-91), was initially opened in 1965 and is an east-west freeway traversing the Cities of Los Angeles, Carson, Compton, Long Beach, Bellflower, Artesia, and Cerritos within Los Angeles County and is used for interstate, interregional and intraregional travel. Its westerly terminus is located at Artesia Boulevard, west of Interstate 110 (I-110) in the City of Gardena, and its easterly terminus is in the City of Riverside at the junction with State Route 60 (SR-60). SR-91 is part of the California Freeway and Expressway System and is the only freeway that links Los Angeles, Orange, and Riverside Counties.

SR-91 is functionally classified as a freeway and an urban principal arterial. SR-91 is also a High Emphasis Route, and a Goods Movement Route. The segments within the project area are currently designated as urbanized. It is also a Surface Transportation Assistance Act (STAA) National Network Route for use by oversized trucks and is approximately 59 miles in length.

I-605, also known as the San Gabriel River Freeway, was initially opened in 1964 and is a north-south transportation route within Los Angeles and Orange Counties and is used for international, interstate, interregional and intraregional travel. Its southerly terminus is located at Interstate 405 (I-405) and State Route 22 (SR-22) in Seal Beach, and the northerly terminus is located at Huntington Drive, north of its junction with Interstate 210 (I-210) in the City of Irwindale at the base of the San Gabriel Mountains. The interstate serves as a major route for access to the Los Angeles Central Business District and for Orange County trips and is approximately 27 miles in length.

I-605 is functionally classified as an Interstate, State Highway, and an Urban Principal Arterial-P3. It is also included in the Strategic Highway Network (STRAHNET) and is a Goods Movement Route. The segments within the project area are currently designated as urbanized. It is also a Surface Transportation Assistance Act (STAA) National Network Route for use by oversized trucks.

State Planning

The SR-91 Transportation Concept Report (TCR) (Caltrans, June 2013) shows that 11 lanes (both directions) are required on SR-91 west of I-605 to attain the minimum acceptable LOS F and that 16 lanes are required to attain LOS D. East of I-605, 10 lanes are required for LOS F and 13 lanes are required for LOS D. Existing SR-91 includes 4 mixed-flow lanes and 1 HOV lane west of I-605 and 4 mixed-flow lanes and 1 HOV lane east of I-605, in each direction.

The I-605 TCR (Caltrans, July 2013) shows that 12 lanes (both directions) are required on I-605 north of SR-91 to attain the minimum acceptable LOS F and that 16 lanes are required to attain LOS D. Existing I-605 includes 5 mixed-flow lanes and 1 HOV lane north of SR-91 in each direction.

These reports do not outline the specifics of interchange geometry, entrance or exit ramps, or auxiliary lanes.

Regional Planning

The proposed project is listed in Amendment #3 to the 2016 Regional Transportation Plan (RTP)/Sustainable Communities Strategy (SCS) with Project ID 1163S012. The 2016 RTP was approved by the Regional Council of the Southern California Association of Governments (SCAG) on April 7, 2016, and Amendment #3 was adopted in December 2018. The proposed project is currently programmed in the 2019 Federal Transportation Improvement Program (FTIP) with Project ID LA0G1119. The 2019 FTIP was approved by the SCAG on September 6, 2018.

Local Planning

The proposed project is located within the Cities of Cerritos, and Artesia and the County of Los Angeles.

There are two potential developments on Pioneer Boulevard near SR-91 westbound in the City of Artesia. They are hotel and mix retail developments which may be completed by SR-91 westbound widening project begin of construction.

Transit Operator Planning

On the I-605, Metro operates Route 577 beginning at the El Monte Transit Station and traveling along I-605, to its final destination at the City of Long Beach.

On the SR-91, Orange County Transportation Authority (OCTA) operates Route 721 beginning at the Fullerton Transit Station and traveling along the SR-91 and I-110 freeways, to its final destination at Downtown Los Angeles which serves inter-county commuters.

C. Traffic

A Traffic Operations Analysis Report (TOAR) has been prepared for the existing (2016), opening year (2024), and forecasted future (2044) traffic volume and demand. The TOAR was submitted to Caltrans in October 2017 and was approved on June 7, 2018. Detailed data analysis and methodologies used can be referenced in the TOAR.

Current and Forecasted Traffic

New traffic counts were collected in early November 2016. Westbound SR-91 automobile counts were also collected from PeMS detector data, averaged across spring and fall months in 2016 in order to provide estimates of typical daily traffic volumes. SR-91 truck percentages were derived from video counts collected in 2016 and 2017 – a source more reliable than the accuracy of vehicle classification obtained from PeMS detectors. The PeMS detectors between the westbound SR-91 connector ramp to northbound I-605 and Alondra Boulevard have been out of commission since 2014. As a result, the traffic volumes for the northbound I-605 segment have been estimated using 2013 PeMS data, averaged across spring and fall months, as well as 2013 Caltrans reported truck percentages. Twenty-four-hour weekday traffic volume estimates resulting from these data sources are summarized in Table 1 below.

Table 1: Existing Average Daily Traffic Volumes – Year 2016

Location	AADT Volumes
SR-91 WB	
East of Studebaker Road, west of I-605 Connector	89,000
West of Pioneer Boulevard	148,800
East of Pioneer Boulevard	140,600
West of Norwalk Boulevard	139,300
East of Norwalk Boulevard	126,300
West of Bloomfield Avenue	124,600
West of Artesia Boulevard	114,000
East of Artesia Boulevard	113,600
West of 183rd Street	122,000
I-605 NB	
North of Westbound SR-91 On-Ramp	155,600

Source: Table 2-4, Traffic Operations Analysis Report (2018).

The project used SCAG's 2012 Regional Travel Demand Model (RTDM) for horizon year (2044) and opening year (2024) model outputs used for air quality assessments of the No-Build and Build alternatives. The SCAG 2012 RTDM has been used to define and evaluate the Draft 2016–2040 RTP/SCS. Use of the SCAG 2012 RTDM ensures that project forecasts are consistent with the regionally adopted growth assumptions, highway and transit network assumptions, trip generation and distribution methodologies, traffic assignments, and vehicle miles traveled/vehicle hours traveled (VMT)/(VHT) calculation methods.

Table 4 through Table 6, Table 8, Table 10, Table 11, and Table 13 summarize the AM and PM traffic volumes and associated Level of Service (LOS) values along the freeway mainline segments and ramps for existing year 2016 and horizon year 2044. LOS values were calculated using the Highway Capacity Manual (HCM) method of analysis.

In areas with long vehicle queues, slow speeds, and high levels of congestion, the HCM method of analysis is known to report LOS that is better than what drivers experience on the road. In order to report LOS that more closely reflects what drivers experience, the speed method of analysis for determining LOS was also employed for existing year analysis only. The speed method of analysis included observing existing speed profiles in the Study Area and comparing those speeds to likely LOS designations.

The scale upon which the speed-based LOS for freeway mainline segments is measured and presented in Table 2.

Table 2: Mainline Speed-based Level of Service Definitions

LOS	OBSERVED SPEED RANGE
A	> 65 mph
B	≥ 55 – 65 mph
C	≥ 45 – 55 mph
D	≥ 35 – 45 mph
E	≥ 30 – 35 mph
F	< 30 mph

Because speed is constant through a broad range of flows and the ratio of demand flow rate to capacity (v/c) is not directly discernible to road users (except at capacity), the service measure for basic freeway segments is density. Criteria for basic freeway segments using density-based LOS for freeway mainline segments is presented in Table 3.

Table 3: Mainline Density-based Level of Service Criteria

LOS	Density (pc/mi/ln)
A	≤11
B	>11–18
C	>18–26
D	>26–35
E	>35–45
F	Demand exceeds capacity >45

Source: HCM exhibit 11-5.
pc/mi/ln = passenger cars per mile per lane

The speed-based LOS methodology (presented in Table 4) indicates that most of the study corridor operates at LOS E or F, which accurately reflects current conditions. Caltrans PeMS data for the detector station located between the Pioneer Boulevard on-ramp and Gridley Avenue show that the number one and two lanes (those closest to the median which continue as westbound SR-91 through lanes) have considerably higher speeds than the outer lanes (which diverge to I-605). This reflects field observations which show that the system connector ramp lanes (two exit lanes) become highly congested during peak hours and this congestion results in slow speeds in the outer lanes. Speeds on the westbound SR-91 through lanes actually increase after the diverge, due to the diverge of approximately 3,000 vehicles to I-605. Based on this, the speed findings in Table 4 for the segment from Pioneer Boulevard on-ramp to the I-605 off-ramp reflect the three through lanes, while the speeds on the lanes of the connector ramp are much lower and reflect LOS F conditions during each peak hour.

Table 4: Existing Freeway Mainline Peak Hour Volume/LOS – Year 2016 - Speed Method

Location	AM		PM	
	Average Speed (mph)	LOS	Average Speed (mph)	LOS
SR-91 WB (Mainline)				
Artesia Boulevard Off-Ramp to Artesia Boulevard On-Ramp	25.0	F	22.0	F
Artesia Boulevard On-Ramp to Bloomfield Avenue On-Ramp	22.0	F	21.0	F
Bloomfield Avenue On-Ramp to Norwalk Boulevard Off-Ramp	20.0	F	22.0	F
Norwalk Boulevard Off-Ramp to Norwalk Boulevard Loop On-Ramp	28.0	F	32.0	E
Norwalk Boulevard Direct On-Ramp to Pioneer Boulevard Off-Ramp	39.0	D	41.0	D
Pioneer Boulevard Off-Ramp to Pioneer Boulevard Loop On-Ramp	33.0	E	37.0	D
Pioneer Boulevard Loop On-Ramp to Pioneer Boulevard Direct On-Ramp	37.0	D	46.0	C
Pioneer Boulevard Direct On-Ramp to I-605 Off-Ramp (NB & SB)	44.0	D	47.0	C
I-605 NB (Mainline)				
SR-91 WB On-Ramp to Alondra Boulevard Off-Ramp	32.0	E	40.0	D

Source: Table 2-9, Traffic Operations Analysis Report (2018).

Table 5: Existing Freeway Mainline Peak Hour Volume/LOS – Year 2016

Location	AM					PM				
	HCM Analysis			Speed Method		HCM Analysis			Speed Method	
	Volume	Density (pc/mi/ln)	LOS	Average Speed (mph)	LOS	Volume	Density (pc/mi/ln)	LOS	Average Speed (mph)	LOS
SR-91 WB (Mainline)										
Artesia Boulevard Off-Ramp to Artesia Boulevard On-Ramp	6,045	22.9	C	25.0	F	6,310	24.4	C	22.0	F
Artesia Boulevard On-Ramp to Bloomfield Avenue On-Ramp	6,553	25.3	C	22.0	F	6,999	27.5	D	21.0	F
Bloomfield Avenue On-Ramp to Norwalk Boulevard Off-Ramp	6,911	-	D	20.0	F	7,354	-	D	22.0	F
Norwalk Boulevard Off-Ramp to Norwalk Boulevard Loop On-Ramp	6,619	25.6	C	28.0	F	7,094	27.9	D	32.0	E
Norwalk Boulevard Loop On-Ramp to Norwalk Boulevard Direct On-Ramp	6,967	27.2	D	-	-	7,361	29.3	D	-	-
Norwalk Boulevard Direct On-Ramp to Pioneer Boulevard Off-Ramp	7,259	-	D	39.0	D	7,725	-	D	41.0	D
Pioneer Boulevard Off-Ramp to Pioneer Boulevard Loop On-Ramp	7,044	27.6	D	33.0	E	7,483	30.0	D	37.0	D
Pioneer Boulevard Loop On-Ramp to Pioneer Boulevard Direct On-Ramp	7,260	28.6	D	37.0	D	7,790	31.8	D	46.0	C
Pioneer Boulevard Direct On-Ramp to I-605 Off-Ramp (NB & SB)	7,619	-	F	44.0	D	8,127	-	F	47.0	C
I-605 Off-Ramp (NB & SB) to Studebaker Off-Ramp	4,601	22.0	C	-	-	5,290	26.4	D	-	-
Studebaker Off-Ramp to I-605 NB Loop On-Ramp	4,201	19.6	C	-	-	5,060	25.0	C	-	-
I-605 NB (Mainline)										
SR-91 WB On-Ramp to Alondra Boulevard Off-Ramp	9,928	-	F	32.0	E	9,917	-	F	40.0	D

Source: Figure 2-2, Table 2-8, 2-9, 2-10, Traffic Operations Analysis Report (2018).

Table 6: No-Build Freeway Mainline Peak Hour Volume/LOS – Year 2044

Location	AM - HCM Analysis			PM - HCM Analysis		
	Volume	Density (pc/mi/ln)	LOS	Volume	Density (pc/mi/ln)	LOS
SR-91 WB (Mainline)						
Artesia Boulevard Off-Ramp to Artesia Boulevard On-Ramp	6,166	23.4	C	6,436	24.9	C
Artesia Boulevard On-Ramp to Bloomfield Avenue On-Ramp	6,684	25.8	C	7,139	28.1	D
Bloomfield Avenue On-Ramp to Norwalk Boulevard Off-Ramp	7,049	-	D	7,502	-	D
Norwalk Boulevard Off-Ramp to Norwalk Boulevard Loop On-Ramp	6,751	26.1	D	7,236	28.5	D
Norwalk Boulevard Loop On-Ramp to Norwalk Boulevard Direct On-Ramp	7,107	27.8	D	7,509	30.0	D
Norwalk Boulevard Direct On-Ramp to Pioneer Boulevard Off-Ramp	7,404	-	D	7,880	-	D
Pioneer Boulevard Off-Ramp to Pioneer Boulevard Loop On-Ramp	7,185	28.1	D	7,633	30.7	D
Pioneer Boulevard Loop On-Ramp to Pioneer Boulevard Direct On-Ramp	7,406	29.3	D	7,946	32.7	D
Pioneer Boulevard Direct On-Ramp to I-605 Off-Ramp (NB & SB)	7,771	-	F	8,290	-	F
I-605 Off-Ramp (NB & SB) to Studebaker Off-Ramp	4,693	22.4	C	5,396	27.0	D
Studebaker Off-Ramp to I-605 NB Loop On-Ramp	4,285	20.0	C	5,162	25.5	C
I-605 NB (Mainline)						
SR-91 WB On-Ramp to Alondra Boulevard Off-Ramp	9,969	-	F	9,955	-	F

Source: Figure 3-2, Table 4-26, 4-27, 4-51 to 54, Traffic Operations Analysis Report (2018).

The LOS in a weaving segment, as in all freeway analysis, is related to the density in the segment. Table 7 provides LOS criteria for weaving segments on freeways, collector–distributor (C-D) roadways, and multilane highways.

Table 7: Weaving Segments - Level of Service Criteria

	Density (pc/mi/ln)	
LOS	**Freeway Weaving Segments**	**Weaving Segments on Multilane Highways or C-D Roadways**
A	0-10	0-12
B	>10-20	>12-24
C	>20-28	>24-32
D	>28-35	>32-36
E	>35	>36
F	Demand exceeds capacity	

Source: HCM exhibit 12-10.

Table 8: Year 2016 Existing Conditions Freeway Weaving Analysis

Segment Location	AM Peak Hour		PM Peak Hour	
	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
Westbound SR-91				
183rd Street On-Ramp to Artesia Boulevard Off-Ramp	26.7	C	27.7	C
Bloomfield Avenue On-Ramp to Norwalk Boulevard Off-Ramp	27.7	C	30.1	D
Norwalk Boulevard Direct On-Ramp to Pioneer Boulevard Off-Ramp	28.8	D	32.0	D
Pioneer Boulevard Direct On-Ramp to I-605 Off-Ramp (NB & SB)	–	**F**	–	**F**
Northbound I-605				
SR-91 WB On-Ramp to Alondra Boulevard Off-Ramp	–	**F**	–	**F**

Source: Table 2-10, *Traffic Operations Analysis Report* (2018).
Note: Shaded cells indicate unsatisfactory LOS (i.e., LOS E or F).
I-605 = Interstate 605 SB = southbound WB = westbound
LOS = level of service SR-91 = State Route 91
NB = northbound

Table 9 summarizes the LOS criteria for freeway merge and diverge segments. These criteria apply to all ramp–freeway junctions and may also be applied to major merges and diverges; high-speed, uncontrolled merge or diverge ramps on multilane highway sections; and merges and diverges on freeway C-D roadways.

Table 9: Merge and Diverge - Level of Service Criteria

LOS	Density (pc/mi/ln)	Comments
A	≤10	Unrestricted
B	>10-20	Merging and diverging maneuvers noticeable to drivers
C	>20-28	Influence area speeds begin to decline
D	>28-35	Influence area turbulence becomes intrusive
E	>35	Turbulence felt by virtually all drivers
F	Demand exceeds capacity	Ramp and freeway queues form

Source: HCM exhibit 13-2.

Table 10: Year 2016 Existing Conditions Freeway Merge

Junction	Merge/ Diverge	AM Peak Hour		PM Peak Hour	
		Density (pc/mi/ln)	Los	Density (pc/mi/ln)	Los
Westbound SR-91					
Artesia Boulevard On-Ramp	Merge	21.8	C	24.4	C
Norwalk Boulevard Loop On-Ramp	Merge	22.1	C	23.2	C
Pioneer Boulevard Loop On-Ramp	Merge	22.3	C	24.7	C
Studebaker Road Off-Ramp	Diverge	25.6	C	29.0	D
I-605 NB On-Ramp	Merge	20.3	C	29.4	D

Source: Table 2-11, *Traffic Operations Analysis Report* (2018).

Table 11: Freeway Ramp Peak Volume

Location	2016		2044 No-Build		2044 Build	
	AM	PM	AM	PM	AM	PM
SR-91 WB (Ramp)						
Artesia Boulevard On-Ramp	508	689	518	703	664	1013
Bloomfield Avenue On-Ramp	546	705	552	712	593	884
Norwalk Boulevard Off-Ramp	292	261	298	266	282	214
Norwalk Boulevard Loop On-Ramp	349	267	356	273	863	592
Norwalk Boulevard Direct On-Ramp	292	364	298	371	-	-
Pioneer Boulevard Off-Ramp	215	242	219	247	225	298
Pioneer Boulevard Loop On-Ramp	216	307	220	313	891	680
Pioneer Boulevard Direct On-Ramp	359	337	366	344	-	-
I-605 Off-Ramp (NB & SB)	3,018	2,837	3,079	2,894	3,265	3,320
Studebaker Off-Ramp	399	230	407	234	563	362
I-605 NB (Ramp)						
Alondra Boulevard Off-Ramp	581	762	593	777	616	800

Source: Figure 3-2, Traffic Operations Analysis Report (2018).

Table 12 lists the LOS thresholds established at a signalized intersection.

Table 12: Intersection - Level of Service Thresholds

	LOS by Volume-to-Capacity Ratio[1]	
Control Delay (s/veh)	**≤1.0**	**>1.0**
≤10	A	F
>10–20	B	F
>20–35	C	F
>35–55	D	F
>55–80	E	F
>80	F	F

Source: HCM exhibit 18-4.
Note: [1]= For approach-based and intersectionwide assessments, LOS is defined solely by control delay.
s=seconds, veh=Vehicle

Table 13: Intersection LOS (HCM Method)

Location	2016		2044 No-Build		2044 Build	
	AM	PM	AM	PM	AM	PM
SR-91 WB (Ramp)						
Artesia Boulevard On-Ramp	C	B	B	B	B	B
Bloomfield Avenue On-Ramp	B	B	B	B	B	B
Norwalk Boulevard Off-Ramp	A	A	A	A	-	-
Norwalk Boulevard On-Off-Ramp	-	-	-	-	C	B
Pioneer Boulevard Off-Ramp	A	A	A	A	-	-
Pioneer Boulevard On-Off-Ramp	-	-	-	-	C	C
Studebaker Off-Ramp	B	A	B	A	C	B
I-605 NB (Ramp)						
Alondra Boulevard Off-Ramp	C	D	C	C	C	C

Source: Table 4-48, Traffic Operations Analysis Report (2018).

The HCM 2010 density calculations are not applicable to HOV lanes, thus volume-to-capacity (v/c) ratios are instead used to estimate the operation and performance of HOV lanes. While an HOV lane has the ability to carry the same volume of traffic as a mixed flow lane, Caltrans' goal is to have a maximum of 1,650 vehicles per hour in the HOV lanes in order to maintain free flowing conditions. For the purpose of this study, a volume greater than 1,650 vehicles per hour per lane in a HOV lane is considered unacceptable. The results of the existing conditions freeway High Occupancy Vehicle (HOV) segment analysis are represented in terms of volume-to-capacity ratios in Table 14. As shown, all HOV segments are currently operating satisfactorily with volumes less than 1,650 vehicles per hour.

Table 14: Freeway HOV Analysis

Location	2016				2044 No-Build				2044 Build			
	AM		PM		AM		PM		AM		PM	
	Vol	V/C	Vol	V/C	Vol	V/C	Vol	V/C	Vol	V/C	Vol	V/C
SR-91												
Carmenita Road Off-Ramp to Pioneer Boulevard Off-Ramp	1,080	0.65	1,078	0.65	1,101	0.67	1,099	0.67	1,101	0.67	1,078	0.65
Pioneer Boulevard Off-Ramp to I-605 SB/WB SR-91 On-Ramp	1,080	0.65	1,078	0.65	1,101	0.67	1,099	0.67	1,101	0.67	1,078	0.65

Source: Table 2-12, 4-29, and 4-34, Traffic Operations Analysis Report (2018).
Vol=Volume
V/C= volume-to-capacity

Table 15: Intersection Peak Hour 95th Percentile Queue Lengths

Location	2016				2044 No-Build			2044 Build		
	Mvt.	Avail	Adeq		Avail	Adeq		Avail	Adeq	
			AM	PM		AM	PM		AM	PM
SR-91										
WB SR-91 Off-Ramp/Artesia Boulevard	NBL	515	No	Yes	515	Yes	Yes	515	Yes	Yes
	NBR	515	Yes	Yes	515	Yes	Yes	515	Yes	Yes
Norwalk Boulevard/WB SR-91 Off-Ramp	NBL	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	NBR	N/A	N/A	N/A	N/A	N/A	N/A	125	Yes	Yes
Pioneer Boulevard/WB SR-91 Off-Ramp	SBL	N/A	N/A	N/A	N/A	N/A	N/A	210	No	Yes
	SBR	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	WBL	820	Yes	Y	820	Yes	Yes	710	Yes	Yes
	WBR	820	Yes	Y	820	Yes	Yes	710	Yes	Yes
Pioneer Boulevard/WB SR-91 Off-Ramp	NBL	90	Yes	Y	90	Yes	Yes	120	Yes	Yes
	NBR	N/A	N/A	N/A	N/A	N/A	N/A	215	Yes	Yes
	SBL	N/A	N/A	N/A	N/A	N/A	N/A	280	Yes	Yes
	SBR	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	WBL	770	Yes	Yes	770	Yes	Yes	630	Yes	Yes

Location	2016				2044 No-Build			2044 Build		
	Mvt.	Avail	Adeq		Avail	Adeq		Avail	Adeq	
			AM	PM		AM	PM		AM	PM
	WBR	770	Yes	Yes	770	Yes	Yes	630	Yes	Yes
Studebaker Road/WB SR-91 Off-Ramp	WBL	645	Yes	Yes	645	Yes	Yes	645	Yes	Yes
	WBR	645	Yes	Yes	645	Yes	Yes	645	Yes	Yes
NB I-605 Off-Ramp/Alondra Boulevard	NBL/T	645	Yes	No	645	Yes	Yes	645	Yes	Yes
	NBR	645	Yes	Yes	645	Yes	Yes	645	Yes	Yes
	EBL	185	Yes	Yes	185	Yes	Yes	185	Yes	Yes
Bloomfield Avenue/WB SR-91 On-Ramp	NBL	125	Yes	No	125	Yes	No	200	Yes	No
	NBR	95	Yes	Yes	95	Yes	Yes	100	Yes	Yes
	SBL	75	Yes	Yes	75	Yes	Yes	75	Yes	Yes

Source: Table 4-50, Traffic Operations Analysis Report (2018).
Mvt.= Movement, NBL=northbound left, NBL=northbound right, SBL=southbound left, SBR=southbound right, WBL=westbound left, WBR=westbound right, EBL=eastbound left, EBR=eastbound right, T=through

Collision Analysis

Accident data for the project limits are provided in Table 16 and Table 17 for the 3-year period from January 1, 2012 through December 31, 2014. The accident data were obtained from Caltrans' Traffic Accident Surveillance and Analysis System (TASAS) database.

As shown in Table 16 and Table 17, a total of 1,177 accidents occurred within the project limits, including the mainline segments, freeway-to-freeway direct connect ramps, and freeway-to-arterial ramps. The majority of the accidents (88 percent) occurred on the mainline segments, while the remainder (12 percent) occurred at the freeway-to-freeway direct connector ramps and freeway-to-arterial ramps. The accident rates at 12 locations were higher than the statewide averages for fatal plus injury accidents, while accident rates at 11 locations were higher than the statewide averages for total accidents.

Rear-end collisions were the most common accident type. Other key accident types included sideswipe. Rear-end collisions are typically related to traffic congestion in chokepoint areas and are associated with sudden attempts to stop when traffic volumes exceed the capacity of the road. The majority of sideswipe accidents can usually be attributed to merging/diverging vehicle movements.

Table 16: WB SR-91 Freeway, Summary of Existing Accident Rates (01/2012–12/2014)

Locations	Actual Accident Rates [1] (%)			Statewide Average Accident Rates [1] (%)		
	Fatalities	Injuries & Fatalities	Total	Fatalities	Injuries & Fatalities	Total
SR-91 WB (Mainline)						
I-605 to Studebaker Rd	0.000	0.33	0.83	0.004	0.34	1.11
Studebaker Rd to Pioneer Blvd	0.000	0.67	1.99	0.004	0.31	1.05
Pioneer Blvd to Norwalk Blvd	0.012	0.69	2.55	0.004	0.32	1.05
Norwalk Blvd to Bloomfield Ave	0.000	0.32	1.23	0.004	0.31	1.03
Bloomfield Ave to Artesia Ave	0.000	0.37	1.27	0.004	0.31	1.02
Artesia Ave to Shoemaker Ave	0.000	0.29	0.81	0.004	0.30	1.00
SR-91 / I-605 (Connectors)						
WB SR-91 Off-Ramp to I-605 (both NB and SB)	0.000	0.22	0.79	0.002	0.08	0.25
SR-91 WB (Ramp)						
WB SR-91 Off-Ramp to Studebaker Rd	0.000	0.45	0.68	0.003	0.35	1.01
WB SR-91 On-Ramp from SB Pioneer Blvd	0.000	0.00	0.17	0.003	0.18	0.57
WB SR-91 Loop On-Ramp from NB Pioneer Blvd	0.000	0.16	0.47	0.002	0.21	0.73
WB SR-91 Off-Ramp to Pioneer Blvd	0.000	0.15	0.88	0.003	0.35	1.01
WB SR-91 On-Ramp from SB Norwalk Blvd	0.000	0.52	1.04	0.003	0.18	0.57
WB SR-91 Loop On-Ramp from NB Norwalk Blvd	0.000	0.29	0.29	0.002	0.21	0.73
WB SR-91 Off-Ramp to Norwalk Blvd	0.000	1.29	1.55	0.003	0.35	1.01
WB SR-91 On-Ramp from Bloomfield Ave	0.000	0.00	0.20	0.002	0.22	0.63
WB SR-91 On-Ramp from WB Artesia Blvd	0.000	1.05	1.39	0.003	0.18	0.57

Source: Table B, Traffic Accident Surveillance and Analysis System–Transportation System Network (TASAS-TSN).
Notes: 1. Accident rates listed are in per million vehicles (for ramps) or per million vehicle miles (for mainline)
Highlighted cells indicate higher than statewide average accident rates

The proposed improvements in the study area are expected to reduce the potential for accidents by relieving traffic congestion on the mainline and ramps. Increasing weaving distance between successive on- and off-ramps would allow vehicles to weave/merge more easily throughout the study area, thereby reducing sideswipe occurrences by giving drivers more time and space to merge with adjacent traffic.

Table 17: NB I-605 Freeway, Summary of Existing Accident Rates (01/2012–12/2014)

Locations	Actual Accident Rates [1] (%)			Statewide Average Accident Rates [1] (%)		
	Fatalities	Injuries & Fatalities	Total	Fatalities	Injuries & Fatalities	Total
I-605 NB (Mainline)						
SR-91 to Alondra Blvd	0.000	0.17	0.60	0.003	0.27	0.91
SR-91 WB / I-605 (Connector)						
NB I-605 On-Ramp from WB SR-91	0.000	0.05	0.15	0.003	0.11	0.32
I-605 NB (Ramp)						
NB I-605 Off-Ramp to Alondra Blvd	0.000	0.08	0.47	0.003	0.35	1.01

Source: Table B, Traffic Accident Surveillance and Analysis System–Transportation System Network (TASAS-TSN).
Notes:
1. Accident rates listed are in per million vehicles (for ramps) or per million vehicle miles (for mainline)

5. ALTERNATIVES

5.A VIABLE ALTERNATIVES

The proposed alternatives include the No Build Alternative and a Build Alternative. The Build Alternative would add one mixed flow lane, modify existing interchanges, improve existing freeway design features, and include other operational improvements in the westbound direction of SR-91 and at the northbound I-605 exit to Alondra Boulevard. Five Design Options for the Build Alternative were also evaluated. These Design Options include varying lane and shoulder widths on westbound SR-91, varying interchange configurations at Pioneer Boulevard and Norwalk Boulevard, as well as four lanes on the Gridley Lane overcrossing. These Alternatives and Design Options are each discussed below.

5.A.1 No Build Alternative

Alternative 1 is the No Build Alternative. The No Build Alternative does not include any planned improvements to the westbound SR-91 corridor. Under this alternative, there would be no reconstruction or improvements to the SR-91 corridor. Within the project limits, westbound SR-91 would continue to have four mixed flow lanes that are 11 feet wide, a 1.5-foot-wide left median shoulder, one 12-foot-wide High Occupancy Vehicle (HOV) lane, and one 12-foot-wide auxiliary lane between certain successive on- and off-ramps.

5.A.2 Preferred Alternative (Design Option 1 and 3)

The Project Development Team (PDT) discussed the need to identify a Preferred Alternative and document it's selection based on the combination of IS/EA and ND/FONSI. Various alternatives and design options within Alternative 2 were evaluated and documented. The Preferred Alternative would need to meet the purpose and need. Thus, on October 25, 2018 the PDT decided to recommend Alternative 2 with Design Option 1

(Reduced Lane/Shoulder Width) and Design Option 3 (Pioneer Boulevard Westbound Ramps/168th Alignment) as the Preferred Alternative.

The Preferred Alternative adds one new mixed-flow lane in the westbound direction for SR-91 from the Artesia Boulevard westbound on-ramp to I-605, joining at the point where the westbound SR-91 to the northbound I-605 connector ramp flares from one to two lanes. In addition, the new mixed-flow lane would create a three-lane exit movement on the westbound SR-91 to both the northbound and southbound I-605 connector ramps where only a two-lane exit movement exists now.

Alternative 2 proposed standard lane and shoulder widths with five 12-foot-wide mixed-flow lanes, a 10-foot-wide left median shoulder, one 12-foot-wide HOV lane with a 2-foot-wide HOV buffer between HOV and mixed-flow lanes, and one 12-foot-wide auxiliary lane between certain successive on- and off-ramps. The project will maintain the existing auxiliary lanes between Bloomfield Avenue and Norwalk Boulevard; Norwalk Boulevard and Pioneer Boulevard; and Pioneer Boulevard and the westbound SR-91 to the northbound and southbound I-605 connector ramps.

Interchange modifications at Pioneer Boulevard and Norwalk Boulevard are proposed. These modifications include reconstructing existing Type L-9 cloverleaf interchanges into Type L-7 cloverleaf interchange configurations. Typical Type L-7 and Type L-9 local street interchanges are shown in Figure 1. The new configuration would eliminate the direct on-ramp which will increase the weaving lengths on westbound SR-91 mainline between these two interchanges, as well as the I-605 northbound/southbound connector ramp. The existing loop on-ramp would be modified to intersect with Pioneer and Norwalk Boulevard at a 90-degree angle to eliminate the free-right movement.

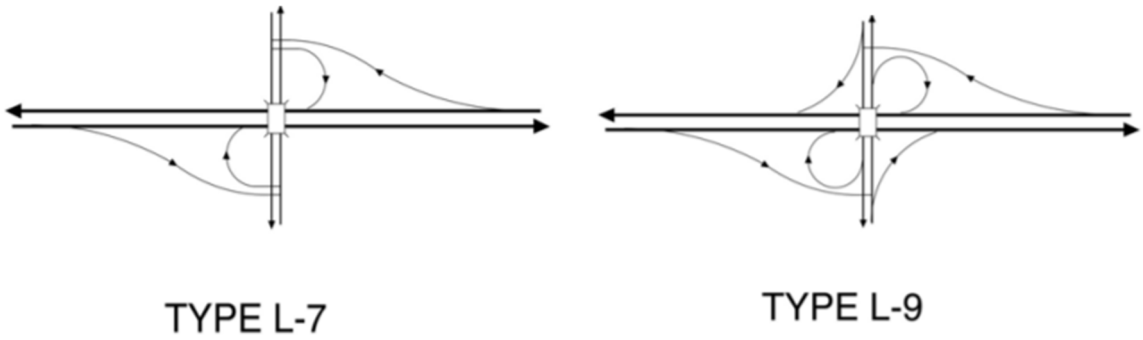
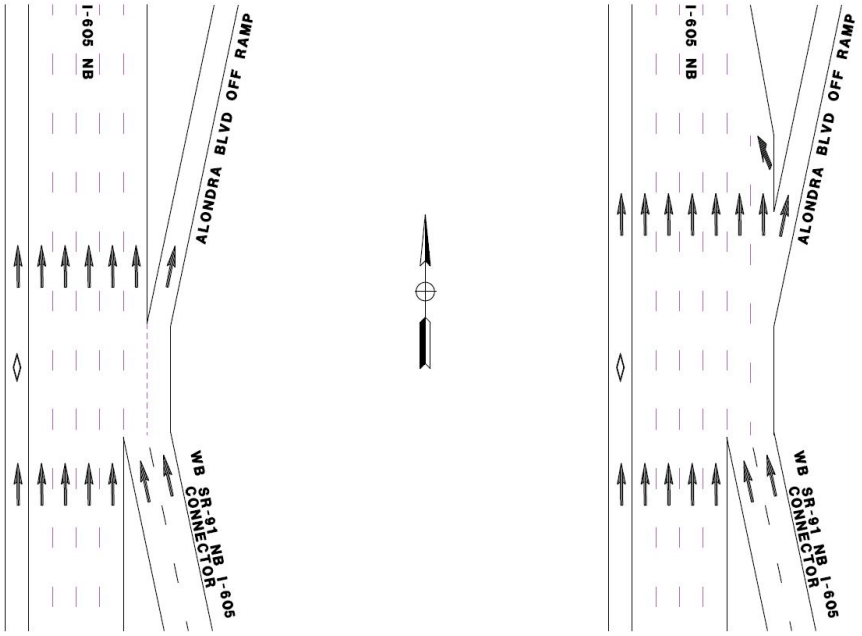


Figure 1: Typical Type L-7 and L-9 Local Street Interchanges

The existing outside lane of the westbound SR-91 to the northbound I-605 two-lane connector ramp terminates at Alondra Boulevard (i.e. the outside lane is a trap lane exiting at Alondra Boulevard). Improvements are proposed at the Alondra Boulevard exit to provide a single lane exit movement and carry the outside mixed flow lane past the exit point then merge with the northbound I-605 mainline prior to the Alondra Boulevard Undercrossing. No Build and Build configurations for the I-605 northbound Alondra Boulevard off-ramp are shown in Figure 2.



No Build Alternative Build Alternative

Figure 2: I-605 NB Alondra Off-Ramp

The following design options were selected in conjunction with Alternative 2 as the Preferred Alternative:

- **Design Option 1: Reduced Lane/Shoulder widths.** This design option proposes reduced lane and shoulder widths to eliminate the need for right of way acquisition of 18 residential parcels and one business along 170th St between Norwalk and Pioneer Boulevard. The reduced widths are narrower than standard and consist of four 11-foot-wide and one 12-foot-wide mixed-flow lanes, a 1.5-foot-wide left median shoulder, one 12-foot-wide HOV lane with a 2-foot-wide HOV buffer between HOV and mixed-flow lanes, and one 12-foot-wide auxiliary lane between certain successive on- and off-ramps.
- **Design Option 3: Pioneer Blvd WB Ramps/168th St Alignment.** This design option proposes to realign Pioneer Boulevard WB Ramps with 168th St. The realignment creates a 4-leg intersection with Pioneer Boulevard as the north-south legs, the WB on/off ramps being the east leg, and 168th Street being the west leg. This design option improves traffic operation on Pioneer Boulevard. by eliminating the closely spaced intersection with 168th St as well as the existing uncontrolled driveways within the WB on/off ramps intersection. Design Option 3 would require acquisition of three vacant parcels and 5 residential parcels on 168th Street while eliminating the need to acquire the Arco gas station on Pioneer Boulevard within the City of Artesia.

Although the following additional design options within Alternative 2 were evaluated, they were not selected to be part of the Preferred Alternative:

- **Design Option 2: Pioneer Blvd L-9.** This design option proposes to maintain the existing type L-9 Interchange at Pioneer Boulevard westbound ramps. However, the two westbound on-ramps would be modified to intersect with Pioneer Boulevard at a 90-degree angle to eliminate the free-right movement. This design

option would maintain the existing weaving length between successive on- and off-ramps which would not improve safety and traffic operations when compared to the L-7 configuration proposed in the Preferred Alternative.

- **Design Option 4: Diamond Ramps.** This design option proposes a diamond configuration at westbound Pioneer and Norwalk Boulevard interchanges in lieu of the proposed L-7 cloverleaf interchange configuration. The diamond ramps were analyzed for comparison purposes to the partial cloverleaf ramp configuration options. The diamond ramps have a smaller footprint than the cloverleaf options but provide less weaving distance between successive on- and off-ramps, and therefore do not improve safety and traffic operations when compared to the cloverleaf design options.
- **Design Option 5: Four-Lane Gridley Road Overcrossing.** This design option proposes a four-lane Gridley Rd bridge which the City of Cerritos requested be studied. This design option would add approximately $4 million of construction cost, has no additional right of way acquisition, and is within the environmental footprint that is being studied with this project. However, since a 4-lane Gridley Road bridge compared to a 2-lane is not required to fulfill the purpose and need of the project, the City of Cerritos would need to obtain the additional funds necessary for the improvement.

Transportation system management (TSM) provides cost-effective improvements that increase transportation system performance without the major expense of capital expansion projects. These programs include minor geometric improvements, bicycle and pedestrian improvements, and other measures such as signal synchronization, motorist information, bus signal priority, and freeway ramp metering. Transportation demand management (TDM) provides cost-effective improvements that reduce system demand by eliminating trips or shifting trips out of the peak periods to other less congested time periods during the day and thus increase transportation system performance without implementing travel restrictions. Transportation demand management programs include rideshare programs, employer flex-time, parking pricing, and intermodal improvements that support TDM programs and transfers between modes at key locations. TDM programs are devised to change the behavior of travelers. Some TDM approaches are voluntary, and they motivate participants with incentives. Other TDM approaches apply disincentives to drive single-occupancy vehicles (SOVs), such as fees and constraints.

A TSM/TDM alternative is not considered a viable stand-alone option because it does not fulfill the project purpose. A TSM/TDM alternative on its own would:

- Provide minimal congestion reduction
- Provide minimal enhancement of operations and improvement in trip reliability
- Not increase mobility significantly because it would have limited effect on congestion
- Not maximize throughput because no additional through lanes are provided.

TSM and TDM are similar in a number of ways, because they may:

- Lessen the number of trips
- Lessen peak hour travel
- Conserve energy
- Reduce emissions

- Provide more travel alternatives.

Although TSM and TDM measures alone do not satisfy the purpose and need of the project, the following TSM and TDM measures are beneficial and will be incorporated into the Build alternative for the proposed project.

- Upgraded traffic signals interconnected and coordinated with adjacent signals and ramp meters at locations of interchange improvements
- Additional way-finding signs on freeways and arterials
- On- and off-ramps designed to limit impacts to non-motorized travel and preserve access to bike lanes and trails
- Intelligent Transportation Systems (ITS), including fiber-optic and other communication systems for improved connectivity and remote management; changeable message signs, closed-circuit television coverage of the entire freeway mainline, ramps, and adjacent arterials; video detection systems; and vehicle detection systems for volume, speed, and vehicle classification

Structures

SR-91 WB Mainline Studebaker Road UC (Widen) (53-1706)

For the Preferred Alternative, the existing Studebaker Road UC will be widened on the northerly side to accommodate the proposed improvements along WB SR-91. This bridge represents the westerly project boundary. A future project that would continue the added mixed-flow lane beyond the bridge has been considered in the design of this bridge. The project proposes to widen the undercrossing for this ultimate condition, eliminating future mobilization, staging, user interruption, and partial demolition costs typically associated with a widening project. The widening is proposed to be approximately 31'. Precast (PC)/prestressed (PS) concrete California Wide-Flange girders were determined to be the ideal superstructure. The proposed superstructure will match existing and will exceed minimum vertical clearance requirements over Studebaker Road.

WB SR-91 to I-605 Connector Studebaker Road UC (Widen) (53-1707F)

For the Preferred Alternative, the existing connector ramp bridge is proposed to be widened on both the north and south sides. The proposed final condition will include three 12' lanes and two 10' shoulders. The bridge will be widened approximately 18' on the northerly side and 10' on the southerly side. Superstructure type will be selected in final design between Precast (PC)/prestressed (PS) concrete California Wide-Flange girders and cast-in-place (CIP)/PS concrete box girder. The proposed superstructure will match existing and will exceed minimum vertical clearance requirements over Studebaker Rd.

Gridley Road OC (Replace) (53-1324)

SR-91 travels under Gridley Road just east of the SR-91/I-605 Interchange. To accommodate the proposed WB SR-91 mainline widening, the overcrossing will be replaced as the existing bridge columns are located at the edge of shoulder. The proposed bridge replacement will accommodate two 12' lanes, add a 6' right shoulder in both directions, and provide 6' sidewalks on both sides over the existing condition of a sidewalk on the east side of the bridge only. A concrete barrier will be used to separate the pedestrian traffic from vehicular traffic. The proposed is a 2-span bridge along the existing alignment. The proposed superstructure type is a CIP/PS concrete box girder. The proposed superstructure will exceed the minimum vertical clearance requirements of SR-

91. The bridge replacement will occur as a single stage construction, and Gridley Road Overcrossing will be closed to traffic during construction.

SR-91 WB Mainline Pioneer Blvd UC (Widen) (53-1335)

For the Preferred Alternative, the existing bridge will need to be widened in the westbound direction (north side). The widening varies from 15' on the begin bridge (BB) location to approximately 16' on the end bridge (EB) location, to accommodate the proposed improvements. A single-span cast-in-place prestressed concrete box girder on open end abutments is proposed for the bridge widening. The proposed superstructure will match existing and will exceed minimum vertical clearance requirements over Pioneer Boulevard.

SR-91 WB On-ramp Norwalk Blvd UC (New)

The existing Norwalk Boulevard WB SR-91 loop on-ramp lane on Norwalk Boulevard UC will be utilized for the proposed mixed-flow lane added to WB SR-91. A new structure will be constructed adjacent to Norwalk Boulevard UC to accommodate the newly constructed Norwalk Boulevard WB SR-91 loop on-ramp. The proposed superstructure will consist of a single-span CIP/PS concrete box girder on high cantilever seat-type abutments.

Bloomfield Ave OC (Replace) (53-1433)

The existing Bloomfield Avenue OC will be replaced to accommodate the WB SR-91 widening. The proposed bridge will provide two 12' lanes with a 6' right shoulder and a 6' wide sidewalk in each direction, separated by a 4'-0" wide raised median. A concrete barrier will be used to separate the pedestrian traffic from vehicular traffic. The proposed superstructure type is a CIP/PS concrete box girder. Superstructure type will be selected in final design between CIP/PS concrete box girder and pre-cast/PS concrete girder. The proposed superstructure will exceed the minimum vertical clearance requirements of SR-91. The bridge replacement will occur with a two-stage construction. While half of the structure is in construction, the other half will be open to traffic.

Retaining Walls

Four new retaining walls are required for the Preferred Alternative. One retaining wall is proposed along Alondra Boulevard NB off-ramp to minimize impact to adjacent businesses. The retaining wall would be approximately 880' long and vary up to 13 feet in height. One retaining wall is proposed along Gridley Road on the southwest side of SR-91 to minimize grading impacts to Ecology park. The retaining wall would be approximately 520' long and vary up to 9 feet in height. One retaining wall is proposed along Bloomfield Avenue on the northeast side of SR-91 to minimize grading impacts to a residential parcel. The retaining wall would be approximately 590' long and vary up to 10 feet in height. One retaining wall is proposed along Bloomfield Avenue on the southeast side of SR-91 to replace the existing wall abutting the newly constructed Aria Apartments. The retaining wall would be approximately 300' long and vary up to 6 feet in height. The proposed retaining walls are likely to be standard plan walls that conform to Caltrans Standard Plans.

Drainage Improvement

Regional

The proposed improvements will only impact or modify the existing regional facility Cerritos Line C within the project area.

On-site

Existing inlets at roadway outer edges will be removed or capped if they lie within the proposed widened section. New inlets will be constructed at the new widened edge and convey flow to follow the existing flow pattern. Some runoff will sheet flow onto adjacent unpaved landscaped areas and be treated by proposed treatment best management practices (BMPs), such as biofiltration swales, infiltration basins, and detention basins. Existing local culvert crossings will be maintained and extended.

5.A.2.1 Traffic Analysis

The results of the Traffic Operations Analysis Report (which used the Highway Capacity Manual (HCM) method of analysis for determining LOS) indicate that all existing freeway mainline segments are currently operating at LOS D or better during the peak hours. All freeway mainline segments would also operate at LOS D or better during peak hours in the 2044 No Build scenario.

All existing freeway weaving segments operate at LOS D or better during the peak hours, except for the weaving segment from the Pioneer Boulevard on-ramp to the I-605 off-ramp for which the HCM results indicate LOS F. All existing freeway merge and diverge segments operate at LOS D or better during peak hours. All existing intersections in the Study Area operate at LOS D or better during peak hours.

The existing (2016) congestion during peak hours along westbound SR-91 is caused by the geometric conditions along the Study Area and the high traffic demand. The two-lane westbound to northbound/southbound freeway-to-freeway connector ramp is not able to handle the peak-hour flow of traffic without creating vehicle queues. The vehicle queues cause slowing and congestion on westbound SR-91 leading up to the I-605 connector ramp.

Under No-Build and Build conditions, the HCM based LOS estimates are similar to existing results, with mostly LOS D or better, except for the segment from the Pioneer on-ramp to the I-605 connector, which remains at LOS F under the Build condition. In locations with a high level of congestion, the HCM techniques is known to report levels of service that do not match field observations. Generally, the LOS is reported to be better than actually experienced in the field or might be expected to occur in the future. To provide more reliable future estimates, a microsimulation model of the corridor was developed to assess operating conditions under the future No-Build and Build conditions for the entire study corridor. The traffic microsimulation model is used to assess the entire corridor operations (as opposed to segment by segment analysis such as with HCM), without and with, the proposed improvements and will provide input to geometric design iterations.

Table 18 summarizes analysis results of the 2044 No-Build, and 2044 Build conditions using HCM method. As shown, the levels of service based on the HCM analysis are generally consistent across all the scenarios for 2044, with no major shifts in level of service between future 2044 No-Build and 2044 Build conditions.

Table 18: Freeway Mainline Peak Hour Volume/LOS – Year 2044 (HCM Method)

Location	AM					PM				
	No-Build			Build		No-Build			Build	
	Volume	Density (pc/mi/ln)	LOS	Volume	LOS	Volume	Density (pc/mi/ln)	LOS	Volume	LOS
SR-91 WB (Mainline)										
Artesia Boulevard Off-Ramp to Artesia Boulevard On-Ramp	6,166	23.4	C	6,441	C	6,436	24.9	C	6,802	D
Artesia Boulevard On-Ramp to Bloomfield Avenue On-Ramp	6,684	25.8	C	7,105	C	7,139	28.1	D	7,816	C
Bloomfield Avenue On-Ramp to Norwalk Boulevard Off-Ramp	7,049	-	D	7,510	C	7,502	-	D	8,347	D
Norwalk Boulevard Off-Ramp to Norwalk Boulevard Loop On-Ramp	6,751	26.1	D	7,229	C	7,236	28.5	D	8,133	D
Norwalk Boulevard Loop On-Ramp to Norwalk Boulevard Direct On-Ramp	7,107	27.8	D	8,725	C	7,509	30.0	D	8,725	D
Norwalk Boulevard Direct On-Ramp to Pioneer Boulevard Off-Ramp	7,404	-	D	8,092	D	7,880	-	D	8,725	D
Pioneer Boulevard Off-Ramp to Pioneer Boulevard Loop On-Ramp	7,185	28.1	D	7,867	C	7,633	30.7	D	8,427	D
Pioneer Boulevard Loop On-Ramp to Pioneer Boulevard Direct On-Ramp	7,406	29.3	D	8,758	C	7,946	32.7	D	9,107	D
Pioneer Boulevard Direct On-Ramp to I-605 Off-Ramp (NB & SB)	7,771	-	F	8,785	F	8,290	-	F	9,107	F
I-605 Off-Ramp (NB & SB) to Studebaker Off-Ramp	4,693	22.4	C	5,493	C	5,396	27.0	D	5,786	C
Studebaker Off-Ramp to I-605 NB Loop On-Ramp	4,285	20.0	C	4,930	C	5,162	25.5	C	5,424	C
I-605 NB (Mainline)										
SR-91 WB On-Ramp to Alondra Boulevard Off-Ramp	9,969	-	F	10,124	F	9,955	-	F	10,225	F

Source: Figure 3-2, Table 4-26, 4-27, 4-31, 4-32, Traffic Operations Analysis Report (2018).

Traffic Microsimulation

The results of the microsimulation modeling of the No-Build and Build alternative indicate the following:

AM Peak – the proposed improvements under the Build scenario would result in significant changes in key performance measures for the full project area as well as for the key sections between Pioneer Boulevard and the I-605 ramps, and Pioneer Boulevard and Norwalk Boulevard. During the AM peak period (5 AM to 11 AM) for the entire study corridor, the average vehicle delay is projected to decrease by approximately 82 seconds per vehicle, total travel time will decrease by 23 percent and speeds will increase by approximately 14 miles per hour. For the AM peak hour, the improvement is even greater with a decrease in average delay of approximately 146 seconds per vehicle, a 39 percent decrease in travel time and a nearly 24 miles per hour increase in average speeds. With the proposed improvements, speeds would be near free flow conditions and congestion would be greatly reduced during the AM peak.

PM Peak – the proposed improvements under the Build scenario would result in significant changes in key performance measures for the full project area, as well as for the key sections between Pioneer Boulevard and the I-605 ramps, and Pioneer Boulevard and Norwalk Boulevard. During the PM peak period (2 PM to 8 PM) for the entire study corridor, the average vehicle delay is projected to decrease by approximately 134 seconds per vehicle, total travel time will decrease by 43 percent and speeds will increase by 22 miles per hour. For the PM peak hour, the improvement is even greater with an average vehicle delay decrease of approximately 185 seconds, 50 percent decrease in travel time and a 28 mile per hour increase in average speeds. With the proposed improvements, speeds would be near free flow conditions and congestion would be greatly reduced during the PM peak.

Intersection Control Evaluation

An Intersection Control Evaluation (ICE) Analysis was conducted at the existing signalized ramp terminal intersections within the study area and is summarized in the Traffic Operations Analysis Report and in Table 19 below. According to the analysis, roundabouts provide a minor benefit operationally compared to a traffic signal using a 2-lane roundabout. Single lane roundabouts were studied, and the result showed that they operated at deficient overall LOS/delay. The roundabout alternatives studied at all five (5) intersections do not provide a compelling benefit over the signalized intersection controls. The Caltrans Collision Cost Analysis evaluation resulted in negative B/C values for the 2-lane roundabout options at Alondra Boulevard, Bloomfield Avenue, Studebaker Road, and Norwalk Boulevard and a benefit/cost ratio (B/C) value of less than 0.10 at Pioneer Boulevard. This indicates that the roundabout costs outweigh the potential benefits or in the case of Pioneer Boulevard, provide very little benefit over cost. Given the estimated B/C values combined with the potential right-of-way impacts and lack of local support, roundabouts were removed from further consideration at each of the study intersections.

Table 19: Year 2044 Build Conditions Intersection Analysis Summary

STUDY INTERSECTION	Year 2044 No-Build Conditions (Signalized)				Year 2044 Build Conditions Roundabout Alternative					Year 2044 Build Conditions (Signalized)				B/C Ratio
	AM		PM		No. Lanes	AM		PM		AM		PM		
	Delay	LOS	Delay	LOS		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	
I-605 NB Ramp/Leibacher Avenue at Alondra Boulevard	23.6	C	26.8	C	2-Lane	13.4	B	14.3	B	26.2	C	27.0	C	-0.97
SR-91 WB Ramp at Studebaker Road	15.8	B	8.8	A	2-Lane	8.0	A	7.4	A	21.2	C	12.7	B	-0.59
SR-91 WB Ramp at Pioneer Boulevard	6.7	A	6.4	A	2-Lane	16.1	C	11.8	B	25.2	C	20.5	C	0.06
SR-91 WB Ramp at Norwalk Boulevard	7.3	A	6.9	A	2-Lane	29.2	D	9.9	A	24.6	C	16.0	B	-0.40
SR-91 WB Ramp/Lucas Street at Bloomfield Avenue	16.6	B	10.4	B	2-Lane	8.7	A	11.0	B	17.1	B	13.3	B	-0.97

Source: Table 4-66, Traffic Operations Analysis Report (2018).

5.A.2.2 Nonstandard Bold and Underlined Features

The Preferred Alternative requires documentation of nonstandard bold and underlined features. A Design Standard Decision Document (DSDD) was approved on 1/16/19. The proposed nonstandard bold and underlined features are summarized in the sections below. The approved DSDD is included in Attachment N. Fill and cut slopes will be graded per standard where feasible. Nonstandard grading will be documented in a supplemental DSDD in PS&E phase.

Design Feature Number 1 – Stopping Sight Distance Standards: HDM Index 201.1 states "**Table 201.1 shows the minimum standards for stopping sight distance related to a design speed for motorists."**

Nonstandard stopping sight distance (SSD) standards are proposed at several locations, shown in Table 20 below:

Table 20: Proposed Nonstandard SSD

Nonstandard Feature-Location	Location	Station	Exist	Prop	Standard
1-1	Pioneer Blvd. WB Off-Ramp	"PN-1" 55+50.00 to 57+05.00 (Horizontal)	200' (30 MPH)	155' (25 MPH)	200' (30 MPH)
1-2	WB SR-91 (HOV lane)	"SR-91" 1009+13.55 to 1015+06.45 (Horizontal)	415' (49 MPH)	593' (60 MPH)	750' (70 MPH)
1-3	Bloomfield Ave.	"BL" 18+23.82 to 20+46.82 (Vertical)	223' (32 MPH)	223' (32 MPH)	300' (40 MPH)

Design Feature Number 2 – Standards for Superelevation: HDM Index 202.2 (1) states **"Roadways described below, (a) through (e), shall be designed with the emax indicated. Based on an emax selected by the designer for one of the conditions above, superelevation rates from Tables 202.2A through 202.2E shall be used with the minimum curve radii and design speed (Vd). If less than standard superelevation rates are approved (see index 82.1), Figure 202.2 shall be used to determine superelevation based on the curve radius and maximum comfortable speed."**

Nonstandard Feature:
Nonstandard superelevation rates are proposed at several locations, shown in Table 21 below:

Table 21: Nonstandard Superelevation

Nonstandard Feature-Location	Location	Station	Design Speed	Radius	Exist.	Prop. Comfortable Speed	Standard
2-1	SR-91	"SR-91" 995+43.88 to 1020+05.16	70 MPH	3,600’	3%	3% >80 MPH	5.8%
2-2	Pioneer Blvd. WB Off-ramp	“PN-1” 56+18.10 to 57+23.55	32 MPH	160’	2%	6% 25 MPH	12%
2-3	Pioneer Blvd. WB Loop On-ramp	“PN-2” 64+53.43 to 64+78.77	25 MPH	120’	6%	8% 24 MPH	12%
2-4	Bloomfield WB On-ramp	“BL-1” 14+16.72 to 14+38.53	25 MPH	80’	2%	3% 18 MPH	12%

Design Feature Number 3 - Superelevation Transitions: HDM Index 202.5 (1) states “A superelevation transition should be designed in accordance with the diagram and tabular data shown in Figure 202.5A to satisfy the requirements of safety, comfort and pleasing appearance.”

HDM Index 202.5 (2) states “Two-thirds of the superelevation runoff should be on the tangent and one-third within the curve.”

Nonstandard Feature:
Nonstandard superelevation transitions are proposed at several locations, shown in Table 22 below:

Table 22: Nonstandard Superelevation Transitions

Nonstandard Feature-Location	Location	Station	Exist.	Prop.	Standard
			Super Transition		
3-1	Pioneer Blvd. WB Off-ramp	“PN-1” 55+18.10 to 56+18.10	N/A	100’ 2/3-1/3	150’ 2/3-1/3
3-2	Pioneer Blvd. WB Off-ramp	“PN-1” 57+23.55 to 58+23.55	N/A	100’ 2/3-1/3	150’ 2/3-1/3
3-3	Pioneer Blvd. WB Off-ramp	“PN-1” 58+38.90 to 60+38.90	N/A	200’ 2/3-1/3	300’ 2/3-1/3
3-4	Pioneer Blvd. WB Loop On-ramp	“PN-2” 56+74.22 to 58+48.82	N/A	Curve only	2/3-1/3

Nonstandard Feature-Location	Location	Station	Exist.	Prop.	Standard
			Super Transition		
3-5	Pioneer Blvd. WB Loop On-ramp	"PN-2" 56+59.59 to 59+43.44	N/A	283.85' 2/3-1/3	300' 2/3-1/3
3-6	Pioneer Blvd. WB Loop On-ramp	"PN-2" 64+78.77 to 66+23.25	96'	156.02' 2/3-1/3	210' 2/3-1/3
3-7	Norwalk Blvd. WB Off-ramp	"NW-1" 85+45.93 to 87+45.93	N/A	200' 2/3-1/3	300' 2/3-1/3
3-8	Norwalk Blvd. WB Off-ramp	"NW-1" 87+50.06 to 89+54.81	N/A	204.75' 2/3-1/3	300' 2/3-1/3
3-9	Norwalk Blvd. WB Off-ramp	"NW-1" 89+54.81 to 91+59.55	N/A	204.74' 2/3-1/3	300' 2/3-1/3
3-10	Norwalk Blvd. WB Off-ramp	"NW-1" 95+74.81 to 96+54.73	N/A	79.92' 2/3-1/3	150' 2/3-1/3
3-11	Norwalk Blvd. WB On-ramp	"NW-2" 91+42.32 to 93+42.32	33.33'	200' 2/3-1/3	300' 2/3-1/3
3-12	Bloomfield WB On-ramp	"BL-1" 6+32.10 to 6+90.36	N/A	58.26' 2/3-1/3	150' 2/3-1/3
3-13	Bloomfield WB On-ramp	"BL-1" 6+90.36 to 9+06.16	N/A	215.8' 2/3-1/3	300' 2/3-1/3
3-14	Bloomfield WB On-ramp	"BL-1" 10+82.36 to 13+49.85	N/A	267.49' 2/3-1/3	300' 2/3-1/3
3-15	Bloomfield WB On-ramp	"BL-1" 13+49.85 to 14+16.72	N/A	66.87' 2/3-1/3	150' 2/3-1/3

Design Feature Number 4 – Standards for Curvature: HDM Index 203.2 states **"Tables 202.2A through 202.2E shall be the minimum radius of curve for superelevation rates and design speeds on highways."**

Nonstandard Feature:
Nonstandard minimum radii are proposed at several locations, shown in Table 23 below:

Table 23: Nonstandard Minimum Radius

Nonstandard Feature-Location	Location	Station	Exist.	Prop.	Standard
4-1	I-605 Alondra Blvd. NB off-ramp	"AL-1" 101+02.90 to 103+50.70	300' (35 MPH)	300' (35 MPH)	500' (45 MPH)
4-2	Pioneer Blvd. WB Off-ramp	"PN-1" 55+84.77 to 57+56.68	200'	160'	211'
4-3	Pioneer Blvd. WB Off-ramp	"PN-1" 59+72.23 to 63+49.70	500'	381'	492'
4-4	Bloomfield Ave. WB On-ramp	"BL-1" 13+94.43 to 15+15.20	85'	80'	119'

Design Feature Number 5 – Compound Curves: HDM Index 203.5 states **"**Where compound curves are necessary, the shorter radius should be at least two-thirds the longer radius when the shorter radius is 1,000 feet or less. On one-way roads, the larger radius should follow the smaller radius.**"**

Nonstandard Feature:
A nonstandard compound curve is proposed at the following location, shown in Table 24 below:

Table 24: Nonstandard Compound Curves

Nonstandard Feature	Location	Station	Exist.	Prop.	Standard
5	Pioneer Blvd. WB On-Ramp	"PN-2" 56+74.22 to 61+93.20	N/A	Shorter radius is less than two-thirds the longer radius (3,000'/175')	Shorter radius should be at least two-thirds the longer radius (3,000'/2,000')

Design Feature Number 6 – Standards for Grade: HDM Index 204.3 states "Minimum grades should be 0.5 percent in snow country and 0.3 percent at other locations."

Nonstandard Feature:
A nonstandard grade is proposed at the following location, shown in Table 25 below:

Table 25: Nonstandard Grades

Nonstandard Feature	Location	Station	Exist.	Prop.	Standard
6	SR-91/I-605 W-S Connector	"605-1" 123+00.00 to 124+10.34	0.14%	0.14%	0.30%

Design Feature Number 7 – Lane Width: HDM Index 301.1 states **"The minimum lane width on two-lane and multilane highways, ramps, collector-distributor roads, and other appurtenant roadways shall be 12 feet, except as follows:**

- **For conventional State highways with posted speeds less than or equal to 40 miles per hour and AADTT (truck volume) less than 250 per lane that are in urban, city or town centers (rural main streets), the minimum lane width shall be 11 feet.**
- **Where a 2-lane conventional State highway connects to a freeway within an interchange, the lane width shall be 12 feet.**
- **Where a multilane State highway connects to a freeway within an interchange, the outer most lane of the highway in each direction shall be 12 feet."**

Nonstandard Feature:
Nonstandard lane widths are proposed at several locations, shown in Table 26 below:

Table 26: Nonstandard Lane Widths

Nonstandard Feature	Location	Station	Exist.	Prop.	Standard
7	SR-91	"SR-91" 899+00.39 to 1026+95.16	11'	11'	12'

Design Feature Number 8 – Shoulder Width: HDM Index 302.1 states **"The shoulder widths given in Table 302.1 shall be the minimum continuous usable width of paved shoulder on highways."**

Nonstandard Feature:
Nonstandard shoulder widths are proposed at several locations, shown in Table 27 below:

Table 27: Nonstandard Shoulder Widths

Nonstandard Feature-Location	Location	Station	Exist.	Prop.	Standard
8-1	WB SR-91 Left Shoulder	"SR-91" 899+00.39 to 1026+95.16	0'-1.5'	0' - 8'	10'
8-2	WB SR-91 Right Shoulder Between Pioneer and Norwalk Interchanges	"SR-91" 968+59.41 to 978+79.49	8'	8'	10'
8-3	WB SR-91 Right Shoulder at Norwalk UC	"SR-91" 983+46.68 to 986+35.40	6'-10'	8'-10'	10'

Design Feature Number 9 – Median Width Conventional Highways - Urban and Rural Main Street: HDM Index 305.1 (2) states **"**In Urban and Rural Main Street areas, the minimum median width for multilane conventional highways should be 12 feet.**"**

Nonstandard Feature:
A nonstandard median width is proposed at the following location, shown in Table 28 below:

Table 28: Nonstandard Urban Main Street Median Width

Nonstandard Feature	Location	Station	Exist.	Prop.	Standard
9	Norwalk Blvd.	"NW" 19+85.64 to 23+18.14	8'	8'	12'

Design Feature Number 10 – Median Width - Freeways and Expressways: HDM Index 305.1 (3)(a) states **"In areas where restrictive conditions prevail the minimum median width shall be 22 feet."**

Nonstandard Feature:
Nonstandard median width is proposed at the following location, shown in Table 29 below:

Table 29: Nonstandard Freeway Median Width

Nonstandard Feature	Location	Station	Exist.	Prop.	Standard
10	SR-91	"SR-91" 899+00.39 to 1026+95.16	5'	5-11.5'	22'

Design Feature Number 11 – Horizontal Clearances: HDM Index 309.1 (3)(b) states **"(b) The minimum horizontal clearance to walls, such as abutment walls, retaining walls in cut locations, and noise barriers on all facilities, including auxiliary lanes, ramps and collector-distributor roads, shall be not less than 10 feet per Table 302.1."**

Nonstandard Feature:
Nonstandard horizontal clearance is proposed at the following location, shown in Table 30 below:

Table 30: Nonstandard Horizontal Clearances

Nonstandard Feature	Location	Station	Exist.	Prop.	Standard
11	WB SR-91 Right Shoulder Between Pioneer and Norwalk Interchanges	"SR-91" 968+59.41 to 978+79.49	8'	8'	10'

Design Feature Number 12 – Outer Separation: HDM Index 310.2 states **"**In urban areas and in mountainous terrain, the width of the outer separation should be a minimum of 26 feet from edge of traveled way to edge of traveled way."

Nonstandard Feature:
Nonstandard outer separation is proposed at the following locations, shown in Table 31 below:

Table 31: Nonstandard Outer Separation

Nonstandard Feature-Location	Location	Station	Exist.	Prop.	Standard
12-1	Beach St.	'SR-91" 929+44.74 to 931+50.83	34’	19.5’ to 34’	26’
12-2	170th St.	'SR-91" 968+84.36 to 975+23.94	27.7’	14.2’	26’

Design Feature Number 13 – Interchange Spacing: HDM Index 501.3 states **“The minimum interchange spacing shall be one mile in urban areas, two miles outside urban areas, and two miles between freeway-to-freeway interchanges and other interchanges. The minimum interchange spacing on Interstates outside of urban areas shall be three miles.”**

Nonstandard Feature:
Existing nonstandard interchange spacing are proposed to be maintained at the following locations, shown in Table 32 below:

Table 32: Nonstandard Interchange Spacing

Nonstandard Feature-Location	Location	Station	Exist.	Prop.	Standard
13-1	I-605/SR-91 Interchange to Alondra Blvd. Interchange	"I-605" 266+46.65 to 307+60.81	0.75 Mile	0.75 Mile	2 Miles
13-2	I-605/SR-91 Interchange to Pioneer Blvd. Interchange	"SR-91" 895+01.60 to 956+25.29	1.16 Miles	1.16 Miles	2 Miles
13-3	Pioneer Blvd. Interchange to Norwalk Blvd. Interchange	"SR-91" 956+24.72 to 985+66.44	0.55 Mile	0.55 Mile	1 Mile
13-4	Norwalk Blvd. Interchange to Bloomfield Ave. Interchange	"SR-91" 985+66.44 to 1012+77.83	0.51 Mile	0.51 Mile	1 Mile
13-5	Bloomfield Ave. Interchange to Artesia Blvd. Interchange	"SR-91" 1012+77.83 to 1026+63.88	0.26 Mile	0.26 Mile	1 Mile

Design Feature Number 14 – Isolated Off-Ramps and Partial Interchanges: HDM Index 502.2 states **"Isolated off-ramps or partial interchanges shall not be used because of the potential for wrong-way movements."**

Nonstandard Feature:
Nonstandard isolated off-ramps and partial interchanges are proposed at several locations, shown in Table 33 below:

Table 33: Nonstandard Isolated Off-ramps and Partial Interchanges

Nonstandard Feature-Location	Location	Station	Exist.	Prop.	Standard
14-1	Studebaker Rd. WB Off-Ramp	"SR-91" 914+10.49	Partial interchange	Partial interchange	No isolated off-ramps or partial interchanges
14-2	Bloomfield Ave. WB On-Ramp	"SR-91" 1003+51.06	Partial interchange	Partial interchange	No isolated off-ramps or partial interchanges

Design Feature Number 15 – Ramp Lane Drop Taper: HDM Index 504.3 (1)(d) states **"**Depending on approach geometry and speed, the lane drop transition between the limit line and the 6-foot separation point should be accomplished with a taper of between 30:1 and 50:1 (longitudinal to lateral)."

Nonstandard Feature:
Nonstandard ramp lane drop tapers are proposed at several locations, shown in Table 34 below:

Table 34: Nonstandard Lane Drop Tapers

Nonstandard Feature-Location	Location	Station	Exist. Taper (Distance)	Prop. Taper (Distance)	Standard
15-1	Pioneer WB On-Ramp	PN-2" 56+74.22 to 61+24.22	N/A	15:1 (450')	30:1 (900')
15-2	Norwalk WB On-Ramp	"NW-2" 81+79.55 to 86+35.00	N/A	15:1 (455')	30:1 (900')
15-3	Bloomfield WB On-Ramp	"BL-1" 6+51.52 to 9+25.00	36:1	17:1 (273')	30:1 (480')
15-4	Artesia WB On-Ramp	AR-1" 20+11.21 to 25.04.34	43:1	20.5:1 (493')	30:1 (720')

Design Feature Number 16 – Distance Between Ramp Intersection and Local Road Intersection: HDM Index 504.3 (3) states **"The minimum distance (curb return to curb return) between ramp intersections and local road intersections shall be 400 feet."**

Nonstandard Feature:
Nonstandard distance between ramp intersection and local road intersection are proposed at several locations, shown in Table 35 below:

Table 35: Nonstandard Distance Between Ramp Intersection and Local Road Intersection

Nonstandard Feature-Location	Location	Station	Exist.	Prop.	Standard
16-1	Pioneer Blvd. WB SR-91 off-ramp to 167th St.	"PN" 29+12.61 to 30+82.60	365'	170'	400'
16-2	Norwalk Blvd. WB SR-91 off-ramp to Cuesta Dr.	"NW" 27+23.17 to 30+95.56	372'	372'	400'
16-3	Norwalk Blvd. WB SR-91 off-ramp to Park St.	"NW" 27+23.17 to 28+11.30	88'	88'	400'

Design Feature Number 17 – Freeway-to-Freeway Connections - Shoulder Width: HDM Index 504.4 (4)(a) states **"The width of shoulders on single-lane and two-lane (except as described below) freeway-to-freeway connectors shall be 5 feet on the left and 10 feet on the right. A single-lane freeway-to-freeway connector that has been widened to two lanes solely to provide passing opportunities and not due to capacity requirements shall have a 5-foot left shoulder and at least a 5-foot right shoulder."**

Nonstandard Feature:
Nonstandard freeway-to-freeway connections - shoulder widths are proposed at several locations, shown in Table 36 below:

Table 36: Nonstandard Connector Shoulder Widths

Nonstandard Feature-Location	Location	Station	Exist.	Prop.	Standard
17-1	WB SR-91 to SB I-605 Connector Right Shoulder	"605-2" 95+62.70 to 97+42.10	8'	8'	10'
17-2	WB SR-91 to SB I-605 Connector Left Shoulder	"605-1" 98+13.67 to 99+26.24	2'	2'	5'

Design Feature Number 18 – Single-lane Connectors: HDM Index 504.4 (5) states "Single lane connectors in excess of 1,000 feet in length should be widened to two lanes to provide for passing maneuvers."

Nonstandard Feature:
A nonstandard single-lane connector is proposed at the following location, shown in Table 37 below:

Table 37: Nonstandard Single-Lane Connector

Nonstandard Feature	Location	Station	Exist.	Prop.	Standard
18	WB SR-91 to SB I-605 Connector	N/A	2447' single lane connector	2447' single lane connector	Single Lane Connectors >1000' should be widened to two lanes

Design Feature Number 19 – Mainline Lane Reduction at Interchanges: HDM Index 504.6 states **"**The basic number of mainline lanes should not be dropped through a local service interchange."

Nonstandard Feature:
Nonstandard mainline lane reduction at interchanges is proposed at several locations, shown in Table 38 below:

Table 38: Nonstandard Mainline Lane Reductions at Interchanges

Nonstandard Feature-Location	Location	Station	Exist.	Prop.	Standard
19-1	NB I-605 Alondra Off-ramp	"I-605" 298+69.80 to 307+69.80	No Reduction	Drop 1 Lane	No Reduction
19-2	WB SR-91 Studebaker Off-ramp	"SR-91" 899+00.39 to 908+10.39	No Reduction	Drop 1 Lane	No Reduction

Design Feature Number 20 – Minimum Weave Length: HDM Index 504.7 states **"The minimum weaving length, measured as shown in Figures 504.2A and 504.2B shall be 2,000 feet in urban areas, 5,000 feet outside urban areas, and 5,000 feet between freeway-to-freeway interchanges and other interchanges."**

Nonstandard Feature:
Nonstandard minimum weave lengths are proposed at several locations, shown in Table 39 below:

Table 39: Nonstandard Minimum Weave Length

Nonstandard Feature-Location	Location	Station	Exist.	Prop.	Standard
20-1	I-605/SR-91 Interchange to Alondra Blvd. Interchange	"I-605" 282+27.94 to 294+69.56	1237'	1241'	5000'
20-2	I-605/SR-91 Interchange to Pioneer Blvd. Interchange	"SR-91" 924+10.39 to 949+41.11	1934'	3262'	5000'
20-3	Pioneer Blvd. Interchange to Norwalk Blvd. Interchange	"SR-91" 968+59.41 to 981+79.49	585'	1319'	2000'
20-4	Norwalk Blvd. Interchange to Bloomfield Ave. Interchange	"SR-91" 997+94.54 to 1006+44.95	485'	870'	2000'

Design Feature Number 21 – Access Control at Ramp Terminal: HDM Index 504.8 states **"Access rights shall be acquired along interchange ramps to their junction with the nearest public road.** At such junctions, for new construction, access control should extend 100 feet beyond the end of the curb return or ramp radius in urban areas and 300 feet in rural areas, or as far as necessary to ensure that entry onto the facility does not impair operational characteristics. **Access control shall extend at least 50 feet beyond the end of the curb return, ramp radius, or taper.**

For new construction or major reconstruction, access rights shall be acquired on the opposite side of the local road from ramp terminals to preclude driveways or local roads within the ramp intersection."

Nonstandard Feature:
Nonstandard access control at ramp terminals are proposed at several locations, shown in Table 40 below:

Table 40: Nonstandard Access Rights at Ramp Terminals

Nonstandard Feature-Location	Location	Station	Exist.	Prop.	Standard
21-1 (Underline Standard)	Pioneer Blvd. WB on/off-ramps	"PN" 26+53.06	0'	58'	>100'
21-2 (Underline Standard)	Pioneer Blvd. WB on/off-ramps	"PN" 29+84.04	250'	56'	>100'
21-3 (Underline Standard)	Pioneer Blvd. WB on/off-ramps	"PN" 30+15.95	292'	97'	>100'
21-4 (Bold Face Standard)	Pioneer Blvd. WB on/off-ramps	"PN" 26+94.96 & 27+55.31	0-25'	0-26'	>50'
21-5 (Bold Face Standard)	Pioneer Blvd. WB on/off-ramps	"PN" 29+50.56	212'	17'	>50'
21-6 (Bold Face Standard)	Pioneer Blvd. WB on/off-ramps	"PN" 28+31.79	N/A	Local Road Opposite Ramp	No Local Road Opposite Ramp
21-7 (Bold Face Standard)	Norwalk Blvd. WB on/off-ramps	"NW" 27+16.31	0'	0'	>50'
21-8 (Underline Standard)	Norwalk Blvd. WB on/off-ramps	"NW" 27+84.24	45'	45'	>100'

Design Feature Number 22 – Horizontal Clearance to Noise Barrier: HDM Index 1102.2 (1) states **"Minimum lateral clearances to noise barriers shall be as provided in Topic 309.1, Horizontal Clearances, of this manual, but shall not be less than 10 feet."**

Nonstandard Feature:
Nonstandard horizontal clearance to noise barrier is proposed at the following location, shown in Table 41 below:

Table 41: Nonstandard Horizontal Clearance to Noise Barrier

Nonstandard Feature-Location	Location	Station	Exist.	Prop.	Standard
22	WB SR-91 Right Shoulder Between Pioneer and Norwalk Interchanges	"SR-91" 968+59.41 to 978+79.49	8'	8'	10'

5.A.2.3 Interim Features

There are no proposed interim improvements within the project limits.

5.A.2.4 High-Occupancy Vehicle (Bus and Carpool) Lanes

SR-91 features an existing High Occupancy Vehicle (HOV) lane in the westbound direction and an existing HOV lane in the eastbound direction. Vehicles with two or more persons can use HOV lanes. The existing HOV lanes are 12-foot-wide with a 1.5-foot-wide left median shoulder and no buffer between HOV lanes and mixed flow lanes. The Preferred Build alternative proposes a 1.5-foot-wide left median shoulder and 2-foot-wide buffer between the HOV lane and mixed flow lane on SR-91 WB.

HOV preferential on-ramp lanes exist on Pioneer Boulevard direct westbound on-ramp and Artesia Boulevard westbound on-ramp. The Build alternative proposes separate HOV preferential lanes on Pioneer Boulevard westbound on-ramp, Norwalk Boulevard westbound on-ramp and Artesia Boulevard westbound on-ramp.

The HOV ingress/egress location in the project limits on westbound SR-91 is located closer than standard to the I-605 Connector exit. This causes vehicles to merge across several lanes in a short distance to exit at the I-605 Connector. The HOV ingress/egress location has been discussed with the District 7 Managed Lanes Division and will be moved eastward (upstream) with this project for improved safety and traffic operations.

5.A.2.5 Ramp Metering

For the Build Alternative, ramp metering will be provided on all on-ramps, as they currently exist along the SR-91 project limits. Maintenance vehicle pullouts will be provided for accessing controller cabinets. Fiber optic communication to each controller cabinet will be included. Controller cabinet setup will incorporate hardware and software for communication.

5.A.2.6 California Highway Patrol (CHP) Enforcement Areas

For the Build Alternative, CHP enforcement areas will be provided on all on-ramps. No mainline CHP enforcement area will be provided within the project limits. A meeting was conducted on March 19, 2018 at Caltrans District 7 with CHP and the Caltrans Managed Lanes Branch to discuss CHP enforcement areas proposed on this project. CHP concurred with the proposed CHP enforcement areas on the on-ramps and that no mainline median enforcement areas will be provided.

5.A.2.7 Park and Ride Facilities

No existing Park and Ride Facilities are located within the project limits, nor are any new Park and Ride Facilities proposed with this project. The Caltrans District 7 Park and Ride Coordinator has been consulted and concurred with this approach.

5.A.2.8 Utility and Other Owner Involvement

There are existing utility facilities within the proposed project limits. The following agencies/companies have utilities that are located within or adjacent to the existing State right-of-way within the proposed project limits:

- Central Basin Municipal Water District – Water
- Charter Communications – Telecom
- Chevron Pipeline Company – Oil
- City of Cerritos – Water, Sewer
- City of Norwalk – Water, Sewer
- Crimson Pipeline – Oil
- Crown Castle – Telecom
- Defense Fuel Support Point – Oil
- Frontier Communications – Telecom
- Golden State Water – Water
- Kinder Morgan Inc. – Oil
- Liberty Utilities – Water
- Los Angeles County Department of Public Works – Sewer
- Los Angeles County Sanitation District – Sewer
- Shell Oil Pipeline Company – Oil
- Southern California Edison – Power
- Southern California Gas – Gas
- Time Warner Cable – Telecom
- Wilshire Connection LLC – Telecom
- XO Communication – Telecom

Coordination with the utilities of the affected facilities occurred throughout the PA/ED phase and will be continued through the PS&E phase to further define relocation strategies, project requirements, and to identify and develop utility agreements. Conflicts with the existing utilities should be potholed during the PS&E phase to accurately identify existing locations and to assess impacts definitively. Notice to owners and utility agreements will be sent out to the affected utility companies during the PS&E phase.

Anticipated utility relocations are shown in the Right of Way Data Sheet in Attachment C. Project utility impacts are expected to include the following facilities:

- Power poles at various locations, owned by SCE
- Underground electrical and telecommunication conduits at various locations
- Gas lines in various locations
- Fire hydrants and waterlines in various locations

5.A.2.9 Railroad Involvement

The proposed project does not impact any existing railroads.

5.A.2.10 Highway Planting

Highway planting of disturbed areas is proposed with the project. Disturbed areas and slopes will be planted and irrigated. The City of Cerritos has a six-inch recycled waterline in Pioneer Boulevard that runs through the project limits. This may be a viable source of irrigation for planting within Caltrans Right of Way.

5.A.2.11 Erosion Control

The existing small slopes are stable and vegetated with native plants. Where such existing vegetated areas can be feasibly preserved, they will be; otherwise, where disturbance is unavoidable, the disturbed vegetation will be replaced with an erosion control mix prior to replacement highway planting and irrigation being installed. Erosion control measures shall be applied at disturbed soil areas after grading operations are completed. Specific erosion control measures will be coordinated with the Caltrans District staff during the PS&E phase of the project.

During construction activities, sediments in stormwater discharges will be controlled by implementing appropriate temporary construction BMPs. These measures will be detailed in the Storm Water Pollution Prevention Plan (SWPPP) which will be prepared for the construction phase of the project. Standard construction site BMPs (such as gravel bag berms, temporary fiber rolls, etc.) will be utilized during construction to minimize storm water pollution.

5.A.2.12 Noise Barriers

Eight existing soundwalls are located along SR-91 WB and eight existing soundwalls are located along SR-91 EB within the project limits. Traffic noise was modeled and evaluated for potential noise impacts in Noise Study Report (NSR). The NSR is summarized in Section 6H.

Existing soundwalls impacted by the freeway widening will be removed and reconstructed at the new edge of shoulder location with the same top of wall elevation as the existing soundwall. Two new soundwalls are proposed to be installed with this project.

The first new soundwall (Soundwall 2.2b) which is a new 1,330 foot-long soundwall on the north side of the SR-91 WB to I-605 Connector and will extend across the SR-91W/I-605

N&S Connector (Bridge No. 53-1707F) over Studebaker Road and will have 11 benefitted receptors in the City of Cerritos. This soundwall is proposed to be 16' in height.

The second new soundwall (soundwall 6.1) will be approximately 355 feet in length on the south side of the freeway along eastbound SR-91 east of Bloomfield Overcrossing at the Aria and Sage Apartment Buildings within the City of Cerritos. This soundwall will be 14' in height.

5.A.2.13 Non-motorized and Pedestrian Features

The project study area is located between two major bike trails in the region. The San Gabriel River Bicycle Path runs 30.2 miles along the San Gabriel River, from San Gabriel Canyon Road in the City of Azusa to the access into El Dorado Park in the City of Long Beach. There are numerous access points along the path. Within the project area, it crosses under SR-91 just west of I-605, which it parallels for much of its length.

The Coyote Creek Bicycle Path is a 9.5-mile Class I bike path adjacent to the Coyote Creek flood control channel, extending from the City of Santa Fe Springs to the City of Long Beach, where it joins the San Gabriel River Bicycle Path. It crosses under SR-91 about one mile east of the project area, at Carmenita Road.

Other bicycle infrastructure in the project study area are listed below.

• A Class III bikeway extends in both directions on 195th Street from the San Gabriel River Trail to Bloomfield Avenue. These bike lanes then transition to a Class II bikeway before joining the Coyote Creek Bicycle Path.

• A Class II bikeway extends south on Pioneer Boulevard from South Street before turning eastward onto Del Amo Boulevard.

• A Class II bikeway extends south on Bloomfield Avenue starting at 183rd Street and ends at South Street, before continuing east on South Street to Carmenita Avenue, where a branch extends southward on Shoemaker Avenue.

• A Class II bikeway exists on Carmenita Avenue between 166th Street and W. Cerritos Avenue. Please note that Carmenita Avenue turns into Moody Street along southern segments of this bike path.

5.A.2.14 Needed Roadway Rehabilitation and Upgrading

Pavement rehabilitation is not part of the purpose and need of the project.

5.A.2.15 Needed Structure Rehabilitation and Upgrading

Based on the findings of the Caltrans Maintenance Reports or subsequent field reviews, some rehab may be required such as crack repair, barrier/Midwest Guardrail System repair, spall or other repairs as identified. Routine maintenance and rehabilitation needs identified in the Caltrans Maintenance Reports will be addressed as a part of the project.

5.A.2.16 Cost Estimates

A detailed cost breakdown for the Build Alternative is included in Attachment B. The total construction capital cost has been escalated to Year of Expenditure (YOE) FY 2022. Table 42 summarizes the construction capital costs which does not include the Total Capital Outlay Support Cost.

Table 42: Project Cost Estimates – Year 2022

Construction Element	Build Alternative	Build Alternative with Design Option 1 & 3 (Preferred Alternative)
Roadway	$88,200,000	$85,300,000
Structures	$24,000,000	$20,000,000
Right-of-Way	$28,400,000	$16,100,000
Total	$140,600,000	$121,400,000

5.A.2.17 Right-of-Way Data

A Right-of-Way Data Sheet has been prepared for the Build Alternative and Preferred Build Alternative (including Design Option 1 and 3), and is included in Attachment C, which includes a cost estimate for right-of-way acquisition and utilities relocation. See the Geometric Drawings in Attachment G, H, I and J that show R/W acquisition areas.

5.A.2.18 Effect of Projects-Funded-by-Others on State Highway

The proposed project is funded by County of Los Angeles Measure R sales tax funds, which are administered by Metro. However, both State and federal environmental reviews are conducted in case federal funds are programmed in the future.

5.B REJECTED ALTERNATIVES

A feasibility study was conducted for Metro and the GCCOG for this section of I-605 and SR-91 between 2011 and 2012, which became the SR-91 / I-605 / I-405 Congestion Hot Spots Feasibility Report (Feasibility Report). Three Geometric Plan Concepts were studied in the feasibility study and were carried forward for more detailed evaluation in the PSR-PDS phase. During preparation of the PSR-PDS, the three Build Concepts were evaluated, Concept A and C were carried forward for further evaluation in this Project Report. Descriptions of the rejected alternatives are provided below.

Concept B (PSR-Alternative 2)

Concept A, B and C have similar proposed improvements. However, Concept B's geometry design including a braided ramp between Bloomfield Avenue and Norwalk Boulevard affects more properties adjacent to Caltrans right-of-way, and has more environmental and economic impacts. Therefore, Alternative B was dropped from further consideration.

6. CONSIDERATIONS REQUIRING DISCUSSION

6.A Hazardous Waste

A Phase I Initial Site Assessment (ISA) has been prepared. The purpose of this Phase I ISA is to identify sites that have the potential to affect the proposed project with hazardous materials or waste from current or historical environmental conditions. The assessment of the Phase I ISA includes a site description, regional and site specific geology and hydrogeology, the type of operations and chemicals used, contaminants detected in all media sampled, maps, figures, cross-sections showing location of borings, soil vapor probes, and groundwater monitoring wells, contaminant source areas, lateral and vertical extent of contamination, summary of analytical results, remedial actions, and any other information available from the regulatory agency's files or records from other sources including interviews with knowledgeable parties as applicable/available. This Phase I ISA

is in general conformance with the scope and limitations of ASTM Practice (E 1527-13) where applicable.

Based on the documentation review and site visit conducted as part of the Phase I ISA, implementation of the recommendations outlined below as well as federal, state, and local laws and regulations, including Caltrans Standard Specifications and Special Provisions during construction, no further Preliminary Site Investigation is necessary at this time.

The following recommendations are based on the findings, opinions, and conclusions noted during the course of the Phase I ISA and will be included in the Environmental Commitments Records (ECR) of the environmental document.

- Potential Hazardous Materials Sites
- Four potential hazardous materials sites (REC) and one historic hazardous materials site (HREC) within or immediately adjacent to the project study area were identified during the regulatory database search and site reconnaissance. Additional investigation for potential impacts from historical or current conditions at those properties is recommended where impacted soil and/or groundwater may be exposed as a result of construction activities. Focused ISAs and Site Investigations (SI) are required for all commercial/industrial properties proposed for partial/full acquisition and any necessary property rights, including fees, highway easements, utility easements and/or TCEs, associated with the property. For all off-site REC properties identified as potentially impacting the proposed project, focused ISAs and SIs are required within the project area potentially impacted by the off-site REC property. The focused ISAs and SIs would be conducted during the PS&E (design) phase of the project development per Caltrans requirements. Further investigation is not considered warranted at this time.
- Asbestos and Lead Based Paint
- Asbestos containing building materials/asbestos containing materials (ACBM/ACM) were used in construction until the late 1970s. Various structures were constructed along the project study area prior to their discontinued use. Areas of concern associated with the proposed project include existing residential and commercial buildings, and possibly bridges (overpasses).
- Various structures were constructed along the project study area prior to the discontinued use of Lead Based Paint (LBP). Areas of concern associated with the proposed project include existing residential and commercial buildings, and possibly bridges (overpasses) as well as traffic striping materials.
- The Preferred Alternative will require improvements to the following bridges: Studebaker Road (both the SR-91 mainline Undercrossing [Br. No. 53-1706] and the westbound SR-91 to I-605 Connector Undercrossing [Br. No. 53-1707F]), Gridley Road Overcrossing (Br. No. 53-1324), Pioneer Boulevard Undercrossing (Br. No. 53-1335), Norwalk Boulevard Undercrossing (Br. No. 53-1334), and Bloomfield Avenue Overcrossing (Br. No. 53-1433). ACM/LBP surveys are required for all bridges proposed for improvement.
- The Pioneer Boulevard Westbound Ramps/168th Alignment Design Option would result in five residential displacements. Based on the construction

dates of these structures, ACMs and LBP may be present. ACMs and LBP represent a concern during demolition of these structures and will require inspection and/or sampling for ACBM/ACM prior to demolition.

- Yellow traffic paint used prior to 1997 in District 7 contained high concentrations of lead. However, application of yellow thermoplastic material containing high concentrations of lead was phased out during 2004 to 2006. The lead concentrations in the older yellow paint and yellow thermoplastic are high enough to make these materials hazardous wastes when they are removed. Old non-yellow paints (e.g. white, blue, black, etc.) had higher concentrations of lead but not high enough for removed paint to be classified as a hazardous waste. Residue from the removal of these paints is a non-hazardous waste. Removal of all yellow, non-yellow thermoplastic-painted and lead-based painted traffic stripes/pavement marking shall be managed during construction, following Caltrans SSPs.
- Polychlorinated Biphenyls
- Polychlorinated Biphenyls (PCBs) were used in the past as insulating oils in electrical transformers, fluorescent light ballast, and/or as hydraulic oils in elevator equipment prior to the 1980s. Twenty-one electrical distribution transformers (both ground-mounted and utility pole mounted) are present within the project study area along the north side of SR-91 and east side of I-605. Of these, eight are located over bare soil and one is located partially. Prior to site disturbance activities, the soil beneath transformers that are located over bare soils should be sampled for PCBs.
- Aerially Deposited Lead (ADL)
- Based on the time-period of construction of SR-91 and I-605, the project study area was exposed to the deposition of ADL and subsequent soil sampling has confirmed this at two locations. Analysis of the soil indicates that concentrations of Lead exceed STLC regulatory limits and will need to be handled and disposed as potentially hazardous waste in California. All unpaved areas proposed for disturbance during construction activities will require an ADL SI to be implemented during the PS&E phase of the proposed project development.
- Pesticides
- Based on the historical use of many areas within or in the vicinity of the project study area as agricultural land, soils within the project limits may be impacted by pesticides. During original construction of SR-91 and I-605, it is likely that these activities will have reduced the likelihood of potential pesticide contamination in many areas. While limited soil excavation is planned, where un-paved areas will experience soil disturbance, investigation of the soil for pesticides is recommended as part of the Phase 2 Site Investigation during the PS&E phase of the proposed project development.
- Treated Wood Waste (TWW)
- It is anticipated that TWW, associated with sign post and guard rail removals, would be generated during the proposed project construction. Sign posts and/or guard rails are located along the main roadway right-of-way, and at on- and off-ramps and transition roads.

6.B Value Analysis

Based on the total project cost estimate of $141 million which is above the $50 million threshold requirement, and per Chapter 19 of the Project Development Procedures Manual (PDPM), a Value Analysis (VA) is required for the proposed project. A project-specific VA was conducted on July 31, 2017 through August 3, 2017. A total of ten VA design modifications were considered. Of the ten proposed VA alternatives, three were accepted. The following are the accepted VA design modifications:

- Design Modification 2.0 - Use precast bridge members in lieu of cast-in-place. The VA alternative proposes to use precast girders in lieu of cast-in-place for two full bridge replacements at Bloomfield Avenue and Gridley Road to reduce construction time. The main benefit of this VA alternative is to reduce construction time by approximately 2 months. There would be less impact to the Ecology Park for the Gridley Road Bridge replacement because the profile of the bridge would be lower and require less grading. The span lengths are within the range of typically available pre-cast girders.
- Design Modification 6.0 - Construct the soundwall along the north side of the westbound SR 91 to the I-605 connector at the edge of shoulder and protect in place the right of way wall at the right of way line. The main benefit of this concept is that it will reduce construction costs because the soundwall will not be as high as in the baseline concept; an approximate 4-foot reduction is expected. The other advantage of this concept is that it avoids temporary construction easements required from private property owners along the right of way line. The soundwall proposed in this alternative could reduce roadway noise that reaches residents because its new location will better enable it to abate noise.
- Design Modification 8.0 - Eliminate the retaining wall east of Bloomfield Avenue and re-grade the nearby drainage channel. The main benefit of this VA alternative is to reduce construction costs for a 1,200-foot retaining wall. This VA alternative was applicable for Alternative 2 only and is not applicable to the Preferred Alternative.

6.C Resource Conservation

The proposed project would not cause an increased demand for water, except for minor amounts during construction. Therefore, the project would not have a significant impact to the public water supply.

Recycling and stockpiling of the removed existing asphalt concrete and Portland Cement Concrete pavement will be determined during final design. The traffic signs identified for removal would be removed and salvaged by the contractor to become State property available for recycling.

The Build Alternative involves no planned use of natural resources beyond fuel and energy needed during construction and maintenance activities, including the materials needed for construction that require energy to produce and transport them to the project site. However, the energy expenditure to construct the Build Alternative would be off-set by the reduction in fuel consumption realized through more efficient freeway operations. The Build Alternative would not result in adverse impacts related to energy consumption in the Study Area or region compared to the No Build Alternative. No avoidance, minimization, or mitigation measures are required.

6.D Right-of-Way Issues

Right-of-Way Requirements (Build Alternative – Alternative 2)

A Right-of-Way Data Sheet has been prepared and included in Attachment C for the improvements proposed in the Build Alternative (Alternative 2). The proposed project is mostly within existing Caltrans right-of-way. For the Build Alternative (Alternative 2), right of way required for acquisition includes approximately 89,290 square feet of Temporary Construction Easement (TCE), 640 square feet of Permanent Easement and 109,388 square feet of Fee Acquisition. The impacted properties generally consist of Commercial, Industrial, Residential, School, Park, and city owned property types, impacting approximately 84 assessor's parcel lots.

APN 7014-004-032 (16905 Pioneer Blvd / Denny's Restaurant and Quality Inn & Suites) – For Build Alternative (Alternative 2), and Design Option 2 - Type L-9 Interchange at Pioneer Boulevard, the proposed improvements impact the entire driveway during construction. The proposed new driveway can be constructed in two phases (i.e. half at a time) and access maintained during construction. Potential damages to the business due to temporary loss of use of a portion of the driveway during construction are included in the valuation estimation. Also, the monument sign may need to be relocated and will be determined during the PS&E phase.

APN 7014-004-005 (16809 Pioneer Blvd / Arco Gas Station) – The Arco gas station southern driveway on Pioneer Boulevard is too close to SR-91 WB off-ramp intersection, and it presents potential traffic and safety issues for ramp and Pioneer Boulevard operations. This Arco driveway will be closed for the Build Alternative (Alternative 2). Environmental remediation of hazardous waste is expected to be necessary.

170th Street properties (north of SR-91 between Pioneer Blvd and Norwalk Blvd) – Acquisition of 18 residential and 1 business properties on 170th street east of A J Padelford Park is needed for Alternative 2. The SR-91 mainline is widened to a standard lane and shoulder width configuration directly impacting 170th Street. Thus, 170th street would be closed permanently due to its already non-standard width and residences and the business on 170th street would be acquired.

APN 7012-001-901 (12222 Cuesta Dr. / Tracy High School and ABC Adult School) - Due to the proposed road improvements along Norwalk Boulevard, the partial acquisition eliminates approximately 26 parking stalls of Tracy High School. During the PA/ED phase a preliminary plan for restriping/reconfiguration of the parking area to recoup all the lost parking stalls and provide sufficient fire access/traffic circulation was prepared. In the PS&E phase it will be arranged for this parking lot reconfiguration work to take place prior to the project construction start date to avoid parking/fire access issues and replenish the lost stalls prior to the commencement of any school session.

Although right of way is not required from the condos along Judy Way and Rancho Vista Drive (approximately 32 units), located in the City of Cerritos west of Bloomfield Avenue, the area required from the back alley along the SR-91 to construct the freeway, temporarily eliminates vehicle access to the condo's garages, thus creating a loss of vehicular access during construction. Approximately 6 feet from the face of the condos will be provided for pedestrian access to the buildings during construction of the project. Full vehicular access will be restored upon project construction completion.

Right-of-Way Requirements for Preferred Alternative (Build Alternative – Alternative 2 with Design Option 1 – Reduced Lane/Shoulder Width and Design Option 3 - Pioneer Blvd WB Ramps/168th St Alignment)

A Right-of-Way Data Sheet for Alternative 2 with Design Option 1 – Reduced Lane/Shoulder Width has been prepared and included in Attachment C. Right of way required for acquisition includes approximately 25,000 square feet of Temporary Construction Easement (TCE), and 49,000 square feet of Fee Acquisition. The impacted properties generally consist of Commercial, Industrial, Residential, School, Park, and city owned property types, impacting approximately 25 assessor's parcel lots.

APN 7014-004-032 (16905 Pioneer Blvd / Denny's Restaurant and Quality Inn & Suites) – For Build Alternative – Alternative 2 with Design Option 1, the proposed improvements impact the entire driveway during construction. The proposed new driveway can be constructed in two phases (i.e. half at a time) to maintain access during construction. Potential damages to the business due to temporary loss of use of a portion of the driveway during construction, and permanent left turn access restrictions for the driveway are included in the valuation estimation. Also, the monument sign may need to be relocated and will be determined during the PS&E phase.

APN 7011-004-008, 7011-004-051, 7011-004-055, 7011-004-069, 7011-004-070, 7011-004-076, 7011-004-902, and 7011-004-903 – As part of Design Option 1, the inclusion of Design Option 3 – Pioneer WB Ramps/168th Street Alignment impacts eight (8) parcels on 168th Street east of Pioneer Boulevard due to the realignment of the SR-91 westbound off-ramp at Pioneer Blvd to connect with 168th Street. These impacts are such that full right of way acquisition of these 8 parcels will be required.

APN 7011-005-902 (16712 1/2 Pioneer Blvd) – The existing driveway will be within the State access control limits and will be identified as a design exception. Assumed access is maintained during construction and in the after condition. Parking may need to be re-striped/reconfigured to recoup some of the lost stalls and sufficient fire access provided during construction and in the after condition.

APN 7011-005-901, 7011-005-903 (11817 & 11825 168th St) – It is planned for a shared driveway to be provided to access these parcels off a new cul-de-sac for the termination of 168th Street.

APN 7012-001-901 (12222 Cuesta Dr / Tracy High School and ABC Adult School) - Due to the proposed road improvements along Norwalk Boulevard, the partial acquisition eliminates approximately 26 parking stalls of Tracy High School. During the PA/ED phase a preliminary plan for restriping/reconfiguration of the parking area to recoup all of the lost parking stalls and provide sufficient fire access/traffic circulation was prepared. In the PS&E phase it will be arranged for this parking lot reconfiguration work to take place prior to project construction start date to avoid parking/fire access issues and replenish the lost stalls prior to the commencement of any school session.

Relocation Impact Studies

A Relocation Impact Report has been prepared by Michael Baker International. The Preferred Alternative – Alternative 2 including Design Option 1 and Design Option 3 – would result in five residential displacements within the City of Artesia near the Pioneer Boulevard westbound off ramp. At this time, a number of suitable replacement residential properties are available for purchase or lease within the project area. The housing stock available in the project area, as well as neighboring communities, will be sufficient for finding comparable replacement dwellings. It is anticipated that finding replacement

housing for owner or tenant-occupied residences will not present any unusual problems. There is no indication at this time that there will be unusually slow relocations.

Airspace Lease Areas

The proposed project is not in an area of high land values having potential for future airspace leases.

6.E Environmental Compliance

The Westbound SR-91 Improvement Project is funded by County of Los Angeles Measure R sales tax funds, which are administered by Metro. However, both state and federal environmental reviews are conducted in case federal funds are programmed in the future. Under Measure R, $590 million has been set aside for the I-605 “Hot Spots” Program. The project cost is estimated at $121 million and will be listed as an Early Action priority. Metro has been awarded $32 million in 2018 Trade Corridor Enhancement Program (TCEP) funds by the California Transportation Commission (CTC) to design and construct the project. California participated in the Surface Transportation Project Delivery Pilot Program (Pilot Program), pursuant to 23 United States Code (USC) 327, for more than 5 years, beginning July 1, 2007, and ending September 30, 2012. The Moving Ahead for Progress in the 21st Century Act (MAP-21 [P.L. 112-141]), signed by President Barack Obama on July 6, 2012, amended 23 USC 327 to establish a permanent Surface Transportation Project Delivery Program. As a result, Caltrans entered into a Memorandum of Understanding (MOU) pursuant to 23 USC 327 (NEPA Assignment MOU) with FHWA. The NEPA Assignment MOU became effective October 1, 2012, and was renewed on December 23, 2016, for a term of 5 years. In summary, Caltrans continues to assume FHWA responsibilities under NEPA and other federal environmental laws in the same manner as was assigned under the Pilot Program, with minor changes. With NEPA Assignment, FHWA assigned and Caltrans assumed all of the United States Department of Transportation (USDOT) Secretary’s responsibilities under NEPA. This assignment includes projects on the State Highway System and Local Assistance Projects off of the State Highway System within the State of California, except for certain categorical exclusions (CE) that FHWA assigned to Caltrans under the 23 USC 326 CE Assignment MOU, projects excluded by definition, and specific project exclusions.

The proposed project is listed in Amendment #3 to the 2016 Regional Transportation Plan (RTP)/Sustainable Communities Strategy (SCS) with Project ID 1163S012. The 2016 RTP was approved by the Regional Council of the Southern California Association of Governments (SCAG) on April 7, 2016, and Amendment #3 was adopted in December 2018. The proposed project is currently programmed in the 2019 Federal Transportation Improvement Program (FTIP) with Project ID LA0G1119. The 2019 FTIP was approved by the SCAG on September 6, 2018.

Wetlands and Other Waters

The proposed project drains to San Gabriel River Reach 1, Artesia-Norwalk Drain and Coyote Creek, which are impaired according to the 2012 303(d) list of waterbody impairments (Ammonia, Coliform Bacteria, Diazinon, Dissolved Copper, Indicator Bacteria, Lead, pH, Selenium and Toxicity), and have Total Maximum Daily Loads (TMDLs) established (Ammonia, Coliform Bacteria, Diazinon, Dissolved Copper, Indicator Bacteria, Lead, pH, Selenium and Toxicity). Caltrans is named as a stakeholder in the San Gabriel River TMDL for Copper, Lead, Zinc and Selenium.

During the construction phase of the proposed project, sediment will be exposed, and construction activities will potentially impact downstream waterbodies. Therefore,

temporary erosion control measures will be implemented to retain soil and sediment. In addition, devices that will address the anticipated post-construction priority pollutants from the proposed project will be installed to mitigate impacts from the proposed project on downstream waterbodies.

Build Alternative (Alternative 2) Disturbed Soil Area will be 29.25 acres. Preparation of a Stormwater Pollution Prevention Plan (SWPPP) will be required, and the SWPPP will be implemented during construction of the proposed project. The SWPPP identifies the specific best management practices (BMPs) that will be implemented during construction of the proposed project. The BMPs proposed as a part of the proposed project would be implemented per the technology requirements as stipulated in the NPDES Construction General Permit (CGP) and Caltrans' NPDES Permit. In the event that groundwater and any other non-stormwater dewatering are necessary during construction, these activities are subject to the Los Angeles Regional Water Quality Control Board's (RWQCB) Order No. R4-2012-0175-A01 (NPDES Permit Number CAS004001). A separate permit may be required if dewatering is necessary.

The proposed project's Build Alternative (Alternative 2) will increase the impervious area by 5.83 acres within the proposed project boundary, which will increase the amount of runoff from SR-91 and I-605. The potential long-term impacts to water quality from implementing the proposed project will include an increase in runoff from the increase in impervious surfaces, which will result in an increase in the concentrations of general pollutants. As part of Caltrans' Stormwater Program and described in their Stormwater Management Plan and Project Planning and Design Guide, structural and non-structural source control BMPs will be incorporated into the design of the proposed project. Approved structural treatment BMPs could include, but are not limited to, Design Pollution Prevention (DPP) Infiltration Areas, Infiltration Devices, and Biofiltration Swales and Strips. The selection of specific BMPs is also subject to identifying suitable locations. In order to develop the proposed project, permission must be obtained from agencies that have jurisdictional authority over waterbodies that may be impacted by the proposed project, including the following:

- State Water Resources Control Board's General Construction Permit,
- Los Angeles Regional Water Quality Control Board's Section 401 Certifications,
- California Department of Fish and Wildlife's Streambed Alteration 1602 Agreement,
- United States Army Corps of Engineers' Section 404 Permit.

With the implementation of Environmental Commitment Measures, the proposed project's construction, design, and facility operation will result in no adverse impacts to water quality.

Natural Environment

A Natural Environment Study (NES) was approved by Caltrans on September 14, 2017. The results presented in this NES (Minimal Impacts) are based on recent literature searches, a jurisdictional delineation, a general biological resources survey, and a bat habitat suitability assessment conducted in 2017. The project includes a biological study area (BSA) of 283 acres that is primarily composed of developed areas, with some ornamental and weedy vegetation, and has low biological value to native plant and wildlife species.

A formal jurisdictional delineation survey was completed in 2017. It determined that 14 drainage features, potentially subject to the jurisdiction of the United States Army Corps

of Engineers (USACE), the California Department of Fish and Wildlife (CDFW), and Regional Water Quality Control Board (RWQCB), occur in the BSA. The project will likely require authorizations from the USACE (pursuant to Section 404 of the Clean Water Act [CWA]), the RWQCB (pursuant to Section 401 of the CWA), and the CDFW (pursuant to Section 1602 of the California Fish and Game Code).

A total of 12 special-status species (3 plants and 9 animals) federally or State-listed as threatened or endangered were listed as having the potential to occur within the BSA. An additional 81 non-listed special-status species were considered for their potential to occur in the vicinity of the BSA. The full list of special-status species consists of those species listed as endangered or threatened, those proposed to be listed, or those considered to be special-status species potentially occurring or known to occur within and in the vicinity of the BSA. No federally or State-listed as threatened or endangered species have the potential to occur in the BSA due to the lack of suitable habitat. Five California Special Animals have the potential to occur in the BSA, but the project is anticipated to have no effect on special-status species with the implementation of the proposed avoidance and minimization measures. The project is also anticipated to have no effect on critical habitat or natural communities of concern, as none were identified in the BSA. Therefore, Federal Endangered Species Act (FESA) Section 7 consultation between Caltrans and the USFWS or the National Marine Fisheries Service (NMFS) will not be necessary to obtain authorization for potential adverse effects to federally listed species. Fish and Game Code Section 2081 authorization from the CDFW will not be required for effects to State-listed species, and no compensatory mitigation will be required for impacts to special-status species.

Due to the presence of suitable nesting bird habitat, to avoid potential effects to fully protected raptors and other nesting birds protected by the Migratory Bird Treaty Act (MBTA) and the California Fish and Game Code, a survey for active bird nests is recommended within 3 days prior to commencement of vegetation removal and construction activities during the bird nesting season (typically January through August).

Invasive species would be removed from the project work area and controlled during construction to ensure compliance with Executive Order 13112.

Visual/Aesthetics

Most existing planting within the project limits are ornamental, including native species which were introduced as part of landscape plantings. Existing landscaping that will be removed or disturbed by construction activities will be replanted as part of the project. The planting palette will be developed and agreed upon in the PS&E phase with review and concurrence by Caltrans, Metro, City of Cerritos and City of Artesia. The City of Cerritos has requested enhanced landscaping within their City limits, consistent with the SR-91 corridor in other areas of the City.

The bridge widenings and replacements of this project provide another opportunity to improve the visual character of the freeway and interchanges. Structure aesthetic patterns will be developed during the PS&E phase. This will include aesthetic patterns on bridge railings, concrete retaining walls, and masonry block soundwalls.

Section 4(f)

The study area includes the area within maximum disturbance limit (MDL) and a 0.5 mile buffer around the MDL. There are no wildlife or waterfowl refuges in the study area. The analyzed resources are bike paths, parks, recreational facilities, and schools. Resources located within 0.5-mile of the proposed SR-91 Project improvements were evaluated to

assess constructive use, and whether any project-related effects would result in proximity impacts that, after mitigation, would be so severe that the activities, features, and/or attributes that qualify those properties for protection under Section 4(f) would be substantially impaired. Substantial impairment occurs when the activities, features, and/or attributes of the property are substantially diminished resulting in the value of the resource, in terms of Section 4(f) significance, being meaningfully reduced or lost.

The preferred alternative would result in a use of the following properties, but with project features incorporated into the project, the project would not adversely affect the activities, features, and attributes that qualify the properties for protection under Section 4(f):

- Ecology Park (City of Cerritos)
- Tracy High School (ABC Unified School District)

Because the project would not adversely affect the activities, features, and attributes that qualify the properties for protection under Section 4(f), Caltrans has determined that the project would result in a de minimis impact on Ecology Park and “No Use” impact on Tracy High School since no recreational facilities of the school will be impacted by the project.

6.F Air Quality Conformity

Historical air quality data show that existing carbon monoxide (CO) levels for the project area and the general vicinity do not exceed either the State or federal ambient air quality standards. The proposed project would help improve traffic flow and reduce congestion on roadway links in the project vicinity. The project is located in an attainment/maintenance area for federal CO standards. Using the California Department of Transportation (Caltrans) Transportation Project-Level Carbon Monoxide Protocol, a screening CO hot spot analysis was conducted to determine whether the proposed project would result in any CO hot spots. It was determined that the proposed project would not result in any exceedances of the 1 hour or 8-hour CO standards.

The proposed project falls under the jurisdiction of the South Coast Air Basin (SCAB). The SCAB is in a nonattainment area for federal particulate matter less than 2.5 microns in size (PM2.5) and in attainment/maintenance for federal particulate matter less than 10 microns in size (PM10) standards. Therefore, per 40 Code of Federal Regulations (CFR), Part 93, analyses for conformity purposes are required for the project.

The United States Environmental Protection Agency (EPA) does not require hot-spot analyses, qualitative or quantitative, for projects that are not listed in 40 CFR, Section 93.123(b)(1), as an air quality concern. A PM2.5/PM10 hot-spot analysis was submitted to the Transportation Conformity Working Group (TCWG) for review. On October 23, 2018, the TCWG determined that the project is not a project of air quality concern.

Compliance with the 2015 Caltrans Standard Specifications and the South Coast Air Quality Management District (SCAQMD) Rules and Regulations during construction will reduce construction-related air quality impacts from fugitive dust emissions and construction equipment emissions.

The proposed project would not generate new vehicular traffic trips because it would not construct new homes or businesses. However, there is a possibility that some traffic currently using other routes would use the new facilities, thus resulting in increased vehicle miles traveled (VMT) in the project area. The Build Alternative would result in higher criteria pollutant and greenhouse gas (GHG) emissions in the project area when compared to the No Build Alternative conditions.

The proposed project is required to include an analysis of Mobile Source Air Toxics (MSAT) as part of the National Environmental Policy Act (NEPA) process for highways. It is expected that there would be similar MSAT emissions in the study area under the Build Alternative relative to the No Build Alternative in the design year (2044) in the project area.

The project is in Los Angeles County, which is among the counties listed as containing serpentine and ultramafic rock. However, the portion of Los Angeles County in which the project lies is not known to contain serpentine or ultramafic rock. Therefore, the impact from naturally occurring asbestos during project construction would be minimal to none.

The proposed project is listed in Amendment #3 to the 2016 Regional Transportation Plan (RTP)/Sustainable Communities Strategy (SCS) with Project ID 1163S012. The 2016 RTP was approved by the Regional Council of the Southern California Association of Governments (SCAG) on April 7, 2016, and Amendment #3 was adopted in December 2018. The proposed project is programmed in the 2019 Federal Transportation Improvement Program (FTIP) with Project ID LA0G1119. The 2019 FTIP was approved by the SCAG on September 6, 2018.

The proposed Build Alternative is included in the regional emissions analysis that was used to meet regional air quality conformity. The FHWA conducted its determination that the project conforms with the State Implementation Plan (SIP) in accordance with 40 CFR, Part 93. Construction and long-term operation of the project would be considered consistent with the purpose of the SIP, and the project Build Alternative would conform to the requirements of the federal Clean Air Act (CAA).

6.G Title VI Considerations

Caltrans and FHWA policies demonstrate a commitment to Title VI of the Civil Rights Act, which provides that no person in the United States shall, on the grounds of race, color, national origin, sex, disability, or age be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity receiving federal financial assistance.

6.H Noise Abatement Decision Report

A traffic noise model was prepared and the results presented in the Noise Study Report. The traffic noise model was used to predict noise levels for the existing and the future No Build Alternative, Build Alternative (Alternative 2), and the Diamond Ramps Design Option 4.

Short-term noise level measurements at 61 outdoor locations were used to calibrate the noise prediction model with concurrent traffic counts and observed vehicle speeds. A total of 362 representative existing receptors were modeled and evaluated for potential noise impacts resulting from traffic noise. Noise abatement measures were evaluated for receptors within the project limits that would be or would continue to be exposed to traffic noise levels approaching or exceeding the Noise Abatement Criteria (NAC). A total of 15 noise barriers were evaluated under Build Alternative (Alternative 2) that consists of SR-91 WB mainline standard lane and shoulder widths and a total of 14 noise barriers were evaluated under Build Alternative (Alternative 2 with Design Option 1 – Reduced Lane/Shoulder Width).

Table 43 below summarizes the Alternative 2 barriers evaluated in the NSR. For a noise barrier to be considered feasible, the noise level reduction design goal of 5 dBA must be achieved at one or more of the benefited receptors. For the noise barrier to be considered

reasonable, the estimated construction cost must be below the total reasonable allowance of $95,000 per benefited residence.

Table 43: Summary of Noise Barrier Evaluation (Build Alternative – Alternative 2)

Barrier	Location	Height (ft)	Acoustically Feasible?	Number of Benefited Residences	Reasonable Allowance per Residence	Total Reasonable Allowance
2.1	SR-91 WB	10	No	0		
		12	No	0		
		14	Yes	1	$95,000	$95,000
		16	Yes	4	$95,000	$380,000
2.2b	SR-91 WB	6	No	0		
		8	No	0		
		10	Yes	1	$95,000	$95,000
		12	Yes	7	$95,000	$665,000
		14	Yes	13	$95,000	$1,235,000
		16	Yes	13	$95,000	$1,235,000
2.3	SR-91 EB	10	No	0		
		12	No	0		
		14	No	0		
		16	No	0		
3.1	SR-91 WB	10	No	0		
		12	No	0		
		14	No	0		
		16	No	0		
3.2	SR-91 EB	10	No	0		
		12	No	0		
		14	No	0		
		16	Yes	6	$95,000	$570,000
3.3	SR-91 WB	10	No	0		
		12	No	0		
		14	Yes	9	$95,000	$855,000
		16	Yes	9	$95,000	$855,000
4.1	SR-91 WB	10	No	0		
		12	No	0		
		14	No	0		
		16	No	0		
4.2	SR-91 EB	10	No	0		

Barrier	Location	Height (ft)	Acoustically Feasible?	Number of Benefited Residences	Reasonable Allowance per Residence	Total Reasonable Allowance
		12	No	0		
		14	No	0		
		16	Yes	5	$95,000	$475,000
4.3	SR-91 WB	10	No	0		
		12	No	0		
		14	No	0		
		16	No	0		
4.4	SR-91 WB	10	No	0		
		12	No	0		
		14	No	0		
		16	No	0		
5.1	SR-91 WB	10	No	0		
		12	No	0		
		14	Yes	1	$95,000	$95,000
		16	Yes	1	$95,000	$95,000
5.2	SR-91 WB	10	No	0		
		12	No	0		
		14	No	0		
		16	Yes	5	$95,000	$475,000
5.3	SR-91 EB	10	No	0		
		12	No	0		
		14	No	0		
		16	No	0		
6.1	SR-91 EB	6	Yes	1	$95,000	$95,000
		8	Yes	3	$95,000	$285,000
		10	Yes	5	$95,000	$475,000
		12	Yes	16	$95,000	$1,520,000
		14	Yes	20	$95,000	$1,900,000
		16	Yes	20	$95,000	$1,900,000

Table 44: Summary of Noise Barrier Evaluation (Preferred Alternative – Alternative 2 with Design Option 1 – Reduced Lane/Shoulder Width and Design Option 3: Pioneer Blvd WB Ramps/168th St Alignment)

Barrier	Location	Height (ft)	Acoustically Feasible?	Number of Benefited Residences	Reasonable Allowance per Residence	Total Reasonable Allowance
2.1	SR-91 WB	10	No	0		
		12	No	0		
		14	Yes	1	$95,000	$95,000
		16	Yes	4	$95,000	$380,000
2.2b	SR-91 WB	6	No	0		
		8	No	0		
		10	No	0		
		12	No	0		
		14	Yes	11	$95,000	$1,045,000
		16	Yes	11	$95,000	$1,045,000
2.3	SR-91 EB	10	No	0		
		12	No	0		
		14	No	0		
		16	No	0		
3.1	SR-91 WB	10	No	0		
		12	No	0		
		14	No	0		
		16	No	0		
3.2	SR-91 EB	10	No	0		
		12	No	0		
		14	No	0		
		16	Yes	3	$95,000	$285,000
3.3	SR-91 WB	10	No	0		
		12	No	0		
		14	Yes	11	$95,000	$1,045,000
		16	Yes	11	$95,000	$1,045,000
4.1	SR-91 WB	10	No	0		
		12	No	0		
		14	No	0		
		16	No	0		
4.2	SR-91 EB	10	No	0		
		12	No	0		
		14	No	0		

Barrier	Location	Height (ft)	Acoustically Feasible?	Number of Benefited Residences	Reasonable Allowance per Residence	Total Reasonable Allowance
		16	Yes	5	$95,000	$475,000
4.3	SR-91 WB	10	No	0		
		12	No	0		
		14	No	0		
		16	No	0		
4.4	SR-91 WB	10	No	0		
		12	No	0		
		14	No	0		
		16	No	0		
5.1	SR-91 WB	10	No	0		
		12	No	0		
		14	Yes	1	$95,000	$95,000
		16	Yes	1	$95,000	$95,000
5.2	SR-91 WB	10	No	0		
		12	No	0		
		14	No	0		
		16	No	0		
5.3	SR-91 EB	10	No	0		
		12	No	0		
		14	No	0		
		16	No	0		
6.1	SR-91 EB	6	Yes	1	$95,000	$95,000
		8	Yes	3	$95,000	$285,000
		10	Yes	9	$95,000	$855,000
		12	Yes	16	$95,000	$1,520,000
		14	Yes	20	$95,000	$1,900,000
		16	Yes	20	$95,000	$1,900,000

For both the Build Alternative (Alternative 2) and Preferred Alternative (Alternative 2 with Design Option 1 – Reduced Lane/Shoulder Width and Design Option 3: Pioneer Boulevard WB Ramps/168th St Alignment), estimated construction costs of each of the soundwalls found to be feasible in the NSR exceeded the reasonable allowance, except for two soundwalls. Soundwall No. 6.1, which is located along a new apartment development on the south side of the freeway in the City of Cerritos (along EB SR-91) was found to be both feasible and reasonable. This new 355 foot-long soundwall would be placed along the Caltrans Right of Way line in the eastbound direction abutting the Aria and Sage Apartment communities in the City of Cerritos and will be 14’ in height.

The second new soundwall (Soundwall 2.2b) is a new 1,330 foot-long soundwall on the north side of the SR-91 WB to I-605 Connector and will extend across the SR-91W/I-605N&S Connector (Bridge No. 53-1707F) over Studebaker Road and will have 11 benefitted receptors in the City of Cerritos. This soundwall will be 14' or 16' in height.

Existing soundwalls impacted by the freeway widening will be removed and reconstructed at the new edge of shoulder location with the same top of wall elevation as the existing soundwall.

7. OTHER CONSIDERATIONS

Public Hearing Process

Public hearing meetings were conducted on August 1, 2018 and August 2, 2018 in the Cities of Cerritos and Artesia, respectively. The Draft IS/EA was circulated for public review for a period of 30 days, from July 18, 2018, to August 16, 2018. Forty-two (42) comment letters on the Draft IS/EA were received during the public review period and 5 comments were submitted after the public review period for a total of 47 comment letters.

Route Matters

Some modifications of ramp termini locations may warrant an amendment to the existing freeway agreement. The ramp geometry improvements proposed at Pioneer Boulevard, Norwalk Boulevard and Bloomfield Avenue interchanges is considered a modification to existing freeway access. The existing freeway agreement may require revision or replacement.

Permits

The proposed project is anticipated to require the permits, licenses, agreements, and certifications (PLACs) listed in Table 45 below.

Table 45: Project Permits and Approvals

Agency	PLAC	Status
Federal Highway Administration (FHWA)	Air Quality Conformity Approval Letter	The Air Quality Conformity report will be submitted to the FHWA after receipt of public comments on the IS/EA. The FHWA will make a conformity determination prior to final approval of the IS/EA.
California Department of Fish and Wildlife (CDFW)	Fish and Game Code Section 1602 Streambed Alteration Agreement	This application will be submitted after Environmental Document approval. Caltrans will coordinate with the CDFW to obtain an agreement regarding riparian habitat impacts and mitigation.
United States Army Corps of Engineers (USACE)	Federal Clean Water Act (CWA) Section 404 Permit	After approval of the Final Environmental Document, Caltrans will submit the Jurisdictional Delineation to the USACE. Caltrans will obtain the Preliminary Jurisdictional Determination from USACE during the PS&E phase. In addition, prior to obtaining grading permits, Caltrans will submit a

		Pre-Construction Notification form to the USACE to obtain coverage under NWPs 14 and 33, pursuant to Section 404 of the Federal CWA.
Regional Water Quality Control Board (RWQCB)	CWA Section 401 Water Quality Certification or waiver	Caltrans will submit the application to the RWQCB after approval of the Final Environmental Document. Caltrans will coordinate with the RWQCB to obtain water quality certification during final design. The RWQCB will provide comments on the application. Meetings between Caltrans and the RWQCB will be held if necessary during final design. Caltrans will obtain the certification or waiver from the RWQCB during final design and will implement the requirements included in the certification or waiver.
State Water Resources Control Board (SWRCB)	NPDES Construction General-Permit Order No. 2009-0009-DWQ, (as amended by 2012-0006-DWQ)	The permits, including the NOI, will be submitted to the SWRCB prior to any project construction.
State Water Resources Control Board (SWRCB)	Caltrans NPDES Permit Order No. 2012-0011-DWQ, (as amended by Order WQ 2014-0006-EXEC, Order WQ 2014-0077-DWQ, and Order WQ 2015-0036-EXEC, NPDES No. CAS000003)	The Permit Registration Documents, including the NOI, will be submitted to the SWRCB prior to any project construction.
California Department of Transportation (Caltrans)	Construction Encroachment Permit	Application for a Caltrans construction encroachment permit will be submitted prior to construction, if a contractor is procured by Metro.
City of Cerritos	Construction Encroachment Permit	Application for a City of Cerritos construction encroachment permit for temporary access onto public rights-of-way will be submitted prior to construction.
City of Artesia	Construction Encroachment Permit	Application for a City of Artesia construction encroachment permit for temporary access onto public rights-of-way will be submitted prior to construction.

IS/EA = Initial Study/Environmental Assessment
Metro = Los Angeles County Metropolitan Transportation Authority
NOI = Notice of Intent
NPDES = National Pollutant Discharge Elimination System
NWP = Nationwide Permit
PLAC = permits, licenses, agreements, and certifications
PS&E = Plans, Specifications, and Estimates

Cooperative Agreements

Caltrans will own and maintain the bridge structures, roadway pavement, and other related infrastructure. This is consistent with the existing Cooperative Agreement. Separate cooperative agreements will be required for the right-of-way, PS&E, and construction phases of the proposed project.

Report on Feasibility of Providing Access to Navigable Rivers

There are no traditional navigable waterways as defined by the Army Corps of Engineers found within the proposed project limits.

Public Boat Ramps

There are no public boat ramps within the proposed project limits.

Transportation Management Plan for Use During Construction

A Transportation Management Plan (TMP) is required for the proposed project. A Major TMP classification is anticipated for the proposed project. The objective of a TMP is to minimize disruption of existing traffic during construction, reduce potential construction related traffic conflicts and delays and maximize safety for the users of the transportation network (including motorists, bicyclists, pedestrians, and those with disabilities) during construction without compromising the quality of work being performed. Overnight short-term closures will be required to facilitate placement of roadway overhead signs, placement of K-rail, bridge falsework erection and removal, bridge pre-cast girder placement, and restriping of freeway and ramps for stage construction. Short-term closures of less than 10 days will also be required for ramp construction tie-ins to the widened freeway and 55-hour weekend lane closures will be required for certain construction activities as described in the sub-section “Stage Construction” below.

The following elements are expected to be recommended or discussed in the project TMP:

- Public Information
- Motorist Information
- Incident Management
- Construction

A TMP data sheet is included in Attachment D that estimates the associated cost for these strategies.

Stage Construction

Staging of construction would be required for all work on the proposed project. In addition to the TMP elements, all work areas will be protected by temporary safety devices, such as Temporary Railing (Type K), Temporary Crash Cushions, and other safety features in accordance with Federal, State, and Local Agency requirements.

Two overcrossing bridges will be replaced with this project due to the widening of the freeway and conflicts with existing column and abutment locations. The Bloomfield Avenue Overcrossing and the Gridley Road Overcrossing will be replaced, both within the City of Cerritos. The Gridley Road Overcrossing bridge replacement will occur as a single stage construction and will be closed to traffic during construction. Due to the width of the structure, the Bloomfield Avenue Overcrossing will be constructed using a 2-stage construction. Half of the structure will be constructed while the other half will accommodate existing traffic.

Construction of the project is scheduled to begin in 2022. Implemented in two stages with three sub-stages in the first construction stage, and two sub-stages in the second construction stage, the construction duration is estimated to be 24 months. Table 46 shows a brief description of the stages and estimated durations.

Table 46: Stage Construction Summary

Stage	Construction Activities	Traffic Handling	Duration
1A	• Construct widening WB SR-91 using rapid set concrete • Reconstruct EB SR-91right shoulder using rapid set concrete	• 55-hr weekend closure. Close right shoulder and outside lane on WB and EB SR-91 under Bloomfield. Maintain existing traffic	3 weeks
1B	• Construct/widen portion of Artesia Blvd to WB SR-91 on-ramp • Construct portion of Bloomfield Ave to WB SR-91 on-ramp • Construct retaining wall • Construct soundwall on retaining wall • Construct soundwall • Demolish west side of Bloomfield Ave OC • Construct SB Bloomfield Ave pavement and bridge • Construct SR-91 Center Line under Bloomfield Ave OC • Construct portion of Bloomfield Ave WB on-ramp • Construct widening WB SR-91 • Reconstruct Norwalk Blvd off-ramp • Construct Norwalk Blvd on-ramp UC • Reconstruct Norwalk Blvd on-ramp • Widen WB SR-91 Norwalk Blvd UC • Reconstruct/widen NB Norwalk Blvd • Widen WB SR-91 Pioneer Blvd UC • Construct Pioneer Blvd on-ramp UC • Construct portion of Pioneer Blvd to WB SR-91 on-ramp • Start Gridley Rd OC demolition • Construct/widen Studebaker Rd UC along I-605 connector • Construct widen I-605 connector pinned K-rail from Sta 87+15 to 97+00 • Construct widen I-605 connector	• Maintain existing traffic on Artesia Blvd WB on-ramp • Maintain existing traffic on Bloomfield Ave WB on-ramp • Close traffic on SB Bloomfield Ave and shift traffic to NB lanes • Close left turn traffic from NB Bloomfield Ave onto WB SR-91 on- ramp • Shift mainline traffic under Bloomfield Ave OC to the right on WB and EB SR-91 and start west side of Bloomfield Ave OC demolition • 55-hr weekend closure. Close SR-91 WB and EB HOV lanes under Bloomfield Ave OC to construct center line pavement and bridge columns • Close traffic on NB Norwalk Blvd and shift traffic to SB lanes • Maintain existing traffic open on Pioneer Blvd, WB loop on-ramp, and WB off-ramp • Close Gridley Rd to traffic • Maintain existing lanes of traffic on both WB and EB SR-91 and start Gridley Rd OC demolition • Shift connector traffic to the south of the SR-91 and I-605 connector • Shift traffic to the west at NB Alondra Blvd off-ramp	4 months

Stage	Construction Activities	Traffic Handling	Duration
	• Construct/widen NB I-605 to Alondra Blvd off-ramp		
1C	• Construct widening WB SR-91 using rapid set concrete • Construct/widen I-605 connector using rapid set concrete • Reconstruct EB SR-91right shoulder under Gridley OC using rapid set concrete	• 55-hr weekend closure. Close outside lane on WB SR-91 • 55-hr weekend closure. Close outside lane on WB SR-91 to I-605 connector • 55-hr weekend closure. Close WB SR-91 to NB I-605 connector • 55-hr weekend closure. Close outside lane on WB SR-91 under Gridley St. Maintain 5 lanes of traffic • 55-hr weekend closure. Close right shoulder and outside lane on EB SR-91 under Gridley St. Maintain 5 lanes of traffic	6 weeks
1D	• Finish Gridley Rd OC demolition • Construct Gridley Rd OC pavement and bridge • Construct Retaining Wall	• Shift mainline traffic under Gridley St to the right on WB and EB SR-91 • Close Studebaker Rd on-ramp to EB SR-91	9 months
2A	• Construct/widen portion of Artesia Blvd to WB SR-91 on-ramp • Construct widening WB SR-91 • Construct portion of Bloomfield Ave to WB SR-91 on-ramp • Demolish east side of Bloomfield Ave OC • Construct NB Bloomfield Ave pavement and bridge • Construct SR-91 Center Line under Bloomfield Ave OC • Reconstruct Pioneer Blvd off-ramp • Reconstruct portion of Pioneer Blvd on- ramp to WB SR-91 • Reconstruct NB Pioneer Blvd • Construct/widen Studebaker Rd UC along I-605 connector • Construct/widen I-605 connector • Widen WB SR-91 Studebaker Rd UC • Reconstruct Studebaker Rd off-ramp • Construct/widen I-605 NB connector • Construct/widen I-605 • Reconstruct/widen NB I-605 to Alondra Blvd off-ramp	• Shift Artesia Blvd WB on-ramp to the north • Shift NB Bloomfield Ave traffic to SB lanes • 30-day closure. Reconstruct Bloomfield Ave on-ramp to WB SR-91 • 55-hr weekend closure. Close SR-91 WB and EB HOV lanes under Bloomfield to construct center line pavement and bridge columns • Close WB SR-91 on-ramp from Norwalk Blvd • Close traffic on NB Pioneer Blvd and shift traffic to SB lanes • Close WB SR-91 on-ramp from Pioneer Blvd • 30-day closure. WB SR-91 off-ramp to Studebaker Rd • Shift connector traffic to the north of the SR-91 and I-605 connector • Shift traffic to the east at Alondra Blvd off-ramp	9 months

Stage	Construction Activities	Traffic Handling	Duration
2B	• Obliterate SB Norwalk Blvd to WB SR-91 tangent on-ramp • Reconstruct SB Pioneer Blvd • Obliterate SB Pioneer Blvd to WB SR-91 tangent on-ramp • Construct section of SB I-605 connector	• Close WB on-ramp on Pioneer Blvd and Norwalk Blvd for demolition • 55-hr weekend closure. Close WB SR-91 traffic to SB I-605 connector •	2 Weeks

Storm Water Data Report

A PA/ED level Storm Water Data Report (SWDR) has been prepared for this proposed project per the guidelines given in the Caltrans Project Planning and Design Guide (PPDG). The total new impervious area due to the proposed project is 20.72 acres. The proposed treatment area is 20.65 acres. The permanent treatment BMP strategy will be determined at a later stage of design when more technical information is available; however, biofiltration strips/swales and media filters will be considered at this phase. The final selection of permanent BMPs will be determined during PS&E.

Temporary construction storm water pollution controls will be installed as early in the construction process as possible to provide additional protection and for utilization in addressing construction storm water impacts. The following are the minimum temporary construction site BMPs that have been designated:

- Hydraulic Mulch
- Temporary Soil Binders
- Temporary Cover
- Temporary check dams
- Storm Drain Inlet Protection
- Temporary Fiber Rolls
- Gravel Bag Berm
- Stabilized Construction Entrance/Exit

The cover page of the SWDR is included in Attachment E of this PR. The SWDR shall be updated during the final PS&E design stage.

Accommodation of Oversize Loads

SR-91 is not on the Department of Defense Rural and Single Interstate Routing System that would meet the most urgent national defense needs. FHWA has made a commitment to the Department of Defense to maintain 16.07 ft (4.9 m) minimum vertical clearance on the Priority Network. The SR-91 is also not the main route for vehicles coming to and from airports, harbors and testing sites. Special accommodations of oversize loads are not a requirement for the proposed project as this section of SR-91 is on the National Network for STAA, Lifeline Route and Scenic Highway System and is not identified as routes on the Interregional Road System and State Highway Extra Legal Load (SHELL) network.

Graffiti Control

According to the PDPM, the proposed project location is within a graffiti-prone area. Anti-graffiti design details will be evaluated as part of aesthetic treatments to project features during the PS&E phase. Vine planting will be proposed along sound wall locations wherever feasible.

Geotechnical and Geological

A Preliminary Geotechnical Design Report (PGDR) and Preliminary Structures Foundation Report (PSFR) have been prepared during the PA/ED phase to develop preliminary recommendations for the foundation requirements.

Available regional geologic maps show the upper 60 feet of the underlying soils generally consist of fine to medium grained, loose to medium dense, silty and clayey sand, sandy silt, poorly graded sand, and clayey silt. Interbeds of soft silt and clay and occasionally organic materials were also observed in these borings. Below 60 feet, the soils become generally fine to coarse, dense silty sand with varying amounts of gravel. Per Geotracker (2017), the groundwater elevation is generally in the range of about 49 to 53 feet above mean sea level (MSL) in the project area, corresponding to depths of approximately 7 to 12 feet and 20 feet below the existing ground surface in the vicinity of SR-91 alignment and I-605/Alondra Boulevard, respectively.

Based on the available information from the as-built Log-of-Test-Borings (LOTBs), preliminary estimates of the free-field liquefaction settlement ranges are between about 4 and 8 inches. Remedial grading beneath the wall foundations will be required to minimize the effects of settlement, if shallow foundations are considered. In this case, Caltrans standard wall Types 1 and 5 can be considered for the retaining walls. Remedial grading consisting of over-excavation and recompaction of loose materials should be performed to reduce the settlement potential. Also, previous exploration noted thin layers of soft silt and clay (occasionally organic) with estimated settlements of approximately ½ foot due to approach fill loads. As a preliminary recommendation, surcharge loading in combination with wick drains can be utilized at these locations to reduce the settlement potential. If the associated delay cannot be accommodated in the project schedule, lightweight fills can be used.

Drilling nine borings and advancing nine cone penetration test (CPT) soundings to depths of between 75 to 100 feet below ground surface or to refusal, whichever is less, during PS&E phase is recommended. The recommendations will be updated during final design based on the field investigation.

The project alignment is not located within an Alquist-Priolo Earthquake Fault Zone. According to the fault activity map of California (Jennings and Bryant, 2010), the closest significant active fault zone with Holocene surface rupture is Newport-Inglewood-Rose Canyon, crossing approximately 6.3 miles (10.1 kilometers) southwest of the I-605/SR-91 interchange.

Materials Report

A Preliminary Geotechnical Materials Report (PGMR) has been prepared during the PA/ED phase to develop preliminary recommendations for the pavement structural section requirements. Earthwork and paving included within the scope of work for this PGMR conform to the Caltrans Standard Specifications (Caltrans, 2015a). Using an R-value of 20, subgrade Type II is recommended in selecting rigid pavement sections. In fill areas, import borrow might be used to create the pavement subgrade. If import borrow

possessing an R-value greater than 40 and a Plasticity Index (PI) less than 12 percent is placed in the upper four feet of the grading plane (to establish subgrade), then thinner pavement sections (corresponding to an R-value of 41) may be used. The use of select import borrow will be evaluated in detail during the PS&E phase of the project. A Final Materials Report will be prepared during the PS&E phase for review and approval.

Life Cycle Cost Analysis

A Life-cycle Cost Analyses (LCCA) was conducted to determine the long-term cost effectiveness of various pavement designs. LCCA generates the total lifetime cost of the pavement converted to its present value, including initial construction costs, as well as future maintenance and user delay costs. The alternative with the lowest life-cycle cost is viewed as the most cost-effective pavement type even if it has a higher initial cost.

The project was divided into three pavement uses, westbound SR-91 mainline, I-605 mainline, and SR-91/I-605 ramps. A pavement life cycle analysis over 55 years was performed for each of these three pavement areas. A 40-year design life was used in the analysis. The Life Cycle Analysis followed the Caltrans Life-Cycle Cost Analysis Procedures Manual, updated August 2013, and utilizes the RealCost (Ver 2.5.3CA) software. Table 47 summarizes the Traffic Indices (TI) used in the LCCA. Table 48 summarizes the life-cycle cost analysis final recommendation that was approved by Caltrans District 7 Materials Division.

Table 47: Traffic Index

Location	Lane	20-Year Design Life	40-Year Design Life
SR-91 Mainline	Outside Lane	16.0	17.5
	Median Lane	13.5	15.0
I-605 Mainline	Outside Lane	15.5	16.5
	Median Lane	13.0	14.0
Ramps/Connectors	--	13.0	14.0

Table 48: Summary of Life-Cycle Cost Analysis Recommendation

Location	Recommended 40-year Pavement Thickness	Pavement Section
WB SR-91 Mainline Outside lanes (new construction)	JPCP (40 Year)	1.15' JPCP / BB / 0.35' LCB / 0.70' CL-3 AB
NB I-605 Mainline Outside lanes (new construction)	JPCP (40 Year)	1.10' JPCP / BB / 0.35' LCB / 0.70' CL-3 AB
Freeway Ramps and Interchange Connectors	JPCP (40 Year)	0.95' JPCP / BB / 0.35' LCB / 0.70' CL-3 AB
Local Roads	HMA	0.55' HMA-A / 0.55’ LCB / 1.05’ CL-3 AB

The existing pavement type on the westbound SR-91 mainline is Jointed Plain Concrete Pavement (JPCP). For constructability reasons and maintenance reasons, the additional widening of the freeway pavement is proposed to be JPCP. Continuously Reinforced Concrete Pavement (CRCP) showed similar life cycle costs than JPCP, but JPCP was selected by Caltrans Materials division as the approved pavement type based upon constructability, consistency with existing pavement, and maintenance reasons.

8. FUNDING, PROGRAMMING AND ESTIMATE

Funding

Funding for the proposed project is from County of Los Angeles Measure R sales tax funds, which are administrated by Metro. However, LA Metro may pursue other sources of state and federal funds for future phases of the project.

Under Measure R, $590 million has been set aside for the I-605 “Hot Spots” Program. The project cost is estimated at $121 Million and will be listed as an Early Action priority. Metro has been awarded $32 million in 2018 Trade Corridor Enhancement Program (TCEP) funds by the California Transportation Commission (CTC) for design and R/W Capital.

Programming

Proposal Programming Data

The proposed project is listed in Amendment #3 to the 2016 Regional Transportation Plan (RTP)/Sustainable Communities Strategy (SCS) with Project ID 1163S012. The 2016 RTP was approved by the Regional Council of the Southern California Association of Governments (SCAG) on April 7, 2016, and Amendment #3 was adopted in December 2018. The proposed project is programmed in the 2019 Federal Transportation Improvement Program (FTIP) with Project ID LA0G1119. The 2019 FTIP was approved by the SCAG on September 6, 2018.

Combined Projects

LA Metro and Caltrans are working on adding an auxiliary lane to Southbound I-605 between SR-91 and the South Street exit in the City of Cerritos. However, the I-605/South Street project is not related to the purpose and need of this project, nor do the project

limits touch or overlap. It would likely not be beneficial or cost effective to combine the two projects for the purposes of design or construction.

Multiple Counties

The proposed project improvements are located within the County of Los Angeles.

Table 49: Capital Outlay Support and Project Estimates

Funding Source	Fiscal Year Estimate						
N/A	Prior	2018/19	2019/20	2020/21	2021/22	Future	Total
Component	In thousands of dollars ($1,000)						
PA&ED Support	$6,500	$1,500					$8,000
PS&E Support			$3,000	$6,000	$3,000		$12,000
Right-of-Way Support			$300	$400	$100		$800
Construction Support					$100	$8,900	$9,000
Right-of-Way			$2,000	$10,000	$4,100		$16,100
Construction					$105,300		$105,300
Total	$6,500	$1,500	$5,300	$16,400	$112,600	$8,900	$151,200

Support Cost Ratio

The above capital outlay support and project estimates are based upon the selected alternative. The fiscal year estimates for capital outlay support are shown in Table 49. The support cost ratio is 20%.

Estimate

The total escalated capital outlay cost of Preferred Alternative (Alternative 2 with Design Option 1 and 3) with non-standard lane and shoulder widths is estimated to be $121,400,000. The primary capital costs of the proposed project are attributable to roadway costs. The estimated cost for roadway improvements is $85,300,000, the estimated cost for structures is $20,000,000, and the estimated cost for right-of-way is $16,100,000. A detailed cost estimate has been provided in Attachment B.

9. DELIVERY SCHEDULE

Table 50 lists the major project milestones for the proposed project.

Table 50: Project Milestones

Project Milestones		Milestone Date (Month/Day/Year)	Milestone Designation (Target/Actual)
PROGRAM PROJECT	M015	3/15/2016	Actual
BEGIN ENVIRONMENTAL	M020	6/20/2016	Actual
NOTICE OF PREPARATION (NOP)	M30	9/15/2016	Actual
NOTICE OF INTENT (NOI)	M35	9/23/2016	Actual
CIRCULATE DPR IS/EA EXTERNALLY	M120	7/2018	Actual
PA&ED COMPLETION	M200	1/2019	Target
DRAFT STRUCTURES PS&E	M378	11/2020	Target
PROJECT PS&E	M380	2/2022	Target
RIGHT-OF-WAY CERTIFICATION	M410	11/2021	Target
READY TO LIST	M460	3/2022	Target
ADVERTISE	M480	5/2022	Target
AWARD	M495	8/2022	Target
APPROVE CONTRACT	M500	11/2022	Target
CONTRACT ACCEPTANCE	M600	5/2025	Target
END PROJECT	M800	5/2027	Target

10. RISKS

Caltrans Project Delivery Directive PD-09 requires that risk management be applied to all capital outlay projects and major maintenance projects delivered by Caltrans. Per the risk management protocol, a level 3 risk level has been applied to the proposed project based upon the anticipated project cost. A risk register has been prepared and is included in Attachment M.

11. FHWA COORDINATION

The project is located along westbound State Route 91, with minor improvements on I-605 northbound near the Alondra Boulevard exit, which will not preclude or interfere with any future planned improvements on I-605. Therefore, this project does not require review and approval by the Federal Highway Administration (FHWA).

12. PROJECT REVIEWS

District Design Liaison *Zebunnesa Tareque* Date 5/15/18
Traffic Operations Area Engineer *Sarah Horn* Date 5/15/18

13. PROJECT PERSONNEL

LA Metro

Carlos Montez (213) 418-3241
Project Manager

Ayda Safaei (213) 922 2473
Public Outreach

Caltrans District 7

Tin Dinh, Project Manager (213) 897 0112

Richard Chiang (213) 897 3768
Design Oversight

Jinous Saleh (213) 897 0683
Environmental Oversight Senior

Samer Momani (213) 897 2777
Environmental Oversight

Consultant Team

Steve Huff, P.E. (949) 855-3624
Project Manager – Michael Baker International

Eric Spangler P.E. (949) 855-3657
Deputy Project Manager – Michael Baker International

DaCheng Lee, P.E. (949) 855-5793
Project Engineer – Michael Baker International

Mohamed Ghonim (949) 855-7021
Design Engineer – Michael Baker International

King Thomas (949) 553-0666
Environmental Project Manager – LSA Associates, Inc.

14. ATTACHMENTS:

Attachment A	Project Location Map [1]
Attachment B	Project Cost Estimate [21]
Attachment C	Right-of-Way Data Sheet [22]
Attachment D	Transportation Management Plan Data Sheet [3]
Attachment E	Storm Water Data Report (Cover Sheet) [1]

Attachment F	Final Environmental Document (Submitted under a separate cover)
Attachment G	Geometric Drawings – Alternative 2 [48]
Attachment H	Geometric Drawings – Alternative 2 – Design Options 1 & 3 [41]
Attachment I	Geometric Drawings – Alternative 2 – Design Option 2 [5]
Attachment J	Geometric Drawings – Alternative 2 – Design Option 4 [9]
Attachment K	Advance Planning Studies (APS) [11]
Attachment L	Existing Utility Plans [18]
Attachment M	Risk Register [4]
Attachment N	Design Standards Decision Document – Alternative 2 – Design Options 1 & 3 (Submitted under a separate cover)

Attachment A

Project Location Map

Westbound State Route 91 Widening

Project Location

Attachment B

Project Cost Estimate

7-LA-91-PM 16.9/19.8
7-LA-605-PM 5.0/5.8

Project Cost Estimate

Alternative 2

PRELIMINARY
PROJECT COST ESTIMATE

PA/ED Cost Estimate - Alternative 2

Project ID:

Type of Estimate : Preliminary Cost Estimate (PA/ED)
Program Code : EA No. 07-29811
Project Limits : Shoemaker Avenue to Interstate 605 (I-605) and Northbound I-605 to Alondra Boulevard
Alternative : Alternative 2

		Current Cost		Escalated Cost (2022)
ROADWAY ITEMS	$	79,904,600	$	88,221,135
STRUCTURE ITEMS	$	21,751,000	$	24,014,862
SUBTOTAL CONSTRUCTION COST	$	101,655,600	$	112,235,996
RIGHT OF WAY	$	24,494,286	$	28,355,198
TOTAL CAPITAL OUTLAY COST	$	126,150,000	$	140,592,000
PR/ED SUPPORT	$	-	$	-
PS&E SUPPORT	$	-	$	-
RIGHT OF WAY SUPPORT	$	-	$	-
CONSTRUCTION SUPPORT	$	-	$	-
TOTAL CAPITAL OUTLAY SUPPORT COST*	$	-	$	-
TOTAL PROJECT COST	$	127,000,000	$	141,000,000

If Project has been programmed enter Programmed Amount $ -

	Month / Year
Date of Estimate (Month/Year)	6 / 2018
Estimated Date of Construction Start (Month/Year)	7 / 2021
Number of Working Days	495 Working Days
	Month / Year
Estimated Mid-Point of Construction (Month/Year)	10 2022
Number of Plant Establishment Days	3 Years

Estimated Project Schedule

PID Approval	
PA/ED Approval	12/2018
PS&E	1/2021
RTL	4/2021
Begin Construction	7/2021

Approved by Project Manager

Project Manager **Date** **Phone**

	Section		Cost
1	Earthwork	$	3,148,000
2	Pavement Structural Section	$	18,066,000
3	Drainage	$	3,457,800
4	Specialty Items	$	9,865,800
5	Environmental	$	5,209,900
6	Traffic Items	$	10,582,300
7	Detours	$	662,400
8	Minor Items	$	-
9	Roadway Mobilization	$	5,099,300
10	Supplemental Work	$	2,724,600
11	State Furnished	$	2,671,000
12	Contingencies	$	13,317,500
13	Overhead	$	5,100,000
	TOTAL ROADWAY ITEMS	**$**	**79,904,600**

Estimate Prepared By	Tyler Lim - Assistant Engineer Name and Title		6/18/2018 Date	714-581-4913 Phone
Estimate Reviewed By	Joseph Carbajal - Project Engineer Name and Title		6/18/2018 Date	714-953-2625 Phone

By signing this estimate you are attesting that you have discussed your project with all functional units and have incorporated all their comments or have discussed with them why they will not be incorporated.

Item code		Unit	Quantity		Unit Price ($)			Cost
160101	Clearing & Grubbing	LS	1	x	80,760.00	=	$	80,760
170101	Develop Water Supply	LS	1	x	15,000.00	=	$	15,000
190101	Roadway Excavation	CY	35,700	x	30.00	=	$	1,071,000
190107	Roadway Excavation (TYPE Y-1) (AERIALLY DEPOS	CY	500	x	135.00	=	$	67,500
192037	Structure Excavation (Retaining Wall)	CY	13,700	x	39.00	=	$	534,300
193013	Structure Backfill (Retaining Wall)	CY	12,700	x	60.00	=	$	762,000
198001	Imported Borrow	CY	88,200	x	7.00	=	$	617,400

TOTAL EARTHWORK SECTION ITEMS	**$ 3,148,000**

SECTION 2: PAVEMENT STRUCTURAL SECTION

Item code		Unit	Quantity		Unit Price ($)			Cost
260201	Class 2 Aggregate Base	CY	4,300	x	56.00	=	$	240,800
260303	Class 3 Aggregate Base	CY	23,700	x	57.00	=	$	1,350,900
280000	Lean Concrete Base	CY	11,900	x	200.00	=	$	2,380,000
360200	Base Bond Breaker	SQYD	101,300	x	3.00	=	$	303,900
390132	Hot Mix Asphalt (Type A)	TON	8,600	x	180.00	=	$	1,548,000
394071	Place Hot Mix Asphalt Dike	LF	9,900	x	3.00	=	$	29,700
397005	Tack Coat	TON	2	x	1,636.00	=	$	3,272
401050	Jointed Plain Concrete Pavement	CY	35,100	x	330.00	=	$	11,583,000
731502	Minor Concrete (Misc. Const)	CY	800	x	783.00	=	$	626,400

TOTAL STRUCTURAL SECTION ITEMS	**$ 18,066,000**

Item code		Unit	Quantity		Unit Price ($)			Cost
155003	Cap Inlet	EA	1	x	1,723.00	=	$	1,723
510090	Structrual Concrete, Box Culvert	CY	1,200	x	156.00	=	$	187,200
510092	Structural Concrete, Headwall	CY	100	x	2,168.00	=	$	216,800
510502	Minor Concrete (Minor Structure)	CY	400	x	1,835.00	=	$	734,000
650014	18" RCP Pipe	LF	100	x	240.00	=	$	24,000
650018	24" RCP Pipe	LF	7,800	x	120.00	=	$	936,000
650046A	63" RCP Pipe	LF	500	x	386.00	=	$	193,000
650046	66" RCP Pipe	LF	900	x	377.00	=	$	339,300
705206	24" Flared End Section	EA	19	x	1,590.00	=	$	30,210
710104	Abandon Reinforced Concrete Box	EA	1	x	22,075.00	=	$	22,075
710110	Abandon Inlet	EA	27	x	1,250.00	=	$	33,750
710114	Abandon Pipeline	EA	24	x	890.00	=	$	21,360
710126	Remove Overside Drain	EA	3	x	1,450.00	=	$	4,350
710136	Remove Pipe	LF	100	x	51.00	=	$	5,100
710138	Remove Downdrain	EA	3	x	1,700.00	=	$	5,100
710150	Remove Inlet	EA	17	x	1,010.00	=	$	17,170
710152	Remove Headwall	EA	11	x	1,640.00	=	$	18,040
750001	Miscellaneous Iron and Steel	LB	334,300	x	2.00	=	$	668,600

TOTAL DRAINAGE ITEMS $ 3,457,800

SECTION 4: SPECIALTY ITEMS

Item code		Unit	Quantity		Unit Price ($)			Cost
150662	Remove Metal Beam Guard Railing	LF	2,200	x	15.00	=	$	33,000
153250	Remove Sound Wall	SQFT	71,600	x	5.00	=	$	358,000
490603	CIDH Concrete Piling *(24")*	LF	25,500	x	100.00	=	$	2,550,000
510060	Structural Concrete (Retaining Wall)	CY	4,700	x	500.00	=	$	2,350,000
510524	Minor Concrete (Sound Wall)	CY	300	x	1,040.00	=	$	312,000
518002	Sound Wall (Masonry Block)	SQFT	88,900	x	15.00	=	$	1,333,500
520103	Bar Reinf. Steel (Retaining Wall)	LB	1,052,800	x	2.00	=	$	2,105,600
800360	Chain Link Fence (Type CL-6)	LF	4,700	x	22.00	=	$	103,400
832005	Midwest Guardrail System	LF	3,100	x	31.00	=	$	96,100
839543	Transition Railing *(Type WB-31)*	EA	7	x	3,590.00	=	$	25,130
839585	Alternative Flared Terminal System	EA	16	x	2,866.00	=	$	45,856
839709	Concrete Barrier (Type 60GE)	LF	550	x	273.00	=	$	150,150
839725	Concrete Barrier *(Type 736)*	LF	3,100	x	130.00	=	$	403,000

TOTAL SPECIALTY ITEMS $ 9,865,800

5A - ENVIRONMENTAL MITIGATION

Item code		Unit	Quantity		Unit Price ($)			Cost
071325	Temporary Reinforced Silt Fence	LF	30,000	x	4.00	=	$	120,000

Subtotal Environmental $ *120,000*

5B - LANDSCAPE AND IRRIGATION

Item code		Unit	Quantity		Unit Price ($)			Cost
200002	Roadside Clearing	LS	1	x	60,000.00	=	$	60,000
202037	Organic Fertilizer	LB	27,200	x	3.00	=	$	81,600
204006	Plant (Group F)	EA	980,000	x	0.12	=	$	117,600
204011	Plant (Group K)	EA	90		750.00	=	$	67,500
204035	Plant (Group A)	EA	1,800		10.00	=	$	18,000
204038	Plant (Group U)	EA	150		200.00	=	$	30,000
204096	Maintain Existing Planting Areas	LS	1	x	36,000.00	=	$	36,000
205033	Gravel Mulch	SQFT	45,000	x	3.00	=	$	135,000
205035	Wood Mulch	CY	14,400	x	43.00	=	$	619,200
208597	1 1/4" Plastic Pipe (Schedule 40) (Supply Line)	LF	22,200	x	3.50	=	$	77,700
204099	Plant Establishment Work	LS	1	x	120,000.00	=	$	120,000
208000	Irrigation System	LS	1	x	50,000.00	=	$	50,000
208739	Corrugated High Density Polyethylene Pipe Con	LF	1,000	x	85.00	=	$	85,000
209801	Maintenance Vehicle Pullout	EA	3	x	11,555.00	=	$	34,665

Subtotal Landscape and Irrigation $ *1,532,265*

5C - NPDES

Item code		Unit	Quantity		Unit Price ($)			Cost
074019	Prepare SWPPP	LS	1	x	1,269,256.00	=	$	1,269,256
074043A	Bioswale	LS	1	x	1,343,807.00	=	$	1,343,807
074044A	DPPIA (Swale)	LS	1	x	68,185.00	=	$	68,185
074045A	DPPIA (Strip)	LS	1	x	416,297.00	=	$	416,297
074046A	Infiltration Device (Basin)	LS	1	x	310,000.00	=	$	310,000
074047A	Gross Solids Removal Devices (GSRD)	LS	1	x	150,000.00	=	$	150,000

Supplemental Work for NPDES

(These costs are not accounted in total here but under Supplemental Work on sheet 7 of 11).

066595	Water Pollution Control Maintenance Sharing*	LS		x		=	$	-
066596	Additional Water Pollution Control**	LS		x		=	$	-
066597	Storm Water Sampling and Analysis***	LS		x		=	$	-

Subtotal NPDES (Without Supplemental Work) $ *3,557,545*

*Applies to all SWPPPs and those WPCPs with sediment control or soil stabilization BMPs.

**Applies to both SWPPPs and WPCP projects.

*** Applies only to project with SWPPPs.

TOTAL ENVIRONMENTAL $ 5,209,900

SECTION 6: TRAFFIC ITEMS

6A - Traffic Electrical

Item code		Unit	Quantity		Unit Price ($)			Cost
150760	Remove Sign Structure	EA	17	x	7,273.00	=	$	123,641
498052	60" CIDHC Pile (Sign Foundation)	LF	500	x	1,236.00	=	$	618,000
560218	Furnish Sign Structure (Truss)	LB	529,200	x	5.20	=	$	2,751,840
560219	Install Sign Structure (Truss)	LB	529,200	x	0.36	=	$	190,512
860090	Maintain Existing Traffic Management	LS	1	x	60,000.00	=	$	60,000
860460	Lighting & Sign Illumination	LS	1	x	660,000.00	=	$	660,000
860201	Signals & Lighting	LS	1	x	1,600,000.00	=	$	1,600,000
861100	Ramp Metering System	LS	1	x	800,000.00	=	$	800,000
869039A	Modify Communication System	LS	1	x	1,800,000.00	=	$	1,800,000

Subtotal Traffic Electrical *$ 8,603,993*

6B - Traffic Signing and Striping

Item code		Unit	Quantity		Unit Price ($)			Cost
150710	Remove Traffic Stripe	LF	94,000	x	1.00	=	$	94,000
150713	Remove Pavement Marking	SQFT	3,400	x	3.50	=	$	11,900
150742	Remove Roadside Sign	EA	180	x	156.00	=	$	28,080
566011	Roadside Sign (One Post)	EA	160	x	445.00	=	$	71,200
566012	Roadside Sign (Two Post)	EA	20	x	1,500.00	=	$	30,000
560233	Furnish Sign Panels	SQFT	7,200	x	19.00	=	$	136,800
84XXXX	Permanent Pavement Delineation	LS	1	x	180,000.00	=	$	180,000

Subtotal Traffic Signing and Striping *$ 551,980*

6C - Stage Construction and Traffic Handling

Item code		Unit	Quantity		Unit Price ($)			Cost
120100	Traffic Control System	LS	1	x	70,566.67	=	$	70,567
120120	Type III Barricade	EA	20	x	117.00	=	$	2,340
120159	Temporary Traffic Stripe (Paint)	LF	179,600	x	0.25	=	$	44,900
120165	Channelizer (Surface Mounted)	EA	50	x	117.00	=	$	5,850
128650	Portable Changeable Message Signs	EA	30	x	15,000.00	=	$	450,000
129000	Temporary Railing (Type K)	LF	27,900	x	14.00	=	$	390,600
129110	Temporary Crash Cushion	EA	250	x	261.00	=	$	65,250
120090	Construction Area Signs	LS	1	x	396,800.00	=	$	396,800

Subtotal Stage Construction and Traffic Handling *$ 1,426,307*

TOTAL TRAFFIC ITEMS **$ 10,582,300**

SECTION 7: DETOURS

Include constructing, maintaining, and removal

Item code		Unit	Quantity		Unit Price ($)			Cost
390132	Hot Mix Asphalt (Type A)	TON	6,900	x	96.00	=	$	662,400

TOTAL DETOURS	**$**	**662,400**
SUBTOTAL SECTIONS 1-7	$	50,992,200

SECTION 8: MINOR ITEMS

8A - Americans with Disabilities Act Items								
	ADA Items				0.0%		$	-
8B - Bike Path Items								
	Bike Path Items				0.0%		$	-
8C - Other Minor Items								
	Other Minor Items				0.0%		$	-
	Total of Section 1-7	$	50,992,200	x	0.0%	=	$	-

TOTAL MINOR ITEMS	**$**	**-**

SECTIONS 9: MOBILIZATION

Item code								
999990	Total Section 1-8	$	50,992,200	x	10%	=	$	5,099,220

TOTAL MOBILIZATION	**$**	**5,099,300**

SECTION 10: SUPPLEMENTAL WORK

Item code		Unit	Quantity		Unit Price ($)			Cost
066015	Federal Trainee Program	LS	1	x	36,000.00	=	$	36,000
066090	Maintain Traffic	LS	1	x	7,056.67	=	$	7,057
066670	Payment Adjustments For Price Index Fluctuatio	LS	1	x	39,429.12	=	$	39,429
066700	Partnering	LS	1	x	70,000.00	=	$	70,000
066920	Dispute Review Board	LS	1	x	22,500.00	=	$	22,500
	*Cost of **NPDES** Supplemental Work specified in Section 5C*					=	$	-
	Total Section 1-8	$	50,992,200		5%	=	$	2,549,610

TOTAL SUPPLEMENTAL WORK	**$**	**2,724,600**

SECTION 11: STATE FURNISHED MATERIALS AND EXPENSES

Item code		Unit	Quantity		Unit Price ($)		Cost
066063	Public Information	LS	1	x	1,635,000.00	=	$1,635,000
066105	RE Office	LS	1	x	262,000.00	=	$262,000
066062A	COZEEP Expenses	LS	1	x	680,000.00	=	$680,000
066843A	Ramp Meter Controller Assembly	LS	1	x	24,000.00	=	$24,000
066844A	TMS Controller Assembly	LS	1	x	40,000.00	=	$40,000
066845A	Traffic Signal Controller Assembly	LS	1	x	30,000.00	=	$30,000

Total Section 1-8	$	50,992,200	0%	=	$	-

TOTAL STATE FURNISHED	**$2,671,000**

SECTION 12: TIME-RELATED OVERHEAD

Estiamted Time-Releated Overhead (TRO) Percentage (0% to 10%) = 10%

Item code		Unit	Quantity		Unit Price ($)		Cost
070018	Time-Related Overhead	WD	495	X	$10,303.03	=	$5,100,000

TOTAL TIME-RELATED OVERHEAD	**$5,100,000**

SECTION 13: CONTINGENCY

(Pre-PSR 30%-50%, PSR 25%, Draft PR 20%, PR 15%, after PR approval 10%, Final PS&E 5%)

Total Section 1-11	$	66,587,100	x	20%	=	$13,317,420

TOTAL CONTINGENCY	**$13,317,500**

II. STRUCTURE ITEMS (1 of 2)

	SR-91W/I-605N&S Conn	Studebaker Rd UC	Gridley Rd OC
DATE OF ESTIMATE	11/07/17	11/07/17	11/07/17
Bridge Name	Studebaker Rd UC Ramp	Studebaker Rd UC	Gridley Road OC
Bridge Number	53-1707F	53-1706	53-1324
Structure Type			
Width (Feet) [out to out]	28.17 LF	30.75 88221135	53.46 LF
Total Bridge Length (Feet)	153.17 LF	142.58 LF	233.42 LF
Total Area (Square Feet)	4314.00 SQFT	4385.00 SQFT	12478.00 SQFT
Structure Depth (Feet)	6.50 LF	6.25 LF	5.25 LF
Footing Type (pile or spread)			
Cost Per Square Foot	$238.00	$245.00	$292.00
COST OF EACH STRUCTURE	**$1,050,000.00**	**$1,213,000.00**	**$3,790,000.00**

	Pioneer Blvd UC	Pioneer Blvd WB On-Ramp UC	Norwalk Blvd UC
DATE OF ESTIMATE	11/01/17	11/01/17	
Bridge Name	Pioneer Blvd UC	Pioneer WB On-Ramp UC	Norwalk Blvd UC
Bridge Number	53-1335	53-XXXX	53-1334
Structure Type			
Width (Feet) [out to out]	11.26 Min & Var LF	51.84 Min & Var LF	9.75 Min & Var LF
Total Bridge Length (Feet)	143.08 LF	145.00 LF	133.08 LF
Total Area (Square Feet)	2260.00 SQFT	8167.00 SQFT	1889.00 SQFT
Structure Depth (Feet)	6.00 LF	6.25 LF	6.00 LF
Footing Type (pile or spread)			
Cost Per Square Foot	$305.00	$392.00	$342.00
COST OF EACH STRUCTURE	**$694,000.00**	**$3,199,000.00**	**$651,000.00**

SUB-TOTAL COST OF BRIDGES	**$10,597,000.00**

II. STRUCTURE ITEMS (2 OF 2)

	Norwalk Blvd WB On-Ramp UC		Bloomfield Ave OC		
DATE OF ESTIMATE	11/01/17		11/01/17		
Bridge Name	Norwalk Blvd WB On-Ramp UC		Bloomfield Ave OC		
Bridge Number	53-XXXX		53-1433		
Structure Type					
Width (Feet) [out to out]	47.66 Min & Var	LF	81.13	LF	LF
Total Bridge Length (Feet)	135.00	LF	240.33	LF	LF
Total Area (Square Feet)	7067.00	SQFT	19503.0	SQFT	SQFT
Structure Depth (Feet)	6.00	LF	5.88	LF	LF
Footing Type (pile or spread)					
Cost Per Square Foot	$381.00		$424.00		
COST OF EACH STRUCTURE	**$2,687,000.00**		**$8,467,000.00**		

DATE OF ESTIMATE					
Bridge Name					
Bridge Number					
Structure Type					
Width (Feet) [out to out]	LF		LF		LF
Total Bridge Length (Feet)	LF		LF		LF
Total Area (Square Feet)	SQFT		SQFT		SQFT
Structure Depth (Feet)	LF		LF		LF
Footing Type (pile or spread)					
Cost Per Square Foot					
COST OF EACH STRUCTURE					

SUB-TOTAL COST OF BRIDGES	**$11,154,000.00**
SUB-TOTAL COST OF BRIDGES (SHEET 1)	**$10,597,000.00**
TOTAL COST OF STRUCTURES[1]	**$21,751,000.00**

Estimate Prepared By: Joseph Carbajal — Project Engineer — 6/18/2018 — Date

[1]Structure's Estimate includes Overhead and Mobilization.
Add more sheets if needed. Call them 9a, 9b, 9c, …, etc

III. RIGHT OF WAY

Fill in all of the available information from the Right of Way data sheet.

A)	A1)	Acquisition, including Excess Land Purchases, Damages & Goodwill,	$	18,812,583
	A2)	SB-1210	$	0
B)		Acquisition of Offsite Mitigation	$	0
C)	C1)	Utility Relocation (State Share)	$	0
	C2)	Potholing (Design Phase)	$	0
D)		Railroad Acquisition	$	0
E)	E1)	Clearance / Demolition	$	933,600
	E2)	Hazardous Waste Mitigation	$	
F)		Relocation Assistance (RAP and/or Last Resort Housing Costs)	$	2,895,000
G)		Title and Escrow	$	0
H)		Environmental Review	$	0
I)		Condemnation Settlements 0% (Items G & H applied to items A + B)	$	418,715
J)		Design Appreciation Factor 0%	$	0
K)		Utility Relocation (Construction Cost)	$	1,434,389

L) **TOTAL RIGHT OF WAY ESTIMATE $24,494,286**

(Excluding Item #8 - Hazardous Waste)

M) **TOTAL R/W ESTIMATE: Escalated $28,355,198**

N) **Right of Way Support $ 0**

Support Cost Estimate Prepared By	Not Applicable Project Coordinator[1]	Not Applicable Phone
Utility Estimate Prepared By	Joseph Carbajal Utiliy Coordinator[2]	714-953-2625 Phone
R/W Acquistion Estimate Prepared By	Maile Kop Right of Way Estimator[3]	562-304-2000 Phone

[1] When estimate has Support Costs only [2] When estimate has Utility Relocation [3] When R/W Acquisition is required

7-LA-91-PM 16.9/19.8
7-LA-605-PM 5.0/5.8

Project Cost Estimate
Alternative 2 – Design Options 1 & 3
(Reduced Lane/Shoulder Width & WB Ramps/168th St Alignment)

PA/ED Cost Estimate - Alternative 2 - Design Option 1 & 3

Project ID:

Type of Estimate : Preliminary Cost Estimate (PA/ED)

Program Code : EA No. 07-29811

Project Limits : Shoemaker Avenue to Interstate 605 (I-605) and Northbound I-605 to Alondra Boulevard

Alternative : Alternative 2 - Design Option 1 & 3

		Current Cost		Escalated Cost (2022)
ROADWAY ITEMS	$	77,260,000	$	85,300,000
STRUCTURE ITEMS	$	18,070,000	$	19,950,000
SUBTOTAL CONSTRUCTION COST	$	95,330,000	$	105,250,000
RIGHT OF WAY	$	14,010,000	$	16,120,000
TOTAL CAPITAL OUTLAY COST	$	109,340,000	$	121,370,000
PR/ED SUPPORT	$	-	$	-
PS&E SUPPORT	$	-	$	-
RIGHT OF WAY SUPPORT	$	-	$	-
CONSTRUCTION SUPPORT	$	-	$	-
TOTAL CAPITAL OUTLAY SUPPORT COST*	$	-	$	-
TOTAL PROJECT COST	$	110,000,000	$	122,000,000

If Project has been programmed enter Programmed Amount $ -

	Month / Year
Date of Estimate (Month/Year)	11 / 2018
Estimated Date of Construction Start (Month/Year)	7 / 2021
Number of Working Days	650 Working Days
Estimated Mid-Point of Construction (Month/Year)	10 / 2022
Number of Plant Establishment Days	3 Years

Estimated Project Schedule

PID Approval	
PA/ED Approval	12/2018
PS&E Complete	1/2021
RTL	4/2021
Begin Construction	7/2021

Approved by Project Manager

Project Manager	Date	Phone
	1/11/2019	(949) 855-3657

I. ROADWAY ITEMS SUMMARY

	Section		Cost
1	Earthwork	$	5,155,000
2	Pavement Structural Section	$	19,069,300
3	Drainage	$	4,290,200
4	Specialty Items	$	4,558,100
5	Environmental	$	6,454,100
6	Traffic Items	$	12,669,300
7	Detours	$	662,900
8	Minor Items	$	528,600
9	Roadway Mobilization	$	5,338,750
10	Supplemental Work	$	3,377,800
11	State Furnished	$	2,803,000
12	Contingencies	$	10,077,400
13	Overhead	$	2,275,000
	TOTAL ROADWAY ITEMS	**$**	**77,259,450**

Estimate Prepared By	Tyler Lim - Assistant Engineer	6/18/2018	714-581-4913
	Name and Title	Date	Phone
Estimate Reviewed By	Joseph Carbajal - Project Engineer	6/18/2018	714-953-2625
	Name and Title	Date	Phone

By signing this estimate you are attesting that you have discussed your project with all functional units and have incorporated all their comments or have discussed with them why they will not be incorporated.

SECTION 1: EARTHWORK

Item code		Unit	Quantity		Unit Price ($)			Cost
160101	Clearing & Grubbing	LS	1	x	150,000.00	=	$	150,000
170101	Develop Water Supply	LS	1	x	15,000.00	=	$	15,000
190101	Roadway Excavation	CY	35,800	x	30.00	=	$	1,074,000
190107	Roadway Excavation (TYPE Y-1) (AERIALLY DEPOSITED LEAD)	CY	11,800	x	135.00	=	$	1,593,000
192037	Structure Excavation (Retaining Wall)	CY	4,700	x	39.00	=	$	183,000
193013	Structure Backfill (Retaining Wall)	CY	6,800	x	60.00	=	$	408,000
198010	Imported Borrow	CY	86,600	x	20.00	=	$	1,732,000

TOTAL EARTHWORK SECTION ITEMS $ 5,155,000

SECTION 2: PAVEMENT STRUCTURAL SECTION

Item code		Unit	Quantity		Unit Price ($)			Cost
260201	Class 2 Aggregate Base	CY	4,400	x	56.00	=	$	246,000
260303	Class 3 Aggregate Base	CY	23,300	x	57.00	=	$	1,328,100
280000	Lean Concrete Base	CY	8,200	x	200.00	=	$	1,640,000
280015	Lean Concrete Base (Rapid Setting)	CY	3,500	x	400.00	=	$	1,400,000
360200	Base Bond Breaker	SQYD	94,800	x	3.00	=	$	284,400
390132	Hot Mix Asphalt (Type A)	TON	8,800	x	140.00	=	$	1,232,000
394071	Place Hot Mix Asphalt Dike	LF	9,900	x	3.00	=	$	29,700
397005	Tack Coat	TON	2	x	1,640.00	=	$	3,100
401050	Jointed Plain Concrete Pavement	CY	23,800	x	330.00	=	$	7,854,000
401055	Jointed Plain Concrete Pavement (Rapid Setting)	CY	10,200	x	450.00	=	$	4,590,000
731502	Minor Concrete (Misc. Const)	CY	590	x	783.00	=	$	462,000

TOTAL STRUCTURAL SECTION ITEMS $ 19,069,300

SECTION 3: DRAINAGE

Item code		Unit	Quantity		Unit Price ($)			Cost
155003	Cap Inlet	EA	1	x	1,723.00	=	$	1,700
510090	Structrual Concrete, Box Culvert	CY	1,200	x	156.00	=	$	187,000
510092	Structural Concrete, Headwall	CY	40	x	2,168.00	=	$	86,700
510502	Minor Concrete (Minor Structure)	CY	320	x	1,835.00	=	$	587,000
650014	18" RCP	LF	60	x	240.00	=	$	14,400
650018	24" RCP	LF	7,800	x	260.00	=	$	2,028,000
650046A	63" RCP	LF	500	x	386.00	=	$	193,000
650046	66" RCP	LF	1,000	x	377.00	=	$	377,000
705206	24" Flared End Section	EA	20	x	1,590.00	=	$	31,800
710104	Abandon Reinforced Concrete Box	EA	1	x	22,075.00	=	$	22,100
710110	Abandon Inlet	EA	30	x	1,250.00	=	$	37,500
710102	Abandon Culvert	EA	30	x	890.00	=	$	26,700
710126	Remove Overside Drain	EA	3	x	1,450.00	=	$	4,400
710136	Remove Pipe	LF	100	x	51.00	=	$	5,100
710138	Remove Downdrain	EA	3	x	1,700.00	=	$	5,100
710150	Remove Inlet	EA	20	x	1,010.00	=	$	20,200
710152	Remove Headwall	EA	11	x	1,640.00	=	$	18,040
750001	Miscellaneous Iron and Steel	LB	322,200	x	2.00	=	$	644,400

TOTAL DRAINAGE ITEMS $ 4,290,200

SECTION 4: SPECIALTY ITEMS

Item code		Unit	Quantity		Unit Price ($)			Cost
150662	Remove Metal Beam Guard Railing	LF	2,200	x	14.92	=	$	33,000
153250	Remove Sound Wall	SQFT	41,100	x	4.20	=	$	173,000
490603	CIDH Concrete Piling *(24")*	LF	4,800	x	100.00	=	$	480,000
510060	Structural Concrete (Retaining Wall)	CY	3,200	x	500.00	=	$	1,600,000
510524	Minor Concrete (Sound Wall)	CY	40	x	1,400.00	=	$	56,000
518002	Sound Wall (Masonry Block)	SQFT	62,200	x	20.00	=	$	1,244,000
520103	Bar Reinf. Steel (Retaining Wall)	LB	6,500	x	1.10	=	$	7,200
800360	Chain Link Fence (Type CL-6)	LF	4,700	x	22.00	=	$	103,400
832005	Midwest Guardrail System	LF	3,100	x	31.00	=	$	96,100
839543	Transition Railing *(Type WB-31)*	EA	10	x	3,600.00	=	$	36,000
839585	Alternative Flared Terminal System	EA	20	x	2,870.00	=	$	57,400
839709	Concrete Barrier (Type 60GE)	LF	510	x	273.00	=	$	139,000
839725	Concrete Barrier *(Type 736)*	LF	4,100	x	130.00	=	$	533,000

TOTAL SPECIALTY ITEMS $ 4,558,100

SECTION 5: ENVIRONMENTAL

5A - ENVIRONMENTAL MITIGATION

Item code		Unit	Raw Quantity	Quantity		Unit Price ($)			Cost
071325	Temporary Reinforced Silt Fence	LF	30,000	30,000	x	4.00	=	$	120,000

Subtotal Environmental *$ 120,000*

5B - LANDSCAPE AND IRRIGATION

Item code		Unit	Raw Quantity	Quantity		Unit Price ($)			Cost
200002	Roadside Clearing	LS	1	1	x	60,000.00	=	$	60,000
202037	Organic Fertilizer	LB	27,120	27,200	x	3.00	=	$	81,600
204006	Plant (Group F)	EA	1,960,000	1,960,000	x	0.12	=	$	235,000
204011	Plant (Group K)	EA	180	180		750.00	=	$	135,000
204035	Plant (Group A)	EA	3,600	3,600		10.00	=	$	36,000
204038	Plant (Group U)	EA	300	300	x	200.00	=	$	60,000
204096	Maintain Existing Planting Areas	LS	1	1	x	36,000.00	=	$	36,000
205033	Gravel Mulch	SQFT	45,000	45,000	x	3.00	=	$	135,000
205035	Wood Mulch	CY	14,400	14,400	x	43.00	=	$	619,000
208597	1 1/4" Plastic Pipe (Schedule 40) (Supply Line)	LF	22,200	22,200	x	3.50	=	$	77,700
204099	Plant Establishment Work	LS	1	1	x	120,000.00	=	$	120,000
208000	Irrigation System	LS	1	1	x	1,050,000.00		$	1,050,000
208739	Corrugated High Density Polyethylene Pipe Condu	LF	1,000	1,000	x	85.00	=	$	85,000
209801	Maintenance Vehicle Pullout	EA	3	4	x	11,555.00	=	$	46,200

Subtotal Landscape and Irrigation *$ 2,776,500*

5C - NPDES

Item code		Unit	Raw Quantity	Quantity		Unit Price ($)			Cost
074019	Prepare SWPPP	LS	1	1	x	15,000.00	=	$	15,000
XXXXXX	Temporary Construction Site BMPs	LS	1	1	x	1,254,256.00	=	$	1,254,256
074043A	Bioswale	LS	1	1	x	1,343,807.00	=	$	1,343,807
074044A	DPPIA (Swale)	LS	1	1	x	68,185.00	=	$	68,185
074045A	DPPIA (Strip)	LS	1	1	x	416,297.00	=	$	416,297
074046A	Infiltration Device (Basin)	LS	1	1	x	310,000.00	=	$	310,000
074047A	Gross Solids Removal Devices (GSRD)	LS	1	1	x	150,000.00	=	$	150,000

Supplemental Work for NPDES

(These costs are not accounted in total here but under Supplemental Work on sheet 7 of 11).								$	-
066595	Water Pollution Control Maintenance Sharing*	LS	1	1	x	50,000.00	=	$	50,000
066596	Additional Water Pollution Control**	LS	1	1	x	100,000.00	=	$	100,000
066597	Storm Water Sampling and Analysis***	LS	1	1	x	3,500.00	=	$	3,500

Subtotal NPDES (Without Supplemental Work) *$ 3,557,545*

*Applies to all SWPPPs and those WPCPs with sediment control or soil stabilization BMPs.

**Applies to both SWPPPs and WPCP projects.

*** Applies only to project with SWPPPs.

TOTAL ENVIRONMENTAL $ 6,454,100

SECTION 6: TRAFFIC ITEMS

6A - Traffic Electrical

Item code		Unit	Raw Quantity	Quantity		Unit Price ($)			Cost
150760	Remove Sign Structure	EA	17	17	x	7,273.00	=	$	124,000
498052	60" CIDHC Pile (Sign Foundation)	LF	499	500	x	1,236.00	=	$	618,000
560218	Furnish Sign Structure (Truss)	LB	529,140	529,200	x	5.20	=	$	2,752,000
560219	Install Sign Structure (Truss)	LB	529,140	529,200	x	0.36	=	$	191,000
860090	Maintain Existing Traffic Management	LS	1	1	x	60,000.00	=	$	60,000
860460	Lighting & Sign Illumination	LS	1	1	x	660,000.00	=	$	660,000
860201	Signals & Lighting	LS	1	1	x	1,600,000.00	=	$	1,600,000
872000	Temporary Signals & Lighting System	LS	1	1	x	500,000.00	=	$	500,000
861100	Ramp Metering System	LS	1	1	x	800,000.00	=	$	800,000
869039A	Modify Communication System	LS	1	1	x	1,800,000.00	=	$	1,800,000
872130	Temporary Communication System	LS	1	1	x	200,000.00	=	$	200,000

Subtotal Traffic Electrical *$ 9,105,000*

6B - Traffic Signing and Striping

Item code		Unit	Raw Quantity	Quantity		Unit Price ($)			Cost
150710	Remove Traffic Stripe	LF	93,987	94,000	x	1.00	=	$	94,000
150713	Remove Pavement Marking	SQFT	3,333	3,400	x	3.50	=	$	11,900
150742	Remove Roadside Sign	EA	171	180	x	156.00	=	$	28,100
566011	Roadside Sign (One Post)	EA	156	160	x	445.00	=	$	71,200
566012	Roadside Sign (Two Post)	EA	14	20	x	1,500.00	=	$	30,000
560233	Furnish Sign Panels	SQFT	7,104	7,200	x	19.00	=	$	136,800
84XXXX	Permanent Pavement Delineation	LS	1	1	x	180,000.00	=	$	180,000

Subtotal Traffic Signing and Striping *$ 552,000*

6C - Stage Construction and Traffic Handling

Item code		Unit	Raw Quantity	Quantity		Unit Price ($)			Cost
120100	Traffic Control System	LS	1	1	x	1,200,000.00	=	$	1,200,000
120120	Type III Barricade	EA	19	20	x	117.00	=	$	2,300
120159	Temporary Traffic Stripe (Paint)	LF	250,000	250,000	x	0.30	=	$	75,000
120165	Channelizer (Surface Mounted)	EA	43	50	x	117.00	=	$	5,900
128650	Portable Changeable Message Signs	EA	100	100	x	4,500.00	=	$	450,000
129000	Temporary Railing (Type K)	LF	42,920	43,000	x	19.00	=	$	817,000
129110	Temporary Crash Cushion	EA	245	250	x	261.00	=	$	65,300
120090	Construction Area Signs	LS	1	1	x	396,800.00	=	$	396,800

Subtotal Stage Construction and Traffic Handling *$ 3,012,300*

TOTAL TRAFFIC ITEMS **$ 12,669,300**

SECTION 7: DETOURS

Include constructing, maintaining, and removal

Item code		Unit	Raw Quantity	Quantity		Unit Price ($)		Cost
390132	Hot Mix Asphalt (Type A)	TON	6,863	6,900	x	96.07	= $	662,883
190101	Roadway Excavation	CY	3,410	3,500	x	30.00	= $	105,000

TOTAL DETOURS **$ 662,900**

SUBTOTAL SECTIONS 1-7 $ 52,858,900

SECTION 8: MINOR ITEMS

8A - Americans with Disabilities Act Items								
	ADA Items					0.0%	$	-
8B - Bike Path Items								
	Bike Path Items					0.0%	$	-
8C - Other Minor Items								
	Other Minor Items					0.0%	$	-
	Total of Section 1-7	$	52,858,900	52,858,900	x	1.0%	= $	528,589

TOTAL MINOR ITEMS **$ 528,600**

SECTIONS 9: MOBILIZATION

Item code								
999990	Total Section 1-8	$	53,387,500	53,387,500	x	10%	= $	5,338,750

TOTAL MOBILIZATION **$ 5,338,750**

SECTION 10: SUPPLEMENTAL WORK

Item code		Unit	Raw Quantity	Quantity		Unit Price ($)		Cost
066015	Federal Trainee Program	LS	1	1	x	36,000.00	= $	36,000
066090	Maintain Traffic	LS	1	1	x	240,000.00	= $	240,000
066670	Payment Adjustments For Price Index Fluctuatic	LS	1	1	x	40,254.16	= $	40,254
066700	Partnering	LS	1	1	x	70,000.00	= $	70,000
066920	Dispute Review Board	LS	1	1	x	22,500.00	= $	22,500
066062A	COZEEP Expenses	LS	1	1	x	680,000.00	= $	680,000
	*Cost of **NPDES** Supplemental Work specified in Section 5C*						= $	153,500
	Total Section 1-8	$	53,387,500	53,387,500		4%	= $	2,135,500

TOTAL SUPPLEMENTAL WORK **$ 3,377,800**

SECTION 11: STATE FURNISHED MATERIALS AND EXPENSES

Item code		Unit	Quantity		Unit Price ($)		Cost
066063	Public Information	LS	1	x	1,635,000.00	=	$1,635,000
066105	RE Office	LS	1	x	324,000.00	=	$324,000
066843A	Ramp Meter Controller Assembly	LS	1	x	24,000.00	=	$24,000
066844A	TMS Controller Assembly	LS	1	x	40,000.00	=	$40,000
066845A	Traffic Signal Controller Assembly	LS	1	x	30,000.00	=	$30,000
	Freeway Service Patrol	LS	1	x	750,000.00	=	$750,000
	Total Section 1-8	$			0%	$	-

TOTAL STATE FURNISHED $2,803,000

SECTION 12: TIME-RELATED OVERHEAD

Estimated Time-Releated Overhead (TRO) Percentage (0% to 10%) = 10%

Item code		Unit	Quantity		Unit Price ($)		Cost
070018	Time-Related Overhead	WD	650	X	$ 3,500.00	=	$2,275,000

TOTAL TIME-RELATED OVERHEAD $2,275,000

SECTION 13: CONTINGENCY

(Pre-PSR 30%-50%, PSR 25%, Draft PR 20%, PR 15%, after PR approval 10%, Final PS&E 5%)

Total Section 1-11	$	67,182,050	x	15%	=	$10,077,308

TOTAL CONTINGENCY $10,077,400

II. STRUCTURE ITEMS

	SR-91W/I-605N&S Conn	Studebaker Rd UC	Gridley Rd OC
DATE OF ESTIMATE	11/10/18	02/06/18	11/07/17
Bridge Name	Studebaker Rd UC Ramp	Studebaker Rd UC	Gridley Road OC
Bridge Number	53-1707F	53-1706	53-1324
Structure Type			
Width (Feet) [out to out]	28.60 LF	30.75 LF	53.46 LF
Total Bridge Length (Feet)	153.30 LF	143.12 LF	233.42 LF
Total Area (Square Feet)	4,400.00 SQFT	4,407.00 SQFT	12,478.00 SQFT
Structure Depth (Feet)	6.50 LF	6.20 LF	5.25 LF
Footing Type (pile or spread)			
Cost Per Square Foot	$285.00	$270.00	$292.00
COST OF EACH STRUCTURE	**$1,254,000.00**	**$1,190,000.00**	**$3,790,000.00**

	Pioneer Blvd WB On-Ramp UC	Norwalk Blvd WB On-Ramp UC	Bloomfield Ave OC
DATE OF ESTIMATE	11/01/17	11/01/17	11/01/17
Bridge Name	Pioneer WB On-Ramp UC	Norwalk Blvd WB On-Ramp UC	Bloomfield Ave OC
Bridge Number	53-1335	53-XXXX	53-1433
Structure Type			
Width (Feet) [out to out]	LF	LF	81.13 LF
Total Bridge Length (Feet)	LF	LF	240.33 LF
Total Area (Square Feet)	2,228.00 SQFT	7,067.00 SQFT	19,503.00 SQFT
Structure Depth (Feet)	LF		5.88 LF
Footing Type (pile or spread)			
Cost Per Square Foot	$305.00	$381.00	$424.00
COST OF EACH STRUCTURE	**$680,000.00**	**$2,693,000.00**	**$8,467,000.00**

TOTAL COST OF BRIDGES	**$18,074,000.00**
TOTAL COST OF BUILDINGS	**$0.00**
TOTAL COST OF STRUCTURES[1]	**$18,074,000.00**

Estimate Prepared By Joseph Carbajal — Project Engineer

6/18/2018 — Date

[1]Structure's Estimate includes Overhead and Mobilization.
Add more sheets if needed. Call them 9a, 9b, 9c, …, etc

III. RIGHT OF WAY

Fill in all of the available information from the Right of Way data sheet.

A)	A1)	Acquisition, including Excess Land Purchases, Damages & Goodwill, Fees	$	11,631,289
	A2)	SB-1210	$	0
B)		Acquisition of Offsite Mitigation	$	0
C)	C1)	Utility Relocation (State Share)	$	0
	C2)	Potholing (Design Phase)	$	40,000
D)		Railroad Acquisition	$	0
E)	E1)	Clearance / Demolition	$	96,000
	E2)	Hazardous Waste Mitigation	$	50,000
F)		Relocation Assistance (RAP and/or Last Resort Housing Costs)	$	774,000
G)		Title and Escrow	$	0
H)		Environmental Review	$	0
I)		Condemnation Settlements 0% (Items G & H applied to items A + B)	$	250,026
J)		Design Appreciation Factor 0%		0
K)		Utility Relocation (Construction Cost)	$	1,210,975

L) **TOTAL RIGHT OF WAY ESTIMATE $14,012,290**

M) **TOTAL R/W ESTIMATE: Escalated $16,117,533**

N) **Right of Way Support $**

Support Cost Estimate Prepared By	Not Applicable	Not Applicable
	Project Coordinator[1]	Phone
Utility Estimate Prepared By	Joseph Carbajal	714-953-2625
	Utiliy Coordinator[2]	Phone
R/W Acquistion Estimate Prepared By	Maile Kop	562-304-2000
	Right of Way Estimator[3]	Phone

[1] When estimate has Support Costs on [2] When estimate has Utility Relocation [3] When R/W Acquisition is required

Attachment C

Right-of-Way Data Sheet

7-LA-91-PM 16.9/19.8
7-LA-605-PM 5.0/5.8

Right-of-Way Data Sheet

Alternative 2

To: District Division Chief
Division of Right of Way and Land Surveys

Date: 6/25/18

Co. LA Rte. 91/605

Attn: District Branch Chief
R/W Local Programs

Expense Authorization 07-29811

Subject: **RIGHT OF WAY DATA SHEET – LOCAL PUBLIC AGENCIES**

Project Description: **I-605/SR-91 Interchange Project**
Post Mile SR-91 PM 16.9-19.8 / I-605 PM 5.0-5.8
Alternative 2

Right of way necessary for the subject project will be the responsibility of Los Angeles County Metropolitan Transportation Authority.

The information in this data sheet was developed by **Overland, Pacific & Cutler, Inc. in collaboration with Michael Baker International, Inc.**

I. Right of Way Engineering

Will Right of Way Engineering be required for this project?

- No ☐
- Yes ☒ (If yes, submit a copy of the *Right of Way Engineering Surveys and Mapping Services checklist for Locally Funded Projects.* This checklist includes, but is not limited to, the following items.)

  - Hard copy (base map) ☒
  - Appraisal map ☒
  - Acquisition documents ☒
  - Property Transfer Documents ☒
  - R/W Record Map ☒
  - Record of Survey ☒

II. *Engineering Surveys*

1. Is any surveying or photogrammetric mapping required?
   No ☐ Yes ☒ if yes, complete the following:

   Photogrammetric mapping was completed during the PA&ED phase based on control established by Caltrans. In addition, the photogrammetric mapping has been through the ABC Caltrans process and milestones A, B and C is complete. Photogrammetric mapping and engineering surveying will be once again initiated during the PS&E phase.

2. Datum Requirements

   Yes ☒ Project will adhere to the following criteria:

- Horizontal - datum policy is NAD 83, CA-HPGN, EPOCH 1991.35 and English system of units and measures.
- Vertical - datum policy is NAVD 88.
- Units – metric is not required.

3. Will land survey monument perpetuation be scoped into the project, if required?

   Yes ☒
   No ☐ Provide explanation on additional page.

III. ***Parcel Information (Land and Improvements)***

Are there any property rights required within the proposed project limits?

No ☐ Yes ☒ (Complete the following.)

	Part Take	Full Take	Estimate $
A. Number of Vacant Land Parcels	0	0	$0
B. Number of Single Family Residential Units	6	18	$10,593,044
C. Number of Multifamily Residential Units	2	0	$354,827
D. Number of Commercial/Industrial Parcels	0	2	$5,416,852
E. Number of Farm/Agricultural Parcels	0	0	$0
F. Permanent and/or Temporary Easements	19	0	$1,218,593
G. Other Parcels (define in "Remarks" section)	2	0	$775,625
H. Temporary Damages (no acquisition)**			$0
Totals*	**29**	**20**	**$18,358,940**

*** Costs include 20% contingency & escalated for 3 years at 5% per year.**
**** Costs for parcels without acquisition that are temporarily damaged due to the temporary loss of use of their garages.**

Provide a general description of the right of way and excess lands required (zoning, use, improvements, critical, or sensitive parcels, etc.).

For this project, right of way required for acquisition includes approximately 89,290 square feet of Temporary Construction Easement (TCE), 640 square feet of Permanent Easement and 109,388 square feet of Fee Acquisition. The impacted properties generally consist of Commercial, Industrial, Residential, School, Park, and city owned property types, impacting approximately 49 parcels.

APN 7014-004-032 (16905 Pioneer Blvd / Denny's Restaurant and Quality Inn & Suites) - The proposed driveway modification impacts the entire driveway during construction. Assumed driveway can be constructed in two phases (ie. half at a time) and maintain access during construction. Assumed potential damages to the business due to temporary loss of use of a portion of the driveway during construction. Assumed monument sign is protected in place.

APN 7014-004-005 (16809 Pioneer Blvd / Arco Gas Station) - Environmental remediation is not included within this estimate due to the very preliminary design layout and unknown hazardous waste / improvements to remediate. There is high potential for severe impacts to both project right of way delivery schedules and cost estimates.
APN 7011-021-066 (12027 170th St) – drainage in front of parcel. Assumed drainage will be protected in place or reconfigured to avoid drainage issues.

APN 7012-001-901 (12222 Cuesta Dr / Tracy High School and ABC Adult School) - Due to the proposed road improvements along Norwalk Boulevard, the partial acquisition eliminates approximately 26 parking stalls and the TCE impacts the entire parking area along Norwalk Boulevard which appears is mainly utilized by Tracy High School. Assumed project to pay for restriping/reconfiguration of the parking area to recoup all of the lost parking stalls and provide sufficient fire access/traffic circulation, this work to take place prior to project start date to avoid parking/fire access issues and return the lost stalls prior to school session. Assumed the proposed parking reconfiguration to take place during summer, weekends or evening when parking is in less demand, returning the use of parking quickly to minimize damage. Careful planning with regards to construction and the school session schedule should be considered to avoid increased costs, delays in the schedule and potential negative public perception. Further analysis required.

IV. ***Dedications***

Are there any property rights which have been acquired, or anticipate will be acquired, through the "dedication" process for the Project?

No ☒ Yes ☐ (Complete the following.)

Number of dedicated parcels 0

Have the dedication parcel(s) been accepted by the municipality involved?

There are no dedications anticipated by surrounding developers / property owners.

V. ***Excess Lands/Relinquishments***

Are there Caltrans property rights which may become excess lands or potential relinquishment areas?

No ☐ Yes ☒ (Provide an explanation on additional page.)

There may be potential relinquishments resulting from the closure of the westbound onramps near Pioneer Boulevard and Norwalk Boulevard.

VI. ***Relocation Information***

Are relocation displacements anticipated?

No ☐ Yes ☒ (Complete the Following.)

A. Number of Single Family Residential Units Estimated RAP Payments	18	$3,104,750
B. Number of Multifamily Residential Units Estimated RAP Payments	0	$0
C. Number of Business/Nonprofit	3	$246,574

Estimated RAP Payments		
D. Number of Farms		
Estimated RAP Payments	0	$0
E. Other (define in the "Remarks" section)		
Estimated RAP Payments	0	$0
Total*	**21**	$3,351,324

*** Costs include 20% contingency & escalated for 3 years at 5% per year.**

VII. *Utility Relocation Information*

Do you anticipate any utility facilities or utility rights of way to be affected?

No ☐ Yes ☒ (Complete the following.)

	Facility	Owner	Estimated Relocation Expense: State Obligation*	Local Obligation	Utility Owner Obligation
A	Power pole	SCE		$50,000	
B	Power pole	SCE		$50,000	
C	Underground Telecommunications	GenTel		$32,000	
D	Power pole	SCE		$50,000	
E	2" Underground Gas	SCG		$26,220	
F	2" Underground Water	County Water Company		$24,660	
G	Overhead Electrical for Street Lighting	SCE		$10,000	
H	12kV Overhead Electrical & Power pole	SCE		$106,400	
I	Underground Telecom	Time Warner		$9,200	
J	Underground Electrical for Street Lighting	SCE		$20,000	
K	12kV Underground Electrical	SCE		$130,000	
L	Underground Telecom	Wilshire Connection LLC		$142,600	
M	Underground Telecom	Frontier		$142,600	
N	Underground Telecom	Time Warner		$142,600	
O	Fire Hydrant	City of Cerritos		$30,000	
P	8" Underground Gas	SoCal Gas		$35,000	
Q	3" Underground Gas	Texas Oil		$30,000	
R	10" Underground Gas	POW		$33,000	
S	Power Pole	SCE		$50,000	
T	Overhead Electrical for Street Lighting	SCE		$3,230	
U	Power Pole for Telecommunications	Time Warner		$50,000	
V	Power Pole for Telecommunications	Time Warner		$10,000	
W	Overhead Telecommunications	Time Warner		$3,800	
X	2" Underground Gas	SCG		$4,750	

	Total (including contingency)			$1,482,575	
	TOTALS**			**$1,660,484**	
	Number of Facilities			24	

*This amount reflects the estimated total financial obligation by the State.

**** Utility costs include 25% contingency & an escalation rate of 12%.**

Any additional information concerning utility involvement on this project?

Refer to the utility information sheet for additional information.

VIII. ***Rail Information***

Are railroad facilities or railroad rights of way affected?

No ☒ Yes ☐ (Complete the following.)

Describe the railroad facilities to be affected.

Owner's Name	Transverse Crossing	Longitudinal Encroachment
A.		
B.		
C.		
D.		

Discuss types of agreements and rights required from railroads. Are grade crossings that require services contracts, or grade separations that require construction and maintenance agreements involved?

IX. ***Clearance Information***

Are there improvements that require clearance?

No ☐ Yes ☒ (Complete the following.)

A. Number of structures to be Demolished 20
Estimated Cost of Demolition $1,080,759*

* Costs include 20% contingency & escalated for 3 years at 5% per year.

X. ***Hazardous Materials/Waste***

Are there any site(s) and/or improvements(s) in the Project Limits that are known to contain

hazardous materials? None ☒ Yes ☐ (Explain in the "Remarks" section.)

Are there any site(s) and or improvement(s) in the Project Limits that are suspected to contain

hazardous waste? None ☐ Yes ☒ (Explain in the "Remarks" section.)

XI. ***Project Scheduling***

	Proposed lead time		Completion Date
* Preliminary Engineering Surveys	31	months	1/2019
* R/W Engineering Submittals	24	months	7/2019
* R/W Appraisals/Acquisition	12	months	1/2021
Proposed Environmental Clearance			1/2019
Proposed R/W Certification			4/2021

XII. ***Proposed Funding***

	Local		State		Federal		Other
Acquisition	$18,358,940						
Utilities	$1,660,484**						
Relocation Assistance Program	$3,351,324						
Loss of Business Goodwill	$1,444,716						
Structures Testing + Demolition	$1,080,759						
Condemnation	$484,715						
R/W Support Cost	$1,974,260*						
TOTAL	$28,355,198						
COMBINED TOTAL	**$28,355,198**						

The proposed funding allocation above is conceptual based upon preliminary discussions with the project team. Acquisition and R/W support cost include 20% contingency & escalated for 3 years at 5% per year (except the utility costs).

* The R/W Support Costs will change based on who will perform these services and the costs for these services.

** Utility costs include 25% contingency & an escalation rate of 12%.

XIII. ***Remarks***

Refer to Section III - Parcel Information (Land and Improvements) for sensitive parcels and additional information. The "other" parcels listed refers to a City owned park and a High School/Adult School.

Regarding Section X - Hazardous Materials/Waste, refer to the attached Phase I ISA report for additional information.

Nine potential hazardous materials sites within the Project Corridor, that are located in areas of proposed construction, were identified during the regulatory database search and site reconnaissance. A Phase 2 Site Investigation including soil sampling should be conducted during the PS&E (design) phase of the project development.

Based on the time period of construction of SR-91 and I-605, the Project Corridor has been present for several decades and subsequent soil sampling has confirmed that exposed soil in the immediate vicinity project is contaminated with ADL. Testing of ADL contamination should be conducted along the project limits as part of the Phase 2 Site Investigation during the PS&E phase of the project development, once the highway geometrics and construction limits are known definitively.

Thermoplastic paints on the freeways are likely to contain lead. Various residential and commercial buildings were constructed along the Project Corridor prior to the discontinued use of LBP. Should any structures be disturbed as part of the proposed project, sampling for LBP is recommended.

Based on the historical use of many areas within or in the vicinity of the Project Corridor as agricultural land, soils within the project limits may be impacted by pesticides. While limited soil excavation is planned, where un-paved areas will experience soil disturbance, investigation of the soil for pesticides is recommended.

There is a potential APN 7014-004-005 (16809 Pioneer Blvd / Arco Gas Station) may have hazardous waste / improvements to remediate. Further analysis required.

Project Sponsor Consultant
Prepared by:

Daniela Borbe
Project Manager
Overland, Pacific & Cutler, Inc.

6/27/18
Date

Project Sponsor
Reviewed and Approved by:

6/28/18
Date

EA/Project ID: 07-29811/0716000284

The Right-of-Way Data Sheet was completed by the City and/or its consultants. I have reviewed the right-of-way information contained therein and find the data to be complete as to form and procedures only and consistent with the project as scoped and approved in the project environmental documents. No inferences or assertions are made as to the validity of the data or values implied by the right of way data sheets.

Caltrans District Branch Chief
Local Programs
Division of Right of Way

7/9/2018
Date

STATE OF CALIFORNIA • DEPARTMENT OFTRANSPORTATION

R/W UTILITY ESTIMATE WORKSHEET AND R/W DATA SHEET INSTRUCTIONS

(Form #)

EXHIBIT
13-EX-6 (REV 1/2014)

Date	3/16/2018
Post Mile	SR-91: 16.9-19.8 I-605: 5.0-5.8
Project ID No.	0716000284
EA	07-29811

Description of Project:

The Los Angeles County Metropolitan Transportation Authority (Metro) and the California Department of Transportation (Caltrans) propose to improve the Westbound State Route 91 (SR-91). The principal improvements consist of adding one additional lane on the WB SR-91 between Shoemaker Ave and the I-605/SR-91 Interchange, one additional lane on the WB SR-91 to NB I-605 connectors, and modernizes the on and off ramps throughout the project limits.

Estimate for: ☐ Preliminary Route Estimate (Alternate No._____)
☒ R/W Data Sheet (Preferred Alternate)

Evidence of Utilities:

☒ Gas ☒ Electric ☒ Telephone ☒ Cable TV ☒ Water ☐ Public Drainage/Irrigation
☒ Sewer ☐ Fiber Optics ☒ Other (Explain in "Remarks")

Anticipated Utility Relocations:

☒ Gas ☒ Electric ☒ Telephone ☒ Cable TV ☒ Water ☐ Public Drainage/Irrigation
☒ Sewer ☐ Fiber Optics ☐ Other (Explain in "Remarks")

Estimated Cost of Utility Relocations:

0	L.F. of Gas Line	@$ 0	/L.F.	=	$ 0
2,000	L.F. of UG Electric Line	@$ 100	/L.F.	=	$ 200,000
4,120	L.F. of UG Telephone Line	@$ 115	/L.F.	=	$ 473,800
2	Wood Poles (Telephone)	@$ 30,000*	/Pole	=	$ 60,000
1	Wood Poles (Electric)	@$ 50,000	/Pole	=	$ 50,000
5	Joint Poles	@$ 50,000	/Pole	=	$ 250,000
0	Steel Poles	@$ 0	/Pole	=	$ 0
0	Steel Towers	@$ 0	/Tower	=	$ 0
0	L.F. of Water Line	@$ 0	/L.F.	=	$ 0
1	Fire Hydrants	@$ 30,000	/F.H.	=	$ 30,000
0	L.F. of Sewer Line	@$ 1,667	/L.F.	=	$ 0
0	L.F. of Fiber Optics Line	@$ 0	/L.F.	=	$ 0
6,435	L.F. of Removals	@$ 19	/L.F.	=	$ 122,260
	TOTAL ESTIMATE (State's Share) (25% Contingency)			=	$ 1,482,575

Remarks:

"L.F. of Removals" include the removal of existing sewer, water, telecommunications, telephone, electrical, and associated maintenance access structures. Total Estimate includes a 25% contingency.

Cost includes the utility impacts of the Pioneer WB Ramps/168th Alignment Option ($121,780).

The cost impacts to existing and proposed sewer lines are included in the Project Cost Estimate.

*The separate unit price for the 2 telephone wood poles is $50,000 & $10,000. The average price for both poles is $30,000.

INSTRUCTIONS FOR PREPARING THE UTILITIES PORTION OF THE
RIGHT OF WAY DATA SHEET

(Fill in all blank spaces and explain where necessary.)

Item 1. Right of Way Cost Estimate: (Capital)

B. Utility Relocation (State Share)

Current Value (Future Use)	Escalation Rate	Escalated Value
$1,482,575	12%	$1,660,484

2a. Enter the total estimated dollar amount which the State will need to pay the affected utility owners for relocation of their facilities. Estimates can be obtained from the owners or the Utility Coordinator's best guess. The estimate must be as accurate as possible, but should always be based on the most probable "worst case" and "highest cost" assumptions.

2b. Enter the escalation rate as a percentage. The escalation rate is the expected yearly average increase in utility relocation costs to the year of utility construction completion. Escalation rates can be obtained from construction and building cost indices, past trends in utility relocation projects, etc.

2c. Enter the total dollar amount using 2a. escalated to the year of utility construction completion by 2b., i.e.:

$100,000.00	(Current relocation costs--2a.)
x 1.05	(Escalation rate of 5%--2b.)
$105,000.00	(Escalated Value--2c.)

Item 3. Parcel Data: (Support)

Utilities

U4-1 24 = The total number of expected owner expense involvements.

-2 _____ = The total number of expected State expense involvements; conventional highway (no access control) and no Federal aid for the project.

-3 _____ = The total number of expected State expense involvements; freeway (access control) and no Federal aid for the project.

-4 _____ = The total number of expected State expense involvements; conventional highway or freeway and Federal aid for the project.

U5-7 _____ = The total number of expected utility verifications, which will not result in involvements.

-8 _____ = The total number of expected utility verifications, anticipating 50% of the verifications will have involvements and 50% will not.

-9 24 = The total number of expected utility verifications, which will result in involvements.

NOTE: The sum of the U4s must equal the sum of 1/2 of the U5-8s and all of the U5-9s.

Item 7. Are utility facilities or rights of way affected?
☒ Yes ☐ No (If "Yes," explain.)

Studebaker Rd
SCE has an overhead 66kv electrical line that runs along Studebaker Rd and crosses both the WB 91/NB 605 Connector and WB 91 mainline. Currently there is a power pole approximately 18.5ft away from the connector and another power pole approximately 15.5ft away from the mainline. Due to the widening of both the connector and mainline, we believe these poles and the associated power lines will be impacted. Our resolution is to relocate the two power poles so that necessary clearance requirements are met.

169th St
A joint OH SCE 12kV power and Time Warner Telecom run adjacent to the freeway. Field investigations and measurements have determined that the power pole overhang (Pole #44200073E) will encroach into Caltrans R/W. The pole will need to be relocated further into the private property eliminate the conflict with the overhang.

Pioneer Blvd
Pioneer Blvd contains several utilities within the roadway. Existing gas, sewer, and water facilities will be protected in place or access adjusted to grade as needed. SCE 12kV, Frontier, Time Warner, and Wilcon telecom facilities are within the roadway and are not anticipated to be moved. The Pioneer WB Ramps/168th Alignment Option impacts several homes on 168th St. The power, sewer, and gas services to the residential homes along 168th St will be removed or relocated. Further coordination with these utility owners will need to take place to determine if the utility lines need to be moved into the sidewalk for maintenance purposes or be left in place. **The cost impacts to existing and proposed sewer lines are included in the Project Cost Estimate.**

170th St
The widening of the freeway will encroach upon 170th St and will require the homes along 170th St to be fully taken. There is an overhead electrical line that appears to be serving the existing street light poles. There is also a water line, gas line, and sewer line along 170th St and a portion of Elaine St (up to 169th St) that will need to be removed. **The cost impacts to existing and proposed sewer lines are included in the Project Cost Estimate.**

Norwalk Blvd
There is an overhead electrical line that crosses over the mainline. There is an existing pole approximately 20ft away and may be in conflict with the widening of the SR-91. We are proposing to underground the line under the bridge to eliminate future pole conflicts and clearance issues that may occur. The existing power pole south of the freeway will need additional reinforcement and will also be relocated to provide adequate clearance from the bridge. An existing overhead telecom line runs along Norwalk Blvd that runs underground as it crosses the mainline and will need to be extended to the new power pole location. Near the intersection of Norwalk Blvd and Cuesta Dr, there is an underground electrical line that powers the street lights that will need to be rerouted to accommodate the new location of the street lighting. A 33" underground sewer line crosses SR-91 diagonally from Morning Rain Ave to the back of ABC adult school's parking lot adjacent to Judy Way. The manhole in the parking lot will be relocated outside of Caltrans R/W to eliminate any conflicts with the proposed improvements and will allow the City of Cerritos to maintain access to the line. The sewer line will need to be adjusted to connect to the new manhole location. **The cost impacts to existing and proposed sewer lines are included in the Project Cost Estimate.**

Bloomfield Ave
Currently, there are underground electricity and telecom lines that run through the Bloomfield Ave OC bridge. The proposed bridge will be a full bridge replacement from the existing bridge. This means that the existing electrical and telecom lines will need to be reestablished within the new bridge. A suspended bridge for temporary overhead lines will be constructed to allow service to be provided during the removal and construction of the Bloomfield Ave OC bridge. There is also a fire hydrant that will need to be relocated to remain operational for future use.

NOTE: The comments mentioned above must be reflected in the number of involvements in U4s and U5s in "Item 3., Parcel Data."

Item 14. Indicate the anticipated Right of Way schedule and lead time requirements. (Discuss if the District proposes less than formula lead time and/or if significant pressures for project advancement are anticipated.)

This section is used to discuss the total amount of months you need to complete your work (lead time). A minimum of 6 months is required for all projects where verifications are needed. If relocations are involved, it is best to request at least 9 months; for tower or other complex relocations, 18 months are needed. (Utility owners can tell you long lead time materials.)

NOTE: It is always a good idea to remind the project engineer that lead time starts for relocation of utilities when they supply adequate plans for requesting relocation plans from utility owners.

Item 15. Is it anticipated that all Right of Way work will be performed by CALTRANS staff?
☒ Yes ☐ No (If "No," discuss.)

*Evaluations prepared by:

Utilities: Name _____ Date 6/28/18
Joseph Carbajal, Project Engineer

*The Utility Coordinator must sign and date the R/W Data Sheet.

NOTE: Return the R/W Data Sheet to R/W P&M via the District Utility Coordinator for input into PMCS and forwarding to the project engineer.

7-LA-91-PM 16.9/19.8
7-LA-605-PM 5.0/5.8

Right-of-Way Data Sheet
Alternative 2 – Design Options 1 & 3
(Reduced Lane/Shoulder Width & WB Ramps/168th St Alignment)

To: District Division Chief
Division of Right of Way and Land Surveys

Date: 11/21/18

Co. LA Rte. 91/605

Attn: District Branch Chief
R/W Local Programs

Expense Authorization 07-29811

Subject: **RIGHT OF WAY DATA SHEET – LOCAL PUBLIC AGENCIES**

Project Description: **I-605/SR-91 Interchange Project – Non-Standard Option**
Post Mile SR-91 PM 16.9-19.8 / I-605 PM 5.0-5.8
Alternative 2 – Design Option 1 &3

Right of way necessary for the subject project will be the responsibility of Los Angeles County Metropolitan Transportation Authority.

The information in this data sheet was developed by **Overland, Pacific & Cutler, LLC in collaboration with Michael Baker International, Inc.**

I. Right of Way Engineering

Will Right of Way Engineering be required for this project?

- No ☐
- Yes ☒ (If yes, submit a copy of the *Right of Way Engineering Surveys and Mapping Services checklist for Locally Funded Projects.* This checklist includes, but is not limited to, the following items.)

  - Hard copy (base map) ☒
  - Appraisal map ☒
  - Acquisition documents ☒
  - Property Transfer Documents ☒
  - R/W Record Map ☒
  - Record of Survey ☒

II. *Engineering Surveys*

1. Is any surveying or photogrammetric mapping required?
   No ☐ Yes ☒ if yes, complete the following:

   Photogrammetric mapping was completed during the PA&ED phase based on control established by Caltrans. In addition, the photogrammetric mapping has been through the ABC Caltrans process. Milestones A, B and C are still currently under review. Photogrammetric mapping and engineering surveying will be once again initiated during the PS&E phase.

2. Datum Requirements

   Yes ☒ Project will adhere to the following criteria:
   - Horizontal - datum policy is NAD 83, CA HPGN, EPOCH 1991.35 and English system of units and measures.
   - Vertical - datum policy is NAVD 88.
   - Units – FeetUS.

3. Will land survey monument perpetuation be scoped into the project, if required?

   Yes ☒
   No ☐ Provide explanation on additional page.

III. ***Parcel Information (Land and Improvements)***

Are there any property rights required within the proposed project limits?

No ☐ Yes ☒ (Complete the following.)

	Part Take	Full Take	Estimate $
A. Number of Vacant Land Parcels	2	2	$1,290,000
B. Number of Single Family Residential Units	1	5	$2,917,000
C. Number of Multifamily Residential Units	1	0	$313,000
D. Number of Commercial/Industrial Parcels	1	0	$106,000
E. Number of Farm/Agricultural Parcels	0	0	$0
F. Permanent and/or Temporary Easements	9	0	$614,000
G. Other Parcels (define in "Remarks" section)	4	0	$587,000
Totals*	**18**	**7**	**$5,827,000**

*** Costs include 20% contingency & escalated for 3 years at 5% per year.**

Provide a general description of the right of way and excess lands required (zoning, use, improvements, critical, or sensitive parcels, etc.).

For this project, right of way required for acquisition includes approximately 26,000 square feet of Temporary Construction Easement (TCE), and approximately 50,000 square feet of Fee Acquisition. The impacted properties generally consist of Commercial, Residential, School, and city owned property types, impacting approximately 25 parcels.

APN 7011-005-902 (16712 1/2 Pioneer Blvd) - Driveway is within access control, assumed design exception is granted. Assumed access is maintained during construction and in the after condition. Parking may need to be re-striped/reconfigured to recoup some of the lost stalls. Assumed sufficient fire access during construction and in the after condition. Further analysis required.

7011-005-901, 7011-005-903 (11817 & 11825 168Th St) - Assumed shared driveway will be provided to access the parcel by the project or the city.

APN 7014-004-032 (16905 Pioneer Blvd / Denny's Restaurant and Quality Inn & Suites) - The proposed driveway modification impacts the entire driveway during construction. Assumed driveway can be constructed in two phases (i.e. half at a time) and access is maintained during construction. Assumed potential damages to the business due to temporary loss of use of a portion of the driveway during construction. Assumed monument sign is protected in place. Further analysis required.

APN 7012-001-901 (12222 Cuesta Dr. / Tracy High School and ABC Adult School) - Due to the proposed road improvements along Norwalk Boulevard, the partial acquisition eliminates approximately 26 parking stalls and the TCE impacts the entire row of parking stalls along Norwalk Boulevard. This parking lot is mainly utilized by Tracy High School. Assumed project to pay for restriping/reconfiguration of the parking area to recoup all of the lost parking stalls and provide sufficient fire access/traffic circulation, this work to take place prior to project start date to avoid parking/fire access issues and return the lost stalls prior to school session. Assumed the proposed parking reconfiguration to take place during summer, weekends or evening when parking is in less demand, returning the use of parking quickly to minimize damage. Careful planning with regards to construction and the school session schedule should be considered to avoid increased costs, delays in the schedule and potential negative public perception. Assumed monument sign at the corner of Norwalk Blvd. and Cuesta Dr. is protected in place. Further analysis required.

IV. ***Dedications***

Are there any property rights which have been acquired, or anticipate will be acquired, through the "dedication" process for the Project?

No ☒ Yes ☐ (Complete the following.)

Number of dedicated parcels 0

Have the dedication parcel(s) been accepted by the municipality involved?

There are no dedications anticipated by surrounding developers / property owners.

V. ***Excess Lands/Relinquishments***

Are there Caltrans property rights which may become excess lands or potential relinquishment areas?

No ☐ Yes ☒ (Provide an explanation on additional page.)

There may be potential relinquishments resulting from the closure of the westbound onramps near Pioneer Boulevard and Norwalk Boulevard.

VI. ***Relocation Information***

Are relocation displacements anticipated?

No ☐ Yes ☒ (Complete the Following.)

A. Number of Single Family Residential Units		
Estimated RAP Payments	5	$886,000
B. Number of Multifamily Residential Units		
Estimated RAP Payments	0	$0
C. Number of Business/Nonprofit		
Estimated RAP Payments	0	$11,000**
D. Number of Farms		
Estimated RAP Payments	0	$0
E. Other (define in the "Remarks" section)		
Estimated RAP Payments	0	$0
Total	**5***	$897,000

*** Costs include 20% contingency & escalated for 3 years at 5% per year.**
****The associated relocation cost is exclusively for the move of personal property located in the existing storage shed.**

VII. *Utility Relocation Information*

Do you anticipate any utility facilities or utility rights of way to be affected?

No ☐ Yes ☒ (Complete the following.)

	Facility	Owner	Estimated Relocation Expense: State Obligation	Local Obligation	Utility Owner Obligation
A	Power pole	SCE		$50,000	
B	Power pole	SCE		$50,000	
C	Underground Telecommunications	GenTel		$32,000	
D	Underground Telecom	Time Warner		$9,200	
E	Underground Electrical for Street Lighting	SCE		$20,000	
F	12kV Underground Electrical	SCE		$130,000	
G	Underground Telecom	Wilshire Connection LLC		$142,600	
H	Underground Telecom	Frontier		$142,600	
I	Underground Telecom	Time Warner		$142,600	
J	Fire Hydrant	City of Cerritos		$30,000	
K	8” Underground Gas	SoCal Gas		$35,000	
L	3” Underground Gas	Texas Oil		$30,000	
M	10” Underground Gas	POW		$33,000	
N	Power Pole	SCE		$50,000	
O	Underground Electrical for Street Lighting	SCE		$3,230	
P	Power Pole for Telecommunications	Time Warner		$50,000	
Q	Power Pole for Telecommunications	Time Warner		$10,000	
R	Overhead Telecommunications	Time Warner		$3,800	
S	2" Underground Gas	SCG		$4,750	
	Total			$968,780	
	Total (including contingency)			$1,210,975	
	Totals *			**$1,356,292**	
	Number of Facilities			19	

*This amount reflects the estimated total financial obligation by the State.
*** Utility costs include 25% contingency & an escalation rate of 12%.**

Any additional information concerning utility involvement on this project?

Refer to the utility information sheet for additional information.

VIII. *Rail Information*

Are railroad facilities or railroad rights of way affected?

No ☒ Yes ☐ (Complete the following.)

Describe the railroad facilities to be affected.

Owner's Name	Transverse Crossing	Longitudinal Encroachment
A.		
B.		
C.		
D.		

Discuss types of agreements and rights required from railroads. Are grade crossings that require services contracts, or grade separations that require construction and maintenance agreements involved?

IX. ***Clearance Information***

Are there improvements that require clearance?

No ☐ Yes ☒ (Complete the following.)

A. Number of structures to be Demolished 5
Estimated Cost of Demolition $112,000*

* Costs include 20% contingency & escalated for 3 years at 5% per year.

Demolition of structures within proposed right of way is not anticipated as part of this project.

X. ***Hazardous Materials/Waste***

Are there any site(s) and/or improvements(s) in the Project Limits that are known to contain

hazardous materials? None ☒ Yes ☐ (Explain in the "Remarks" section.)

Are there any site(s) and or improvement(s) in the Project Limits that are suspected to contain

hazardous waste? None ☐ Yes ☒ (Explain in the "Remarks" section.)

XI. ***Project Scheduling***

	Proposed lead time		Completion Date
* Preliminary Engineering Surveys	31	months	1/2019
* R/W Engineering Submittals	24	months	7/2019
* R/W Appraisals/Acquisition	12	months	1/2021
Proposed Environmental Clearance			1/2019
Proposed R/W Certification			4/2021

XII. ***Proposed Funding***

	Local		State		Federal		Other
Acquisition	$5,827,000						
Utilities	$1,356,292						
Relocation Assistance Program	$897,000						
Loss of Business Goodwill	$7,641,000						
Structures Testing + Demolition	$112,000						
Condemnation	$290,000						
R/W Support Cost	$837,000						
TOTAL	$16,960,292						
COMBINED TOTAL	**$16,960,292**						

The proposed funding allocation above is conceptual based upon preliminary discussions with the project team. Acquisition and R/W support cost include 20% contingency & escalated for 3 years at 5% per year (except the utility costs).
* The R/W Support Costs will change based on who will perform these services and the costs for these services.
** Utility costs include 25% contingency & an escalation rate of 12%.

XIII. ***Remarks***

Refer to Section III - Parcel Information (Land and Improvements) for sensitive parcels and additional information. The "other" parcels in the table in section III refers to the following:

- 7012-001-901 High School/Adult School
- 7014-003-027 Restaurant – This property is not directly impacted by any acquisition, however changes to the median in the street may cause loss of business at this property. Business goodwill has been estimated for this property.
- 7011-001-018 Gas Station – This property is not directly impacted by any acquisition, however changes to the median in the street may cause loss of business at this property. Business goodwill has been estimated for this property.
- 7011-001-004 Hardware Store - This property is not directly impacted by any acquisition, however changes to the median in the street may cause loss of business at this property. Business goodwill has been estimated for this property.

Regarding Section X - Hazardous Materials/Waste, refer to the attached Phase I ISA report for additional information.

Nine potential hazardous materials sites within the Project Corridor, that are located in areas of proposed construction, were identified during the regulatory database search and site reconnaissance. A Phase 2 Site Investigation including soil sampling should be conducted during the PS&E (design) phase of the project development.

Based on the time period of construction of SR-91 and I-605, the Project Corridor has been present for several decades and subsequent soil sampling has confirmed that exposed soil in the immediate vicinity project is contaminated with ADL. Testing of ADL contamination should be conducted along the project limits as part of the Phase 2 Site Investigation during the PS&E phase of the project development, once the highway geometrics and construction limits are known definitively.

Thermoplastic paints on the freeways are likely to contain lead. Various residential and commercial buildings were constructed along the Project Corridor prior to the discontinued use of LBP. Should any structures be disturbed as part of the proposed project, sampling for LBP is recommended.

Based on the historical use of many areas within or in the vicinity of the Project Corridor as agricultural land, soils within the project limits may be impacted by pesticides. While limited soil excavation is planned, where un-paved areas will experience soil disturbance, investigation of the soil for pesticides is recommended.

Project Sponsor Consultant
Prepared by:

Daniela Borbe
Project Manager
Overland, Pacific & Cutler, Inc.

11/21/18
Date

Project Sponsor
Reviewed and Approved by:

11/26/18
Date

EA/Project ID: 07-29811/0716000284

The Right-of-Way Data Sheet was completed by the City and/or its consultants. I have reviewed the right-of-way information contained therein and find the data to be complete as to form and procedures only and consistent with the project as scoped and approved in the project environmental documents. No inferences or assertions are made as to the validity of the data or values implied by the right of way data sheets.

Caltrans District Branch Chief
Local Programs
Division of Right of Ways
Senior R/W Agent

1/15/2019
Date

STATE OF CALIFORNIA • DEPARTMENT OFTRANSPORTATION

R/W UTILITY ESTIMATE WORKSHEET AND R/W DATA SHEET INSTRUCTIONS

(Form #)

EXHIBIT
13-EX-6 (REV 1/2014)

Date	3/16/2018
Post Mile	SR-91: 16.9-19.8 I-605: 5.0-5.8
Project ID No.	0716000284
EA	07-29811

Description of Project:

The Los Angeles County Metropolitan Transportation Authority (Metro) and the California Department of Transportation (Caltrans) propose to improve the Westbound State Route 91 (SR-91). The principal improvements consist of adding one additional lane on the WB SR-91 between Shoemaker Ave and the I-605/SR-91 Interchange, one additional lane on the WB SR-91 to NB I-605 connectors, and modernizes the on and off ramps throughout the project limits.

Estimate for: ☐ Preliminary Route Estimate (Alternate No._____)
☒ R/W Data Sheet (Preferred Alternate)

Evidence of Utilities:

☒ Gas ☒ Electric ☒ Telephone ☒ Cable TV ☒ Water ☐ Public Drainage/Irrigation
☒ Sewer ☐ Fiber Optics ☒ Other (Explain in "Remarks")

Anticipated Utility Relocations:

☒ Gas ☒ Electric ☒ Telephone ☒ Cable TV ☒ Water ☐ Public Drainage/Irrigation
☒ Sewer ☐ Fiber Optics ☐ Other (Explain in "Remarks")

Estimated Cost of Utility Relocations:

0	L.F. of Gas Line	@$ 0	/L.F.	=	$ 0
1,920	L.F. of UG Electric Line	@$ 100	/L.F.	=	$ 192,000
2,996	L.F. of UG Telephone Line	@$ 115	/L.F.	=	$ 344,535
1	Wood Poles (Telephone)	@$ 60,000	/Pole	=	$ 60,000
1	Wood Poles (Electric)	@$ 50,000	/Pole	=	$ 50,000
4	Joint Poles	@$ 50,000	/Pole	=	$ 200,000
0	Steel Poles	@$ 0	/Pole	=	$ 0
0	Steel Towers	@$ 0	/Tower	=	$ 0
0	L.F. of Water Line	@$ 0	/L.F.	=	$ 0
1	Fire Hydrants	@$ 30,000	/F.H.	=	$ 30,000
0	L.F. of Sewer Line	@$ 1,667	/L.F.	=	$ 0
0	L.F. of Fiber Optics Line	@$ 0	/L.F.	=	$ 0
4,855	L.F. of Removals	@$ 19	/L.F.	=	$ 92,245
	TOTAL ESTIMATE (State's Share) (25% Contingency)			=	$ 1,210,975

Remarks:

"L.F. of Removals" include the removal of existing water, telecommunications, telephone, electrical, and associated maintenance access structures. Total Estimate includes a 25% contingency.

Cost includes the utility impacts of the Pioneer WB Ramps/168th Alignment Option ($121,780).

The cost impacts to existing and proposed sewer lines are included in the Project Cost Estimate.

Utility impacts are for the Non-Standard Option.

INSTRUCTIONS FOR PREPARING THE UTILITIES PORTION OF THE
RIGHT OF WAY DATA SHEET

(Fill in all blank spaces and explain where necessary.)

Item 1. Right of Way Cost Estimate: (Capital)

B. Utility Relocation (State Share)

Current Value (Future Use)	Escalation Rate	Escalated Value
$1,210,975	12%	$1,356,292

2a. Enter the total estimated dollar amount which the State will need to pay the affected utility owners for relocation of their facilities. Estimates can be obtained from the owners or the Utility Coordinator's best guess. The estimate must be as accurate as possible, but should always be based on the most probable "worst case" and "highest cost" assumptions.

2b. Enter the escalation rate as a percentage. The escalation rate is the expected yearly average increase in utility relocation costs to the year of utility construction completion. Escalation rates can be obtained from construction and building cost indices, past trends in utility relocation projects, etc.

2c. Enter the total dollar amount using 2a. escalated to the year of utility construction completion by 2b., i.e.:

$100,000.00	(Current relocation costs--2a.)
x 1.05	(Escalation rate of 5%--2b.)
$105,000.00	(Escalated Value--2c.)

Item 3. Parcel Data: (Support)

Utilities

U4-1 19 = The total number of expected owner expense involvements.

-2 _____ = The total number of expected State expense involvements; conventional highway (no access control) and no Federal aid for the project.

-3 _____ = The total number of expected State expense involvements; freeway (access control) and no Federal aid for the project.

-4 _____ = The total number of expected State expense involvements; conventional highway or freeway and Federal aid for the project.

U5-7 _____ = The total number of expected utility verifications, which will not result in involvements.

-8 _____ = The total number of expected utility verifications, anticipating 50% of the verifications will have involvements and 50% will not.

-9 19 = The total number of expected utility verifications, which will result in involvements.

NOTE: The sum of the U4s must equal the sum of 1/2 of the U5-8s and all of the U5-9s.

Item 7. Are utility facilities or rights of way affected?
☒ Yes ☐ No (If "Yes," explain.)

Studebaker Rd
SCE has an overhead 66kv electrical line that runs along Studebaker Rd and crosses both the WB 91/NB 605 Connector and WB 91 mainline. Currently there is a power pole approximately 18.5ft away from the connector and another power pole approximately 15.5ft away from the mainline. Due to the widening of both the connector and mainline, we believe these poles and the associated power lines will be impacted. Our resolution is to relocate the two power poles so that necessary clearance requirements are met.

169th St
A joint OH SCE 12kV power and Time Warner Telecom run adjacent to the freeway. Field investigations and measurements have determined that the power pole overhang (Pole #44200073E) will encroach into Caltrans R/W. The pole will need to be relocated further into the private property eliminate the conflict with the overhang.

Pioneer Blvd
Pioneer Blvd contains several utilities within the roadway. Existing gas, sewer, and water facilities will be protected in place or access adjusted to grade as needed. SCE 12kV, Frontier, Time Warner, and Wilcon telecom facilities are within the roadway and are not anticipated to be moved. The Pioneer WB Ramps/168th Alignment Option impacts several homes on 168th St. The power, sewer, and gas services to the residential homes along 168th St will be removed or relocated. Further coordination with these utility owners will need to take place to determine if the utility lines need to be moved into the sidewalk for maintenance purposes or be left in place. **The cost impacts to existing and proposed sewer lines are included in the Project Cost Estimate.**

170th St
The widening of the freeway will encroach upon 170th St and will require the homes along 170th St to be fully taken. There is an overhead electrical line that appears to be serving the existing street light poles. There is also a water line, gas line, and sewer line along 170th St and a portion of Elaine St (up to 169th St) that will need to be removed. **The cost impacts to existing and proposed sewer lines are included in the Project Cost Estimate.**

Norwalk Blvd
There is an overhead electrical line that crosses over the mainline. There is an existing pole approximately 20ft away and may be in conflict with the widening of the SR-91. We are proposing to underground the line under the bridge to eliminate future pole conflicts and clearance issues that may occur. The existing power pole south of the freeway will need additional reinforcement and will also be relocated to provide adequate clearance from the bridge. An existing overhead telecom line runs along Norwalk Blvd that runs underground as it crosses the mainline and will need to be extended to the new power pole location. Near the intersection of Norwalk Blvd and Cuesta Dr, there is an underground electrical line that powers the street lights that will need to be rerouted to accommodate the new location of the street lighting. A 33" underground sewer line crosses SR-91 diagonally from Morning Rain Ave to the back of ABC adult school's parking lot adjacent to Judy Way. The manhole in the parking lot will be relocated outside of Caltrans R/W to eliminate any conflicts with the proposed improvements and will allow the City of Cerritos to maintain access to the line. The sewer line will need to be adjusted to connect to the new manhole location. **The cost impacts to existing and proposed sewer lines are included in the Project Cost Estimate.**

Bloomfield Ave
Currently, there are underground electricity and telecom lines that run through the Bloomfield Ave OC bridge. The proposed bridge will be a full bridge replacement from the existing bridge. This means that the existing electrical and telecom lines will need to be reestablished within the new bridge. A suspended bridge for temporary overhead lines will be constructed to allow service to be provided during the removal and construction of the Bloomfield Ave OC bridge. There is also a fire hydrant that will need to be relocated to remain operational for future use.

NOTE: The comments mentioned above must be reflected in the number of involvements in U4s and U5s in "Item 3., Parcel Data."

Item 14. Indicate the anticipated Right of Way schedule and lead time requirements. (Discuss if the District proposes less than formula lead time and/or if significant pressures for project advancement are anticipated.)

This section is used to discuss the total amount of months you need to complete your work (lead time). A minimum of 6 months is required for all projects where verifications are needed. If relocations are involved, it is best to request at least 9 months; for tower or other complex relocations, 18 months are needed. (Utility owners can tell you long lead time materials.)

NOTE: It is always a good idea to remind the project engineer that lead time starts for relocation of utilities when they supply adequate plans for requesting relocation plans from utility owners.

Item 15. Is it anticipated that all Right of Way work will be performed by CALTRANS staff?
☒ Yes ☐ No (If "No," discuss.)

*Evaluations prepared by:

Utilities: Name _____ Date 6/28/18
Joseph Carbajal, Project Engineer

*The Utility Coordinator must sign and date the R/W Data Sheet.

NOTE: Return the R/W Data Sheet to R/W P&M via the District Utility Coordinator for input into PMCS and forwarding to the project engineer.

7-LA-91-PM 16.9/19.8
7-LA-605-PM 5.0/5.8

Attachment D

Transportation Management Plan Data Sheet

4. TMP ESTIMATES

TRANSPORTATION MANAGEMENT PLAN DATA SHEET

(Preliminary TMP Elements and Costs)

Co/Rte/PM	LA-605-PM 5.0/5.8; LA-91-PM 16.9/19.8	EA/ EFIS	07-29811/ 0716000284	Alternative No.	2

Project Limit: Westbound State Route 91 from Shoemaker Avenue to Interstate I-605 (on SR-91) and Northbound Interstate 605 from State Route 91 to Alondra Avenue (on I-605)

Project Description: Westbound SR-91 and I-605 Interchange Improvements

1) Public Information	
☒ a. Brochures and Mailers	$ 250,000
☒ b. Press Release	
☒ c. Paid Advertising	$ 80,000
☐ d. Public Information Center/Kiosk	$
☒ e. Public Meeting/Speakers Bureau	$ 80,000
☐ f. Telephone Hotline	
☒ g. Internet	$
☐ h. Others _____	$
2) Motorists Information Strategies	
☐ a. Changeable Message Signs (Fixed)	$
☒ b. Changeable Message Signs (Portable)	$ 375,000
☒ c. Ground Mounted Signs	$ 100,000
☐ d. Highway Advisory Radio	$
☐ e. Caltrans Highway Information Network (CHIN)	
☐ f. Others _____	$
3) Incident Management	
☒ a. Construction Zone Enhanced Enforcement Program (COZEEP)	$ 680,000
☒ b. Freeway Service Patrol	$ 750,000
☐ c. Traffic Management Team	
☐ d. Helicopter Surveillance	$
☐ e. Traffic Surveillance Stations (Loop Detector and CCTV)	$
☐ f. Others _____	$

4) Construction Strategies

- [x] a. Lane Closure Chart
- [ ] b. Reversible Lanes
- [ ] c. Total Facility Closure
- [ ] d. Contra Flow
- [ ] e. Truck Traffic Restrictions $ _____
- [ ] f. Reduced Speed Zone $ _____
- [x] g. Connector and Ramp Closures
- [ ] h. Incentive and Disincentive $ _____
- [ ] i. Moveable Barrier $ _____
- [ ] j. Others _____ $ _____

5) Demand Management

- [ ] a. HOV Lanes/Ramps (New or Convert) $ _____
- [ ] b. Park and Ride Lots $ _____
- [ ] c. Rideshare Incentives $ _____
- [ ] d. Variable Work Hours
- [ ] e. Telecommute
- [ ] f. Ramp Metering (Temporary Installation) $ _____
- [ ] g. Ramp Metering (Modify Existing) $ _____
- [ ] h. Others _____ $ _____

6) Alternative Route Strategies

- [ ] a. Add Capacity to Freeway Connector $ _____
- [ ] b. Street Improvement (widening, traffic signal, etc.) $ _____
- [ ] c. Traffic Control Officers $ _____
- [ ] d. Parking Restrictions
- [ ] e. Others _____ $ _____

7) Other Strategies

- [ ] a. Application of New Technology $ _____
- [ ] b. Others _____ $ _____

TOTAL ESTIMATED COST OF TMP ELEMENTS = $ 2,315,000

REGISTERED CIVIL ENGINEER CERTIFICATION

This Transportation Management Plan (TMP) has been prepared under the direction of the following registered civil engineer. The registered civil engineer attests to the technical information contained herein and the engineering data upon which recommendations, conclusions, and decisions are based.

ISAAC ALONSO RICE, P.E., T.E.
Registered Civil Engineer

6/11/18
Date

With Concurrence by:

for

Richard Chiang, P.E.
Design Oversight

6/20/18
Date

Approval Recommended by:

DENIS KATAYAMA, SR. T.E.
TMP Coordinator

6/20/18
Date

MORT FAHRTASH, P.E.
District Traffic Manager

6/21/18
Date

Attachment E

Storm Water Data Report (Cover Sheet)

Dist-County-Route: 07-LA-605; 07-LA-91
Post Mile Limits: (605) PM 5.0-5.8; (91) PM 16.9-19.8
Type of Work: Mainline and Ramp Improvements
Project ID (EA): 0716000284 (29811)
Program Identification: 20.10.800.100
Phase: ☐ PID ☒ PA/ED ☐ PS&E

Regional Water Quality Control Board(s): Los Angeles - Region 4
Total Disturbed Soil Area: 31.02 acres PCTA: 20.65 acres
Alternative Compliance (acres): 0.86 acres ATA 2 (50% Rule)? Yes ☐ No ☒
Estimated Const. Start Date: 2/1/2022 Estimated Const. Completion Date: 6/30/2024
Risk Level: RL 1 ☒ RL 2 ☐ RL 3 ☐ WPCP ☐ Other:
Is MWELO applicable? Yes ☒ No ☐
Is the Project within a TMDL watershed? Yes ☒ No ☐
TMDL Compliance Units (acres): 2.54 acres
Notification of ADL reuse (if yes, provide date): Yes ☐ Date: No ☒

This Report has been prepared under the direction of the following Licensed Person. The Licensed Person attests to the technical information contained herein and the date upon which recommendations, conclusions, and decisions are based. Professional Engineer or Landscape Architect stamp required at PS&E only.

Jacqueline Hernandez,
Registered Project Engineer

Richard Chiang, for 7/2/18
Caltrans Designated Oversight Representative — Date

I have reviewed the stormwater quality design issues and find this report to be complete, current and accurate:

Tin Dinh, Project Manager — 7/2/18 *Date*

Jose Villasenor, Designated Maintenance Representative — 7/2/18 *Date*

Ron Russak, Designated Landscape Architect Representative — 07.02.18 *Date*

[Stamp Required at PS&E only] *for Shirley Pak, District/Regional Design SW Coordinator or Designee* — 07/09/2018 *Date*

Attachment F

Environmental Document
(Submitted Under a Separate Cover)

Attachment G

Geometric Drawings
Alternative 2

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	LA	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. ____ Exp. ____ CIVIL — STATE OF CALIFORNIA

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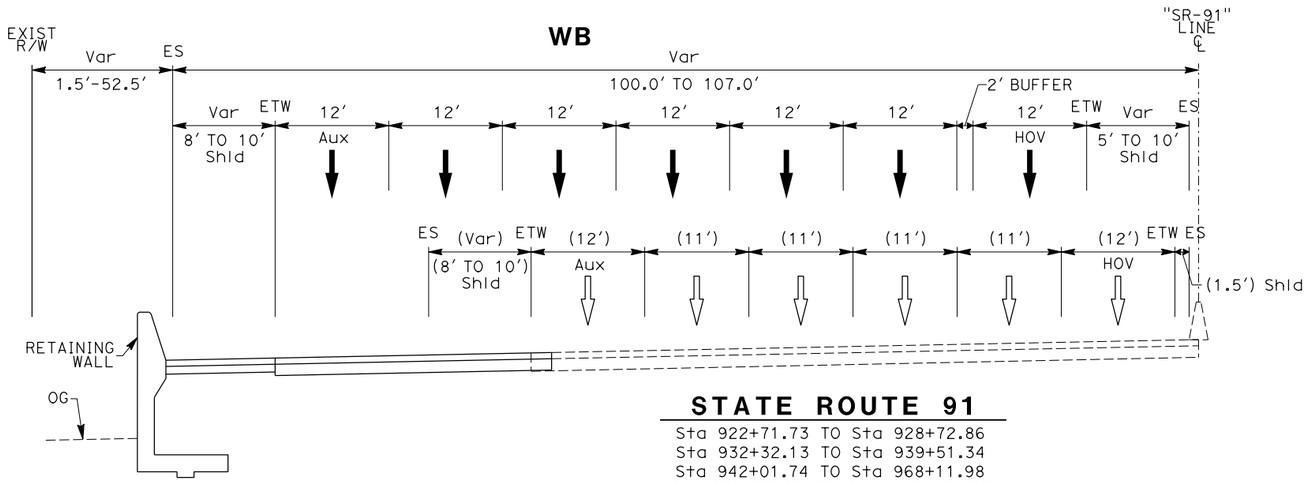
5 HUTTON CENTRE DR,
SUITE 500
SANTA ANA, CA 92707

LA METRO
ONE GATEWAY PLAZA
LOS ANGELES, CA 90012

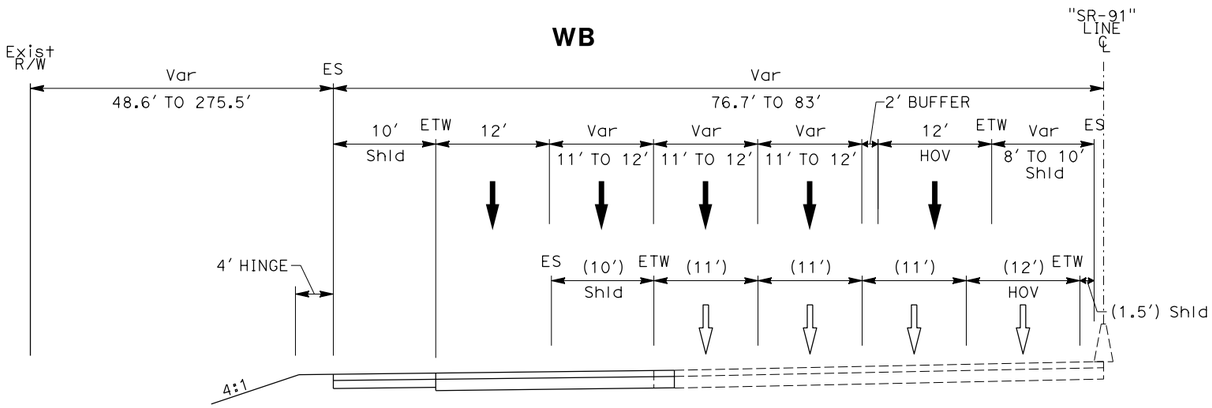
WB



STATE ROUTE 91

Sta 922+71.73 TO Sta 928+72.86
Sta 932+32.13 TO Sta 939+51.34
Sta 942+01.74 TO Sta 968+11.98
Sta 977+38.69 TO Sta 1003+51.07

WB



STATE ROUTE 91

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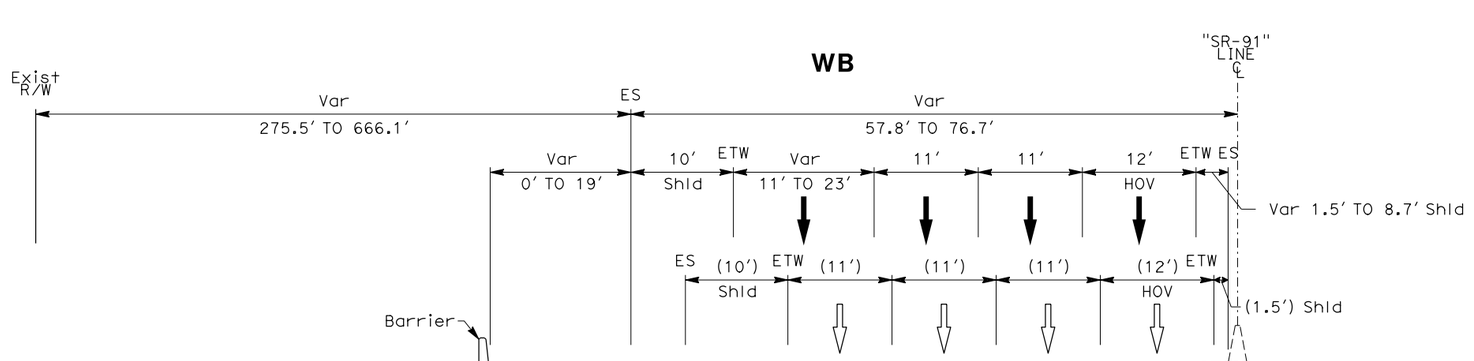
WB



STATE ROUTE 91

Sta 899+16.04 TO Sta 907+41.25 "SR-91" LINE

DRAFT

TYPICAL SECTIONS

ALTERNATIVE 2
NO SCALE

X-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
CONSULTANT FUNCTIONAL SUPERVISOR
CALCULATED-DESIGNED BY: DACHENG LEE
CHECKED BY: ERIC SPANGLER
REVISED BY
DATE REVISED

LAST REVISION 00-00-00
DATE PLOTTED => 03-JAN-2019
TIME PLOTTED => 18:38

BORDER LAST REVISED 7/2/2010
USERNAME => mohamed.ghonim
DGN FILE => 4681-TX-01.dgn
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
UNIT 0000
PROJECT NUMBER & PHASE EA 07-29811

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	LA	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

REGISTERED PROFESSIONAL ENGINEER — No. ____ Exp. ____ CIVIL — STATE OF CALIFORNIA

PLANS APPROVAL DATE

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LA METRO
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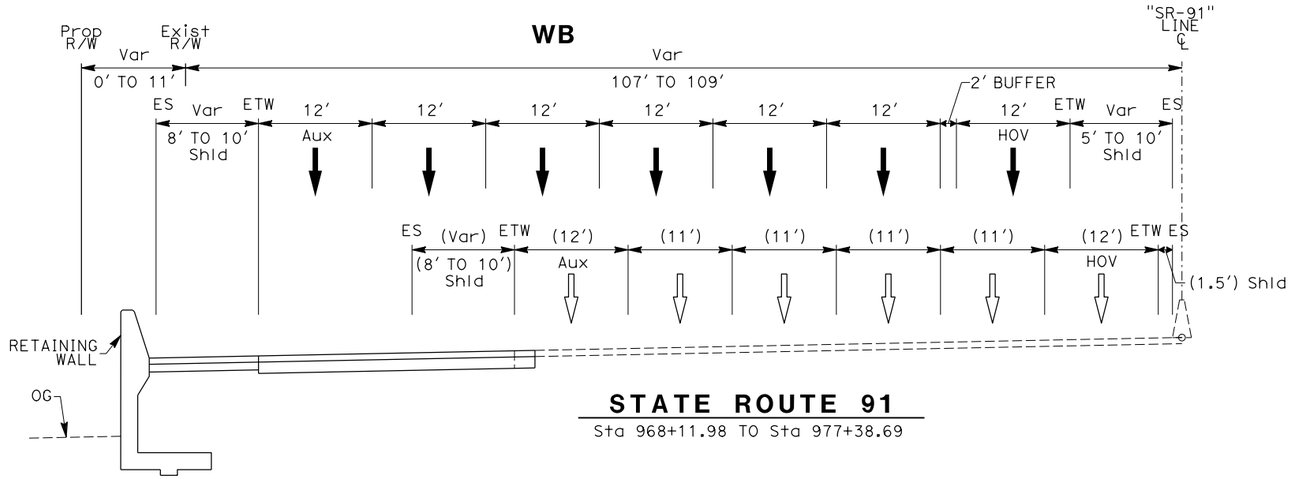
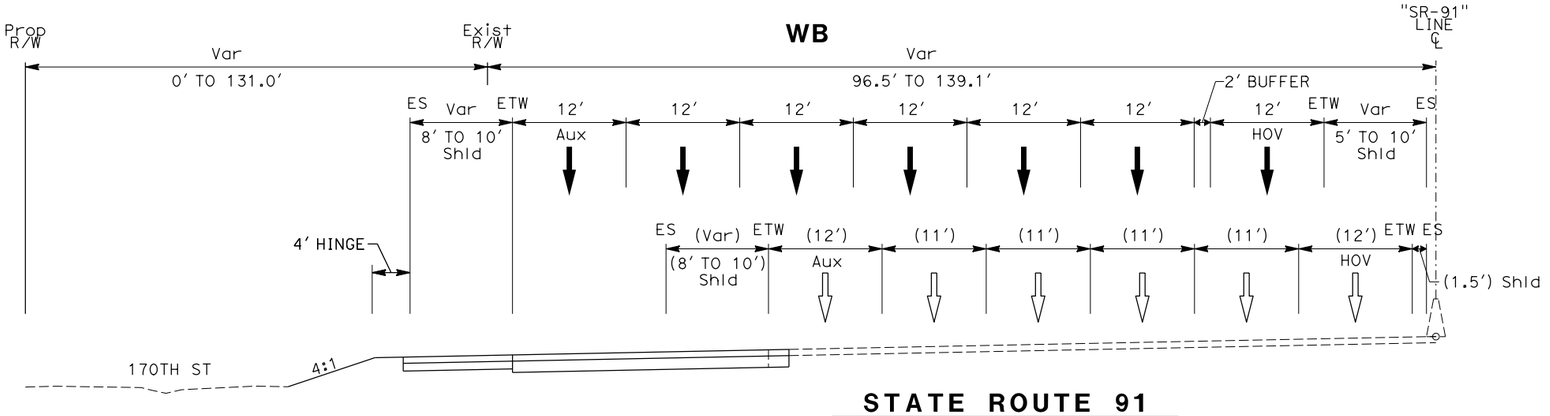
LOS ANGELES, CA 90012



STATE ROUTE 91
Sta 968+11.98 TO Sta 977+38.69



STATE ROUTE 91
Sta 928+72.86 TO Sta 932+32.13
Sta 939+51.34 TO Sta 942+01.74

DRAFT

TYPICAL SECTIONS

ALTERNATIVE 2
NO SCALE

X-2

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
CONSULTANT FUNCTIONAL SUPERVISOR
CALCULATED-DESIGNED BY: DACHENG LEE
CHECKED BY: ERIC SPANGLER
REVISED BY | DATE REVISED

LAST REVISION 00-00-00 | DATE PLOTTED => 03-JAN-2019 | TIME PLOTTED => 18:38

BORDER LAST REVISED 7/2/2010 | USERNAME => mohamed.ghonim | DGN FILE => 4681-TX-02.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0000 | PROJECT NUMBER & PHASE | EA 07-29811

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	LA	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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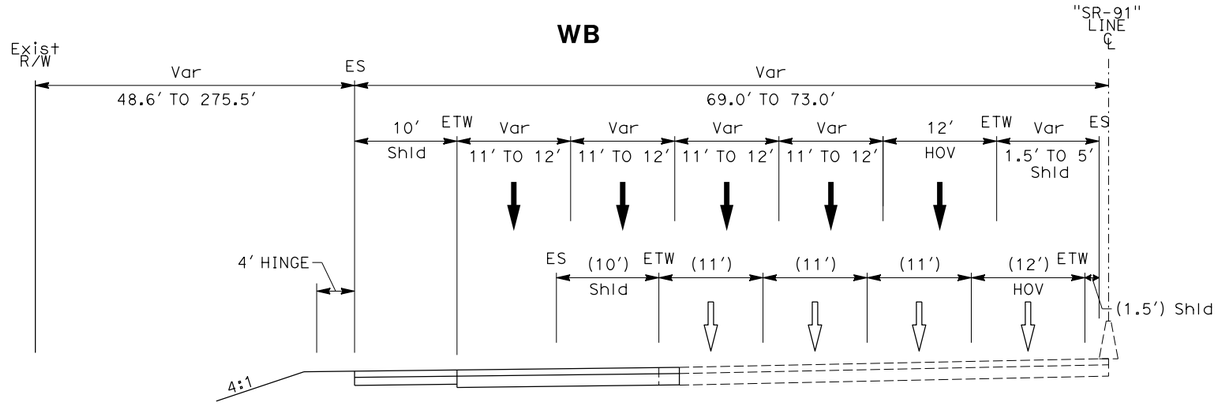
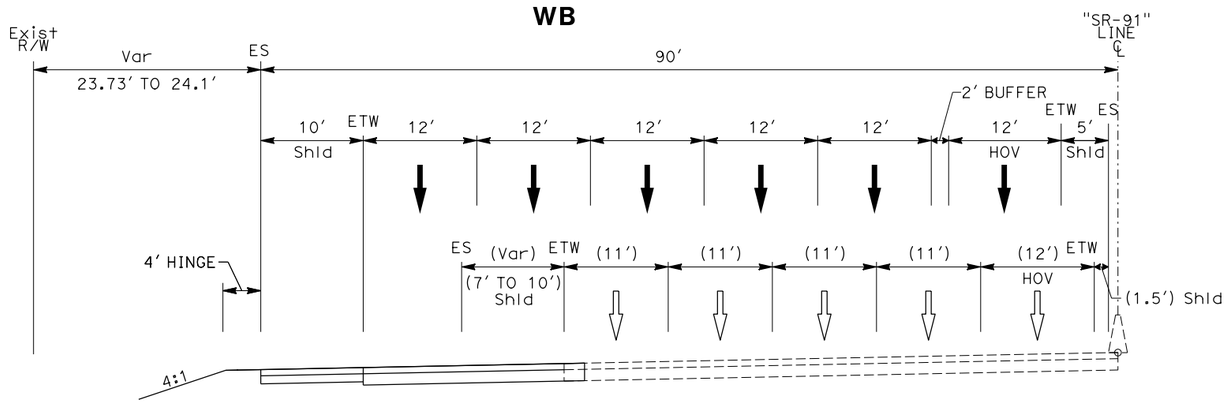


STATE ROUTE 91

Sta 1016+48.59 TO Sta 1027+00.49 "SR-91" LINE



STATE ROUTE 91

Sta 1003+51.07 TO 1016+48.59

DRAFT

TYPICAL SECTIONS

ALTERNATIVE 2
NO SCALE

X-3

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
CONSULTANT FUNCTIONAL SUPERVISOR
CALCULATED-DESIGNED BY DACHENG LEE
CHECKED BY ERIC SPANGLER
REVISED BY
DATE REVISED

LAST REVISION 00-00-00
DATE PLOTTED => 03-JAN-2019
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BORDER LAST REVISED 7/2/2010
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RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
UNIT 0000
PROJECT NUMBER & PHASE EA 07-29811

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	LA	91,605	16.9-19.8, 5.0-5.8		x

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PLANS APPROVAL DATE

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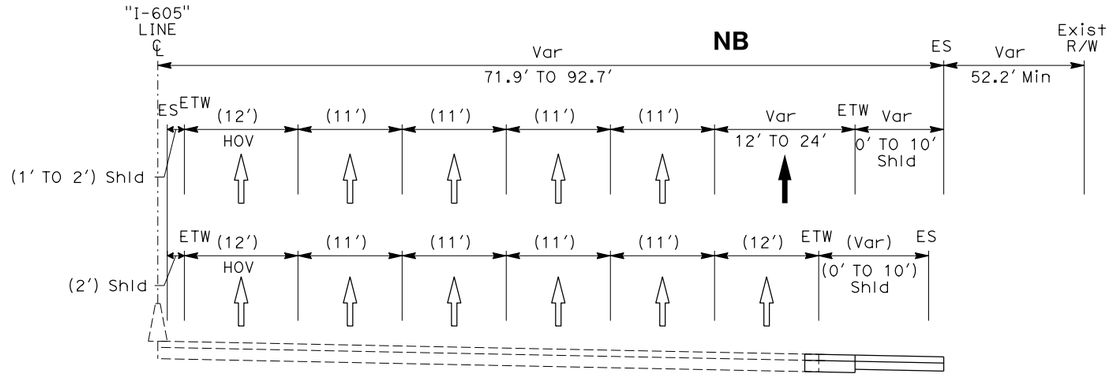
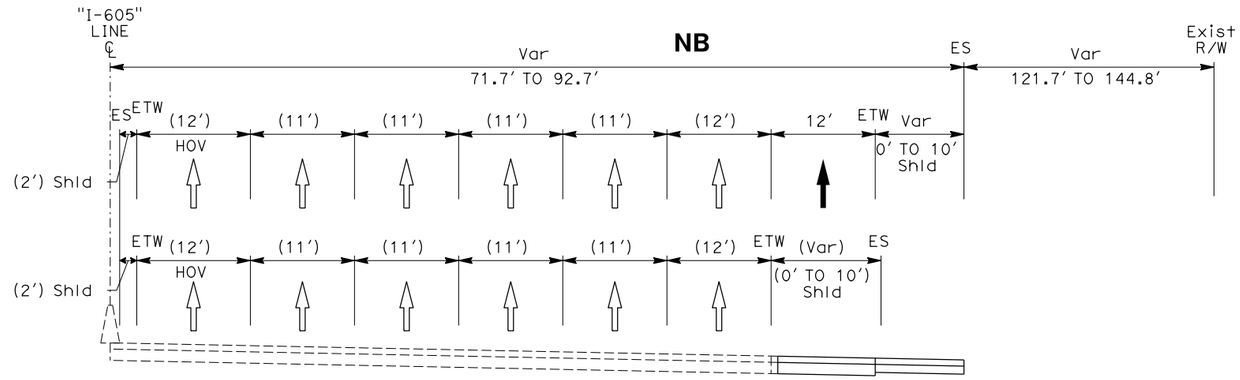


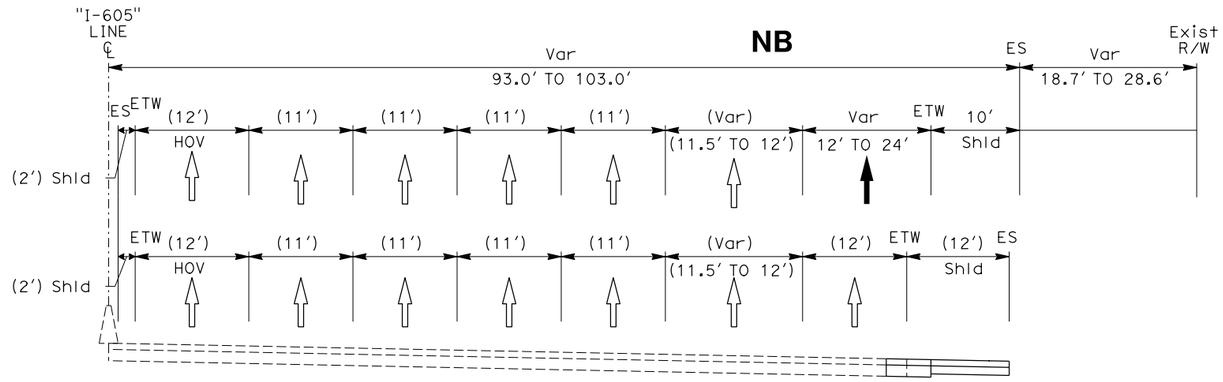
INTERSTATE 605

Sta 298+89.69 TO 307+69.80



INTERSTATE 605

Sta 294+69.56 TO 298+89.09



INTERSTATE 605

Sta 293+27.69 TO 294+69.56

DRAFT

TYPICAL SECTIONS

ALTERNATIVE 2
NO SCALE

X-4

LAST REVISION: 00-00-00
DATE PLOTTED => 03-JAN-2019
TIME PLOTTED => 18:38

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
CONSULTANT FUNCTIONAL SUPERVISOR
CALCULATED-DESIGNED BY
CHECKED BY
DACHENG LEE
ERIC SPANGLER
REVISED BY
DATE REVISED

BORDER LAST REVISED 7/2/2010
USERNAME => mohamed.ghonim
DGN FILE => 4681-TX-04.dgn
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
UNIT 0000
PROJECT NUMBER & PHASE EA 07-29811

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	LA	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

PLANS APPROVAL DATE

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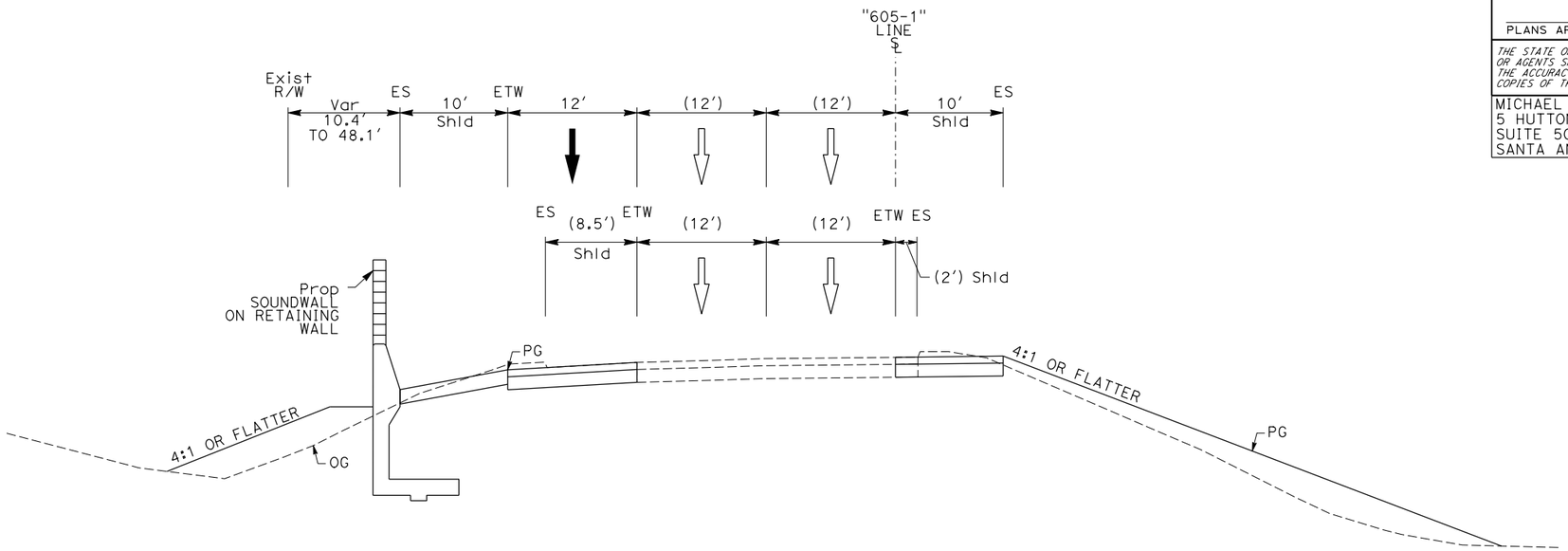
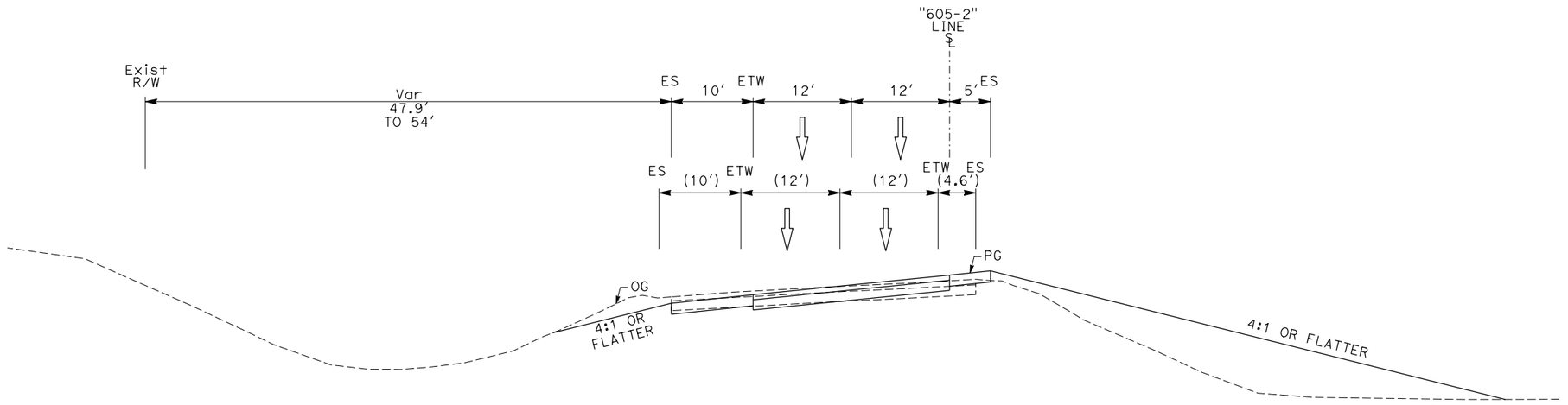
5 HUTTON CENTRE DR,
SUITE 500
SANTA ANA, CA 92707

LA METRO
ONE GATEWAY PLAZA
LOS ANGELES, CA 90012



WB STATE ROUTE 91 TO INTERSTATE 605

"605-1" Sta 101+42.84 TO 122+71.73



WB STATE ROUTE 91 TO NB INTERSTATE 605 CONNECTOR

"605-2" Sta 87+15.48 TO 101+41.99

DRAFT

TYPICAL CROSS SECTIONS

NO SCALE

X-5

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

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LAST REVISION 00-00-00
DATE PLOTTED => 03-JAN-2019
TIME PLOTTED => 18:38

BORDER LAST REVISED 7/2/2010
USERNAME => mohamed.ghonim
DGN FILE => 4681-TX-05.dgn
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
UNIT 0000
PROJECT NUMBER & PHASE EA 07-29811

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	LA	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

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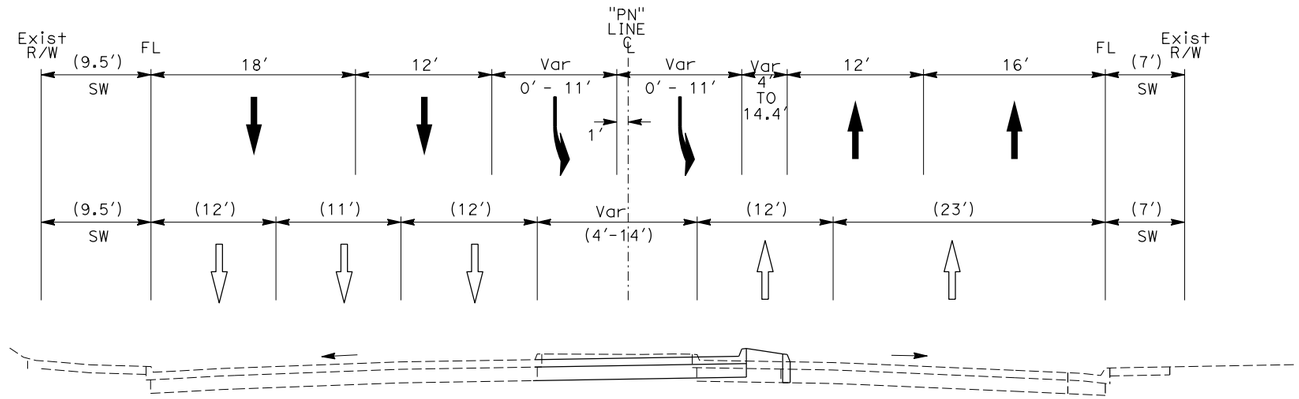
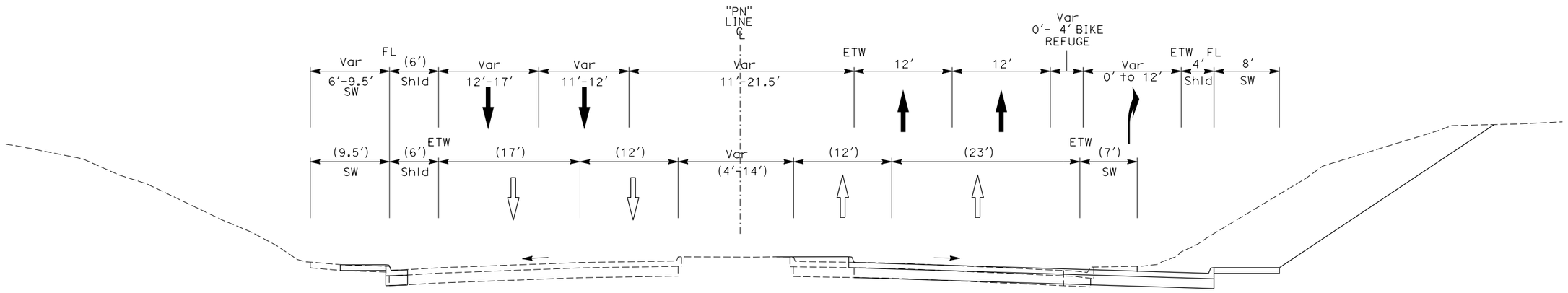
LOS ANGELES, CA 90012



PIONEER BLVD

"PN" Sta 27+38.81 TO 31+16.38



PIONEER BLVD

Sta 23+28.47 TO 26+04.18

DRAFT

TYPICAL SECTIONS

ALTERNATIVE 2
NO SCALE

X-6

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR

CALCULATED-DESIGNED BY
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DACHENG LEE
ERIC SPANGLER

REVISED BY
DATE REVISED

LAST REVISION 00-00-00
DATE PLOTTED => 03-JAN-2019
TIME PLOTTED => 18:38

BORDER LAST REVISED 7/2/2010

USERNAME => mohamed.ghonim
DGN FILE => 4681-TX-06.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE EA 07-29811

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	LA	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

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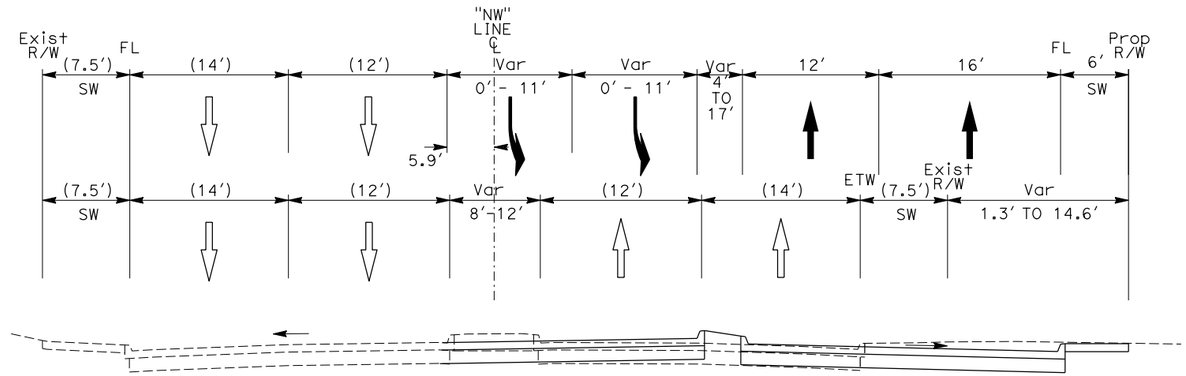
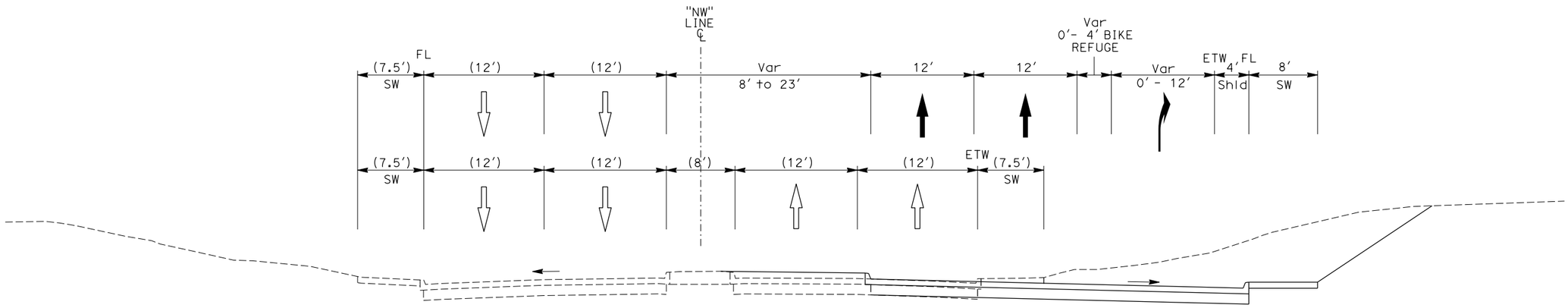
LA METRO
ONE GATEWAY PLAZA
LOS ANGELES, CA 90012



NORWALK BLVD

"NW" Sta 27+06.15 TO 31+17.48



NORWALK BLVD

"NW" Sta 23+95.88 TO 25+63.43

DRAFT

TYPICAL SECTIONS

ALTERNATIVE 2
NO SCALE

X-7

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

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REVISED BY	DATE REVISED

LAST REVISION 00-00-00
DATE PLOTTED => 03-JAN-2019
TIME PLOTTED => 18:38

BORDER LAST REVISED 7/2/2010

USERNAME => mohamed.ghonim
DGN FILE => 4681-TX-07.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE EA 07-29811

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	LA	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

REGISTERED PROFESSIONAL ENGINEER — No. Exp. CIVIL — STATE OF CALIFORNIA

PLANS APPROVAL DATE

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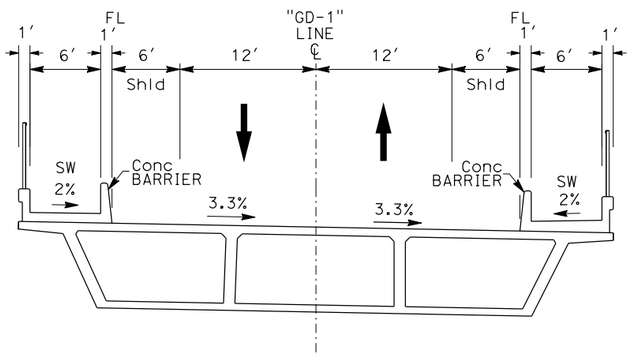
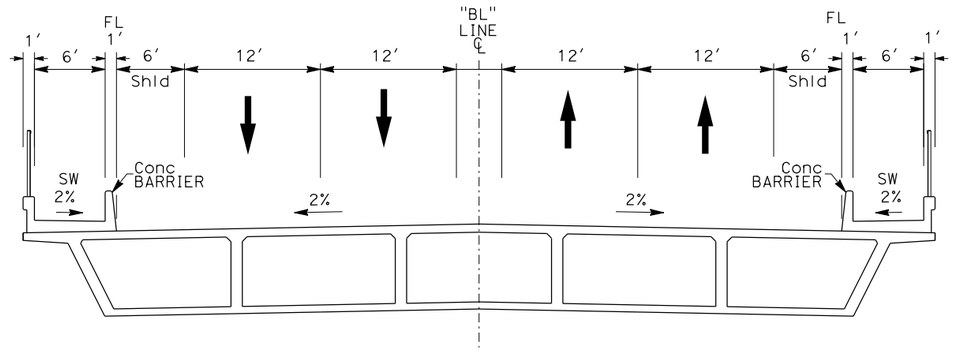
LOS ANGELES, CA 90012



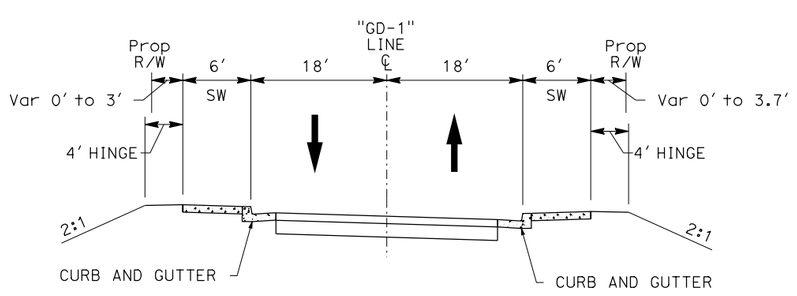
GRIDLEY RD

"GD-1" Sta 21+48.15 TO 23+81.61



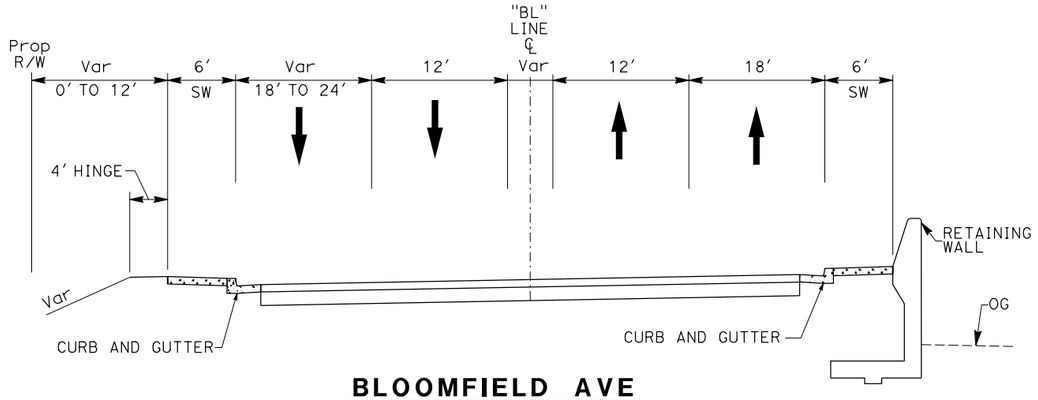
BLOOMFIELD AVE

"BL" Sta 16+97.41 TO 19+30.00



GRIDLEY RD

"GD-1" Sta 16+78.25 TO 21+48.15
"GD-1" Sta 23+81.61 TO 27+87.56



BLOOMFIELD AVE

"BL" Sta 13+67.16 TO 16+97.41
"BL" Sta 19+30.00 TO 25+14.33

TYPICAL SECTIONS

ALTERNATIVE 2
NO SCALE

X-8

DRAFT

REVISED BY | DATE REVISED
DACHENG LEE | ERIC SPANGLER
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CONSULTANT FUNCTIONAL SUPERVISOR
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION 00-00-00 | DATE PLOTTED => 03-JAN-2019 | TIME PLOTTED => 18:38

BORDER LAST REVISED 7/2/2010 | USERNAME => mohamed.ghonim | DGN FILE => 4681-TX-08.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0000 | PROJECT NUMBER & PHASE | EA 07-29811

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	LA	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. Exp. CIVIL — STATE OF CALIFORNIA

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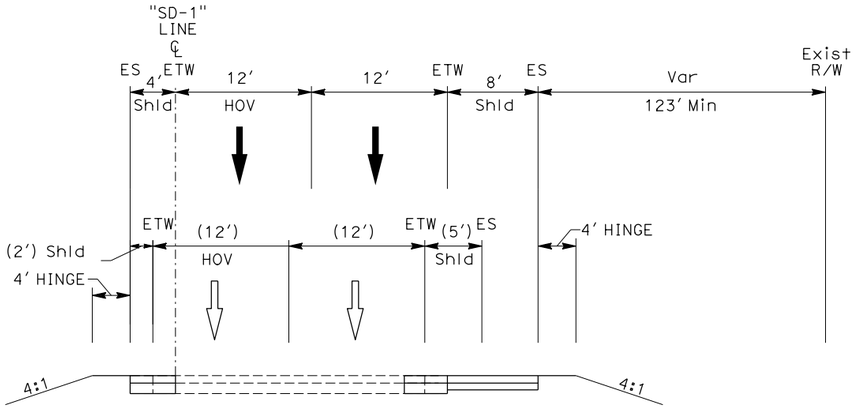
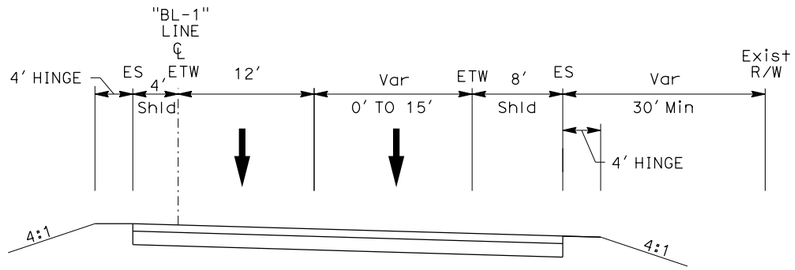
SUITE 500
SANTA ANA, CA 92707

LA METRO
ONE GATEWAY PLAZA
LOS ANGELES, CA 90012



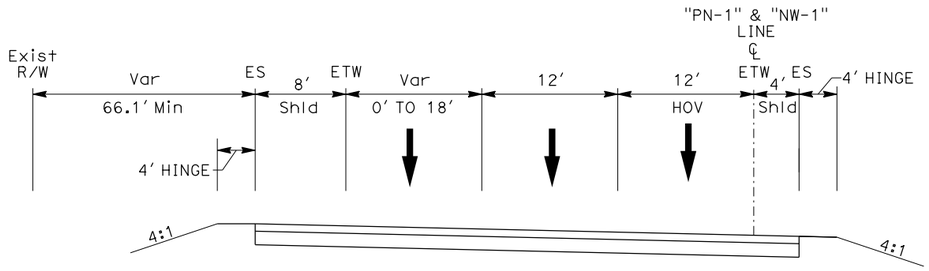
STUDEBAKER OFF - RAMP

"SD-1" Sta 3+69.66 TO 7+80.13



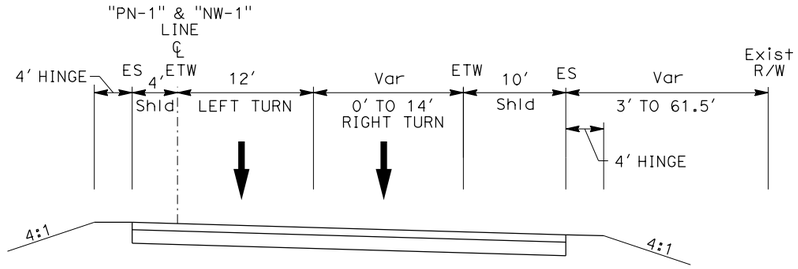
BLOOMFIELD ON RAMP

"BL-1" Sta 8+46.82 TO 15+08.38



PIONEER & NORWALK BLVD ON-RAMPS

"PN-2" Sta 56+49.61 TO 63+25.47
"NW-2" Sta 86+73.26 TO 93+23.86



PIONEER & NORWALK BLVD OFF-RAMPS

"PN-1" Sta 55+81.14 TO 63+74.89
"NW-1" Sta 85+39.27 TO 93+85.31

DRAFT

TYPICAL SECTIONS

ALTERNATIVE 2
NO SCALE

X-9

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR | CALCULATED-DESIGNED BY | CHECKED BY | DACHENG LEE | ERIC SPANGLER | REVISED BY | DATE REVISED

LAST REVISION 00-00-00 | DATE PLOTTED => 03-JAN-2019 | TIME PLOTTED => 18:38

BORDER LAST REVISED 7/2/2010 | USERNAME => mohamed.ghonim | DGN FILE => 4681-TX-09.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0000 | PROJECT NUMBER & PHASE | EA 07-29811

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	LA	91,605	16.9-19.8, 5.0-5.8		x

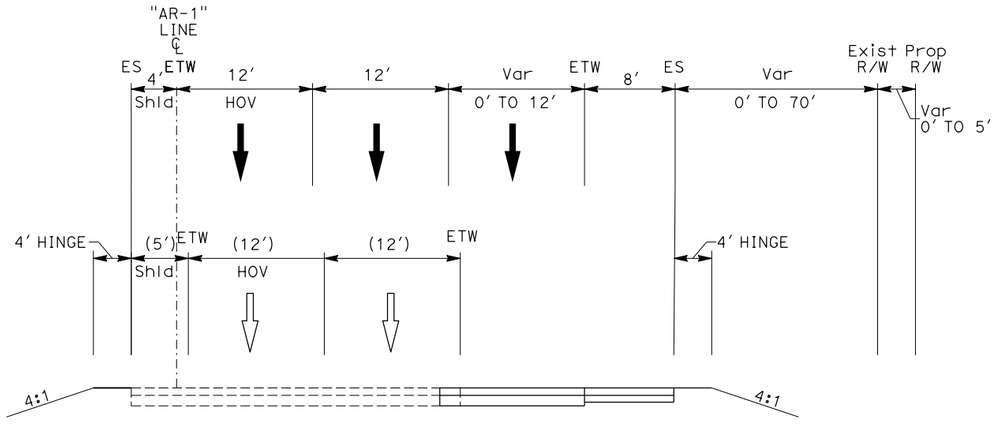
REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. Exp. CIVIL — STATE OF CALIFORNIA

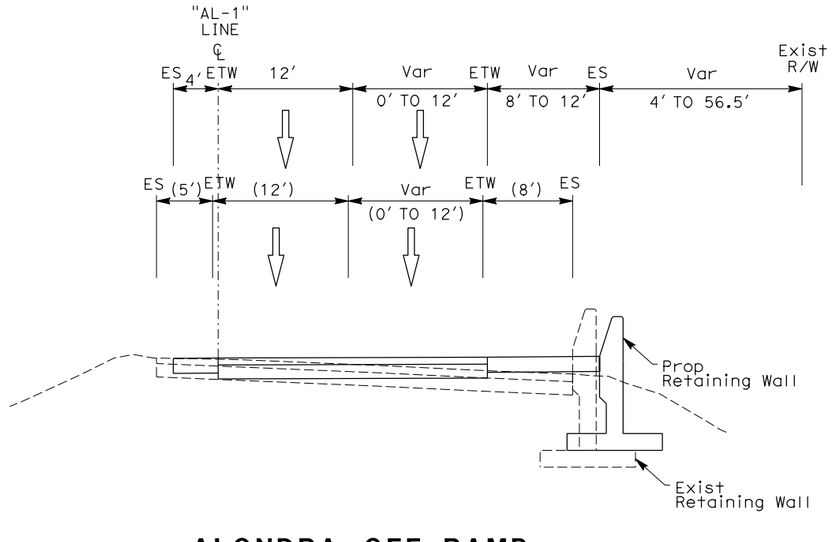
MICHAEL BAKER INTL
5 HUTTON CENTRE DR,
SUITE 500
SANTA ANA, CA 92707

LA METRO
ONE GATEWAY PLAZA
LOS ANGELES, CA 90012



ARTESIA BLVD ON-RAMPS

"AR-1" Sta 25+22.32 TO 32+38.16



ALONDRA OFF-RAMP

"AL-1" Sta 103+50.70 TO 108+90.71

DRAFT

TYPICAL SECTIONS

ALTERNATIVE 2
NO SCALE

X-10

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CHECKED BY
DACHENG LEE
ERIC SPANGLER
REVISED BY
DATE REVISED

LAST REVISION 00-00-00
DATE PLOTTED => 03-JAN-2019
TIME PLOTTED => 18:38

BORDER LAST REVISED 7/2/2010
USERNAME => mohamed.ghonim
DGN FILE => 4681-TX-10.dgn
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
UNIT 0000
PROJECT NUMBER & PHASE
EA 07-29811

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	La	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. ____ Exp. ____ CIVIL — STATE OF CALIFORNIA

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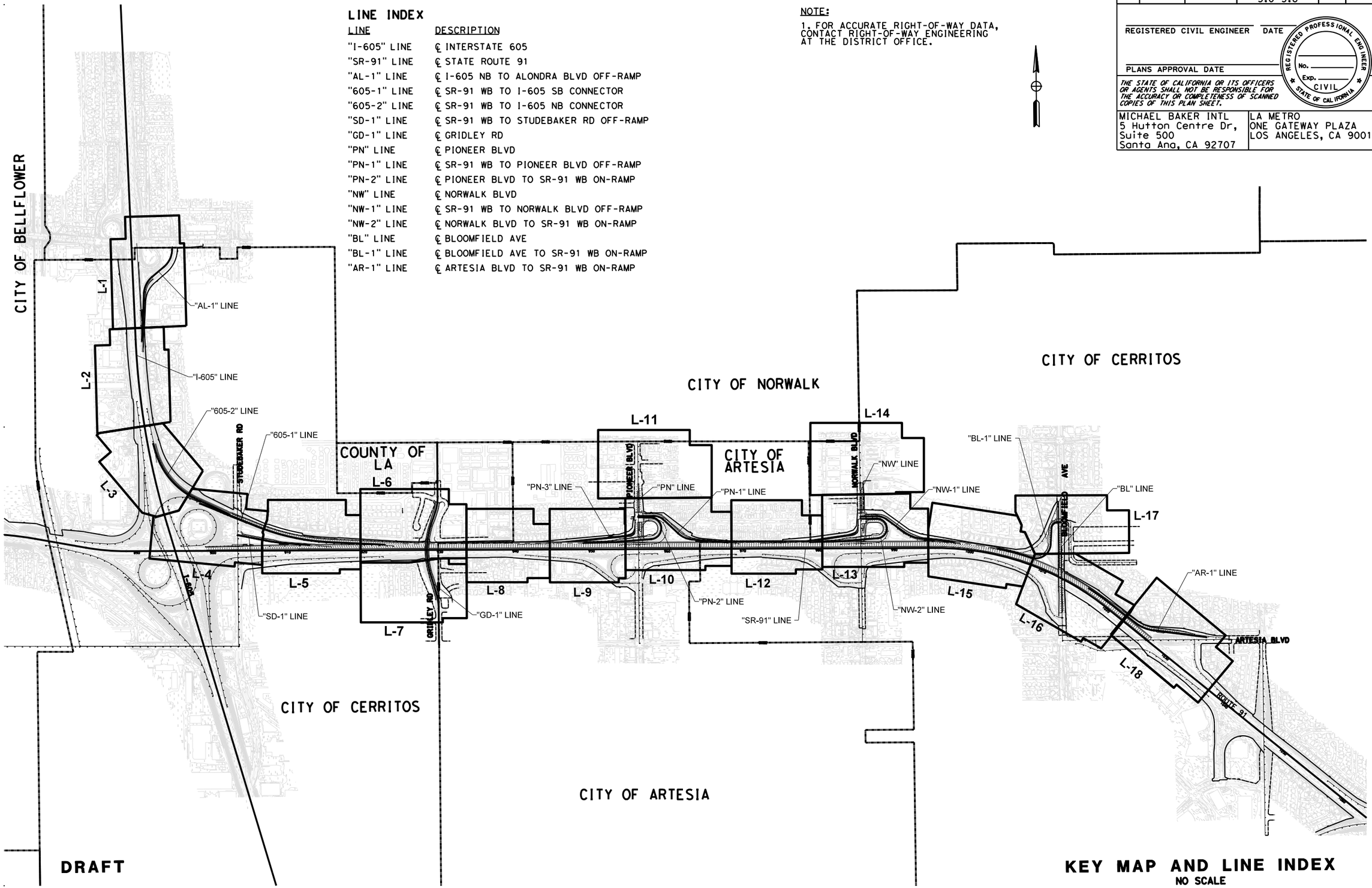
LA METRO
ONE GATEWAY PLAZA
LOS ANGELES, CA 90012

LINE INDEX

LINE	DESCRIPTION
"I-605" LINE	℄ INTERSTATE 605
"SR-91" LINE	℄ STATE ROUTE 91
"AL-1" LINE	℄ I-605 NB TO ALONDRA BLVD OFF-RAMP
"605-1" LINE	℄ SR-91 WB TO I-605 SB CONNECTOR
"605-2" LINE	℄ SR-91 WB TO I-605 NB CONNECTOR
"SD-1" LINE	℄ SR-91 WB TO STUDEBAKER RD OFF-RAMP
"GD-1" LINE	℄ GRIDLEY RD
"PN" LINE	℄ PIONEER BLVD
"PN-1" LINE	℄ SR-91 WB TO PIONEER BLVD OFF-RAMP
"PN-2" LINE	℄ PIONEER BLVD TO SR-91 WB ON-RAMP
"NW" LINE	℄ NORWALK BLVD
"NW-1" LINE	℄ SR-91 WB TO NORWALK BLVD OFF-RAMP
"NW-2" LINE	℄ NORWALK BLVD TO SR-91 WB ON-RAMP
"BL" LINE	℄ BLOOMFIELD AVE
"BL-1" LINE	℄ BLOOMFIELD AVE TO SR-91 WB ON-RAMP
"AR-1" LINE	℄ ARTESIA BLVD TO SR-91 WB ON-RAMP

NOTE:

1. FOR ACCURATE RIGHT-OF-WAY DATA, CONTACT RIGHT-OF-WAY ENGINEERING AT THE DISTRICT OFFICE.



DRAFT

KEY MAP AND LINE INDEX
NO SCALE

REVISED BY	DATE REVISED
DACHENG LEE	
ERIC SPANGLER	

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LAST REVISION 00-00-00

DATE PLOTTED => 27-APR-2018

TIME PLOTTED => 17:09

BORDER LAST REVISED 7/2/2010

USERNAME => dclee
DGN FILE => 4681_KM_001_Exht_100sc_11x17.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE EA 07-29811

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	La	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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LOS ANGELES, CA 90012

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DACHENG LEE | ERIC SPANGLER

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CONSULTANT FUNCTIONAL SUPERVISOR

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

SEE SHEET 2
MATCH LINE STA 296+50

PIUMA AVE

R/W

CITY OF NORWALK
CITY OF CERRITOS

SB I-605

NB I-605

(2') Shld

HOV 8 (12') (11') (11') (11') (12') 12'

10' Shld

N2°33'21"W 6753.35'

HOV 6 (12') (11') (11') (11') (11') (12')

71.00' Rt "I-605" 307+69.80
END TAPER (75:1)

N21°18'39"E 608.90'

4' Shld

8' Shld

12'

R/W

83.00' Rt "I-605" 298+69.80
Beg TAPER (75:1)

ALONDRA NB OFF

"AL-1" 101+02.90 BC

20.00' Rt "AL-1" 100+00.00
Beg TAPER (shld 8'-20')

20' Shld

"AL-1" 103+50.70 EC
JOIN Existing Point

N49°38'13"E 211.30'

32.00' Rt "AL-1" 101+33.66
END TAPER (shld 8'-20')

LA FITNESS

12.00' Rt "AL-1" 102+30.70
Beg TAPER

"AL-1" +51
END RW

24.00' Rt "AL-1" 103+50.70
END TAPER

COLLEGE HOSPITAL

COLLEGE PL

DUMONT AVE

ALONDRA BLVD

LEIBACHER AVE

R/W

(11') (11')

CURVE DATA

No.	R	Δ	T	L
(2)	300.00'	47°19'34''	131.46'	247.80'
(3)	300.00'	48°50'09''	136.20'	255.70'

DRAFT

LAYOUT

ALTERNATIVE 2

SCALE: 1" = 50'

L-1

LAST REVISION 00-00-00 | DATE PLOTTED => 20-JUN-2018 | TIME PLOTTED => 14:14

BORDER LAST REVISED 7/2/2010 | USERNAME => dclee | DGN FILE => 4681_L001_100sc_11x17.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0000 | PROJECT NUMBER & PHASE EA 07-29811

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	La	91,605	16.9-19.8, 5.0-5.8		x

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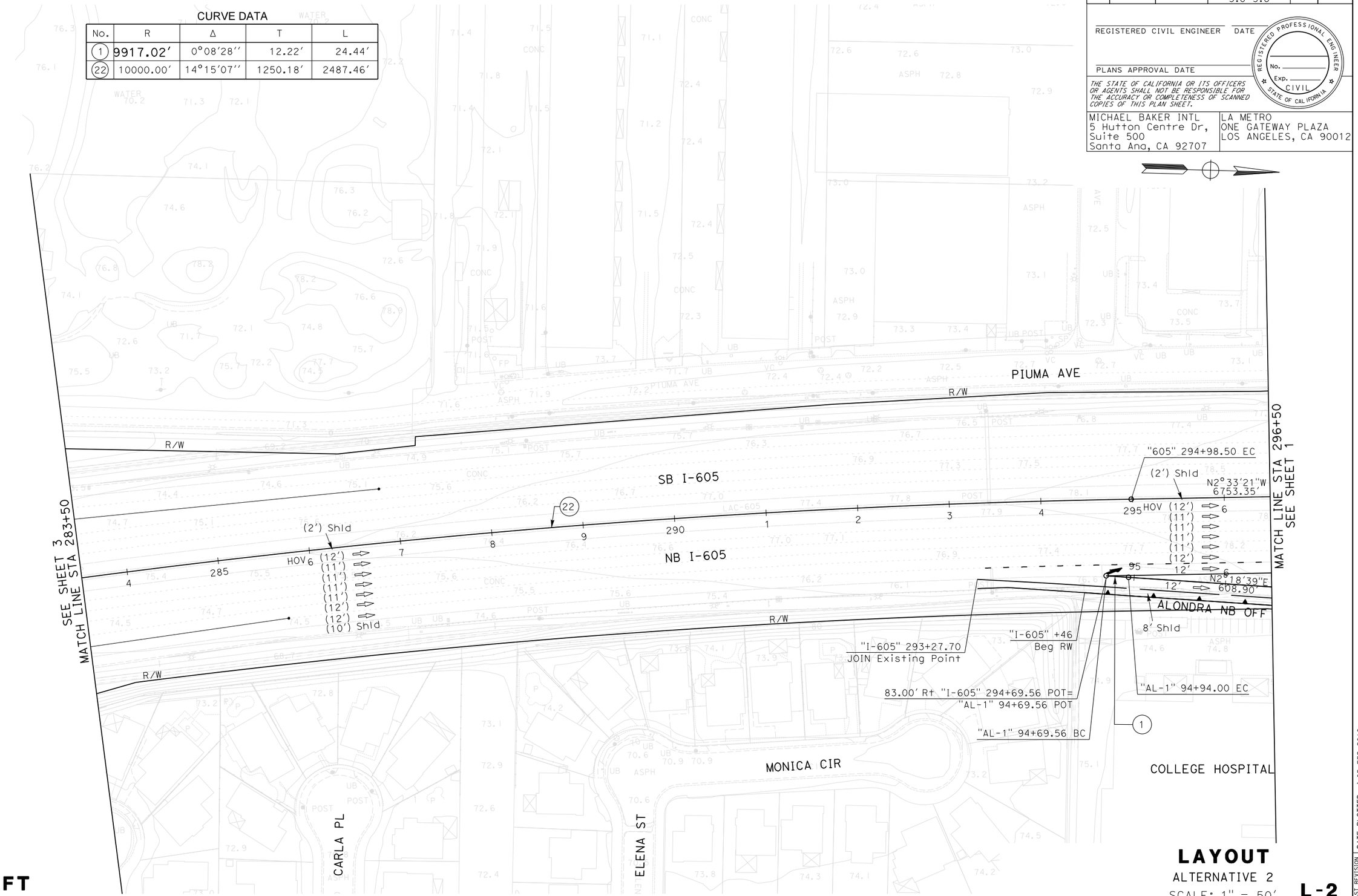
5 Hutton Centre Dr,
Suite 500
Santa Ana, CA 92707

LA METRO
ONE GATEWAY PLAZA
LOS ANGELES, CA 90012

CITY OF CERRITOS

CURVE DATA

No.	R	Δ	T	L
(1)	9917.02′	0°08′28″	12.22′	24.44′
(22)	10000.00′	14°15′07″	1250.18′	2487.46′



LAYOUT

ALTERNATIVE 2

SCALE: 1" = 50′

L-2

DRAFT

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CALCULATED-DESIGNED BY
DACHENG LEE
CHECKED BY
ERIC SPANGLER
CONSULTANT FUNCTIONAL SUPERVISOR

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION 00-00-00
DATE PLOTTED => 05-FEB-2018
TIME PLOTTED => 13:43

BORDER LAST REVISED 7/2/2010
USERNAME => dclee
DGN FILE => 4681_L002_100sc_11x17.dgn
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
UNIT 0000
PROJECT NUMBER & PHASE EA 07-29811

CITY OF CERRITOS

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	La	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. ____ Exp. ____ CIVIL — STATE OF CALIFORNIA

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MICHAEL BAKER INTL
5 Hutton Centre Dr,
Suite 500
Santa Ana, CA 92707

LA METRO
ONE GATEWAY PLAZA
LOS ANGELES, CA 90012

CURVE DATA

No.	R	Δ	T	L
(4)	3000.00′	2°08′33″	56.10′	112.18′
(5)	1010.00′	48°33′16″	455.55′	855.91′
(22)	10000.00′	14°15′07″	1250.18′	2487.46′

DRAFT

LAYOUT

ALTERNATIVE 2

SCALE: 1" = 50′

L-3

LAST REVISION: DATE PLOTTED => 05-FEB-2018
00-00-00 TIME PLOTTED => 13:43

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR

CALCULATED-DESIGNED BY | DACHENG LEE
CHECKED BY | ERIC SPANGLER

REVISED BY | DATE REVISED

BORDER LAST REVISED 7/2/2010

USERNAME => dclee
DGN FILE => 4681_L003_100sc_11x17.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE EA 07-29811

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	La	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. ____ Exp. ____ CIVIL — STATE OF CALIFORNIA

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Santa Ana, CA 92707

LA METRO
ONE GATEWAY PLAZA
LOS ANGELES, CA 90012

CURVE DATA

No.	R	Δ	T	L
(5)	1010.00′	48°33′16″	455.55′	855.91′
(6)	2990.00′	19°09′23″	504.55′	999.68′

CITY OF CERRITOS

RESERVOIR HILL PARK

"605-2" 96+83.57 EC

"605-2" +00
Beg SW on Barrier

SEE SHEET 3
MATCH LINE STA 95+50

91-605 W-N CONN

91-605 W-S CONN

10′ Shld
12′
12′
12′
5′ Shld
8′ Shld
S65°20′34″E 458.42′

2.00′ Rt "605-1" 98+15.11
Beg TAPER

R/W

STUDEBAKER RD

STRUCTURE WIDENING

10′ Shld
12′
12′
10′ Shld
S68°12′19″E 805.00′

"605-1" 105+47.85 BC

605-91 N-W CONN

10.00′ Rt "605-1" 101+15.11
END TAPER

12.00′ Lt "605-1" 101+42.84 POT=
"605-2" 101+41.99

CALTRANS
MAINTENANCE
STATION

MATCH LINE STA 106+50
SEE SHEET 5

STUDEBAKER WB OFF
8′ Shld
12′
12′
4′ Shld
S79°02′04″E 382.92′

SEE SHEET 3
MATCH LINE STA 271+50

SB I-605

NB I-605

"SR-91" 899+16.26
JOIN Existing Pvmt

36.50′ Lt "SR-91" 899+16.26
Beg TAPER (75:1)

STRUCTURE WIDENING

WB ROUTE 91
(11′)
(11′)
(11′)
(12′) HOV
(1.5′) Shld

EB ROUTE 91

N89°46′33″E
10688.91′

2.50′ Lt "SR-91" 899+16.26
Beg TAPER (115:1)

605-91 N-E CONN

MATCH LINE STA 906+50
SEE SHEET 5

DRAFT

LAYOUT
ALTERNATIVE 2
SCALE: 1" = 50′

L-4

REVISED BY | DATE REVISED
DACHENG LEE | ERIC SPANGLER
CALCULATED-DESIGNED BY | CHECKED BY
CONSULTANT FUNCTIONAL SUPERVISOR

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION 00-00-00
DATE PLOTTED => 05-FEB-2018
TIME PLOTTED => 13:58

BORDER LAST REVISED 7/2/2010 | USERNAME => dclee | DGN FILE => 4681_L004_100sc_11x17.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0000 | PROJECT NUMBER & PHASE EA 07-29811

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	La	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. ____ Exp. ____ CIVIL — STATE OF CALIFORNIA

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ONE GATEWAY PLAZA
LOS ANGELES, CA 90012

CITY OF CERRITOS

PARK ST

LEEWARD AVE

CORAL REEF CIR

OUTRIGGER CIR

WINDWARD AVE

ERIC AVE

WINDJAMMER RD

SEE SHEET 4
MATCH LINE STA 106+50

SEE SHEET 4
MATCH LINE STA 906+50.00

MATCH LINE STA 119+50
SEE SHEET 6

91-605 W-S CONN

"605-1" +40
END SW on Barrier
Beg Barrier

"605-1" 115+47.53 EC

"605-1" +30
END Barrier
Beg SW on RW

"SD-1" 6+99.44 BC

24.00' LT "SD-1" 7+80.00
Beg TAPER

12.00' Lt "SD-1" 9+00.00
END TAPER

"SD-1" 9+78.01 EC

STUDEBAKER WB OFF

S85°51'19"E, 293.72'

S87°21'42"E 724.20'

N89°46'33"E
10688.91'

WB ROUTE 91

EB ROUTE 91

2' BUFFER

"SR-91" 911+19.44
End Left Shld TAPER

11.00' Lt "SR-91" 908+90.26
END TAPER (115:1)

71.33' Lt "SR-91" 912+71.73 POT=
"SD-1" 12+71.73 POT

66.70' Lt "SR-91" 907+41.25
END TAPER (75:1)

R/W

CURVE DATA

No.	R	Δ	T	L
(6)	2990.00'	19°09'23"	504.55'	999.68'
(7)	2340.00'	6°49'15"	139.45'	278.57'

DRAFT

LAYOUT

ALTERNATIVE 2

SCALE: 1" = 50'

L-5

LAST REVISION 00-00-00
DATE PLOTTED => 05-FEB-2018
TIME PLOTTED => 13:43

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
CONSULTANT FUNCTIONAL SUPERVISOR
CALCULATED-DESIGNED BY
CHECKED BY
DACHENG LEE
ERIC SPANGLER
REVISED BY
DATE REVISED

BORDER LAST REVISED 7/2/2010
USERNAME => dclee
DGN FILE => 4681_L005_100sc_11x17.dgn
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
UNIT 0000
PROJECT NUMBER & PHASE EA 07-29811

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	La	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. ____ Exp. ____ CIVIL — STATE OF CALIFORNIA

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LA METRO
ONE GATEWAY PLAZA
LOS ANGELES, CA 90012

CITY OF NORWALK
CITY OF CERRITOS

"GD-1" 29+87.25 EC

"GD-1" 30+19.26
TIE-IN Exist Alignment

"GD-1" 28+00.00 EC
JOIN Exist Pavement

"GD-1" 27+87.56 BC

"GD-1" 26+18.44 EC

SUNNY RIDGE CT

HARVEST AVE

LUCAS ST

GRIDLEY PL

GRIDLEY RD

N18°31'56"E 7
169.12'

120' Left Turn Pocket

CURVE DATA

No.	R	Δ	T	L
(8)	1080.00'	33°46'36''	327.89'	636.68'

LEGEND

ACQUISITION

R/W ACQUISITION
(98.7 SF)

3.00' Lt "SR-91" 928+75.00
Beg TAPER (115:1)

CIRCLE RACING WHEELS

SPIN

R/W ACQUISITION
(1492.8 SF)

"SR-91" +50
Beg RW

6' SW

2:1

R/W ACQUISITION
(66.7 SF)

PROP R/W

"SR-91" +86
END SW on RW

73.00' Lt "SR-91" 922+71.73 POT=
"605-1" 122+71.73 POT

1.00' Lt "SR-91" 925+50.00
Beg TAPER (115:1)

3.00' Lt "SR-91" 927+80.00
END TAPER (115:1)

BEACH ST

R/W

10' Shld
12'
12'
12'
12'
12'
12'
12'
12'
12' HOV
10' Shld

2' BUFFER

WB ROUTE 91

min 8' Shld

SEE SHEET 5
MATCH LINE STA 119+50

920 1 2 3 4 925 6 N89°46'33"E 7 10688.91' 8 9 930 1 2 3

EB ROUTE 91

1.00' Rt "SR-91" 925+50.00
Beg TAPER (115:1)

3.00' Rt "SR-91" 927+80.00
END TAPER (115:1)

EX. R=988'

R/W ACQUISITION
(74.0 SF)

PROP R/W

REPLACE
OVERCROSSING
STRUCTURE

R/W ACQUISITION
(92.9 SF)

PROP R/W

CITY OF CERRITOS
CITY OF ARTESIA

3.00' Rt "SR-91" 928+75.00
Beg TAPER (115:1)

PROP R/W

BEACH ST

1.00' Lt "SR-91" 931+05.00
END TAPER (115:1)

1.00' Rt "SR-91" 931+05.00
END TAPER (115:1)

MATCH LINE STA 933+50
SEE SHEET 8

MATCH LINE STA 21+50
SEE SHEET 7

DRAFT

LAYOUT

ALTERNATIVE 2

SCALE: 1" = 50'

L-6

REVISED BY | DATE REVISED

DACHENG LEE | ERIC SPANGLER

CALCULATED-DESIGNED BY | CHECKED BY

CONSULTANT FUNCTIONAL SUPERVISOR

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

LAST REVISION 00-00-00 | DATE PLOTTED => 05-FEB-2018 | TIME PLOTTED => 13:43

BORDER LAST REVISED 7/2/2010 | USERNAME => dclee | DGN FILE => 4681_L006_100sc_11x17.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0000 | PROJECT NUMBER & PHASE EA 07-29811

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	La	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. ____ Exp. ____ CIVIL — STATE OF CALIFORNIA

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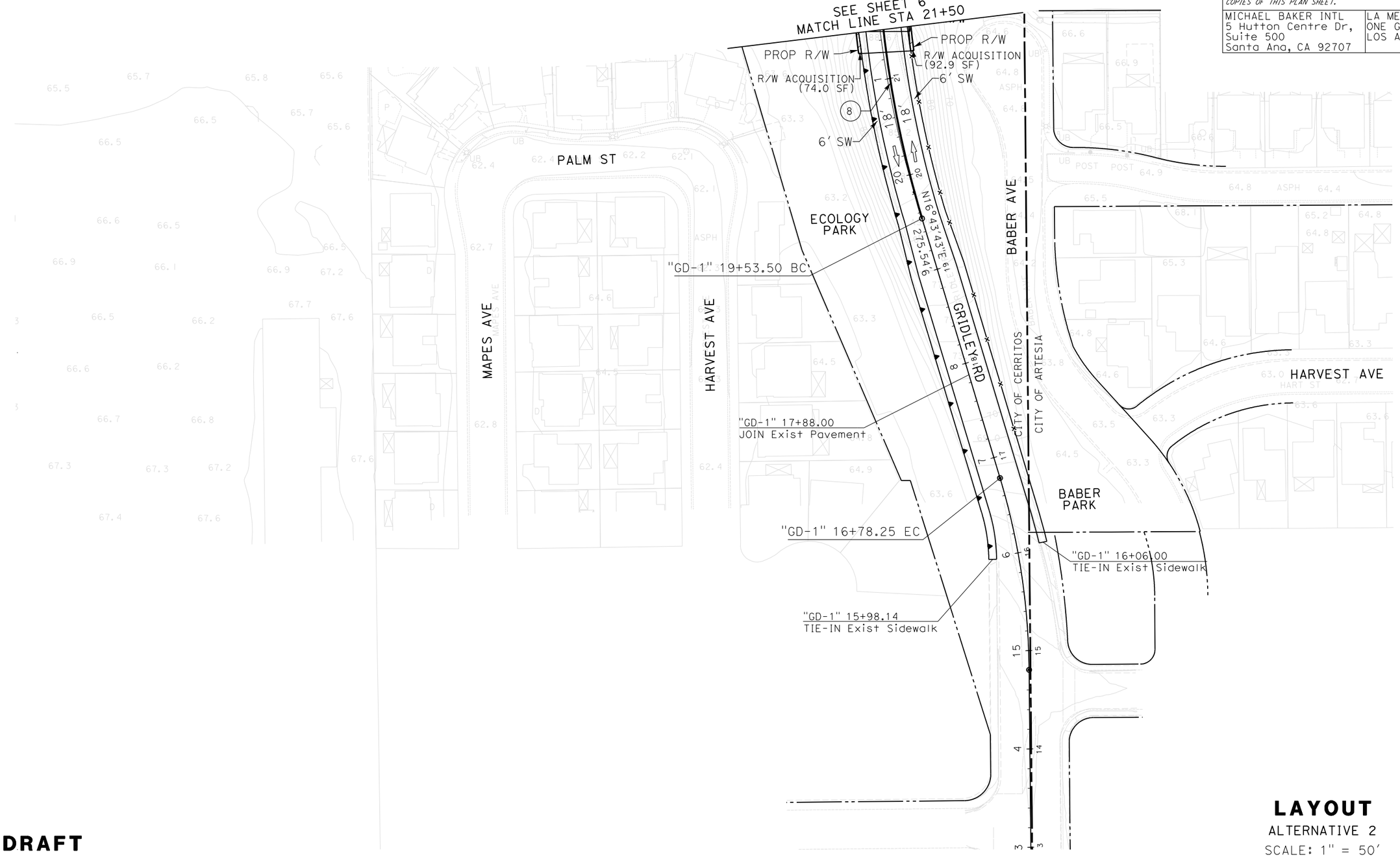
LA METRO
ONE GATEWAY PLAZA
LOS ANGELES, CA 90012

LEGEND

ACQUISITION

CURVE DATA

No.	R	Δ	T	L
(8)	1080.00′	33°46′36″	327.89′	636.68′



LAYOUT

ALTERNATIVE 2

SCALE: 1" = 50′

L-7

DRAFT

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
CONSULTANT FUNCTIONAL SUPERVISOR
CALCULATED-DESIGNED BY
CHECKED BY
DACHENG LEE
ERIC SPANGLER
REVISED BY
DATE REVISED

LAST REVISION 00-00-00
DATE PLOTTED => 05-FEB-2018
TIME PLOTTED => 13:43

BORDER LAST REVISED 7/2/2010

USERNAME => dclee
DGN FILE => 4681_L007_100sc_11x17.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE EA 07-29811

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	La	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. ____ Exp. ____ CIVIL — STATE OF CALIFORNIA

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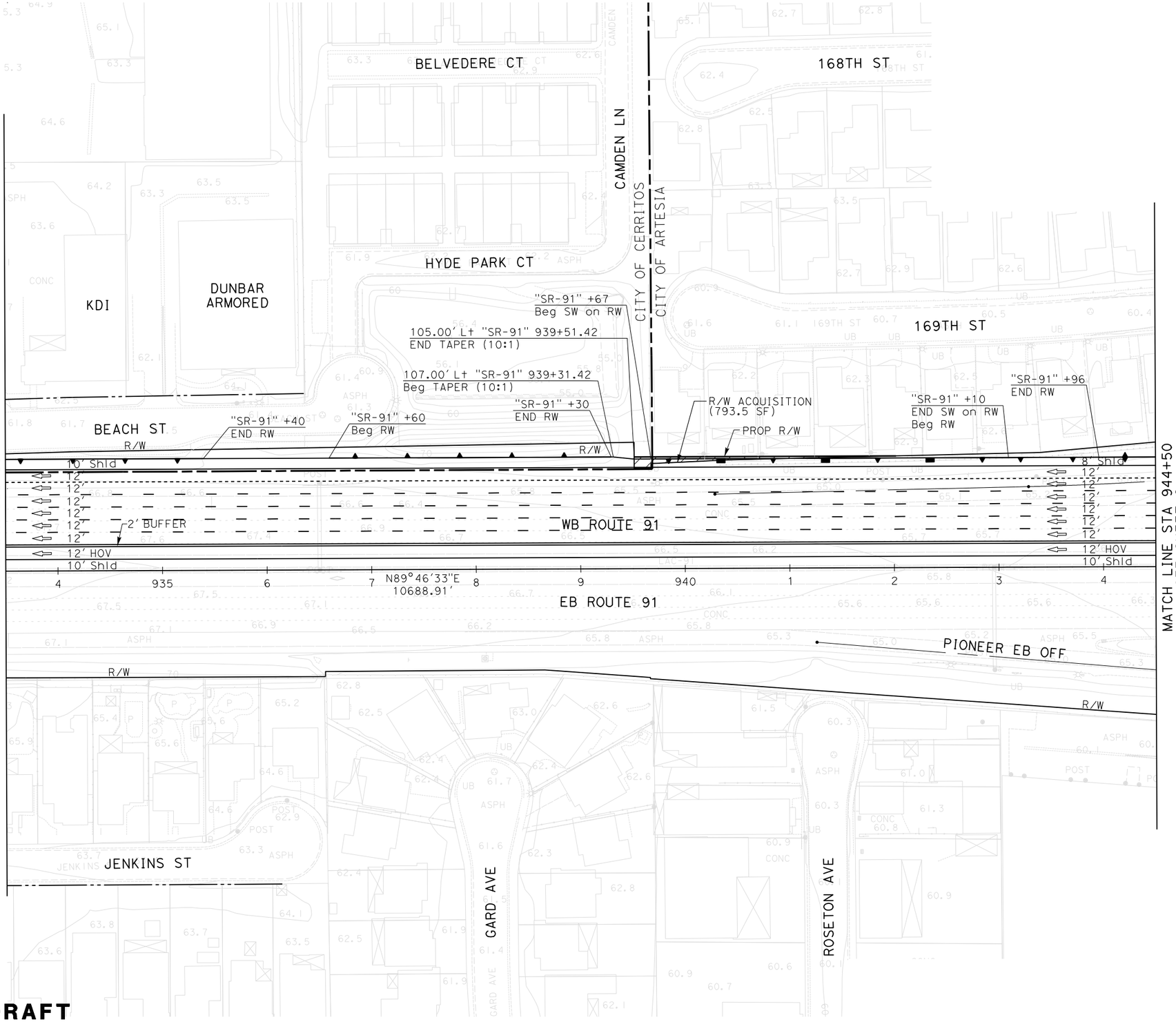

LEGEND

ACQUISITION

DRAFT

LAYOUT

ALTERNATIVE 2

SCALE: 1" = 50'

L-8

LAST REVISION 00-00-00 | DATE PLOTTED => 05-FEB-2018 | TIME PLOTTED => 13:43

REVISED BY	DATE REVISED
DACHENG LEE	
ERIC SPANGLER	
CALCULATED-DESIGNED BY	
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BORDER LAST REVISED 7/2/2010 | USERNAME => dclee | DGN FILE => 4681_L008_100sc_11x17.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0000 | PROJECT NUMBER & PHASE EA 07-29811

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	La	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. ____ Exp. ____ CIVIL — STATE OF CALIFORNIA

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LA METRO
ONE GATEWAY PLAZA
LOS ANGELES, CA 90012

CITY OF ARTESIA

168TH ST

JERSEY AVE

169TH ST

ARTESIA INN AND SUITES

DENNY'S

ARCO GAS STATION ACQUISITION (18212.4 SF)

12.00' Lt "PN-2" 51+95.42
Beg TAPER (15.1:1)

REMOVE Existing Pvmt

"PN-2" 51+95.42 BC

"PN-2" 53+62.52 EC

"PN-2" +95
Beg Barrier

R/W

(11) PIONEER WB ON

4' Shld
8' Shld
12'
12' HOV

8' Shld
12'
12'
12'
12'
12'
12'

N88°37'48"E 300.06'

2' BUFFER

WB ROUTE 91

12' HOV
10' Shld

12'
12'
10' Shld
12'
12'
12' HOV
10' Shld

945 6 7 8 9 950 N89°46'33"E 10688.91' 1 2 3 4

EB ROUTE 91

SEE SHEET 8
MATCH LINE STA 944+50

MATCH LINE STA 954+50
SEE SHEET 10

PIONEER EB OFF

PIONEER EB ON (LOOP)

R/W

ALBURTIS AVE

DRAFT

LEGEND

ACQUISITION

CURVE DATA

No.	R	Δ	T	L
(11)	3000.00'	3°11'29"	83.57'	167.10'

LAYOUT

ALTERNATIVE 2

SCALE: 1" = 50'

L-9

LAST REVISION 00-00-00
DATE PLOTTED => 05-FEB-2018
TIME PLOTTED => 13:43

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CONSULTANT FUNCTIONAL SUPERVISOR

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

BORDER LAST REVISED 7/2/2010

USERNAME => dclee
DGN FILE => 4681_L009_100sc_11x17.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE EA 07-29811

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	La	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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Suite 500
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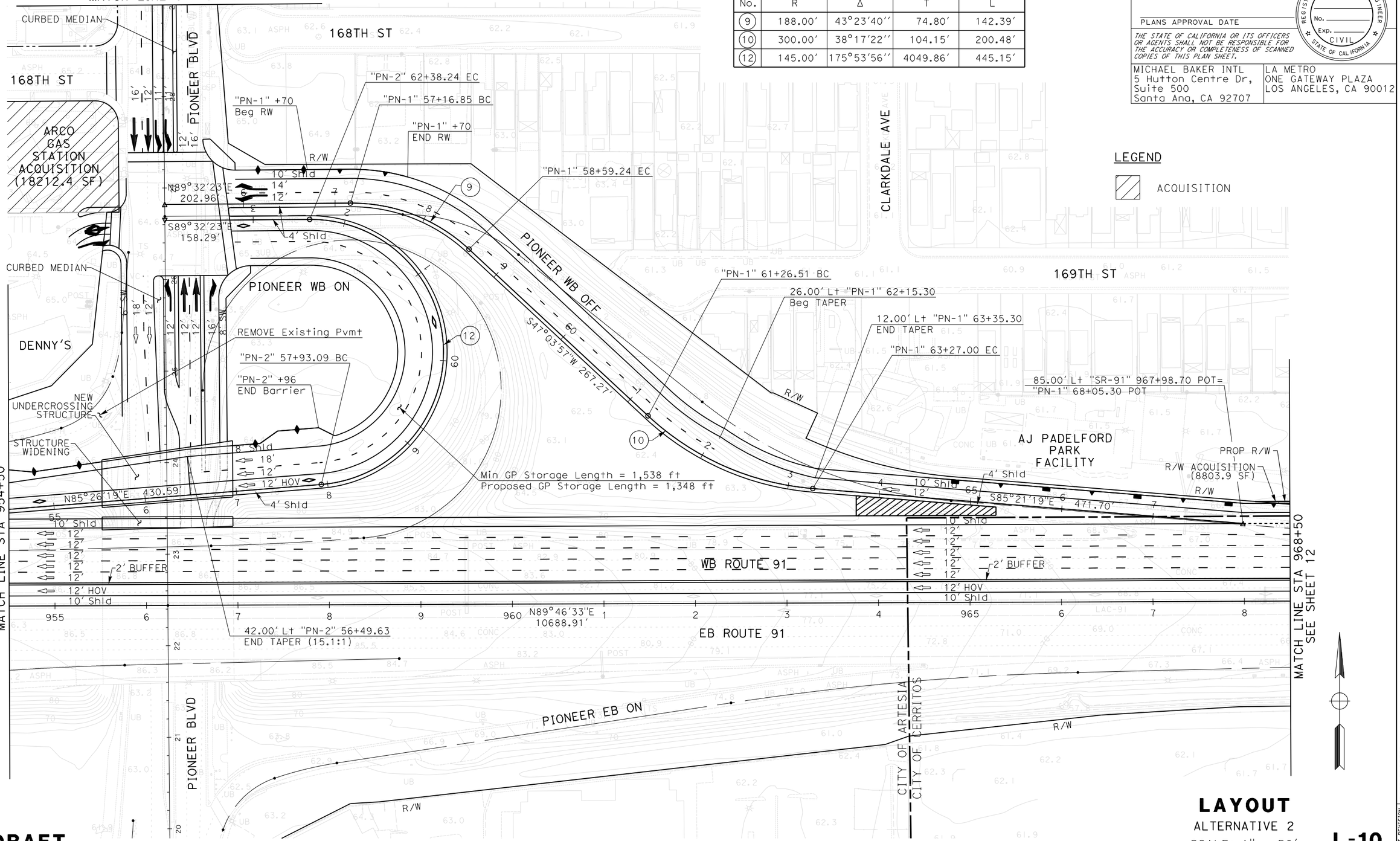
LA METRO
ONE GATEWAY PLAZA
LOS ANGELES, CA 90012

CURVE DATA

No.	R	Δ	T	L
(9)	188.00′	43°23′40″	74.80′	142.39′
(10)	300.00′	38°17′22″	104.15′	200.48′
(12)	145.00′	175°53′56″	4049.86′	445.15′

LEGEND

ACQUISITION



DRAFT

LAYOUT

ALTERNATIVE 2

SCALE: 1" = 50′

L-10

LAST REVISION 00-00-00 | DATE PLOTTED => 05-FEB-2018 | TIME PLOTTED => 13:43

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BORDER LAST REVISED 7/2/2010	USERNAME => dclee DGN FILE => 4681_L010_100sc_11x17.dgn	RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3	UNIT 0000	PROJECT NUMBER & PHASE	EA 07-29811

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	La	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. ____ Exp. ____ CIVIL — STATE OF CALIFORNIA

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LA METRO
ONE GATEWAY PLAZA
LOS ANGELES, CA 90012

CITY OF NORWALK

CITY OF ARTESIA

166TH ST

ARKANSAS ST

ARTESIA BUILDING MATERIALS

CERRITOS AUTO REPAIR CENTER

PIONEER BLVD

R/W

167TH ST

RELOCATE BUS STOP

CURBED MEDIAN

EL POLLO LOCO

280' Left Turn Pocket

1 STOP FLOORING SUPPLY

CHEVRON GAS STATION

16' 12' 11' 11' 12' 16'

MATCH LINE STA 29+00
SEE SHEET 10

DRAFT

LAYOUT

ALTERNATIVE 2

SCALE: 1" = 50'

L-11

LAST REVISION 00-00-00 | DATE PLOTTED => 05-FEB-2018 | TIME PLOTTED => 13:43

REVISED BY | DATE REVISED

DACHENG LEE | ERIC SPANGLER

CALCULATED-DESIGNED BY | CHECKED BY

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Caltrans

BORDER LAST REVISED 7/2/2010 | USERNAME => dclee | DGN FILE => 4681_L011_100sc_11x17.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0000 | PROJECT NUMBER & PHASE EA 07-29811

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	La	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. ____ Exp. ____ CIVIL — STATE OF CALIFORNIA

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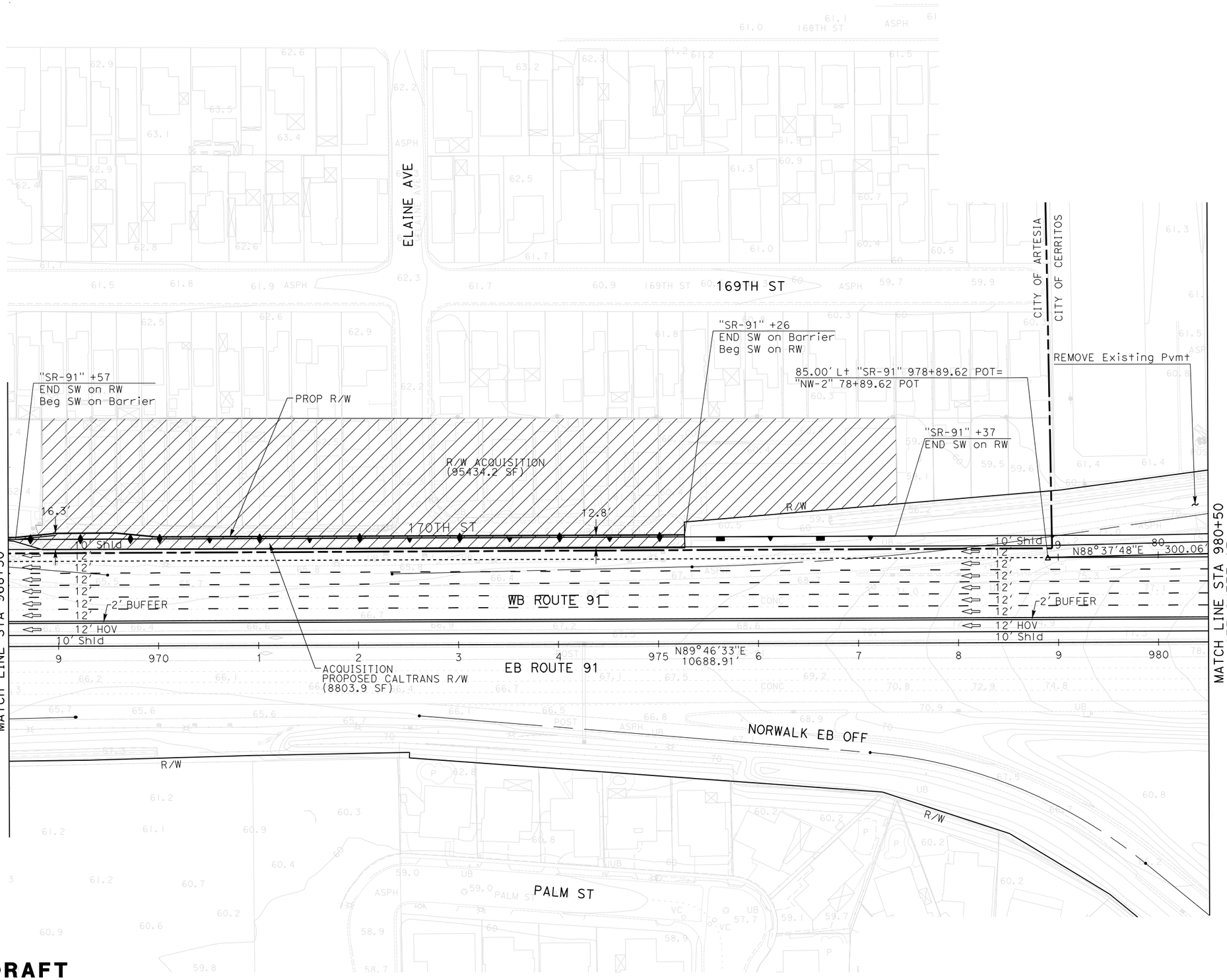
Santa Ana, CA 92707

LA METRO
ONE GATEWAY PLAZA
LOS ANGELES, CA 90012



LEGEND

ACQUISITION

LAYOUT

ALTERNATIVE 2

SCALE: 1" = 50'

L-12

DRAFT

REVISED BY	DATE REVISED

CALCULATED-DESIGNED BY
DACHENG LEE

CHECKED BY
ERIC SPANGLER

CONSULTANT FUNCTIONAL SUPERVISOR

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION 00-00-00
DATE PLOTTED => 05-FEB-2018
TIME PLOTTED => 13:43

BORDER LAST REVISED 7/2/2010 | USERNAME => dclee | DGN FILE => 4681_L012_100sc_11x17.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0000 | PROJECT NUMBER & PHASE EA 07-29811

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	La	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

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Suite 500
Santa Ana, CA 92707

LA METRO
ONE GATEWAY PLAZA
LOS ANGELES, CA 90012

SEE SHEET 14
MATCH LINE STA 29+50

CITY OF CERRITOS

WRIGHT PLUMBING SUPPLY

20.09' Rt "NW" 29+16.75
Beg TAPER (13.5:1)

R/W ACQUISITION (4004.5 SF)

210' Left Turn Pocket

PARK ST

TRACY HIGH SCHOOL

PROP R/W

6' SW

SHELL GAS STATION

"NW-1" 86+83.51 BC

R/W

"NW-1" 88+18.39 EC

GOLDEN BAKE FOOD PRODUCTS

CERRITOS BUSINESS CENTER

ABC ADULT SCHOOL

N89°04'57"E 204.42'

S89°04'57"W 214.63'

REMOVE Existing Pvmt
Close on-ramp

8' SW

CURBED MEDIAN

NORWALK WB ON

NORWALK WB OFF

S53°50'16"E 211.13'

"NW-1" +24
Beg Barrier

"NW-1" 90+97.78 BC

12.00' Lt "NW-1" 93+66.14
END Taper

"NW-1" 93+66.14 EC

26.00' Lt "NW-1" 92+46.14
Beg TAPER

12.00' Lt "NW-2" 81+89.68
Beg TAPER (16.1:1)

"NW-2" 81+89.68 BC

"NW-2" 91+86.11 EC

8' SW

42.00' Lt "NW-2" 86+73.26
END TAPER (16.1:1)

"NW-2" 87+85.97 BC

"NW-2" 83+56.78 EC

R/W

STRUCTURE WIDENING

Min GP Storage Length = 1,490 ft
Proposed GP Storage Length = 1,298 ft

4' Shld

S84°52'11"E 189.14'

N88°37'48"E 300.06'

N85°26'19"E 429.19'

2' BUFFER

WB ROUTE 91

N89°46'33"E 10688.91'

EB ROUTE 91

NORWALK EB ON (LOOP)

NORWALK EB ON

NORWALK BLVD

MATCH LINE STA 994+50
SEE SHEET 15

SEE SHEET 12
MATCH LINE STA 980+50

LEGEND

ACQUISITION

CURVE DATA

No.	R	Δ	T	L
13	210.00'	36°48'00''	69.86'	134.87'
14	500.00'	30°45'07''	137.50'	268.36'
16	3000.00'	3°11'29''	83.57'	167.10'
17	130.00'	176°21'23''	4087.04'	400.14'

DRAFT

LAYOUT

ALTERNATIVE 2

SCALE: 1" = 50'

L-13

REVISED BY	DATE REVISED
DACHENG LEE	ERIC SPANGLER
CALCULATED-DESIGNED BY	CHECKED BY

CONSULTANT FUNCTIONAL SUPERVISOR

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

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LAST REVISION 00-00-00

DATE PLOTTED => 05-FEB-2018
TIME PLOTTED => 13:43

BORDER LAST REVISED 7/2/2010

USERNAME => dclee
DGN FILE => 4681_L013_100sc_11x17.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE EA 07-29811

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	La	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. ____ Exp. ____ CIVIL — STATE OF CALIFORNIA

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5 Hutton Centre Dr,
Suite 500
Santa Ana, CA 92707

LA METRO
ONE GATEWAY PLAZA
LOS ANGELES, CA 90012

CITY OF NORWALK
CITY OF CERRITOS

166TH ST

PARKSIDE AVE

NORWALK BLVD

CUESTA DR

6.00' Rt "NW" 31+03.75
END TAPER (13.5:1)

CURBED MEDIAN

PROP R/W

R/W ACQUISITION
(4004.5 SF)

12'

16'

ABC UNIFIED SCHOOL DISTRICT

TRACY HIGH SCHOOL
ABC ADULT SCHOOL

MATCH LINE STA 29+50
SEE SHEET 13

LEGEND

ACQUISITION

LAYOUT

ALTERNATIVE 2

SCALE: 1" = 50'

L-14

DRAFT

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CHECKED BY: ERIC SPANGLER
CONSULTANT FUNCTIONAL SUPERVISOR:

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
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TIME PLOTTED => 13:43

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	La	91,605	16.9-19.8, 5.0-5.8		x

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PLANS APPROVAL DATE

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LA METRO
ONE GATEWAY PLAZA
LOS ANGELES, CA 90012

CURVE DATA

No.	R	Δ	T	L
(15)	3682.37′	3°59′29″	128.31′	256.52′
(18)	3600.00′	39°10′21″	1280.93′	2461.28′
(19)	300.00′	80°42′52″	254.93′	422.62′

CITY OF CERRITOS

JUDY WAY

CEDARWOOD CIR

CHAPARRAL AVE

RANCHO VISTA DR

ABC ADULT SCHOOL

CERRITOS VILLAS CONDOS

SEE SHEET 13
MATCH LINE STA 994+50

SEE SHEET 17
MATCH LINE STA 8+35

MATCH LINE STA 1008+30
SEE SHEET 16

"NW-1" 95+38.09 BC

85.00′ Lt "SR-91" 995+43.89
Beg TAPER (115:1)

"NW-1" +00.00
Beg SW on RW RECONSTRUCTION

"NW-1" 97+94.61 EC

82.82′ Lt "SR-91" 997+94.55 POT=
"NW-1" 97+94.61 POT

80.00′ Lt "SR-91" 1001+18.89
END TAPER (115:1)

12.00′ Lt "BL-1" 6+53.83
Beg TAPER (21.8:1)

"BL-1" 6+53.83 BC

80.00′ Lt "SR-91" 1003+51.07 POT=
"BL-1" 3+51.07 POT

"SR-91" +95
END SW on RW RECONSTRUCTION

R/W

NORWALK WB OFF

4′ Shld

8′ Shld

10′ Shld

12′ HOV

2′ BUFFER

WB ROUTE 91

S77°22′39″E 302.76′

BLOOMFIELD WB ON

5′ Shld

N89°46′33″E 10688.91′

"SR-91" 995+43.89 BC

11.00′ Lt "SR-91" 995+43.88
Beg TAPER (115:1)

6.00′ Lt "SR-91" 1001+18.88
END TAPER (115:1)

EB ROUTE 91

NORWALK EB ON

BLOOMFIELD EB OFF

PALM ST

AUTUMN BREEZE ST

STARK AVE

DRAFT

LAYOUT

ALTERNATIVE 2

SCALE: 1" = 50′

L-15

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CHECKED BY: ERIC SPANGLER

REVISED BY	DATE REVISED

LAST REVISION: 00-00-00
DATE PLOTTED => 05-FEB-2018
TIME PLOTTED => 13:43

BORDER LAST REVISED 7/2/2010	USERNAME => dclee DGN FILE => 4681_L015_100sc_11x17.dgn	RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3	UNIT 0000	PROJECT NUMBER & PHASE	EA 07-29811

CURVE DATA

No.	R	Δ	T	L
(18)	3600.00′	39°10′21″	1280.93′	2461.28′
(20)	3666.39′	4°51′07″	155.33′	310.47′

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	La	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. ____ Exp. ____ CIVIL — STATE OF CALIFORNIA

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Suite 500
Santa Ana, CA 92707

LA METRO
ONE GATEWAY PLAZA
LOS ANGELES, CA 90012

CITY OF CERRITOS

LEGEND

ACQUISITION

SEE SHEET 17 MATCH LINE STA 21+50

34.50′ Lt "BL" 21+14.58
Beg TAPER (40:1)

PALM ST

2.85′ Lt "BL" 19+50.06
Beg TAPER (100:1)

6′ SW

13.15′ Rt "BL" 19+49.88
Beg TAPER (50:1)

R/W ACQUISITION
(1547.8 SF)

PROP R/W

"BL" +10
Beg RW

0.41′ Rt "BL" 19+50.00
Beg TAPER (45:1)

2.75′ Lt "SR-91" 1013+25.00
Beg TAPER (115:1)

2.75′ Rt "SR-91" 1013+25.00
Beg TAPER (115:1)

1.00′ Lt "SR-91" 1015+46.25
END TAPER (115:1)

MICHAEL AVE

68.00′ Lt "SR-91" 1016+48.59 POT=
"AR-1" 16+48.59 POT

"AR-1" 16+48.59 BC

68.00′ Lt "SR-91" 1016+65.60
Beg TAPER (115:1)

"AR-1" 19+59.06 EC

12.00′ Lt "AR-1" 19+59.06
Beg TAPER (23.4:1)

BLOOMFIELD AVE

WB ROUTE 91

EB ROUTE 91

10′ Shld
12′ 12′ 12′ 12′ 12′ 12′
2′ BUFFER
12′ HOV
5′ Shld

3.2′ Shld

8′ Shld

S52°31′55″E 460.03′

ARTESIA WB ON

S51°03′06″E 5164.36′

SEE SHEET 15 MATCH LINE STA 1008+50

MATCH LINE STA 1022+50 SEE SHEET 18

1.00′ Lt "SR-91" 1010+08.75
Beg TAPER (115:1)

1.00′ Rt "SR-91" 1010+08.75
Beg TAPER (115:1)

2.75′ Lt "SR-91" 1012+30.00
END TAPER (115:1)

2.75′ Rt "SR-91" 1012+30.00
END TAPER (115:1)

REPLACE OVERCROSSING STRUCTURE

"BL" +75
END RW

"SR-91" 1020+05.17 EC

Exist STAIRS
TO BE RECONSTRUCTED

32.85′ Lt "BL" 16+70.00
END TAPER (38:1)

13.15′ Rt "BL" 16+70.00
END TAPER (30:1)

2.85′ Lt "BL" 16+70.00
END TAPER (100:1)

PROP R/W

0.41′ Rt "BL" 16+96.79
END TAPER (45:1)

1.00′ Rt "SR-91" 1015+46.25
END TAPER (115:1)

3.89′ Lt "BL" 15+65.76
Beg TAPER (100:1)

R/W ACQUISITION
(1159.6 SF)

3.89′ Lt "BL" 15+03.25
Beg TAPER (45:1)

ARIA APARTMENTS

SAGE APARTMENTS

BLOOMFIELD EB OFF

CURBED MEDIAN

"BL" +97
Beg RW

23.25′ Rt "BL" 13+67.16
Beg TAPER (30:1)

41.89′ Lt "BL" 13+23.00
Beg TAPER (38:1)

DRAFT

LAYOUT
ALTERNATIVE 2
SCALE: 1" = 50′

L-16

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CONSULTANT FUNCTIONAL SUPERVISOR
CALCULATED-DESIGNED BY
CHECKED BY
DACHENG LEE
ERIC SPANGLER
REVISED BY
DATE REVISED

LAST REVISION 00-00-00
DATE PLOTTED => 05-FEB-2018
TIME PLOTTED => 13:43

BORDER LAST REVISED 7/2/2010
USERNAME => dclee
DGN FILE => 4681_L016_100sc_11x17.dgn
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
UNIT 0000
PROJECT NUMBER & PHASE EA 07-29811

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	La	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. ____ Exp. ____ CIVIL — STATE OF CALIFORNIA

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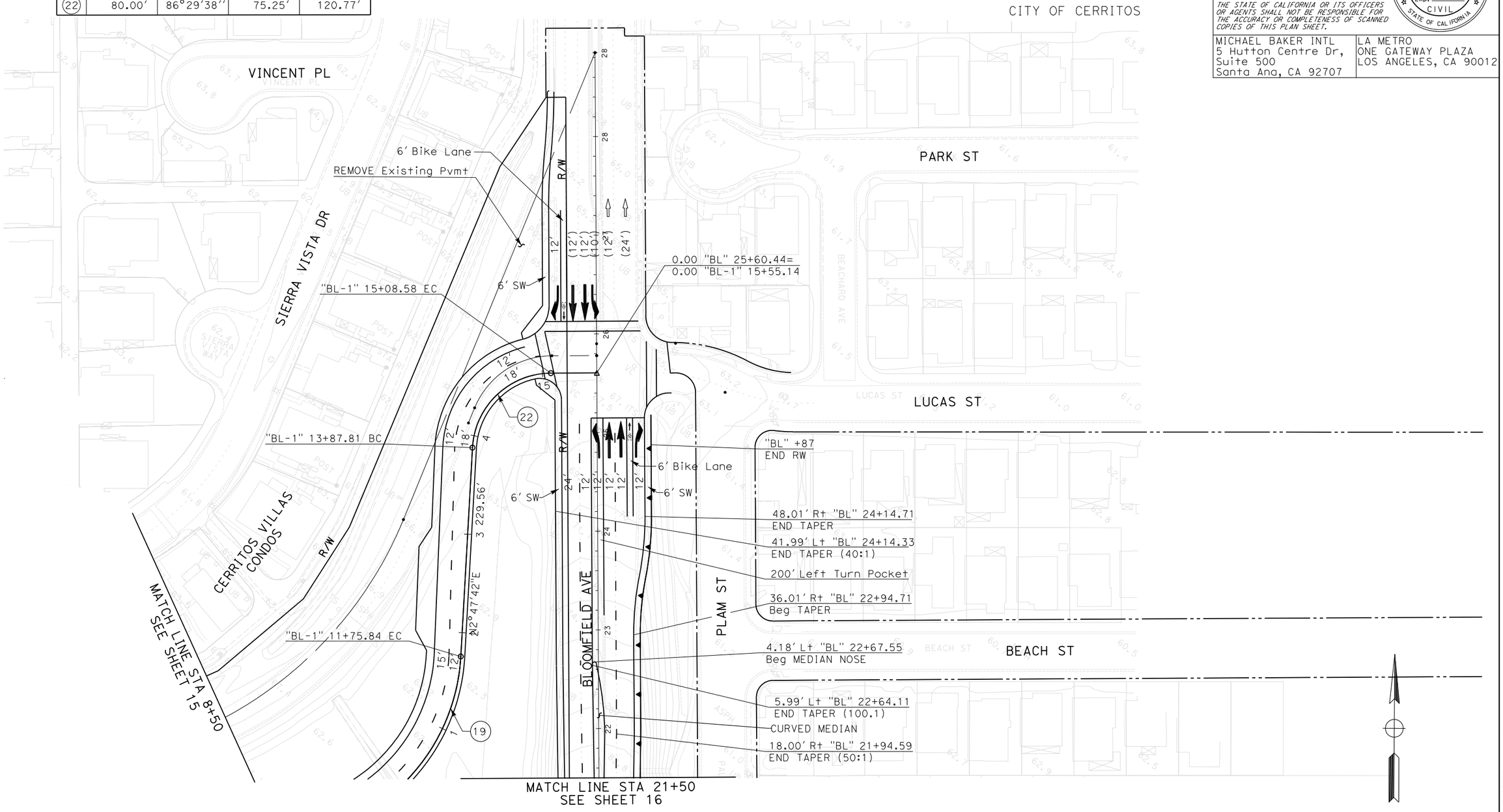
Suite 500
Santa Ana, CA 92707

LA METRO
ONE GATEWAY PLAZA
LOS ANGELES, CA 90012

CURVE DATA

No.	R	Δ	T	L
(19)	196.00′	103°21′39″	248.00′	353.58′
(22)	80.00′	86°29′38″	75.25′	120.77′



LAYOUT

ALTERNATIVE 2

SCALE: 1" = 50′

L-17

DRAFT

REVISED BY	DATE REVISED

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	La	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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LA METRO
ONE GATEWAY PLAZA
LOS ANGELES, CA 90012

CURVE DATA

No.	R	Δ	T	L
(21)	500.00′	30°18′51″	135.44′	264.54′

CITY OF CERRITOS

DE GROAT PL

ACLARE ST

ALFRED AVE

MARIA AVE

TERRY LYN LN

ARTESIA BLVD

ARTESIA BLVD WB OFF-RAMP

R/W

"AR-1" 32+38.16
JOIN Existing Pvmt

22.34′ Lt "AR-1" 32+33.13
END TAPER (15:1)

36.00′ Lt "AR-1" 30+28.16
Beg TAPER (15:1)

Min GP Storage Length = 1,748 ft
Proposed GP Storage Length = 1,456 ft

36.00′ Lt "AR-1" 25+21.87
End TAPER (23.4:1)

R/W ACQUISITION
(1149.4 SF)

PROP R/W

"AR-1" 24+19.10 BC

"AR-1" 26+83.64 EC

S82°50′46"E 699.13′

S52°31′55"E 460.03′

59.00′ Lt "SR-91" 1027+00.49
END TAPER (115:1)

8′ Shld
12′
12′
12′ HOV
4′ Shld

(10′) Shld
(11′)
(11′)
(11′)
(11′)
(12′) HOV

WB ROUTE 91

EB ROUTE 91

S51°03′06"E
5164.36′

SEE SHEET 16
MATCH LINE STA 1022+50

LEGEND

ACQUISITION

DRAFT

LAYOUT
ALTERNATIVE 2
SCALE: 1" = 50′

L-18

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DATE PLOTTED => 05-FEB-2018
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BORDER LAST REVISED 7/2/2010
USERNAME => dclee
DGN FILE => 4681_L018_100sc_11x17.dgn
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
UNIT 0000
PROJECT NUMBER & PHASE EA 07-29811

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	La	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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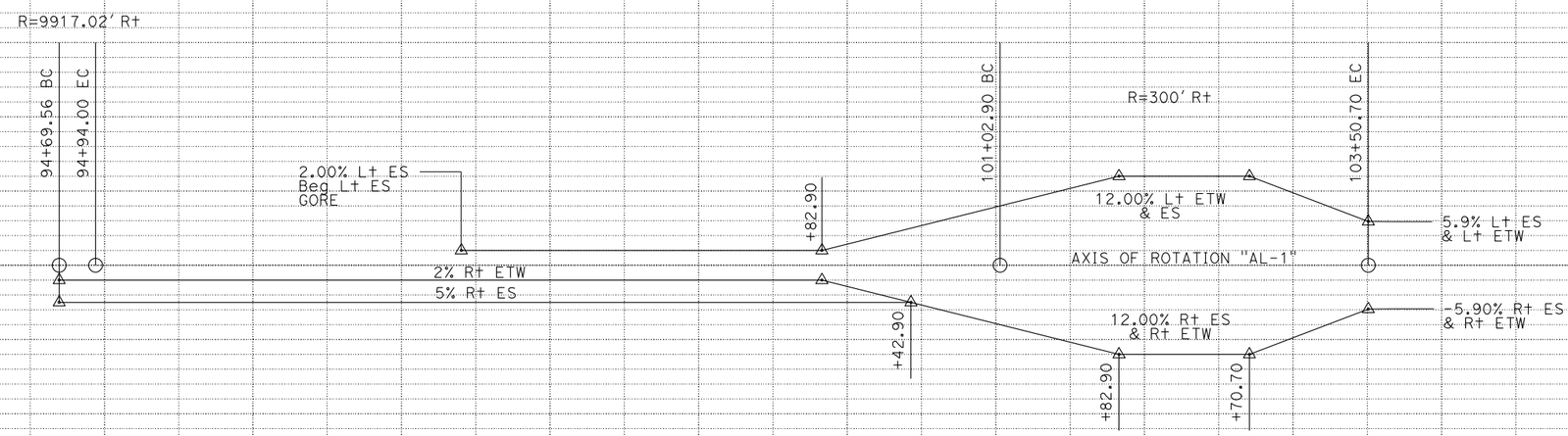
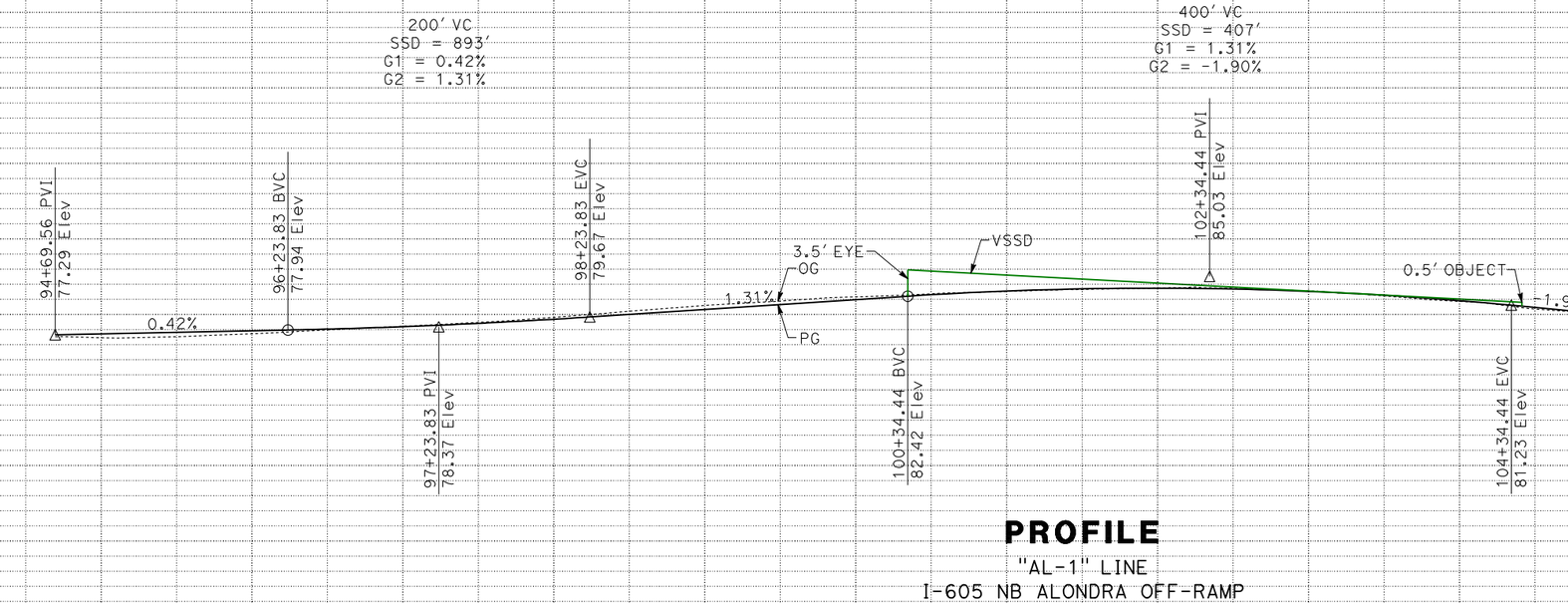


SUPERELEVATION DIAGRAM

"AL-1" LINE
I-605 NB ALONDRA OFF-RAMP



PROFILE

"AL-1" LINE
I-605 NB ALONDRA OFF-RAMP

PROFILE AND SUPERELEVATION DIAGRAM

ALTERNATIVE 2
SCALE: Horiz 1" = 50'
Vert 1" = 10'

PS-1

DRAFT

STATION	95+00	96+00	97+00	98+00	99+00	100+00	101+00	102+00	103+00	104+00	105+00	106+00	107+00	108+00	TOTAL
CY Exc															
CY Emb															

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leanne.nguyen 01-FEB-2018 07:45

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	La	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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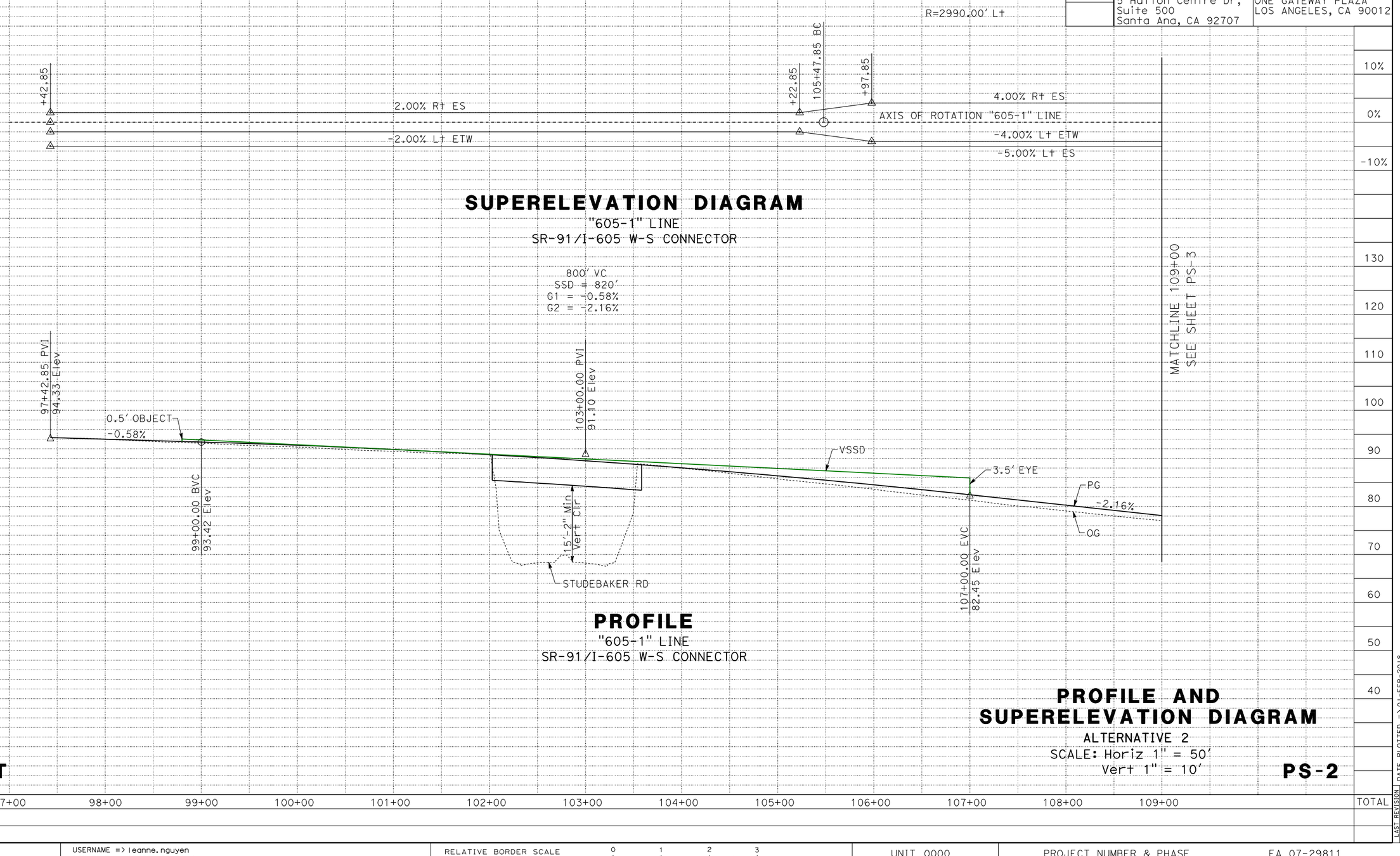

SUPERELEVATION DIAGRAM

"605-1" LINE
SR-91/I-605 W-S CONNECTOR

800' VC
SSD = 820'
G1 = -0.58%
G2 = -2.16%

PROFILE

"605-1" LINE
SR-91/I-605 W-S CONNECTOR

DRAFT

PROFILE AND SUPERELEVATION DIAGRAM

ALTERNATIVE 2
SCALE: Horiz 1" = 50'
Vert 1" = 10'

PS-2

STATION	97+00	98+00	99+00	100+00	101+00	102+00	103+00	104+00	105+00	106+00	107+00	108+00	109+00	TOTAL
CY Exc														
CY Emb														

REVISED BY | DATE REVISED
DACHENG LEE | ERIC SPANGLER
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leanne.nguyen 01-FEB-2018 07:45
H:\pdata\154681\CADD\TransPW\Div\Profile\154681-PS-02.dgn

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	La	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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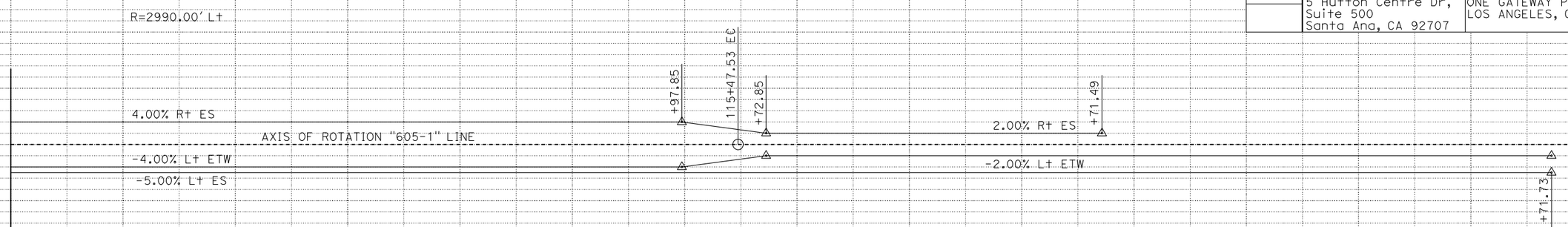
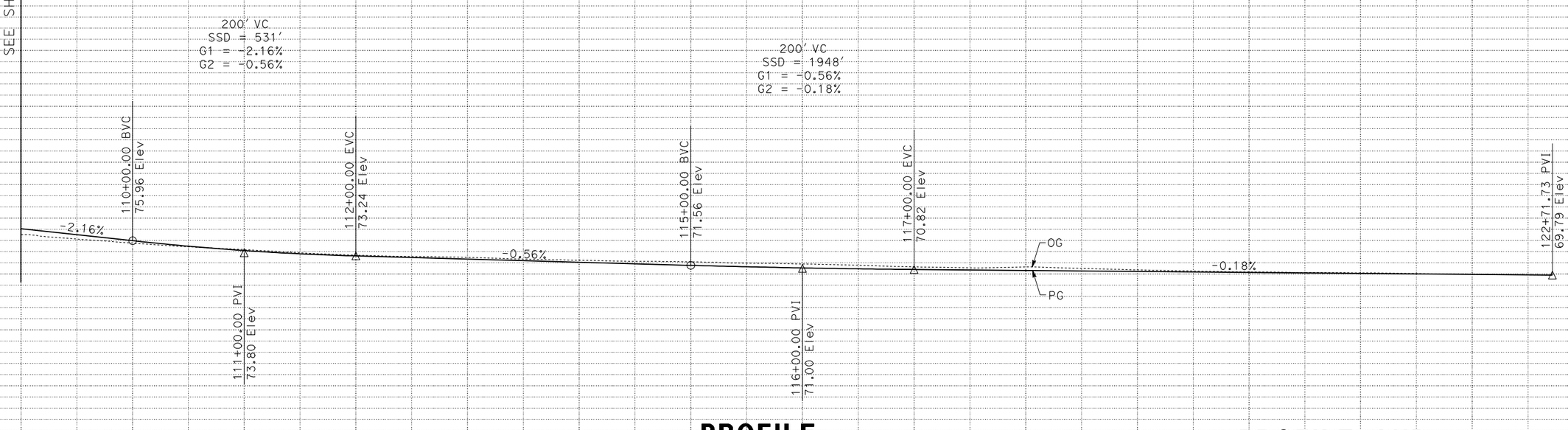


SUPERELEVATION DIAGRAM

"605-1" LINE
SR-91/I-605 W-S CONNECTOR



PROFILE

"605-1" LINE
SR-91/I-605 W-S CONNECTOR

DRAFT

PROFILE AND SUPERELEVATION DIAGRAM

ALTERNATIVE 2
SCALE: Horiz 1" = 50'
Vert 1" = 10'

PS-3

STATION	109+00	110+00	111+00	112+00	113+00	114+00	115+00	116+00	117+00	118+00	119+00	120+00	121+00	122+00	TOTAL
CY Exc															
CY Emb															

REVISED BY | DATE REVISED
DACHENG LEE | ERIC SPANGLER
CALCULATED-DESIGNED BY | CHECKED BY
CONSULTANT FUNCTIONAL SUPERVISOR
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
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leanne.nguyen 01-FEB-2018 07:45
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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	La	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. — Exp. — CIVIL — STATE OF CALIFORNIA

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LA METRO
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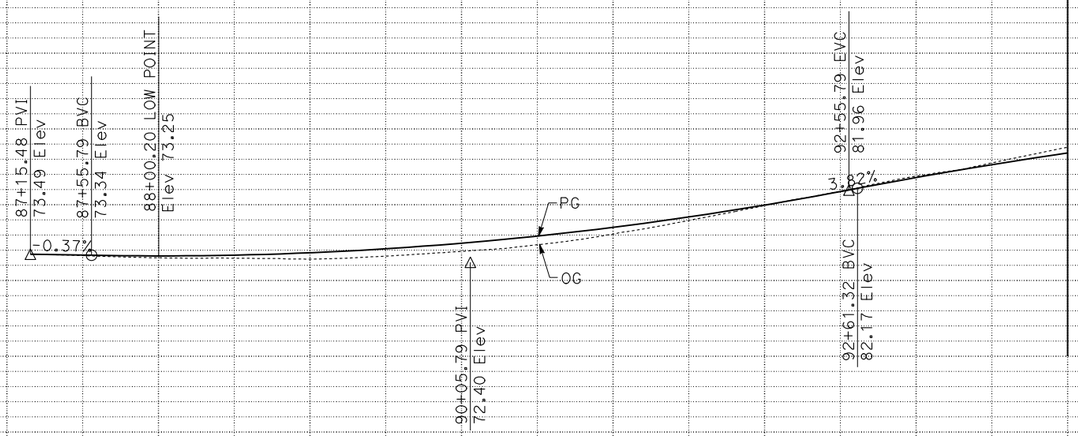
LOS ANGELES, CA 90012

SUPERELEVATION DIAGRAM

"605-2" LINE
SR-91/I-605 W-N CONNECTOR

500' VC
SSD = 511'
G1 = -0.37%
G2 = 3.82%

MATCHLINE 94+00
SEE SHEET PS-5



PROFILE

"605-2" LINE
SR-91/I-605 W-N CONNECTOR

PROFILE AND SUPERELEVATION DIAGRAM

ALTERNATIVE 2
SCALE: Horiz 1" = 50'
Vert 1" = 10'

PS-4

DRAFT

STATION	86+00	87+00	88+00	89+00	90+00	91+00	92+00	93+00	94+00	TOTAL
CY Exc										
CY Emb										

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CHECKED BY: ERIC SPANGLER
SUPERVISOR:
CONSULTANT FUNCTIONAL SUPERVISOR

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	La	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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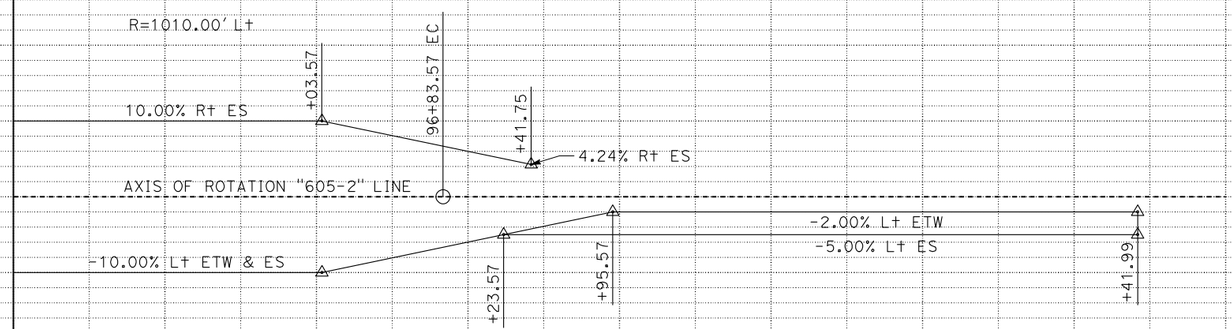
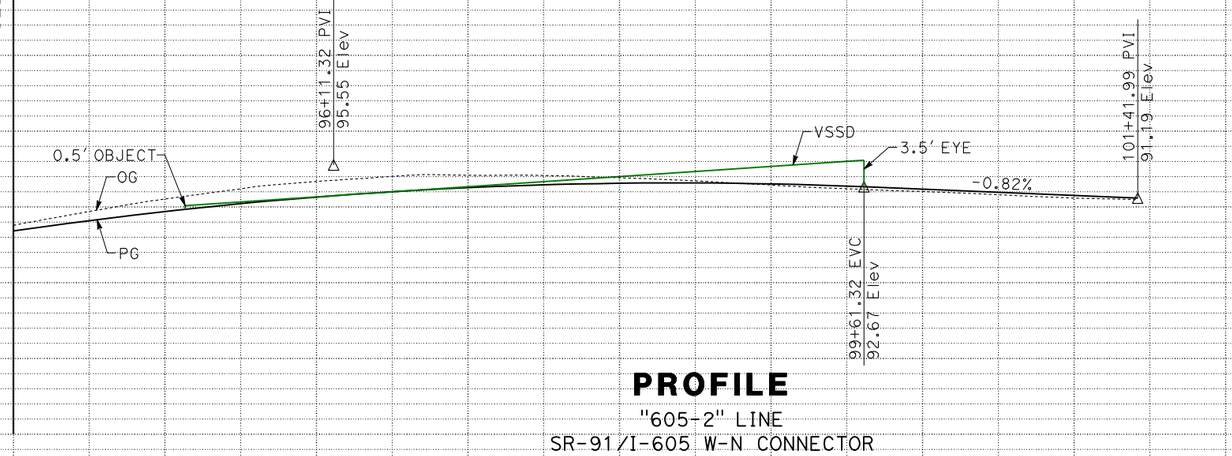


SUPERELEVATION DIAGRAM

"605-2" LINE
SR-91/I-605 W-N CONNECTOR

700' VC
SSD = 448'
G1 = 3.82%
G2 = -0.82%

MATCHLINE 94+00
SEE SHEET PS-4



PROFILE

"605-2" LINE
SR-91/I-605 W-N CONNECTOR

PROFILE AND SUPERELEVATION DIAGRAM

ALTERNATIVE 2
SCALE: Horiz 1" = 50'
Vert 1" = 10'

PS-5

DRAFT

STATION		94+00	95+00	96+00	97+00	98+00	99+00	100+00	101+00	102+00	TOTAL
CY	Exc										
	Emb										

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	La	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

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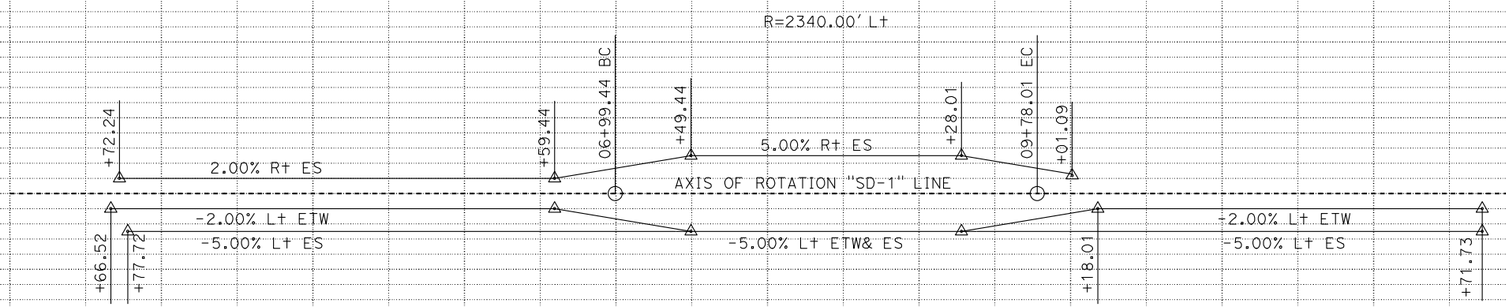
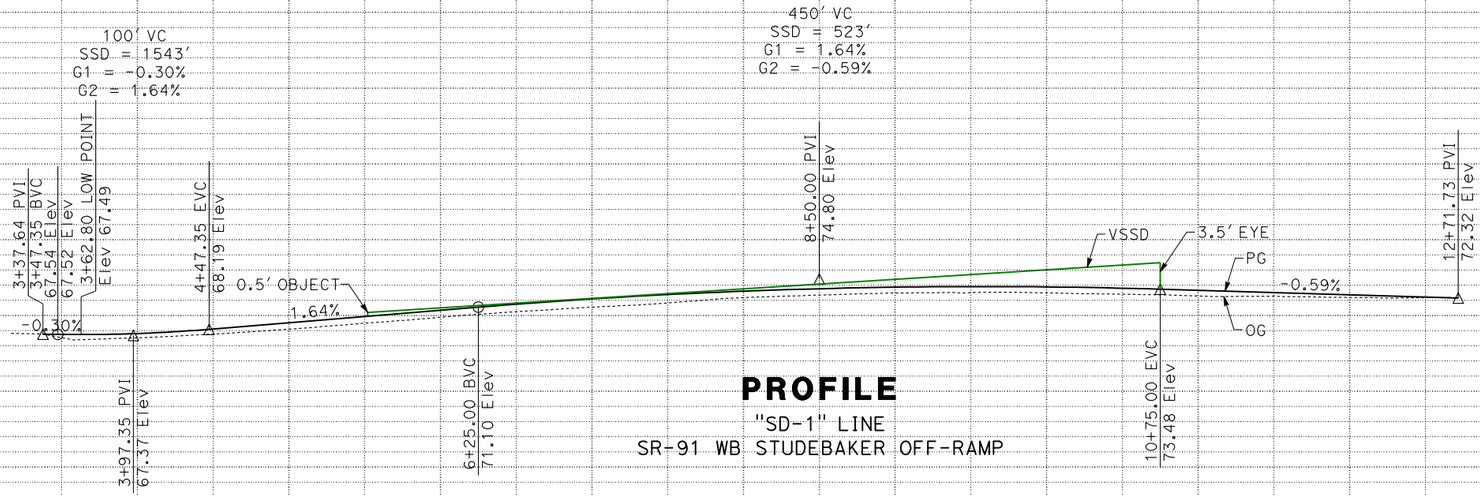


SUPERELEVATION DIAGRAM

"SD-1" LINE
SR-91 WB STUDEBAKER OFF-RAMP



PROFILE

"SD-1" LINE
SR-91 WB STUDEBAKER OFF-RAMP

PROFILE AND SUPERELEVATION DIAGRAM

ALTERNATIVE 2
SCALE: Horiz 1" = 50'
Vert 1" = 10'

PS-6

DRAFT

STATION	2+00	3+00	4+00	5+00	6+00	7+00	8+00	9+00	10+00	11+00	12+00	13+00	14+00	15+00	TOTAL
CY Exc															
CY Emb															

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	La	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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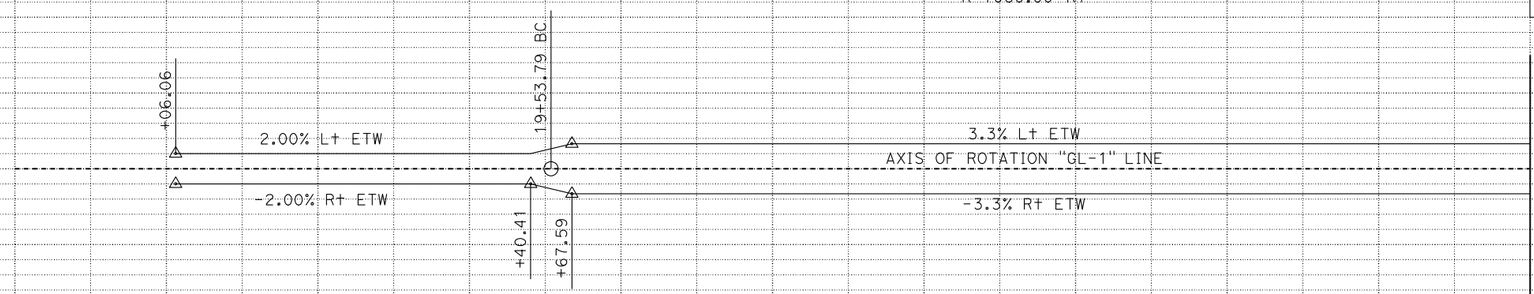
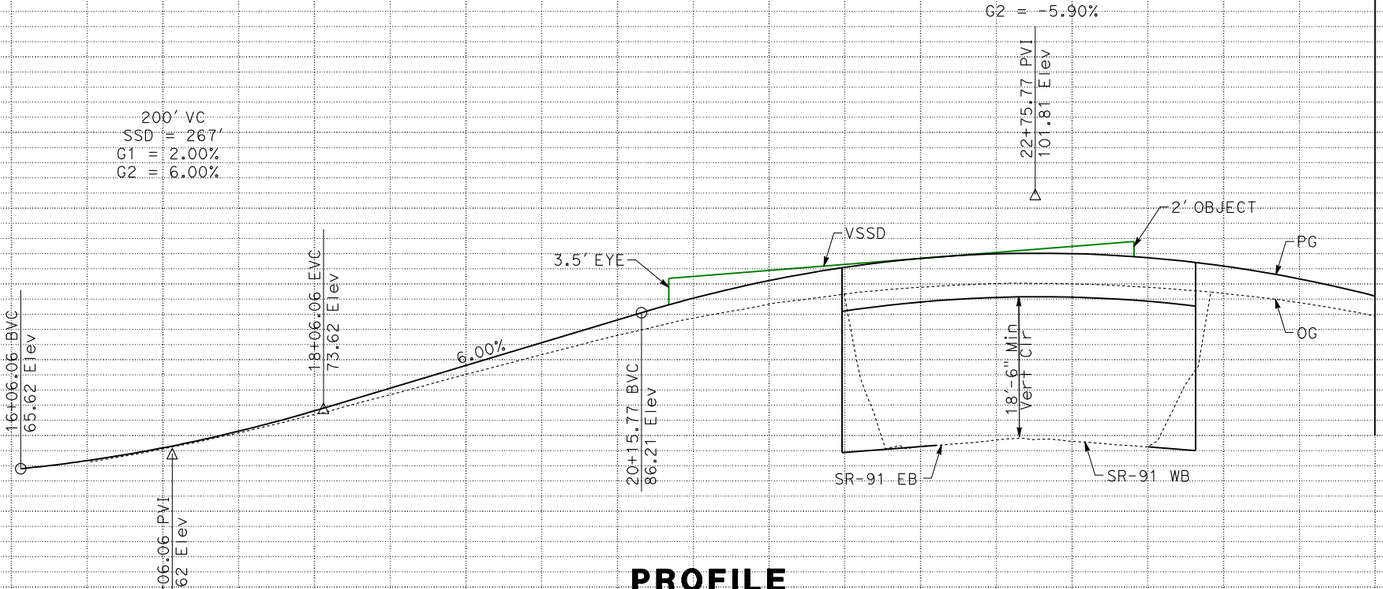


SUPERELEVATION DIAGRAM

"GL-1" LINE
GRIDLEY RD



PROFILE

"GL-1" LINE
GRIDLEY RD

PROFILE AND SUPERELEVATION DIAGRAM

ALTERNATIVE 2
SCALE: Horiz 1" = 50'
Vert 1" = 10'

PS-7

DRAFT

STATION	15+00	16+00	17+00	18+00	19+00	20+00	21+00	22+00	23+00	24+00	25+00	TOTAL
CY Exc												
CY Emb												

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	La	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

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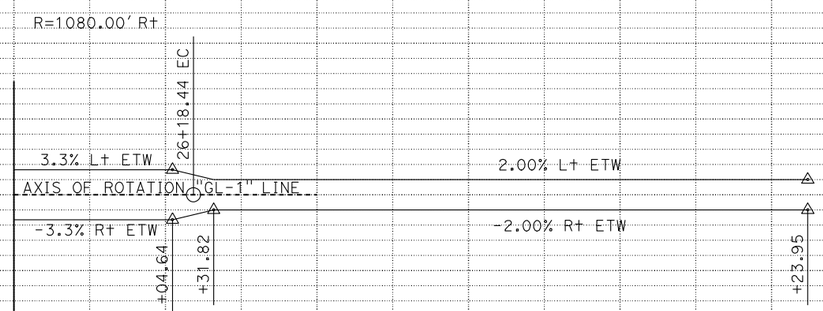
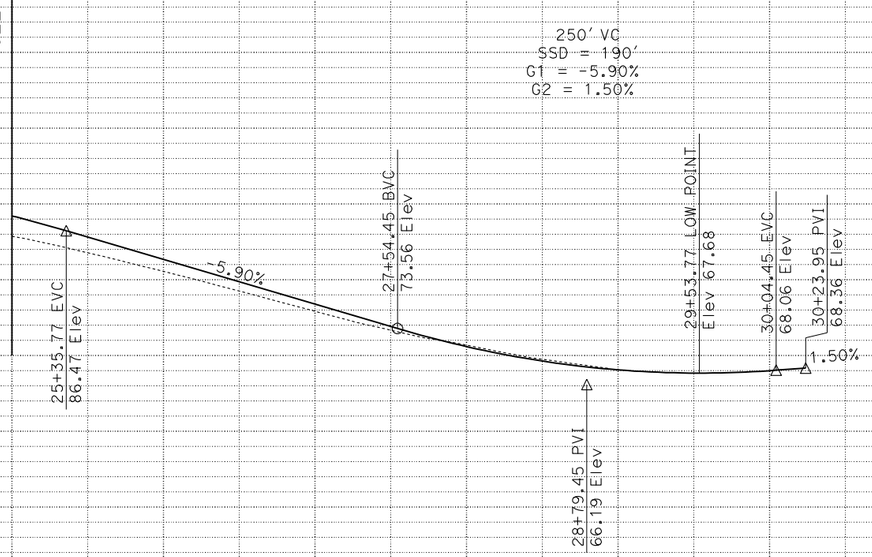


SUPERELEVATION DIAGRAM

"GL-1" LINE
GRIDLEY RD



PROFILE

"GL-1" LINE
GRIDLEY RD

PROFILE AND SUPERELEVATION DIAGRAM

ALTERNATIVE 2
SCALE: Horiz 1" = 50'
Vert 1" = 10'

PS-8

DRAFT

STATION		25+00	26+00	27+00	28+00	29+00	30+00	31+00	TOTAL
CY	Exc								
	Emb								

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	La	91,605	16.9-19.8, 5.0-5.8		x

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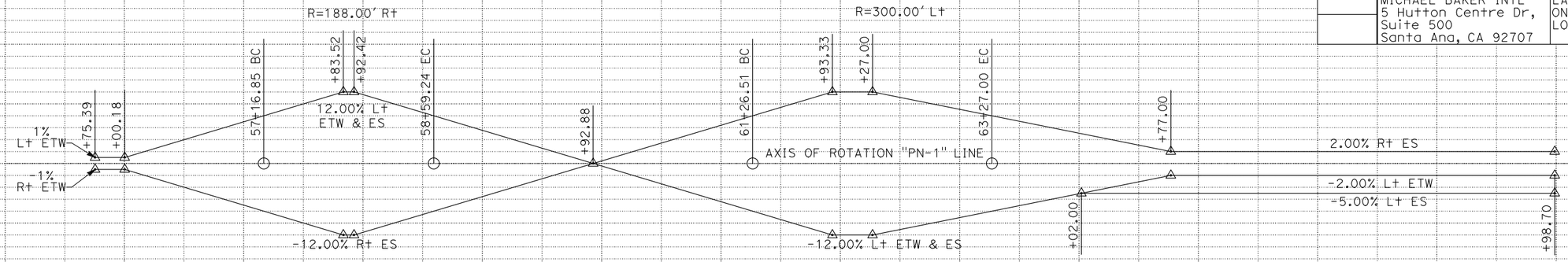
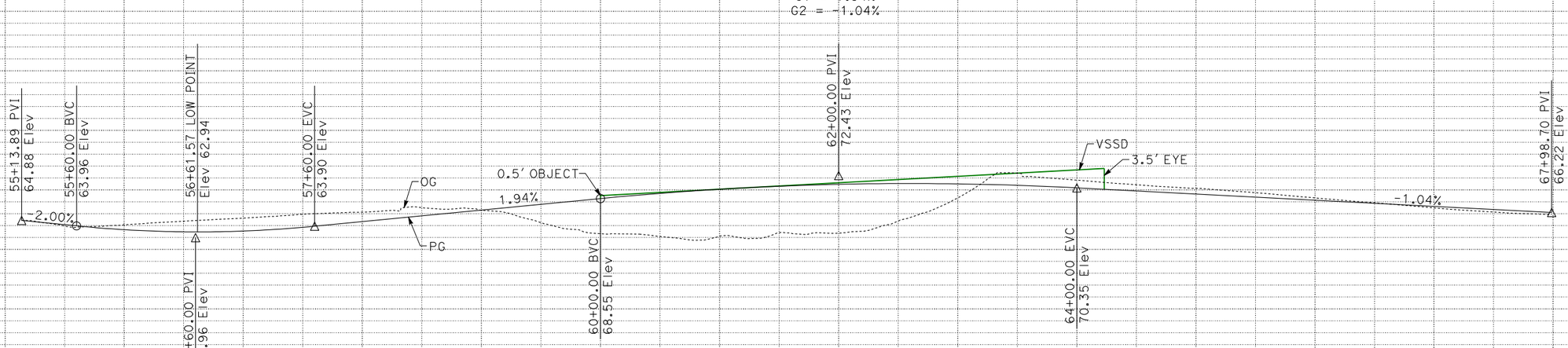


SUPERELEVATION DIAGRAM

"PN-1" LINE
SR-91 WB PIONEER OFF-RAMP



PROFILE

"PN-1" LINE
SR-91 WB PIONEER OFF-RAMP

PROFILE AND SUPERELEVATION DIAGRAM

ALTERNATIVE 2
SCALE: Horiz 1" = 50'
Vert 1" = 10'

PS-9

DRAFT

STATION		55+00	56+00	57+00	58+00	59+00	60+00	61+00	62+00	63+00	64+00	65+00	66+00	67+00	68+00	TOTAL
CY	Exc															
	Emb															

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	La	91,605	16.9-19.8, 5.0-5.8		x

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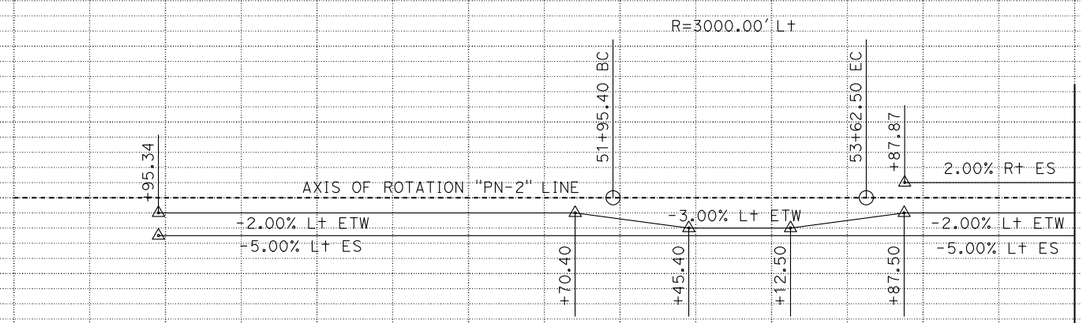
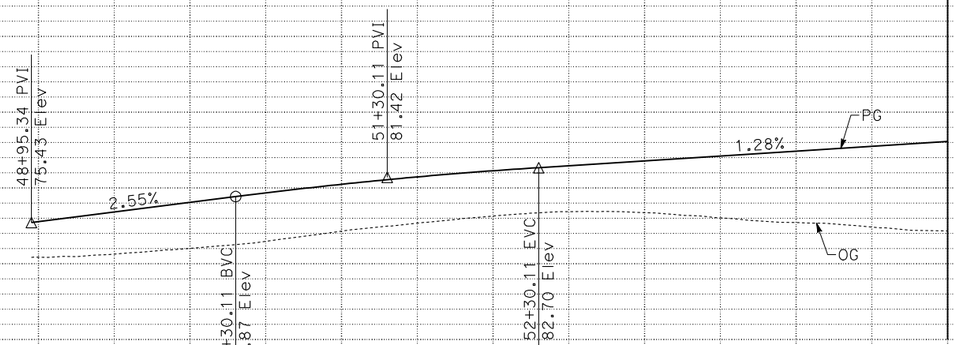


SUPERELEVATION DIAGRAM

"PN-2" LINE
SR-91 WB PIONEER ON-RAMP



PROFILE

"PN-2" LINE
SR-91 WB PIONEER ON-RAMP

PROFILE AND SUPERELEVATION DIAGRAM

ALTERNATIVE 2
SCALE: Horiz 1" = 50'
Vert 1" = 10'

PS-10

DRAFT

STATION		48+00	49+00	50+00	51+00	52+00	53+00	54+00	55+00	TOTAL
CY	Exc									
	Emb									

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	La	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

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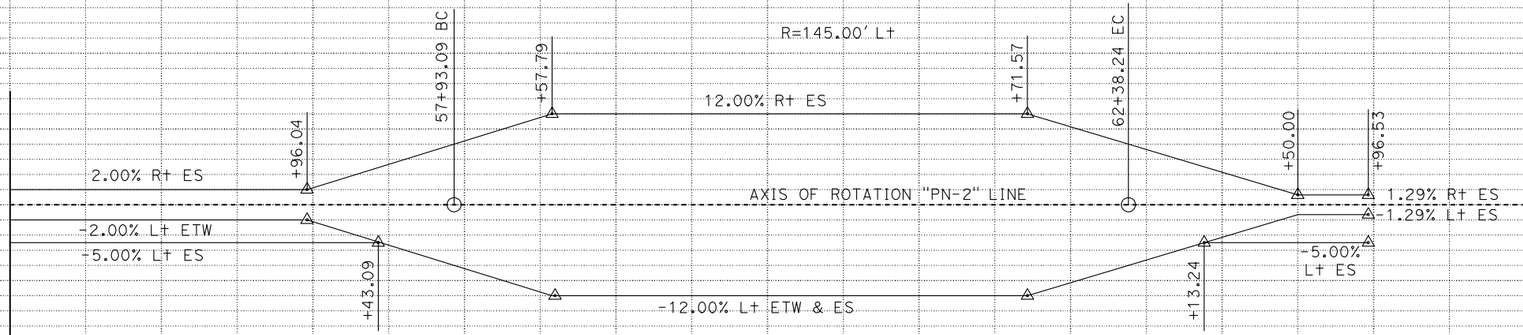
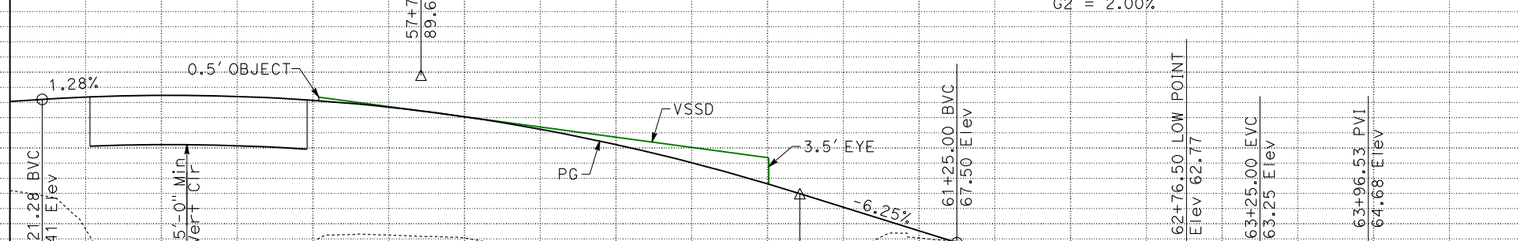


SUPERELEVATION DIAGRAM

"PN-2" LINE
SR-91 WB PIONEER ON-RAMP



PROFILE

"PN-2" LINE
SR-91 WB PIONEER ON-RAMP

PROFILE AND SUPERELEVATION DIAGRAM

ALTERNATIVE 2
SCALE: Horiz 1" = 50'
Vert 1" = 10'

PS-11

DRAFT

STATION		55+00	56+00	57+00	58+00	59+00	60+00	61+00	62+00	63+00	64+00	65+00	TOTAL
CY	Exc												
	Emb												

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UNIT 0000
PROJECT NUMBER & PHASE EA 07-29811

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	La	91,605	16.9-19.8, 5.0-5.8		x

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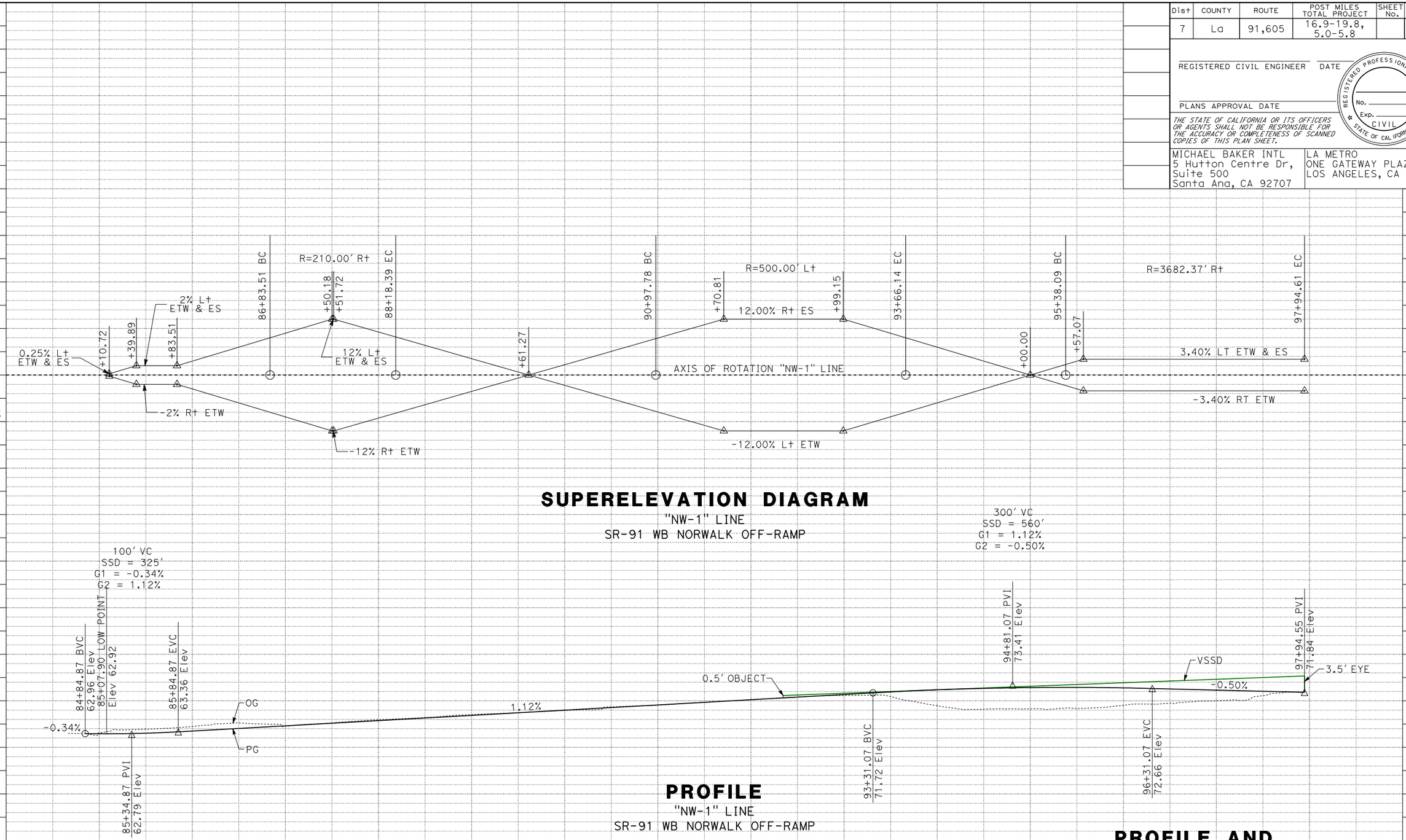

SUPERELEVATION DIAGRAM

"NW-1" LINE
SR-91 WB NORWALK OFF-RAMP

PROFILE

"NW-1" LINE
SR-91 WB NORWALK OFF-RAMP

PROFILE AND SUPERELEVATION DIAGRAM

ALTERNATIVE 2
SCALE: Horiz 1" = 50'
Vert 1" = 10'

PS-12

DRAFT

STATION	85+00	86+00	87+00	88+00	89+00	90+00	91+00	92+00	93+00	94+00	95+00	96+00	97+00	98+00	TOTAL
CY Exc															
CY Emb															

REVISED BY	DATE REVISED

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DGN FILE => 154681-PS-12.dgn
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
UNIT 0000
PROJECT NUMBER & PHASE EA 07-29811

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	La	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

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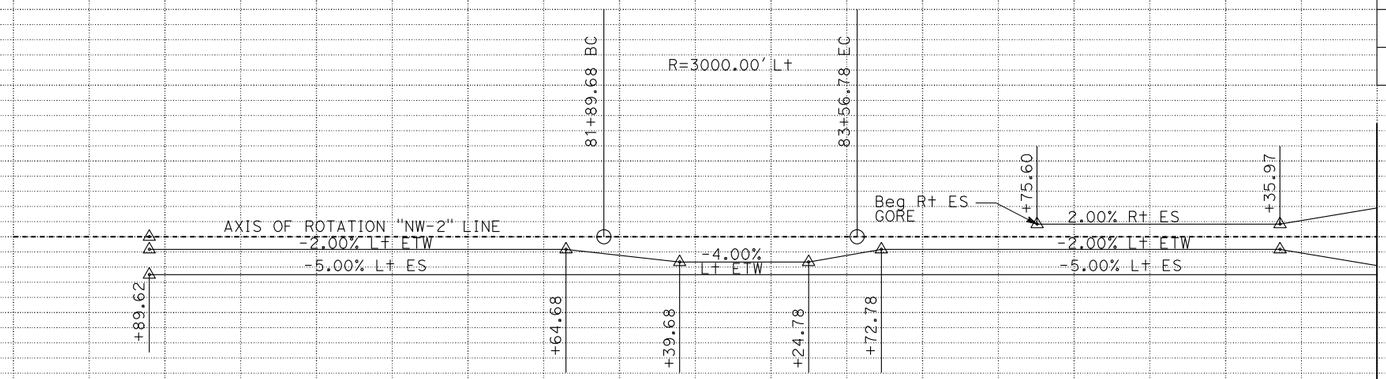
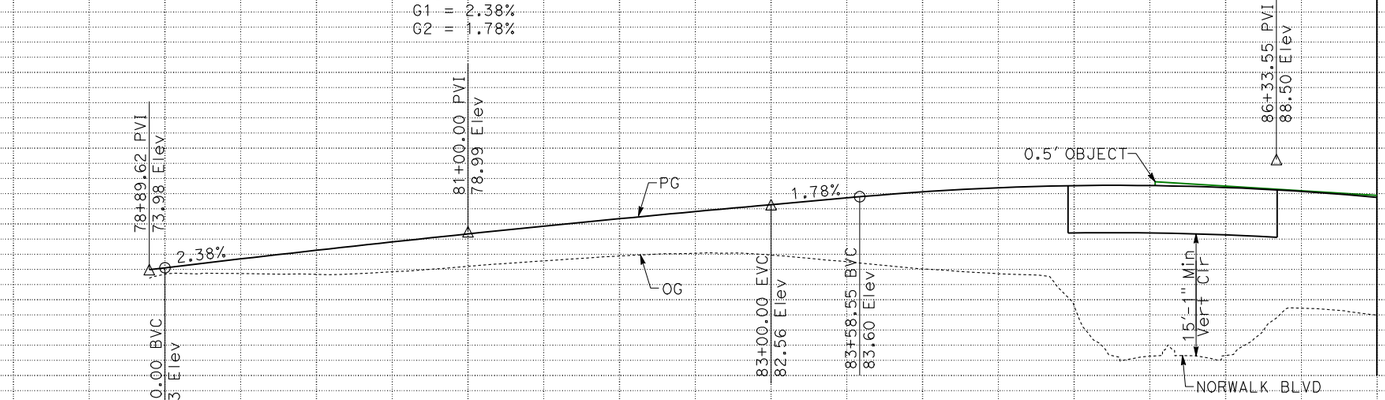


SUPERELEVATION DIAGRAM

"NW-2" LINE
SR-91 WB NORWALK ON-RAMP



PROFILE

"NW-2" LINE
SR-91 WB NORWALK ON-RAMP

PROFILE AND SUPERELEVATION DIAGRAM

ALTERNATIVE 2
SCALE: Horiz 1" = 50'
Vert 1" = 10'

PS-13

DRAFT

STATION		78+00	79+00	80+00	81+00	82+00	83+00	84+00	85+00	86+00	87+00	TOTAL
CY	Exc											
	Emb											

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leanne.nguyen 01-FEB-2018 07:45
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BORDER LAST REVISED 7/2/2010 | USERNAME => leanne.nguyen | DGN FILE => 154681-PS-13.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0000 | PROJECT NUMBER & PHASE EA 07-29811

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	La	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. — Exp. — CIVIL — STATE OF CALIFORNIA

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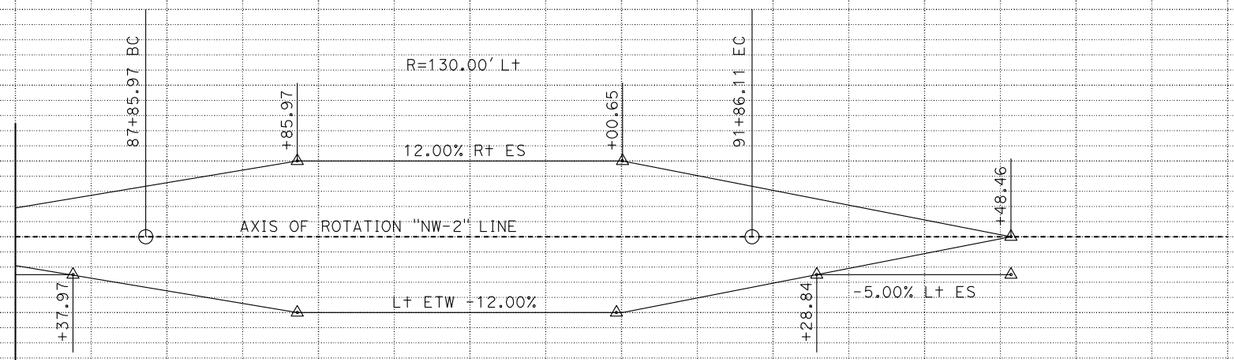
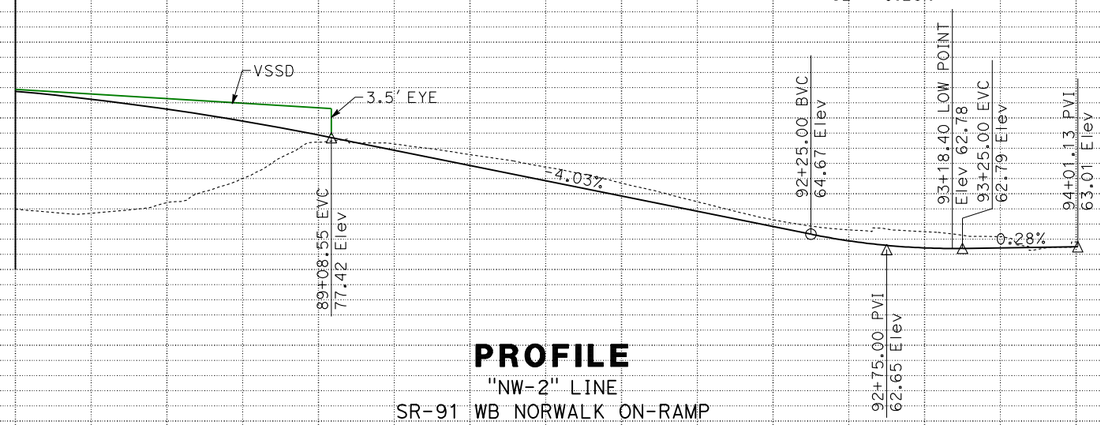


SUPERELEVATION DIAGRAM

"NW-2" LINE
SR-91 WB NORWALK ON-RAMP

MATCHLINE 87+00
SEE SHEET PS-13

100' VC
SSD = 162'
G1 = -4.03%
G2 = 0.28%



PROFILE

"NW-2" LINE
SR-91 WB NORWALK ON-RAMP

DRAFT

PROFILE AND SUPERELEVATION DIAGRAM

ALTERNATIVE 2
SCALE: Horiz 1" = 50'
Vert 1" = 10'

PS-14

STATION		87+00	88+00	89+00	90+00	91+00	92+00	93+00	94+00	95+00	TOTAL
CY	Exc										
	Emb										

REVISED BY	DATE REVISED
DACHENG LEE	01-FEB-2018 07:45
ERIC SPANGLER	

CALCULATED-DESIGNED BY: leanne.nguyen
CHECKED BY:
SUPERVISOR:

CONSULTANT FUNCTIONAL SUPERVISOR

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	La	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

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CHECKED BY: ERIC SPANGLER
DRAWN BY: leanne.nguyen 01-FEB-2018 07:45
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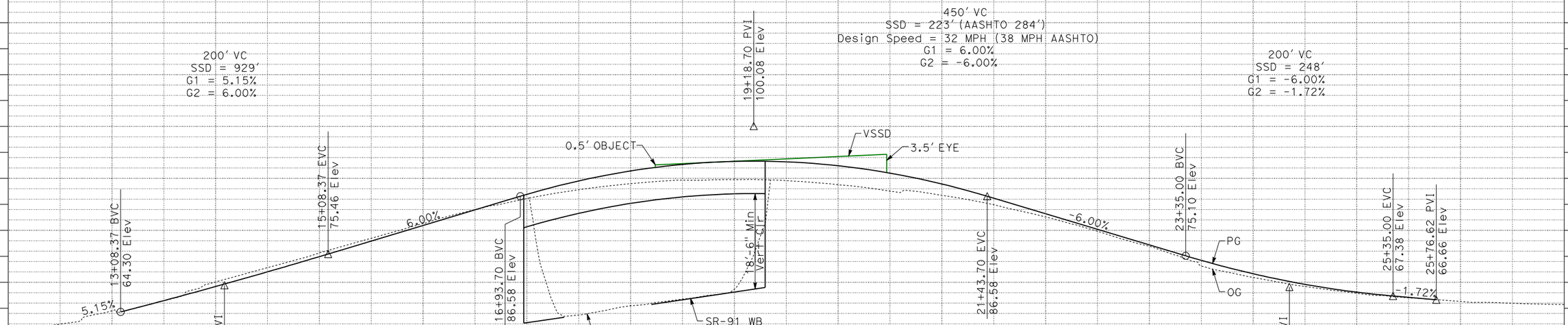
H:\pdata\154681\CADD\TransPW\Div\Profile\154681-PS-15.dgn

SUPERELEVATION DIAGRAM

"BL" LINE
BLOOMFIELD AVE



PROFILE

"BL" LINE
BLOOMFIELD AVE

DRAFT

STATION	13+00	14+00	15+00	16+00	17+00	18+00	19+00	20+00	21+00	22+00	23+00	24+00	25+00	26+00	TOTAL
CY Exc															
CY Emb															

PROFILE AND SUPERELEVATION DIAGRAM

ALTERNATIVE 2
SCALE: Horiz 1" = 50'
Vert 1" = 10'

PS-15

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	La	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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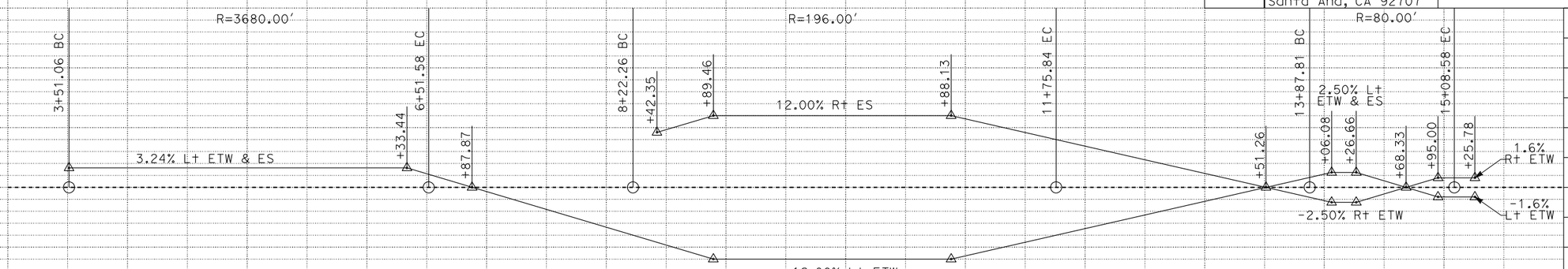
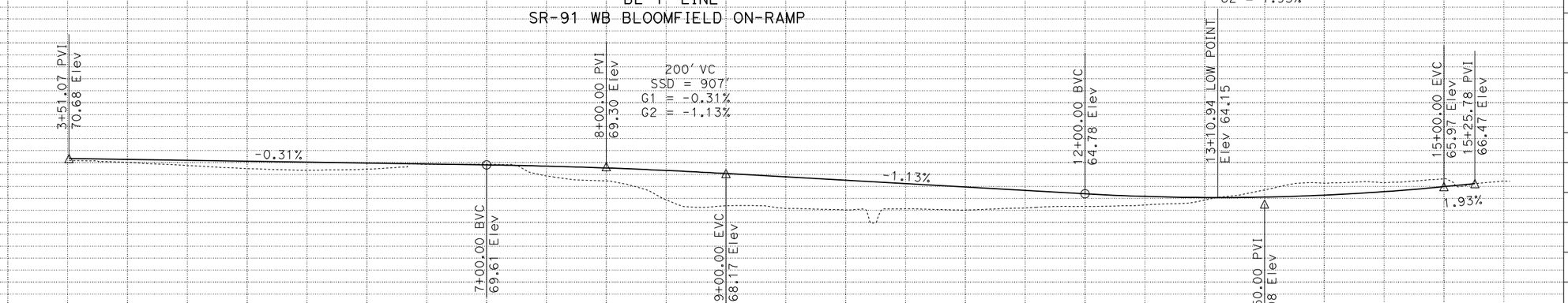


SUPERELEVATION DIAGRAM

"BL-1" LINE
SR-91 WB BLOOMFIELD ON-RAMP



PROFILE

"BL-1" LINE
SR-91 WB BLOOMFIELD ON-RAMP

PROFILE AND SUPERELEVATION DIAGRAM

ALTERNATIVE 2
SCALE: Horiz 1" = 50'
Vert 1" = 10'

PS-16

DRAFT

STATION		3+00	4+00	5+00	6+00	7+00	8+00	9+00	10+00	11+00	12+00	13+00	TOTAL
CY	Exc												
	Emb												

REVISED BY	DATE REVISED

CALCULATED-DESIGNED BY	CHECKED BY
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UNIT 0000

PROJECT NUMBER & PHASE EA 07-29811

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	La	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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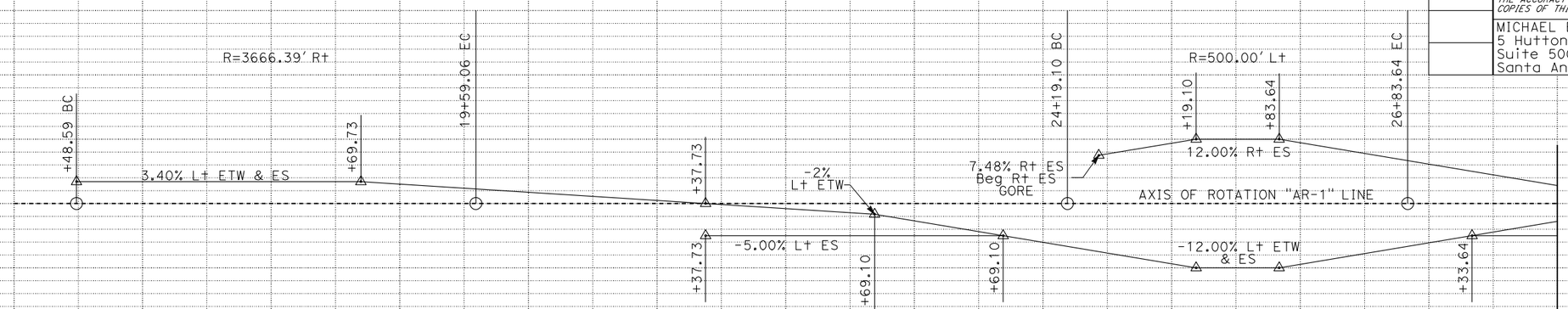
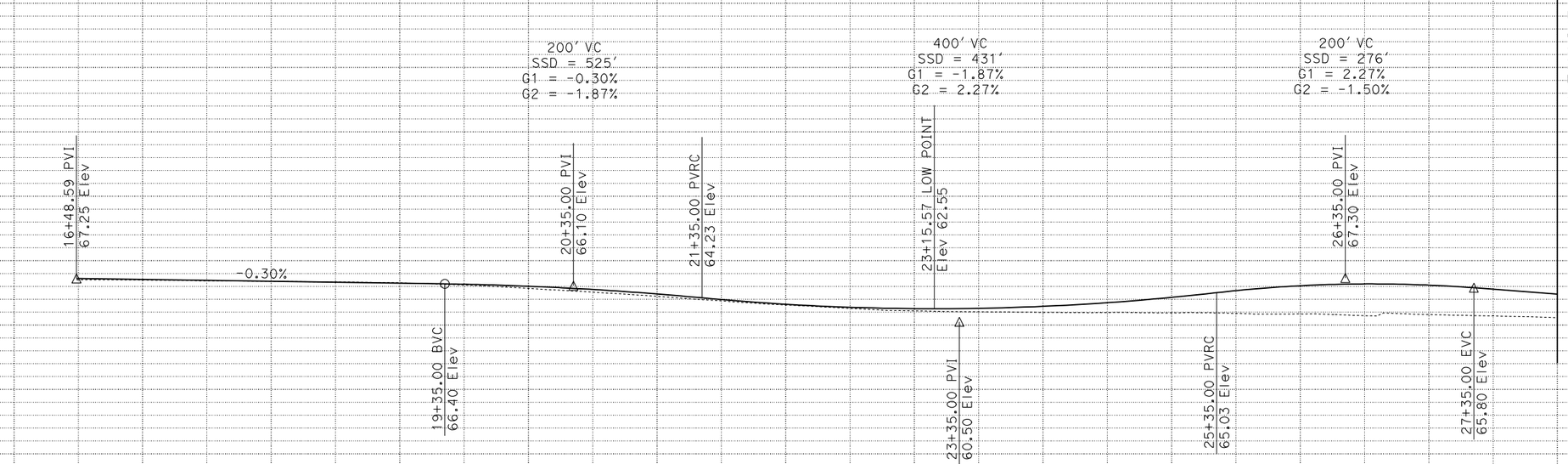


SUPERELEVATION DIAGRAM

"AR-1" LINE
SR-91 WB ARTESIA ON-RAMP



PROFILE

"AR-1" LINE
SR-91 WB ARTESIA ON-RAMP

DRAFT

PROFILE AND SUPERELEVATION DIAGRAM

ALTERNATIVE 2
SCALE: Horiz 1" = 50'
Vert 1" = 10'

PS-17

STATION	16+00	17+00	18+00	19+00	20+00	21+00	22+00	23+00	24+00	25+00	26+00	27+00	28+00	TOTAL
CY Exc														
CY Emb														

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USERNAME => leanne.nguyen
DGN FILE => 154681-PS-17.dgn
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
UNIT 0000
PROJECT NUMBER & PHASE
EA 07-29811

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	La	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

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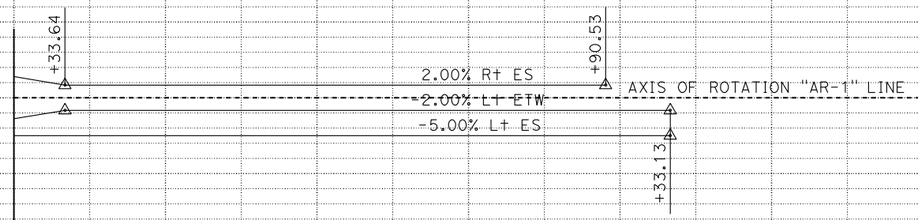
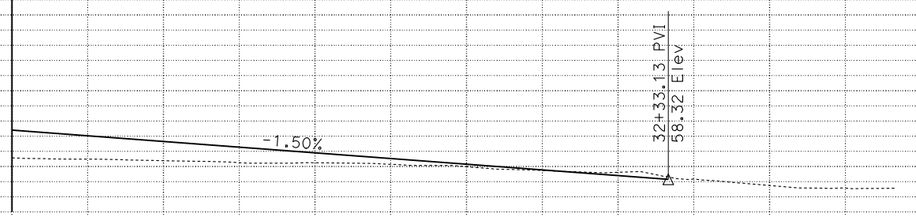


SUPERELEVATION DIAGRAM

"AR-1" LINE
SR-91 WB ARTESIA ON-RAMP

MATCHLINE 28+00
SEE SHEET PS-17



PROFILE

"AR-1" LINE
SR-91 WB ARTESIA ON-RAMP

PROFILE AND SUPERELEVATION DIAGRAM

ALTERNATIVE 2
SCALE: Horiz 1" = 50'
Vert 1" = 10'

PS-18

DRAFT

STATION		28+00	29+00	30+00	31+00	32+00	33+00	34+00	TOTAL
CY	Exc								
	Emb								

10% 0% -10% 110 100 90 80 70 60 50 40 30

REVISED BY | DATE REVISED

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SUPERVISOR: leanne.nguyen 01-FEB-2018 07:45

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Attachment H

Geometric Drawings
Alternative 2 – Design Options 1 & 3
(Reduced Lane/Shoulder Width & WB Ramps/168th St Alignment)

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	LA	91,605	16.9-19.8, 5.0-5.8		x

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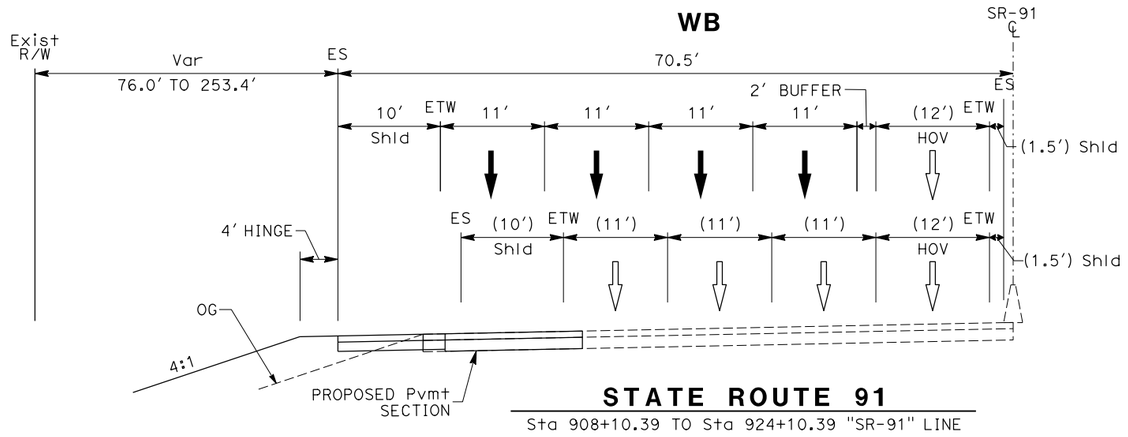
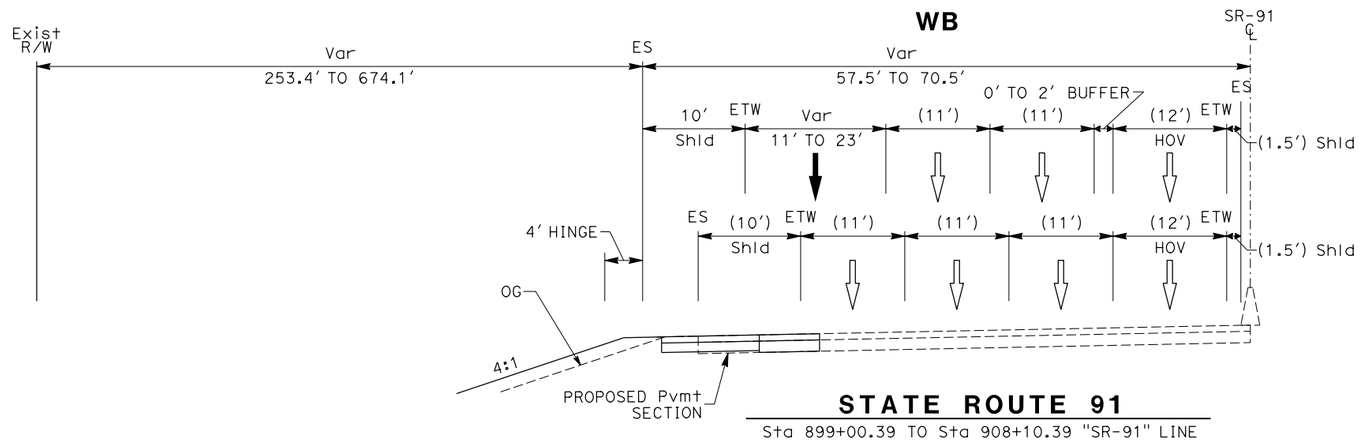


STATE ROUTE 91

Sta 908+10.39 TO Sta 924+10.39 "SR-91" LINE



STATE ROUTE 91

Sta 899+00.39 TO Sta 908+10.39 "SR-91" LINE

DRAFT

TYPICAL SECTIONS

ALTERNATIVE 2
(DESIGN OPTION 1 & 3)
NO SCALE

X-1B

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ERIC SPANGLER

REVISED BY

DATE REVISED

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TIME PLOTTED => 18:09

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USERNAME => mohamed.ghonim
DGN FILE => 4681-TX-01B.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE EA 07-29811

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	LA	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

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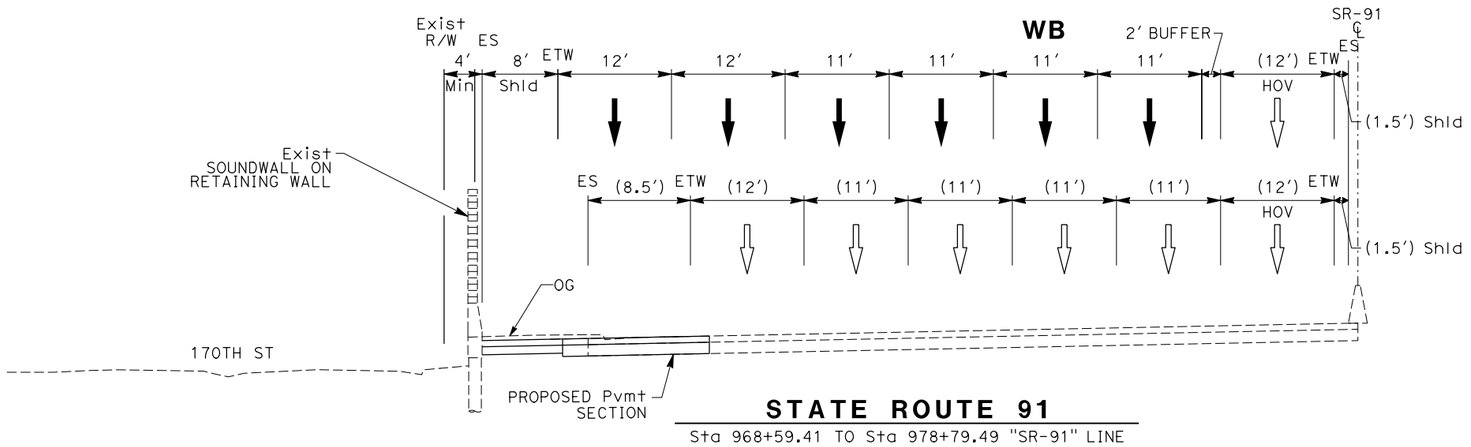
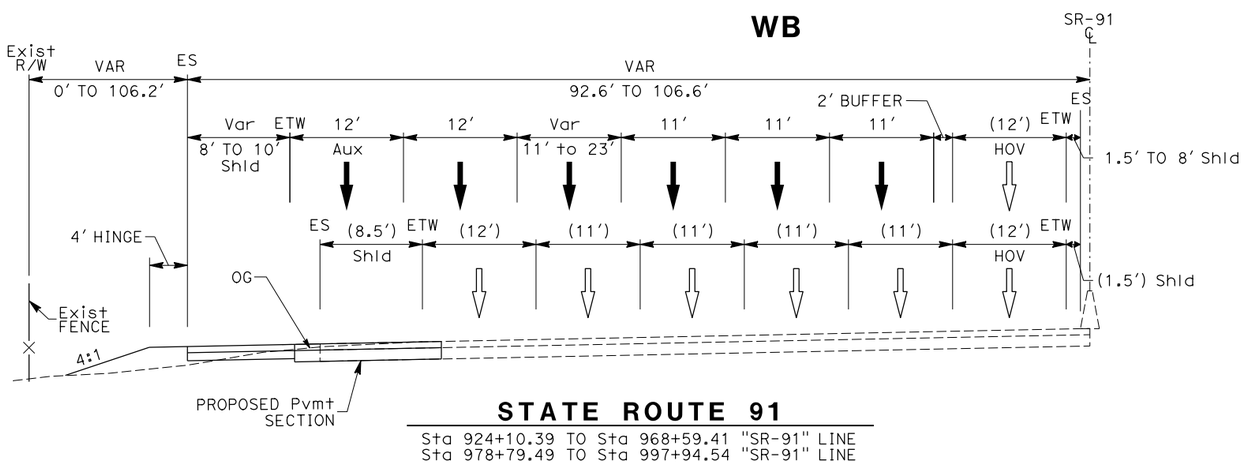


STATE ROUTE 91

Sta 968+59.41 TO Sta 978+79.49 "SR-91" LINE



STATE ROUTE 91

Sta 924+10.39 TO Sta 968+59.41 "SR-91" LINE
Sta 978+79.49 TO Sta 997+94.54 "SR-91" LINE

TYPICAL SECTIONS

ALTERNATIVE 2
(DESIGN OPTION 1 & 3)
NO SCALE

X-2B

DRAFT

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	LA	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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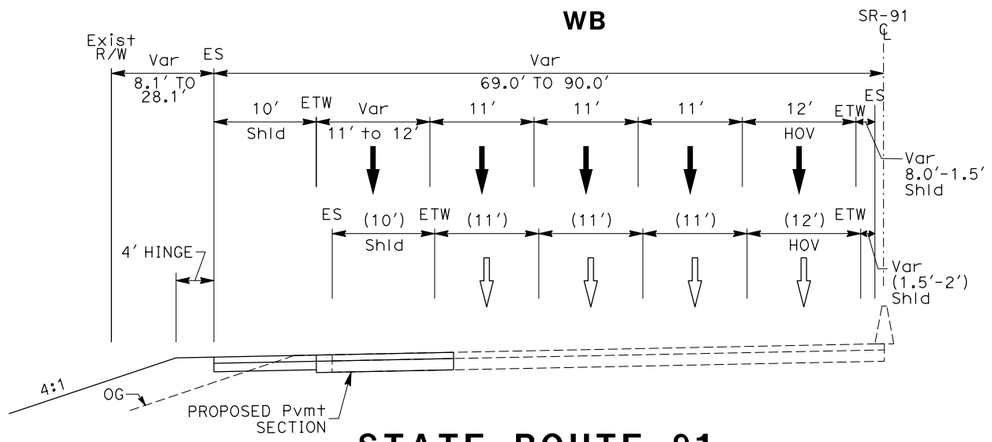
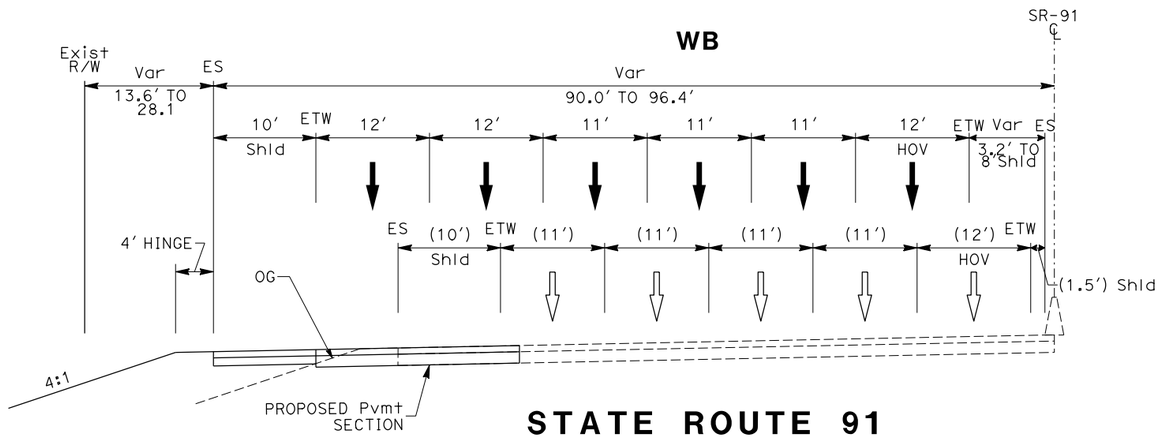


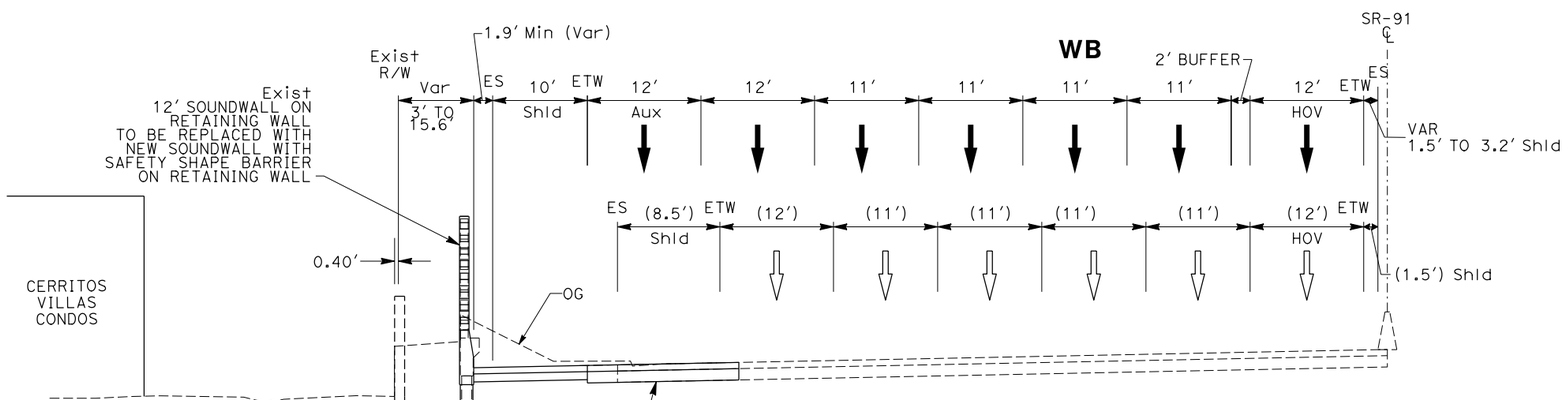
STATE ROUTE 91

Sta 1017+05.26 to Sta 1029+95.16 "SR-91" LINE



STATE ROUTE 91

Sta 1003+51.06 TO Sta 1017+05.26 "SR-91" LINE



STATE ROUTE 91

Sta 997+94.54 TO Sta 1003+51.06 "SR-91" LINE

DRAFT

TYPICAL SECTIONS

ALTERNATIVE 2
(DESIGN OPTION 1 & 3)
NO SCALE

X-3B

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00-00-00 TIME PLOTTED => 18:09

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	LA	91,605	16.9-19.8, 5.0-5.8		x

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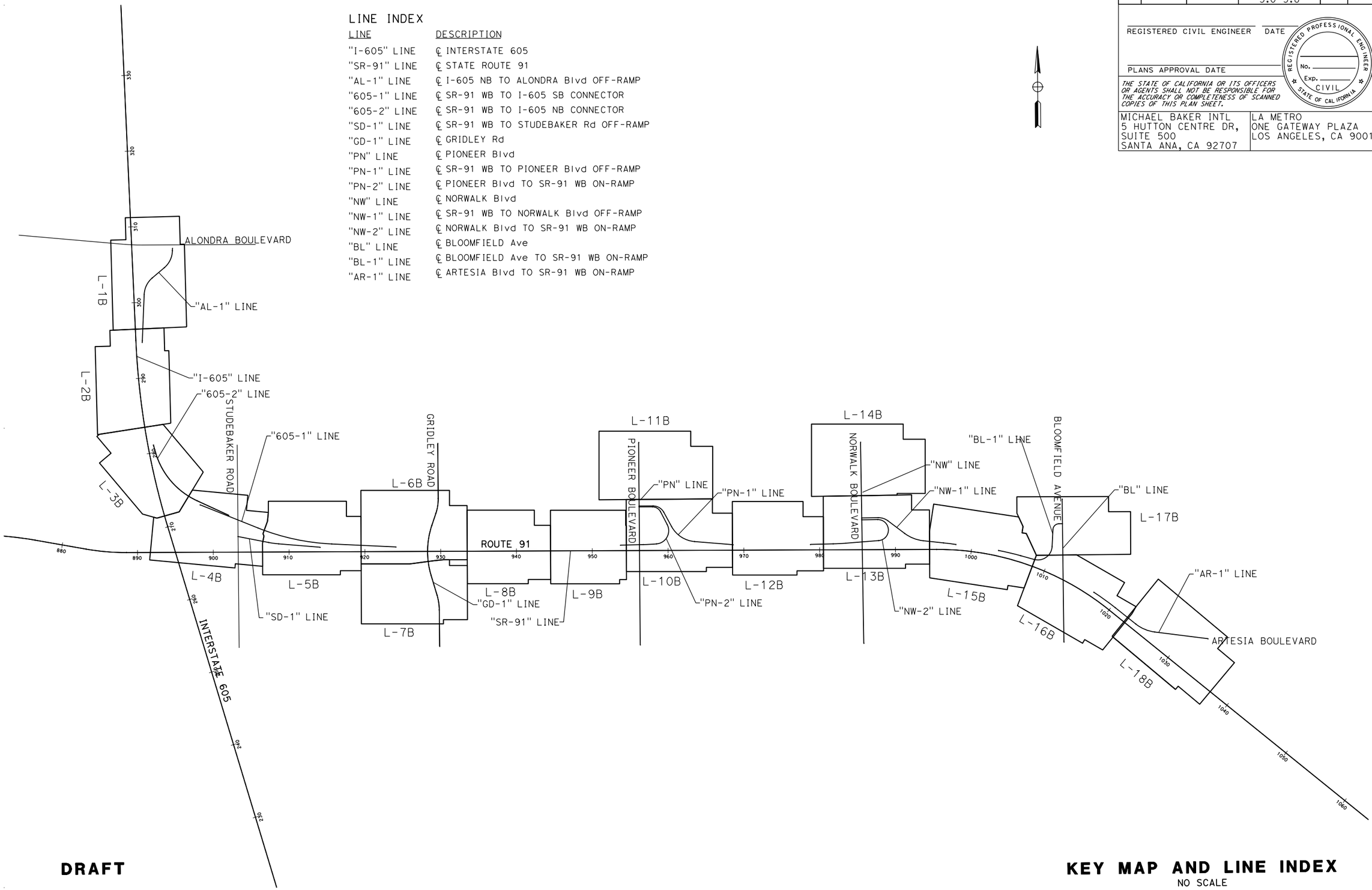
LOS ANGELES, CA 90012

LINE INDEX

LINE	DESCRIPTION
"I-605" LINE	℄ INTERSTATE 605
"SR-91" LINE	℄ STATE ROUTE 91
"AL-1" LINE	℄ I-605 NB TO ALONDRA Blvd OFF-RAMP
"605-1" LINE	℄ SR-91 WB TO I-605 SB CONNECTOR
"605-2" LINE	℄ SR-91 WB TO I-605 NB CONNECTOR
"SD-1" LINE	℄ SR-91 WB TO STUDEBAKER Rd OFF-RAMP
"GD-1" LINE	℄ GRIDLEY Rd
"PN" LINE	℄ PIONEER Blvd
"PN-1" LINE	℄ SR-91 WB TO PIONEER Blvd OFF-RAMP
"PN-2" LINE	℄ PIONEER Blvd TO SR-91 WB ON-RAMP
"NW" LINE	℄ NORWALK Blvd
"NW-1" LINE	℄ SR-91 WB TO NORWALK Blvd OFF-RAMP
"NW-2" LINE	℄ NORWALK Blvd TO SR-91 WB ON-RAMP
"BL" LINE	℄ BLOOMFIELD Ave
"BL-1" LINE	℄ BLOOMFIELD Ave TO SR-91 WB ON-RAMP
"AR-1" LINE	℄ ARTESIA Blvd TO SR-91 WB ON-RAMP



DRAFT

KEY MAP AND LINE INDEX

NO SCALE

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NOTES:

1. FOR COMPIETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	LA	91,605	16.9-19.8, 5.0-5.8		x

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SUITE 500
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LA METRO
ONE GATEWAY PLAZA
LOS ANGELES, CA 90012

SEE SHEET 2
MATCH LINE STA 296+50

PIUMA Ave

R/W

CITY OF CERRITOS
CITY OF NORWALK

SB I-605

NB I-605

N2°33'21"W
6753.35'

(2') Shld

HOV 8 (12') (11') (11') (11') (11') (12') 12' 10' Shld

HOV 6 (12') (11') (11') (11') (11') (12')

71.00' Rt "I-605" 307+69.80
END TAPER (75:1)

N2°18'39"E
608.90'

ALONDRA NB OFF
TO "AL-1 " LINE 1

"AL-1" 101+02.90 BC

4' Shld

8' Shld

12'

R/W

83.00' Rt "I-605" 298+69.80
Beg TAPER (75:1)

20.00' Rt "AL-1" 100+00.00
Beg Shld TAPER

32.00' Rt "AL-1" 101+33.66
END Shld TAPER

20' Shld

"AL-1" 103+50.70 EC
JOIN Exist Point

(12') (12') (8') Shld

N49°38'13"E
211.30'

12.00' Rt "AL-1" 102+30.70
Beg TAPER

"AL-1" +51
END RW

24.00' Rt "AL-1" 103+50.70
END TAPER

R/W

DUMONT Ave

ALONDRA Blvd

LEIBACHER Ave

COLLEGE HOSPITAL

COLLEGE PI

LA FITNESS

IN-N-OUT BURGER

CURVE DATA

No.	R	Δ	T	L
(2)	300.00'	47°19'34''	131.46'	247.80'
(3)	300.00'	48°50'09''	136.20'	255.70'

DRAFT

LAYOUT

ALTERNATIVE 2
DESIGN OPTION 1 & 3
SCALE: 1" = 50'

L-1B

REVISED BY	DATE REVISED
DACHENG LEE	
CALCULATED-DESIGNED BY	ERIC SPANGLER
CHECKED BY	
CONSULTANT FUNCTIONAL SUPERVISOR	

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

LAST REVISION 00-00-00
DATE PLOTTED => 30-NOV-2018
TIME PLOTTED => 18:03

BORDER LAST REVISED 7/2/2010

USERNAME => mohamed.ghonim
DGN FILE => 4681_L001_100sc_Non_Std_11x17.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE EA 07-29811

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	LA	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. ____ Exp. ____ CIVIL — STATE OF CALIFORNIA

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MICHAEL BAKER INTL
5 HUTTON CENTRE DR,
SUITE 500
SANTA ANA, CA 92707

LA METRO
ONE GATEWAY PLAZA
LOS ANGELES, CA 90012

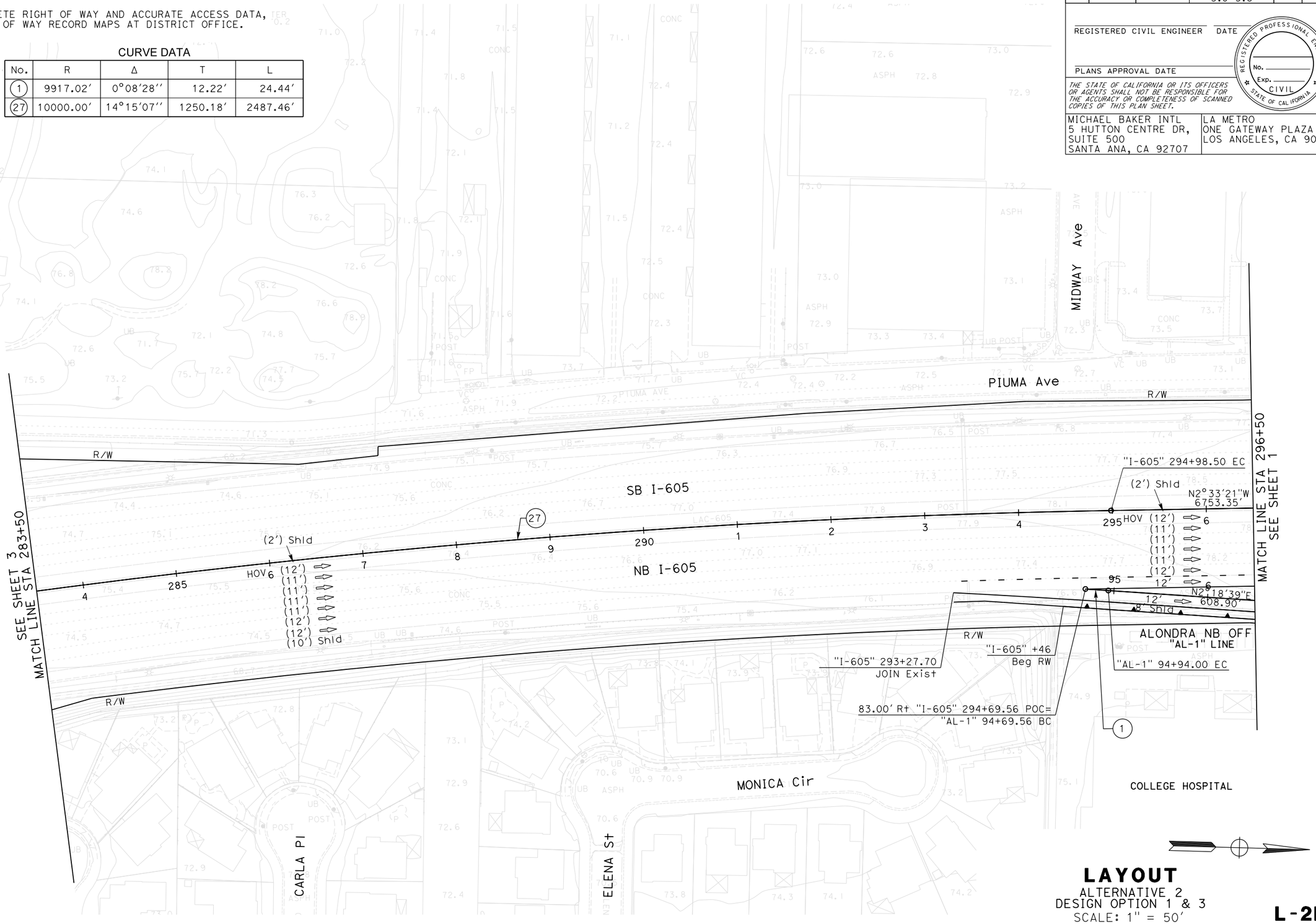
CITY OF CERRITOS

NOTES:

1. FOR COMPIETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.

CURVE DATA

No.	R	Δ	T	L
(1)	9917.02′	0°08′28″	12.22′	24.44′
(27)	10000.00′	14°15′07″	1250.18′	2487.46′



DRAFT

LAYOUT

ALTERNATIVE 2
DESIGN OPTION 1 & 3
SCALE: 1" = 50′

L-2B

LAST REVISION: 00-00-00
DATE PLOTTED => 30-NOV-2018
TIME PLOTTED => 18:03

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION | CONSULTANT FUNCTIONAL SUPERVISOR | CALCULATED-DESIGNED BY | CHECKED BY | REVISED BY | DATE REVISED

DACHENG LEE | ERIC SPANGLER

BORDER LAST REVISED 7/2/2010

USERNAME => mohamed.ghonim
DGN FILE => 4681_L002_100sc_Non_Std_11x17.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE EA 07-29811

NOTES:

1. FOR COMPIETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.

CITY OF CERRITOS

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	LA	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. ____ Exp. ____ CIVIL — STATE OF CALIFORNIA

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MICHAEL BAKER INTL
5 HUTTON CENTRE DR,
SUITE 500
SANTA ANA, CA 92707

LA METRO
ONE GATEWAY PLAZA
LOS ANGELES, CA 90012

CURVE DATA

No.	R	Δ	T	L
(4)	3000.00′	2°08′33″	56.10′	112.18′
(5)	1010.00′	48°33′16″	455.55′	855.91′
(27)	10000.00′	14°15′07″	1250.18′	2487.46′

DRAFT

LAYOUT

ALTERNATIVE 2
DESIGN OPTION 1 & 3
SCALE: 1" = 50′

L-3B

LAST REVISION: 00-00-00
DATE PLOTTED => 30-NOV-2018
TIME PLOTTED => 18:03

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR
CALCULATED-DESIGNED BY
CHECKED BY
DACHENG LEE
ERIC SPANGLER
REVISED BY
DATE REVISED

BORDER LAST REVISED 7/2/2010

USERNAME => mohamed.ghonim
DGN FILE => 4681_L003_100sc_Non_Std_11x17.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE EA 07-29811

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	LA	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. ____ Exp. ____ CIVIL — STATE OF CALIFORNIA

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MICHAEL BAKER INTL
5 HUTTON CENTRE DR,
SUITE 500
SANTA ANA, CA 92707

LA METRO
ONE GATEWAY PLAZA
LOS ANGELES, CA 90012

NOTES:

1. FOR COMPIETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.

CURVE DATA

No.	R	Δ	T	L
(5)	1010.00′	48°33′16″	455.55′	855.91′
(6)	2990.00′	19°09′23″	504.55′	999.68′

SEE SHEET 3
MATCH LINE STA 95+50

"605-2" 96+83.57 EC

RESERVOIR HILL PARK

R/W

10′ Shld
6 12′

5′ Shld
(8′) Shld
(2′) Shld

91-605 W-N Conn
"605-2" LINE

91-605 W-S Conn
"605-1" LINE 9

34.00′ Lt "605-1" +65.84
Beg SW 2.2B (16′ HIGH)
ON BARRIER

STUDEBAKER Rd
UC (WIDEN)
Br. No. 53-1707F

STUDEBAKER Rd

95.94 Lt "605-1" +90.63
Beg CL FENCE
"605-1" +33.90
END CL FENCE

"605-1" 105+63.36 BC

2.00′ Rt "605-1" 98+15.11
Beg TAPER (37.5:1)

605-91 N-W Conn

S65°20′34″E 458.42′

S68°12′19″E 821.95′

10′ Shld
12′ 12′
10′ Shld

10.00′ Rt "605-1" 101+15.11
END TAPER (37.5:1)

12.00′ Lt "605-1" 101+42.84 POT=
"605-2" 101+41.99

4 "605-1" LINE 105

10′ Shld
12′ 12′ 12′ 12′
10′ Shld

MATCH LINE STA 106+50
SEE SHEET 5

CALTRANS
MAINTENANCE
STATION

STUDEBAKER WB OFF

8′ Shld
12′ 12′

S79°02′04″E 412.90′

4 "SD-1" LINE 5

4′ Shld

SEE SHEET 3
MATCH LINE STA 271+50

SB I-605

NB I-605

WB ROUTE 91

EB ROUTE 91

47.50′ Lt "SR-91" 899+00.39
JOIN Exist Pvmt
Beg LANE TAPER (70:1)

STUDEBAKER RD
UC (WIDEN)
Br. No. 53-1706

11′ 11′ 11′
(12′) HOV

N89°46′33″E 10688.91′

"SR-91" LINE

(1.5′) Shld

605-91 N-E Conn

10′ Shld

MATCH LINE STA 906+50
SEE SHEET 5

DRAFT

LAYOUT

ALTERNATIVE 2
DESIGN OPTION 1 & 3
SCALE: 1" = 50′

L-4B

LAST REVISION 00-00-00
DATE PLOTTED => 30-NOV-2018
TIME PLOTTED => 18:03

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR

CALCULATED-DESIGNED BY DACHENG LEE

CHECKED BY ERIC SPANGLER

REVISED BY

DATE REVISED

BORDER LAST REVISED 7/2/2010

USERNAME => mohamed.ghonim
DGN FILE => 4681_L004_100sc_Non_Std_11x17.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE EA 07-29811

NOTES:

1. FOR COMPIETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	LA	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. ____ Exp. ____ CIVIL — STATE OF CALIFORNIA

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MICHAEL BAKER INTL
5 HUTTON CENTRE DR,
SUITE 500
SANTA ANA, CA 92707

LA METRO
ONE GATEWAY PLAZA
LOS ANGELES, CA 90012

LEEWARD Ave
CORAL REEF Cir
OUTRIGGER Cir
WINDWARd Ave
PARK St
ERIC Ave
WINDJAMMER Rd
STUDEBAKER WB OFF
WB ROUTE 91
EB ROUTE 91
605-91 N-E Conn
91-605 W-S/N Conn
"605-1" LINE
"SD-1" LINE
"SR-91" LINE
GAHR HIGH SCHOOL

SEE SHEET 4
MATCH LINE STA 106+50

SEE SHEET 4
MATCH LINE STA 906+50.00

MATCH LINE STA 919+50
SEE SHEET 6

46.00' Lt "605-1" +90.60
END SW 2.2B (16' HIGH)
ON BARRIER

"605-1" 115+63.03 EC

46.00' Lt "605-1" +42.67
Beg RS

"SD-1" 7+29.06 BC

24.00' Lt "SD-1" 8+61.45
Beg TAPER (10:1)

12.00' Lt "SD-1" 9+81.45 BC
END TAPER (10:1)

"SD-1" 8+61.45 EC

S85°21'19"E 548.93'

S87°21'42"E 847.31'

N89°46'33"E 10688.91'

60.50' Lt "SR-91" 908+10.39
END LANE TAPER (70:1)

67.00' Lt "SR-91" 913+34.08 POT=
"SD-1" 14+10.37 POT

CURVE DATA

No.	R	Δ	T	L
(6)	2990.00'	19°09'23''	504.55'	999.68'
(7)	1200'	6°19'15''	66.26	132.38'

DRAFT

LAYOUT

ALTERNATIVE 2
DESIGN OPTION 1 & 3
SCALE: 1" = 50'

L-5B

LAST REVISION 00-00-00
DATE PLOTTED => 30-NOV-2018
TIME PLOTTED => 18:03

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
CONSULTANT FUNCTIONAL SUPERVISOR
CALCULATED-DESIGNED BY
CHECKED BY
REVISED BY
DATE REVISED
DACHENG LEE
ERIC SPANGLER

BORDER LAST REVISED 7/2/2010
USERNAME => mohamed.ghonim
DGN FILE => 4681_L005_100sc_Non_Std_11x17.dgn
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
UNIT 0000
PROJECT NUMBER & PHASE EA 07-29811

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	LA	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. ____ Exp. ____ CIVIL — STATE OF CALIFORNIA

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MICHAEL BAKER INTL
5 HUTTON CENTRE DR,
SUITE 500
SANTA ANA, CA 92707

LA METRO
ONE GATEWAY PLAZA
LOS ANGELES, CA 90012

NOTES:

1. FOR COMPIETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.

CITY OF NORWALK

CITY OF CERRITOS

PARK St

LUCAS St

HARVEST Ave

SUNNY RIDGE Ct

"GD-1" 29+87.25 EC

"GD-1" 30+19.26
JOIN Exist ALIGNMENT

"GD-1" 27+87.56 BC

"GD-1" 26+18.44 EC

N18°31'56"E
169.12'

GRIDLEY Rd

GRIDLEY Pl

120' Left Turn Pocket

CIRCLE RACING WHEELS

LEGEND

ACQUISITION

CURVE DATA

No.	R	Δ	T	L
(9)	1080.00'	35°15'39"	343.23'	664.65'
(10)	600.00'	19°04'09"	100.78'	199.69'

R/W ACQUISITION (66.7 SF)

PROP R/W

6' SW

25'

18'

18'

6' SW

R/W ACQUISITION (98.7 SF)

2:1

PROP R/W

1.00' Lt "SR-91" 925+50.00
Beg TAPER (115:1)

110.50' Lt "SR-91" +07.01
END RS

3.00' Lt "SR-91" 927+80.00
END TAPER (115:1)

3.00' Lt "SR-91" 928+75.00
Beg TAPER (115:1)

3.00' Rt "SR-91" 928+75.00
Beg TAPER (115:1)

BEACH St

R/W

91-605 W S/N Conn

10' Shld
12'
12'
12'
10' Shld
10' Shld
11'
11'
11'
11'
(12') HOV

"605-1" LINE

2' BUFFER

WB ROUTE 91

SEE SHEET 5
MATCH LINE STA 919+50

920 (1.5') Shld 925

66.00' Lt "SR-91" 924+10.39 POT=
"605-1" 124+10.34 POT

1.00' Rt "SR-91" 925+50.00
Beg TAPER (115:1)

6 N89°46'33"E 7
10688.91'

EB ROUTE 91

3.00' Rt "SR-91" 927+80.00
END TAPER (115:1)

R/W ACQUISITION (74.0 SF)

PROP R/W

9

GRIDLEY Rd
OC (REPLACE)
Br. No. 53-1324

R/W ACQUISITION (92.9 SF)

PROP R/W

R/W

CITY OF CERRITOS
CITY OF ARTESIA

MATCH LINE STA 21+50
SEE SHEET 7

930 "SR-91" LINE 1

2 (1.5') Shld 3

1.00' Lt "SR-91" 931+05.00
END TAPER (115:1)

1.00' Rt "SR-91" 931+05.00
END TAPER (115:1)

BEACH St

R/W

10' Shld
12'
12'
11'
11'
11'
11'
12' HOV

2' BUFFER

MATCH LINE STA 933+50
SEE SHEET 8

DRAFT

LAYOUT

ALTERNATIVE 2
DESIGN OPTION 1 & 3
SCALE: 1" = 50'

L-6B

LAST REVISION 00-00-00
DATE PLOTTED => 30-NOV-2018
TIME PLOTTED => 18:03

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
CONSULTANT FUNCTIONAL SUPERVISOR
CALCULATED-DESIGNED BY: DACHENG LEE
CHECKED BY: ERIC SPANGLER
REVISED BY
DATE REVISED

BORDER LAST REVISED 7/2/2010

USERNAME => mohamed.ghonim
DGN FILE => 4681_L006_100sc_Non_Std_11x17.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE EA 07-29811

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	LA	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. ____ Exp. ____ CIVIL — STATE OF CALIFORNIA

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MICHAEL BAKER INTL
5 HUTTON CENTRE DR,
SUITE 500
SANTA ANA, CA 92707

LA METRO
ONE GATEWAY PLAZA
LOS ANGELES, CA 90012

NOTES:

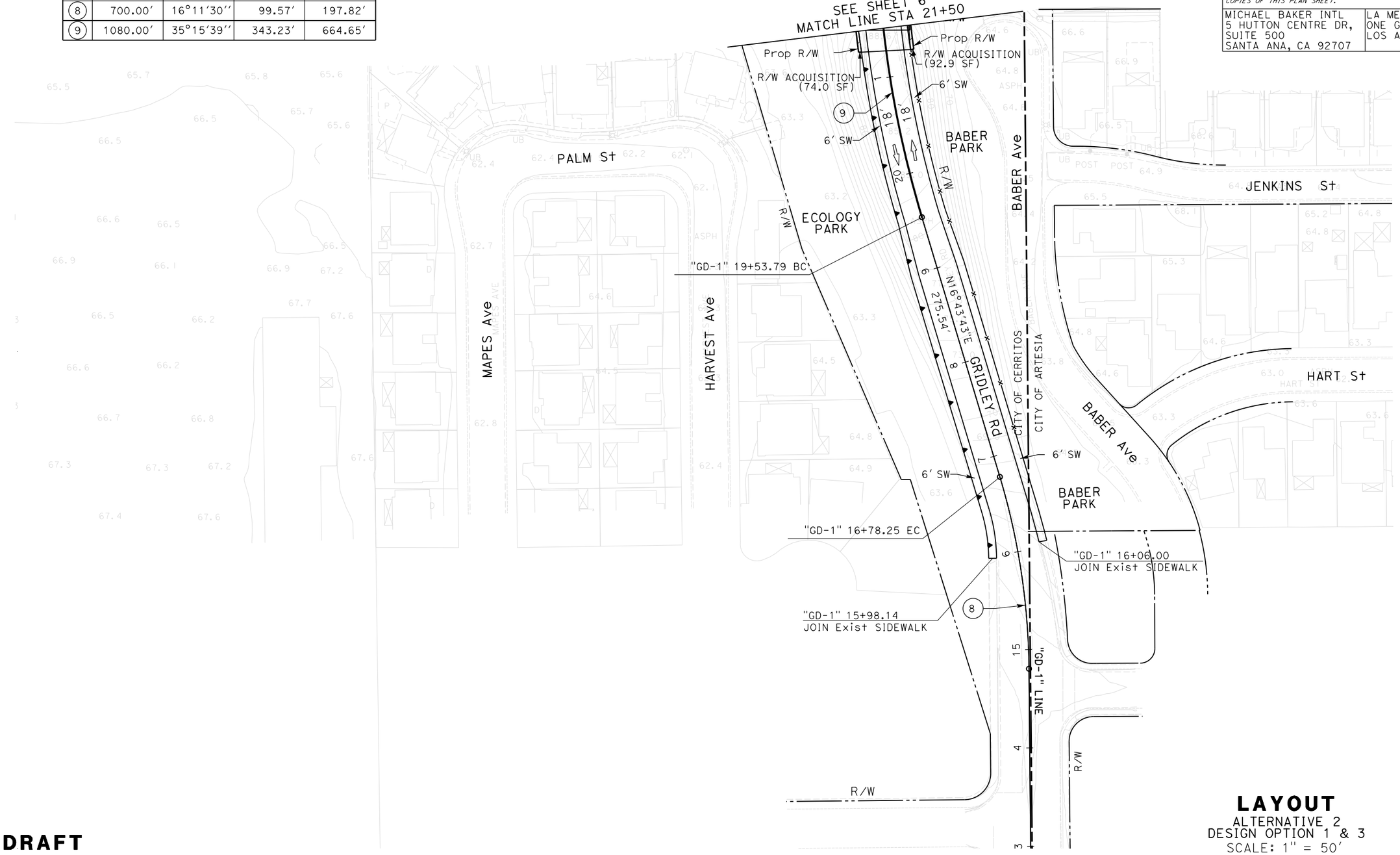
1. FOR COMPIETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.

CURVE DATA

No.	R	Δ	T	L
(8)	700.00′	16°11′30″	99.57′	197.82′
(9)	1080.00′	35°15′39″	343.23′	664.65′

LEGEND

ACQUISITION



LAYOUT

ALTERNATIVE 2
DESIGN OPTION 1 & 3
SCALE: 1" = 50′

L-7B

DRAFT

REVISED BY	DATE REVISED

CALCULATED-DESIGNED BY: DACHENG LEE
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CONSULTANT FUNCTIONAL SUPERVISOR:
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION: 00-00-00
DATE PLOTTED => 30-NOV-2018
TIME PLOTTED => 18:03

BORDER LAST REVISED 7/2/2010

USERNAME => mohamed.ghonim
DGN FILE => 4681_L007_100sc_Non_Std_11x17.dgn

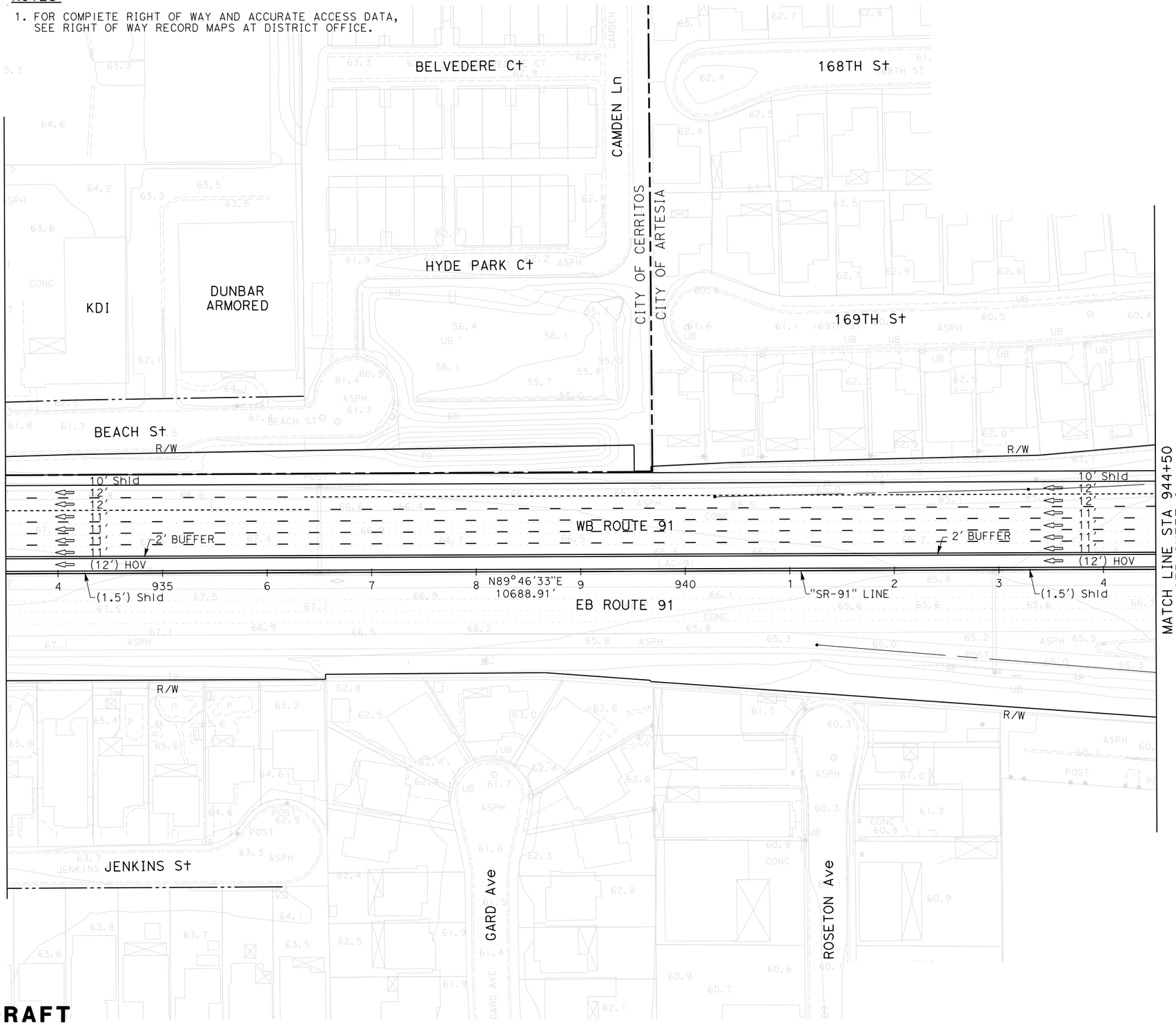
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE EA 07-29811

NOTES:

1. FOR COMPIETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.



DRAFT

LAYOUT

ALTERNATIVE 2
DESIGN OPTION 1 & 3
SCALE: 1" = 50'

L-8B

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	LA	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. ____ Exp. ____ CIVIL — STATE OF CALIFORNIA

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5 HUTTON CENTRE DR,
SUITE 500
SANTA ANA, CA 92707

LA METRO
ONE GATEWAY PLAZA
LOS ANGELES, CA 90012

REVISED BY	DATE REVISED

CALCULATED-DESIGNED BY: DACHENG LEE
CHECKED BY: ERIC SPANGLER
CONSULTANT FUNCTIONAL SUPERVISOR:

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION 00-00-00
DATE PLOTTED => 30-NOV-2018
TIME PLOTTED => 18:03

BORDER LAST REVISED 7/2/2010
USERNAME => mohamed.ghonim
DGN FILE => 4681_L008_100sc_Non_Std_11x17.dgn
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
UNIT 0000
PROJECT NUMBER & PHASE EA 07-29811

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	LA	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. ____ Exp. ____ CIVIL — STATE OF CALIFORNIA

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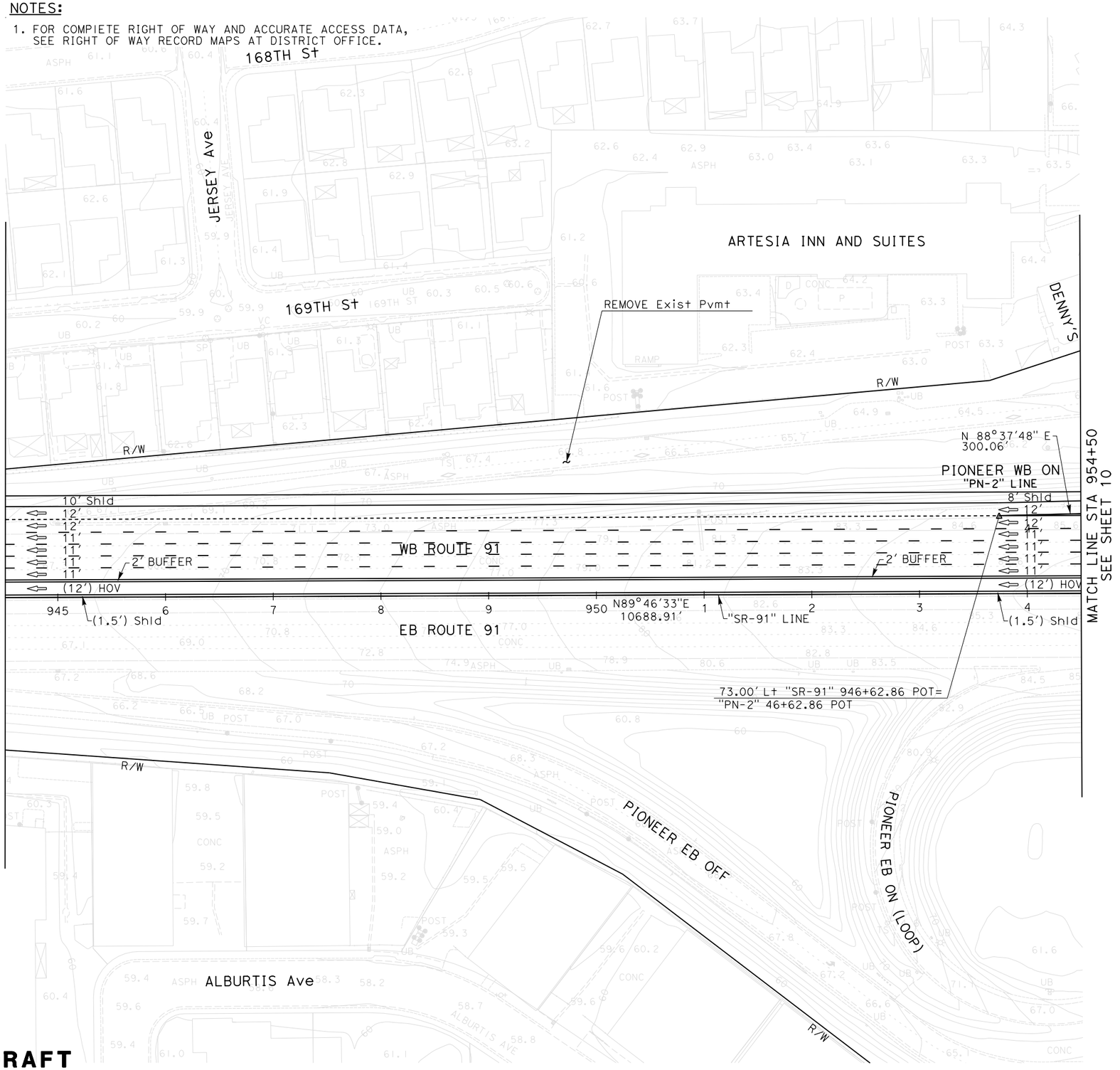
MICHAEL BAKER INTL
5 HUTTON CENTRE DR,
SUITE 500
SANTA ANA, CA 92707

LA METRO
ONE GATEWAY PLAZA
LOS ANGELES, CA 90012

NOTES:

1. FOR COMPIETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.



DRAFT

LAYOUT

ALTERNATIVE 2
DESIGN OPTION 1 & 3
SCALE: 1" = 50'

L-9B

LAST REVISION 00-00-00
DATE PLOTTED => 30-NOV-2018
TIME PLOTTED => 18:03

REVISED BY | DATE REVISED
CALCULATED-DESIGNED BY: DACHENG LEE
CHECKED BY: ERIC SPANGLER
CONSULTANT FUNCTIONAL SUPERVISOR
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Gatans

BORDER LAST REVISED 7/2/2010
USERNAME => mohamed.ghonim
DGN FILE => 4681_L009_100sc_Non_Std_11x17.dgn
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
UNIT 0000
PROJECT NUMBER & PHASE EA 07-29811

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
7	LA	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. ____ Exp. ____ CIVIL — STATE OF CALIFORNIA

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MICHAEL BAKER INTL
5 HUTTON CENTRE DR,
SUITE 500
SANTA ANA, CA 92707

LA METRO
ONE GATEWAY PLAZA
LOS ANGELES, CA 90012

NOTES:

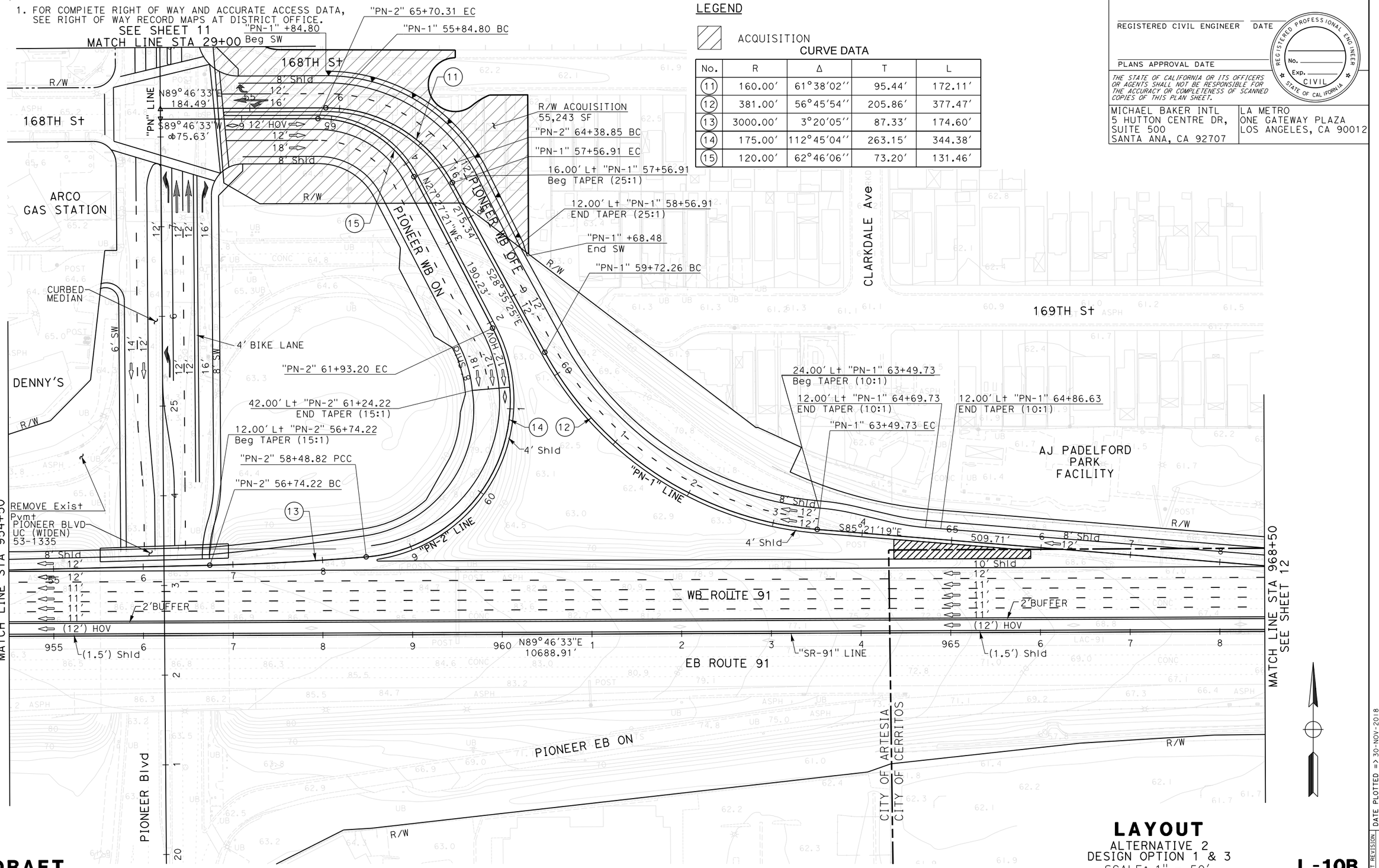
1. FOR COMPIETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.

LEGEND

ACQUISITION

CURVE DATA

No.	R	Δ	T	L
(11)	160.00′	61°38′02″	95.44′	172.11′
(12)	381.00′	56°45′54″	205.86′	377.47′
(13)	3000.00′	3°20′05″	87.33′	174.60′
(14)	175.00′	112°45′04″	263.15′	344.38′
(15)	120.00′	62°46′06″	73.20′	131.46′



DRAFT

LAYOUT

ALTERNATIVE 2
DESIGN OPTION 1 & 3
SCALE: 1" = 50′

L-10B

REVISED BY	DATE REVISED
DACHENG LEE	ERIC SPANGLER
CALCULATED-DESIGNED BY	CHECKED BY

CONSULTANT FUNCTIONAL SUPERVISOR

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

LAST REVISION 00-00-00
DATE PLOTTED => 30-NOV-2018
TIME PLOTTED => 18:03

BORDER LAST REVISED 7/2/2010

USERNAME => mohamed.ghonim
DGN FILE => 4681_L010_100sc_Non_Std_11x17.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE EA 07-29811

NOTES:

1. FOR COMPIETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	LA	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. ____ Exp. ____ CIVIL — STATE OF CALIFORNIA

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MICHAEL BAKER INTL
5 HUTTON CENTRE DR,
SUITE 500
SANTA ANA, CA 92707

LA METRO
ONE GATEWAY PLAZA
LOS ANGELES, CA 90012

166TH St

CITY OF NORWALK

CITY OF ARTESIA

"PN" LINE

R/W

PIONEER Blvd

ARKANSAS St

ARTESIA BUILDING MATERIALS

CERRITOS AUTO REPAIR CENTER

167TH St

RELOCATE BUS STOP

4' CURBED MEDIAN

EL POLLO LOCO

1 STOP FLOORING SUPPIY

280' LEFT TURN POCKET

CHEVRON GAS ST ATION

14' 12' 12' 12' 12' 18'

6 35 4 3 2 1 30

MATCH LINE STA 29+00
SEE SHEET 10

LAYOUT
ALTERNATIVE 2
DESIGN OPTION 1 & 3
SCALE: 1" = 50'

L-11B

DRAFT

REVISED BY | DATE REVISED

DACHENG LEE | ERIC SPANGLER

CALCULATED-DESIGNED BY | CHECKED BY

CONSULTANT FUNCTIONAL SUPERVISOR

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

LAST REVISION 00-00-00 | DATE PLOTTED => 30-NOV-2018 | TIME PLOTTED => 18:03

BORDER LAST REVISED 7/2/2010 | USERNAME => mohamed.ghonim | DGN FILE => 4681_L011_100sc_Non_Std_11x17.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0000 | PROJECT NUMBER & PHASE | EA 07-29811

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	LA	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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5 HUTTON CENTRE DR,
SUITE 500
SANTA ANA, CA 92707

LA METRO
ONE GATEWAY PLAZA
LOS ANGELES, CA 90012

NOTES:

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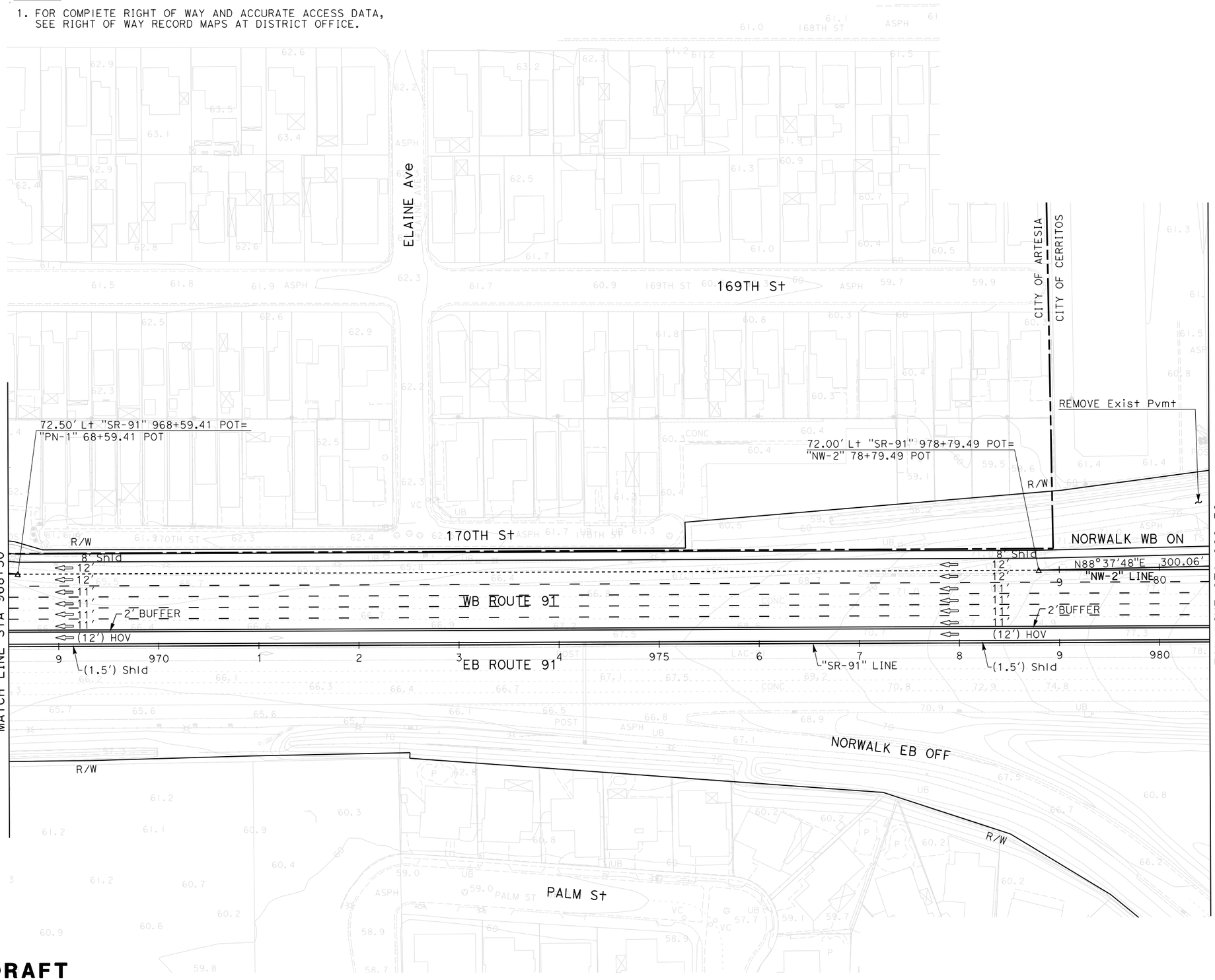

DRAFT

LAYOUT

ALTERNATIVE 2
DESIGN OPTION 1 & 3
SCALE: 1" = 50'

L-12B

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION — Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR

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CHECKED BY

DACHENG LEE
ERIC SPANGLER

REVISED BY
DATE REVISED

LAST REVISION 00-00-00
DATE PLOTTED => 30-NOV-2018
TIME PLOTTED => 18:03

BORDER LAST REVISED 7/2/2010

USERNAME => mohamed.ghonim
DGN FILE => 4681_L012_100sc_Non_Std_11x17.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE EA 07-29811

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	LA	91,605	16.9-19.8, 5.0-5.8		×

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

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LA METRO
ONE GATEWAY PLAZA
LOS ANGELES, CA 90012

NOTES:

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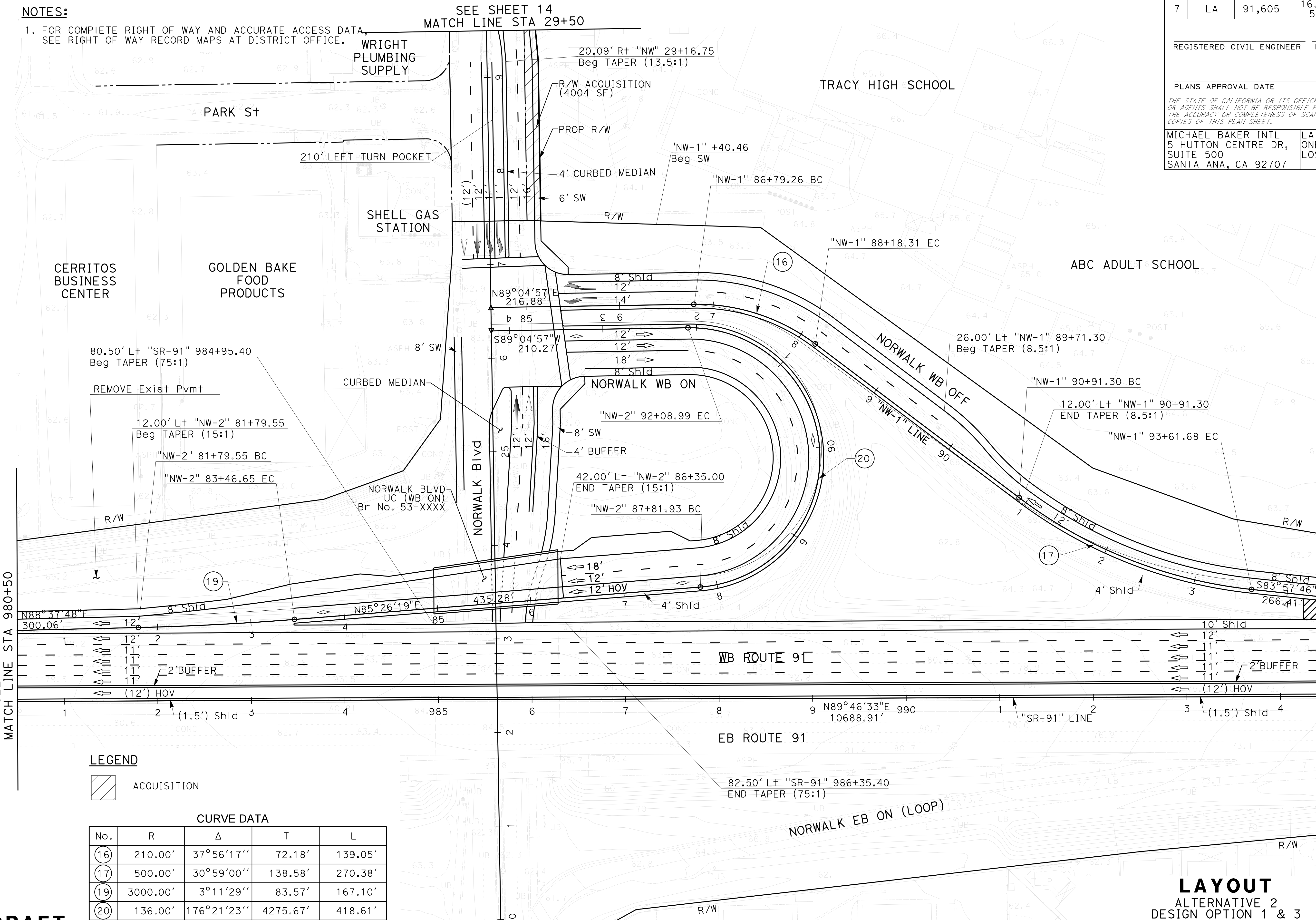

SEE SHEET 14
MATCH LINE STA 29+50
WRIGHT PLUMBING SUPPLY
PARK St
20.09' Rt "NW" 29+16.75
Beg TAPER (13.5:1)
R/W ACQUISITION (4004 SF)
PROP R/W
210' LEFT TURN POCKET
4' CURBED MEDIAN
6' SW
TRACY HIGH SCHOOL
"NW-1" +40.46
Beg SW
"NW-1" 86+79.26 BC
SHELL GAS STATION
R/W
"NW-1" 88+18.31 EC
ABC ADULT SCHOOL
CERRITOS BUSINESS CENTER
GOLDEN BAKE FOOD PRODUCTS
8' Shld
12'
14'
N89°04'57"E 216.88'
S89°04'57"W 210.27'
12'
12'
18'
8' Shld
NORWALK WB ON
NORWALK WB OFF
26.00' Lt "NW-1" 89+71.30
Beg TAPER (8.5:1)
80.50' Lt "SR-91" 984+95.40
Beg TAPER (75:1)
8' SW
CURBED MEDIAN
REMOVE Exist Pvmt
"NW-1" 90+91.30 BC
12.00' Lt "NW-1" 90+91.30
END TAPER (8.5:1)
"NW-2" 92+08.99 EC
"NW-1" LINE
"NW-1" 93+61.68 EC
12.00' Lt "NW-2" 81+79.55
Beg TAPER (15:1)
8' SW
4' BUFFER
"NW-2" 81+79.55 BC
"NW-2" 83+46.65 EC
42.00' Lt "NW-2" 86+35.00
END TAPER (15:1)
NORWALK BLVD UC (WB ON)
Br No. 53-XXXX
"NW-2" 87+81.93 BC
NORWALK Blvd
R/W
8' Shld
12' HOV
4' Shld
4' Shld
S83°57'46"E 266.41'
N88°37'48"E 300.06'
N85°26'19"E 435.28'
10' Shld
SEE SHEET 12
MATCH LINE STA 980+50
MATCH LINE STA 994+50
SEE SHEET 15
WB ROUTE 91
2' BUFFER
(12') HOV
(1.5') Shld
N89°46'33"E 10688.91'
"SR-91" LINE
EB ROUTE 91
82.50' Lt "SR-91" 986+35.40
END TAPER (75:1)
NORWALK EB ON (LOOP)
R/W

LEGEND

ACQUISITION

CURVE DATA

No.	R	Δ	T	L
16	210.00'	37°56'17"	72.18'	139.05'
17	500.00'	30°59'00"	138.58'	270.38'
19	3000.00'	3°11'29"	83.57'	167.10'
20	136.00'	176°21'23"	4275.67'	418.61'

DRAFT

LAYOUT

ALTERNATIVE 2
DESIGN OPTION 1 & 3
SCALE: 1" = 50'

L-13B

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION — Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR | CALCULATED-DESIGNED BY: DACHENG LEE | CHECKED BY: ERIC SPANGLER | REVISED BY | DATE REVISED

LAST REVISION 00-00-00 | DATE PLOTTED => 30-NOV-2018 | TIME PLOTTED => 18:03

NOTES:

1. FOR COMPIETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	LA	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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MICHAEL BAKER INTL
5 HUTTON CENTRE DR,
SUITE 500
SANTA ANA, CA 92707

LA METRO
ONE GATEWAY PLAZA
LOS ANGELES, CA 90012

CITY OF NORWALK
CITY OF CERRITOS

166TH S†

NORWALK Blvd

PARKSIDE Ave

CUESTA Dr

ABC UNIFIED SCHOOL DISTRICT

TRACY HIGH SCHOOL

ABC ADULT SCHOOL

SUPPLY VILLAGE

WRIGHT PLUMBING SUPPIY

6.00' Rt "NW" 31+03.75
END TAPER (13.5:1)

CURBED MEDIAN

Prop R/W

R/W ACQUISITION (4004 SF)

16'
12'

R/W

MATCH LINE STA 29+50
SEE SHEET 13

LEGEND

ACQUISITION

LAYOUT
ALTERNATIVE 2
DESIGN OPTION 1 & 3
SCALE: 1" = 50'

L-14B

DRAFT

REVISED BY	DATE REVISED
DACHENG LEE	
ERIC SPANGLER	

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Caltrans

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TIME PLOTTED => 18:03

BORDER LAST REVISED 7/2/2010

USERNAME => mohamed.ghonim
DGN FILE => 4681_L014_100sc_Non_Std_11x17.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000 | PROJECT NUMBER & PHASE | EA 07-29811

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	LA	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

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MICHAEL BAKER INTL
5 HUTTON CENTRE DR,
SUITE 500
SANTA ANA, CA 92707

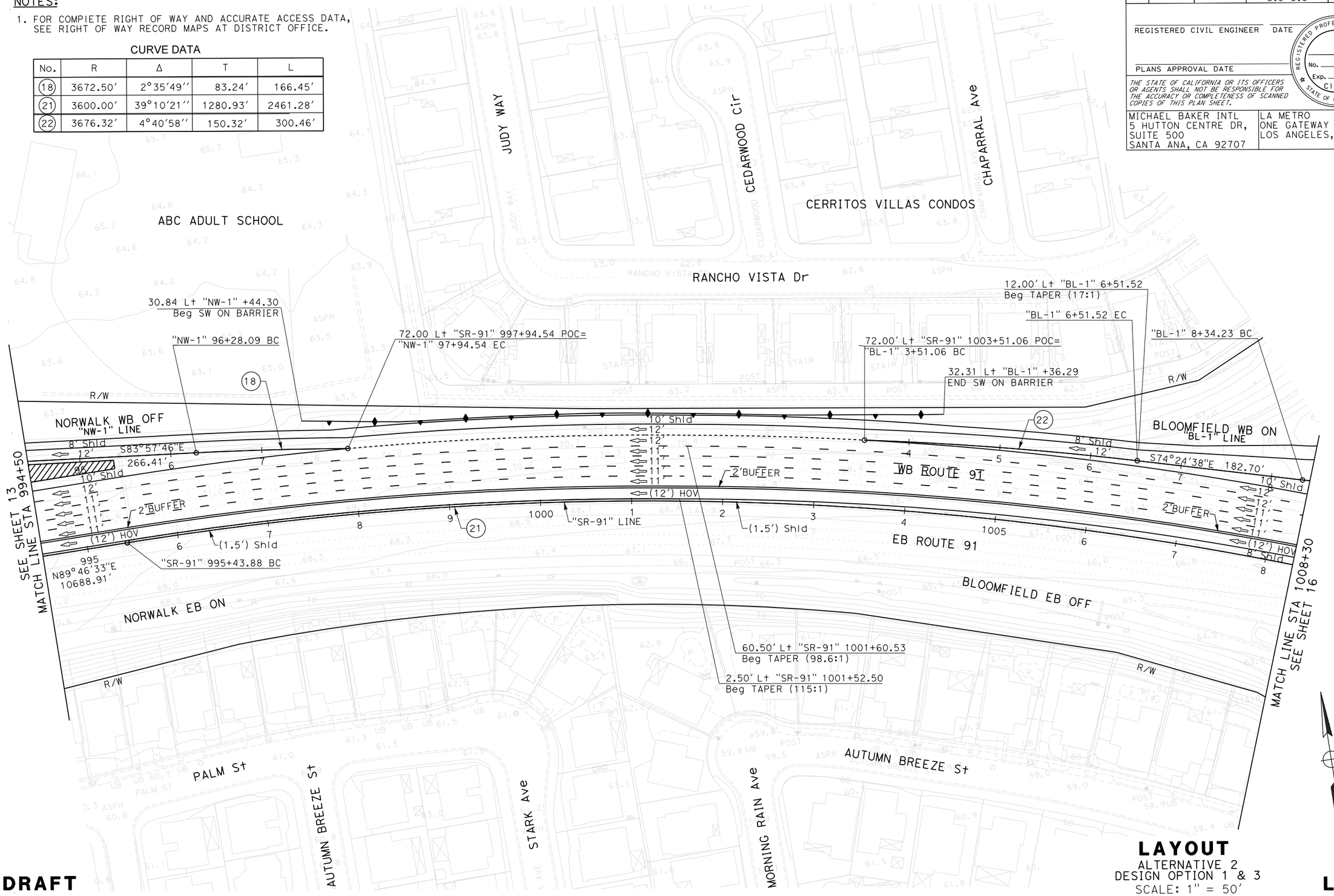
LA METRO
ONE GATEWAY PLAZA
LOS ANGELES, CA 90012

NOTES:

1. FOR COMPIETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.

CURVE DATA

No.	R	Δ	T	L
(18)	3672.50′	2°35′49″	83.24′	166.45′
(21)	3600.00′	39°10′21″	1280.93′	2461.28′
(22)	3676.32′	4°40′58″	150.32′	300.46′



DRAFT

LAYOUT

ALTERNATIVE 2
DESIGN OPTION 1 & 3
SCALE: 1" = 50′

L-15B

LAST REVISION	DATE PLOTTED => 30-NOV-2018
00-00-00	TIME PLOTTED => 18:03

REVISED BY	DATE REVISED
DACHENG LEE	ERIC SPANGLER
CALCULATED-DESIGNED BY	CHECKED BY

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION | CONSULTANT FUNCTIONAL SUPERVISOR | Caltrans

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	LA	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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MICHAEL BAKER INTL
5 HUTTON CENTRE DR,
SUITE 500
SANTA ANA, CA 92707

LA METRO
ONE GATEWAY PLAZA
LOS ANGELES, CA 90012

NOTES:

1. FOR COMPIETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.

LEGEND

ACQUISITION

28.00' Lt "BL-1" 9+25.00
END TAPER (17:1)

SEE SHEET 17
MATCH LINE STA 21+50

6' SW

PALM St

PALM St

BRIAN Ct

MICHAEL Ave

BLOOMFIELD WB ON
"BL-1" LINE

CHP
ENFORCEMENT
AREA

4' Shld

2.85' Lt "BL" 19+50.06
Beg TAPER (100:1)

68.00' Lt "SR-91" 1009+00.00
END TAPER (98.6:1)

9.00' Lt "SR-91" 1009+00.00
END TAPER (115:1)

13.15' Rt "BL" 19+49.88
Beg TAPER (50:1)

R/W ACQUISITION
(1547.8 SF)

"BL" +10
Beg RW

2.75' Lt "SR-91" 1013+25.00
Beg TAPER (115:1)

2.75' Rt "SR-91" 1013+25.00
Beg TAPER (115:1)

1.00' Lt "SR-91" 1015+46.25
END TAPER (115:1)

1.00' Rt "SR-91" 1015+46.25
END TAPER (115:1)

68.00' Lt "SR-91" 1017+05.26 POC=
"AR-1" 17+05.26 BC

12.00' Lt "AR-1" 20+11.21
Beg TAPER (35:1)

56.00' Lt "SR-91" 1020+05.16
Beg TAPER (86:1)

"AR-1" 20+53.43 EC

ARTESIA WB ON
"AR-1" LINE

WB ROUTE 91

EB ROUTE 91

10' Shld

6.2' Shld min

2' BUFFER

(12') HOV

8' Shld

(0') Shld

"SR-91" LINE

S51°30'42"E 346.70'

S51°03'06"E 5164.36'

2.75' Lt "SR-91 1012+30.00
END TAPER (115:1)

2.75' Rt "SR-91 1012+30.00
END TAPER (115:1)

1.00' Rt "SR-91" 1010+08.75
Beg TAPER (115:1)

1.00' Lt "SR-91" 1010+08.75
Beg TAPER (115:1)

BLOOMFIELD AVE
OC (REPLACE)
Br. No. 53-1433

103.54 Rt "SR-91" 1019+51.56
END SW ON BARRIER

107.04' Rt "SR-91" 1016+00.07
Beg SW ON BARRIER

9.00' Lt "SR-91" 1020+05.16
Beg TAPER (115:1)

"SR-91" 1020+05.16 EC

ExiSt STAIRS
TO BE REBUILT

13.15' Rt "BL" 16+70.00
END TAPER (30:1)

2.85' Lt "BL" 16+70.00
END TAPER (100:1)

BLOOMFIELD Ave

SAGE APARTMENTS

ARIA APARTMENTS

R/W ACQUISITION
(1159.6 SF)

6' SW

Exist STAIRS
TO BE REBUILT

45.00' Rt "BL" +96.92
Beg RW

23.25' Rt "BL" 13+67.16
Beg TAPER (30:1)

3.89' Lt "BL" 15+65.76
Beg TAPER (100:1)

36.00' Lt "BL" 15+49.10
END TAPER (38:1)

BLOOMFIELD EB OFF

41.89' Lt "BL" 13+23.00
Beg TAPER (38:1)

ARTESIA Blvd

SEE SHEET 15
MATCH LINE STA 1008+30

MATCH LINE STA 1022+50
SEE SHEET 18

R/W

CURVE DATA

No.	R	Δ	T	L
(21)	3600.00'	39°10'21''	1280.93'	2461.28'
(23)	188.00'	102°47'41''	235.48'	337.29'
(25)	3668.00'	5°26'19''	174.22'	348.17'

DRAFT

LAYOUT
ALTERNATIVE 2
DESIGN OPTION 1 & 3
SCALE: 1" = 50'

L-16B

LAST REVISION 00-00-00
DATE PLOTTED => 30-NOV-2018
TIME PLOTTED => 18:03

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
CONSULTANT FUNCTIONAL SUPERVISOR
CALCULATED-DESIGNED BY
CHECKED BY
DACHENG LEE
ERIC SPANGLER
REVISED BY
DATE REVISED

BORDER LAST REVISED 7/2/2010

USERNAME => mohamed.ghonim
DGN FILE => 4681_L016_100sc_Non_Std_11x17.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

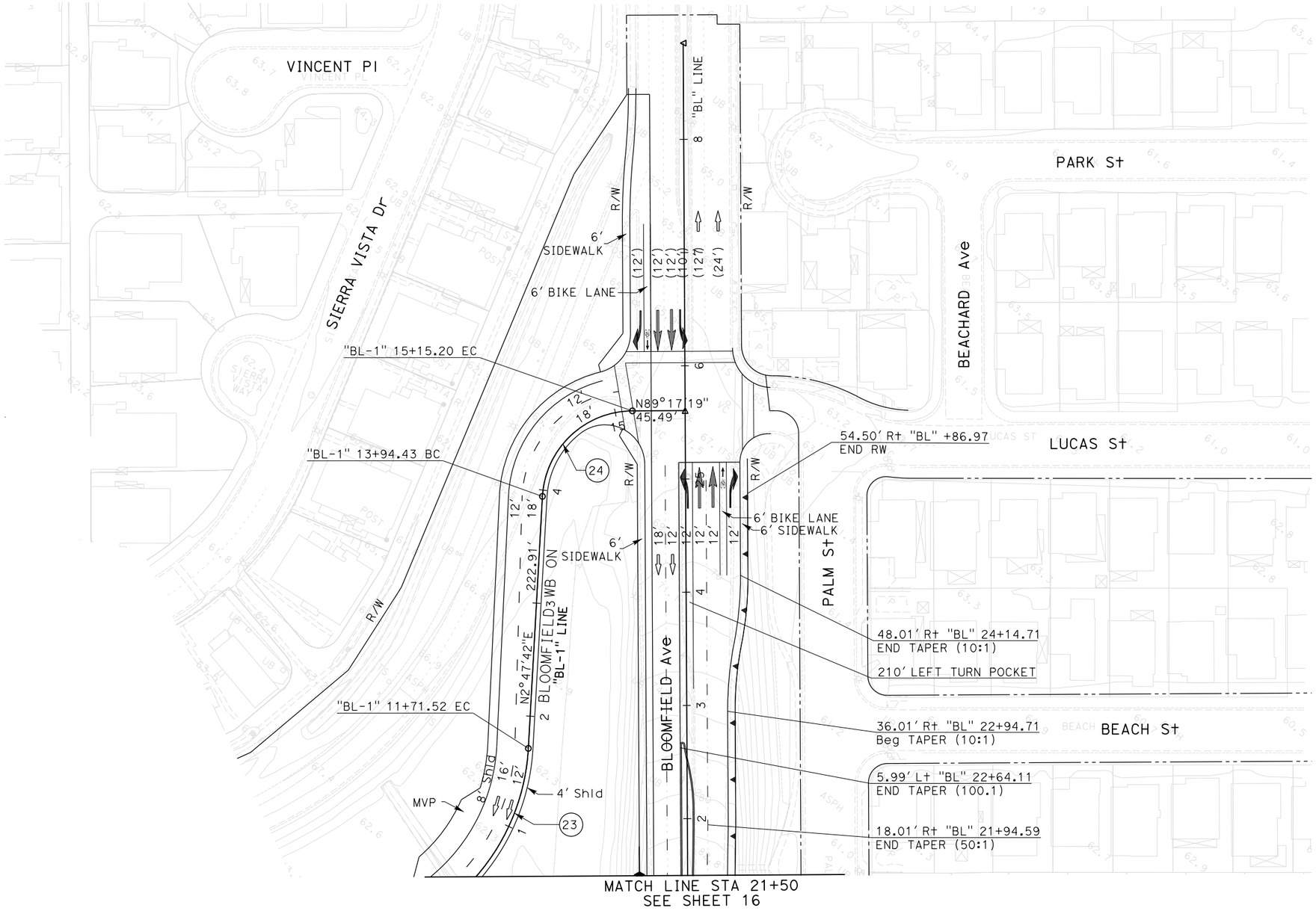
PROJECT NUMBER & PHASE EA 07-29811

NOTES:

1. FOR COMPIETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.

CURVE DATA

No.	R	Δ	T	L
(23)	188.00′	102°47′41″	235.48′	337.29′
(24)	80.00′	86°29′38″	75.25′	120.77′



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	LA	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

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5 HUTTON CENTRE DR,
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LA METRO
ONE GATEWAY PLAZA
LOS ANGELES, CA 90012

CALCULATED-DESIGNED BY: DACHENG LEE
CHECKED BY: ERIC SPANGLER
REVISED BY
DATE REVISED
CONSULTANT FUNCTIONAL SUPERVISOR
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

DRAFT

LAYOUT
ALTERNATIVE 2
DESIGN OPTION 1 & 3
SCALE: 1" = 50′

L-17B

LAST REVISION 00-00-00
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BORDER LAST REVISED 7/2/2010 | USERNAME => mohamed.ghonim | DGN FILE => 4681_L017_100sc_Non_Std_11x17.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0000 | PROJECT NUMBER & PHASE EA 07-29811

NOTES:

1. FOR COMPIETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.

CURVE DATA

No.	R	D	T	L
(26)	500.00′	31°20′05″	140.24′	273.45′

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	LA	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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SANTA ANA, CA 92707

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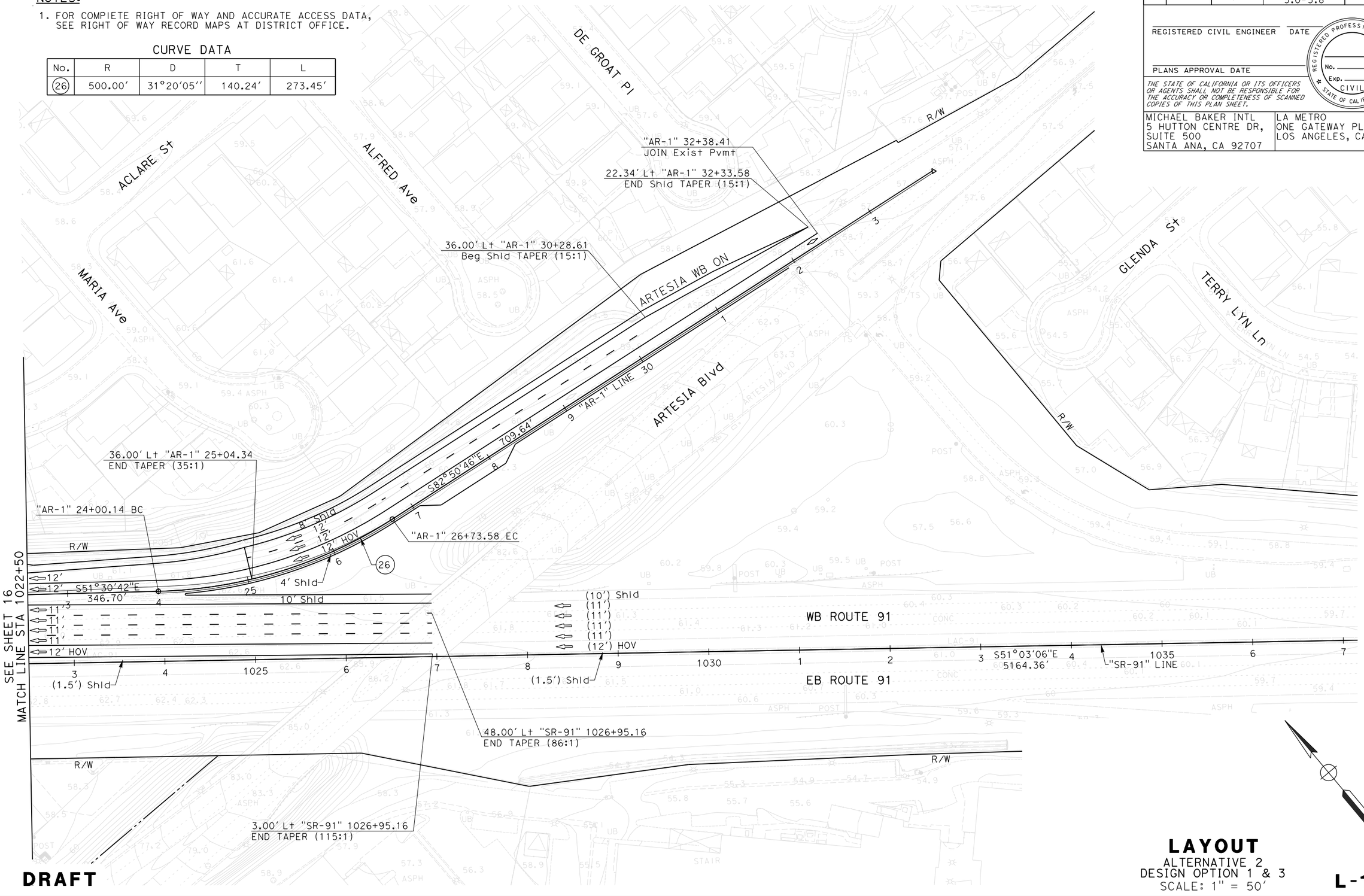

DRAFT

LAYOUT

ALTERNATIVE 2
DESIGN OPTION 1 & 3
SCALE: 1" = 50′

L-18B

REVISED BY | DATE REVISED
DACHENG LEE | ERIC SPANGLER
CALCULATED-DESIGNED BY | CHECKED BY
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Caltrans

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BORDER LAST REVISED 7/2/2010 | USERNAME => mohamed.ghonim | DGN FILE => 4681_L018_100sc_Non_Std_11x17.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0000 | PROJECT NUMBER & PHASE EA 07-29811

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	LA	91,605	16.9-19.8, 5.0-5.8		x

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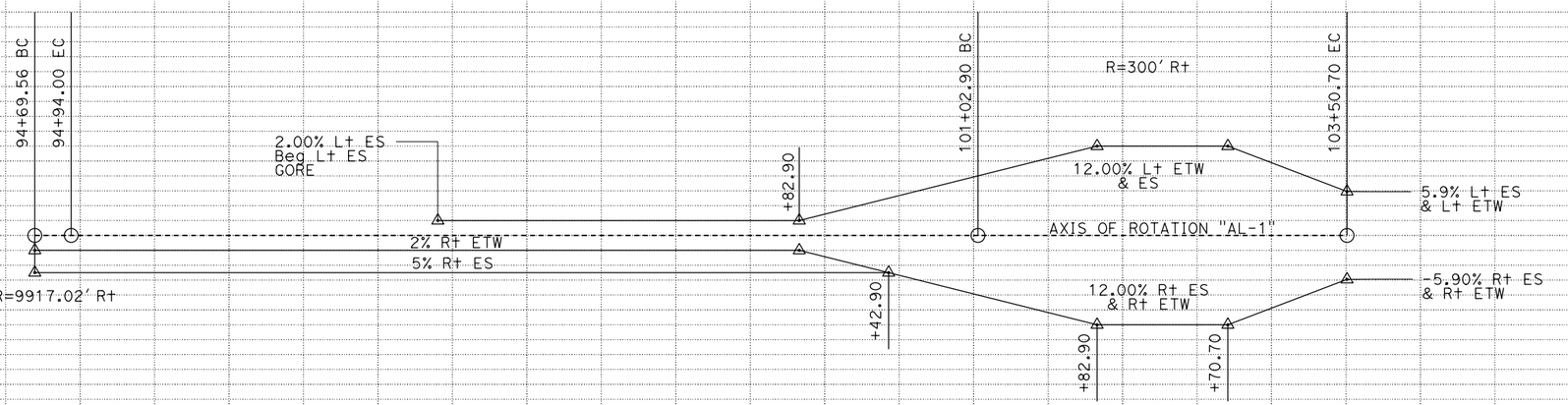
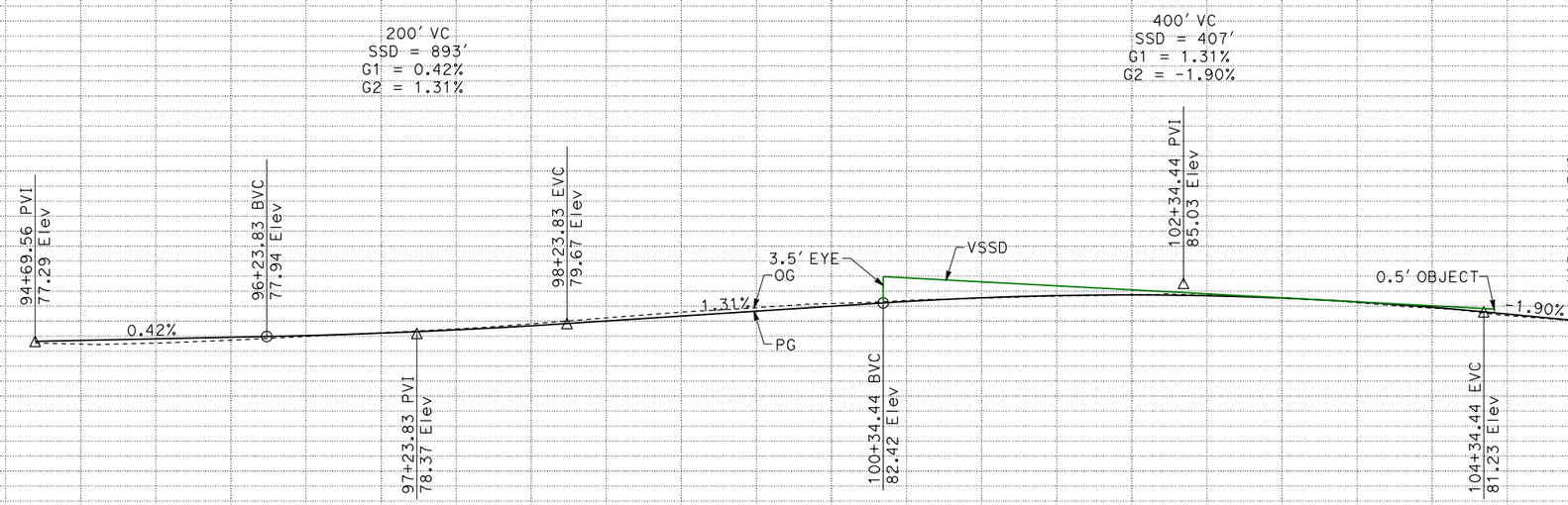


SUPERELEVATION DIAGRAM

"AL-1" LINE
I-605 NB ALONDRA OFF-RAMP



PROFILE

"AL-1" LINE
I-605 NB ALONDRA OFF-RAMP

PROFILE AND SUPERELEVATION DIAGRAM

ALTERNATIVE 2 (DESIGN OPTION 1 & 3)
SCALE: Horiz 1" = 50'
Vert 1" = 10'

PS-1

DRAFT

STATION	95+00	96+00	97+00	98+00	99+00	100+00	101+00	102+00	103+00	104+00	105+00	106+00	107+00	108+00	TOTAL
CY Exc															
CY Emb															

REVISED BY | DATE REVISED
DACHENG LEE | ERIC SPANGLER
CALCULATED-DESIGNED BY | CHECKED BY
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Caltrans

LAST REVISION DATE PLOTTED => 30-NOV-2018
00-00-00 TIME PLOTTED => 17:53

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BORDER LAST REVISED 7/2/2010 | USERNAME => mohamed.ghonim | DGN FILE => 154681-PS-01.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0000 | PROJECT NUMBER & PHASE | EA 07-29811

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	LA	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. Exp. CIVIL — STATE OF CALIFORNIA

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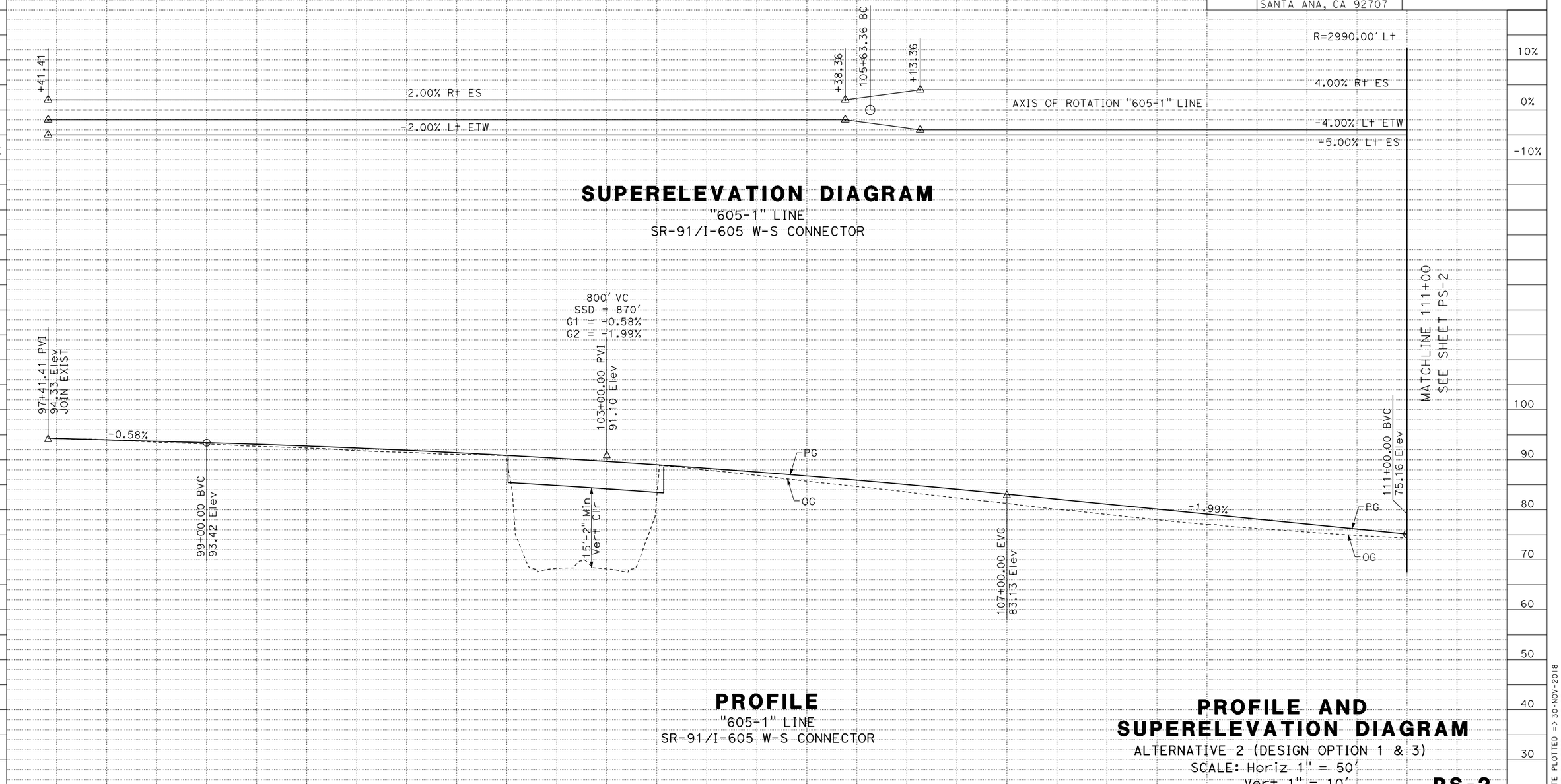

SUPERELEVATION DIAGRAM

"605-1" LINE
SR-91/I-605 W-S CONNECTOR

PROFILE

"605-1" LINE
SR-91/I-605 W-S CONNECTOR

PROFILE AND SUPERELEVATION DIAGRAM

ALTERNATIVE 2 (DESIGN OPTION 1 & 3)
SCALE: Horiz 1" = 50'
Vert 1" = 10'

PS-2

STATION	97+50	98+00	99+00	100+00	101+00	102+00	103+00	104+00	105+00	106+00	107+00	108+00	109+00	110+00	111+00	TOTAL
CY Exc																
CY Emb																

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	LA	91,605	16.9-19.8, 5.0-5.8		x

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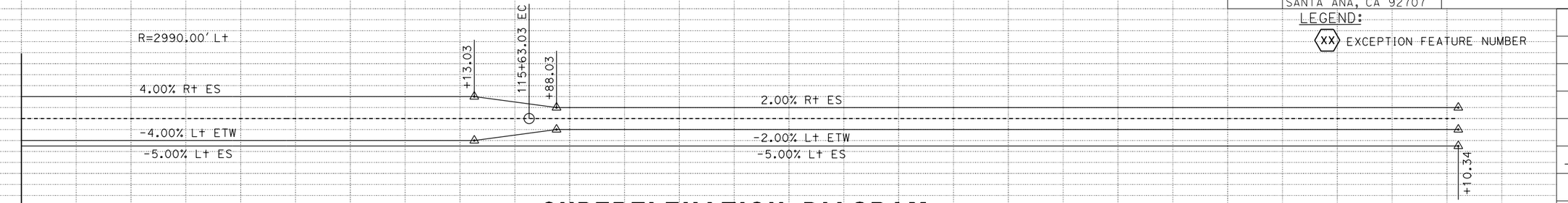
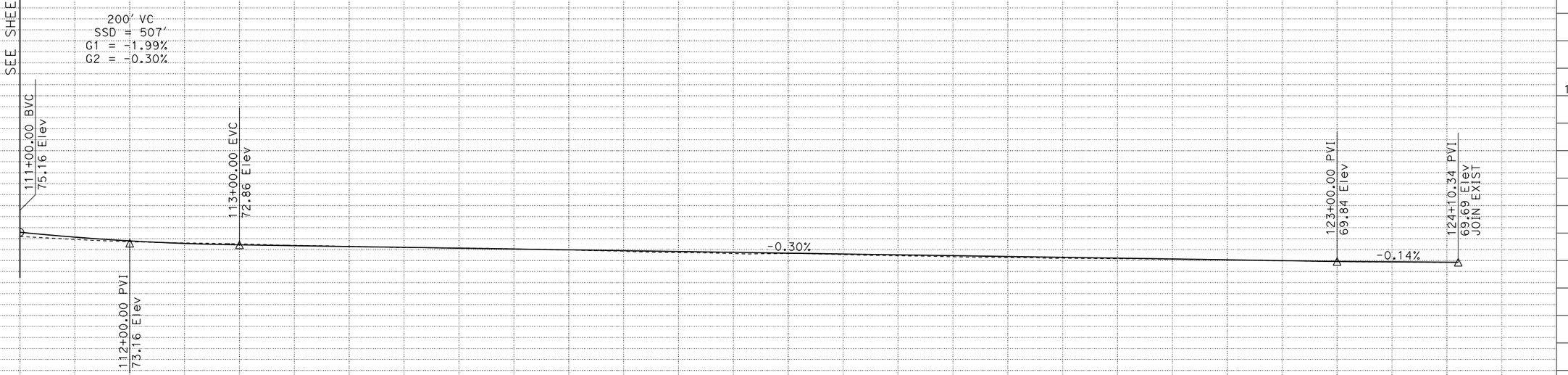
LEGEND:

(XX) EXCEPTION FEATURE NUMBER



SUPERELEVATION DIAGRAM

"605-1" LINE
SR-91/I-605 W-S CONNECTOR



PROFILE

"605-1" LINE
SR-91/I-605 W-S CONNECTOR

PROFILE AND SUPERELEVATION DIAGRAM

ALTERNATIVE 2 (DESIGN OPTION 1 & 3)
SCALE: Horiz 1" = 50'
Vert 1" = 10'

PS-3

STATION	111+00	112+00	113+00	114+00	115+00	116+00	117+00	118+00	119+00	120+00	121+00	122+00	123+00	124+00	TOTAL
CY Exc															
CY Emb															

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	LA	91,605	16.9-19.8, 5.0-5.8		x

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PLANS APPROVAL DATE

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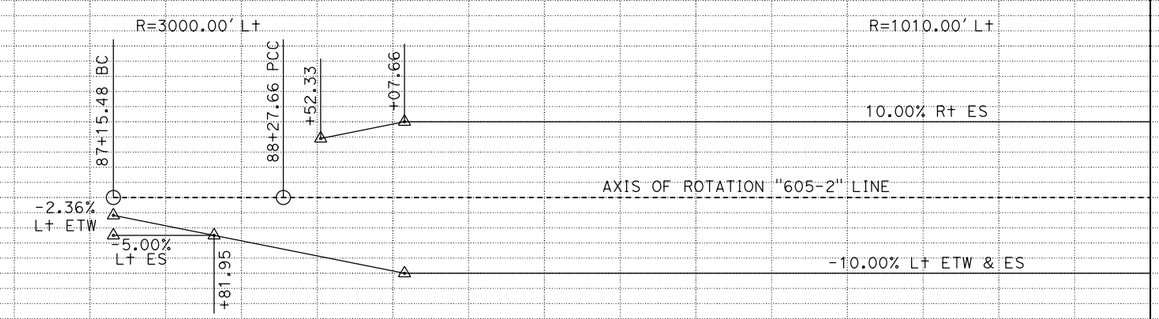
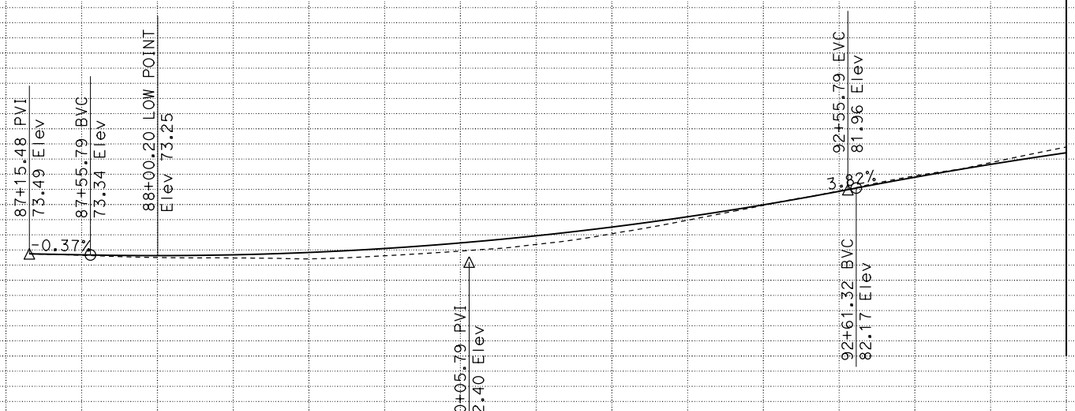


SUPERELEVATION DIAGRAM

"605-2" LINE
SR-91/I-605 W-N CONNECTOR

500' VC
SSD = 511'
G1 = -0.37%
G2 = 3.82%

MATCHLINE 94+00
SEE SHEET PS-5



PROFILE

"605-2" LINE
SR-91/I-605 W-N CONNECTOR

PROFILE AND SUPERELEVATION DIAGRAM

ALTERNATIVE 2 (DESIGN OPTION 1 & 3)
SCALE: Horiz 1" = 50'
Vert 1" = 10'

PS-4

DRAFT

STATION		86+00	87+00	88+00	89+00	90+00	91+00	92+00	93+00	94+00	TOTAL
CY	Exc										
	Emb										

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7	LA	91,605	16.9-19.8, 5.0-5.8		x

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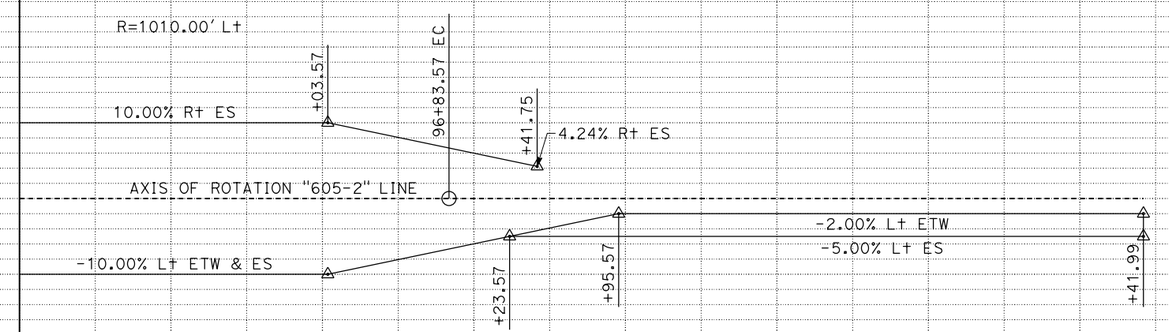
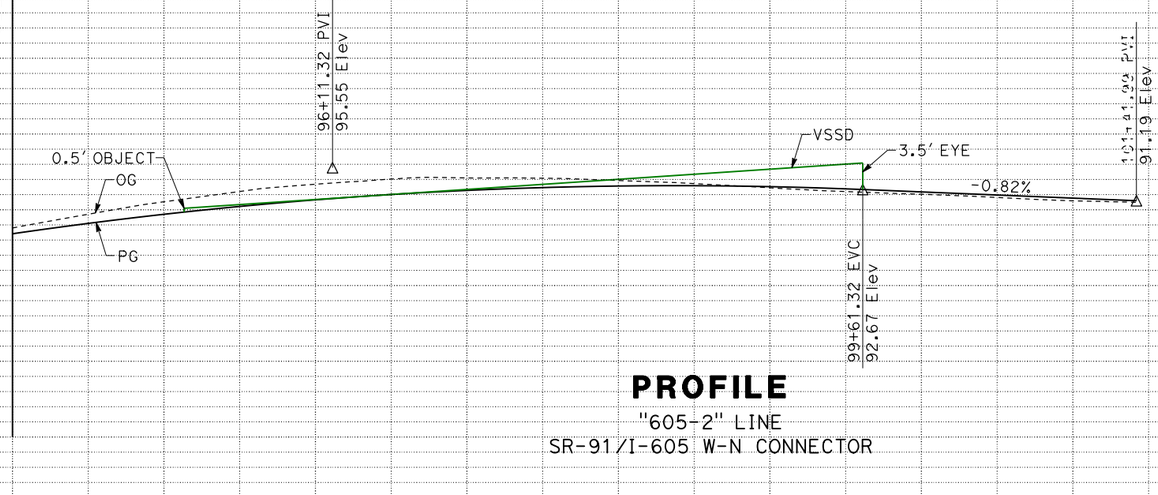


SUPERELEVATION DIAGRAM

"605-2" LINE
SR-91/I-605 W-N CONNECTOR

700' VC
SSD = 448'
G1 = 3.82%
G2 = -0.82%

MATCHLINE 94+00
SEE SHEET PS-4



PROFILE

"605-2" LINE
SR-91/I-605 W-N CONNECTOR

PROFILE AND SUPERELEVATION DIAGRAM

ALTERNATIVE 2 (DESIGN OPTION 1 & 3)
SCALE: Horiz 1" = 50'
Vert 1" = 10'

PS-5

DRAFT

STATION	94+00	95+00	96+00	97+00	98+00	99+00	100+00	101+00	102+00	TOTAL
CY Exc										
CY Emb										

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	LA	91,605	16.9-19.8, 5.0-5.8		x

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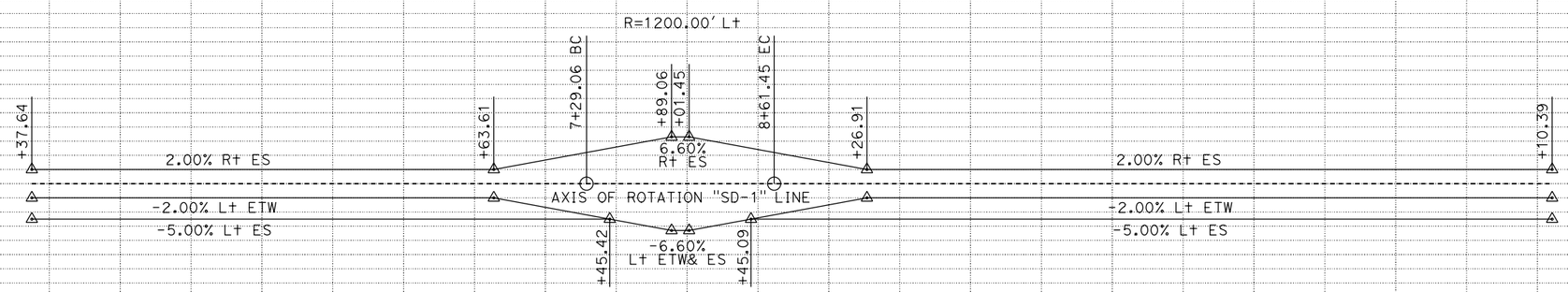
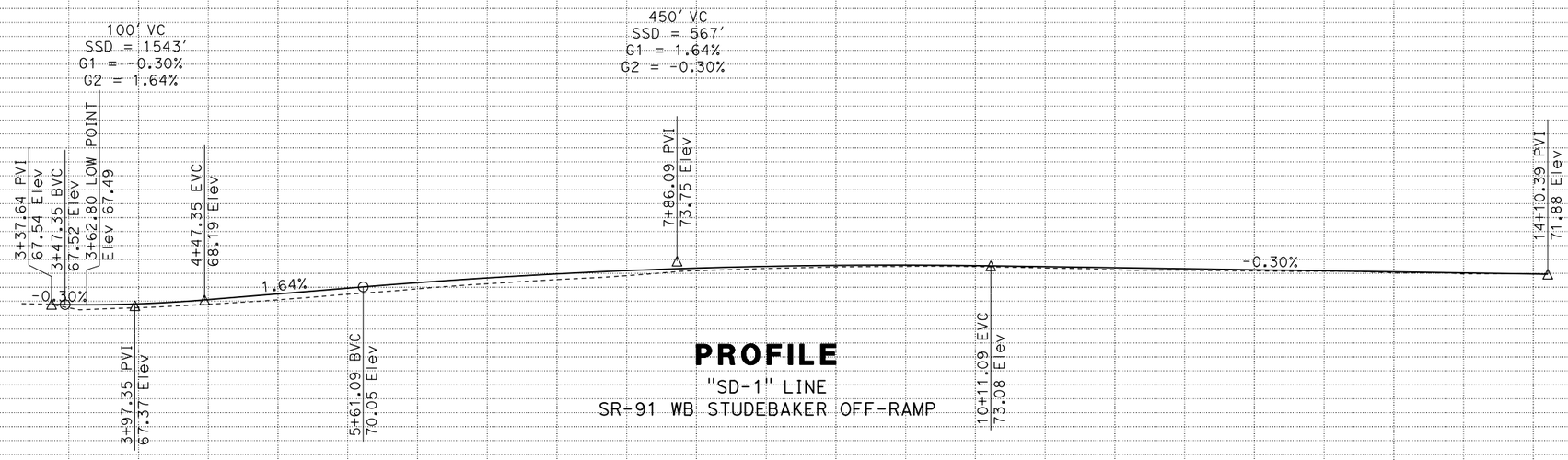


SUPERELEVATION DIAGRAM

"SD-1" LINE
SR-91 WB STUDEBAKER OFF-RAMP



PROFILE

"SD-1" LINE
SR-91 WB STUDEBAKER OFF-RAMP

PROFILE AND SUPERELEVATION DIAGRAM

ALTERNATIVE 2 (DESIGN OPTION 1 & 3)
SCALE: Horiz 1" = 50'
Vert 1" = 10'

PS-6

DRAFT

STATION	2+00	3+00	4+00	5+00	6+00	7+00	8+00	9+00	10+00	11+00	12+00	13+00	14+00	15+00	TOTAL
CY Exc															
CY Emb															

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	LA	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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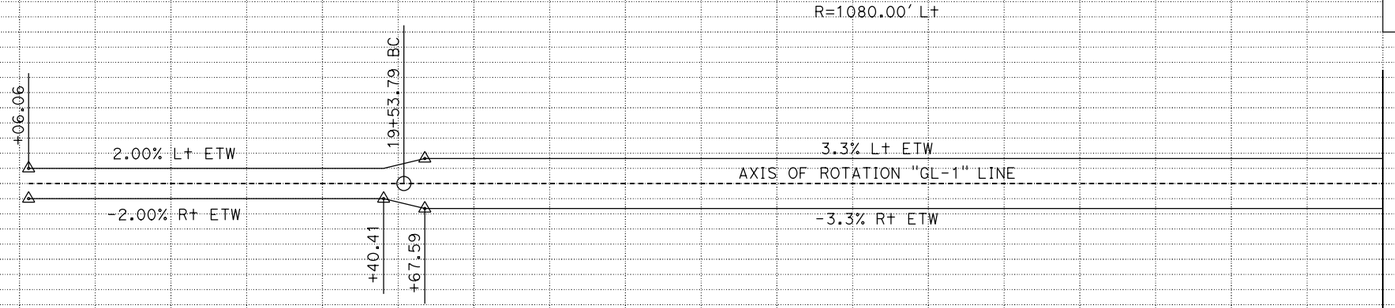
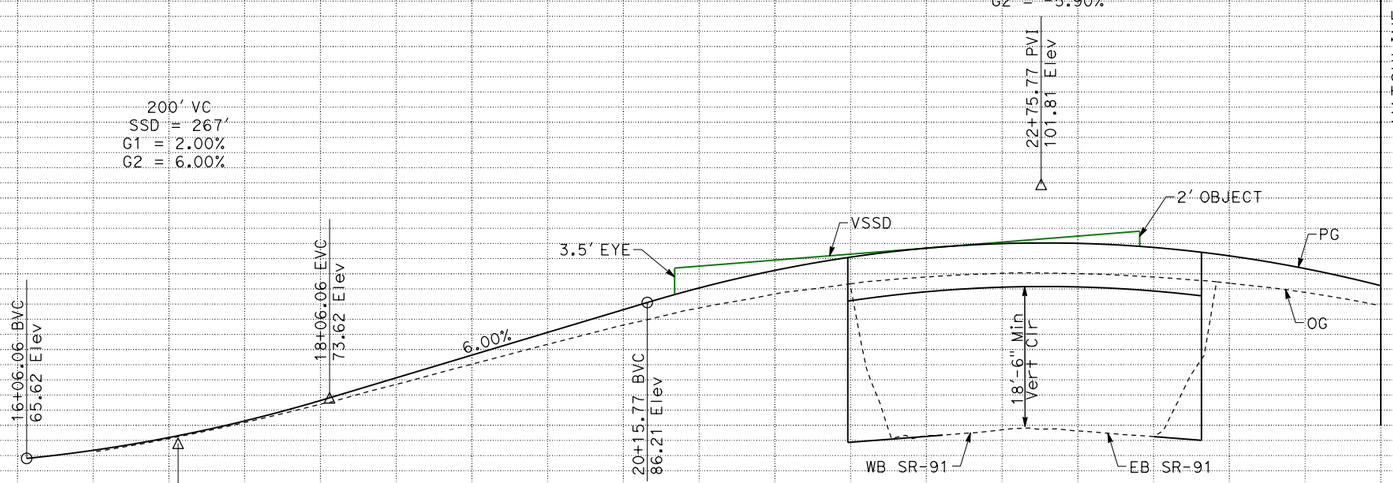


SUPERELEVATION DIAGRAM

"GL-1" LINE
GRIDLEY RD



PROFILE

"GL-1" LINE
GRIDLEY RD

PROFILE AND SUPERELEVATION DIAGRAM

ALTERNATIVE 2 (DESIGN OPTION 1 & 3)
SCALE: Horiz 1" = 50'
Vert 1" = 10'

PS-7

DRAFT

STATION		15+00	16+00	17+00	18+00	19+00	20+00	21+00	22+00	23+00	24+00	25+00	TOTAL
CY	Exc												
	Emb												

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	LA	91,605	16.9-19.8, 5.0-5.8		x

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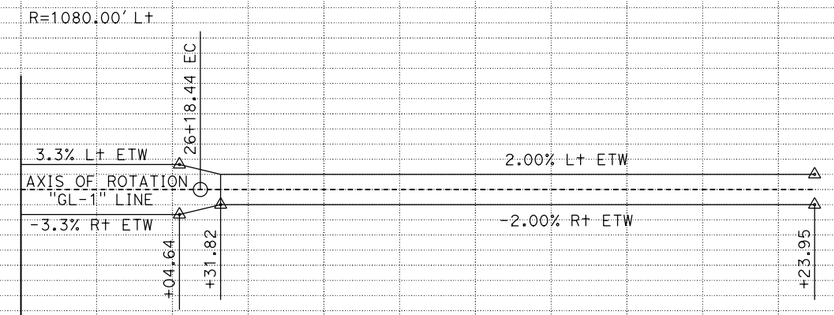
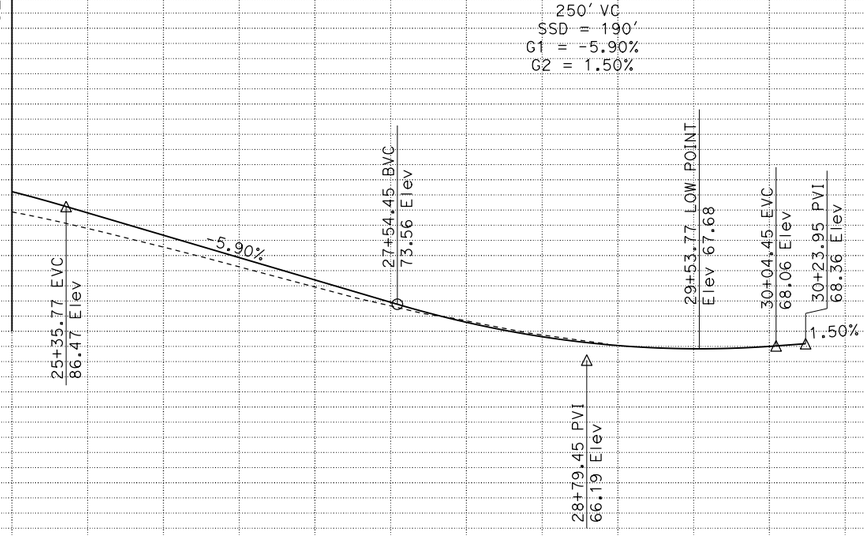


SUPERELEVATION DIAGRAM

"GL-1" LINE
GRIDLEY RD

MATCHLINE 25+00
SEE SHEET PS-7



PROFILE

"GL-1" LINE
GRIDLEY RD

PROFILE AND SUPERELEVATION DIAGRAM

ALTERNATIVE 2 (DESIGN OPTION 1 & 3)
SCALE: Horiz 1" = 50'
Vert 1" = 10'

PS-8

DRAFT

STATION		25+00	26+00	27+00	28+00	29+00	30+00	31+00	TOTAL
CY	Exc								
	Emb								

10% 0% -10% 130 120 110 100 90 80 70 60 50 40

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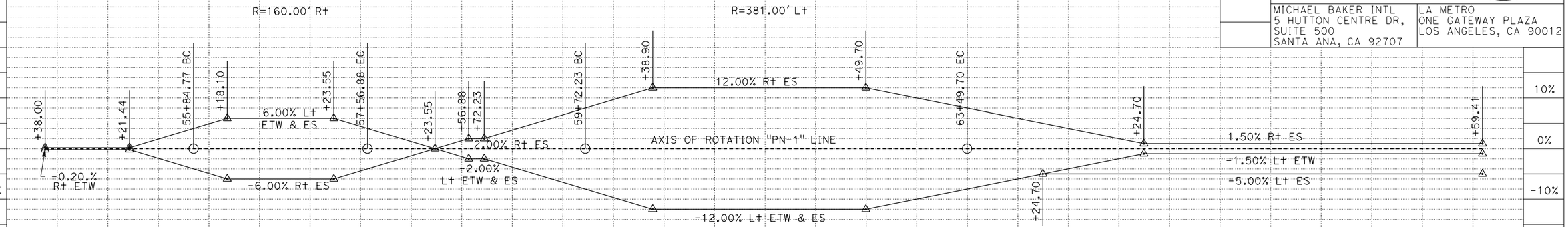
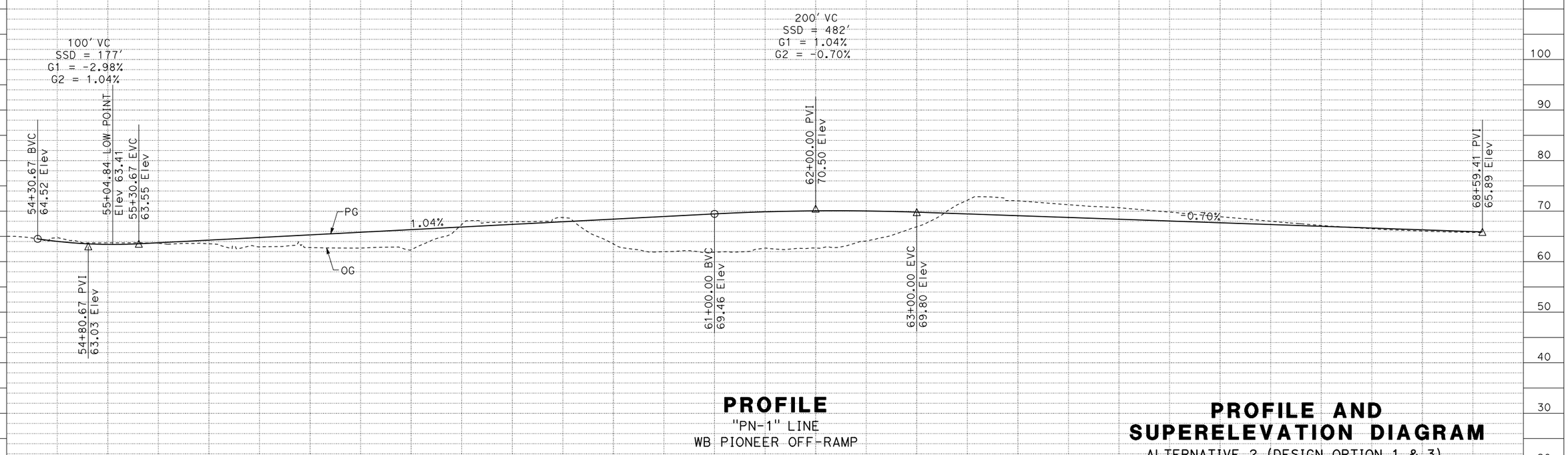


SUPERELEVATION DIAGRAM

"PN-1" LINE
WB PIONEER OFF-RAMP



PROFILE

"PN-1" LINE
WB PIONEER OFF-RAMP

PROFILE AND SUPERELEVATION DIAGRAM

ALTERNATIVE 2 (DESIGN OPTION 1 & 3)
SCALE: Horiz 1" = 50'
Vert 1" = 10'

PS-9

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	LA	91,605	16.9-19.8, 5.0-5.8		x

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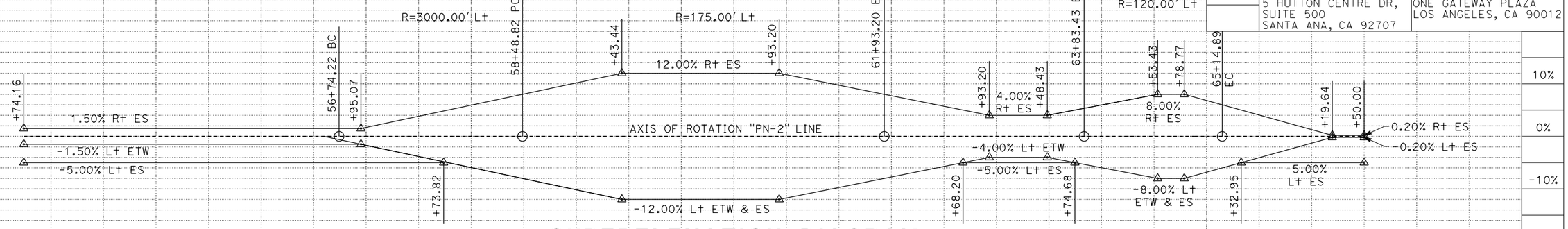
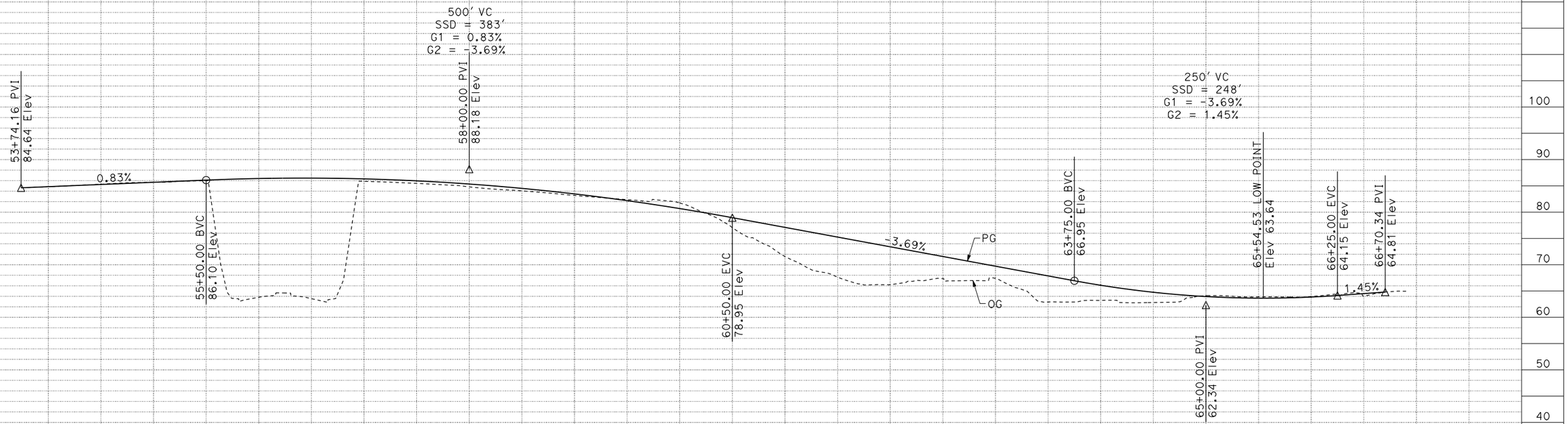


SUPERELEVATION DIAGRAM

"PN-2" LINE
WB PIONEER ON-RAMP



PROFILE

"PN-2" LINE
WB PIONEER ON-RAMP

PROFILE AND SUPERELEVATION DIAGRAM

ALTERNATIVE 2 (DESIGN OPTION 1 & 3)
SCALE: Horiz 1" = 50'
Vert 1" = 10'

PS-10

STATION: 54+00 55+00 56+00 57+00 58+00 59+00 60+00 61+00 62+00 63+00 64+00 65+00 66+00 67+00 TOTAL

CY Exc
CY Emb

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	LA	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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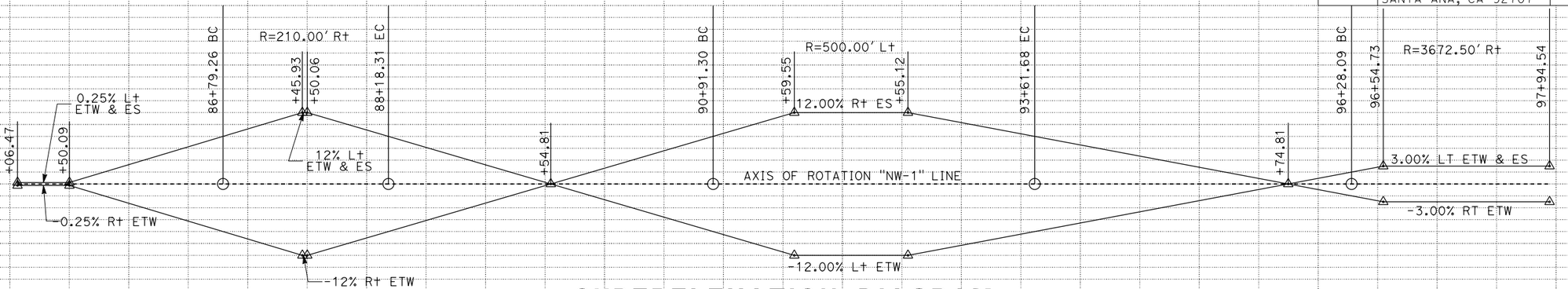
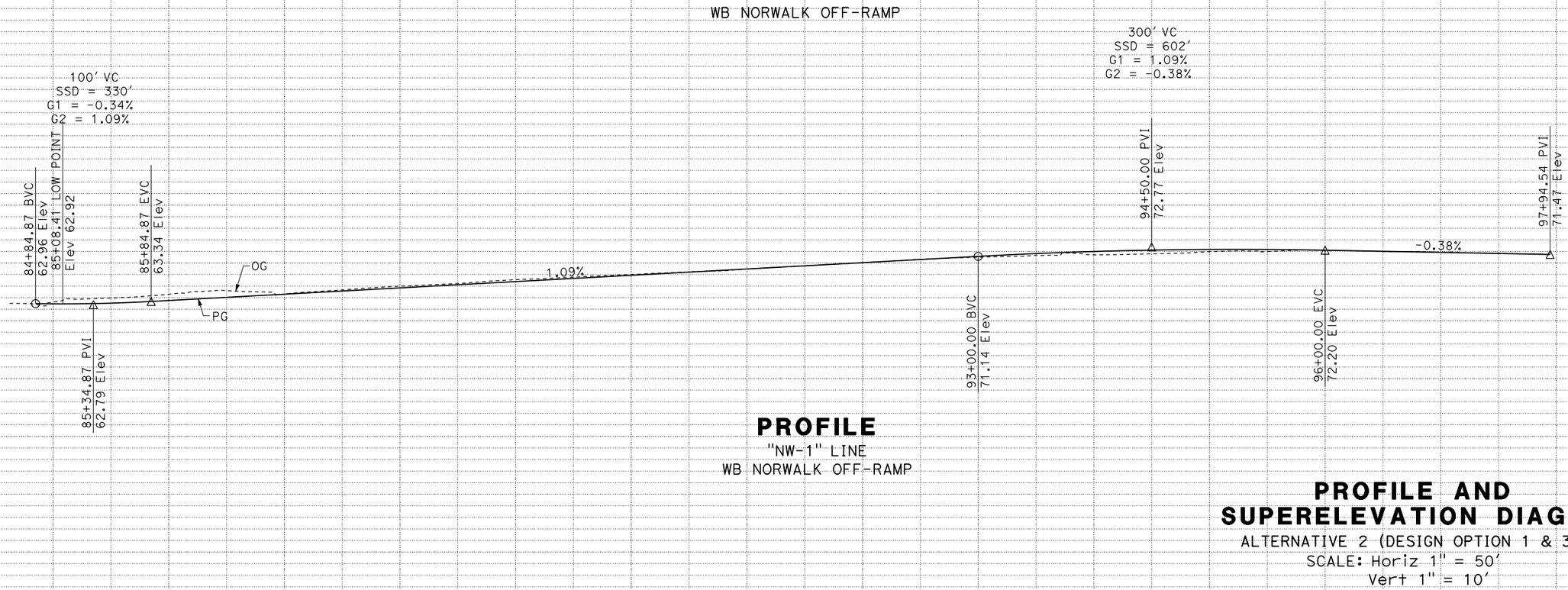


SUPERELEVATION DIAGRAM

"NW-1" LINE
WB NORWALK OFF-RAMP



PROFILE

"NW-1" LINE
WB NORWALK OFF-RAMP

PROFILE AND SUPERELEVATION DIAGRAM

ALTERNATIVE 2 (DESIGN OPTION 1 & 3)
SCALE: Horiz 1" = 50'
Vert 1" = 10'

PS-11

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DACHENG LEE | CALCULATED-DESIGNED BY
ERIC SPANGLER | CHECKED BY
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STATION: 85+00 | 86+00 | 87+00 | 88+00 | 89+00 | 90+00 | 91+00 | 92+00 | 93+00 | 94+00 | 95+00 | 96+00 | 97+00 | 98+00 | TOTAL
CY Exc
CY Emb

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BORDER LAST REVISED 7/2/2010 | USERNAME => mohamed.ghonim | DGN FILE => 154681-PS-11.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0000 | PROJECT NUMBER & PHASE | EA 07-29811

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	LA	91,605	16.9-19.8, 5.0-5.8		×

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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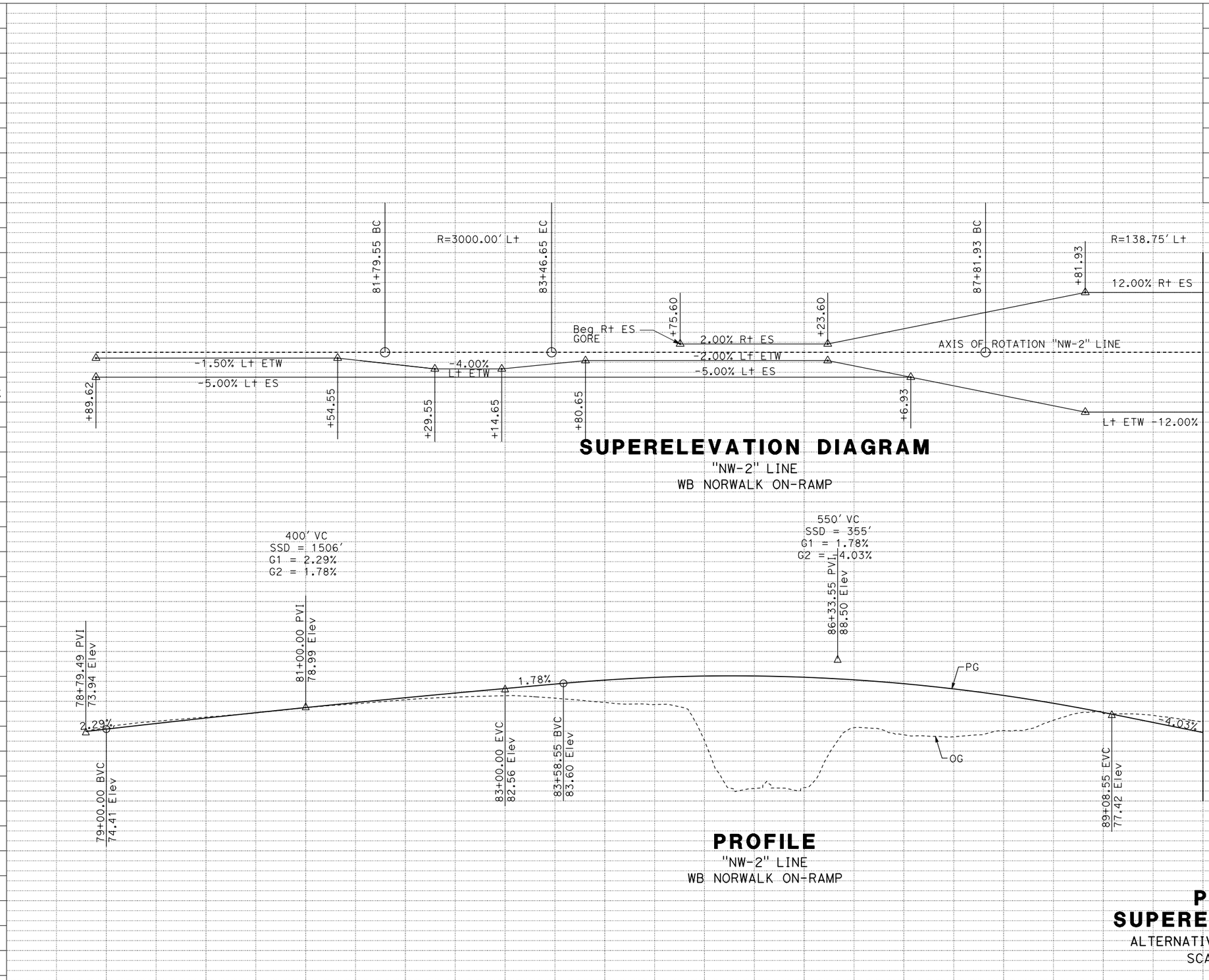
MICHAEL BAKER INTL
5 HUTTON CENTRE DR,
SUITE 500
SANTA ANA, CA 92707

LA METRO
ONE GATEWAY PLAZA
LOS ANGELES, CA 90012



	10%	0%	-10%
STATION	78+50	79+00	80+00	81+00	82+00	83+00	84+00	85+00	86+00	87+00	88+00	89+00	90+00	TOTAL
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
CY Exc														
CY Emb														

REVISED BY	DATE REVISED

CALCULATED-DESIGNED BY	CHECKED BY
DACHENG LEE	ERIC SPANGLER

CONSULTANT FUNCTIONAL SUPERVISOR

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	LA	91,605	16.9-19.8, 5.0-5.8		x

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PLANS APPROVAL DATE

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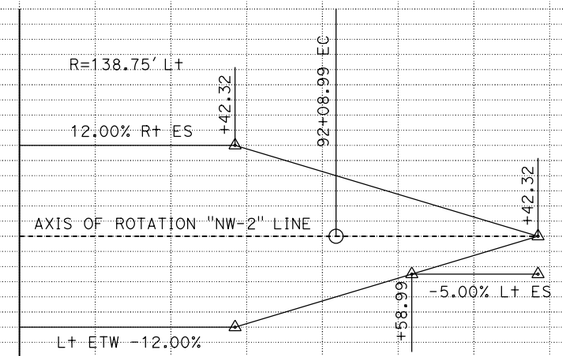
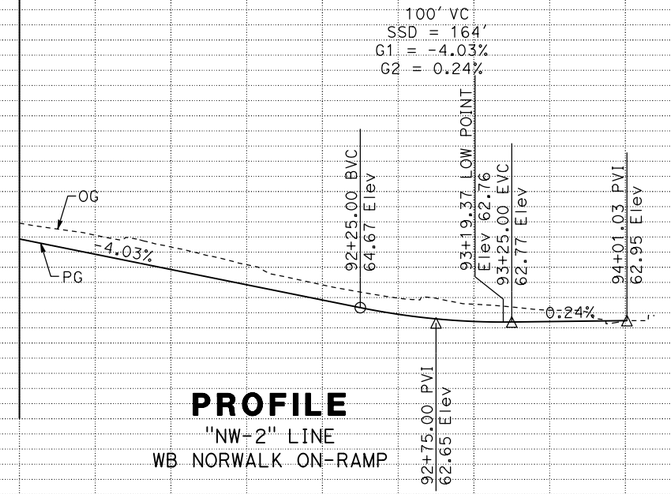


SUPERELEVATION DIAGRAM
"NW-2" LINE
WB NORWALK ON-RAMP

MATCHLINE 90+00
SEE SHEET PS-12



PROFILE
"NW-2" LINE
WB NORWALK ON-RAMP

PROFILE AND SUPERELEVATION DIAGRAM
ALTERNATIVE 2 (DESIGN OPTION 1 & 3)
SCALE: Horiz 1" = 50'
Vert 1" = 10'

PS-13

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STATION		90+00	91+00	92+00	93+00	94+00	TOTAL
CY	Exc						
	Emb						

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	LA	91,605	16.9-19.8, 5.0-5.8		x

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LOS ANGELES, CA 90012

AXIS OF ROTATION "BL" LINE

-2.00% L+ & R+ ETW

+08.37

+76.62

SUPERELEVATION DIAGRAM

"BL" LINE
BLOOMFIELD AVE

450' VC
SSD = 223' (AASHTO 284')
Design Speed = 32 MPH (38 MPH AASHTO)
G1 = 6.00%
G2 = -6.00%

200' VC
SSD = 929'
G1 = 5.15%
G2 = 6.00%

200' VC
SSD = 248'
G1 = -6.00%
G2 = -1.72%

13+08.37 BVC
64.30 Elev

14+08.37 PVI
69.46 Elev

15+08.37 EVC
75.46 Elev

16+93.70 BVC
86.58 Elev

19+18.70 PVI
100.08 Elev

0.5' OBJECT

VSSD

3.5' EYE

3'-6" Min
Vert Clr

6.00%

21+43.70 EVC
86.58 Elev

PG

OG

-6.00%

23+35.00 BVC
75.10 Elev

24+35.00 PVI
69.10 Elev

25+35.00 EVC
67.38 Elev

25+76.62 PVI
66.66' Elev

-1.72%

PROFILE

"BL" LINE
BLOOMFIELD AVE

PROFILE AND SUPERELEVATION DIAGRAM

ALTERNATIVE 2 (DESIGN OPTION 1 & 3)
SCALE: Horiz 1" = 50'
Vert 1" = 10'

PS-14

STATION	13+00	14+00	15+00	16+00	17+00	18+00	19+00	20+00	21+00	22+00	23+00	24+00	25+00	26+00	TOTAL
CY Exc															
CY Emb															

10% 0% -10% 110 100 90 80 70 60 50 40 30

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7	LA	91,605	16.9-19.8, 5.0-5.8		x

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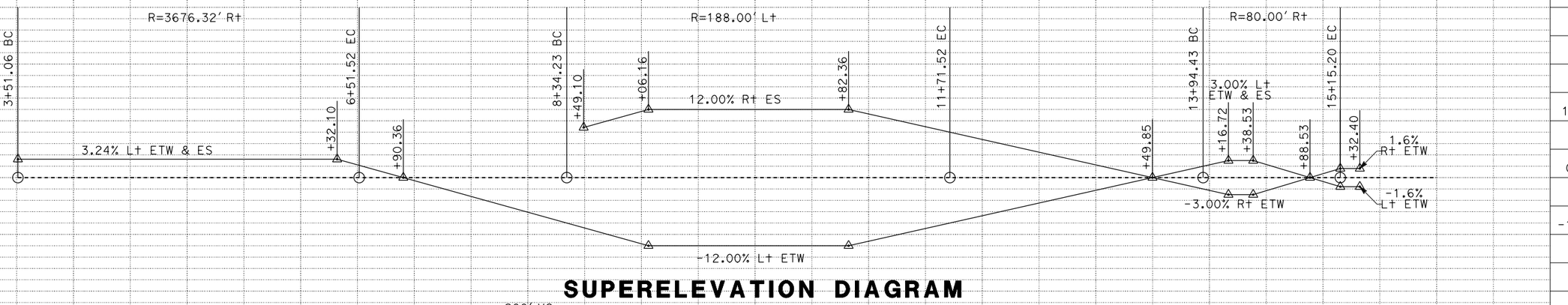
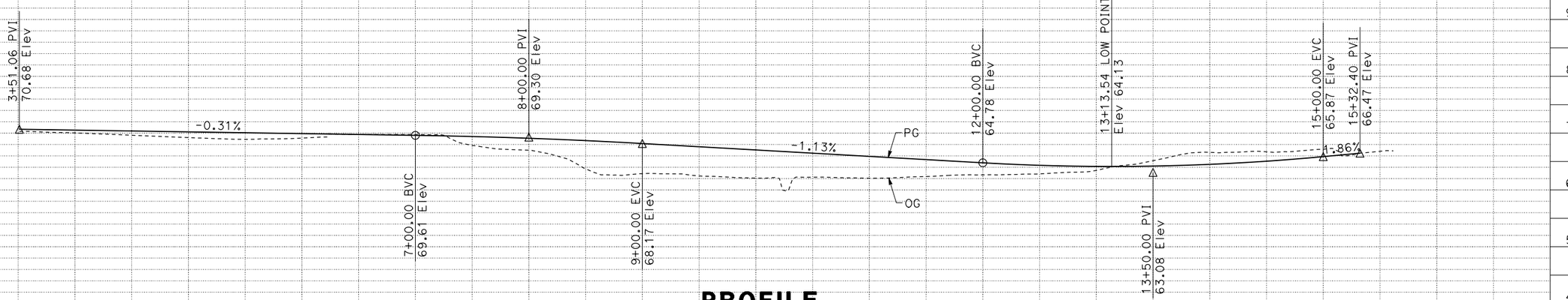


SUPERELEVATION DIAGRAM

200' VC
SSD = 907'
G1 = -0.31%
G2 = -1.13%

"BL-1" LINE
WB BLOOMFIELD ON-RAMP

300' VC
SSD = 523'
G1 = -1.13%
G2 = 1.86%



PROFILE

"BL-1" LINE
WB BLOOMFIELD ON-RAMP

PROFILE AND SUPERELEVATION DIAGRAM

ALTERNATIVE 2 (DESIGN OPTION 1 & 3)
SCALE: Horiz 1" = 50'
Vert 1" = 10'

PS-15

STATION	3+00	4+00	5+00	6+00	7+00	8+00	9+00	10+00	11+00	12+00	13+00	14+00	15+00	16+00	TOTAL
CY Exc															
CY Emb															

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION | CONSULTANT FUNCTIONAL SUPERVISOR | CALCULATED-DESIGNED BY DACHENG LEE | CHECKED BY ERIC SPANGLER | REVISED BY | DATE REVISED

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	LA	91,605	16.9-19.8, 5.0-5.8		x

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PLANS APPROVAL DATE

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ONE GATEWAY PLAZA
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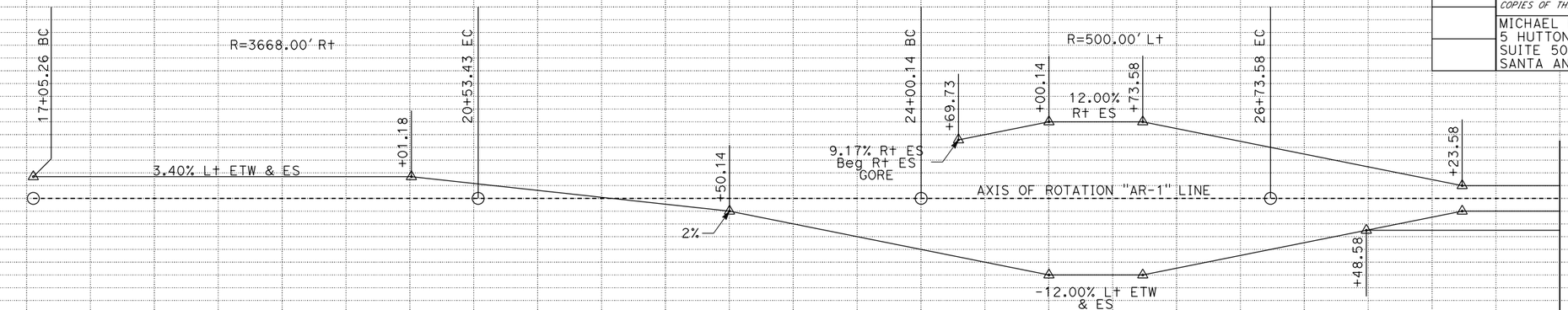
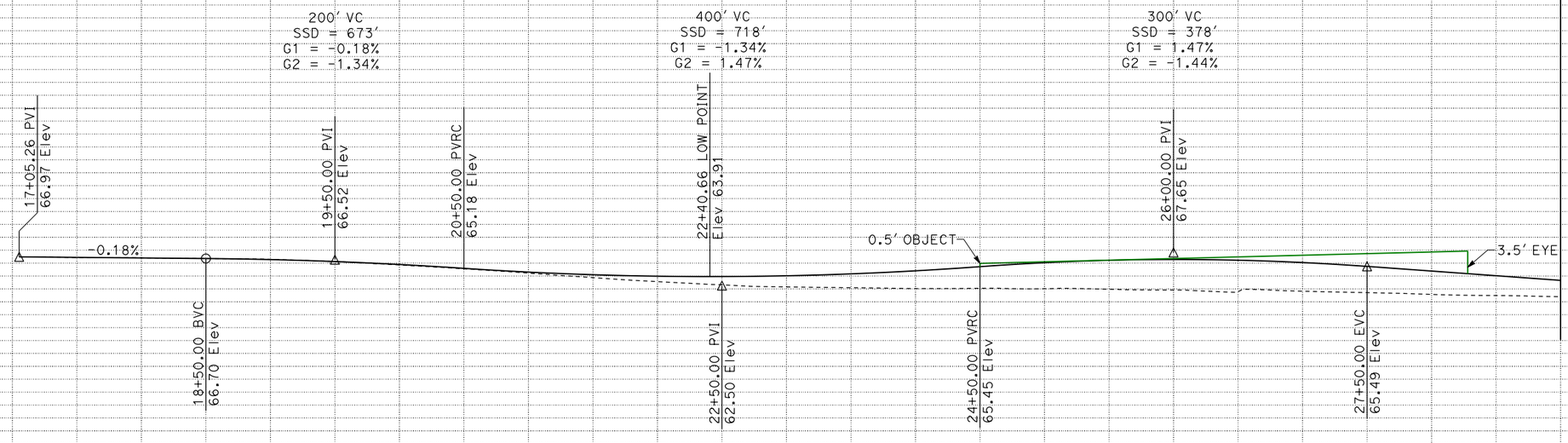


SUPERELEVATION DIAGRAM

"AR-1" LINE
SR-91 WB ARTESIA ON-RAMP



PROFILE

"AR-1" LINE
SR-91 WB ARTESIA ON-RAMP

PROFILE AND SUPERELEVATION DIAGRAM

ALTERNATIVE 2 (DESIGN OPTION 1 & 3)
SCALE: Horiz 1" = 50'
Vert 1" = 10'

PS-16

DRAFT

STATION	17+00	18+00	19+00	20+00	21+00	22+00	23+00	24+00	25+00	26+00	27+00	28+00	29+00	TOTAL
CY Exc														
CY Emb														

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CALCULATED-DESIGNED BY | CHECKED BY
CONSULTANT FUNCTIONAL SUPERVISOR
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Caltrans

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	LA	91,605	16.9-19.8, 5.0-5.8		x

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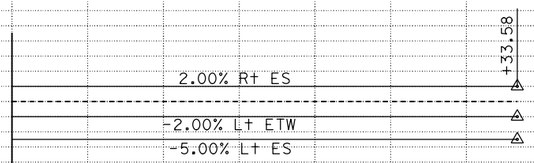
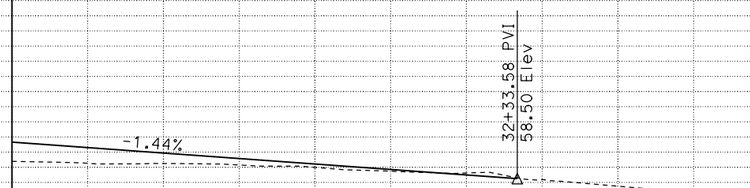
LOS ANGELES, CA 90012



SUPERELEVATION DIAGRAM

"AR-1" LINE
SR-91 WB ARTESIA ON-RAMP

MATCHLINE
SEE SHEET PS-16



PROFILE

"AR-1" LINE
SR-91 WB ARTESIA ON-RAMP

PROFILE AND SUPERELEVATION DIAGRAM

ALTERNATIVE 2 (DESIGN OPTION 1 & 3)
SCALE: Horiz 1" = 50'
Vert 1" = 10'

PS-17

DRAFT

STATION		29+00	30+00	31+00	32+00	33+00	34+00	TOTAL
CY	Exc							
	Emb							

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CALCULATED-DESIGNED BY
CHECKED BY
DACHENG LEE
ERIC SPANGLER
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Attachment I

Geometric Drawings
Alternative 2 – Design Option 2
(Type L-9 Interchange at Pioneer Boulevard)

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	La	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

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166TH ST
CITY OF NORWALK
CITY OF ARTESIA
PIONEER BLVD
ARKANSAS ST
JOHN H. NIEMES
ELEMENTARY SCHOOL
167TH ST
168TH ST
ARCO GAS
STATION
(ACQUISITION)
JERSEY AVE
ARTESIA INN AND SUITES
DENNY'S
169TH ST
WB ROUTE 91
EB ROUTE 91
CITY OF ARTESIA
CITY OF CERRITOS

LAYOUT

ALTERNATIVE 2
Design Option 2
SCALE: 1" = 100'

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TIME PLOTTED => 13:44

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USERNAME => dclee
DGN FILE => 4681_Pioneer_L9_KeyMap.dgn
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
UNIT 0000
PROJECT NUMBER & PHASE EA 07-29811

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	La	91,605	16.9-19.8, 5.0-5.8		x

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ONE GATEWAY PLAZA
LOS ANGELES, CA 90012

LEGEND

ACQUISITION

BELVEDERE CT
168TH ST
CAMDEN LN
CITY OF CERRITOS
CITY OF ARTESIA
HYDE PARK CT
169TH ST
KDI
DUNBAR ARMORED
105.00' Lt "SR-91" 939+51.42
END TAPER (10:1)
107.00' Lt "SR-91" 939+31.42
Beg TAPER (10:1)
R/W ACQUISITION (793.5 SF)
PROP R/W
R/W
BEACH ST
10' Shld
12'
2' BUFFER
12' HOV
10' Shld
8' Shld
N88°37'48"E 300.06'
WB ROUTE 91
EB ROUTE 91
N89°46'33"E 10688.91'
4 935 6 7 8 9 940 1 2 3 4
SEE SHEET 6
MATCH LINE STA 933+50
MATCH LINE STA 944+50
SEE SHEET 9B
JENKINS ST
GARD AVE
ROSETON AVE

DRAFT

LAYOUT
ALTERNATIVE 2
Design Option 2
SCALE: 1" = 50'

L-8D

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TIME PLOTTED => 13:44

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	La	91,605	16.9-19.8, 5.0-5.8		x

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LOS ANGELES, CA 90012

CITY OF ARTESIA

168TH ST

JERSEY AVE

ARCO GAS STATION

ARTESIA INN AND SUITES

169TH ST

DENNY'S

"PN-3L9" 45+03.31 BC

"PN-3L9" 6+70.41 EC

R/W

PIONEER WB ON

8' Shld
12'
12' HOV
4' Shld

N85°26'19"E 955.36'

10' Shld
12'
12'
12'
12'
12'
12'
12' HOV
10' Shld

SEE SHEET 8B
MATCH LINE STA 944+50

2' BUFFER

WB ROUTE 91

945 6 7 8 9 950 N89°46'33"E 10688.91' 1 2 3 4

EB ROUTE 91

MATCH LINE STA 954+50
SEE SHEET 10B

PIONEER EB ON (LOOP)

R/W

PIONEER EB OFF

ALBURTIS AVE

DRAFT

CURVE DATA

No.	R	Δ	T	L
(11)	3000.00′	3°11′29″	83.57′	167.10′

LAYOUT
ALTERNATIVE 2
Design Option 2
SCALE: 1" = 50'

L-9D

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TIME PLOTTED => 13:44

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REVISED BY
DATE REVISED

BORDER LAST REVISED 7/2/2010
USERNAME => dclee
DGN FILE => 4681_L009B_100sc_11x17 - Type L-9 Ramp.dgn
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
UNIT 0000
PROJECT NUMBER & PHASE EA 07-29811

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	La	91,605	16.9-19.8, 5.0-5.8		x

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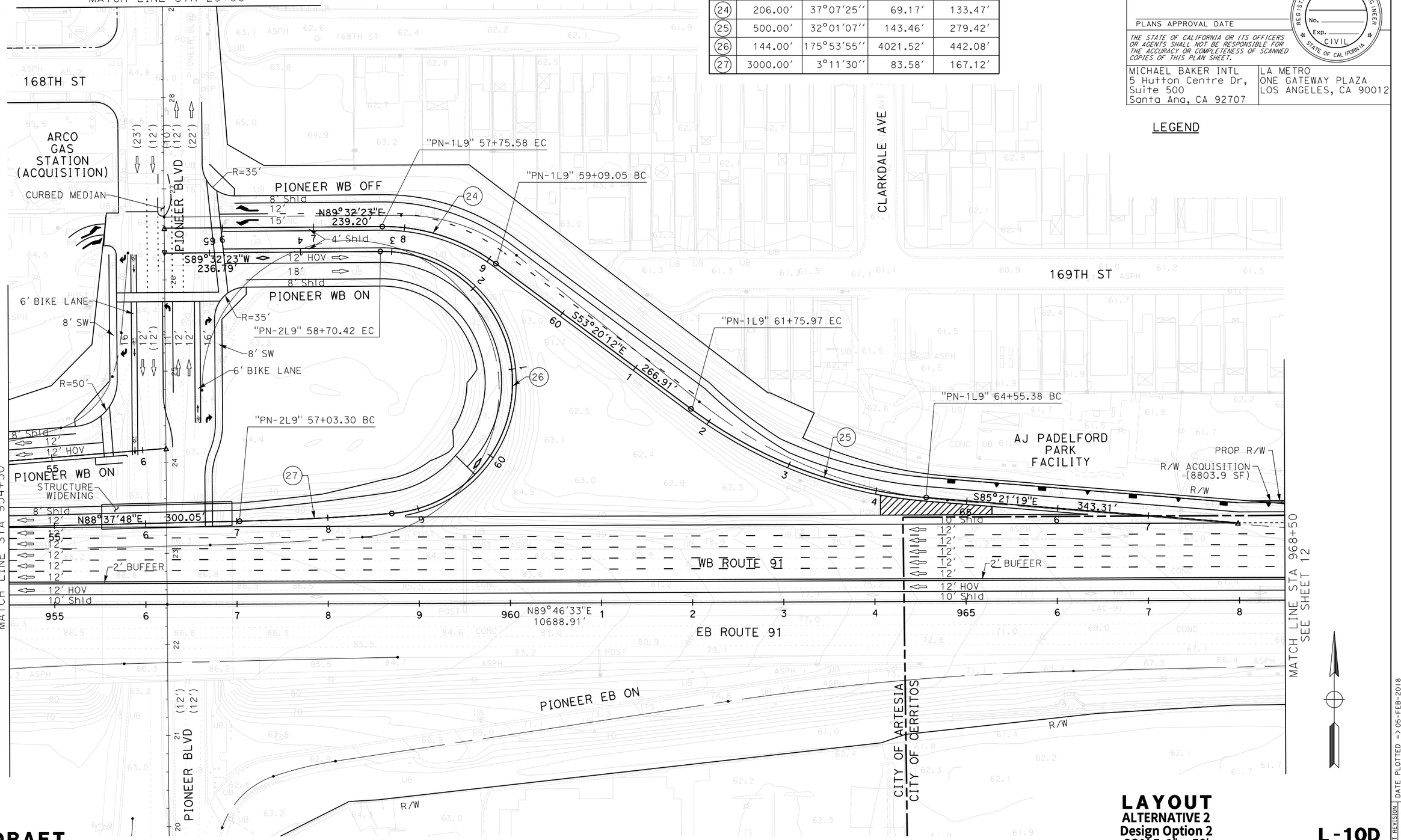
ONE GATEWAY PLAZA
LOS ANGELES, CA 90012

CURVE DATA

No.	R	Δ	T	L
(24)	206.00′	37°07′25″	69.17′	133.47′
(25)	500.00′	32°01′07″	143.46′	279.42′
(26)	144.00′	175°53′55″	4021.52′	442.08′
(27)	3000.00′	3°11′30″	83.58′	167.12′

LEGEND



DRAFT

LAYOUT
ALTERNATIVE 2
Design Option 2
SCALE: 1" = 50'

L-10D

REVISED BY | DATE REVISED
DACHENG LEE | ERIC SPANGLER
CALCULATED-DESIGNED BY | CHECKED BY
CONSULTANT FUNCTIONAL SUPERVISOR
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION | DATE PLOTTED => 05-FEB-2018
00-00-00 | TIME PLOTTED => 13:44

BORDER LAST REVISED 7/2/2010 | USERNAME => dclee | DGN FILE => 4681_L010B_100sc_11x17 - Type L-9 Ramp.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0000 | PROJECT NUMBER & PHASE EA 07-29811

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	La	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. ____ Exp. ____ CIVIL — STATE OF CALIFORNIA

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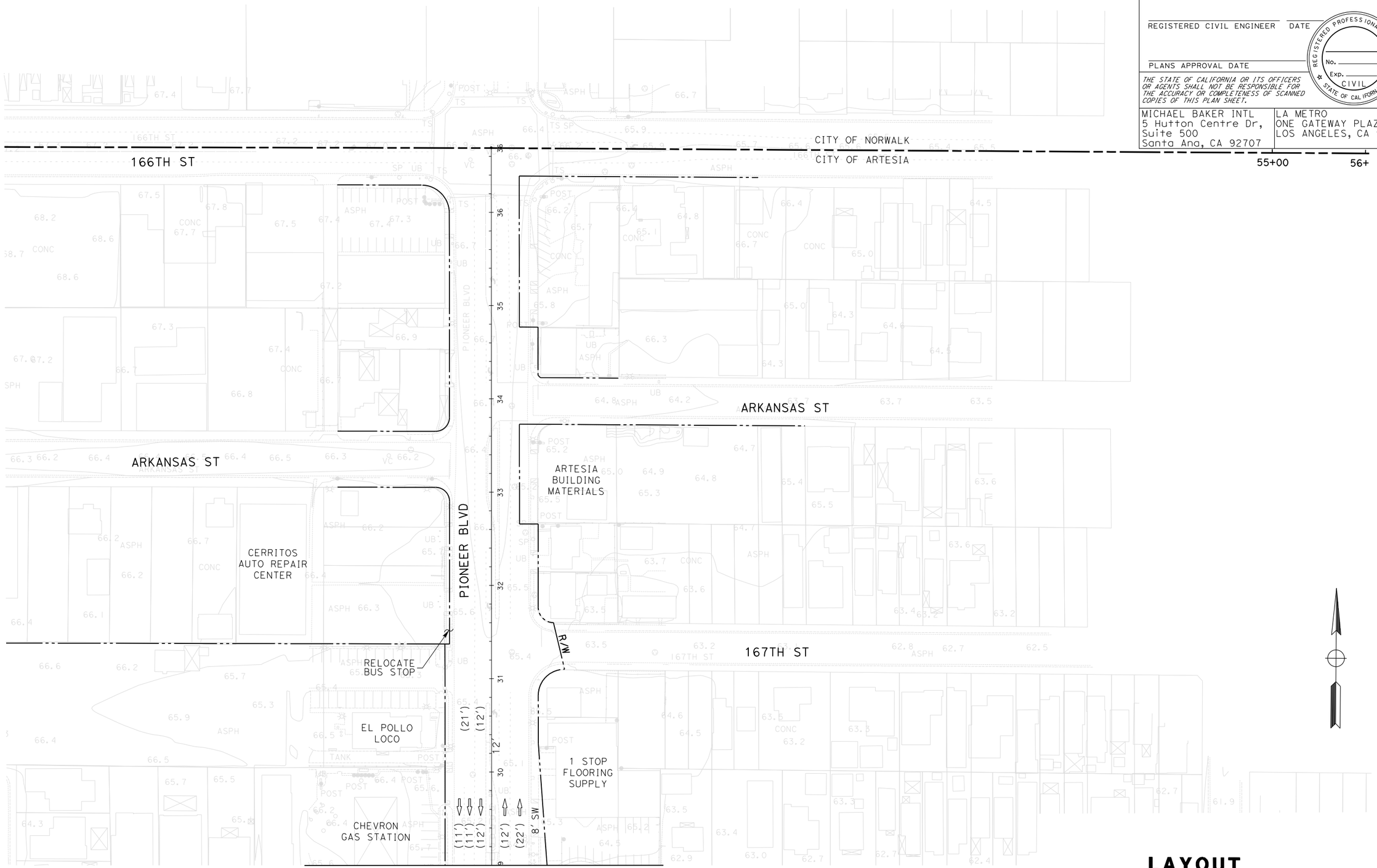
LA METRO
ONE GATEWAY PLAZA
LOS ANGELES, CA 90012



DRAFT

LAYOUT
ALTERNATIVE 2
Design Option 2
SCALE: 1" = 50'

L-11D

REVISED BY | DATE REVISED
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Attachment J

Geometric Drawings
Alternative 2 – Design Option 4

(Diamond configuration ramps at WB Pioneer Blvd and Norwalk Blvd interchanges)

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	La	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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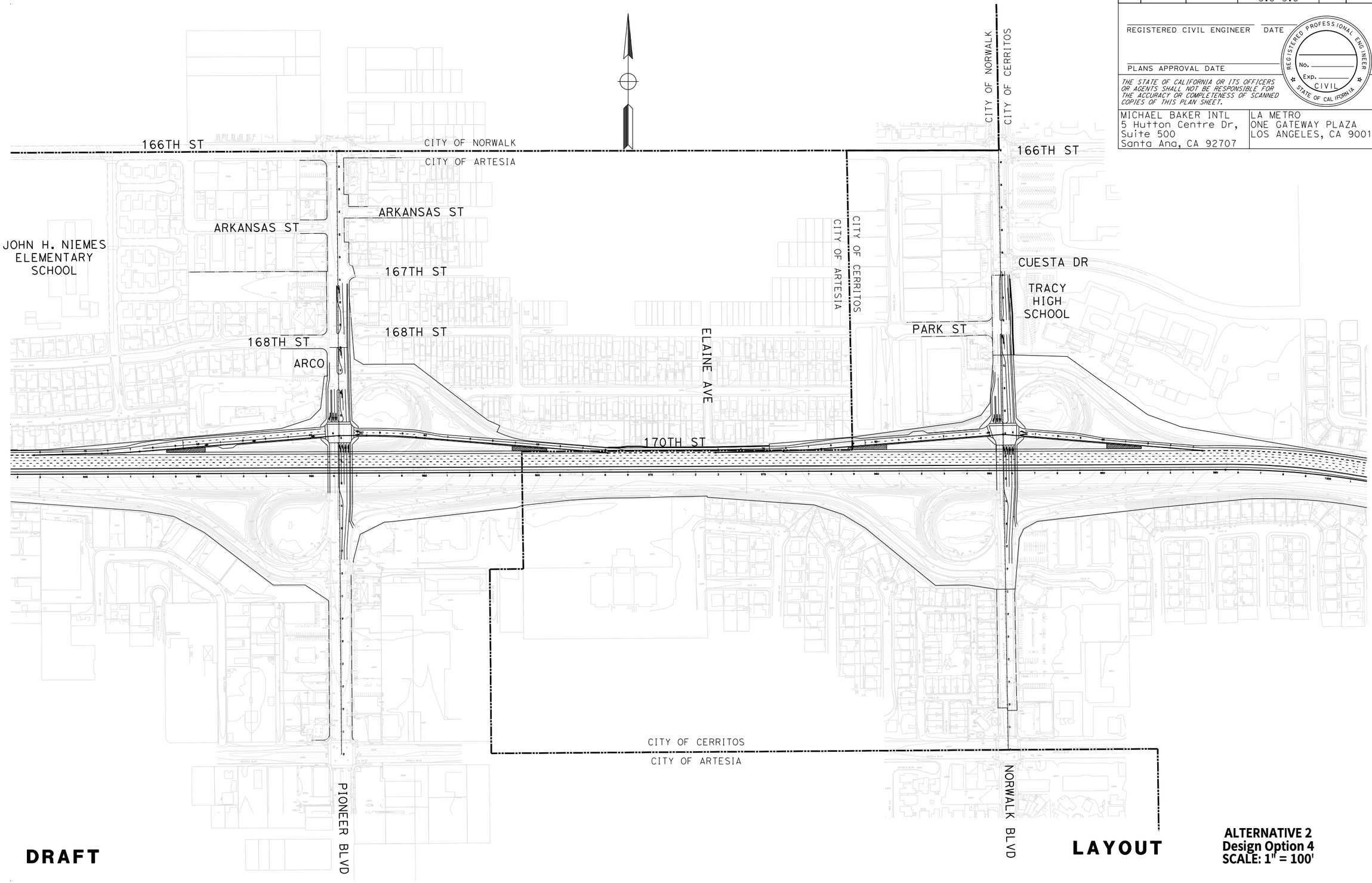

DRAFT

LAYOUT

ALTERNATIVE 2
Design Option 4
SCALE: 1" = 100'

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BORDER LAST REVISED 7/2/2010 | USERNAME => dclee | DGN FILE => 4681_Diamond_KeyMap.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0000 | PROJECT NUMBER & PHASE EA 07-29811

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	La	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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LEGEND

ACQUISITION

BELVEDERE CT
168TH ST
CAMDEN LN
CITY OF CERRITOS
CITY OF ARTESIA
HYDE PARK CT
KDI
DUNBAR ARMORED
169TH ST
105.00' Lt "SR-91" 939+51.42
END TAPER (10:1)
107.00' Lt "SR-91" 939+31.42
Beg TAPER (10:1)
85.00' Lt "SR-91" 942+73.29 POT=
"PN-4" 42+73.29 POT
R/W ACQUISITION
(793.5 SF)
PROP R/W
BEACH ST
R/W
10' Shld
12'
12'
12'
12'
12'
12'
2' BUFFER
WB ROUTE 91
12' HOV
10' Shld
8' Shld
Var
12'
12'
12'
12'
12'
12'
N88°37'48"E
300.01'
SEE SHEET 6
MATCH LINE STA 933+50
MATCH LINE STA 944+50
SEE SHEET 9A
4
935
6
7
N89°46'33"E
10688.91'
8
9
940
1
2
3
4
EB ROUTE 91
R/W
JENKINS ST
GARD AVE
ROSETON AVE

DRAFT

LAYOUT
ALTERNATIVE 2
Design Option 4
SCALE: 1" = 50'

L-8C

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CALCULATED-DESIGNED BY
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ERIC SPANGLER
REVISED BY
DATE REVISED

BORDER LAST REVISED 7/2/2010
USERNAME => dclee
DGN FILE => 4681_L008A_100sc_11x17 - Diamond Ramp.dgn
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
UNIT 0000
PROJECT NUMBER & PHASE EA 07-29811

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	La	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. ____ Exp. ____ CIVIL — STATE OF CALIFORNIA

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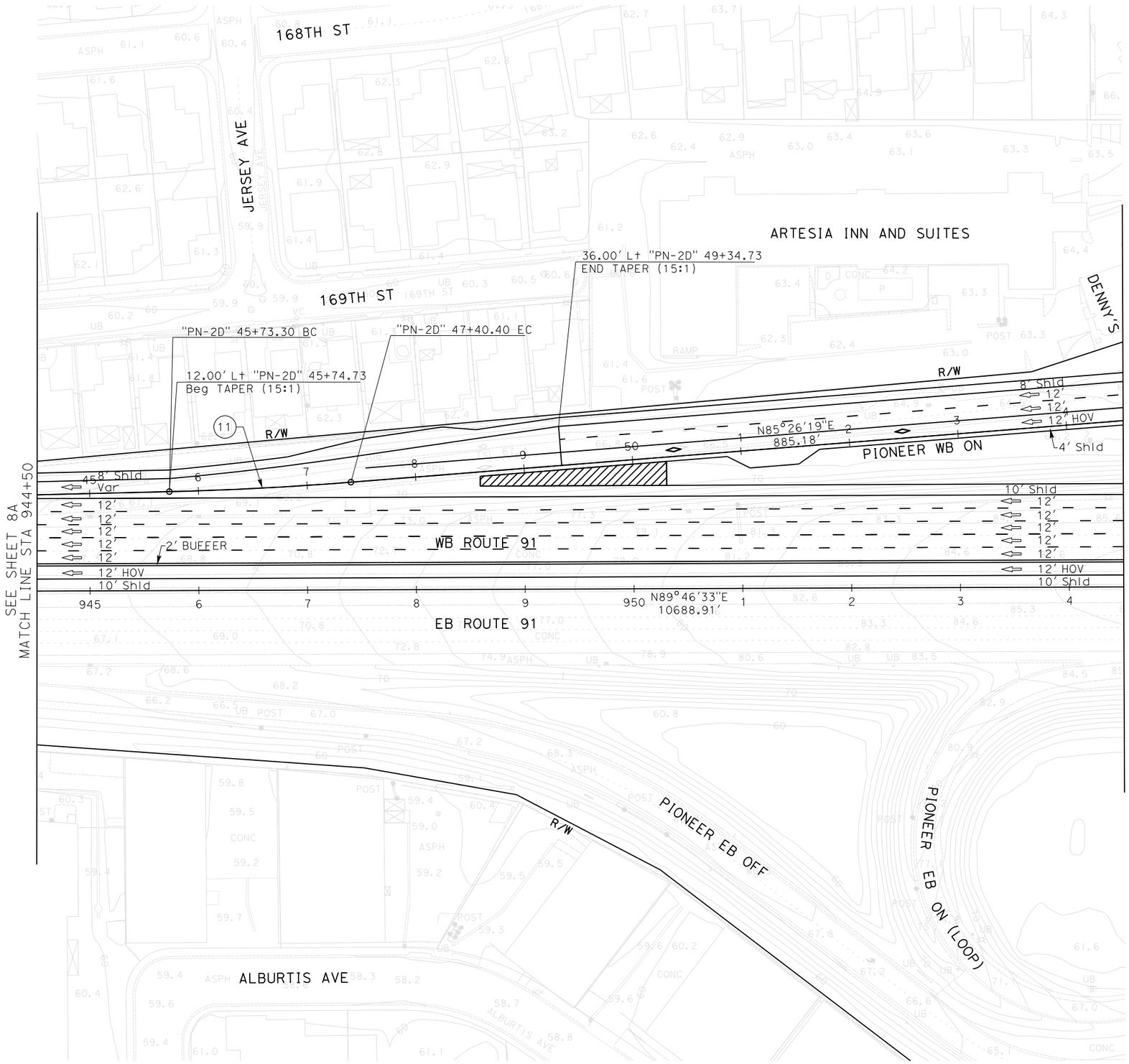
LOS ANGELES, CA 90012

CITY OF ARTESIA



CURVE DATA

No.	R	Δ	T	L
11	3000.00'	3°11'29"	83.57'	167.10'

DRAFT

LAYOUT
ALTERNATIVE 2
Design Option 4
SCALE: 1" = 50'

L-9C

LAST REVISION 00-00-00 | DATE PLOTTED => 05-FEB-2018 | TIME PLOTTED => 13:44

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BORDER LAST REVISED 7/2/2010 | USERNAME => dclee | DGN FILE => 4681_L009A_100sc_11x17 - Diamond Ramp.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0000 | PROJECT NUMBER & PHASE EA 07-29811

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	La	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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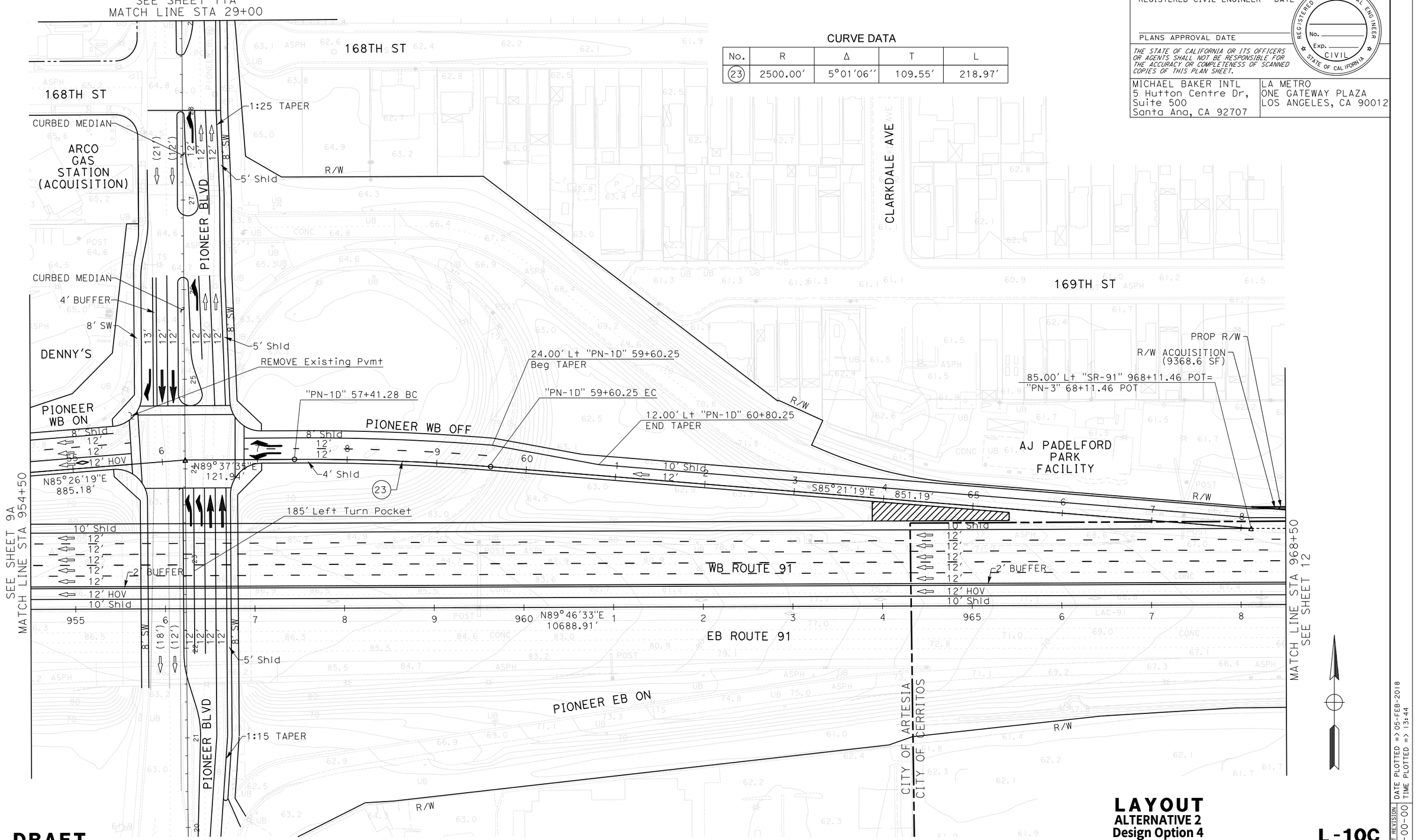
LA METRO
ONE GATEWAY PLAZA
LOS ANGELES, CA 90012

CURVE DATA

No.	R	Δ	T	L
(23)	2500.00′	5°01′06″	109.55′	218.97′



DRAFT

LAYOUT
ALTERNATIVE 2
Design Option 4
SCALE: 1" = 50'

L-10C

REVISED BY | DATE REVISED
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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	La	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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LA METRO
ONE GATEWAY PLAZA
LOS ANGELES, CA 90012

CITY OF NORWALK

CITY OF ARTESIA

166TH ST

ARKANSAS ST

ARTESIA BUILDING MATERIALS

CERRITOS AUTO REPAIR CENTER

PIONEER BLVD

RELOCATE BUS STOP

EL POLLO LOCO

CURBED MEDIAN

CHEVRON GAS STATION

1 STOP FLOORING SUPPLY

167TH ST

R/W

(21') (12') 12' 12' 20'

(11') (11') (12') 12' Var 8' SW 5' Shld

MATCH LINE STA 29+00
SEE SHEET 10A

DRAFT

LAYOUT
ALTERNATIVE 2
Design Option 4
SCALE: 1" = 50'

L-11C

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	La	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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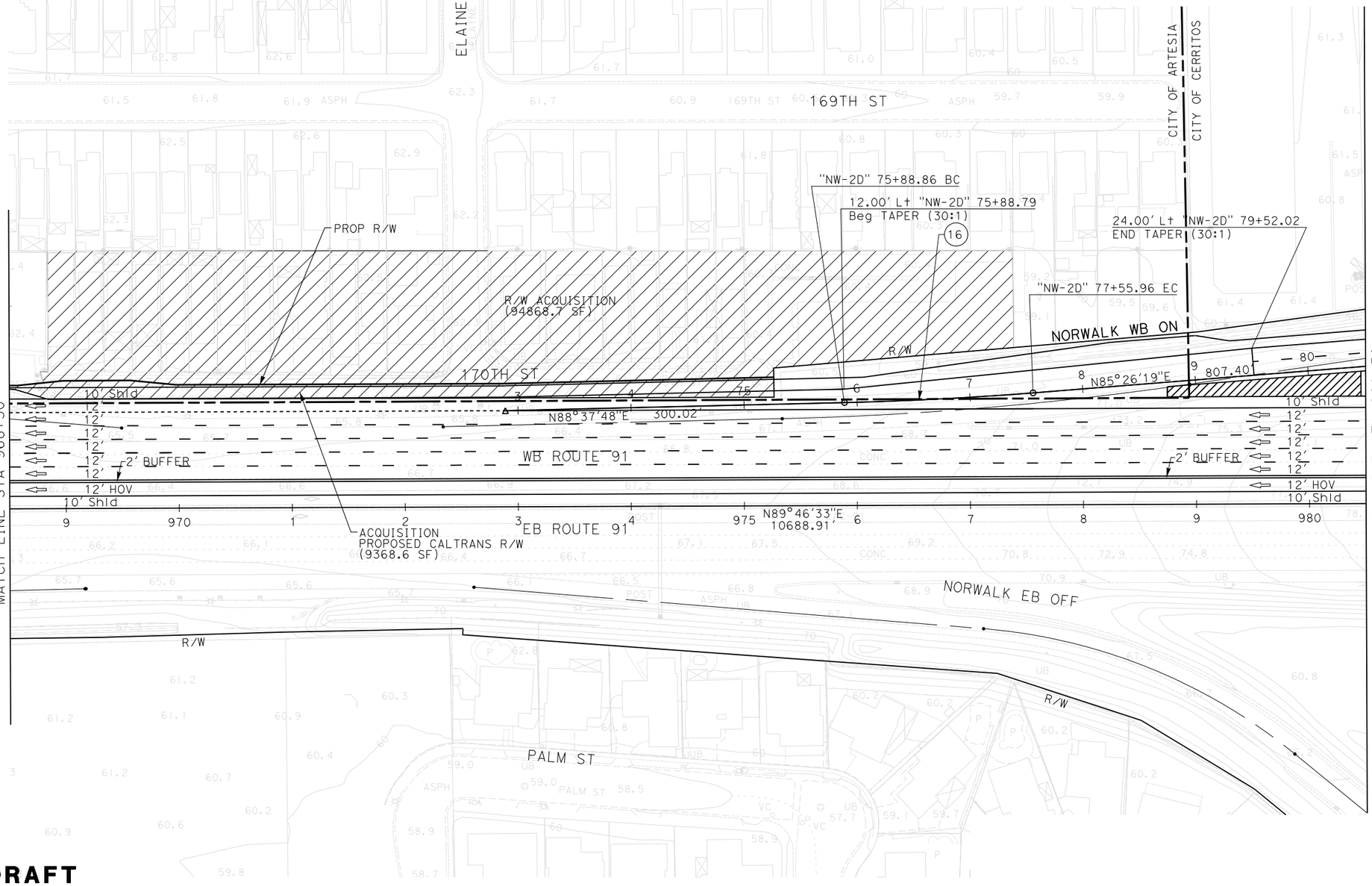
LA METRO
ONE GATEWAY PLAZA
LOS ANGELES, CA 90012

CURVE DATA

No.	R	Δ	T	L
(16)	3000.00′	3°11′29″	83.57′	167.10′

LEGEND

ACQUISITION



DRAFT

LAYOUT
ALTERNATIVE 2
Design Option 4
SCALE: 1" = 50'

L-12C

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR

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ERIC SPANGLER
REVISED BY
DATE REVISED

LAST REVISION 00-00-00
DATE PLOTTED => 05-FEB-2018
TIME PLOTTED => 13:44

BORDER LAST REVISED 7/2/2010
USERNAME => dclee
DGN FILE => 4681_L012_100sc_11x17 - Diamond Ramp.dgn
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
UNIT 0000
PROJECT NUMBER & PHASE EA 07-29811

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	La	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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LA METRO
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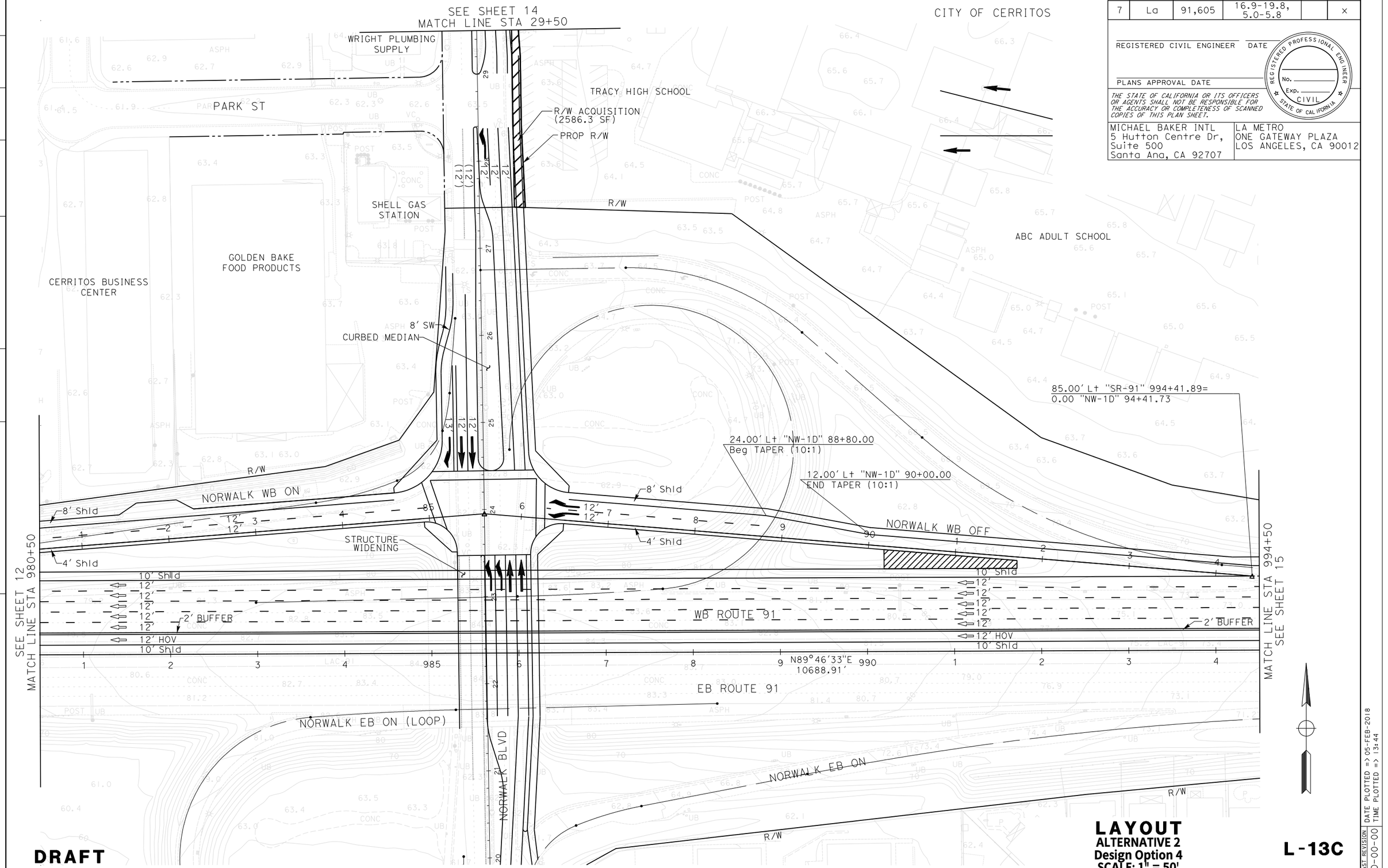
LOS ANGELES, CA 90012



DRAFT

LAYOUT
ALTERNATIVE 2
Design Option 4
SCALE: 1" = 50'

L-13C

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION | Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR

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CHECKED BY: ERIC SPANGLER

REVISED BY | DATE REVISED

LAST REVISION: 00-00-00
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TIME PLOTTED => 13:44

BORDER LAST REVISED 7/2/2010

USERNAME => dclee
DGN FILE => 4681_L013_100sc_11x17 - Diamond Ramp.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE EA 07-29811

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	La	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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ONE GATEWAY PLAZA
LOS ANGELES, CA 90012

CITY OF NORWALK
CITY OF CERRITOS

166TH ST

PARKSIDE AVE

NORWALK BLVD

CUESTA DR

ABC UNIFIED SCHOOL DISTRICT

TRACY HIGH SCHOOL

ABC ADULT SCHOOL

SUPPLY VILLAGE

WRIGHT PLUMBING SUPPLY

CURBED MEDIAN

(12') (11') 12' 11' 12' 16'

R/W ACQUISITION (2586.3 SF)

PROP R/W

MATCH LINE STA 29+50
SEE SHEET 13

LEGEND

ACQUISITION

LAYOUT

ALTERNATIVE 2
Design Option 4
SCALE: 1" = 50'

L-14C

DRAFT

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Caltrans

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CHECKED BY

DACHENG LEE

ERIC SPANGLER

REVISED BY

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USERNAME => dclee
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RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE EA 07-29811

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	La	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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LA METRO
ONE GATEWAY PLAZA
LOS ANGELES, CA 90012

CURVE DATA

No.	R	Δ	T	L
(18)	3600.00′	39°10′21″	1280.93′	2461.28′
(19)	300.00′	80°42′52″	254.93′	422.62′

CITY OF CERRITOS

JUDY WAY

CEDARWOOD CIR

CHAPARRAL AVE

RANCHO VISTA DR

ABC ADULT SCHOOL

CERRITOS VILLAS CONDOS

85.00′ Lt "SR-91" 995+43.89
Beg TAPER (115:1)

"NW-1" 97+94.61 EC

82.82′ Lt "SR-91" 997+94.55 POT=
"NW-1" 97+94.61 POT

80.00′ Lt "SR-91" 1001+18.89
END TAPER (115:1)

12.00′ Lt "BL-1" 6+53.83
Beg TAPER (21.8:1)

"BL-1" 6+53.83 BC

80.00′ Lt "SR-91" 1003+51.07 POT=
"BL-1" 3+51.07 POT

"SR-91" +95
END SW on RW

SEE SHEET 13
MATCH LINE STA 994+50

SEE SHEET 17
MATCH LINE STA 8+35

MATCH LINE STA 1008+30
SEE SHEET 16

R/W

8′ Shld

12′

10′ Shld

12′ AUX

12′ HOV

2′ BUFFER

5′ Shld

WB ROUTE 91

EB ROUTE 91

BLOOMFIELD WB ON

BLOOMFIELD EB OFF

S77°22′39″E 302.76′

N89°46′33″E 10688.91′

11.00′ Lt "SR-91" 995+43.88
Beg TAPER (115:1)

"SR-91" 995+43.89 BC

6.00′ Lt "SR-91" 1001+18.88
END TAPER (115:1)

NORWALK EB ON

PALM ST

AUTUMN BREEZE ST

STARK AVE

(18)

(19)

DRAFT

LAYOUT
ALTERNATIVE 2
Design Option 4
SCALE: 1" = 50'

L-15C

LAST REVISION 00-00-00
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CONSULTANT FUNCTIONAL SUPERVISOR
CALCULATED-DESIGNED BY
CHECKED BY
DACHENG LEE
ERIC SPANGLER
REVISED BY
DATE REVISED

BORDER LAST REVISED 7/2/2010

USERNAME => dclee
DGN FILE => 4681_L015_100sc_11x17 - Diamond Ramp.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

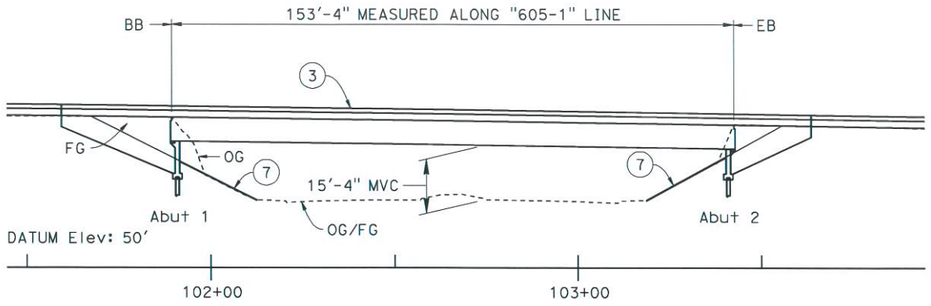
UNIT 0000

PROJECT NUMBER & PHASE EA 07-29811

Attachment K

Advance Planning Studies (APS)

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION



ELEVATION

1" = 20'
NORMAL TO ℄ STUDEBAKER Rd

EXISTING UTILITIES:

- E1 ELECTRICAL LINE, UNDERGROUND 66kV (SCE)
- E2 ELECTRICAL LINE, OVERHEAD 66kV (SCE)
- G1 GAS LINE, 10" DSFP (U.S. ARMY)
- G2 GAS LINE, 3" (SCG)
- G3 GAS LINE, 3" (SHELL)
- SW SEWER LINE, 18" S VCP (LACSD)
- S1 STORM DRAIN
- S2 STORM DRAIN
- T1 TELEPHONE LINE, 2-3½" ACD (GENTEL)
- W1 WATER LINE, 12" (CERRITOS)
- W2 WATER LINE, 24" (CERRITOS)

NOTES:

1. Paint "Studebaker Rd Undercrossing Ramp"
2. Paint "Br No 53-1707F"
3. Concrete Barrier Type 842
4. Match existing cross slope, -1.5%±
5. Temp rail, Type K, see "ROAD PLANS"
6. Closure pour
7. Slope paving

LEGEND:

- Point of minimum vertical clearance
- Direction of traffic
- Bridge removal (Portion)
- Existing structure
- New construction
- MVC Minimum vertical clearance

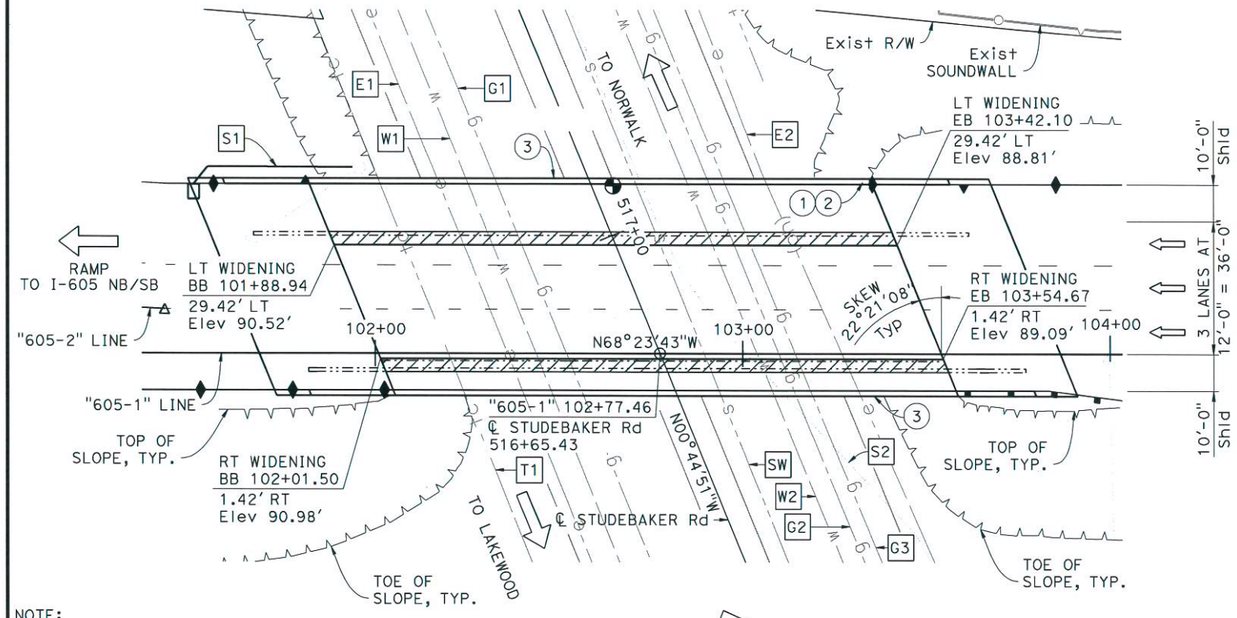
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
7	LA	91	16.9/19.8

LOS ANGELES COUNTY METRO
1 GATEWAY PLAZA
LOS ANGELES, CA 90012

MICHAEL BAKER INTERNATIONAL
5 HUTTON CENTRE DR, STE 500
SANTA ANA, CA 92707

COST DATA:

DATE OF ESTIMATE		2/6/18
SUPERSTRUCTURE DEPTH	=	6'-3"
LENGTH	=	153'-4"
WIDTH	=	28'-8"
AREA	=	4,396 SF
COST/Sq Ft INCLUDING 10% MOBILIZATION & 25% CONTINGENCY	=	$227
TOTAL COST	=	$1,022,000

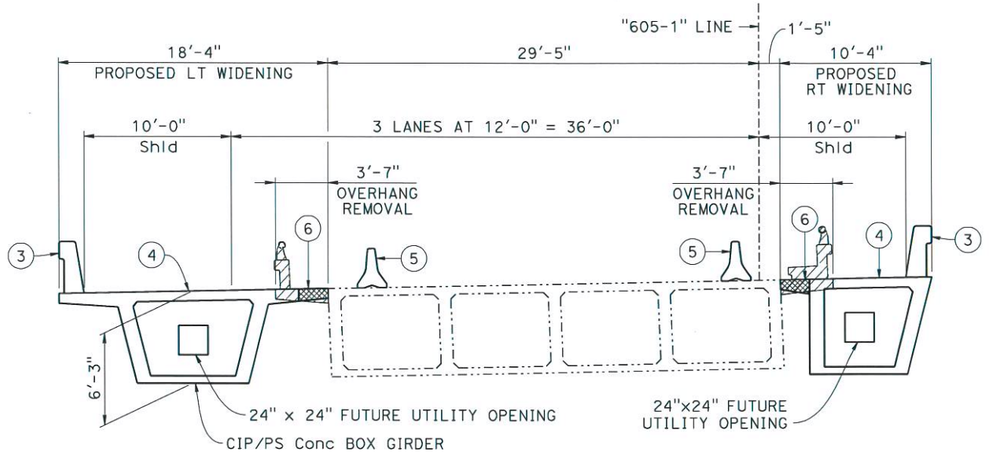


PLAN

1" = 20'

NOTE:
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIALS.

X R.C. Harden
DESIGN OVERSIGHT
X 20 June 2018
SIGN OFF DATE



TYPICAL SECTION

1" = 5'

DESIGNED BY	K. TURNER	DATE 11/07/17
DRAWN BY	T. NEWGARD	DATE 11/07/17
CHECKED BY	C. HARDEN	DATE 11/07/17
APPROVED		DATE

CHAD HARDEN
PROJECT ENGINEER

CONCRETE BOX GIRDER ALTERNATIVE

PLANNING STUDY

STUDEBAKER ROAD UC RAMP (WIDEN)

BRIDGE NO. 53-1707F	UNIT: 7
SCALE: AS SHOWN	PROJECT NUMBER & PHASE: 0716000284

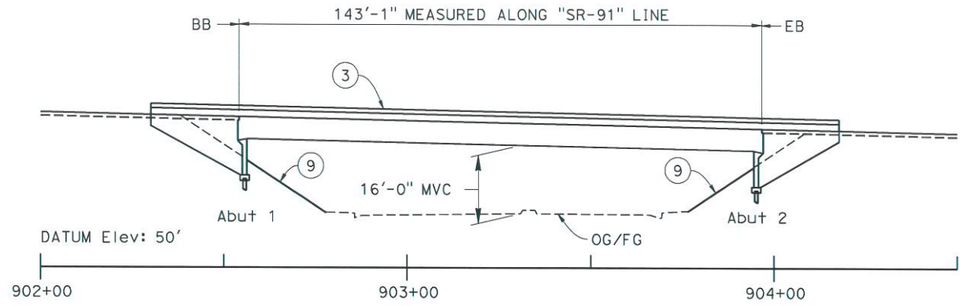
CONTRACT NO.: 07-29811

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 7/16/10)

FILE => 53-1707F-a-gp01_ALT3.dgn

USERNAME => snguyen DATE PLOTTED => 05-MAR-2018 TIME PLOTTED => 17:17

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION



MIRRORED ELEVATION

1" = 20'
NORMAL TO ℄ STUDEBAKER Rd

EXISTING UTILITIES:

- E1 ELECTRICAL LINE, UNDERGROUND 66KV (SCE)
- E2 ELECTRICAL LINE (SCE)
- E3 ELECTRICAL LINE, OVERHEAD 66kV (SCE)
- G1 GAS LINE, 10" DSFP (U.S. ARMY)
- G2 GAS LINE, 3" (SCG)
- G3 GAS LINE, 3" (SHELL)
- SW SEWER LINE, 18" S VCP (LACSD)
- S1 STORM DRAIN
- S2 STORM DRAIN, 4'x2' RCB
- T TELEPHONE LINE, 2-3½" ACD (GENTEL)
- W1 WATER LINE, 12" (CERRITOS)
- W2 WATER LINE, 24" (CERRITOS)

NOTES:

1. Paint "Studebaker Rd Undercrossing"
2. Paint "Br No 53-1706"
3. Concrete Barrier Type 842
4. Match existing cross slope, -1.5% ±
5. Temp rail, Type K, see "ROAD PLANS"
6. Closure pour
7. Structure Approach Type N (30S)
8. Exist approach slab
9. Slope paving

LEGEND:

- Point of minimum vertical clearance
- Direction of traffic
- Bridge removal (Portion)
- Existing structure
- New construction
- MVC Minimum vertical clearance

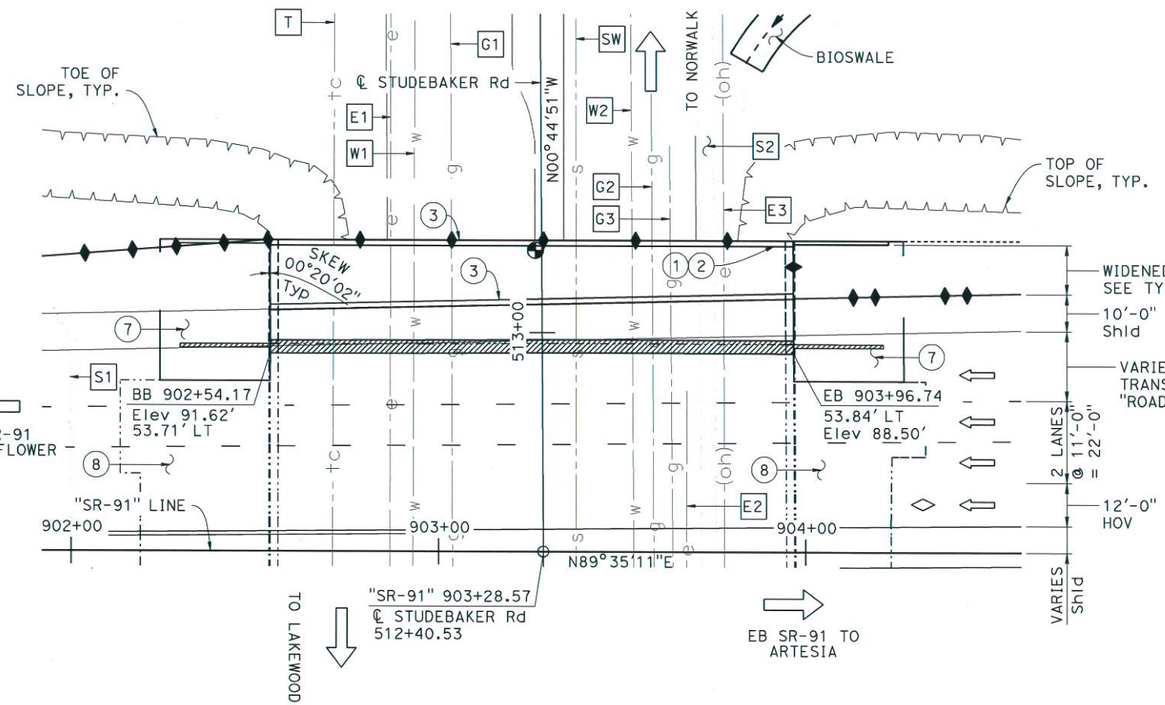
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
7	LA	91	16.9/19.8

LOS ANGELES COUNTY METRO
1 GATEWAY PLAZA
LOS ANGELES, CA 90012

MICHAEL BAKER INTERNATIONAL
5 HUTTON CENTRE DR, STE 500
SANTA ANA, CA 92707

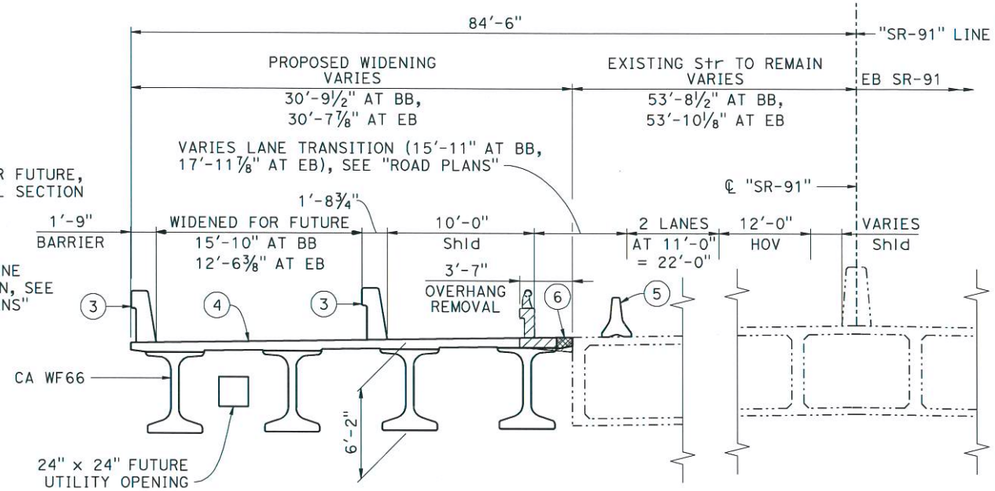
COST DATA:

DATE OF ESTIMATE		2/6/18
SUPERSTRUCTURE DEPTH	=	6'-2"
LENGTH	=	143'-1"
WIDTH	=	30'-9"
AREA	=	4,407 SF
COST/Sq Ft INCLUDING 10% MOBILIZATION & 25% CONTINGENCY	=	$239
TOTAL COST	=	$1,190,000



PLAN

1" = 20'



TYPICAL SECTION

1" = 5'

NOTE:
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIALS.

x _____
DESIGN OVERSIGHT
x 28 June 2018
SIGN OFF DATE

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 7/16/10)

DESIGNED BY	K. TURNER	DATE	11/07/17
DRAWN BY	T. NEWGARD	DATE	11/07/17
CHECKED BY	C. HARDEN	DATE	11/07/17
APPROVED		DATE	

CHAD HARDEN
PROJECT ENGINEER

PC/PS "WIDE-FLANGE" GIRDER ALTERNATIVE

PLANNING STUDY

STUDEBAKER ROAD UC (WIDEN)

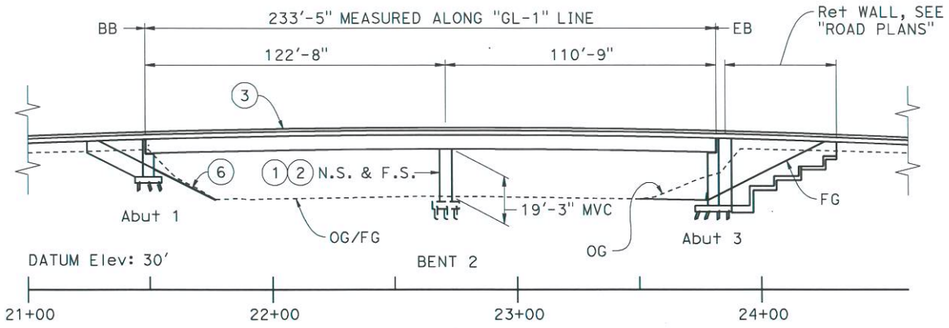
BRIDGE NO. 53-1706	UNIT: 7
SCALE: AS SHOWN	PROJECT NUMBER & PHASE: 0716000284

CONTRACT NO.: 07-29811

FILE => 53-1706-a-gp01_ALT2.dgn

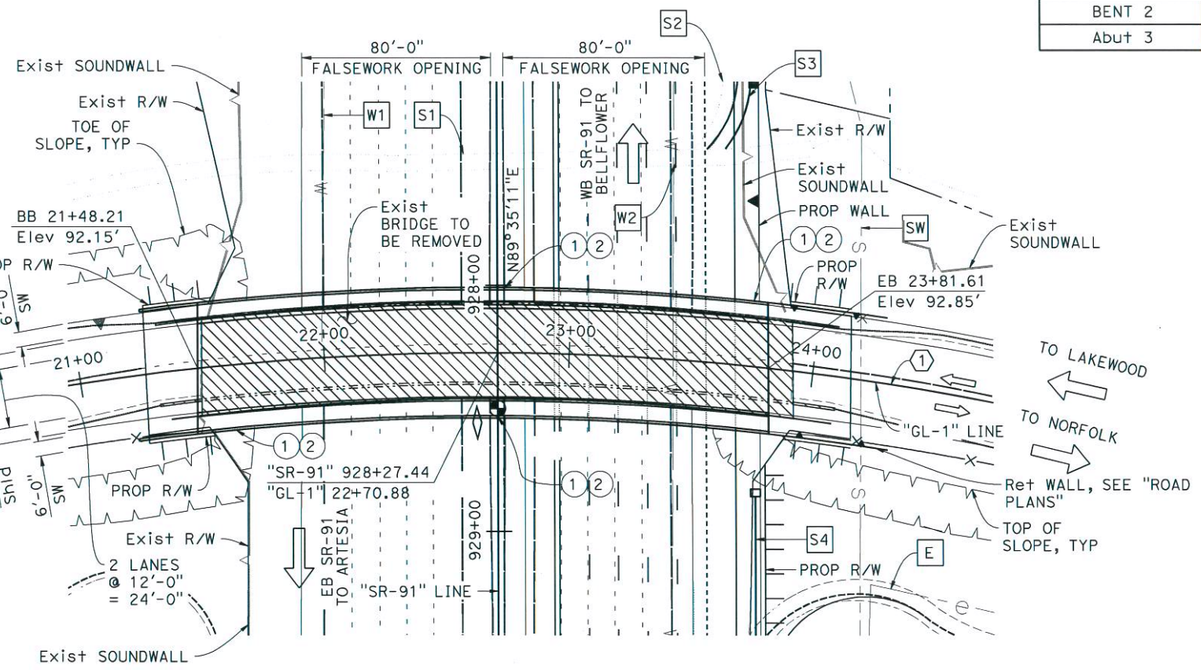
USERNAME => snguyen DATE PLOTTED => 05-MAR-2018 TIME PLOTTED => 17:16

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION



ELEVATION

1" = 30'
LOOKING DOWNSTATION, NORMAL TO "GL-1" LINE



PLAN

1" = 30'

EXISTING UTILITIES:

E	ELECTIRICAL LINE, OVERHEAD (SCE)
SW	SEWER LINE 8" VPC (CERRITOS)
S1	STORM DRAIN 78" RCP
S2	STORM DRAIN 63"
S3	STORM DRAIN 66" RSP
S4	STORM DRAIN 24" RCP
W1	WATER LINE 6" ACP & 2" GSP
W2	WATER LINE 6" ACP & 2" GSP

NOTES:

1. Paint "Gridley Rd Overcrossing"
2. Paint "Br No XX-XXXX"
3. Concrete Barrier Type 842
4. Concrete Barrier Type 732SW (Mod)
5. Chain Link Railing
6. Slope paving

LEGEND:

- Point of minimum vertical clearance
- Direction of traffic
- Bridge removal
- Existing structure
- New construction
- MVC Minimum vertical clearance

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
7	LA	91	16.9/19.8

LOS ANGELES COUNTY METRO
1 GATEWAY PLAZA
LOS ANGELES, CA 90012

MICHAEL BAKER INTERNATIONAL
5 HUTTON CENTRE DR, STE 500
SANTA ANA, CA 92707

COST DATA:

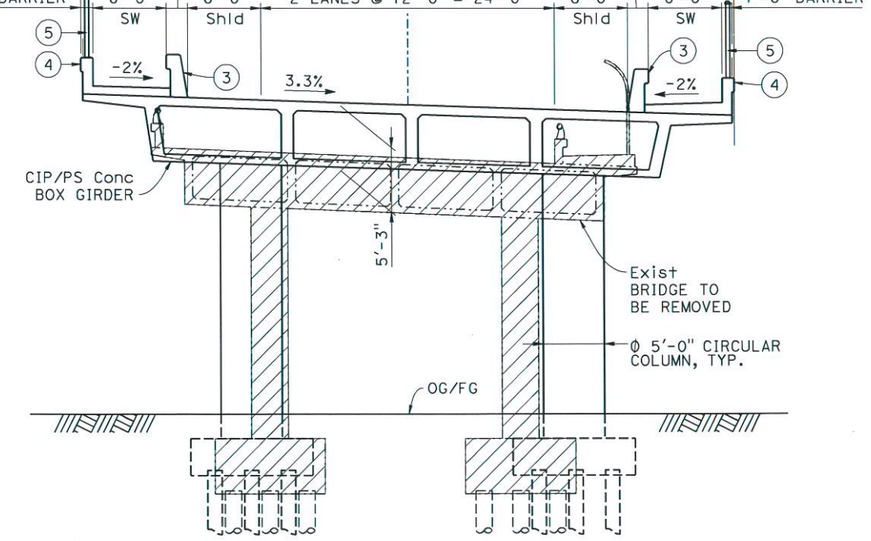
DATE OF ESTIMATE	2/6/18
SUPERSTRUCTURE DEPTH =	5'-3"
LENGTH =	233'-5"
WIDTH =	53'-5½"
AREA =	12,478 SF
COST/Sq Ft INCLUDING 10% MOBILIZATION & 25% CONTINGENCY =	$292
TOTAL COST =	$3,790,000

SKEW DATA

SUBSTRUCTURE	SKEW
Abut 1	6°11'35"
BENT 2	0°19'64"
Abut 3	6°11'31"

CURVE DATA

No.	R	Δ	T	L
1	1,080.00'	35°15'39"	343.23'	664.65'



TYPICAL SECTION

1" = 6'

NOTE:
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIALS.

x R.C.Harden
DESIGN OVERSIGHT
x 28 June 2018
SIGN OFF DATE

DESIGNED BY	K. TURNER	DATE	11/07/17
DRAWN BY	T. NEWGARD	DATE	11/07/17
CHECKED BY	C. HARDEN	DATE	11/07/17
APPROVED		DATE	

CHAD HARDEN
PROJECT ENGINEER

CONCRETE BOX GIRDER ALTERNATIVE

PLANNING STUDY

GRIDLEY ROAD OC (REPLACE)

BRIDGE NO. 53-1324	UNIT: 7
SCALE: AS SHOWN	PROJECT NUMBER & PHASE: 0716000284

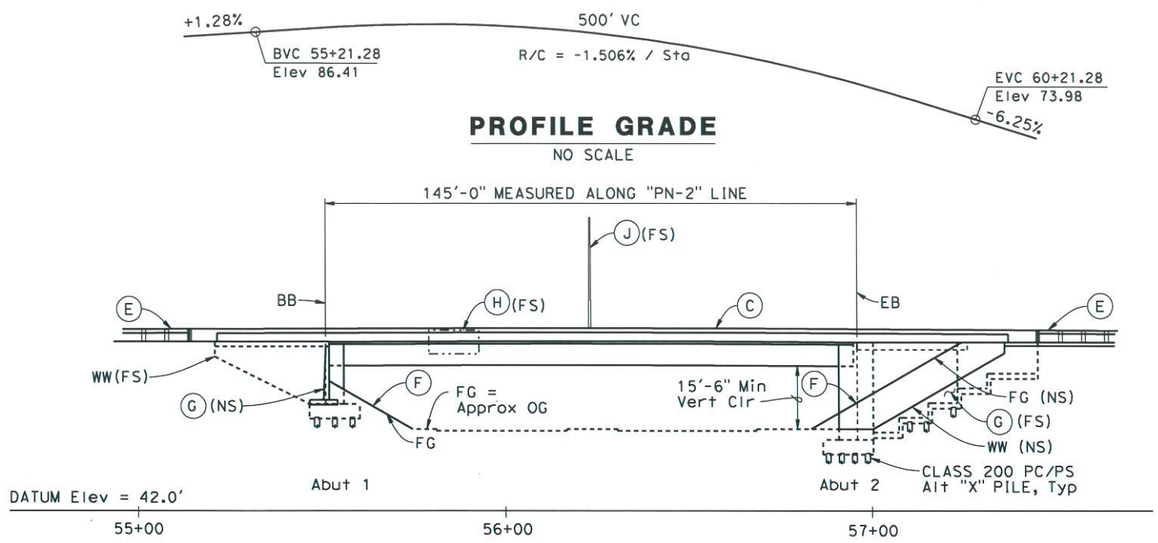
CONTRACT NO.: 07-29811

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 7/16/10)

FILE => 53-1324-a-gp01_ALT2.dgn

USERNAME => kyle.turner DATE PLOTTED => 05-MAR-2018 TIME PLOTTED => 17:25

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

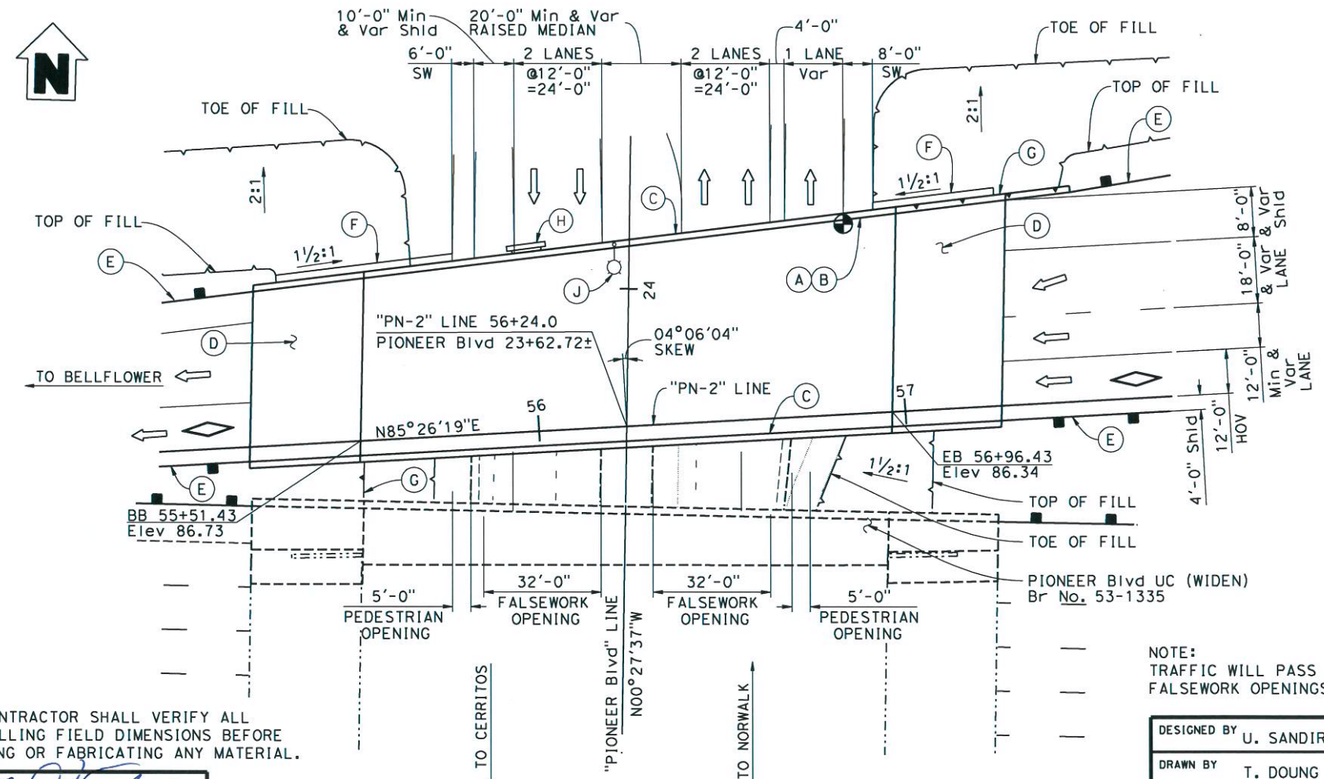


PROFILE GRADE

NO SCALE

ELEVATION

1" = 20'



PLAN

1" = 20'

NOTE:
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

NOTE:
TRAFFIC WILL PASS THROUGH CONSTRUCTION SITE. FALSEWORK OPENINGS ARE REQUIRED.

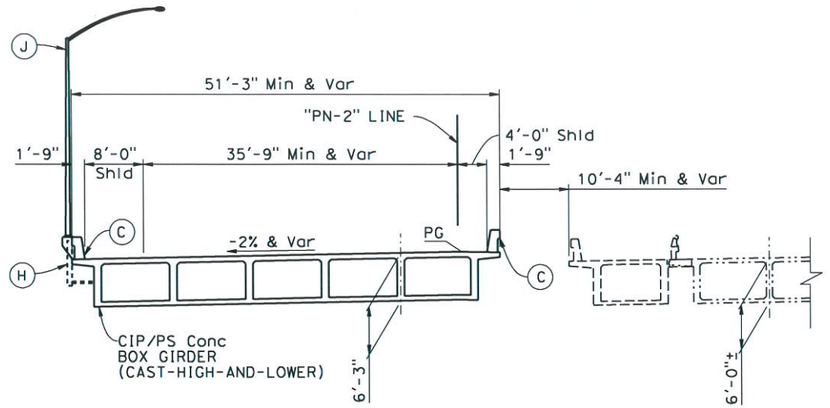
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
07	LA	91, 605	16.9-19.8 5.0-5.8

LOS ANGELES COUNTY METRO
1 GATEWAY PLAZA
LOS ANGELES, CA 90012

WKE, Inc.
400 NORTH TUSTIN AVENUE, SUITE 275
SANTA ANA, CA 92705

NOTES:

(A) Paint "Bridge No. 53-XXXX"
(B) Paint "PIONEER WB ON-RAMP UC"
(C) Concrete Barrier Type 836
(D) Structure Approach Type N(30)
(E) MGS, see "ROAD PLANS"
(F) Slope paving - Full slope (under bridge and between bridges)
(G) Retaining Wall, see "STRUCTURE PLANS"
(H) Bridge Mounted Sign
(J) Electrolier on pole



TYPICAL SECTION

1" = 10'

LEGEND:

- Existing structure
- New structure
- Point of Min Vert Clr
- Electrolier on Pole
- Direction of traffic

DATE OF ESTIMATE	=	03/01/2018
STRUCTURE DEPTH	=	6'-3"
LENGTH	=	145'-0"
WIDTH	=	51.25' Min & Var
AREA	=	8,167 SQFT
STRUCTURE COST	=	$3,542,000
COST/ft² INCLUDING 10% MOBILIZATION & 25% CONTINGENCY	=	$434
BRIDGE REMOVAL	=	$0
WORK BY RAILROAD	=	$0
TOTAL COST	=	$3,542,000

X [signature] DESIGN OVERSIGHT
X 28 JUNE 2018 SIGN OFF DATE

DESIGNED BY	U. SANDIRA	DATE	03/01/18
DRAWN BY	T. DOUNG	DATE	03/01/18
CHECKED BY	A. WANG	DATE	03/01/18
APPROVED	V. TRINH	DATE	03/01/18

V. TRINH
PROJECT ENGINEER

PLANNING STUDY

PIONEER WB ON-RAMP UC

BRIDGE NO. 53-XXXX	UNIT:
SCALE: AS NOTED	PROJECT NUMBER: 0716000284

CONTRACT NO.: 07-29811

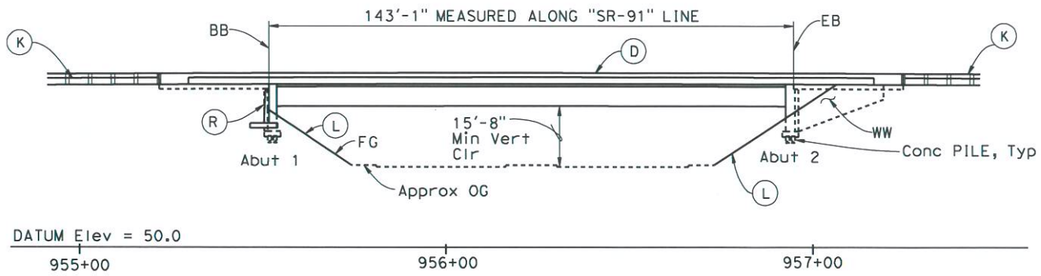
ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 7/16/10)

FILE => Pioneer On Ramp.dgn

DATE PLOTTED => 05-MAR-2018 TIME PLOTTED => 10:49

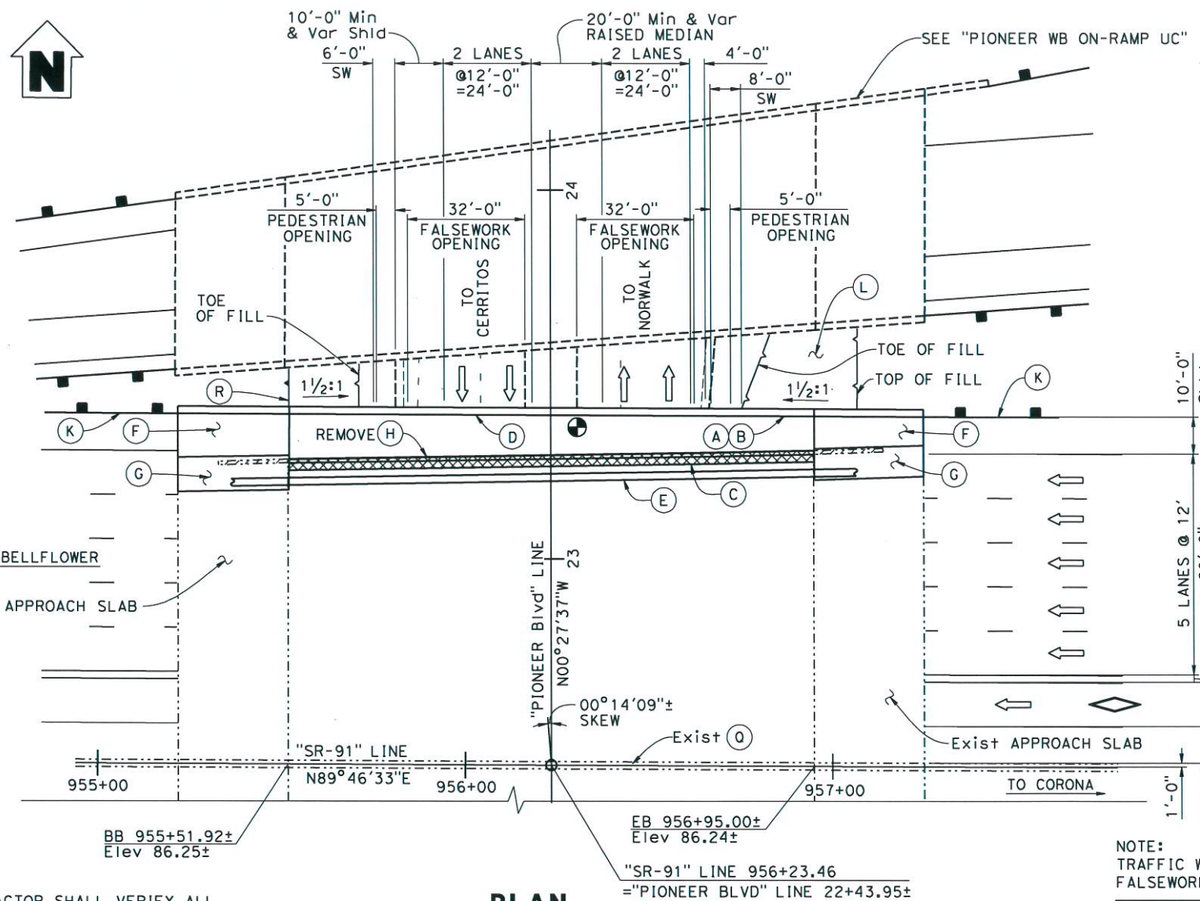
USERNAME => RHon

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION



MIRRORED ELEVATION

1" = 20'



PLAN

1" = 20'

NOTE:
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

NOTE:
TRAFFIC WILL PASS THROUGH CONSTRUCTION SITE. FALSEWORK OPENINGS IS REQUIRED.

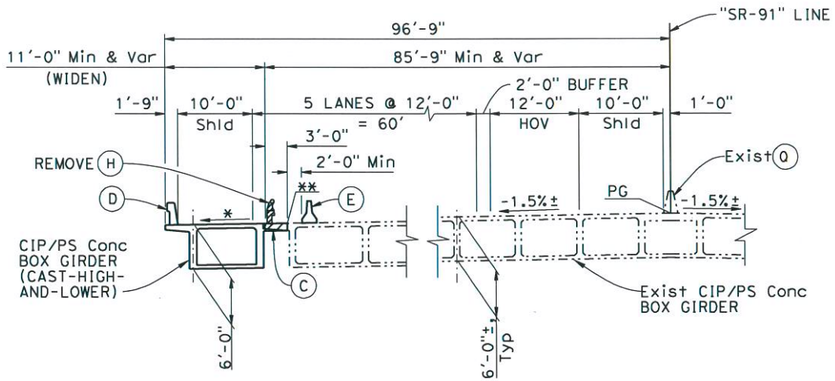
NOTES:

- (A) Paint "Bridge No. 53-1335"
- (B) Paint "PIONEER Blvd UC"
- (C) Closure Pour, (3'-0")
- (D) Concrete Barrier Type 836
- (E) Temporary Railing (Type K), see "ROAD PLANS"
- (F) Structure Approach Type N(30)
- (G) Structure Approach Type R(30)
- (H) Type 9 Metal Railing on Type 1 Concrete Parapet
- (K) MGS, see "ROAD PLANS"
- (L) Slope paving - Full slope
- (R) Retaining Wall, see "STRUCTURE PLANS"
- (Q) Concrete Barrier Type 60A

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
07	LA	91, 605	16.9-19.8 5.0-5.8

LOS ANGELES COUNTY METRO
1 GATEWAY PLAZA
LOS ANGELES, CA 90012

WKE, Inc.
400 NORTH TUSTIN AVENUE, SUITE 275
SANTA ANA, CA 92705



TYPICAL SECTION

1" = 10'

LEGEND:

- Existing structure
- New structure
- Bridge removal (portion)
- Closure pour
- * Match Exist Cross Slope, -1.5%±
- ** Match Exist Profile Grade
- Point of Min Vert Clr
- Direction of traffic

DATE OF ESTIMATE	=	03/01/2018
STRUCTURE DEPTH	=	6'-0"
LENGTH	=	143.08'
WIDTH	=	11.00' Min & Var
AREA	=	2,260 SQFT
STRUCTURE COST	=	$680,000
COST/ft² INCLUDING 10% MOBILIZATION & 25% CONTINGENCY	=	$301
BRIDGE REMOVAL	=	$7,000
WORK BY RAILROAD	=	$0
TOTAL COST	=	$687,000

x _____
DESIGN OVERSIGHT
x 28 June 2018
SIGN OFF DATE

DESIGNED BY	U. SANDIRA	DATE	03/01/18
DRAWN BY	T. DOUNG	DATE	03/01/18
CHECKED BY	A. WANG	DATE	03/01/18
APPROVED	V. TRINH	DATE	03/01/18

V. TRINH
PROJECT ENGINEER

PLANNING STUDY

PIONEER BLVD UC (WIDEN)

BRIDGE NO. 53-1335		UNIT:	
SCALE: AS NOTED		PROJECT NUMBER:	0716000284

CONTRACT NO.: 07-29811

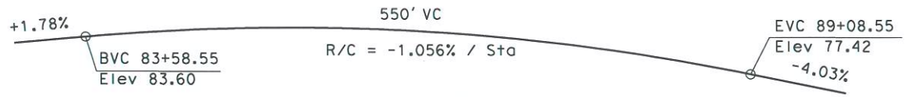
ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 7/16/10)

FILE => 53-1335 Pioneer UC_widen.dgn

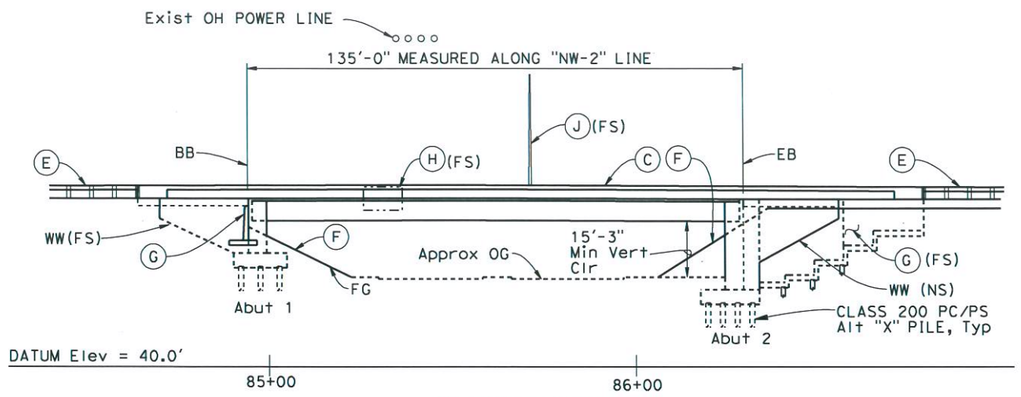
DATE PLOTTED => 05-MAR-2018 TIME PLOTTED => 10:49

USERNAME => Rhian

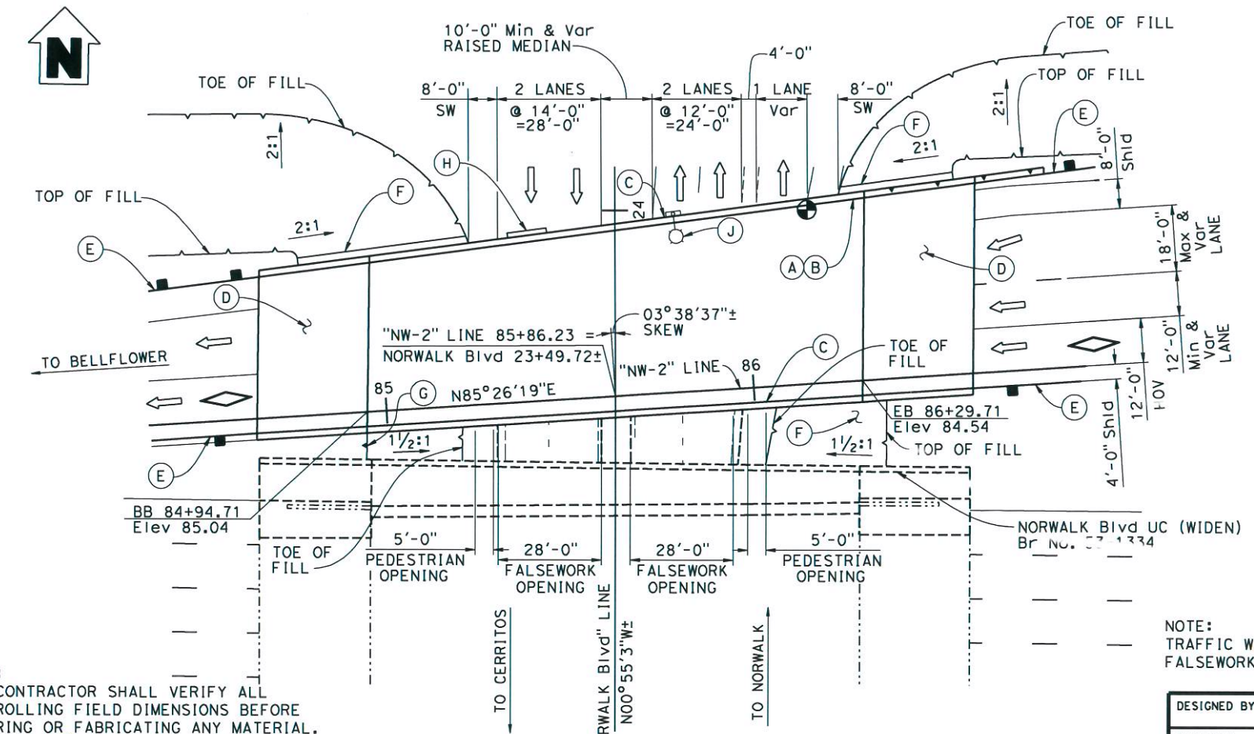
PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION



PROFILE GRADE
NO SCALE



ELEVATION
1" = 20'

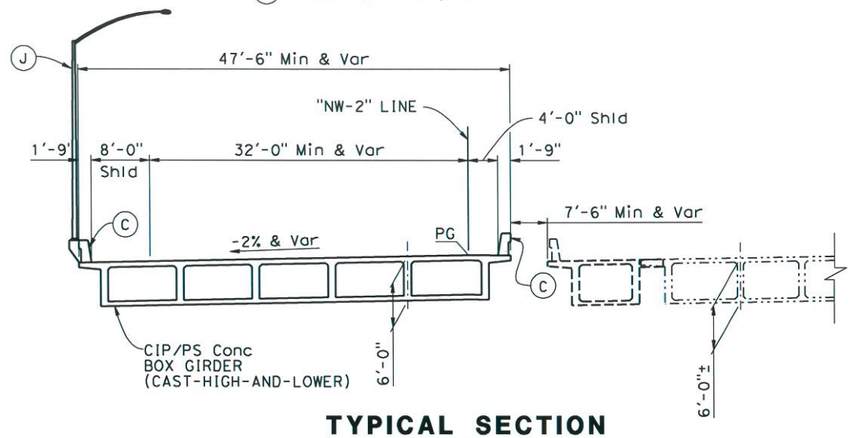


PLAN
1" = 20'

NOTE:
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

NOTE:
TRAFFIC WILL PASS THROUGH CONSTRUCTION SITE.
FALSEWORK OPENINGS ARE REQUIRED.

NOTES:
- (A) Paint "Bridge No. 53-XXXX"
- (B) Paint "NORWALK BLVD WB ON-RAMP UC"
- (C) Concrete Barrier Type 836
- (D) Structure Approach Type N(30)
- (E) MGS, see "ROAD PLANS"
- (F) Slope paving - Full slope (Under bridge and between bridges)
- (G) Retaining Wall, see "STRUCTURE PLANS"
- (H) Bridge Mounted Sign
- (J) Electrolier on pole



TYPICAL SECTION
1" = 10'

LEGEND:
- Existing structure
- New structure
- Direction of traffic
- Electrolier on Pole
- Point of Min Vert Clr

DATE OF ESTIMATE	=	03/01/2018
STRUCTURE DEPTH	=	6'-0"
LENGTH	=	135.0'
WIDTH	=	47.50' Min & Var
AREA	=	7,067 SQFT
STRUCTURE COST	=	$3,046,000
COST/ft² INCLUDING 10% MOBILIZATION & 25% CONTINGENCY	=	$431
BRIDGE REMOVAL	=	$0
WORK BY RAILROAD	=	$0
TOTAL COST	=	$3,046,000

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
07	LA	91, 605	16.9-19.8 5.0-5.8

LOS ANGELES COUNTY METRO
1 GATEWAY PLAZA
LOS ANGELES, CA 90012

WKE, Inc.
400 NORTH TUSTIN AVENUE, SUITE 275
SANTA ANA, CA 92705

X _____
DESIGN OVERSIGHT
X 28 June 2018
SIGN OFF DATE

DESIGNED BY	U. SANDIRA	DATE	03/01/18
DRAWN BY	T. DOUNG	DATE	03/01/18
CHECKED BY	A. WANG	DATE	03/01/18
APPROVED	V. TRINH	DATE	03/01/18

V. TRINH
PROJECT ENGINEER

PLANNING STUDY
NORWALK WB ON-RAMP UC

BRIDGE NO. 53-XXXX	UNIT:
SCALE: AS NOTED	PROJECT NUMBER: 0716000284

CONTRACT NO.: 07-29811

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 7/16/10)

FILE => Norwalk On Ramp.dgn

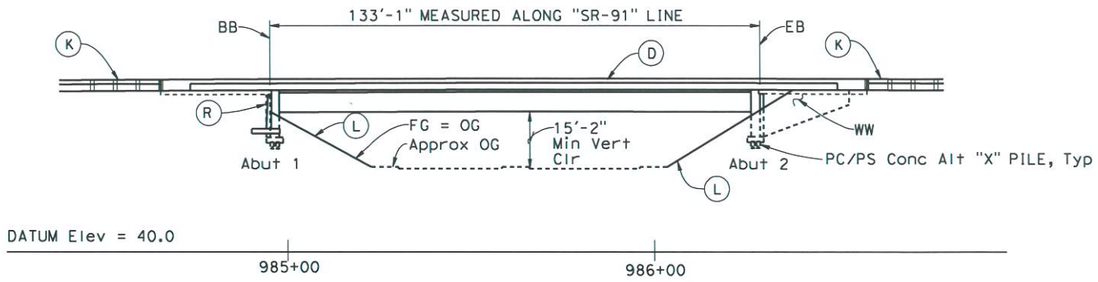
DATE PLOTTED => 05-MAR-2018 TIME PLOTTED => 10:49
USERNAME => RHon

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
07	LA	91, 605	16.9-19.8 5.0-5.8

LOS ANGELES COUNTY METRO
1 GATEWAY PLAZA
LOS ANGELES, CA 90012

WKE, Inc.
400 NORTH TUSTIN AVENUE, SUITE 275
SANTA ANA, CA 92705

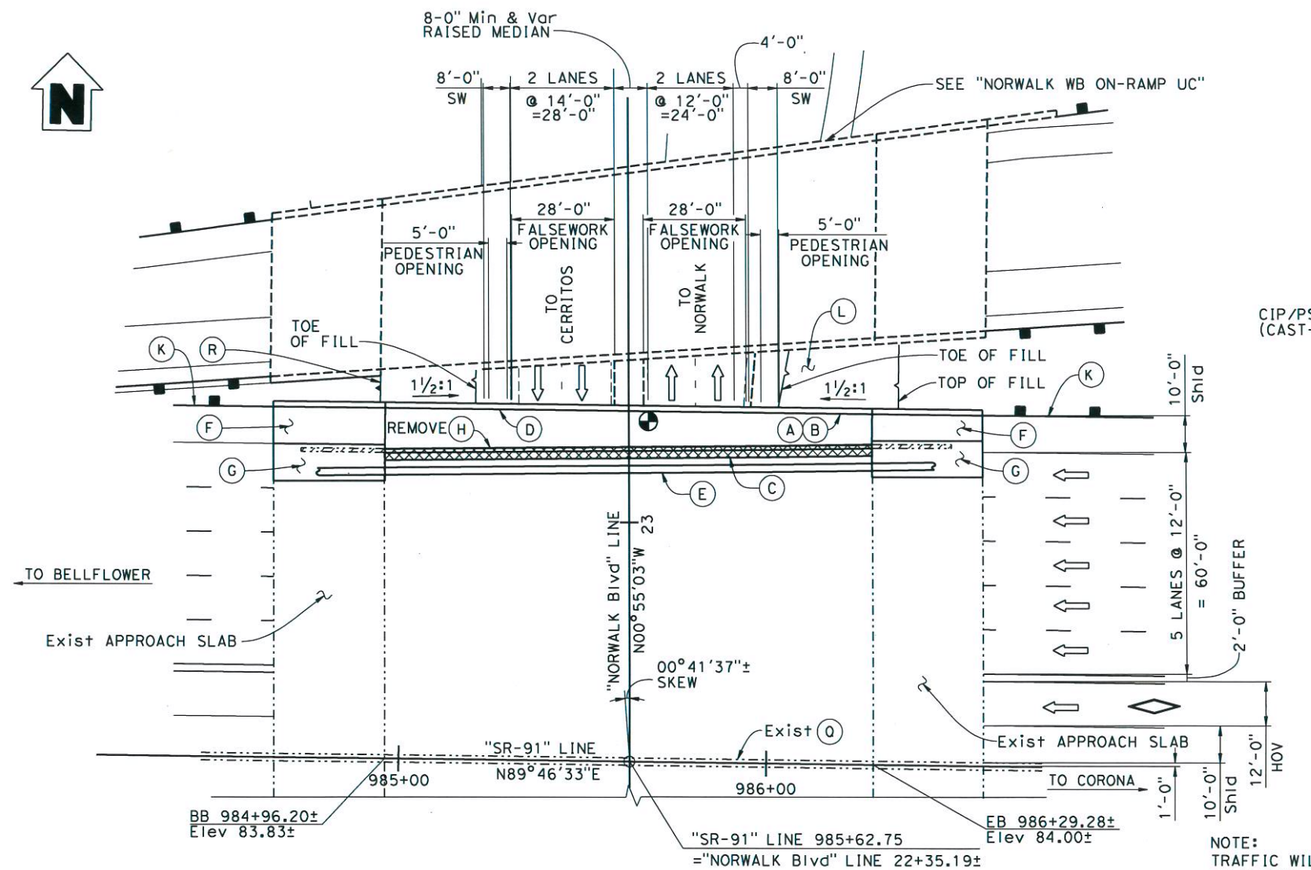


MIRRORED ELEVATION

1" = 20'

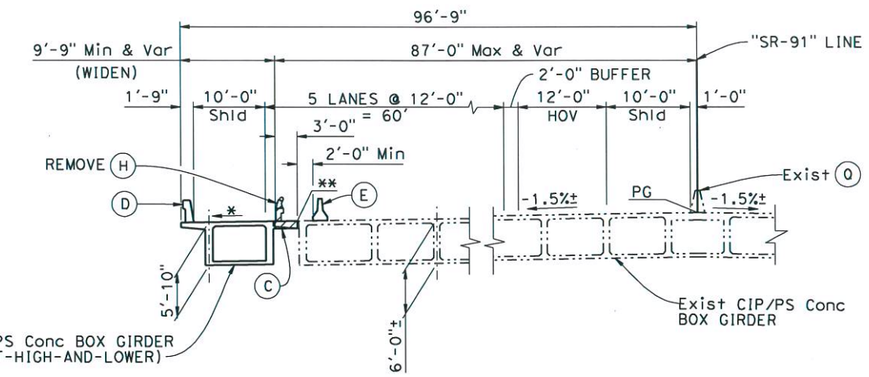
NOTES:

(A) Paint "Bridge No. 53-1334"
(B) Paint "NORWALK Blvd UC"
(C) Closure Pour, (3'-0")
(D) Concrete Barrier Type 836
(E) Temporary Railing (Type K), see "ROAD PLANS"
(F) Structure Approach Type N(30)
(G) Structure Approach Type R(30)
(H) Type 9 Metal Railing on Type 1 Concrete Parapet
(K) MGS, see "ROAD PLANS"
(L) Slope paving - Full slope
(R) Retaining Wall, see "STRUCTURE PLANS"
(Q) Concrete Barrier Type 60A



PLAN

1" = 20'



TYPICAL SECTION

1" = 10'

LEGEND:

- Existing structure
- New structure
- Bridge removal (portion)
- Closure pour
- * Match Exist Cross Slope, -1.5%±
- ** Match Exist Profile Grade
- Point of Min Vert Clr
- Direction of traffic

DATE OF ESTIMATE	=	03/01/2018
STRUCTURE DEPTH	=	6'-0"
LENGTH	=	133.08'
WIDTH	=	9.75' Min & Var
AREA	=	1,889 SQFT
STRUCTURE COST	=	$565,000
COST/ft² INCLUDING 10% MOBILIZATION & 25% CONTINGENCY	=	$299
BRIDGE REMOVAL	=	$6,000
WORK BY RAILROAD	=	$0
TOTAL COST	=	$571,000

NOTE:
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

NOTE:
TRAFFIC WILL PASS THROUGH CONSTRUCTION SITE. FALSEWORK OPENINGS IS REQUIRED.

x R. C. Trinh
DESIGN OVERSIGHT
x 28 June 2018
SIGN OFF DATE

DESIGNED BY	U. SANDIRA	DATE 03/01/18
DRAWN BY	T. DOUNG	DATE 03/01/18
CHECKED BY	A. WANG	DATE 03/01/18
APPROVED	V. TRINH	DATE 03/01/18

V. TRINH
PROJECT ENGINEER

PLANNING STUDY

NORWALK BLVD UC (WIDEN)

BRIDGE NO. 53-1334	UNIT:
SCALE: AS NOTED	PROJECT NUMBER: 0716000284

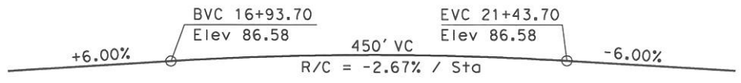
CONTRACT NO.: 07-29811

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 7/16/10)

FILE => 53-1334 Norwalk UC_widen.dgn

DATE PLOTTED => 05-MAR-2018
TIME PLOTTED => 10:48
USERNAME => Rhian

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION



PROFILE GRADE
NO SCALE

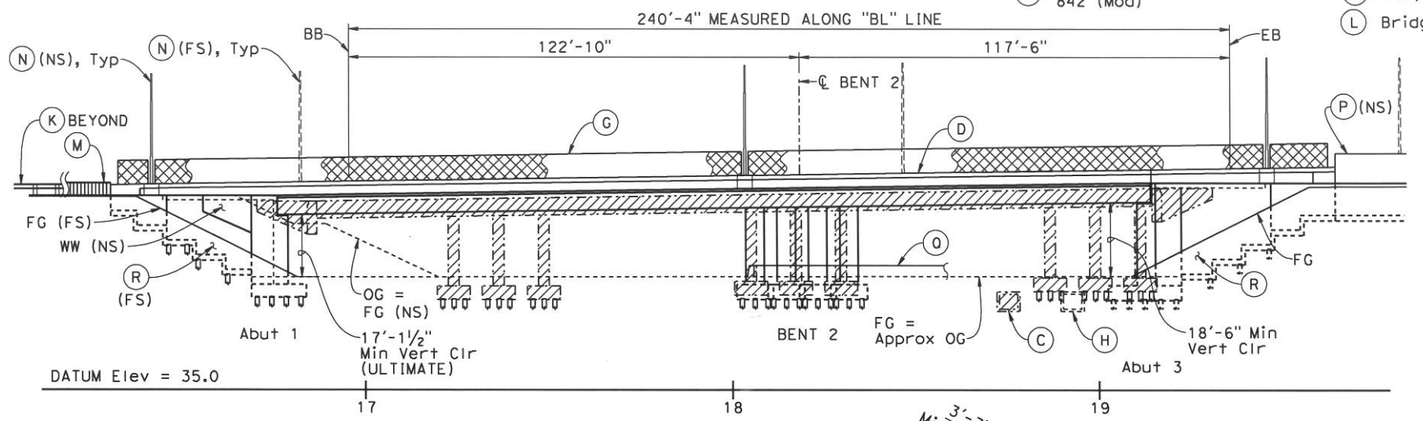
NOTES:

(A) Paint "Bridge No. 53-XXXX"
(B) Paint "BLOOMFIELD AVE OC"
(C) Exist 5'± X 4'± RCB (to be abandoned)
(D) Concrete Barrier Type 732SW (Mod)
(E) Concrete Barrier Type 842 (Mod)
(F) Structure Approach Type N(30)
(G) Chain Link Railing, Type 7
(H) 5' X 4' RCB, see "ROAD PLANS"
(J) Architecture Treatment
(K) MGS, see "ROAD PLANS"
(L) Bridge Mounted Sign
(M) Picket Railing
(N) Electrolier on pole
(Q) Conc Barrier Type 60R
(R) Retaining Wall, see "STRUCTURE PLANS"
(P) Sound Wall on RW
(S) Telecom Conduit (By Others)
(T) 12kV Elect (By Others)

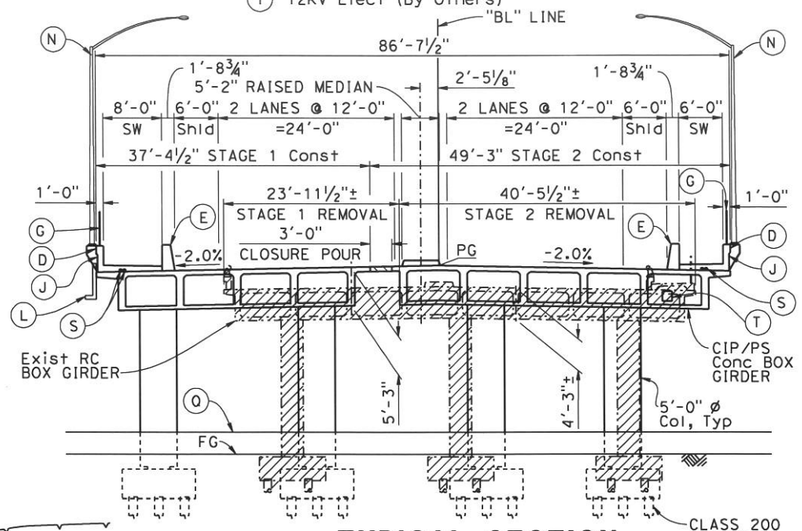
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
07	LA	91, 605	16.9-19.8 5.0-5.8

LOS ANGELES COUNTY METRO
1 GATEWAY PLAZA
LOS ANGELES, CA 90012

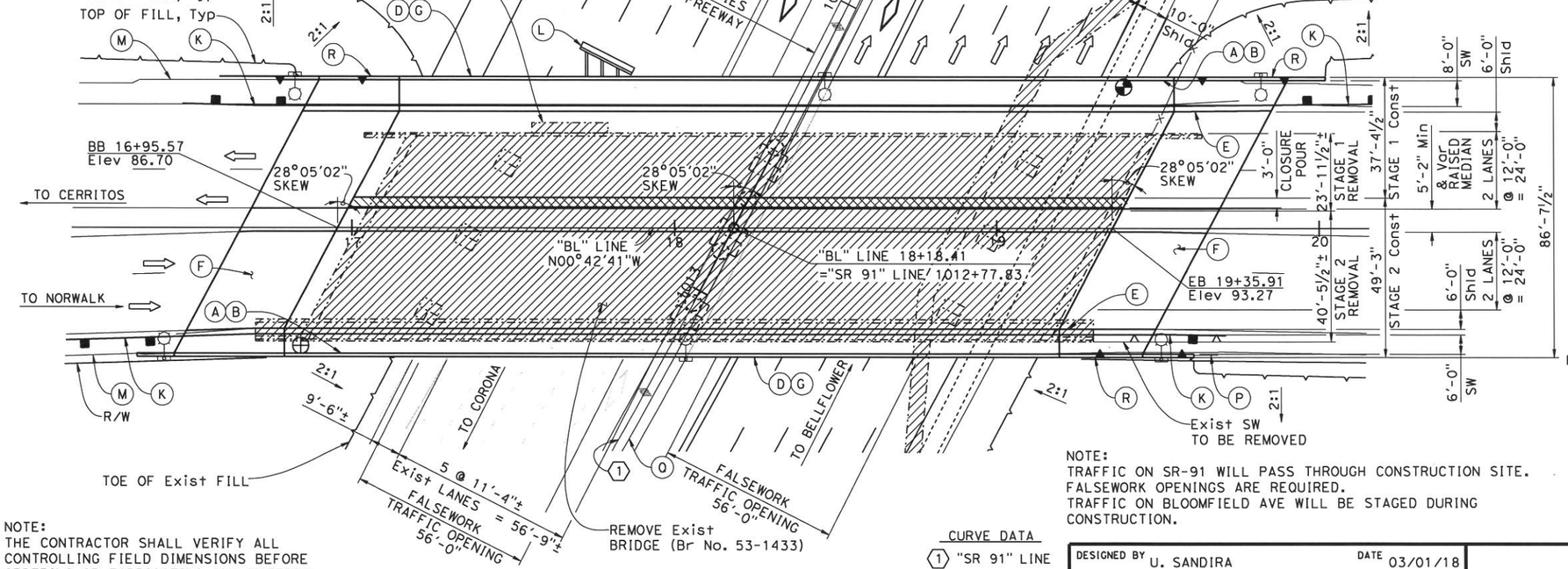
WKE, Inc.
400 NORTH TUSTIN AVENUE, SUITE 275
SANTA ANA, CA 92705



ELEVATION
1" = 20'



TYPICAL SECTION
1" = 10'



PLAN
1" = 20'

NOTE:
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

NOTE:
TRAFFIC ON SR-91 WILL PASS THROUGH CONSTRUCTION SITE. FALSEWORK OPENINGS ARE REQUIRED.
TRAFFIC ON BLOOMFIELD AVE WILL BE STAGED DURING CONSTRUCTION.

CURVE DATA
(1) "SR 91" LINE
R = 3,600.00'
Δ = 39°10'21"
T = 1280.93'
L = 2461.28'

DESIGNED BY	U. SANDIRA	DATE	03/01/18
DRAWN BY	T. DOUNG	DATE	03/01/18
CHECKED BY	A. WANG	DATE	03/01/18
APPROVED	V. TRINH	DATE	03/01/18

V. TRINH
PROJECT ENGINEER

ESTIMATE		
DATE OF ESTIMATE	=	03/01/2018
STRUCTURE DEPTH	=	5'-3"
LENGTH	=	240'-4"
WIDTH	=	86'-7½"
AREA	=	20,821 sqft
STRUCTURE COST	=	$8,244,000
COST/ft² INCLUDING 10% MOBILIZATION & 25% CONTINGENCY	=	$396
BRIDGE REMOVAL	=	$215,000
WORK BY RAILROAD	=	$0
TOTAL COST	=	$8,459,000

LEGEND:
Existing structure
New structure
Bridge removal
Point of minimum current vertical clearance
Point of minimum ultimate vertical clearance
Electrolier on Pole

STRUCTURE OPTION 1

PLANNING STUDY

BLOOMFIELD AVE OC (REPLACE)

BRIDGE NO. 53-1433 | UNIT:
SCALE: AS NOTED | PROJECT NUMBER: 0716000284

x [signature] DESIGN OVERSIGHT
x 28 June 2018 SIGN OFF DATE

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 7/16/10)

FILE => 53-1433 Bloomfield OC (Str Option 1).dgn

CONTRACT NO.: 07-29811

DATE PLOTTED => 05-MAR-2018 TIME PLOTTED => 10:49
USERNAME => Rhan

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
07	LA	91, 605	16.9-19.8 5.0-5.8

LOS ANGELES COUNTY METRO
1 GATEWAY PLAZA
LOS ANGELES, CA 90012

WKE, Inc.
400 NORTH TUSTIN AVENUE, SUITE 275
SANTA ANA, CA 92705

NOTES:

- (A) Paint "Bridge No. 53-XXXX"
- (B) Paint "BLOOMFIELD AVE OC"
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- (D) Concrete Barrier Type 732SW (Mod)
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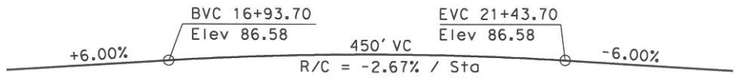
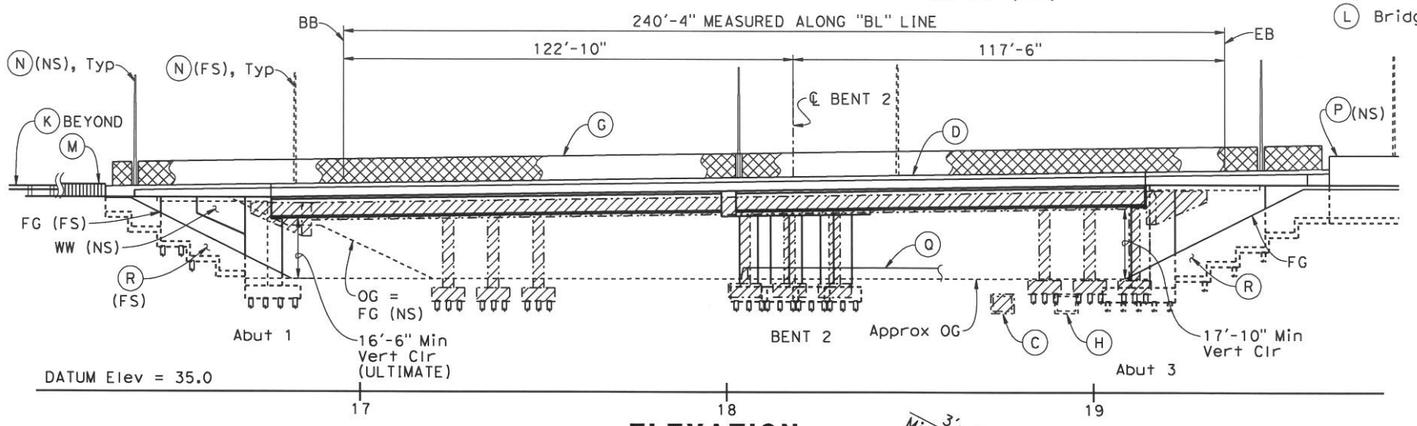
- (F) Structure Approach Type N(30)
- (G) Chain Link Railing, Type 7
- (H) 5' X 4' RCB, see "ROAD PLANS"
- (J) Architecture Treatment
- (K) MGS, see "ROAD PLANS"
- (L) Bridge Mounted Sign
- (M) Picket Railing
- (N) Electrolier on pole
- (Q) Conc Barrier Type 60R
- (R) Retaining Wall, see "STRUCTURE PLANS"
- (P) Sound Wall on RW
- (S) Telecom Conduit (By Others)
- (T) 12kV Elect (By Others)



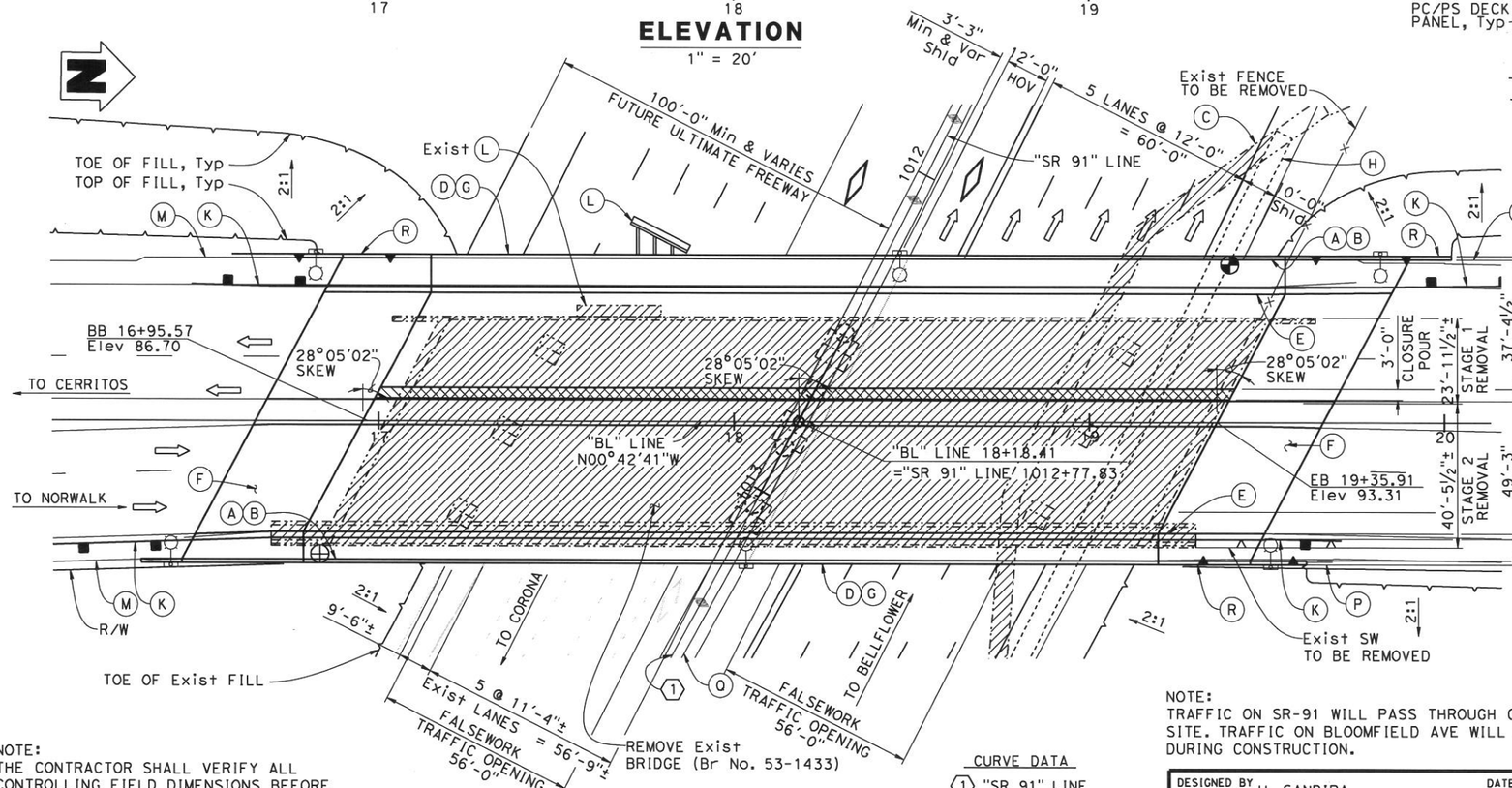
PROFILE GRADE

NO SCALE



ELEVATION

1" = 20'



PLAN

1" = 20'

NOTE:
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

CURVE DATA
(1) "SR 91" LINE
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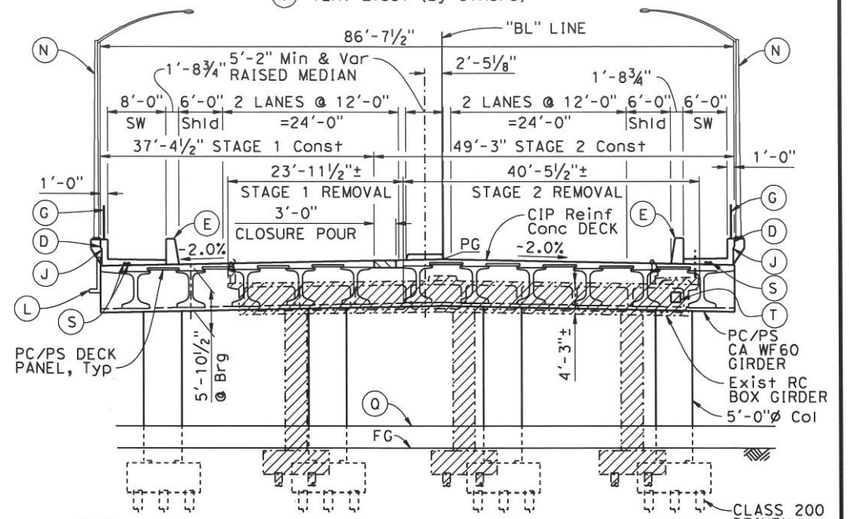
Δ = 39°10'21"
T = 1280.93'
L = 2461.28'

NOTE:
TRAFFIC ON SR-91 WILL PASS THROUGH CONSTRUCTION SITE. TRAFFIC ON BLOOMFIELD AVE WILL BE STAGED DURING CONSTRUCTION.



TYPICAL SECTION

1" = 10'

DATE OF ESTIMATE	=	03/01/2018
STRUCTURE DEPTH	=	5'-10½"
LENGTH	=	240'-4"
WIDTH	=	86'-7½"
AREA	=	20,821 sqft
STRUCTURE COST	=	$9,145,000
COST/ft² INCLUDING 10% MOBILIZATION & 25% CONTINGENCY	=	$440
BRIDGE REMOVAL	=	$215,000
WORK BY RAILROAD	=	$0
TOTAL COST	=	$9,360,000

LEGEND:
- Existing structure
- New structure
- Bridge removal
- Point of minimum current vertical clearance
- Point of minimum ultimate vertical clearance
- Electrolier on Pole

STRUCTURE OPTION 2

PLANNING STUDY

BLOOMFIELD AVE OC (REPLACE)

DESIGNED BY	U. SANDIRA	DATE	03/01/18
DRAWN BY	T. DOUNG	DATE	03/01/18
CHECKED BY	A. WANG	DATE	03/01/18
APPROVED	V. TRINH	DATE	03/01/18

V. TRINH
PROJECT ENGINEER

BRIDGE NO. 53-1433 | UNIT:
SCALE: AS NOTED | PROJECT NUMBER: 0716000284

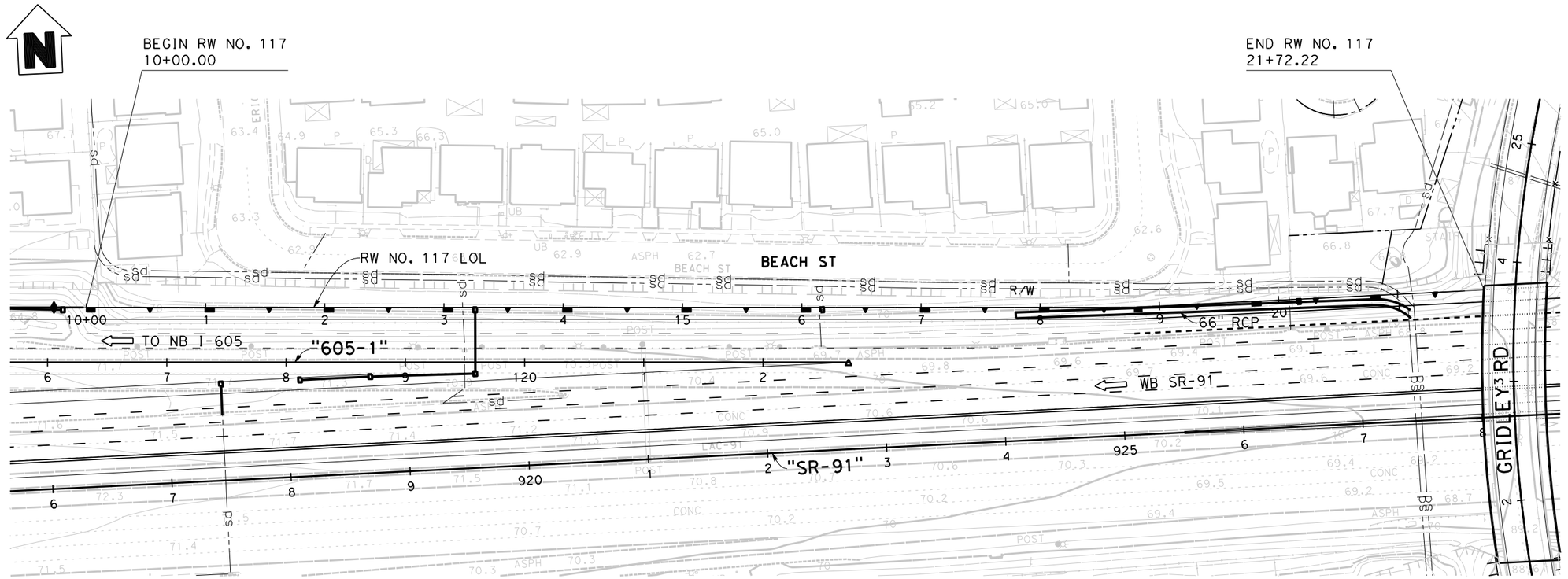
x _____
DESIGN OVERSIGHT
x 28 June 2018
SIGN OFF DATE

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 7/16/10)

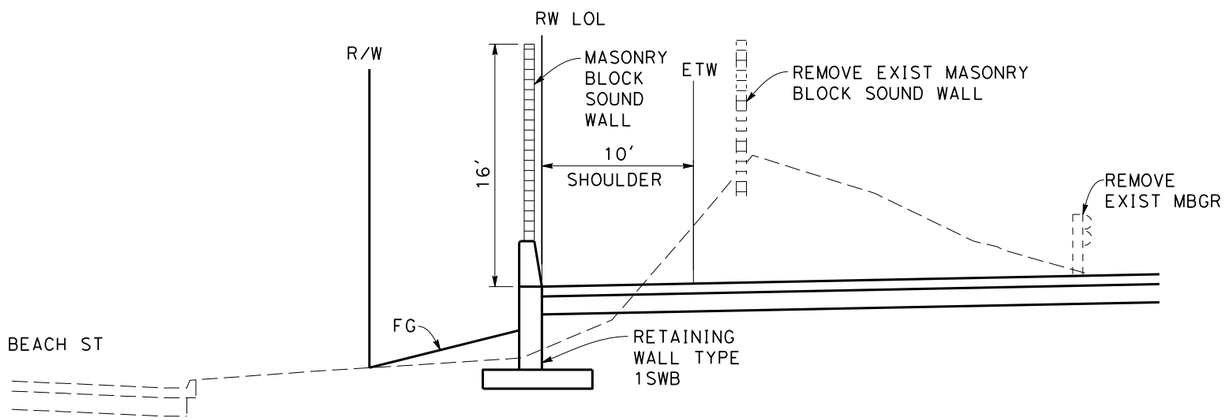
FILE => 53-1433 Bloomfield OC (Str Option 2).dgn

CONTRACT NO.: 07-29811

USERNAME => Rhan DATE PLOTTED => 05-MAR-2018 TIME PLOTTED => 10:49

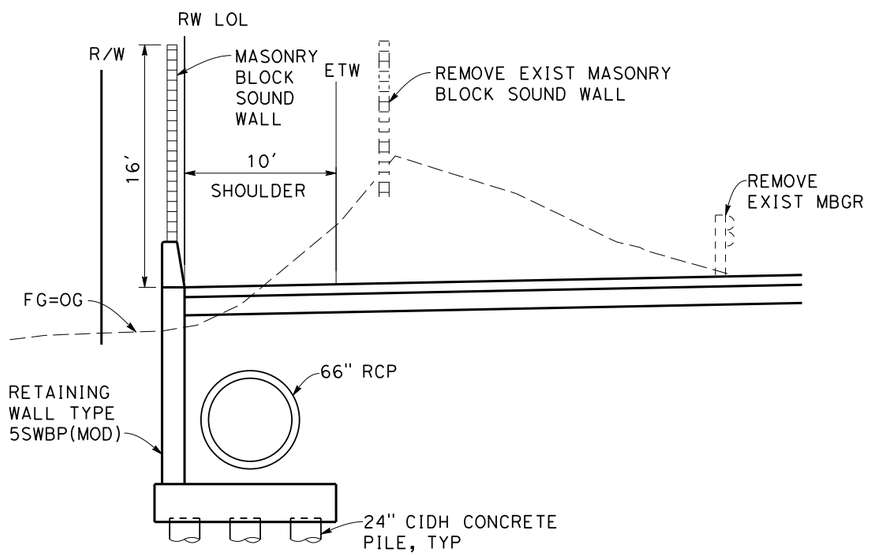


PLAN



TYPICAL SECTION

10+00.00 TO 17+80.00

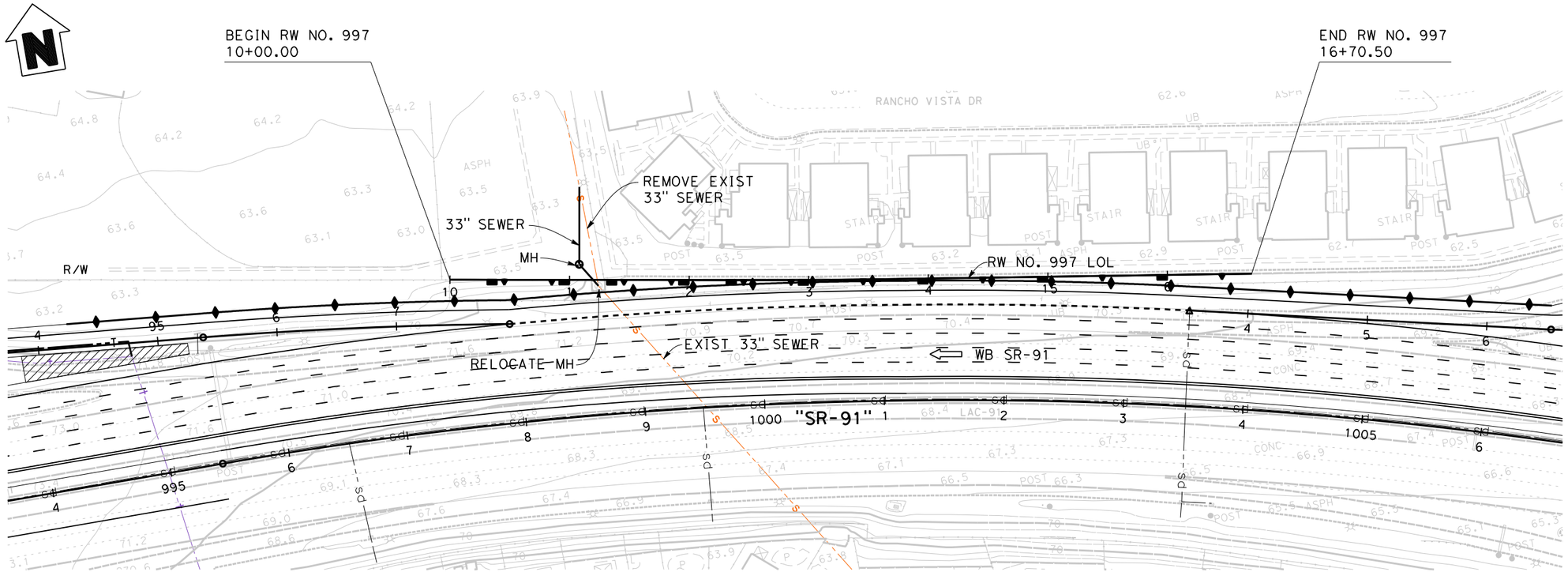


TYPICAL SECTION

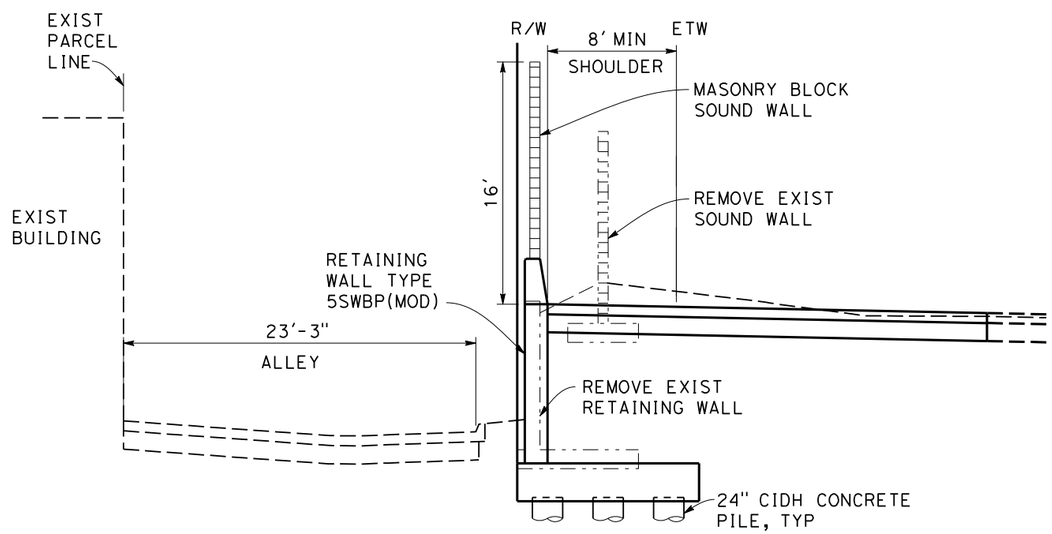
17+80.00 TO 21+22.22

EXHIBIT 1

RETAINING WALL NO. 117



PLAN



TYPICAL SECTION

EXHIBIT 2
RETAINING WALL NO. 997

Attachment L

Existing Utility Plans

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	La	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. ____ Exp. ____ CIVIL — STATE OF CALIFORNIA

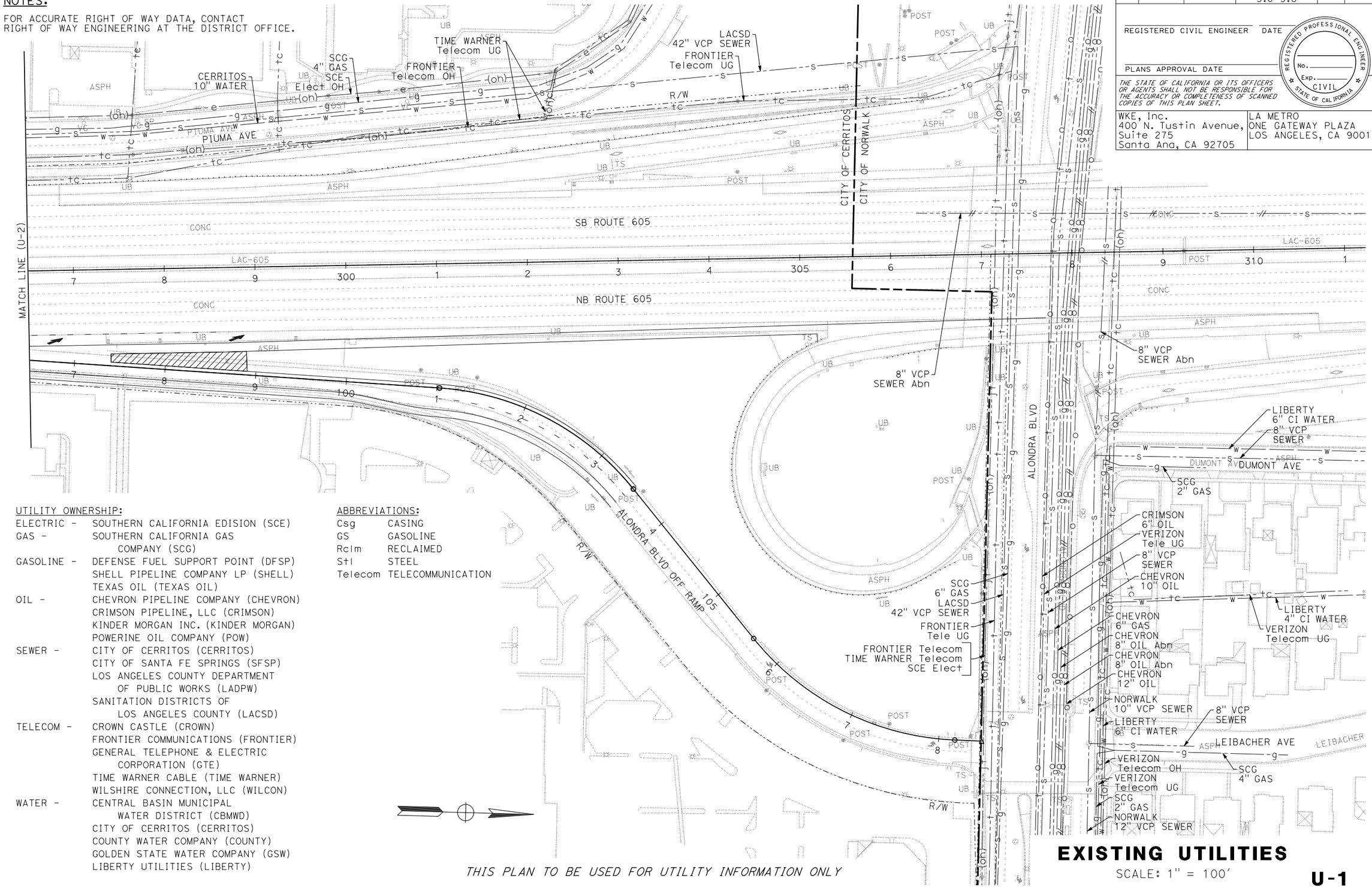
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

WKE, Inc.
400 N. Tustin Avenue,
Suite 275
Santa Ana, CA 92705

LA METRO
ONE GATEWAY PLAZA
LOS ANGELES, CA 90012

NOTES:

FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.



UTILITY OWNERSHIP:

ELECTRIC -	SOUTHERN CALIFORNIA EDISION (SCE)
GAS -	SOUTHERN CALIFORNIA GAS COMPANY (SCG)
GASOLINE -	DEFENSE FUEL SUPPORT POINT (DFSP) SHELL PIPELINE COMPANY LP (SHELL) TEXAS OIL (TEXAS OIL)
OIL -	CHEVRON PIPELINE COMPANY (CHEVRON) CRIMSON PIPELINE, LLC (CRIMSON) KINDER MORGAN INC. (KINDER MORGAN) POWERINE OIL COMPANY (POW)
SEWER -	CITY OF CERRITOS (CERRITOS) CITY OF SANTA FE SPRINGS (SFSP) LOS ANGELES COUNTY DEPARTMENT OF PUBLIC WORKS (LADPW) SANITATION DISTRICTS OF LOS ANGELES COUNTY (LACSD)
TELECOM -	CROWN CASTLE (CROWN) FRONTIER COMMUNICATIONS (FRONTIER) GENERAL TELEPHONE & ELECTRIC CORPORATION (GTE) TIME WARNER CABLE (TIME WARNER) WILSHIRE CONNECTION, LLC (WILCON)
WATER -	CENTRAL BASIN MUNICIPAL WATER DISTRICT (CBMWD) CITY OF CERRITOS (CERRITOS) COUNTY WATER COMPANY (COUNTY) GOLDEN STATE WATER COMPANY (GSW) LIBERTY UTILITIES (LIBERTY)

ABBREVIATIONS:

Csg	CASING
GS	GASOLINE
Rclm	RECLAIMED
Stl	STEEL
Telecom	TELECOMMUNICATION

THIS PLAN TO BE USED FOR UTILITY INFORMATION ONLY

EXISTING UTILITIES

SCALE: 1" = 100'

U-1

REVISED BY | DATE REVISED | CALCULATED-DESIGNED BY | CHECKED BY | CONSULTANT FUNCTIONAL SUPERVISOR

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

LAST REVISION 00-00-00 | DATE PLOTTED => 07-SEP-2017 | TIME PLOTTED => 16:13

BORDER LAST REVISED 7/2/2010 | USERNAME => TLim | DGN FILE => U1.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0000 | PROJECT NUMBER & PHASE xx

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	La	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. Exp. CIVIL — STATE OF CALIFORNIA

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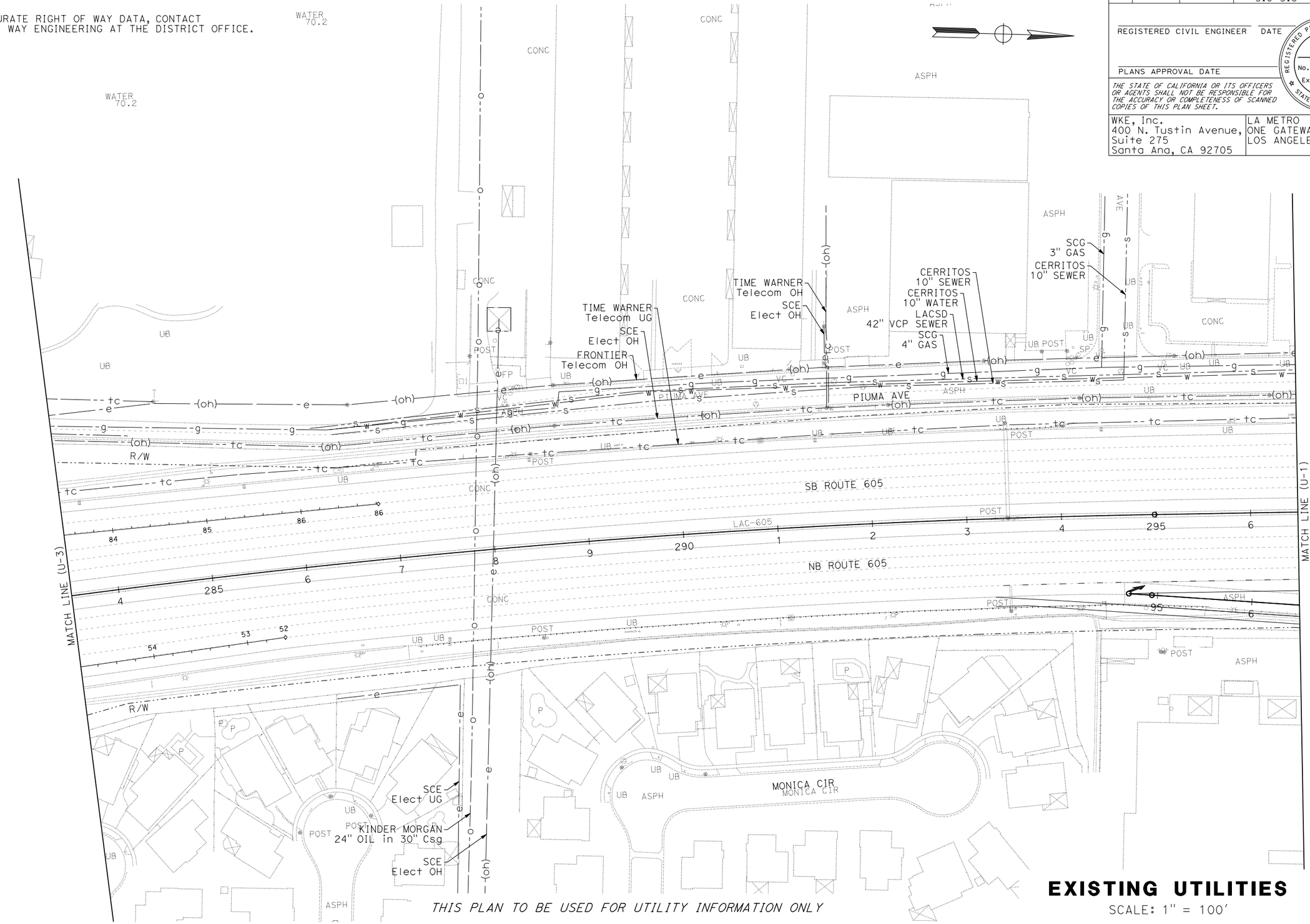
Santa Ana, CA 92705

LA METRO
ONE GATEWAY PLAZA
LOS ANGELES, CA 90012

NOTES:

FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.



THIS PLAN TO BE USED FOR UTILITY INFORMATION ONLY

EXISTING UTILITIES

SCALE: 1" = 100'

U-2

LAST REVISION 00-00-00 | DATE PLOTTED => 07-SEP-2017 | TIME PLOTTED => 16:13

BORDER LAST REVISED 7/2/2010 | USERNAME => TLim | DGN FILE => U2.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0000 | PROJECT NUMBER & PHASE xx

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION | CONSULTANT FUNCTIONAL SUPERVISOR | CALCULATED-DESIGNED BY | CHECKED BY | REVISED BY | DATE REVISED

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	La	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

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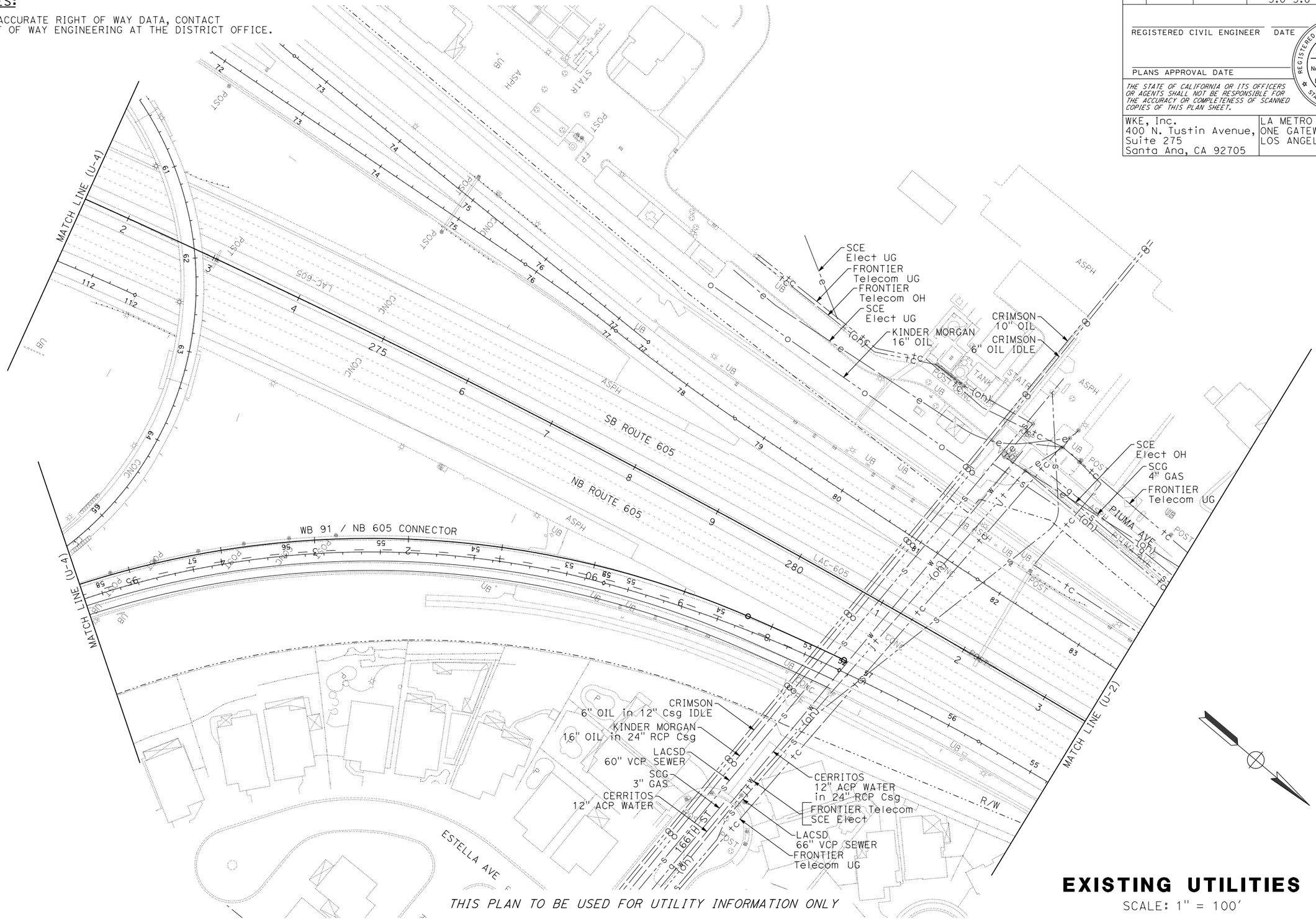

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EXISTING UTILITIES

SCALE: 1" = 100'

U-3

LAST REVISION 00-00-00 | DATE PLOTTED => 07-SEP-2017 TIME PLOTTED => 16:13

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION | CONSULTANT FUNCTIONAL SUPERVISOR | CALCULATED-DESIGNED BY | CHECKED BY | REVISED BY | DATE REVISED

BORDER LAST REVISED 7/2/2010 | USERNAME => TLim DGN FILE => U3.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0000 | PROJECT NUMBER & PHASE xx

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	La	91,605	16.9-19.8, 5.0-5.8		x

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PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

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Santa Ana, CA 92705

LA METRO
ONE GATEWAY PLAZA
LOS ANGELES, CA 90012

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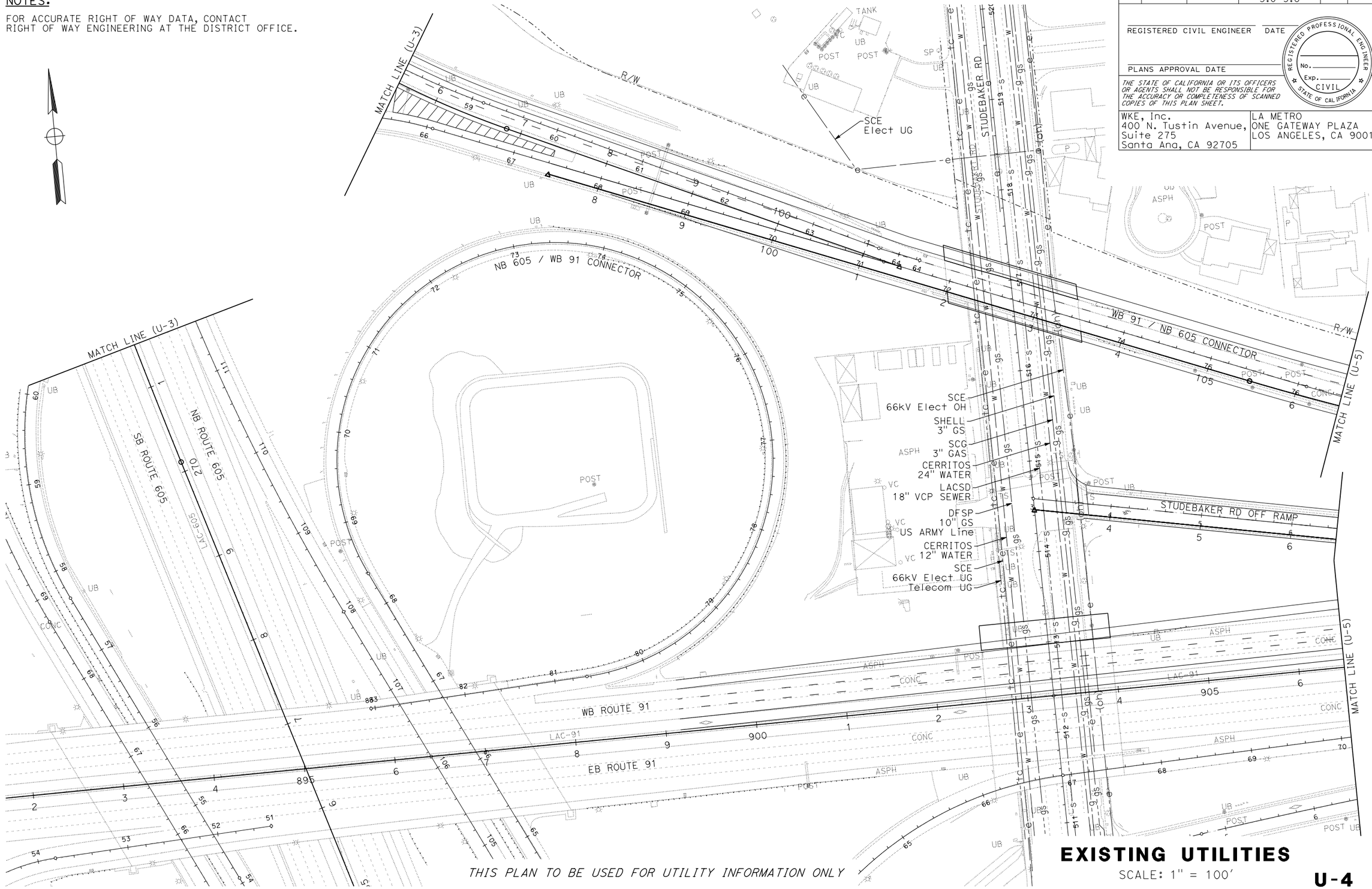

THIS PLAN TO BE USED FOR UTILITY INFORMATION ONLY

EXISTING UTILITIES

SCALE: 1" = 100'

U-4

REVISED BY	DATE REVISED

CALCULATED-DESIGNED BY

CHECKED BY

CONSULTANT FUNCTIONAL SUPERVISOR

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

LAST REVISION 00-00-00

DATE PLOTTED => 07-SEP-2017
TIME PLOTTED => 16:13

BORDER LAST REVISED 7/2/2010

USERNAME => TLim
DGN FILE => U4.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE xx

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	La	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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LA METRO
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LOS ANGELES, CA 90012

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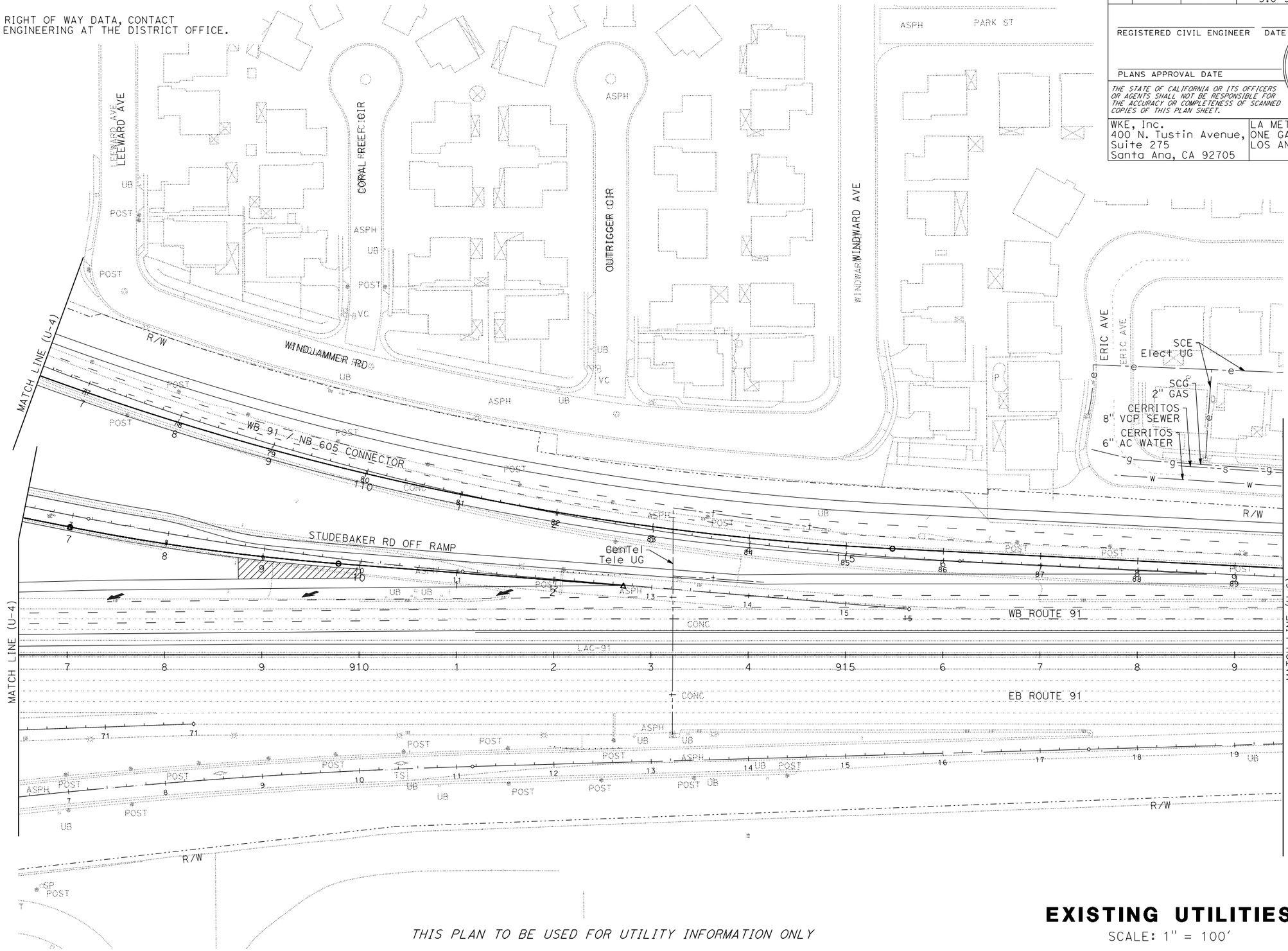

THIS PLAN TO BE USED FOR UTILITY INFORMATION ONLY

EXISTING UTILITIES

SCALE: 1" = 100'

U-5

REVISED BY	DATE REVISED

CALCULATED-DESIGNED BY

CHECKED BY

CONSULTANT FUNCTIONAL SUPERVISOR

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

LAST REVISION 00-00-00

DATE PLOTTED => 07-SEP-2017
TIME PLOTTED => 16:13

BORDER LAST REVISED 7/2/2010

USERNAME => TLim
DGN FILE => U5.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE xx

NOTES:

FOR ACCURATE RIGHT OF WAY DATA, CONTACT
RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

CITY OF NORWALK

CITY OF CERRITOS

CERRITOS 8" AC WATER
SCE Elect OH
CERRITOS 12" WATER
SCE Elect UG
HARVEST AVE
SUNNY RIDGE CT
GRDILEY RD
GRDILEY PL
LUCAS ST ASPH
LUCAS ST
ASPH
CONC
GenTel Tele UG
SCG 2" GAS
CERRITOS 10" VCP SEWER
SCE Elect UG
SCG 2" GAS
CERRITOS 8" VCP SEWER
CERRITOS 6" AC WATER
CERRITOS 8" AC WATER
CERRITOS 8" VCP SEWER
SCE Elect OH
SCG 2" GAS
CERRITOS 8" VCP SEWER
CERRITOS 8" WATER
BEACH ST
R/W
POST
WB ROUTE 91
EB ROUTE 91
LAC-91
MATCH LINE (U-5)
MATCH LINE (U-7)
MATCH LINE (U-8)
GenTel Tele UG
SCE Elect UG in 26" Csg
SCE Elect UG
CERRITOS 8" AC WATER

THIS PLAN TO BE USED FOR UTILITY INFORMATION ONLY

EXISTING UTILITIES

SCALE: 1" = 100'

U-6

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	La	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

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WKE, Inc.
400 N. Tustin Avenue,
Suite 275
Santa Ana, CA 92705

LA METRO
ONE GATEWAY PLAZA
LOS ANGELES, CA 90012

REVISED BY | DATE REVISED

CALCULATED-DESIGNED BY | CHECKED BY

CONSULTANT FUNCTIONAL SUPERVISOR

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

LAST REVISION 00-00-00 | DATE PLOTTED => 07-SEP-2017 | TIME PLOTTED => 16:13

BORDER LAST REVISED 7/2/2010 | USERNAME => TLim | DGN FILE => U6.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0000 | PROJECT NUMBER & PHASE xx

NOTES:

FOR ACCURATE RIGHT OF WAY DATA, CONTACT
RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	La	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

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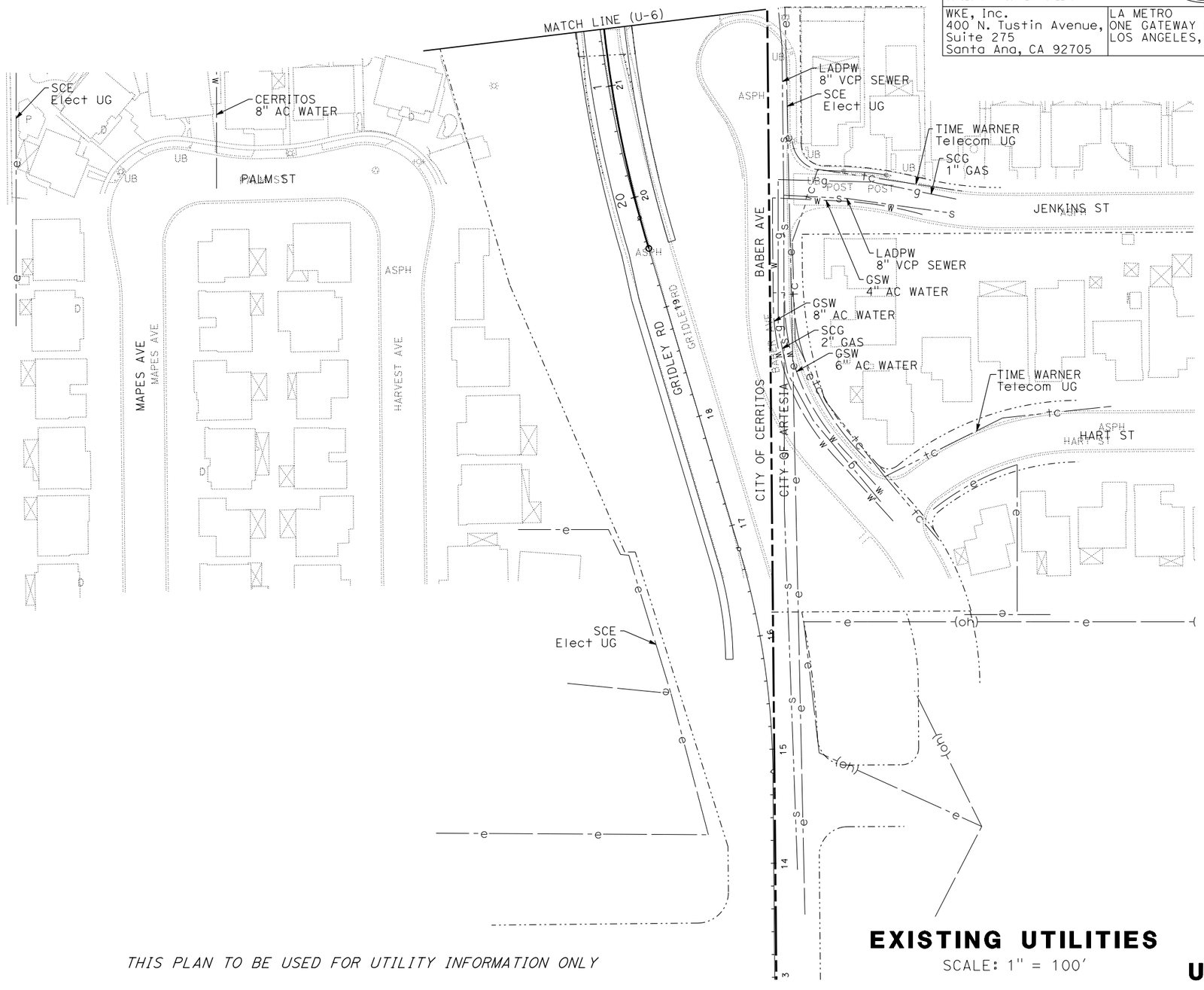
WKE, Inc.
400 N. Tustin Avenue,
Suite 275
Santa Ana, CA 92705

LA METRO
ONE GATEWAY PLAZA
LOS ANGELES, CA 90012



THIS PLAN TO BE USED FOR UTILITY INFORMATION ONLY

EXISTING UTILITIES

SCALE: 1" = 100'

U-7

REVISED BY | DATE REVISED

CALCULATED-DESIGNED BY | CHECKED BY

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STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

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NOTES:

FOR ACCURATE RIGHT OF WAY DATA, CONTACT
RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	La	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

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Suite 275
Santa Ana, CA 92705

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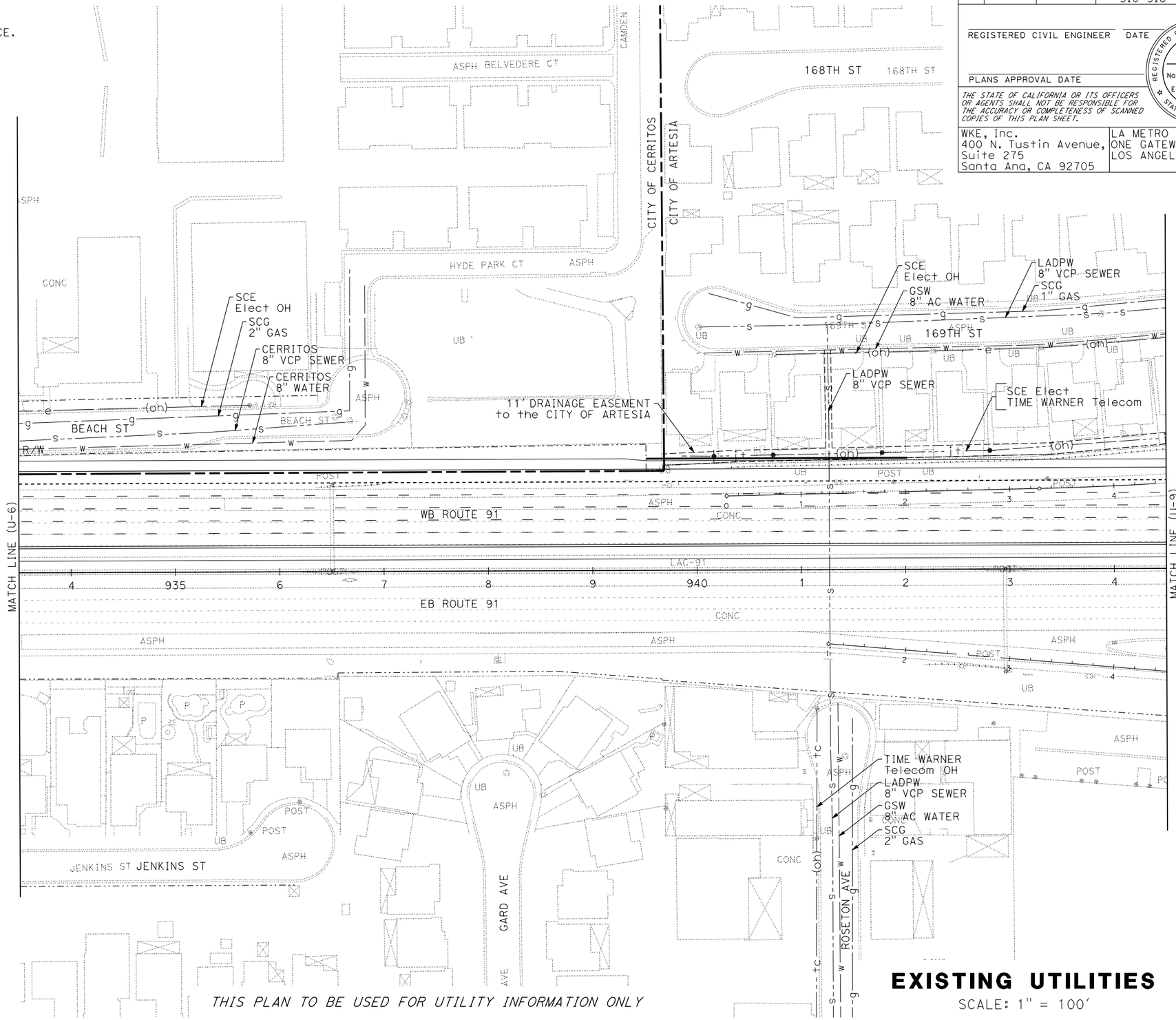

THIS PLAN TO BE USED FOR UTILITY INFORMATION ONLY

EXISTING UTILITIES

SCALE: 1" = 100'

U-8

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	La	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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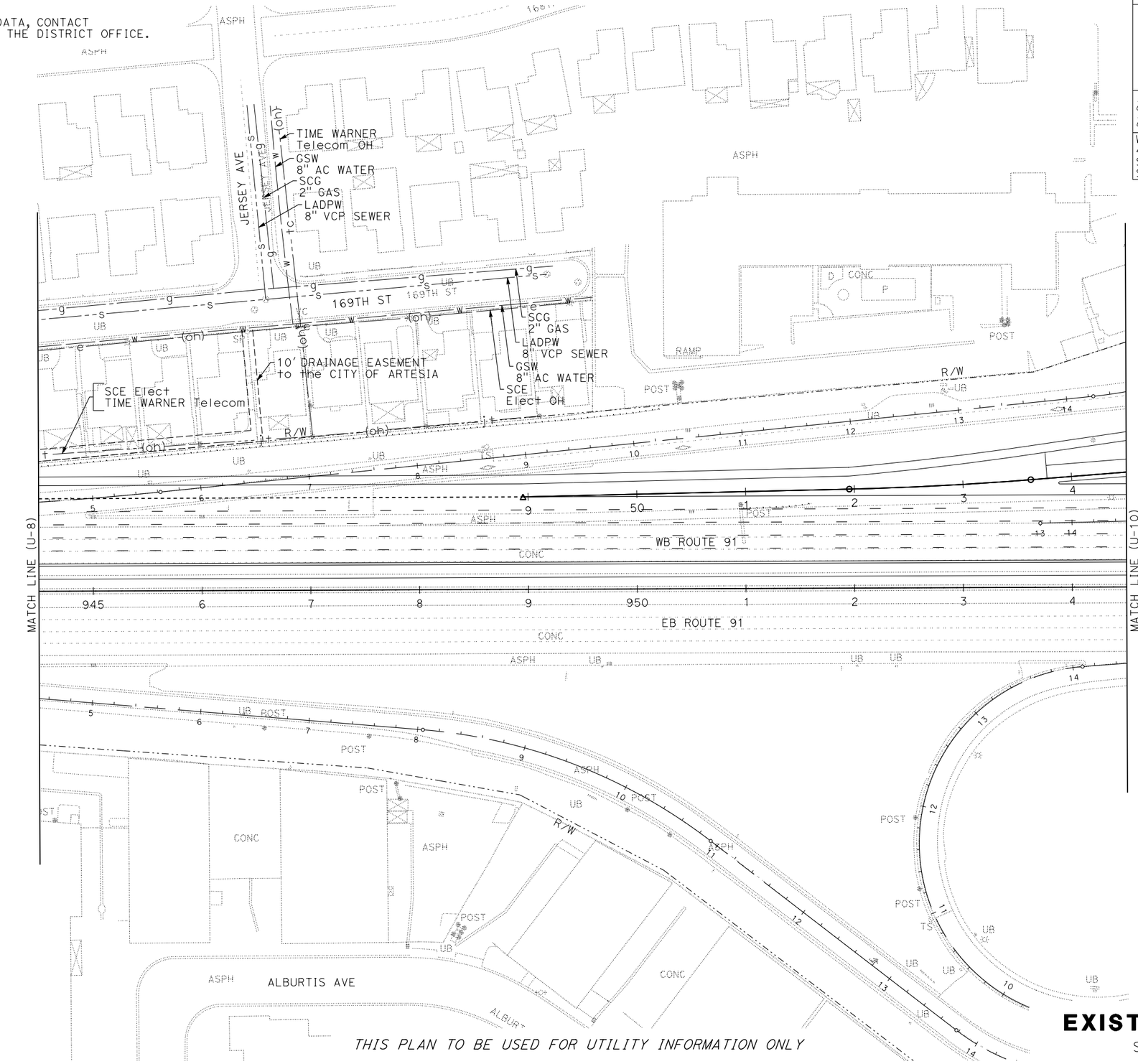

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EXISTING UTILITIES

SCALE: 1" = 100'

U-9

REVISED BY | DATE REVISED | CALCULATED-DESIGNED BY | CHECKED BY | CONSULTANT FUNCTIONAL SUPERVISOR

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BORDER LAST REVISED 7/2/2010 | USERNAME => TLim | DGN FILE => U9.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0000 | PROJECT NUMBER & PHASE xx

NOTES:

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	La	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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MATCH LINE (U-11)

168TH ST

169TH ST

CLARKSDALE AVE

PIONEER BLVD

SCE Elect OH
SCG 2" GAS

LIBERTY 8" CI WATER

TIME WARNER Telecom OH

VERIZON Telecom
TIME WARNER Telecom
SCE Elect

SCG 2" GAS
LADPW 8" VCP SEWER

SCE Elect UG

TIME WARNER Telecom UG
SCE 12kV Elect UG

10-4" ACD Telecom UG (FRONTIER)
Telecom UG (WILCON)

SCE Elect
TIME WARNER Telecom

GenTel 2 BU WI

WB ROUTE 91

EB ROUTE 91

LADPW 8" VCP SEWER
GSW 8" AC WATER
SCG 4" GAS

MATCH LINE (U-9)

MATCH LINE (U-12)

CITY OF ARTESIA
CITY OF CERRITOS

THIS PLAN TO BE USED FOR UTILITY INFORMATION ONLY

EXISTING UTILITIES

SCALE: 1" = 100'

U-10

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	La	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. ____ Exp. ____ CIVIL — STATE OF CALIFORNIA

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ONE GATEWAY PLAZA
LOS ANGELES, CA 90012

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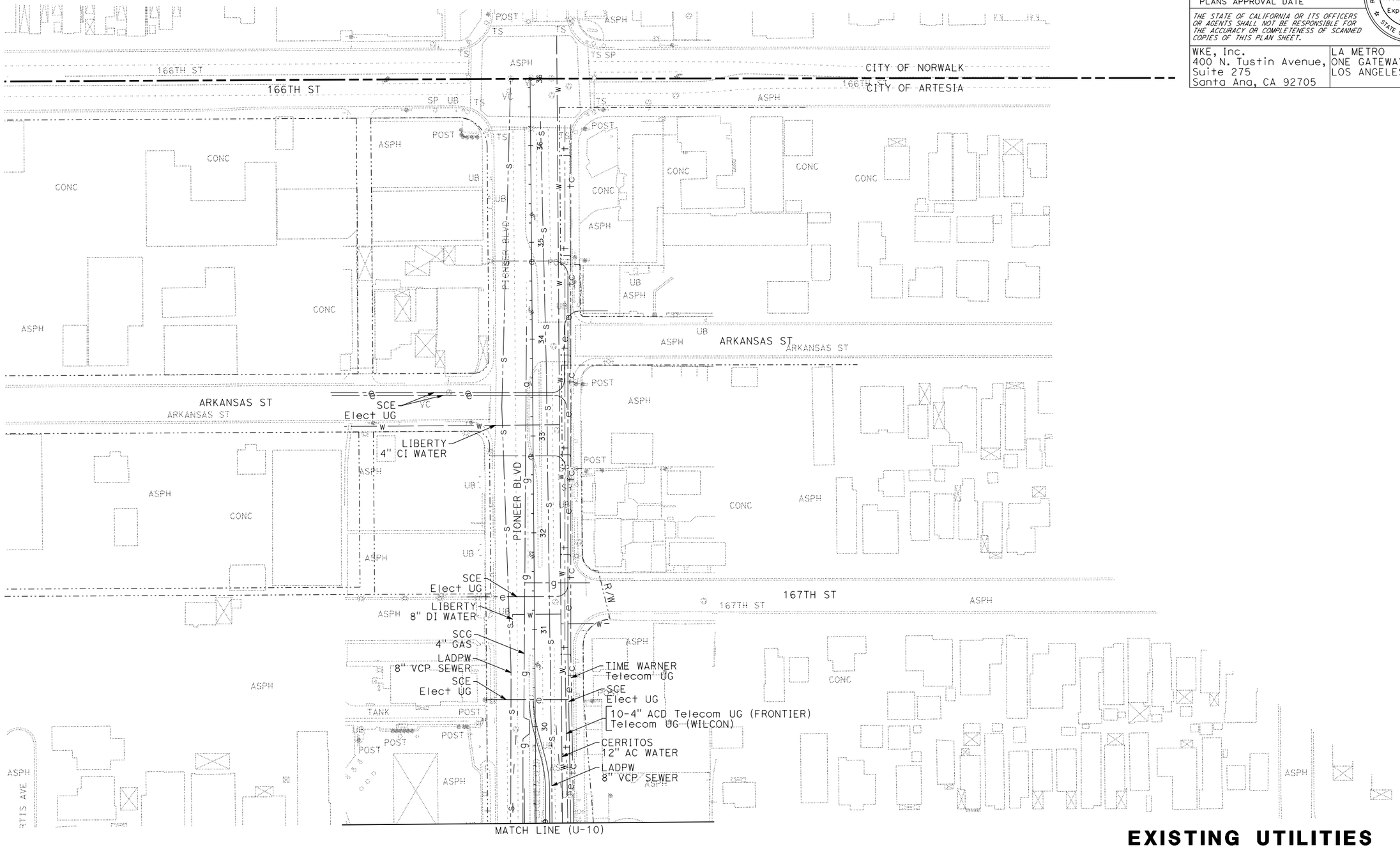
RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.



THIS PLAN TO BE USED FOR UTILITY INFORMATION ONLY

EXISTING UTILITIES

SCALE: 1" = 100'

U-11

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DGN FILE => U11.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE xx

NOTES:

FOR ACCURATE RIGHT OF WAY DATA, CONTACT
RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	La	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. Exp. CIVIL — STATE OF CALIFORNIA

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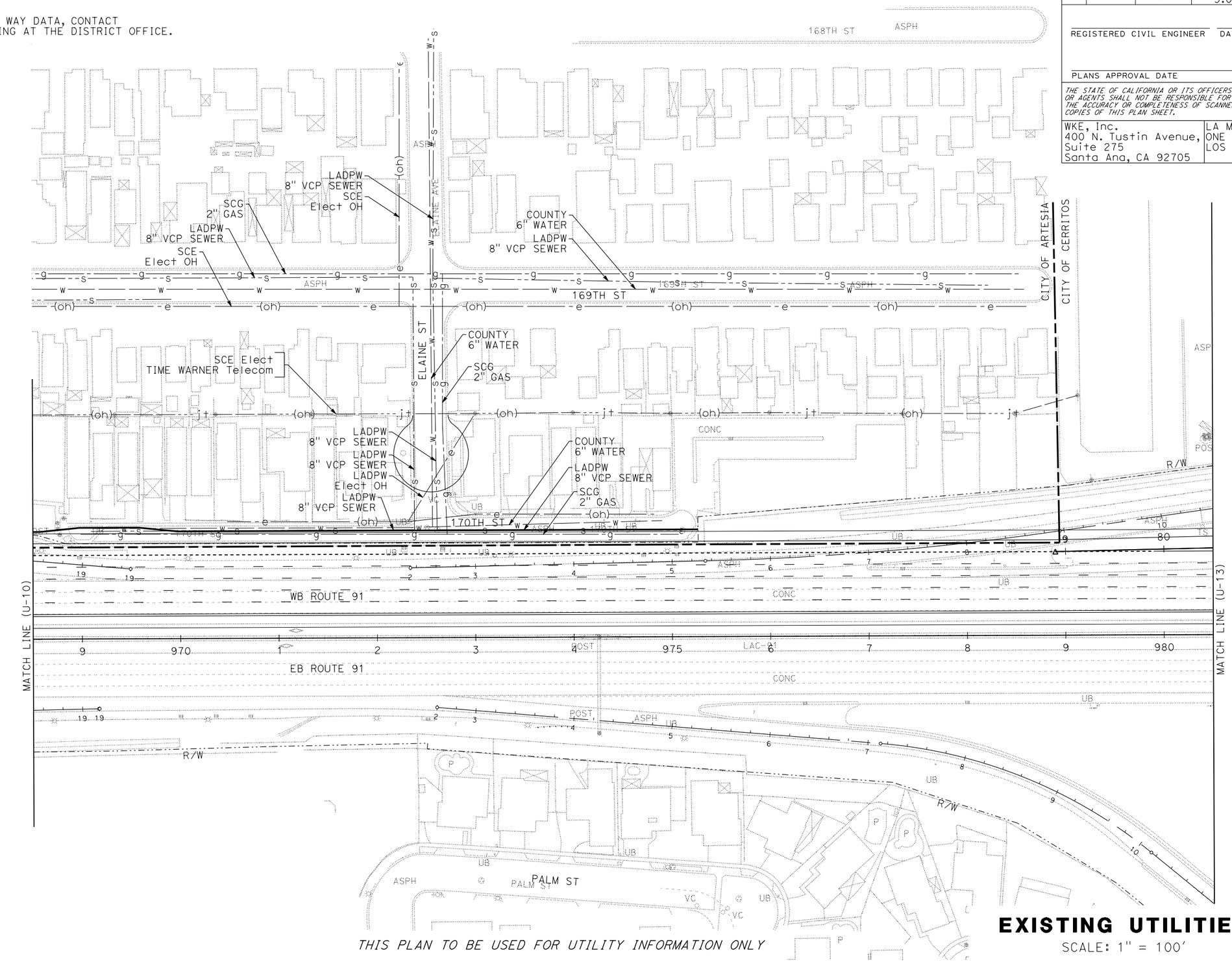

THIS PLAN TO BE USED FOR UTILITY INFORMATION ONLY

EXISTING UTILITIES

SCALE: 1" = 100'

U-12

REVISED BY	DATE REVISED

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BORDER LAST REVISED 7/2/2010

USERNAME => TLim
DGN FILE => U12.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE xx

NOTES:

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RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	La	91,605	16.9-19.8, 5.0-5.8		x

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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MATCH LINE (U-14)

PARK ST

SCG
3" GAS

CERRITOS
12" AC WATER

SFSP
16" VCP SEWER

SCG
3" GAS

R/W

SFSP
18" SEWER

KINDER MORGAN
16" OIL

CRIMSON
8" OIL Abn

CERRITOS
16" Rect WATER

CRIMSON
8" OIL

SCE 12kV Elect
TIME WARNER Telecom

NORWALK BLVD

Tele UG
TO BE INSTALLED BY OTHERS
(Gen Tel)

CALL BOX
TO BE RELOCATED BY OTHERS
(Gen Tel)

FROM

TO

WB ROUTE 91

EB ROUTE 91

SCE
12kV Elect OH
TIME WARNER
Telecom UG

SCE 12kV Elect
TIME WARNER Telecom

MATCH LINE (U-12)

MATCH LINE (U-15)

THIS PLAN TO BE USED FOR UTILITY INFORMATION ONLY

EXISTING UTILITIES

SCALE: 1" = 100'

U-13

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USERNAME => TLim
DGN FILE => U13.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE xx

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	La	91,605	16.9-19.8, 5.0-5.8		x

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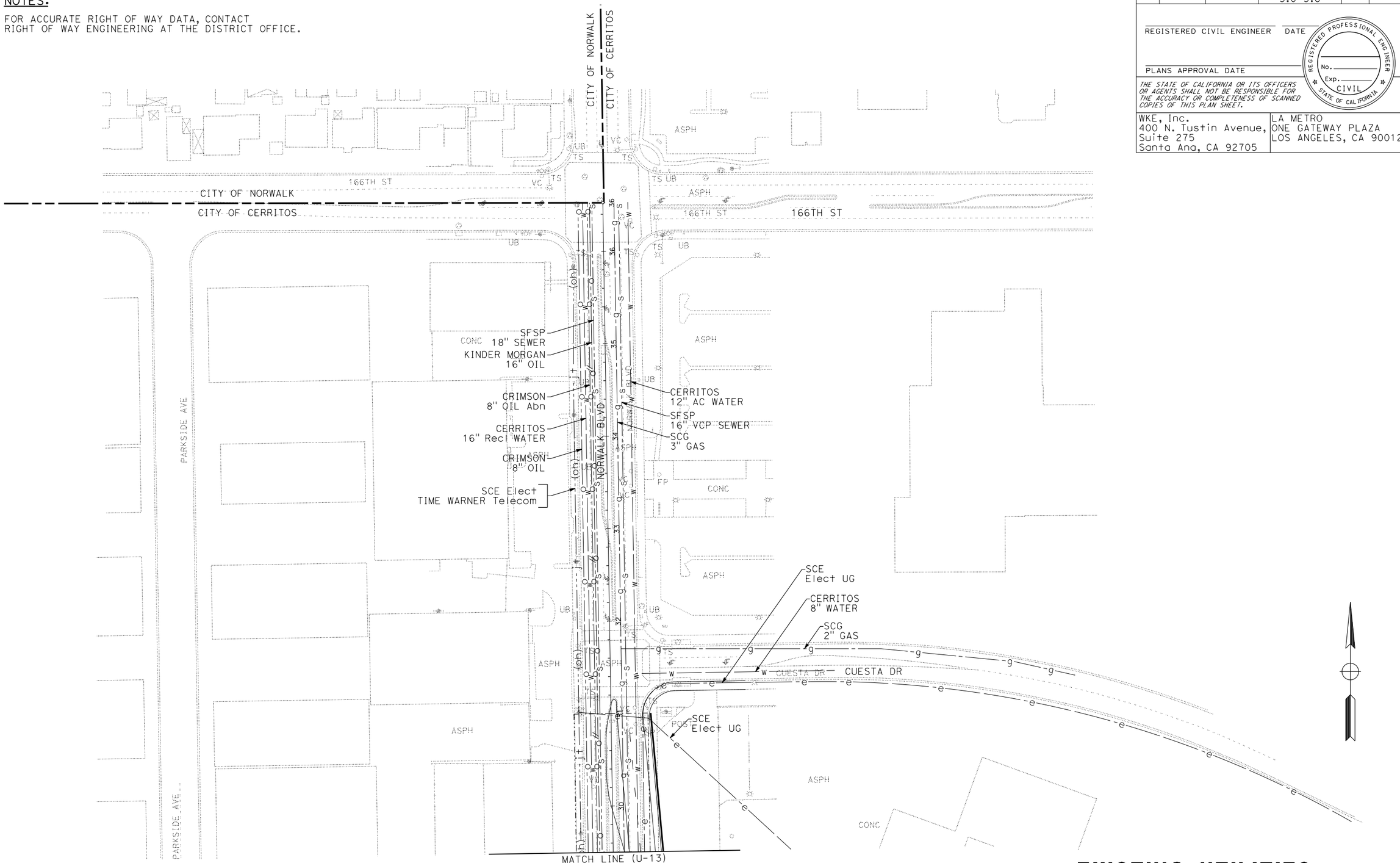

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EXISTING UTILITIES

SCALE: 1" = 100'

U-14

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RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE xx

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
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U-15

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION | CONSULTANT FUNCTIONAL SUPERVISOR | CALCULATED-DESIGNED BY | CHECKED BY | REVISED BY | DATE REVISED

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	La	91,605	16.9-19.8, 5.0-5.8		x

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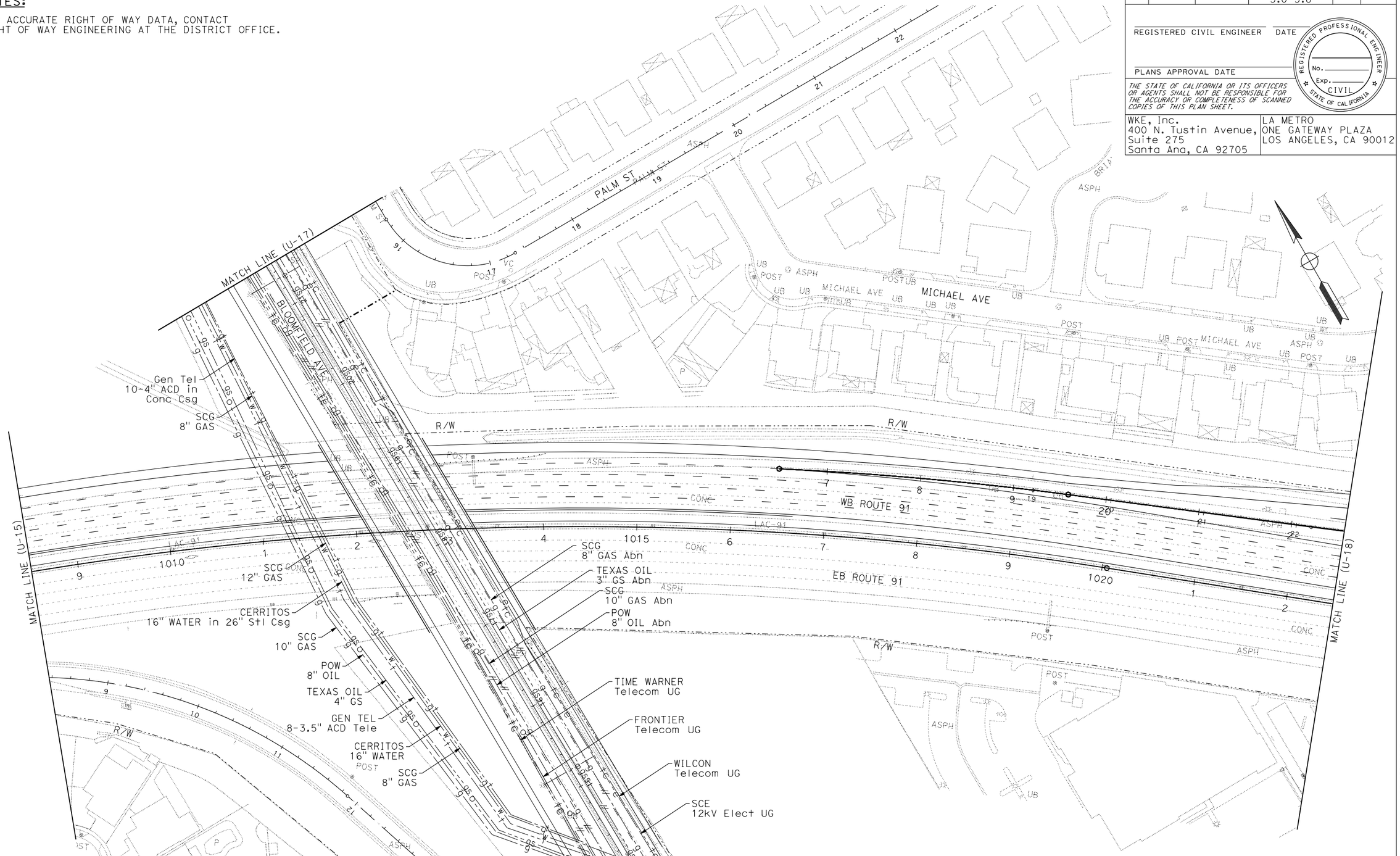

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EXISTING UTILITIES

SCALE: 1" = 100'

U-16

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BORDER LAST REVISED 7/2/2010	USERNAME => TLim DGN FILE => U16.dgn	RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3	UNIT 0000	PROJECT NUMBER & PHASE xx

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
7	La	91,605	16.9-19.8, 5.0-5.8		x

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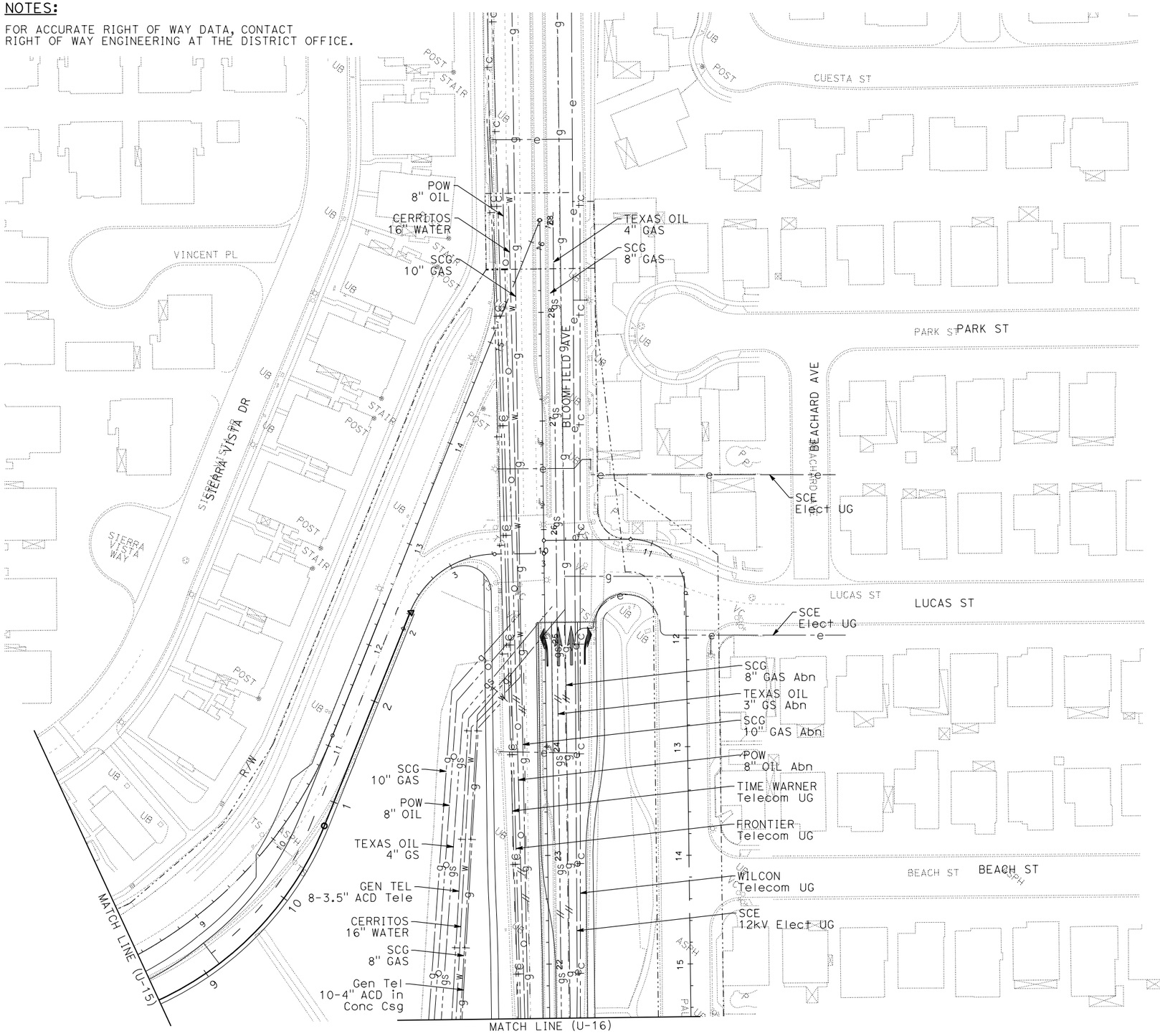

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EXISTING UTILITIES

SCALE: 1" = 100'

U-17

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BORDER LAST REVISED 7/2/2010 | USERNAME => TLim | DGN FILE => U17.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0000 | PROJECT NUMBER & PHASE xx

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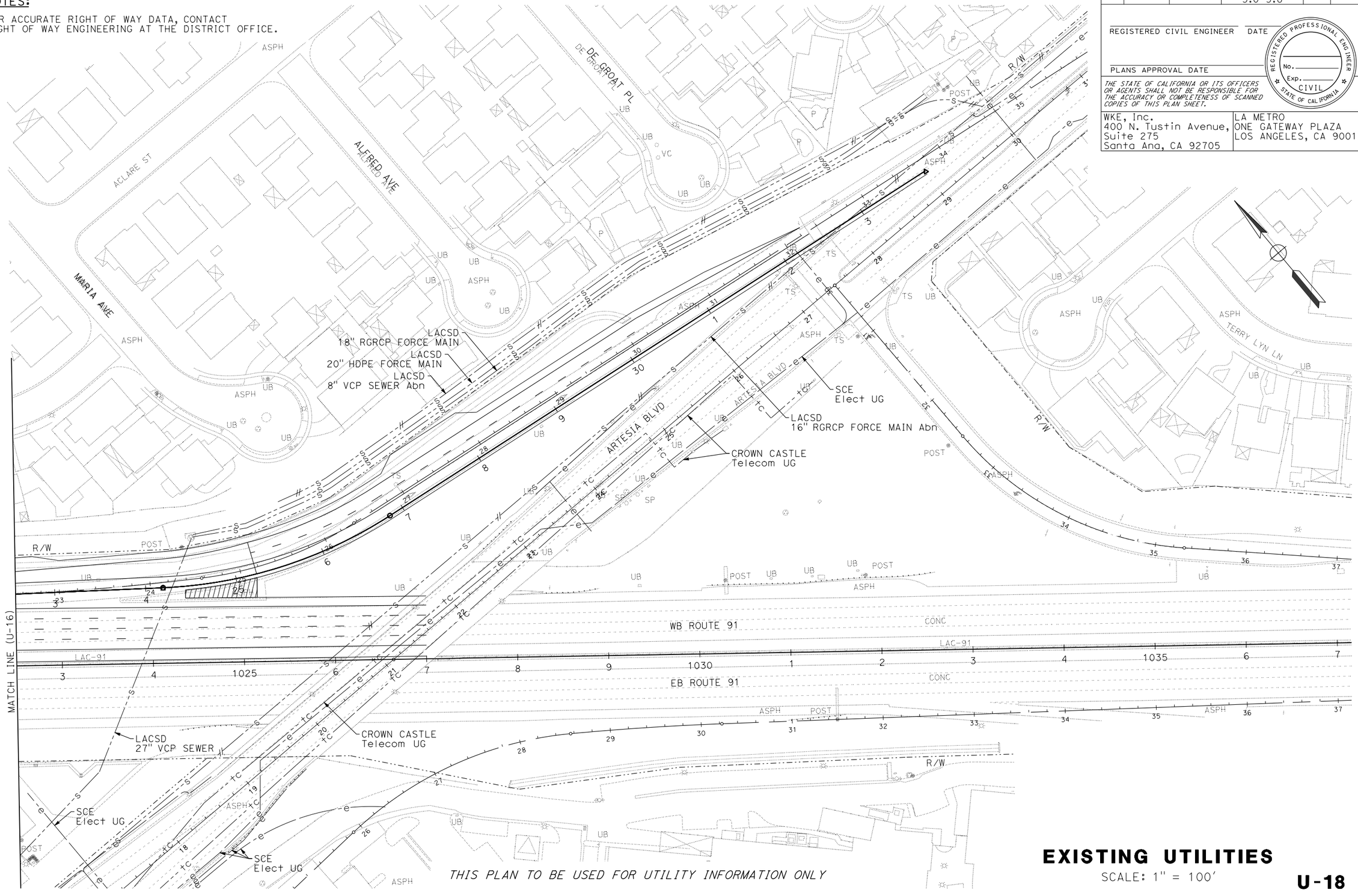

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EXISTING UTILITIES

SCALE: 1" = 100'

U-18

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

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USERNAME => TLim
DGN FILE => U18.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE xx

Attachment M

Risk Register

Project Risk Register

	DIST- EA 07-29811					**Project Name:** WB SR-91 Improvement PAED			**Project Manager:** Tin Dinh						**Date Created:** 01/26/2018	**Last Updated:** 06/01/2018
						Co - Rte - PM: LA-605-5.0/5.8, LA-91-16.9/19.8			**Telephone:** (213) 897-0112								
ITEM	ID #	Status	Threat / Opport-unity	Category	Date Risk Identified	Risk Description	Root Causes	Primary Objective	Overall Risk Rating	Cost/Time Impact Value	Risk Owner	Risk Trigger	Strategy	Response Actions w/ Pros & Cons	Adjusted Cost/Time Impact Value	WBS Item	Status Date and Review Comments
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)
1	07-29811-01	Active	**Threat**	DESIGN	01/26/18	Approval of Mandatory Design Exceptions	Design Requirement	TIME	Probability 2=Low (10-19%) **High** Impact 8 =High		Eric Spangler (949) 855-5780 Eric.Spangler@mbakerintl.com	Mandatory Design Exceptions may be approved by District 7 since they are mostly on SR-91	MITIGATE	Determine if any Mandatory Design Exceptions can be delegated to Caltrans District 7		165 PERFORM ENVIRONMENTAL STUDIES AND PREPARE DRAFT ENVIRONMENTAL DOCUMENT	
2	07-29811-02	Active	**Threat**	DESIGN	01/26/18	Approval of Advisory Design Exceptions	Design Requirement	TIME	Probability 2=Low (10-19%) **Med** Impact 4 =Med		Eric Spangler (949) 855-5780 Eric.Spangler@mbakerintl.com	Caltrans requires updating the current approved Advisory Design Exceptions	MITIGATE	Prepare and approved updated Advisory Design Exceptions		165 PERFORM ENVIRONMENTAL STUDIES AND PREPARE DRAFT ENVIRONMENTAL DOCUMENT	
3	07-29811-03	Active	**Threat**	DESIGN	01/26/18	Changes in Design Criteria	Design Requirement	SCOPE	Probability 3=Med (20-39%) **Low** Impact 4 =Med		Eric Spangler (949) 855-5780 Eric.Spangler@mbakerintl.com	Caltrans releases new Standard Plans / Standard Specifications during design	ACCEPT	Update PS&E as appropriate		230 PREPARE DRAFT PS&E	
4	07-29811-04	Retired	**Threat**	ENV	01/26/18	Approval of Air Quality Conformity	Environmental Requirement	TIME	Probability 3=Med (20-39%) **Med** Impact 3 =Med		King Thomas (949) 553-0666 King.Thomas@lsa.net	2014 RTP is not approved as scheduled	TRANSFER	Track approval of the 2014 RTP		165 PERFORM ENVIRONMENTAL STUDIES AND PREPARE DRAFT ENVIRONMENTAL DOCUMENT	Determined to Not be a project of Air Quality Concern
5	07-29811-05	Active	**Threat**	DESIGN	01/26/18	Mainline Pavement Rehabilitation	Design Performance and Reliability	SCOPE	Probability 3=Med (20-39%) **Med** Impact 4 =Med		Eric Spangler (949) 855-5780 Eric.Spangler@mbakerintl.com	Caltrans requires rehabiliation of the freeway mainline along the proposed widening and/or auxiliary lanes	MITIGATE	Determine cost and benefit of the mainline rehabilitation. Determine schedule of any rehabilitation or widening projects		230 PREPARE DRAFT PS&E	
6	07-29811-06	Active	**Threat**	DESIGN	01/26/18	Special Aesthetic Design	Design / Environmental Requirement	TIME	Probability 3=Med (20-39%) **Med** Impact 4 =Med		Eric Spangler (949) 855-5780 Eric.Spangler@mbakerintl.com	Cities request special / unique aesthetics	ACCEPT	Determine feasibility, cost, availability of special aesthetic features and incorporate into design. Include description in Environmental Document.		165 PERFORM ENVIRONMENTAL STUDIES AND PREPARE DRAFT ENVIRONMENTAL DOCUMENT	
7	07-29811-07	Active	**Threat**	ENV	01/26/18	Regulatory Permitting	Environmental Requirement	SCOPE	Probability 3=Med (20-39%) **Med** Impact 4 =Med		King Thomas (949) 553-0666 King.Thomas@lsa.net	RWQCB, US ACOE, CA Dept of Fish & Game jurisdictions	ACCEPT	Initiate formal application process with each agency		165 PERFORM ENVIRONMENTAL STUDIES AND PREPARE DRAFT ENVIRONMENTAL DOCUMENT	

Approved by:_____
date

Project Risk Register

	DIST- EA 07-29811					Project Name: WB SR-91 Improvement PAED			Project Manager: Tin Dinh						Date Created: 01/26/2018	Last Updated: 06/01/2018
						Co - Rte - PM: LA-605-5.0/5.8, LA-91-16.9/19.8			Telephone: (213) 897-0112							
ITEM	ID #	Status	Threat / Opport-unity	Category	Date Risk Identified	Risk Description	Root Causes	Primary Objective	Overall Risk Rating	Cost/Time Impact Value	Risk Owner	Risk Trigger	Strategy	Response Actions w/ Pros & Cons	Adjusted Cost/Time Impact Value	WBS Item	Status Date and Review Comments
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)
8	07-29811-08	Retired	**Threat**	ENV	01/26/18	Right of Entry for Cultural Resources Data Recovery	Environmental Requirement	TIME	Probability 2=Low (10-19%) **Med** Impact 4 =Med		King Thomas (949) 553-0666 King.Thomas@lsa.net	Property owners do not allow rights of entry for data recovery	MITIGATE	Negotiate with property owners		165 PERFORM ENVIRONMENTAL STUDIES AND PREPARE DRAFT ENVIRONMENTAL DOCUMENT	Cultural Resources Report is completed
9	07-29811-09	Retired	**Threat**	ENV	01/26/18	Unanticipated discoveries during Cultrual Resources data Recovery	Environmental Requirement	TIME	Probability 3=Med (20-39%) **Low** Impact 2 =Low		King Thomas (949) 553-0666 King.Thomas@lsa.net	Find any unanticipated cultural resources	ACCEPT	Treat unanticipated discoveries and adjust schedule		165 PERFORM ENVIRONMENTAL STUDIES AND PREPARE DRAFT ENVIRONMENTAL DOCUMENT	Technical Study did not find any cultural resources in excavation areas
10	07-29811-10	Active	**Threat**	CON	01/26/18	Traffic Staging / Circulation Impacts from nearby project construction	Construction Requirement	TIME	Probability 2=Low (10-19%) **High** Impact 8 =High		Eric Spangler (949) 855-5780 Eric.Spangler@mbakerintl.com	Construction schedules and/or detour routes for other nearby projects create conflict(s)	MITIGATE	Coordinate TMP development and special provisions requirements for nearby Cities, County, Caltrans projects		230 PREPARE DRAFT PS&E	
11	07-29811-11	Active	**Threat**	CON	01/26/18	Project Funding	Construction Requirement	TIME	Probability 2=Low (10-19%) **High** Impact 16 =Very High		Carlos Montez (213) 418-3241 MontezC@metro.net	Funding is limited or becomes unavailable for the project	MITIGATE	Agressively seek funding for the project		265 AWARDED AND APPROVED CONSTRUCTION CONTRACT	
12	07-29811-12	Active	**Threat**	DESIGN	01/26/18	Southern California Edison (SCE) Utility Relocation	Design Requirement	TIME	Probability 3=Med (20-39%) **High** Impact 8 =High		Eric Spangler (949) 855-5780 Eric.Spangler@mbakerintl.com	Design team is made aware of utility agency requirements during utility coordination meetngs	ACCEPT	Hold utility focus meeting to develop consensus on utility relocation requirements (i.e. technical design features, schedule, construction windows, lead times)		255 CIRCULATE, REVIEW AND PREPARE FINAL DISTRICT PS&E PACKAGE	
13	07-29811-13	Active	**Threat**	DESIGN	01/26/18	Advertise, Award, Administer Authority	Design Requirement	TIME	Probability 5=Very High (60-99%) **High** Impact 8 =High		Carlos Montez 2134183241 MontezC@metro.net	Metro is not approved to AAA project	ACCEPT	Adjust schedule to incorporate Caltrans HQ OE reviews and bid process		255 CIRCULATE, REVIEW AND PREPARE FINAL DISTRICT PS&E PACKAGE	
14	07-29811-14	Active	**Threat**	R/W	01/26/18	Right of Way Acquisitions	R/W Requirement	TIME	Probability 2=Low (10-19%) **High** Impact 8 =High		Carlos Montez (213) 418-3241 MontezC@metro.net	Property acquistion would require condemnation	ACCEPT	Negotiate with property owners and adjust schedule		225 OBTAIN RIGHT OF WAY INTERESTS FOR PROJECT RIGHT OF WAY CERTIFICATION	

Approved by:_____
date

Project Risk Register

	DIST- EA 07-29811	Project Name: WB SR-91 Improvement PAED	Project Manager: Tin Dinh		Date Created: 01/26/2018	Last Updated: 06/01/2018
		Co - Rte - PM: LA-605-5.0/5.8, LA-91-16.9/19.8	Telephone: (213) 897-0112			

ITEM	ID #	Status	Threat / Opport-unity	Category	Date Risk Identified	Risk Description	Root Causes	Primary Objective	Overall Risk Rating	Cost/Time Impact Value	Risk Owner	Risk Trigger	Strategy	Response Actions w/ Pros & Cons	Adjusted Cost/Time Impact Value	WBS Item	Status Date and Review Comments
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)
15	07-29811-15	Active	**Threat**	ENV	01/26/18	Cultural Discovery during Geotechnical Investigations	Environmental Requirement	TIME	Probability 2=Low (10-19%) **Low** Impact 2 =Low		King Thomas 9495530666 King.Thomas@lsa.net	Unanticipated cultural discoveries during geotechnical investigations	MITIGATE	Follow guidelines within approved data recovery plan for unanticipated discoveries. Describe in Environmental Document		165 PERFORM ENVIRONMENTAL STUDIES AND PREPARE DRAFT ENVIRONMENTAL DOCUMENT	Tech Study did not find any cultural resources in planned excavation areas
16	07-29811-16	Retired	**Threat**	DESIGN	01/26/18	Discovery of hazardous Aerially Deposited Lead (ADL)	Design Requirement	COST	Probability 3=Med (20-39%) **High** Impact 8 =High		King Thomas (949) 553-0666 King.Thomas@lsa.net	ADL Type Y and Z material is discovered	MITIGATE	Identify locations within State R/W for burial sites or haul offsite		230 PREPARE DRAFT PS&E	ADL has been determined to be present onsite
17	07-29811-17	Active	**Threat**	DESIGN	01/26/18	Discovery of hazardous materials on acquisition parcels	Construction Requirement	TIME	Probability 3=Med (20-39%) **High** Impact 8 =High		Carlos Montez (213) 418-3241 MontezC@metro.net	Hazardous material is discovered	MITIGATE	Identify and implement hazardous materials removal plan		235 MITIGATE ENVIRONMENTAL IMPACTS AND CLEAN UP HAZARDOUS WASTE	
18	07-29811-18	Active	**Threat**	DESIGN	01/26/18	Ramp Geometry Options	Design Requirement	TIME	Probability 4=High (40-59%) **High** Impact 16 =Very High		Eric Spangler (949) 855-5780 Eric.Spangler@mbakerintl.com	The City of Artesia requests an additional deign option	ACCEPT	Negotiate with the City of Artesia to finalize ramp geometry option selection		185 PREPARE BASE MAPS AND PLAN SHEETS	
19	07-29811-19	Active	**Threat**	DESIGN	01/26/18	Bridge Construction Staging	Construction Requirement	TIME	Probability 4=High (40-59%) **High** Impact 4 =Med		Eric Spangler 9498555780 Eric.Spangler@mbakerintl.com	Caltrans requires approval of non-standard lanes and shoulders width on SR-91 during bridge construction	MITIGATE	Determine if the impact of 2-stage bridge construction plan on SR-91 is approved by Caltrans		270 CONSTRUCTION ENGINEERING AND GENERAL CONTRACT ADMINISTRATION	
20	07-29811-20	Active	**Threat**	R/W	01/26/18	Right of Way Acquisitions	R/W Requirement	TIME	Probability 4=High (40-59%) **High** Impact 8 =High		Carlos Montez (213) 418-3241 MontezC@metro.net	Public's preferance of Standard or Non-standard lane and shoulder widths option	MITIGATE	Negotiate with property owners and adjust schedule		225 OBTAIN RIGHT OF WAY INTERESTS FOR PROJECT RIGHT OF WAY CERTIFICATION	
21	07-29811-21	Active	**Threat**	ENV	01/26/18	Initial Site Assessment (ISA)	Environmental Requirement	TIME	Probability 4=High (40-59%) **High** Impact 16 =Very High		Dale Schneeberger (562) 404-1113 dales@sanberg.com	ISA approval is delayed	MITIGATE	ISA to be approval by 05/11/2018		165 PERFORM ENVIRONMENTAL STUDIES AND PREPARE DRAFT ENVIRONMENTAL DOCUMENT	

Approved by:_____
date

Project Risk Register

	DIST- EA 07-29811					Project Name: WB SR-91 Improvement PAED			Project Manager: Tin Dinh							Date Created: 01/26/2018	Last Updated: 06/01/2018
						Co - Rte - PM: LA-605-5.0/5.8, LA-91-16.9/19.8			Telephone: (213) 897-0112								
ITEM	ID #	Status	Threat / Opport-unity	Category	Date Risk Identified	Risk Description	Root Causes	Primary Objective	Overall Risk Rating	Cost/Time Impact Value	Risk Owner	Risk Trigger	Strategy	Response Actions w/ Pros & Cons	Adjusted Cost/Time Impact Value	WBS Item	Status Date and Review Comments
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)
22	07-29811-22	Active	**Threat**	ENV	01/26/18	Determine if new Soundwall is needed	Design Requirement	TIME	Probability 4=High (40-59%) **High** Impact 4 =Med		King Thomas (949) 553-0666 King.Thomas@lsa.net	Soundwall is required alonge SR-91 EB at Aria and Sage Apartment	ACCEPT	Negotiate with the apartment owners and Caltrans		165 PERFORM ENVIRONMENTAL STUDIES AND PREPARE DRAFT ENVIRONMENTAL DOCUMENT	

Approved by:_____
date

Attachment N

Design Standards Decision Document

Alternative 2 – Design Options 1 & 3

(Reduced Lane/Shoulder Width & WB Ramps/168th St Alignment)

(Submitted Under a Separate Cover)