INFRASTRUCTURE ENGINEERS

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October 2, 2020

Mr. Cesar Roldan
City of Huntington Park
6550 Miles Avenue
Huntington Park, CA 90255

DRAFT

Subject: **Slauson Marketplace Hydrology and Hydraulic Analysis**

Dear Mr. Roldan,

Infrastructure Engineers (IE) is pleased to provide this Hydrology and Hydraulic Analysis calculation pursuant to a request from the City of Huntington Park. This letter documents the findings of our investigation as well as the conclusions and recommendations.

THE PROJECT:

The Slauson Marketplace is the site for a new Target Store. The developer is the DLR Group which filed an application for a Development Permit and a Conditional Use Permit with the city of Huntington Park. The project resided on four parcels consisting of 5.5 acres in land area (2901-2909 East Slauson Avenue and 5731-5795 Bickett Street). These four parcels are located at the northwest corner of Slauson Avenue and Bickett Street in the City of Huntington Park, California.

The work entails the following tasks:

1. Demolition of 2 buildings, 36,723 SF
2. Remodel/renovation of one building for a new retail tenant, 55,891 SF
3. Development of two new retail pads, 8,050 SF
4. Development of 263 parking spaces
5. Development of four vehicular accesses (two at Slauson and two at Bickett Street)

The above retail space will occupy 26% of the project site.

The project's design will improve the LID (Low Impact Development) impacts (stormwater runoff) due to enhancements in the site's layout of buildings, parking with landscaping and aesthetic landscaping throughout the site. The site design creates a large pervious landscaped are which enhances rainfall capture and infiltration, thus enhancing its LID impact on the neighborhood. Below is a tabulation of the site's pre and post development pervious/impervious calculations.

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TABLE 1

Pervious & Impervious Area Calculations

Item No.	Description	Pre-Development Areas Pervious Area, SF	Pre-Development Areas Impervious Area, SF		Post-Development Areas Pervious Area, SF	Post-Development Areas Impervious Area, SF
1	Existing Buildings, 2		36,723.00			
2	Existing Building		48,891.00			
3	Existing Landscaping		-			
4	Parking & hardscape		154,009.00			
5	New retail addition					7,000.00
6	New retail building					4,950.00
7	New retail building					3,100.00
8	New Parking Area					134,971.00
9	Proposed Flatwork					63,590.00
10	Proposed Landscaping				5,000.00	
11	Proposed Landscaping				21,012.00	
	Totals	**-**	**239,623.00**		**26,012.00**	**213,611.00**
	Ratio	**0.0%**	**100.0%**		**11%**	**89.1%**

Coverage Summary

Pre-Development Pervious	Pre-Development Impervious	Post-Development Pervious	Post-Development Impervious	Net Change Pervious	Net Change Impervious
-	239,623.00	26,012.00	213,611.00	26,012.00	-11%

Taking the above into consideration and unto the next step, which is to compute the runoff and volume created by each development stage to compare and identify any impacts that may need mitigation.

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With the information above, including the South Gate 50-year 24-hour ISOHYET map (Attachment 1), rainfall rates, soil classification was used to determine the hydrologic conditions of the site which are listed below in Table 2, "Design Criteria".

TABLE 2: Hydrologic Design Criteria

Design Criteria:		
50-Year Depth	5.6	Inches/hr
25-Year Depth	4.9	Inches/hr
Pervious Pre-Development	0.0	%
Pervious Post-Development	11.0	%
Soil Type:	6	

Table 3 Below identifies the flow rate (Q) and the 24-hr clear runoff volume for a 25 & 50-year design storm frequency for each condition of development, e.g., Pre-Development and Post-Development. The results are predictably good due to the enhanced design ideas incorporated into the Marketplace project. As a consequence, resulting from good design, the hydrologic

TABLE 3: Flow Rate and Runoff Volume for Pre & Post Development Site Conditions

Condition	Rainfall Event	Rainfall Rate	Runoff	Runoff Volume
Pre-Development	25 year	5.5 inches/hour	11.02 cfs	87,617 cu-ft
Pre-Development	50 year	5.5 inches/hour	13.26 cfs	99,792 cu-ft
Post-Development	25 year	5.5 inches/hour	10.82 cfs	80,029 cu-ft
Post-Development	50 year	5.5 inches/hour	13.10 cfs	91,338 cu-ft

If any LID or other hydrologic or hydraulic impacts had been identified, then mitigations would have been studies and imposed on the project. However, this project will be following the proposed improvements which include the landscaping identified in the project's plans.

This report will be used to address any CEQA impacts related to drainage issues associated with this project. As such, the impacts are non-existent hydrologically.

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Should you have any questions or comments, please do not hesitate to contact me by phone at (714) 940-0100 x 5049, or email at nservin@infengr.com.

Sincerely,

Infrastructure Engineers

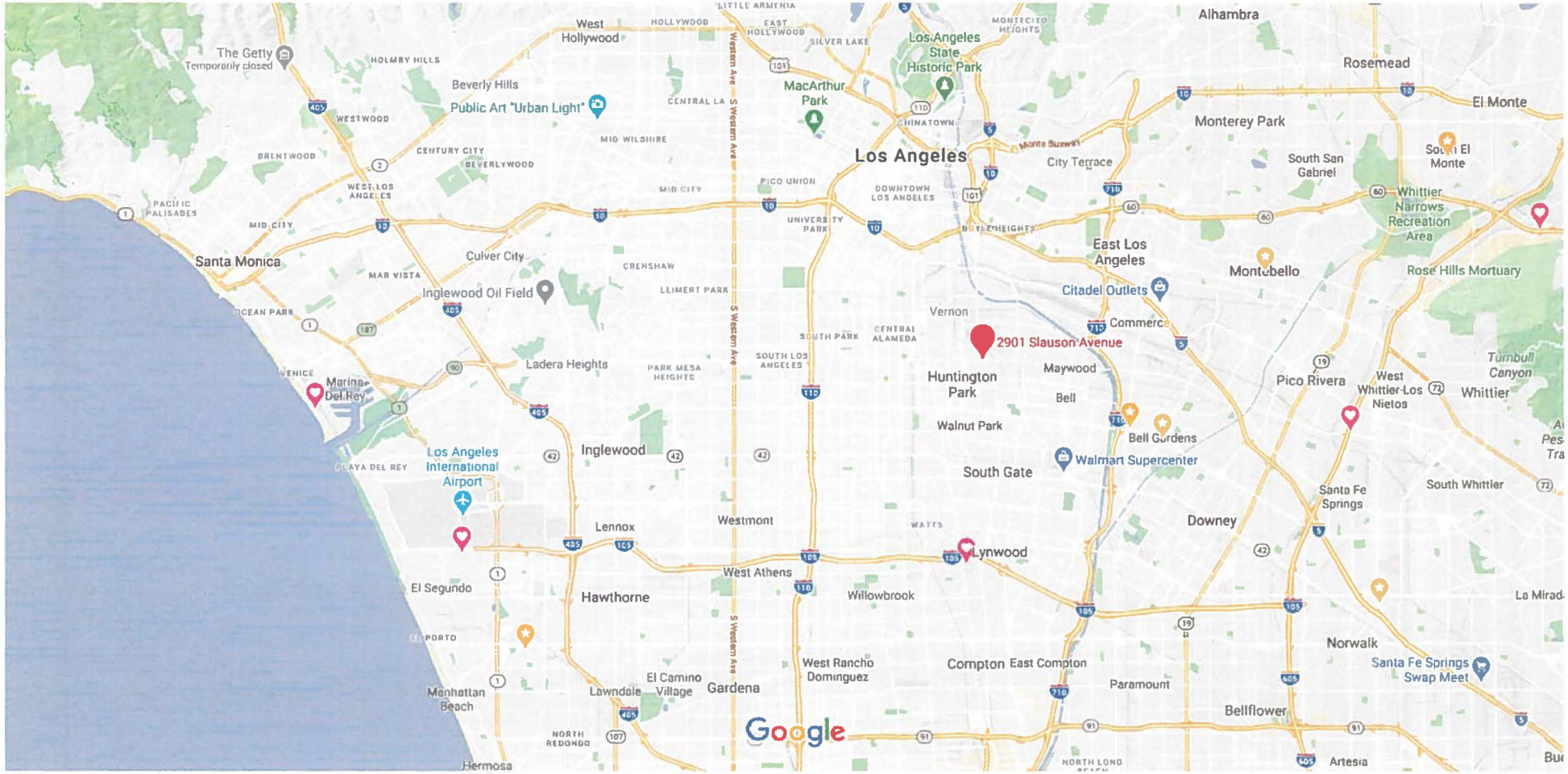
Nick Servin, P.E
Principal Engineer

Attachments: Vicinity Maps
50-year 24-hour ISOHYET for South Gate Quadrangle
Assessor's Map
Pervious/Impervious Calculations
HydroCalc Results

Google Maps

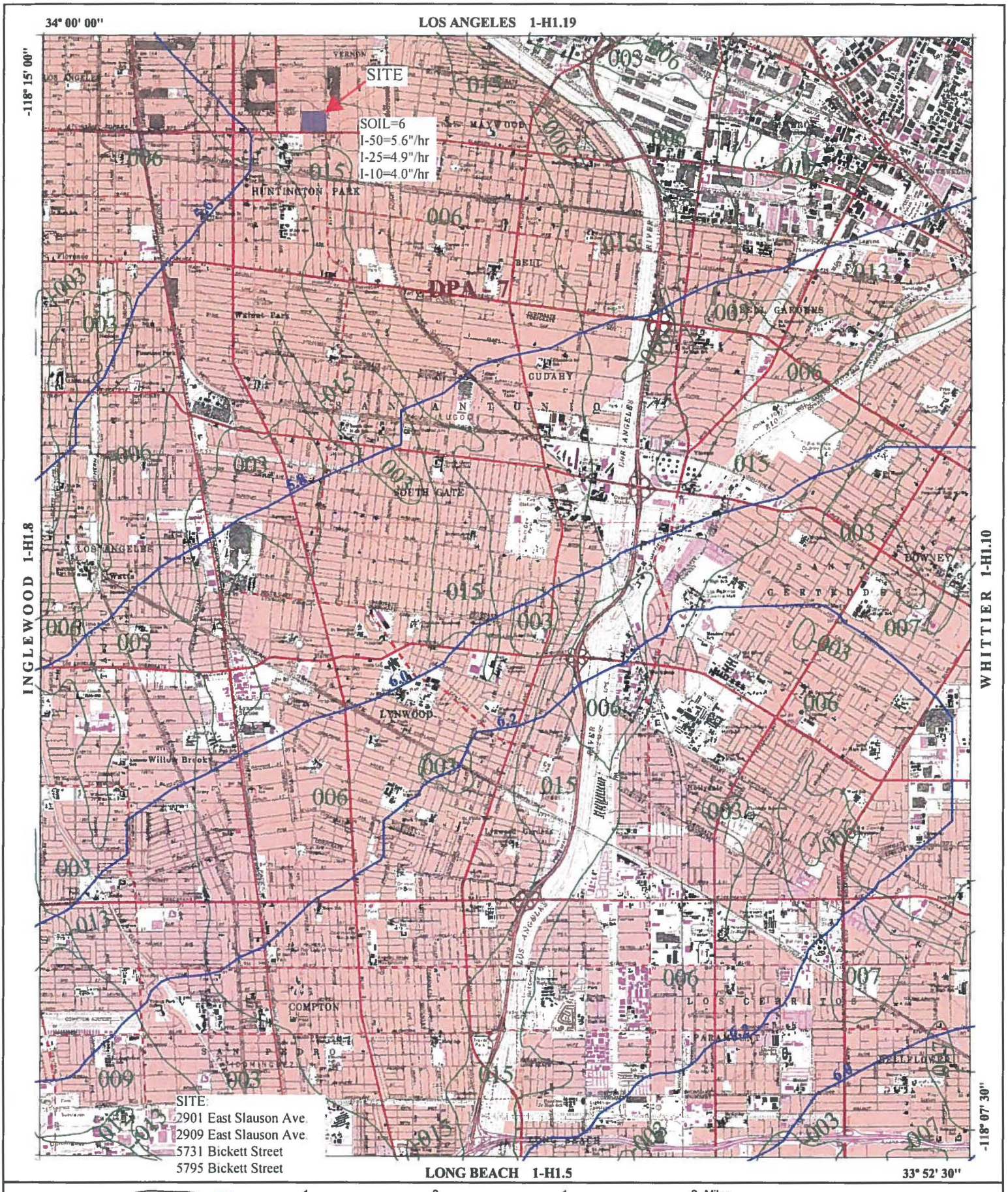
2901 Slauson Ave

Slauson Marketplace - Target Store



Map data ©2020 Google 2 km

Google Maps 2901 Slauson Ave



016 SOIL CLASSIFICATION AREA

7.2 INCHES OF RAINFALL

DPA - 6 DEBRIS POTENTIAL AREA

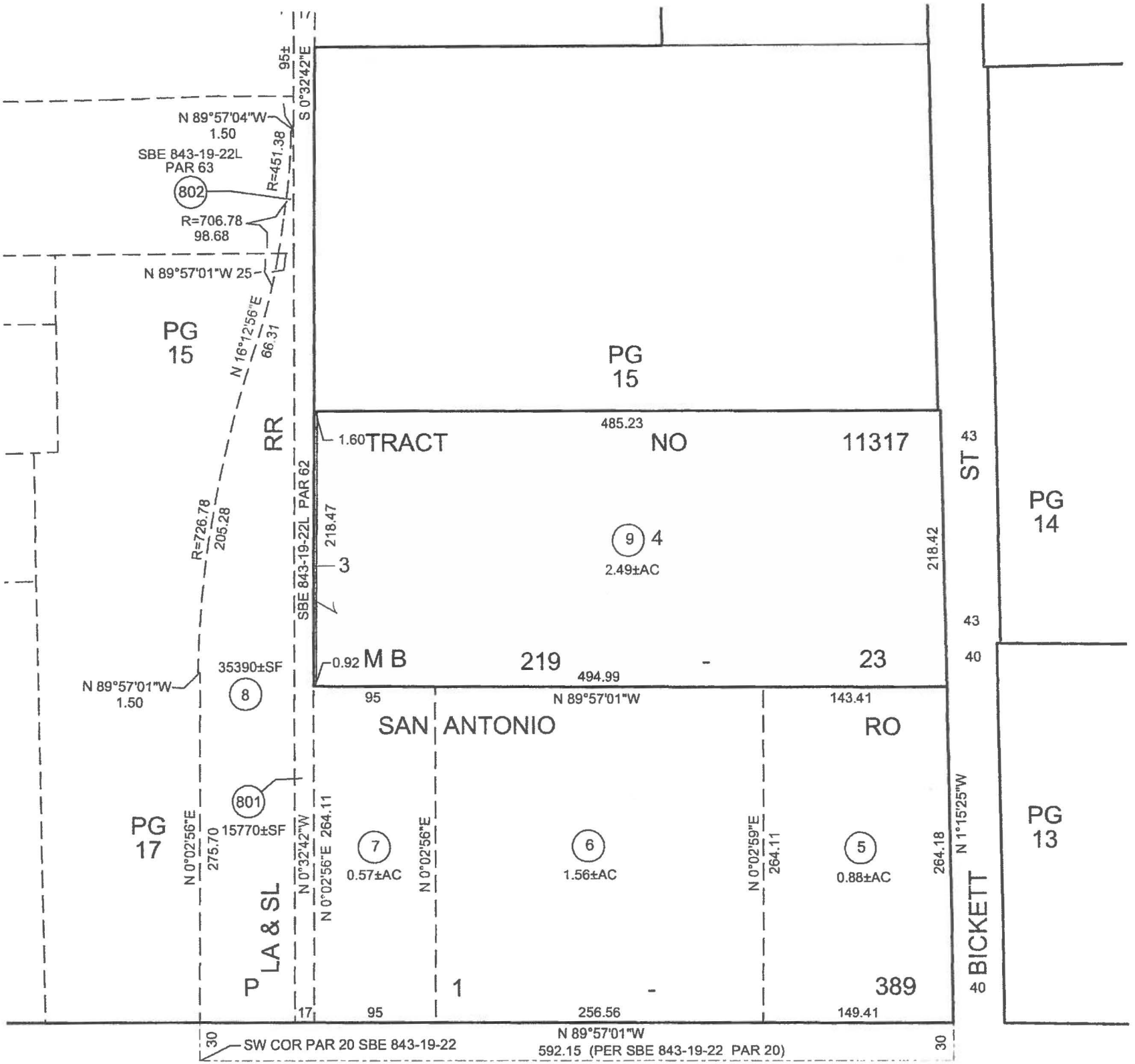
1 0 1 2 Miles

25-YEAR 24-HOUR ISOHYET REDUCTION FACTOR: 0.878
10-YEAR 24-HOUR ISOHYET REDUCTION FACTOR: 0.714

SOUTH GATE
50-YEAR 24-HOUR ISOHYET

1-H1.9

LOS ANGELES COUNTY PUBLIC WORKS
Public Service That Works


95±
S 0°32'42"E
N 89°57'04"W
1.50
SBE 843-19-22L
PAR 63
802
R=451.38
R=706.78
98.68
N 89°57'01"W 25
N 16°12'56"E
66.31
PG
15
PG
15
485.23
1.60 TRACT NO 11317
RR
ST
43
R=726.78
205.28
SBE 843-19-22L PAR 62
218.47
3
9
4
2.49±AC
218.42
PG
14
43
35390±SF
0.92 M B 219 - 23
494.99
40
N 89°57'01"W
1.50
8
95
N 89°57'01"W
143.41
SAN ANTONIO RO
801
PG
17
15770±SF
N 0°02'56"E
275.70
N 0°32'42"W
N 0°02'56"E 264.11
7
0.57±AC
N 0°02'56"E
6
1.56±AC
N 0°02'59"E
264.11
5
0.88±AC
264.18
N 1°15'25"W
PG
13
P LA & SL
1
-
389
BICKETT
40
17
95
256.56
149.41
30
SW COR PAR 20 SBE 843-19-22
N 89°57'01"W
592.15 (PER SBE 843-19-22 PAR 20)
30

Peak Flow Hydrologic Analysis

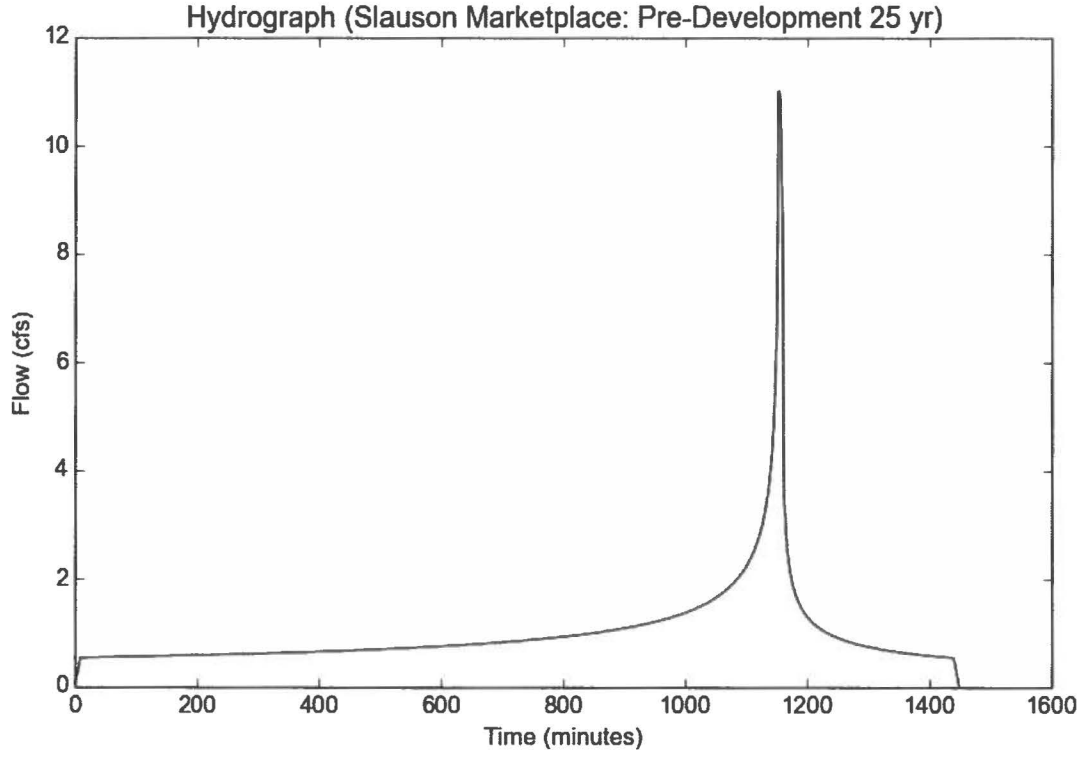
File location: Q:/Huntington Park/6900_30-Initial Study for Target Development on Slauson/Engineering/Reports/Hydro/Slauson Marketplace - Pre-De
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Slauson Marketplace
Subarea ID	Pre-Development 25 yr
Area (ac)	5.5
Flow Path Length (ft)	690.0
Flow Path Slope (vft/hft)	0.015
50-yr Rainfall Depth (in)	5.6
Percent Impervious	1.0
Soil Type	6
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	4.9168
Peak Intensity (in/hr)	2.2254
Undeveloped Runoff Coefficient (Cu)	0.757
Developed Runoff Coefficient (Cd)	0.9
Time of Concentration (min)	9.0
Clear Peak Flow Rate (cfs)	11.0157
Burned Peak Flow Rate (cfs)	11.0157
24-Hr Clear Runoff Volume (ac-ft)	2.0114
24-Hr Clear Runoff Volume (cu-ft)	87617.4653



Peak Flow Hydrologic Analysis

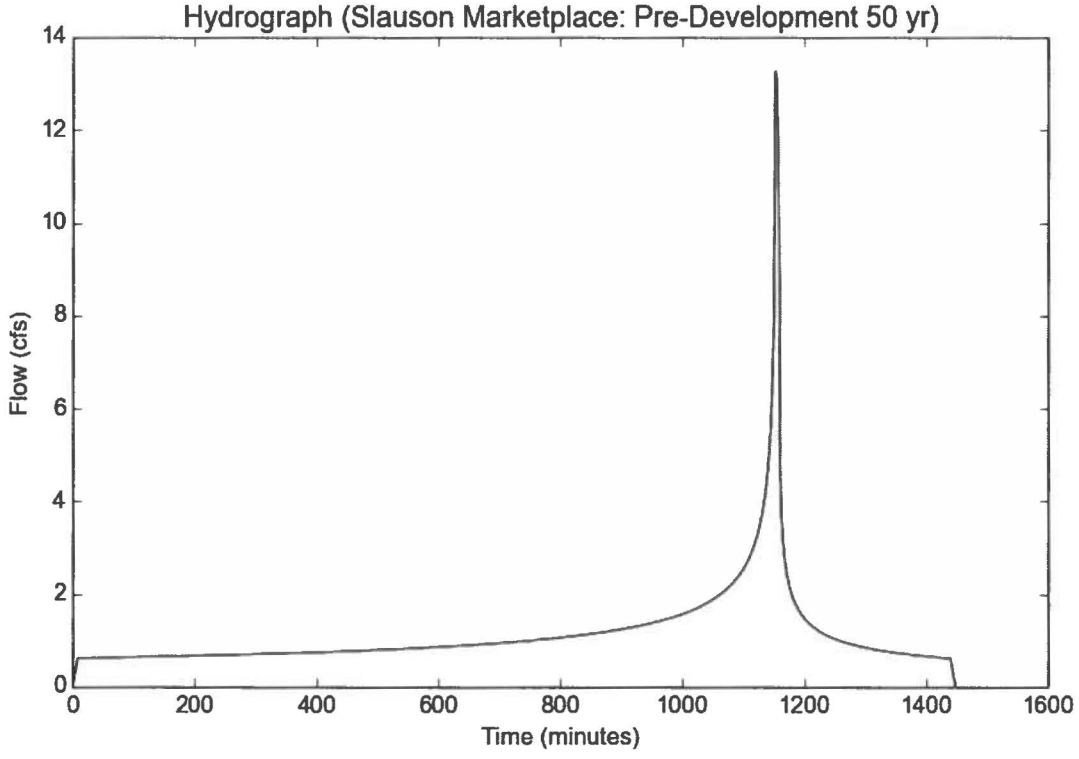
File location: Q:/Huntington Park/6900_30-Initial Study for Target Development on Slauson/Engineering/Reports/Hydro/Slauson Marketplace - Pre-De
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Slauson Marketplace
Subarea ID	Pre-Development 50 yr
Area (ac)	5.5
Flow Path Length (ft)	690.0
Flow Path Slope (vft/hft)	0.015
50-yr Rainfall Depth (in)	5.6
Percent Impervious	1.0
Soil Type	6
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.6
Peak Intensity (in/hr)	2.6789
Undeveloped Runoff Coefficient (Cu)	0.7997
Developed Runoff Coefficient (Cd)	0.9
Time of Concentration (min)	8.0
Clear Peak Flow Rate (cfs)	13.2605
Burned Peak Flow Rate (cfs)	13.2605
24-Hr Clear Runoff Volume (ac-ft)	2.2909
24-Hr Clear Runoff Volume (cu-ft)	99792.0803



Peak Flow Hydrologic Analysis

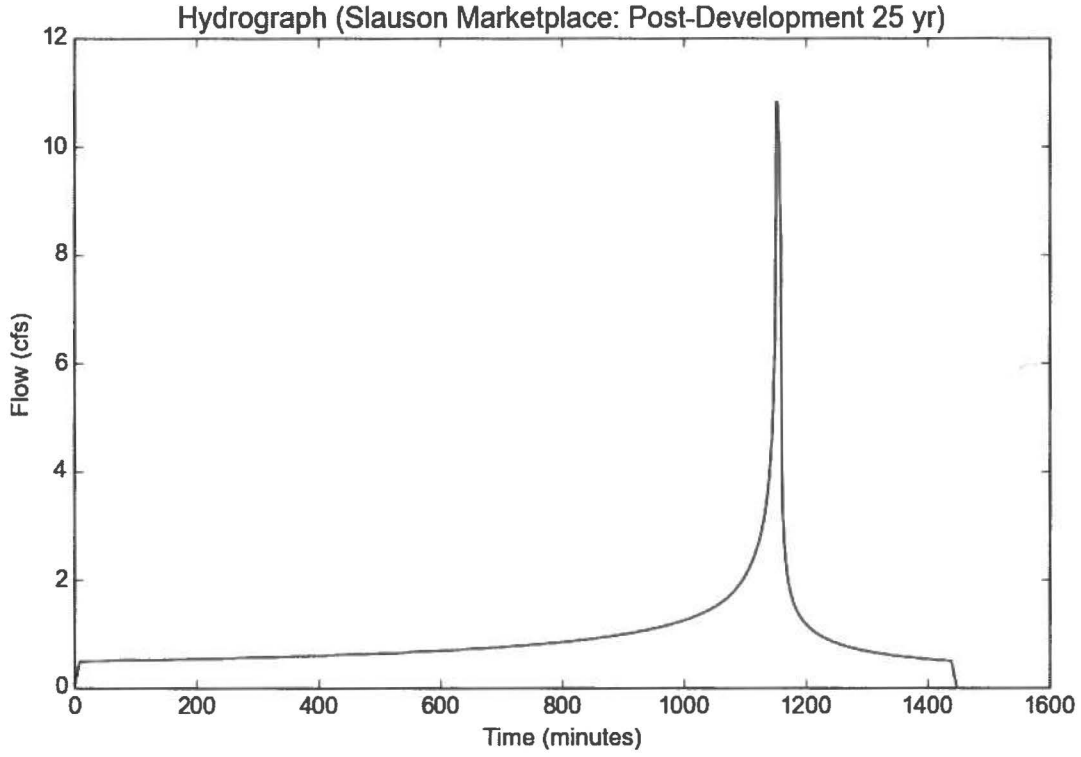
File location: Q:/Huntington Park/6900_30-Initial Study for Target Development on Slauson/Engineering/Reports/Hydro/Slauson Marketplace - Post-D
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Slauson Marketplace
Subarea ID	Post-Development 25 yr
Area (ac)	5.5
Flow Path Length (ft)	690.0
Flow Path Slope (vft/hft)	0.015
50-yr Rainfall Depth (in)	5.6
Percent Impervious	0.89
Soil Type	6
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	4.9168
Peak Intensity (in/hr)	2.2254
Undeveloped Runoff Coefficient (Cu)	0.757
Developed Runoff Coefficient (Cd)	0.8843
Time of Concentration (min)	9.0
Clear Peak Flow Rate (cfs)	10.8232
Burned Peak Flow Rate (cfs)	10.8232
24-Hr Clear Runoff Volume (ac-ft)	1.8372
24-Hr Clear Runoff Volume (cu-ft)	80028.9614



Peak Flow Hydrologic Analysis

File location: Q:/Huntington Park/6900_30-Initial Study for Target Development on Slauson/Engineering/Reports/Hydro/Slauson Marketplace - Post-D
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Slauson Marketplace
Subarea ID	Post-Development 50 yr
Area (ac)	5.5
Flow Path Length (ft)	690.0
Flow Path Slope (vft/hft)	0.015
50-yr Rainfall Depth (in)	5.6
Percent Impervious	0.89
Soil Type	6
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.6
Peak Intensity (in/hr)	2.6789
Undeveloped Runoff Coefficient (Cu)	0.7997
Developed Runoff Coefficient (Cd)	0.889
Time of Concentration (min)	8.0
Clear Peak Flow Rate (cfs)	13.098
Burned Peak Flow Rate (cfs)	13.098
24-Hr Clear Runoff Volume (ac-ft)	2.0968
24-Hr Clear Runoff Volume (cu-ft)	91337.7427