HYDROLOGY AND HYDRAULIC ANALYSIS

For:

CHICK-FIL-A RESTAURANT # 4098
3342 Santa Anita Avenue
City of El Monte, County of Los Angeles, California 90746

Prepared for:

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1.0 DISCUSSION

1.1 PURPOSE

This drainage study provides an analysis of the existing and proposed hydrology characteristics for the improvements of the project site at Santa Anita and Brockway, City of El Monte, County of Los Angeles.

1.2 EXISTING SITE CONDITION

The project site is located at the 3342 Santa Anita Avenue on the northeast corner of the intersection of Santa Anita and Brockway in the city of El Monte. In the existing condition the site is a vacant lot that is paved with AC pavement. The site is bound on the north by an apartment complex, Santa Anita drive to the west, Brockway St to the south, and single-family houses to the east. The existing drainage condition has a ridgeline that runs roughly east-west through the parking lot that separates drainage to sheet flow north-south. The drainage from the parking lot will sheet flow west until it reaches a v-gutter and then discharge into the public R/W or it is captured by a catch basin. These catch basins appear to discharge into the public R/W through various curb face drains on Brockway St and Santa Anita Ave. Once runoff has entered the curb & gutter in both Santa Anita and Brockway St, it is conveyed by the curb & gutter to a catch basin on Brockway St that is approximately 60' east of the curb ramp at the intersection of Santa Anita and Brockway St and a catch basin on Santa Anita Ave. that is approximately 40' north of the same curb ramp. Finally, the runoff is conveyed from the catch basin to the municipal storm drain system. See Hydrology Plan – Existing Condition.

1.3 PROPOSED SITE CONDITION

The proposed improvements for this site include complete demolition of existing improvements and site preparation for a single-story Chick-fil-A restaurant (4,851 sf) with a drive-thru (9,137 sf). Other planned impervious improvements include : a trash enclosure, sidewalks, a patio, and a parking field, for a total area of 41,563 sf. Associated parking will be constructed and paved with AC pavement, the drive-thru will be paved with PCC. The proposed building will be located at the southern portion of the site. The proposed grading will maintain the existing topography as best as possible. Runoff from Sub-area A, B, C, D, E, F & G will be collected into proposed catch basins on-site and will be routed via storm drainpipes and conveyed to an underground infiltration system to infiltrate the SWQDv. The underground infiltration system is located in the drive-aisle north of the proposed building. After the underground infiltration system has reached

capacity, runoff will begin to fill up the pipes upstream of the system until it reaches the overflow pipe connected to the catch basin at node 401. The overflow pipe will connect into the back of the existing public catch basin along Santa Anita Avenue. The proposed grading will create a slope in the proposed landscaped area around the drive-thru where runoff from the landscaped area will enter the public R/W directly at the back of sidewalk.

1.4 METHODOLOGY

The total runoff from the site will be computed using the information given by the L.A.C.D.P.W. (Los Angeles County Department of Public Works) Hydrology Manual, related to Soil Classification and 10-Year and 25-Year 24-Hour Isohyet for existing and proposed conditions. The project site is located near rainfall isohyet 6.3 in. and soil type of 06 per 1-H1.20 El Monte, 50-year 24-HOUR ISOHYET MAP (See Appendix A in the Hydrology and Hydraulics report). Calculating the 10 and 25-year storm event is consistent with County standards for the design of storm drain facilities with a flow-by condition. Nodes have been placed for the initial areas and other locations in which drainage either exits or enters the flow path. See existing and proposed hydrology map in this report.

A preliminary calculation of the 85th Percentile Rainfall Depth will provide a preliminary review of the feasibility of the Best Management Practice (BMP's). The proposed BMP shall consist of fossil filters as pretreatment then store the design storm volume in and underground storage system where the bottom of the storage system will have an open bottom to allow for infiltration of the storm water for treatment.

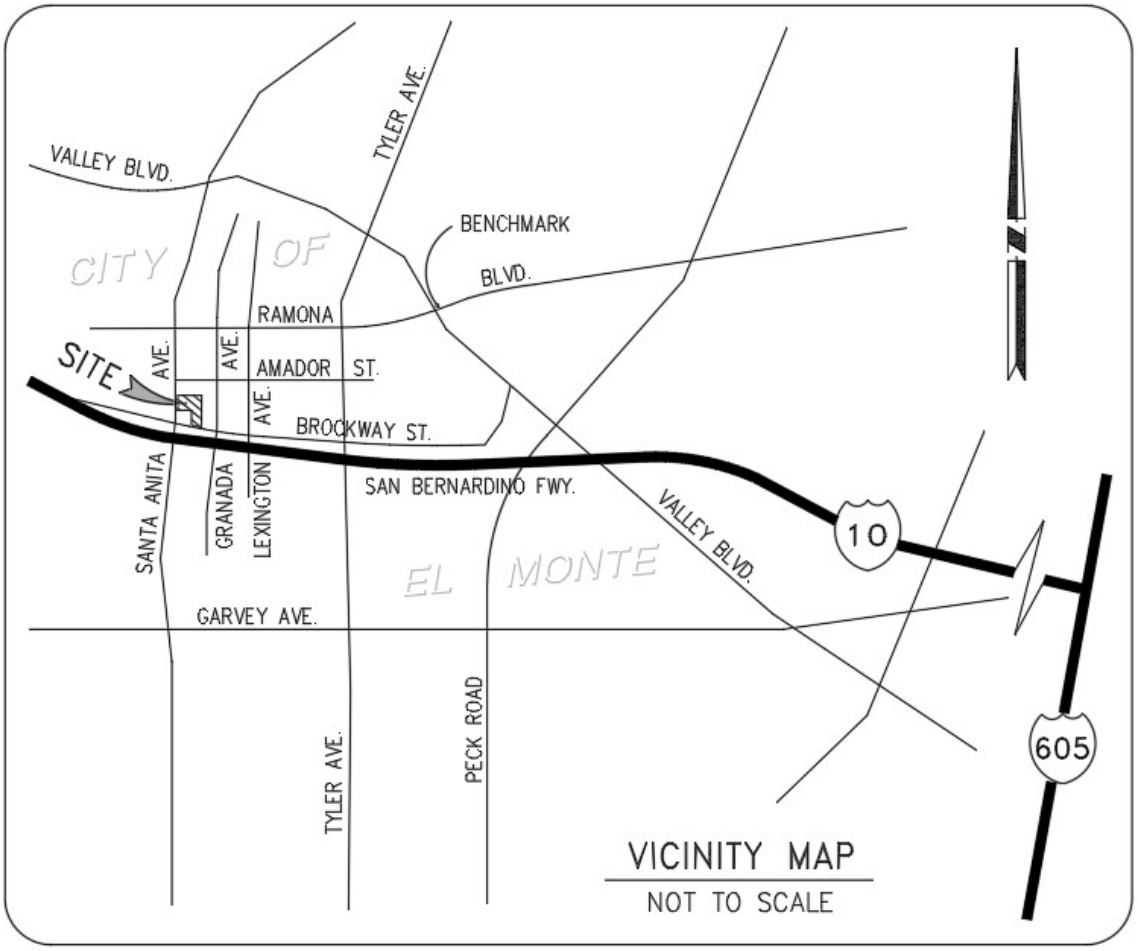
1.5 SUMMARY AND CONCLUSION

The proposed development will not substantially alter the existing drainage pattern and the onsite drainage will be conveyed by local gutters and pipes that ultimately convey the runoff to an underground storage system. Fossil Filter Inserts will be placed in all grated inlet catch basins for pretreatment prior to entering the underground storage system. Once the underground storage system has reached its capacity the collected runoff will start to backup into the private storm drain system until it reaches the overflow pipe which will discharge into the existing public catch basin located in Santa Anita Avenue. The hydrology analysis described in this report shows that there will be a reduction in storm water discharge leaving the site. This can be attributed to the increase in landscaped (pervious) area in the proposed condition.

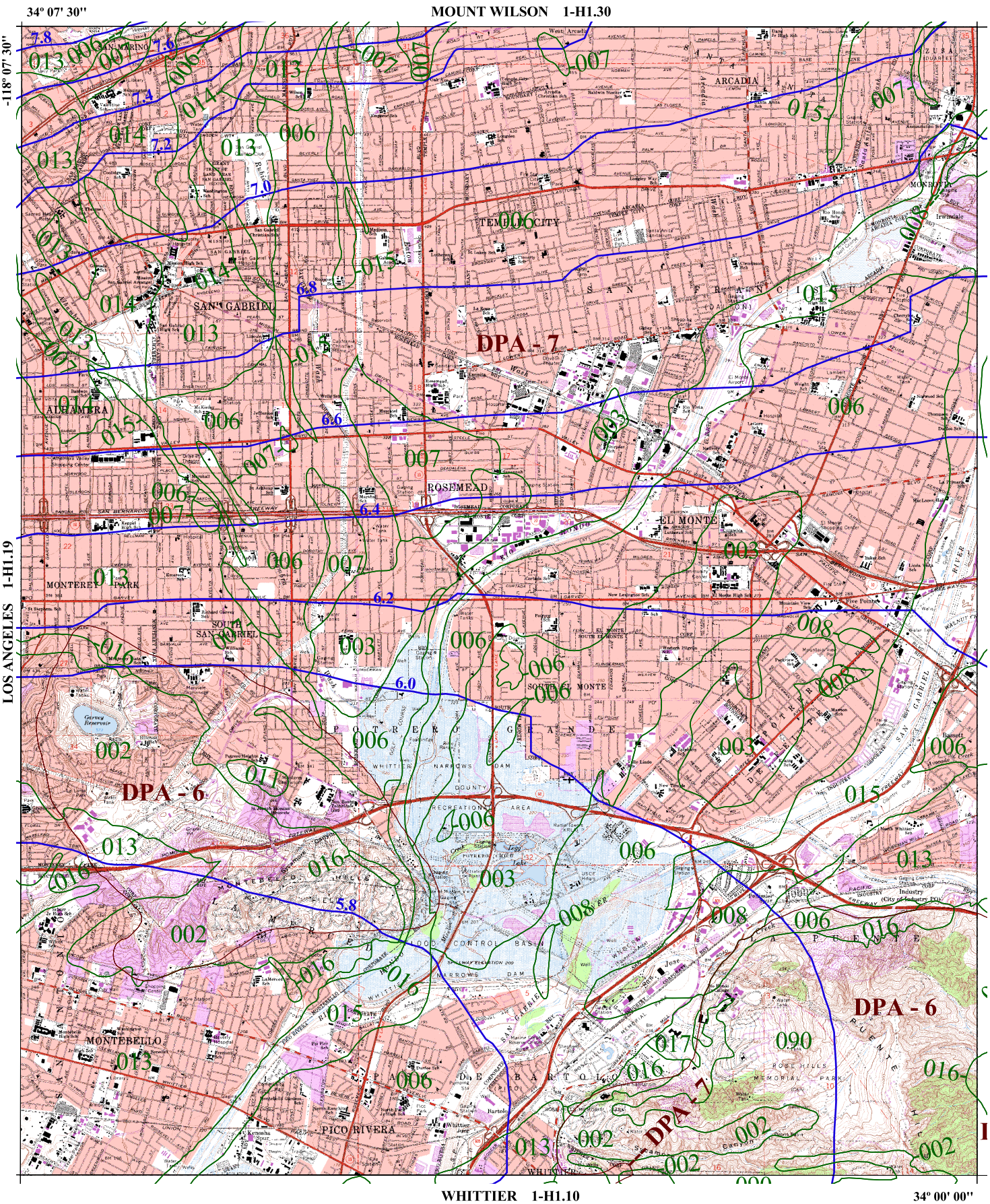
TOTAL SITE DISCHARGE

STORM EVENT (YEAR)	EXISTING CONDITION (cfs)	PROPOSED CONDITION (cfs)
10	4.19	4.30
25	5.43	5.44

1.6 VICINITY MAP



1.7 50 YEAR 24-HOUR ISOHYETAL MAP



N
W E
S

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

EL MONTE
50-YEAR 24-HOUR ISOHYET

1-H1.20

LOS ANGELES COUNTY PUBLIC WORKS Public Service That Works

1.8 WATERSHED MAP

COUNTY OF LOS ANGELES

LOS ANGELES RIVER WATERSHED

Los Angeles River Watershed

PACIFIC OCEAN

ORANGE

MILES
0 1 2 4

LEGEND

- LOS ANGELES RIVER WATERSHED
- UNINCORPORATED AREA
- DAM / LAKE / RESERVOIR
- MAJOR RIVER
- MAJOR CHANNEL

Data contained in this map is produced in whole or part from the Los Angeles County Department of Public Works' digital database.

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Mapping & Property Management Division, Mapping & GIS Services Section

2.0 HYDROLOGY ANALYSIS (EXISTING AND PROPOSED)

2.1 HYDROLOGY ANALYSIS (EXISTING CONDITION)

The time of concentration was computed using the HydroCalc program from LACDPW.

$$Tc = 10^{-0.507}\left(C_D I_X\right)^{-0.519} L^{0.483} s^{-0.135}$$

$C_D = (0.9 \times Imp) + [(1.0 - Imp) \times C_u)]$ If $C_D < C_u$, use $C_D = C_u$

The discharge Q was computed using the Rational Formula.

Sub-area A Node 100 to Node 101

Area = 0.568 acres
L = 268 ft. S = 0.01

Using the HydroCalc from LACDPW, the following values were found:

Q_{10} = 1.25 cfs.	Q_{25} = 1.68 cfs
Tc = 6 min.	Tc = 5 min.
I = 2.46 in/hr.	I = 3.30 in/hr

Sub-area B Node 200 to Node 201

Area = 0.431 acres
L = 276 ft. S = 0.011

Using the HydroCalc from LACDPW, the following values were found:

Q_{10} = 0.94 cfs.	Q_{25} = 1.27 cfs
Tc = 6 min.	Tc = 5 min.
I = 2.46 in/hr.	I = 3.30 in/hr

Sub-area C Node 300 to Node 301

Area = 0.248 acres
L = 179 ft. S = 0.0166

Using the HydroCalc from LACDPW, the following values were found:

Q_{10} = 0.59 cfs.	Q_{25} = 0.73 cfs
Tc = 5 min.	Tc = 5 min.
I = 2.68 in/hr.	I = 3.30 in/hr

Sub-area D Node 400 to Node 401

Area = 0.597 acres
L = 261 ft. S = 0.0125

Using the HydroCalc from LACDPW, the following values were found:

Q_{10} = 1.41 cfs.	Q_{25} = 1.75 cfs
Tc = 5 min.	Tc = 5 min.
I = 2.68 in/hr.	I = 3.30 in/hr

Total Site Area

Total runoff pre-development condition 10 yr Storm Event

=> 1.25 + 0.94 + 0.59 + 1.41 = 4.19 cfs

Total runoff pre-development condition 25 yr Storm Event

⇨ 1.68 + 1.27 + 0.73 + 1.75 = 5.43 cfs

2.2 HYDROLOGY ANALYSIS (PROPOSED CONDITION)

The time of concentration was computed using the HydroCalc program from LACDPW.

$$Tc = 10^{-0.507}\left(C_D I_X\right)^{-0.519} L^{0.483} s^{-0.135}$$

$C_D = (0.9 \times Imp) + [(1.0 - Imp) \times C_u)]$ If $C_D < C_u$, use $C_D = C_u$

The discharge Q was computed using the Rational Formula.

Sub-area A Node 100 to Node 101

Area = 0.365 acres
L = 228 ft. S = 0.0115

Using the HydroCalc from LACDPW, the following values were found:

Q_{10} = 0.86 cfs.	Q_{25} = 1.07 cfs
Tc = 5 min.	Tc = 5 min.
I = 2.68 in/hr.	I = 3.30 in/hr

Sub-area B Node 100 to Node 201

Area = 0.329 acres
L = 175 ft. S = 0.0139

Using the HydroCalc from LACDPW, the following values were found:

Q_{10} = 0.78 cfs.	Q_{25} = 0.97 cfs
Tc = 5 min.	Tc = 5 min.
I = 2.68 in/hr.	I = 3.30 in/hr

Sub-area C Node 300 to Node 301

Area = 0.451 acres
L = 212 ft. S = 0.0141

Using the HydroCalc from LACDPW, the following values were found:

Q_{10} = 1.06 cfs.	Q_{25} = 1.32 cfs
Tc = 5 min.	Tc = 5 min.
I = 2.68 in/hr.	I = 3.30 in/hr

Sub-area D Node 400 to Node 401

Area = 0.358 acres
L = 301 ft. S = 0.0087

Using the HydroCalc from LACDPW, the following values were found:

Q_{10} = 0.78 cfs.	Q_{25} = 1.06 cfs
Tc = 6 min.	Tc = 5 min.
I = 2.46 in/hr.	I = 3.30 in/hr

Sub-area E Node 300 to Node 501

Area = 0.185 acres
L = 115 ft. S = 0.0251

Using the HydroCalc from LACDPW, the following values were found:

Q_{10} = 0.44 cfs.	Q_{25} = 0.54 cfs
Tc = 5 min.	Tc = 5 min.
I = 2.68 in/hr.	I = 3.30 in/hr

Sub-area F Node 600 to Node 601

Area = 0.104 acres
L = 61 ft. S = 0.0226

Using the HydroCalc from LACDPW, the following values were found:

Q_{10} = 0.23 cfs.	Q_{25} = 0.29 cfs
Tc = 5 min.	Tc = 5 min.
I = 2.68 in/hr.	I = 3.30 in/hr

Sub-area G Node 700 to Node 701

Area = 0.069 acres
L = 20 ft. S = 0.027

Using the HydroCalc from LACDPW, the following values were found:

Q_{10} = 0.15 cfs.	Q_{25} = 0.19 cfs
Tc = 5 min.	Tc = 5 min.
I = 2.68 in/hr.	I = 3.30 in/hr

Total Site Area

Total runoff post-development condition 10 yr Storm Event

=> 0.86 + 0.78 + 1.06 + 0.78 + 0.44 + 0.23 + 0.15 = 4.30 cfs

Total runoff post-development condition 25 yr Storm Event

=> 1.07 + 0.97 + 1.32 + 1.06 + 0.54 + 0.29 + 0.19 = 5.44 cfs

EXISTING CONDITION vs PROPOSED CONDITION DISCHARGE RATES

Q_{10} (PROPOSED) – Q_{10} (EXISTING)

Q_{10} = 4.30 – 4.19 = 0.11 [Increase of 2.6%]

Q_{25} (PROPOSED) – Q_{25} (EXISTING)

Q_{25} = 5.44 – 5.43 = 0.01 [Increase of 0.2%]

2.5 HYDROCALC CALCULATIONS

Peak Flow Hydrologic Analysis

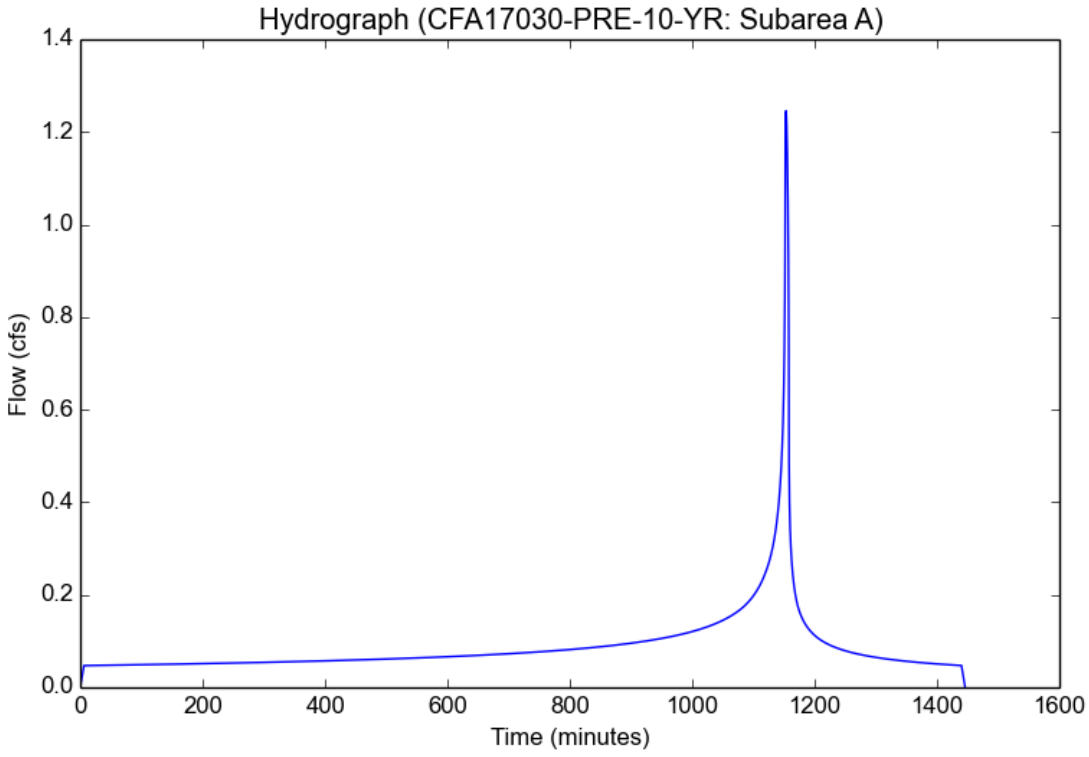
File location: P:/CFA17030/Reports/HYDROLOGY/HydroCalc/PRE/CFA 17030-PRE-10-YR - Subarea A.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	CFA17030-PRE
Subarea ID	Subarea A
Area (ac)	0.568
Flow Path Length (ft)	268.0
Flow Path Slope (vft/hft)	0.01
50-yr Rainfall Depth (in)	6.3
Percent Impervious	0.916
Soil Type	6
Design Storm Frequency	10-yr
Fire Factor	0
LID	False

Output Results

Modeled (10-yr) Rainfall Depth (in)	4.4982
Peak Intensity (in/hr)	2.4634
Undeveloped Runoff Coefficient (Cu)	0.7831
Developed Runoff Coefficient (Cd)	0.8902
Time of Concentration (min)	6.0
Clear Peak Flow Rate (cfs)	1.2455
Burned Peak Flow Rate (cfs)	1.2455
24-Hr Clear Runoff Volume (ac-ft)	0.1773
24-Hr Clear Runoff Volume (cu-ft)	7724.2661



Peak Flow Hydrologic Analysis

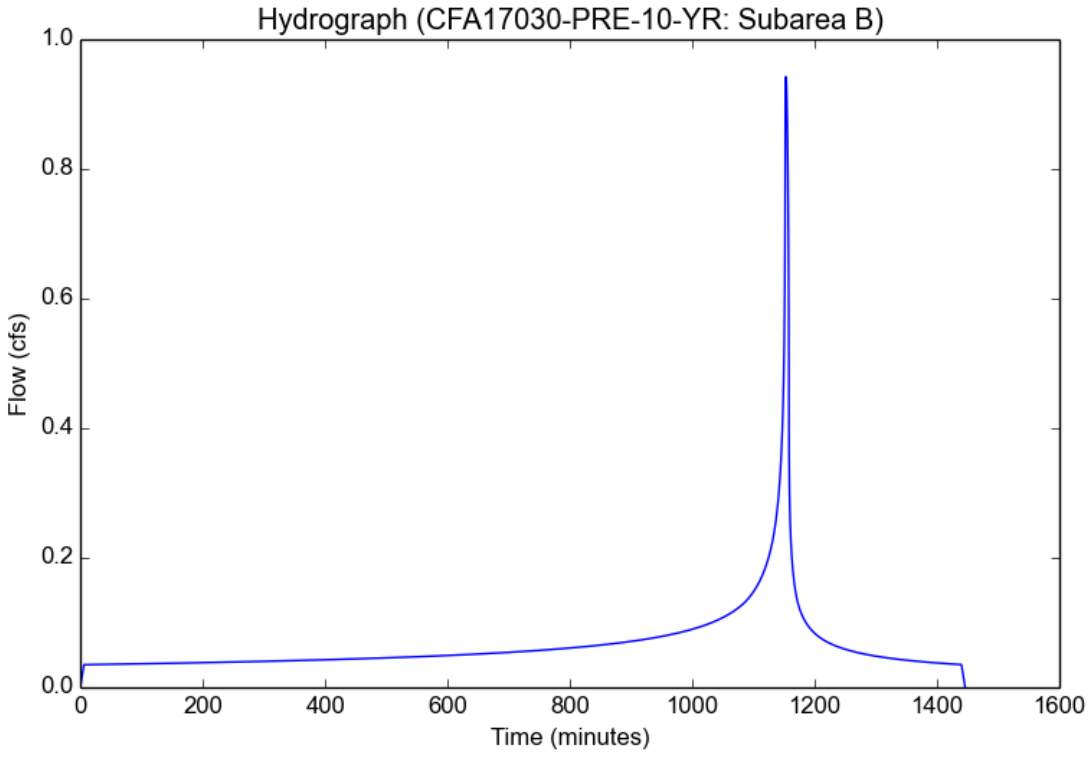
File location: P:/CFA17030/Reports/HYDROLOGY/HydroCalc/PRE/CFA 17030-PRE-10-YR - Subarea B.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	CFA17030-PRE
Subarea ID	Subarea B
Area (ac)	0.431
Flow Path Length (ft)	276.0
Flow Path Slope (vft/hft)	0.011
50-yr Rainfall Depth (in)	6.3
Percent Impervious	0.895
Soil Type	6
Design Storm Frequency	10-yr
Fire Factor	0
LID	False

Output Results

Modeled (10-yr) Rainfall Depth (in)	4.4982
Peak Intensity (in/hr)	2.4634
Undeveloped Runoff Coefficient (Cu)	0.7831
Developed Runoff Coefficient (Cd)	0.8877
Time of Concentration (min)	6.0
Clear Peak Flow Rate (cfs)	0.9425
Burned Peak Flow Rate (cfs)	0.9425
24-Hr Clear Runoff Volume (ac-ft)	0.1321
24-Hr Clear Runoff Volume (cu-ft)	5756.1263



Peak Flow Hydrologic Analysis

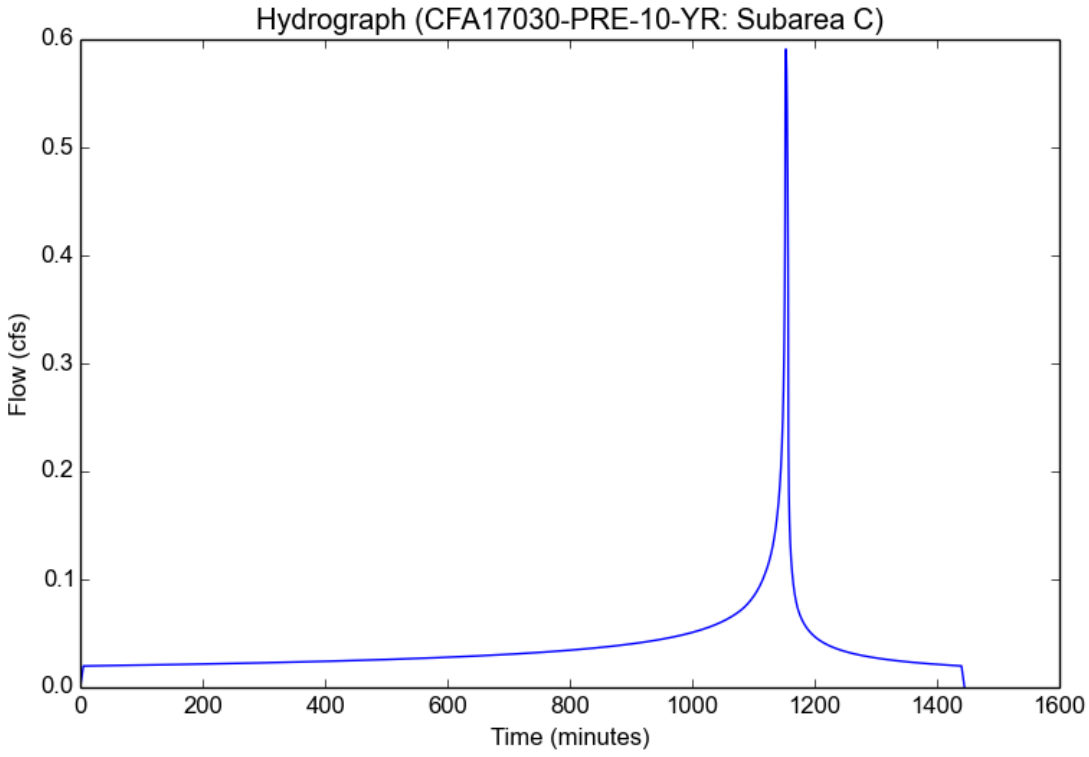
File location: P:/CFA17030/Reports/HYDROLOGY/HydroCalc/PRE/CFA 17030-PRE-10-YR - Subarea C.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	CFA17030-PRE
Subarea ID	Subarea C
Area (ac)	0.248
Flow Path Length (ft)	179.0
Flow Path Slope (vft/hft)	0.0166
50-yr Rainfall Depth (in)	6.3
Percent Impervious	0.879
Soil Type	6
Design Storm Frequency	10-yr
Fire Factor	0
LID	False

Output Results

Modeled (10-yr) Rainfall Depth (in)	4.4982
Peak Intensity (in/hr)	2.6837
Undeveloped Runoff Coefficient (Cu)	0.8001
Developed Runoff Coefficient (Cd)	0.8879
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	0.591
Burned Peak Flow Rate (cfs)	0.591
24-Hr Clear Runoff Volume (ac-ft)	0.075
24-Hr Clear Runoff Volume (cu-ft)	3266.2019



Peak Flow Hydrologic Analysis

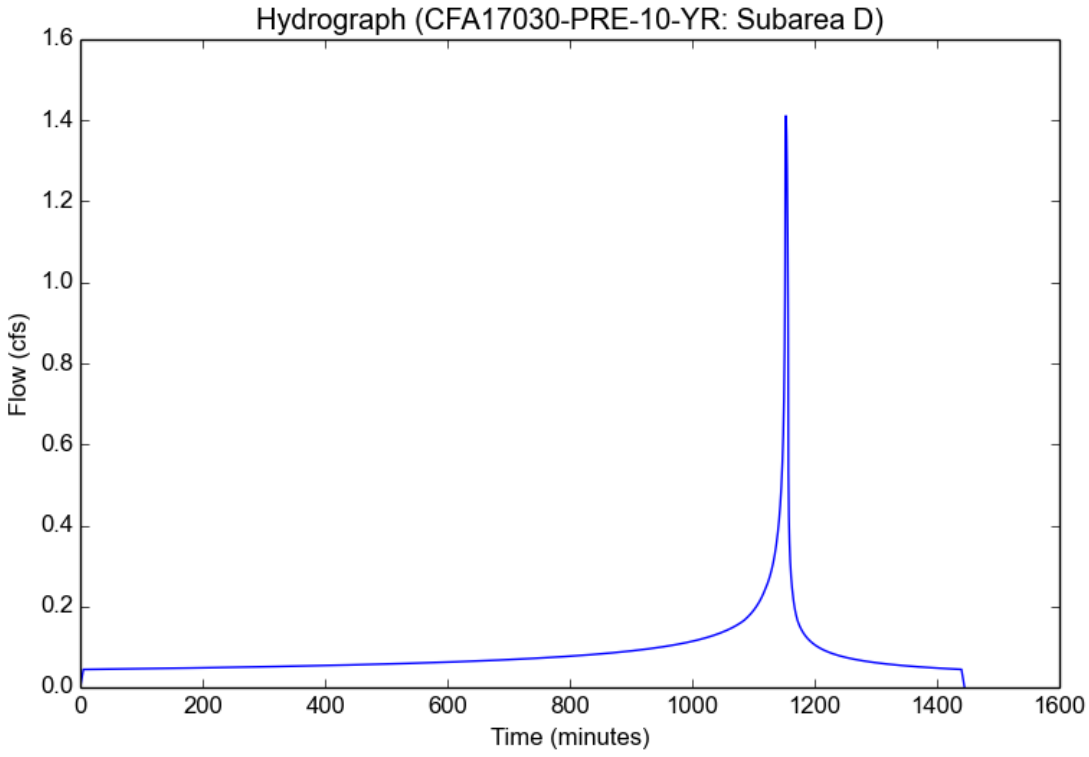
File location: P:/CFA17030/Reports/HYDROLOGY/HydroCalc/PRE/CFA 17030-PRE-10-YR - Subarea D.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	CFA17030-PRE
Subarea ID	Subarea D
Area (ac)	0.597
Flow Path Length (ft)	261.0
Flow Path Slope (vft/hft)	0.0125
50-yr Rainfall Depth (in)	6.3
Percent Impervious	0.808
Soil Type	6
Design Storm Frequency	10-yr
Fire Factor	0
LID	False

Output Results

Modeled (10-yr) Rainfall Depth (in)	4.4982
Peak Intensity (in/hr)	2.6837
Undeveloped Runoff Coefficient (Cu)	0.8001
Developed Runoff Coefficient (Cd)	0.8808
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	1.4112
Burned Peak Flow Rate (cfs)	1.4112
24-Hr Clear Runoff Volume (ac-ft)	0.1692
24-Hr Clear Runoff Volume (cu-ft)	7370.7602



Peak Flow Hydrologic Analysis

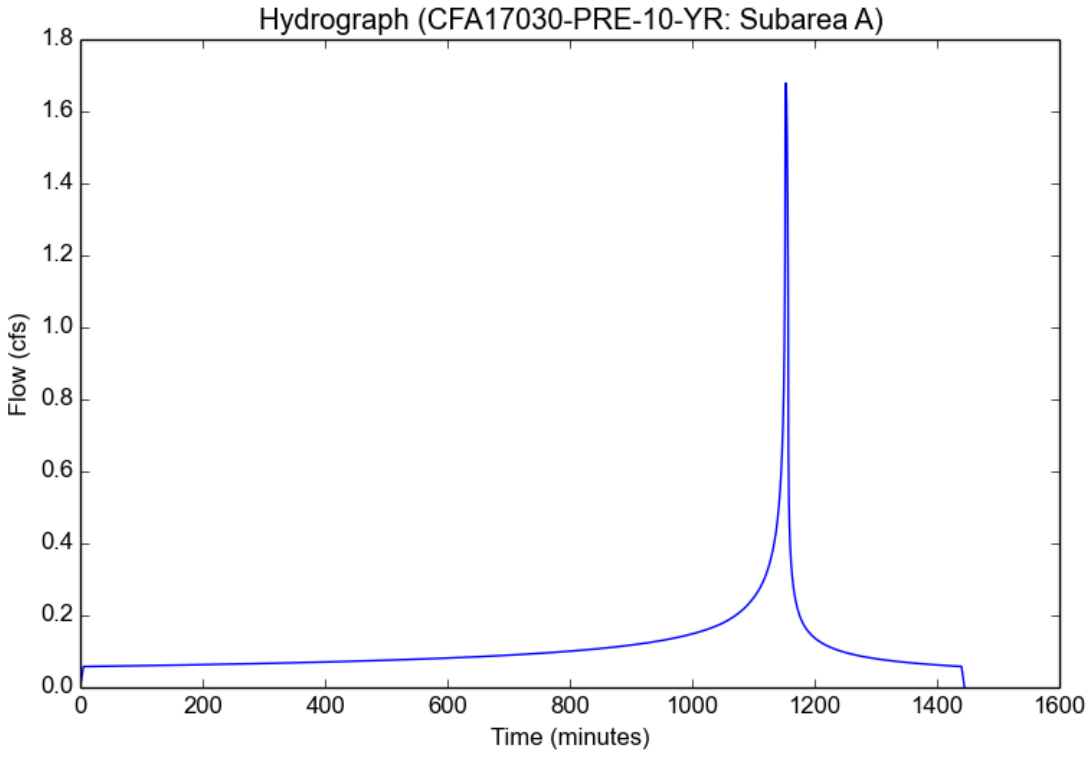
File location: P:/CFA17030/Reports/HYDROLOGY/HydroCalc/PRE/CFA 17030-PRE-25-YR - Subarea A.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	CFA17030-PRE
Subarea ID	Subarea A
Area (ac)	0.568
Flow Path Length (ft)	268.0
Flow Path Slope (vft/hft)	0.01
50-yr Rainfall Depth (in)	6.3
Percent Impervious	0.916
Soil Type	6
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	5.5314
Peak Intensity (in/hr)	3.3002
Undeveloped Runoff Coefficient (Cu)	0.8434
Developed Runoff Coefficient (Cd)	0.8952
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	1.6781
Burned Peak Flow Rate (cfs)	1.6781
24-Hr Clear Runoff Volume (ac-ft)	0.2186
24-Hr Clear Runoff Volume (cu-ft)	9520.3053



Peak Flow Hydrologic Analysis

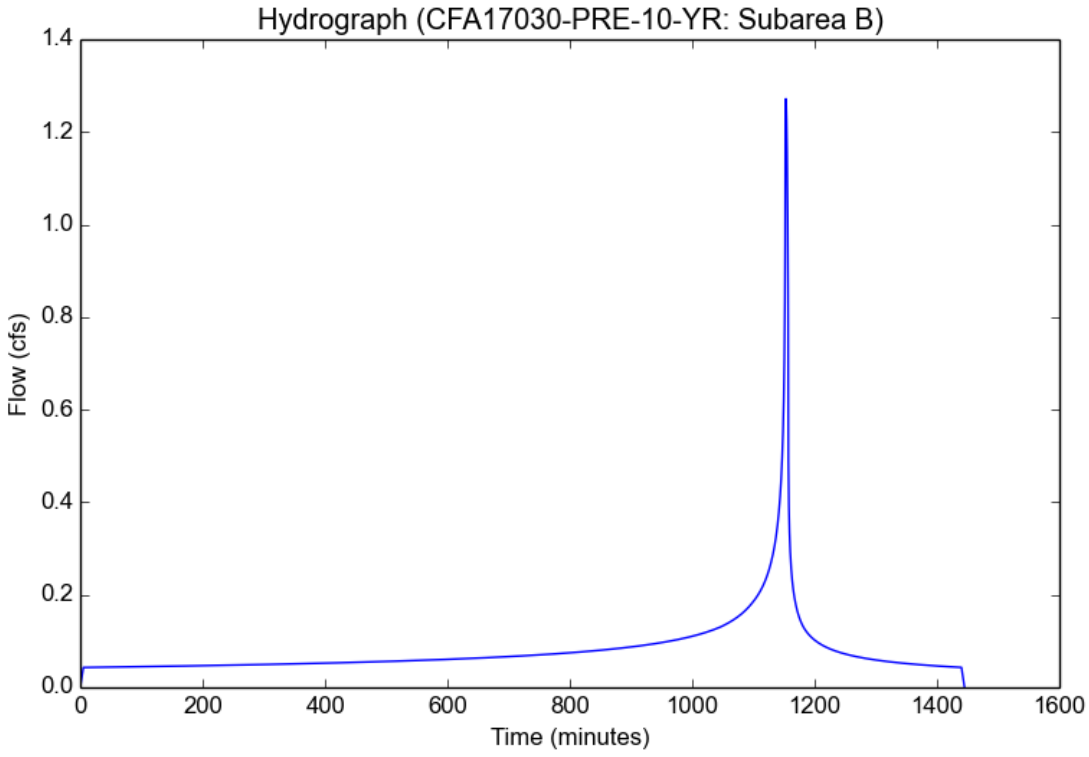
File location: P:/CFA17030/Reports/HYDROLOGY/HydroCalc/PRE/CFA 17030-PRE-25-YR - Subarea B.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	CFA17030-PRE
Subarea ID	Subarea B
Area (ac)	0.431
Flow Path Length (ft)	276.0
Flow Path Slope (vft/hft)	0.011
50-yr Rainfall Depth (in)	6.3
Percent Impervious	0.895
Soil Type	6
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	5.5314
Peak Intensity (in/hr)	3.3002
Undeveloped Runoff Coefficient (Cu)	0.8434
Developed Runoff Coefficient (Cd)	0.8941
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	1.2717
Burned Peak Flow Rate (cfs)	1.2717
24-Hr Clear Runoff Volume (ac-ft)	0.163
24-Hr Clear Runoff Volume (cu-ft)	7098.9754



Peak Flow Hydrologic Analysis

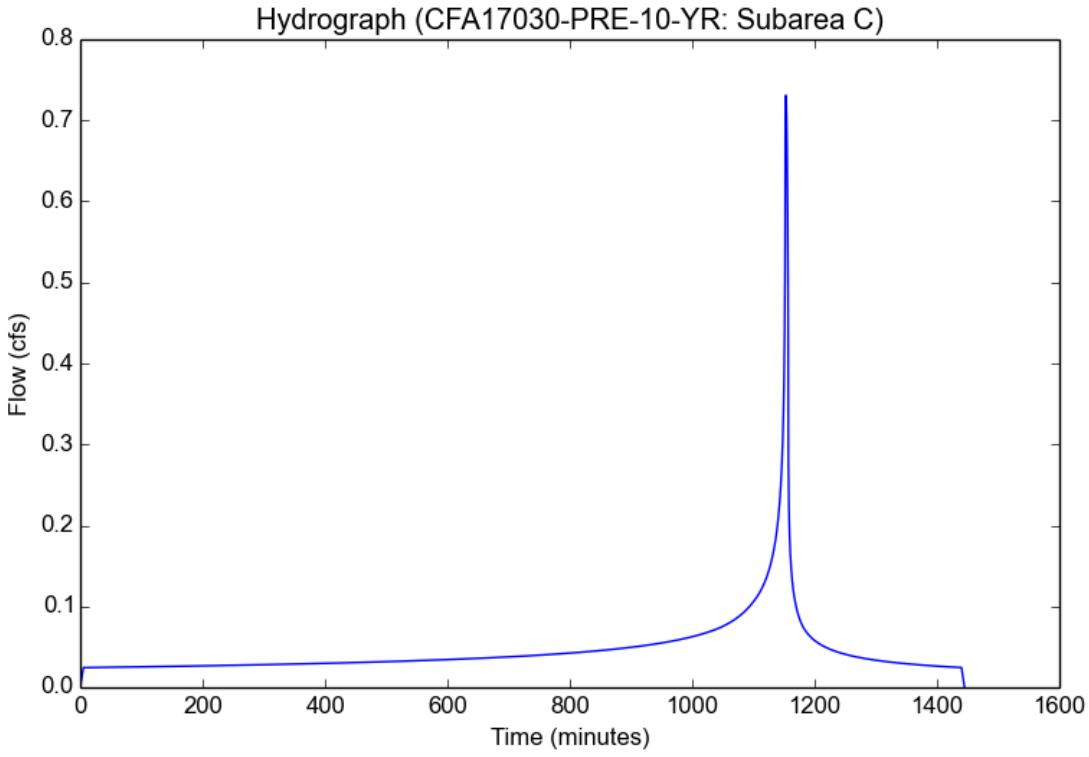
File location: P:/CFA17030/Reports/HYDROLOGY/HydroCalc/PRE/CFA 17030-PRE-25-YR - Subarea C.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	CFA17030-PRE
Subarea ID	Subarea C
Area (ac)	0.248
Flow Path Length (ft)	179.0
Flow Path Slope (vft/hft)	0.0166
50-yr Rainfall Depth (in)	6.3
Percent Impervious	0.879
Soil Type	6
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	5.5314
Peak Intensity (in/hr)	3.3002
Undeveloped Runoff Coefficient (Cu)	0.8434
Developed Runoff Coefficient (Cd)	0.8931
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	0.731
Burned Peak Flow Rate (cfs)	0.731
24-Hr Clear Runoff Volume (ac-ft)	0.0925
24-Hr Clear Runoff Volume (cu-ft)	4029.9668



Peak Flow Hydrologic Analysis

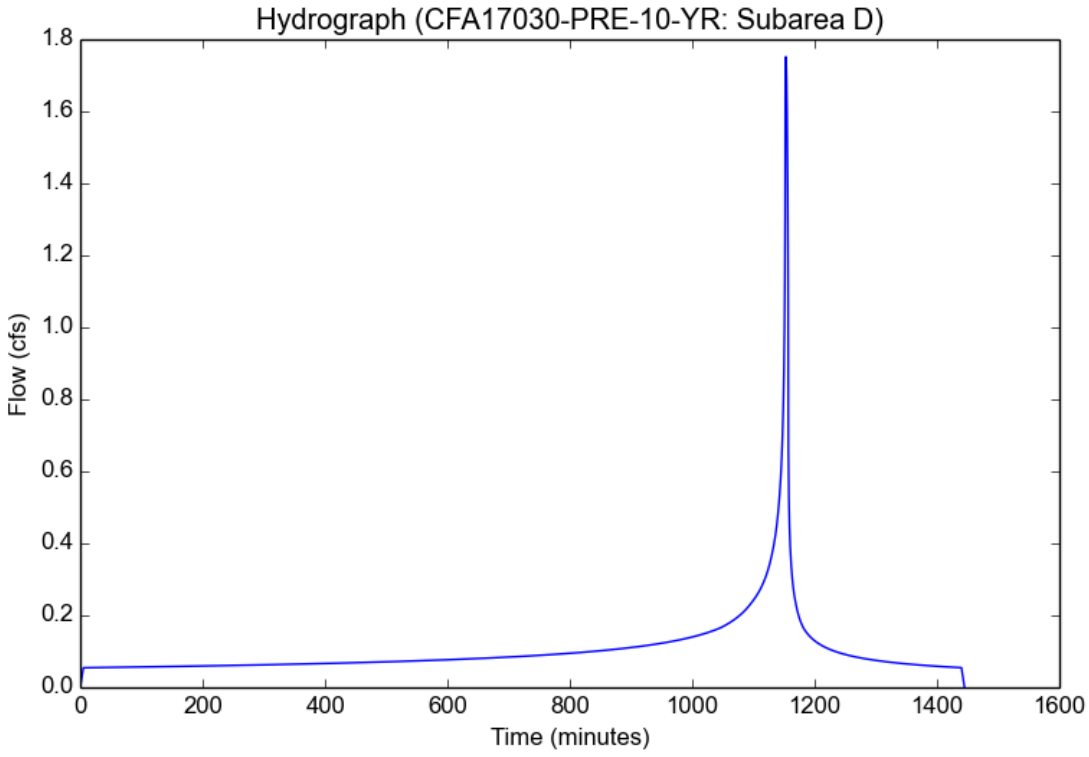
File location: P:/CFA17030/Reports/HYDROLOGY/HydroCalc/PRE/CFA 17030-PRE-25-YR - Subarea D.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	CFA17030-PRE-10-YR
Subarea ID	Subarea D
Area (ac)	0.597
Flow Path Length (ft)	261.0
Flow Path Slope (vft/hft)	0.0125
50-yr Rainfall Depth (in)	6.3
Percent Impervious	0.808
Soil Type	6
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	5.5314
Peak Intensity (in/hr)	3.3002
Undeveloped Runoff Coefficient (Cu)	0.8434
Developed Runoff Coefficient (Cd)	0.8891
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	1.7518
Burned Peak Flow Rate (cfs)	1.7518
24-Hr Clear Runoff Volume (ac-ft)	0.2093
24-Hr Clear Runoff Volume (cu-ft)	9115.5025



Peak Flow Hydrologic Analysis

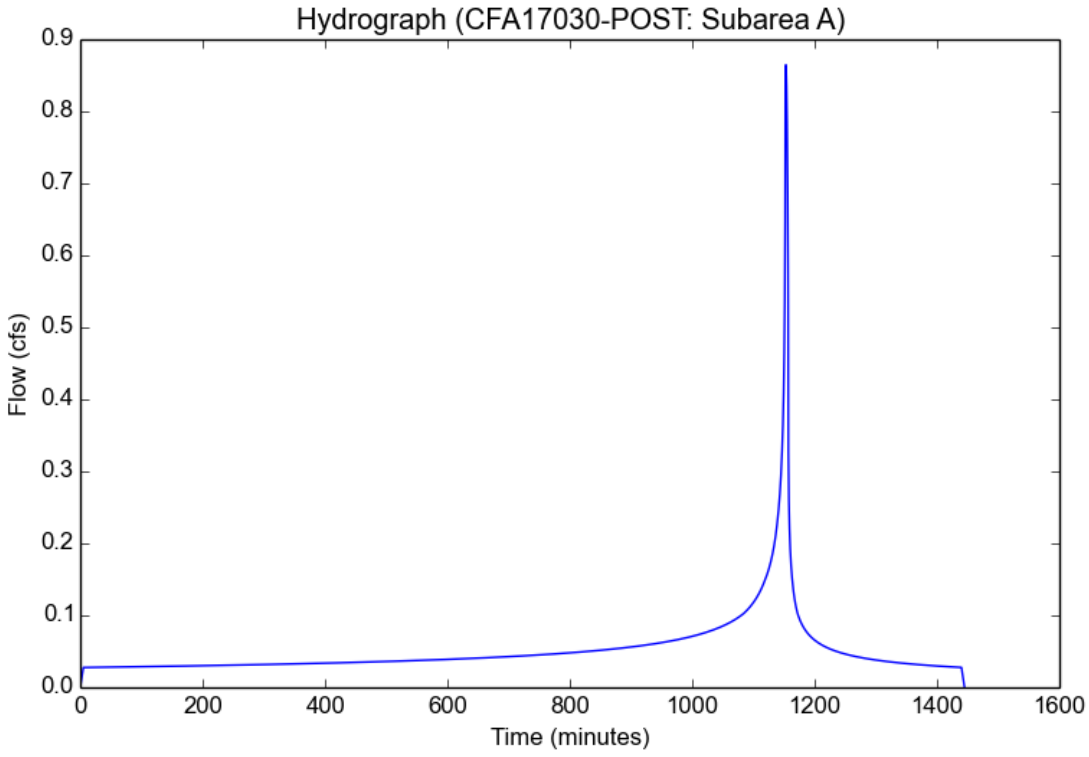
File location: P:/CFA17030/Reports/HYDROLOGY/HydroCalc/POST/CFA17030-POST-10 YR - Subarea A.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	CFA17030-POST
Subarea ID	Subarea A
Area (ac)	0.365
Flow Path Length (ft)	228.0
Flow Path Slope (vft/hft)	0.0115
50-yr Rainfall Depth (in)	6.3
Percent Impervious	0.826
Soil Type	6
Design Storm Frequency	10-yr
Fire Factor	0
LID	False

Output Results

Modeled (10-yr) Rainfall Depth (in)	4.4982
Peak Intensity (in/hr)	2.6837
Undeveloped Runoff Coefficient (Cu)	0.8001
Developed Runoff Coefficient (Cd)	0.8826
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	0.8646
Burned Peak Flow Rate (cfs)	0.8646
24-Hr Clear Runoff Volume (ac-ft)	0.1052
24-Hr Clear Runoff Volume (cu-ft)	4582.6451



Peak Flow Hydrologic Analysis

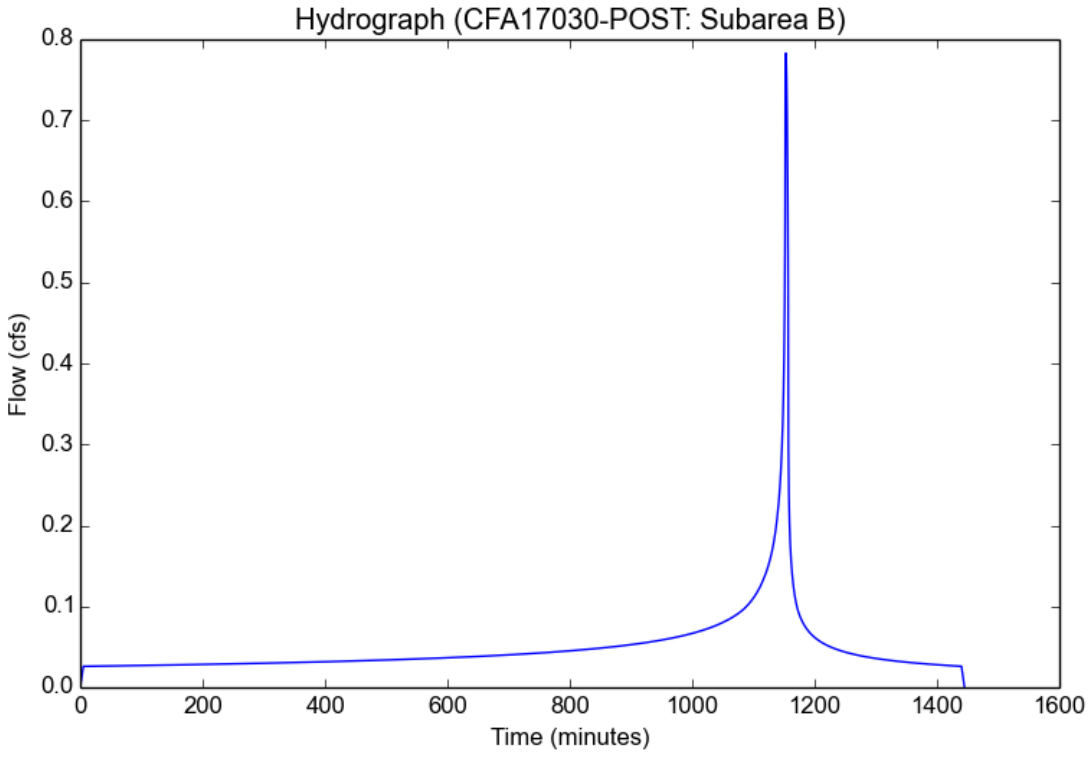
File location: P:/CFA17030/Reports/HYDROLOGY/HydroCalc/POST/CFA17030-POST-10 YR - Subarea B.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	CFA17030-POST
Subarea ID	Subarea B
Area (ac)	0.329
Flow Path Length (ft)	175.0
Flow Path Slope (vft/hft)	0.0139
50-yr Rainfall Depth (in)	6.3
Percent Impervious	0.867
Soil Type	6
Design Storm Frequency	10-yr
Fire Factor	0
LID	False

Output Results

Modeled (10-yr) Rainfall Depth (in)	4.4982
Peak Intensity (in/hr)	2.6837
Undeveloped Runoff Coefficient (Cu)	0.8001
Developed Runoff Coefficient (Cd)	0.8867
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	0.7829
Burned Peak Flow Rate (cfs)	0.7829
24-Hr Clear Runoff Volume (ac-ft)	0.0984
24-Hr Clear Runoff Volume (cu-ft)	4287.1756



Peak Flow Hydrologic Analysis

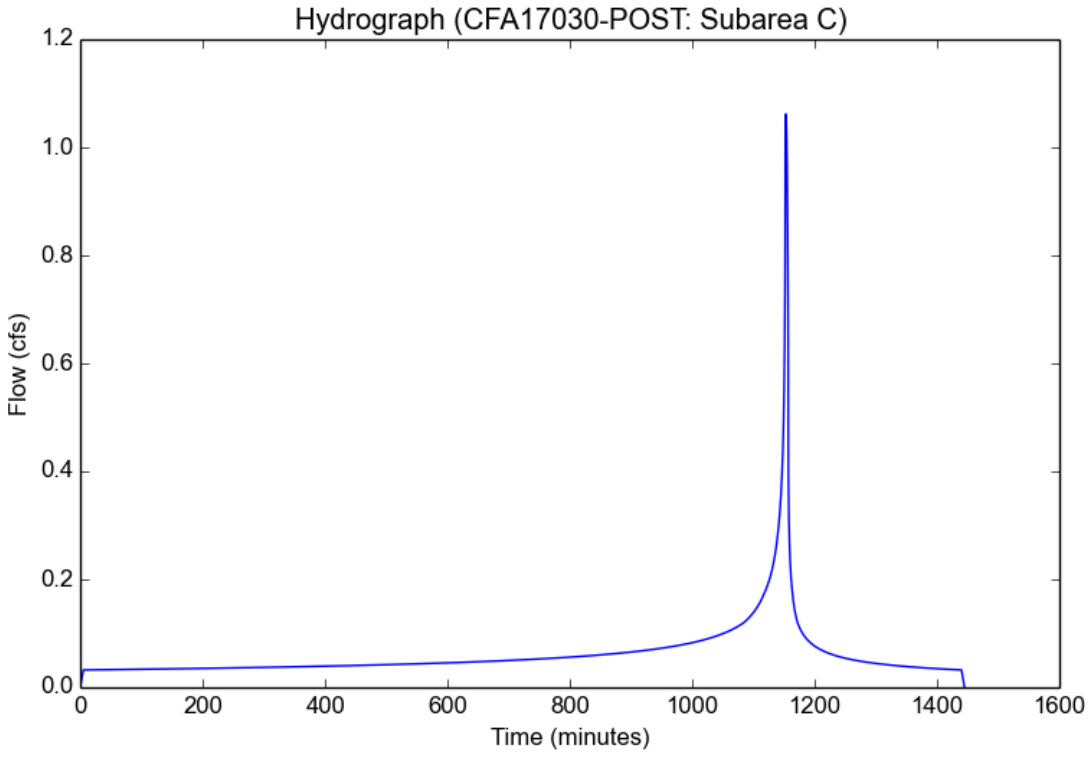
File location: P:/CFA17030/Reports/HYDROLOGY/HydroCalc/POST/CFA17030-POST-10 YR - Subarea C.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	CFA17030-POST
Subarea ID	Subarea C
Area (ac)	0.451
Flow Path Length (ft)	212.0
Flow Path Slope (vft/hft)	0.0141
50-yr Rainfall Depth (in)	6.3
Percent Impervious	0.773
Soil Type	6
Design Storm Frequency	10-yr
Fire Factor	0
LID	False

Output Results

Modeled (10-yr) Rainfall Depth (in)	4.4982
Peak Intensity (in/hr)	2.6837
Undeveloped Runoff Coefficient (Cu)	0.8001
Developed Runoff Coefficient (Cd)	0.8773
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	1.0619
Burned Peak Flow Rate (cfs)	1.0619
24-Hr Clear Runoff Volume (ac-ft)	0.1236
24-Hr Clear Runoff Volume (cu-ft)	5385.037



Peak Flow Hydrologic Analysis

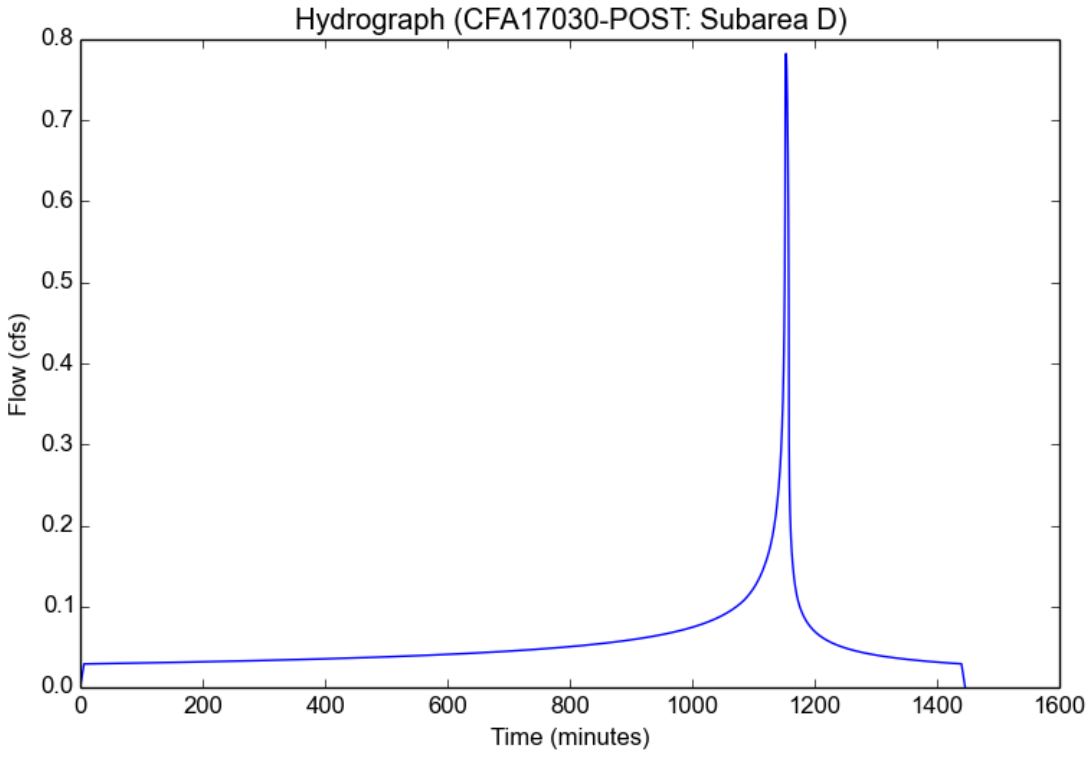
File location: P:/CFA17030/Reports/HYDROLOGY/HydroCalc/POST/CFA17030-POST-10 YR - Subarea D.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	CFA17030-POST
Subarea ID	Subarea D
Area (ac)	0.358
Flow Path Length (ft)	301.0
Flow Path Slope (vft/hft)	0.0087
50-yr Rainfall Depth (in)	6.3
Percent Impervious	0.891
Soil Type	6
Design Storm Frequency	10-yr
Fire Factor	0
LID	False

Output Results

Modeled (10-yr) Rainfall Depth (in)	4.4982
Peak Intensity (in/hr)	2.4634
Undeveloped Runoff Coefficient (Cu)	0.7831
Developed Runoff Coefficient (Cd)	0.8873
Time of Concentration (min)	6.0
Clear Peak Flow Rate (cfs)	0.7825
Burned Peak Flow Rate (cfs)	0.7825
24-Hr Clear Runoff Volume (ac-ft)	0.1094
24-Hr Clear Runoff Volume (cu-ft)	4764.5674



Peak Flow Hydrologic Analysis

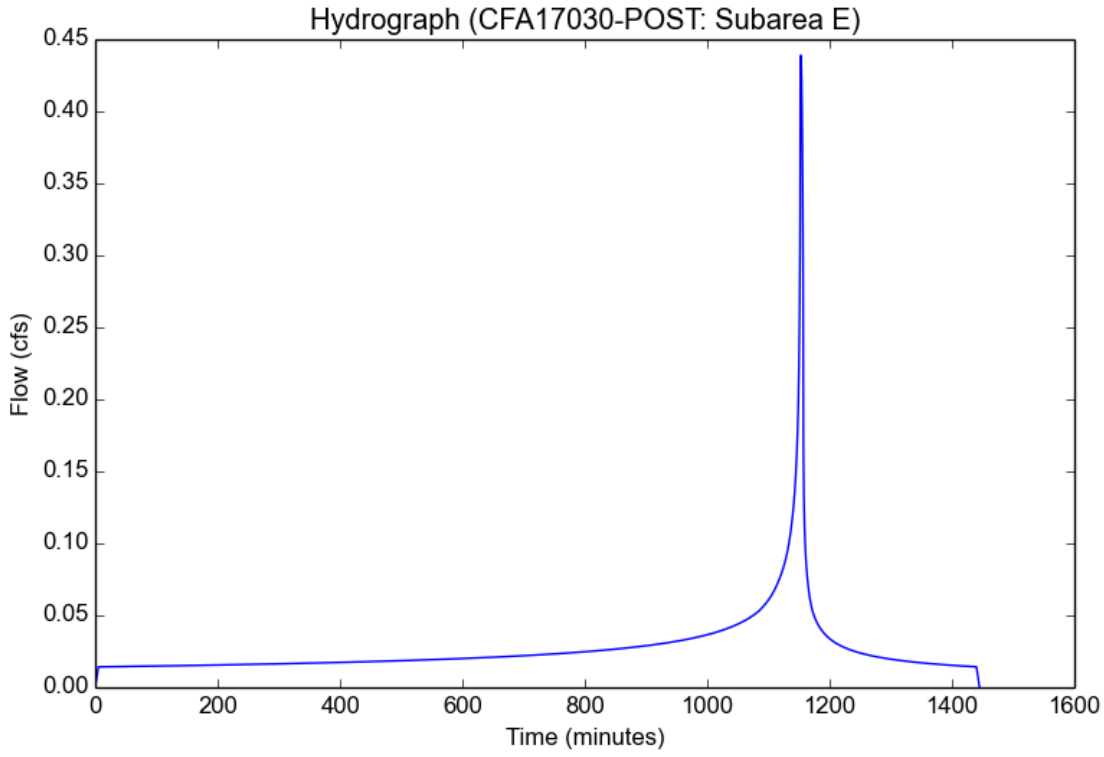
File location: P:/CFA17030/Reports/HYDROLOGY/HydroCalc/POST/CFA17030-POST-10 YR - Subarea E.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	CFA17030-POST
Subarea ID	Subarea E
Area (ac)	0.185
Flow Path Length (ft)	115.0
Flow Path Slope (vft/hft)	0.0251
50-yr Rainfall Depth (in)	6.3
Percent Impervious	0.842
Soil Type	6
Design Storm Frequency	10-yr
Fire Factor	0
LID	False

Output Results

Modeled (10-yr) Rainfall Depth (in)	4.4982
Peak Intensity (in/hr)	2.6837
Undeveloped Runoff Coefficient (Cu)	0.8001
Developed Runoff Coefficient (Cd)	0.8842
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	0.439
Burned Peak Flow Rate (cfs)	0.439
24-Hr Clear Runoff Volume (ac-ft)	0.0541
24-Hr Clear Runoff Volume (cu-ft)	2357.0564



Peak Flow Hydrologic Analysis

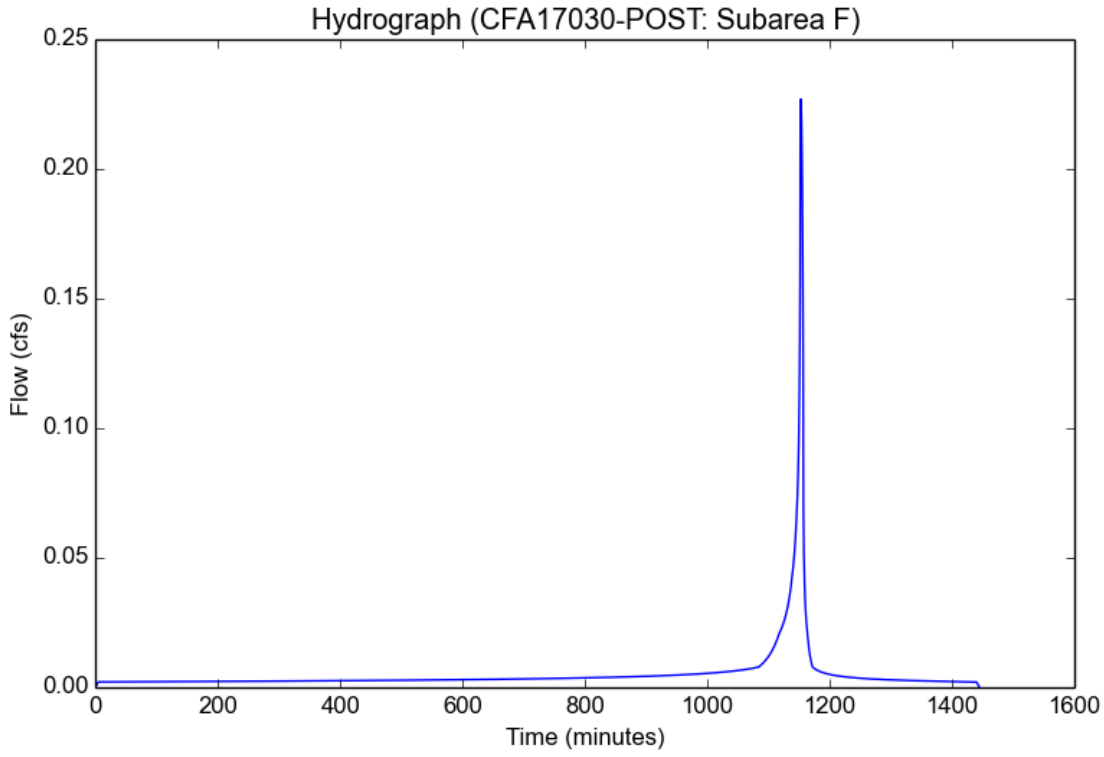
File location: P:/CFA17030/Reports/HYDROLOGY/HydroCalc/POST/CFA17030-POST-10 YR - Subarea F.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	CFA17030-POST
Subarea ID	Subarea F
Area (ac)	0.104
Flow Path Length (ft)	61.0
Flow Path Slope (vft/hft)	0.0226
50-yr Rainfall Depth (in)	6.3
Percent Impervious	0.13
Soil Type	6
Design Storm Frequency	10-yr
Fire Factor	0
LID	False

Output Results

Modeled (10-yr) Rainfall Depth (in)	4.4982
Peak Intensity (in/hr)	2.6837
Undeveloped Runoff Coefficient (Cu)	0.8001
Developed Runoff Coefficient (Cd)	0.8131
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	0.2269
Burned Peak Flow Rate (cfs)	0.2269
24-Hr Clear Runoff Volume (ac-ft)	0.0107
24-Hr Clear Runoff Volume (cu-ft)	465.844



Peak Flow Hydrologic Analysis

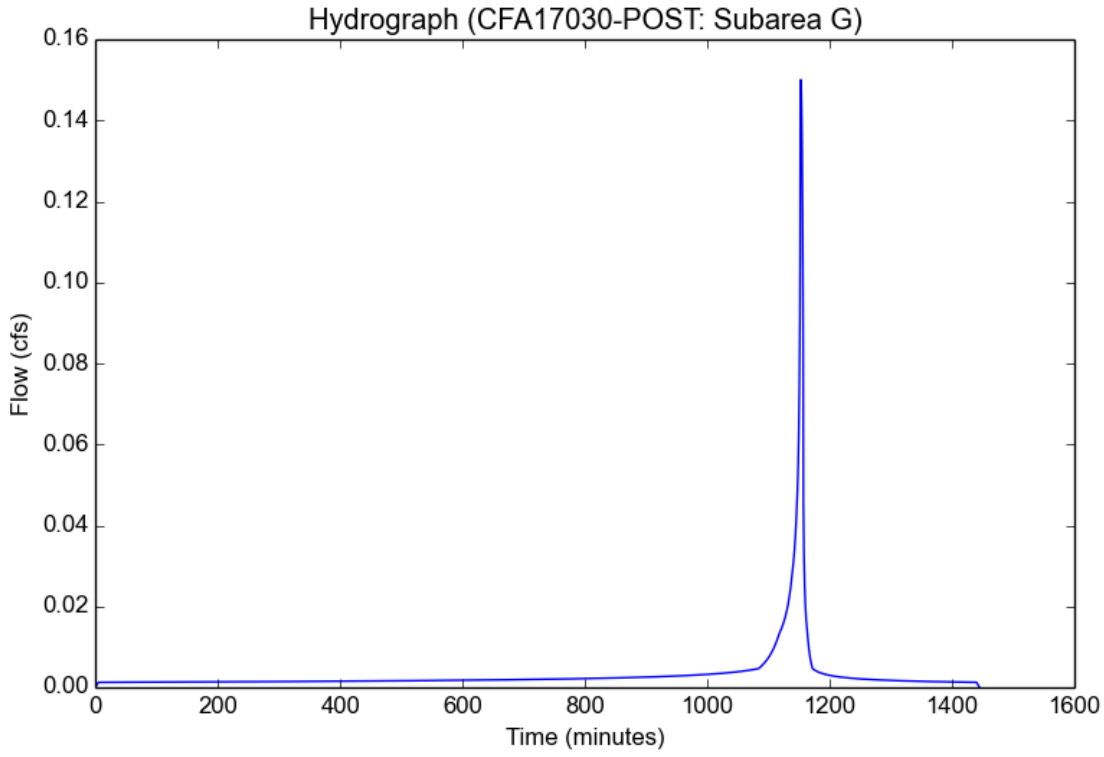
File location: P:/CFA17030/Reports/HYDROLOGY/HydroCalc/POST/CFA17030-POST-10 YR - Subarea G.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	CFA17030-POST
Subarea ID	Subarea G
Area (ac)	0.069
Flow Path Length (ft)	20.0
Flow Path Slope (vft/hft)	0.027
50-yr Rainfall Depth (in)	6.3
Percent Impervious	0.103
Soil Type	6
Design Storm Frequency	10-yr
Fire Factor	0
LID	False

Output Results

Modeled (10-yr) Rainfall Depth (in)	4.4982
Peak Intensity (in/hr)	2.6837
Undeveloped Runoff Coefficient (Cu)	0.8001
Developed Runoff Coefficient (Cd)	0.8104
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	0.1501
Burned Peak Flow Rate (cfs)	0.1501
24-Hr Clear Runoff Volume (ac-ft)	0.0066
24-Hr Clear Runoff Volume (cu-ft)	287.4526



Peak Flow Hydrologic Analysis

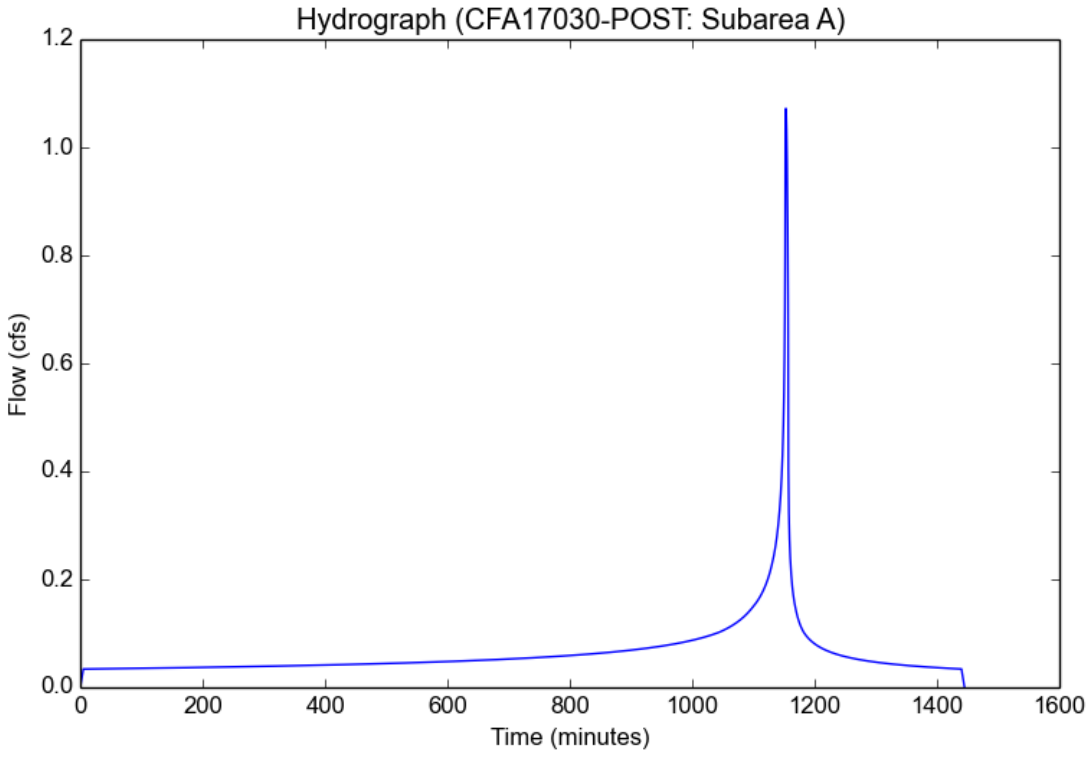
File location: P:/CFA17030/Reports/HYDROLOGY/HydroCalc/POST/CFA17030-POST-25 YR - Subarea A.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	CFA17030-POST
Subarea ID	Subarea A
Area (ac)	0.365
Flow Path Length (ft)	228.0
Flow Path Slope (vft/hft)	0.0115
50-yr Rainfall Depth (in)	6.3
Percent Impervious	0.826
Soil Type	6
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	5.5314
Peak Intensity (in/hr)	3.3002
Undeveloped Runoff Coefficient (Cu)	0.8434
Developed Runoff Coefficient (Cd)	0.8901
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	1.0722
Burned Peak Flow Rate (cfs)	1.0722
24-Hr Clear Runoff Volume (ac-ft)	0.13
24-Hr Clear Runoff Volume (cu-ft)	5663.9084



Peak Flow Hydrologic Analysis

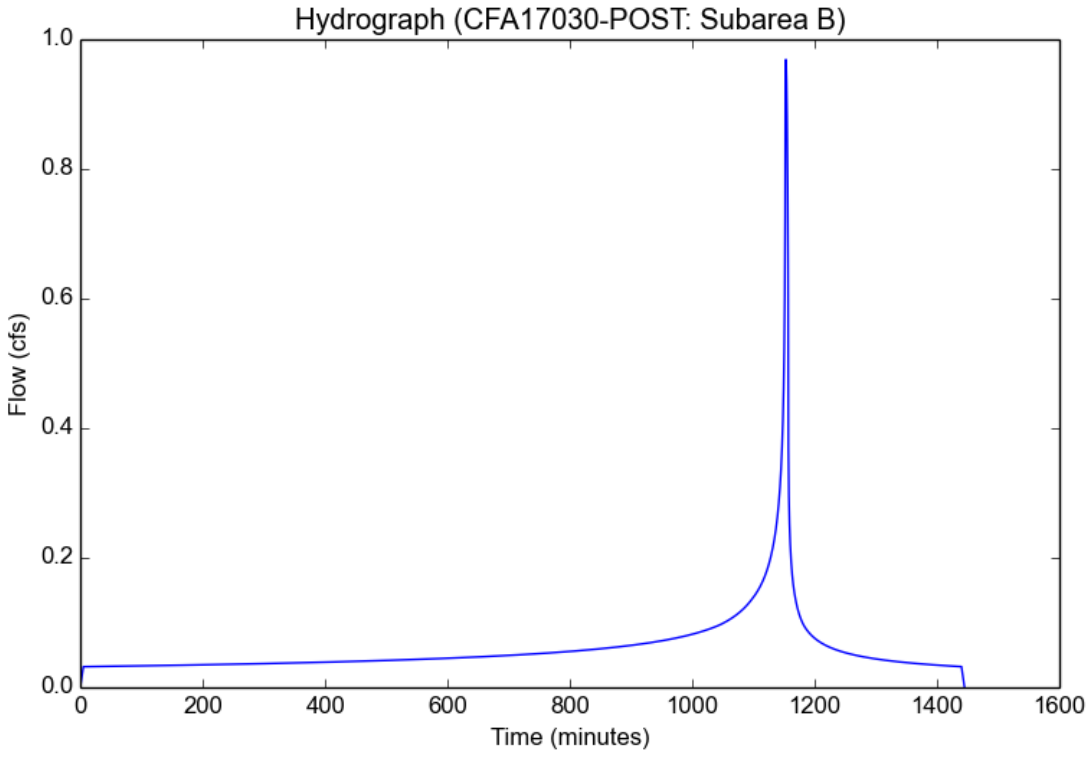
File location: P:/CFA17030/Reports/HYDROLOGY/HydroCalc/POST/CFA17030-POST-25 YR - Subarea B.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	CFA17030-POST
Subarea ID	Subarea B
Area (ac)	0.329
Flow Path Length (ft)	175.0
Flow Path Slope (vft/hft)	0.0139
50-yr Rainfall Depth (in)	6.3
Percent Impervious	0.867
Soil Type	6
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	5.5314
Peak Intensity (in/hr)	3.3002
Undeveloped Runoff Coefficient (Cu)	0.8434
Developed Runoff Coefficient (Cd)	0.8925
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	0.969
Burned Peak Flow Rate (cfs)	0.969
24-Hr Clear Runoff Volume (ac-ft)	0.1215
24-Hr Clear Runoff Volume (cu-ft)	5291.6559



Peak Flow Hydrologic Analysis

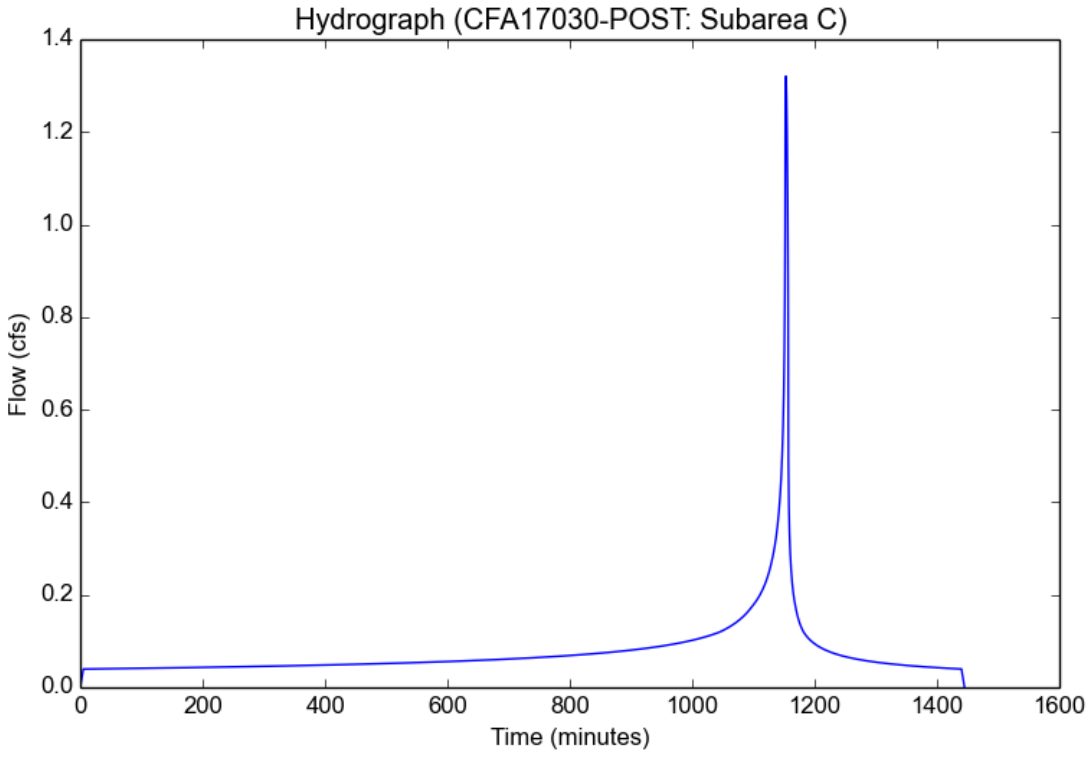
File location: P:/CFA17030/Reports/HYDROLOGY/HydroCalc/POST/CFA17030-POST-25 YR - Subarea C.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	CFA17030-POST
Subarea ID	Subarea C
Area (ac)	0.451
Flow Path Length (ft)	212.0
Flow Path Slope (vft/hft)	0.0141
50-yr Rainfall Depth (in)	6.3
Percent Impervious	0.773
Soil Type	6
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	5.5314
Peak Intensity (in/hr)	3.3002
Undeveloped Runoff Coefficient (Cu)	0.8434
Developed Runoff Coefficient (Cd)	0.8871
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	1.3204
Burned Peak Flow Rate (cfs)	1.3204
24-Hr Clear Runoff Volume (ac-ft)	0.1531
24-Hr Clear Runoff Volume (cu-ft)	6668.1469



Peak Flow Hydrologic Analysis

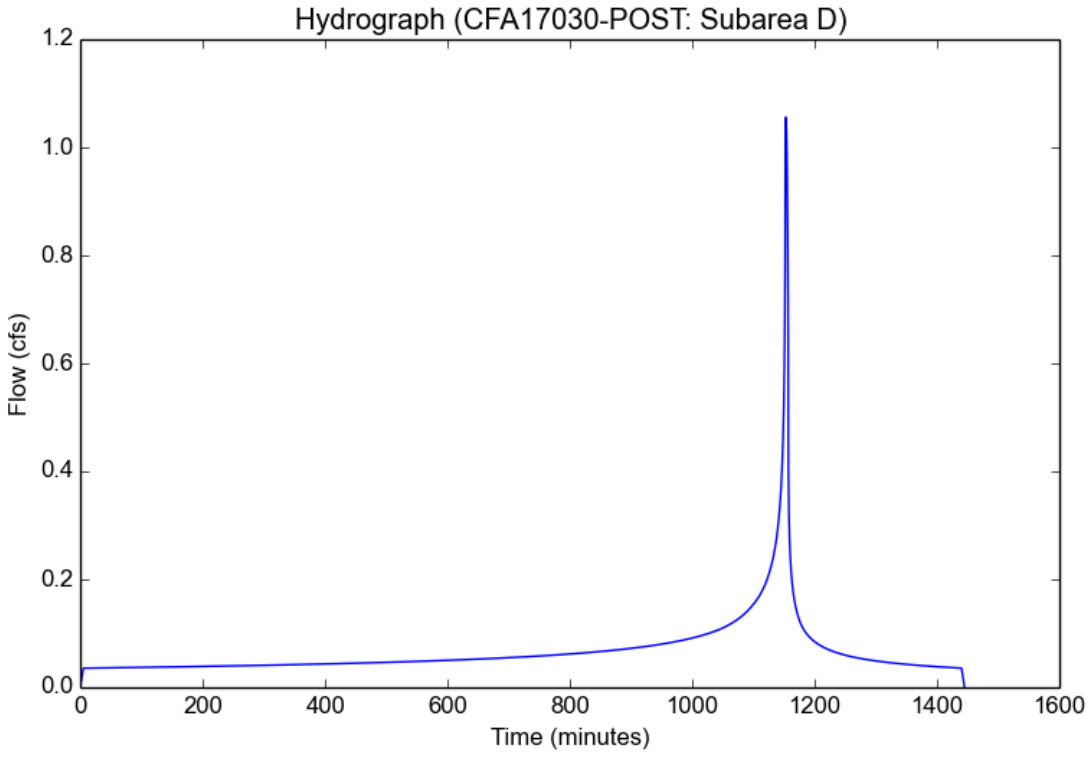
File location: P:/CFA17030/Reports/HYDROLOGY/HydroCalc/POST/CFA17030-POST-25 YR - Subarea D.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	CFA17030-POST
Subarea ID	Subarea D
Area (ac)	0.358
Flow Path Length (ft)	301.0
Flow Path Slope (vft/hft)	0.0087
50-yr Rainfall Depth (in)	6.3
Percent Impervious	0.891
Soil Type	6
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	5.5314
Peak Intensity (in/hr)	3.3002
Undeveloped Runoff Coefficient (Cu)	0.8434
Developed Runoff Coefficient (Cd)	0.8938
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	1.056
Burned Peak Flow Rate (cfs)	1.056
24-Hr Clear Runoff Volume (ac-ft)	0.1349
24-Hr Clear Runoff Volume (cu-ft)	5876.8106



Peak Flow Hydrologic Analysis

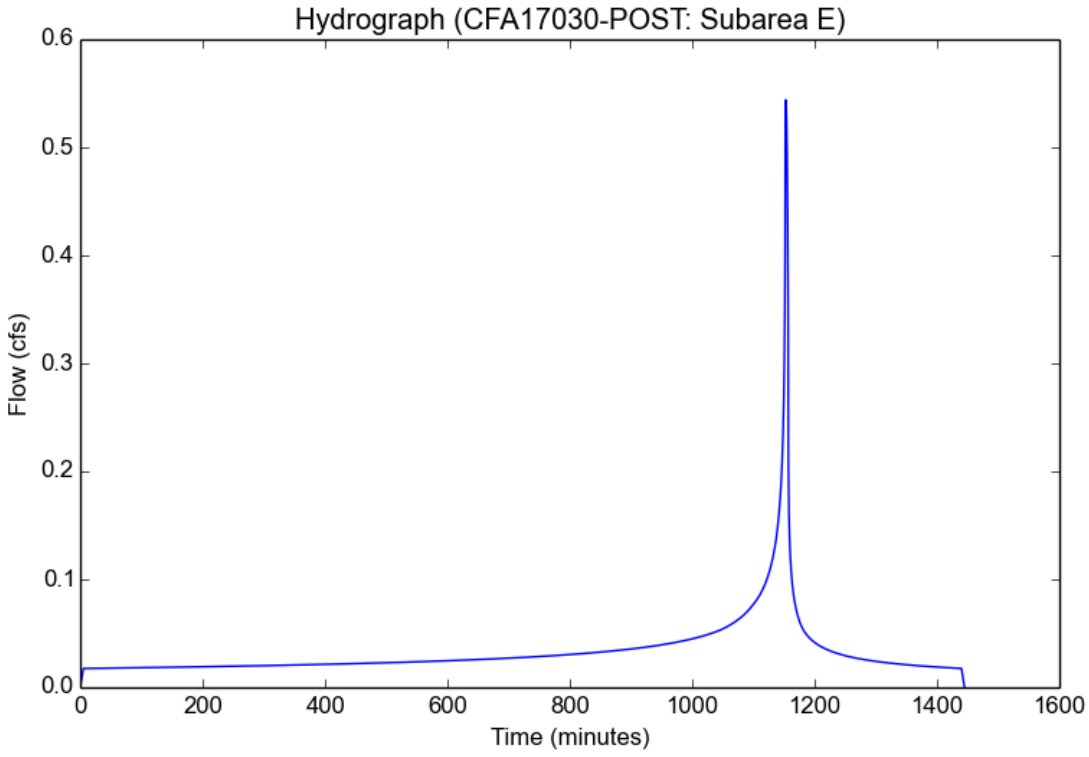
File location: P:/CFA17030/Reports/HYDROLOGY/HydroCalc/POST/CFA17030-POST-25 YR - Subarea E.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	CFA17030-POST
Subarea ID	Subarea E
Area (ac)	0.185
Flow Path Length (ft)	115.0
Flow Path Slope (vft/hft)	0.0251
50-yr Rainfall Depth (in)	6.3
Percent Impervious	0.842
Soil Type	6
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	5.5314
Peak Intensity (in/hr)	3.3002
Undeveloped Runoff Coefficient (Cu)	0.8434
Developed Runoff Coefficient (Cd)	0.8911
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	0.544
Burned Peak Flow Rate (cfs)	0.544
24-Hr Clear Runoff Volume (ac-ft)	0.0668
24-Hr Clear Runoff Volume (cu-ft)	2911.6468



Peak Flow Hydrologic Analysis

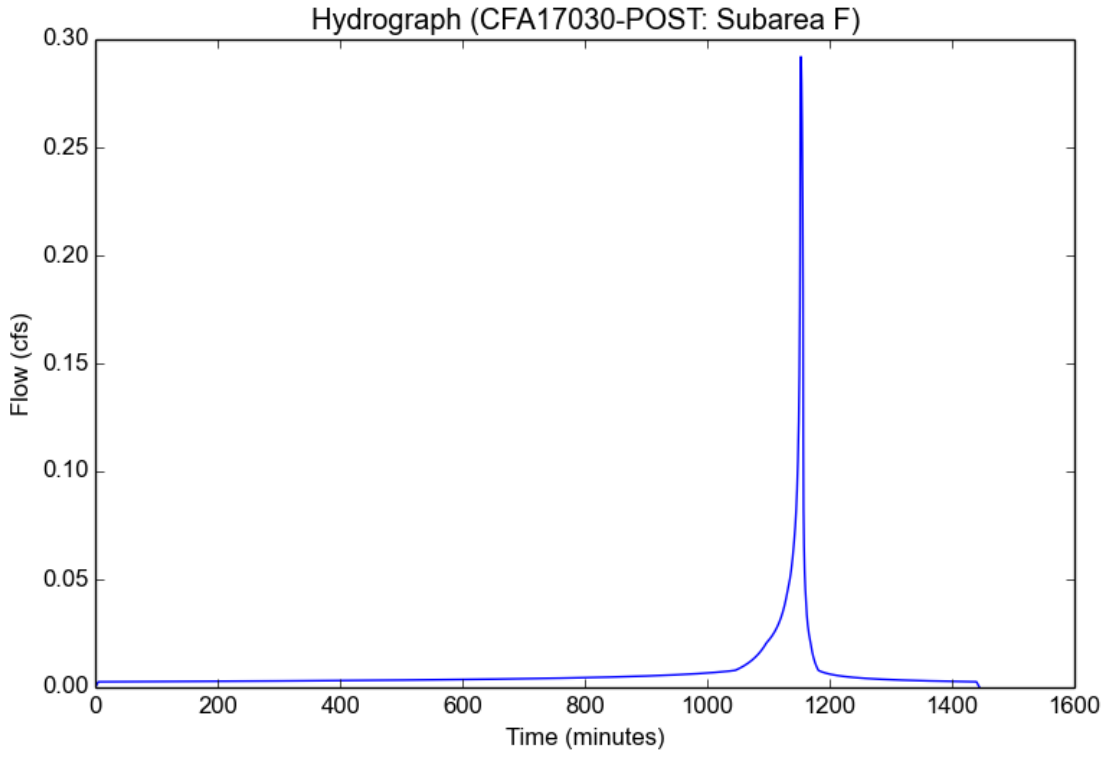
File location: P:/CFA17030/Reports/HYDROLOGY/HydroCalc/POST/CFA17030-POST-25 YR - Subarea F.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	CFA17030-POST
Subarea ID	Subarea F
Area (ac)	0.104
Flow Path Length (ft)	61.0
Flow Path Slope (vft/hft)	0.0226
50-yr Rainfall Depth (in)	6.3
Percent Impervious	0.13
Soil Type	6
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	5.5314
Peak Intensity (in/hr)	3.3002
Undeveloped Runoff Coefficient (Cu)	0.8434
Developed Runoff Coefficient (Cd)	0.8507
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	0.292
Burned Peak Flow Rate (cfs)	0.292
24-Hr Clear Runoff Volume (ac-ft)	0.0141
24-Hr Clear Runoff Volume (cu-ft)	613.6852



Peak Flow Hydrologic Analysis

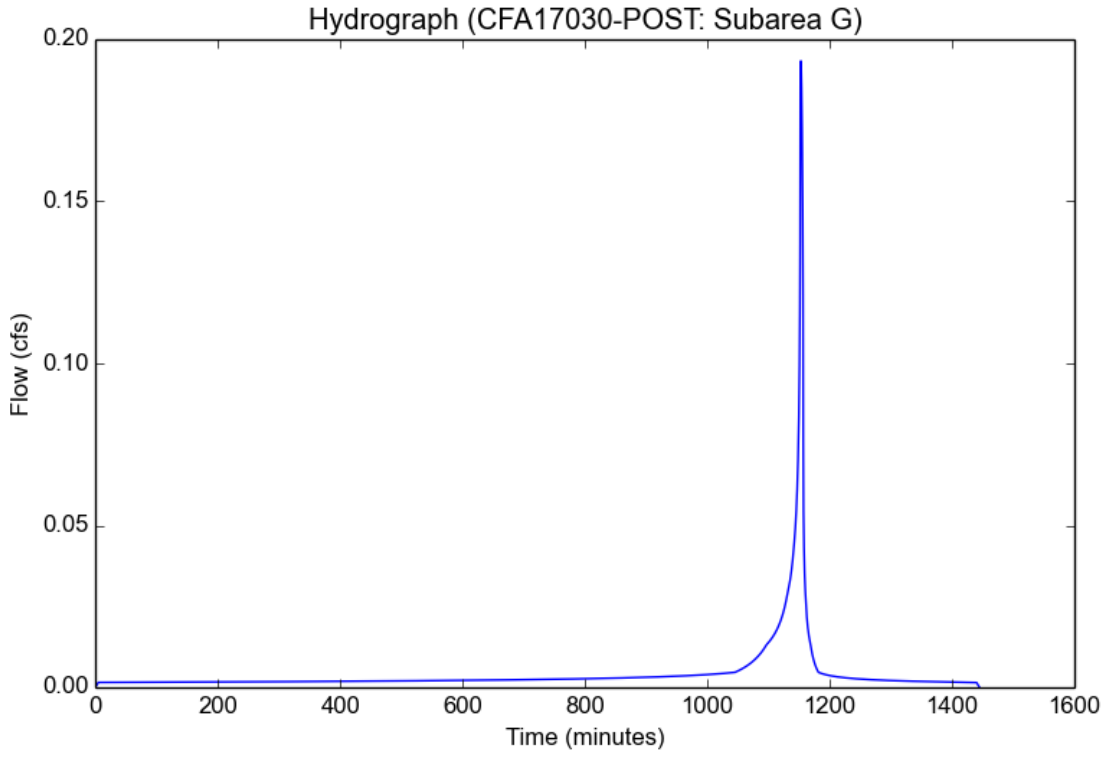
File location: P:/CFA17030/Reports/HYDROLOGY/HydroCalc/POST/CFA17030-POST-25 YR - Subarea G.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	CFA17030-POST
Subarea ID	Subarea G
Area (ac)	0.069
Flow Path Length (ft)	20.0
Flow Path Slope (vft/hft)	0.027
50-yr Rainfall Depth (in)	6.3
Percent Impervious	0.103
Soil Type	6
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	5.5314
Peak Intensity (in/hr)	3.3002
Undeveloped Runoff Coefficient (Cu)	0.8434
Developed Runoff Coefficient (Cd)	0.8492
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	0.1934
Burned Peak Flow Rate (cfs)	0.1934
24-Hr Clear Runoff Volume (ac-ft)	0.0088
24-Hr Clear Runoff Volume (cu-ft)	381.4152



3.0 HYDRAULICS ANALYSIS

3.1 24" BY 24" GRATED INLET SIZE ANALYSIS AT NODE 101

For sizing the grated inlet the 25 year storm event was analyzed.

Q_{25} = C A $\sqrt{2Gh}$

Total area: 2' X 2' = 4 sf.

Total area of opening (assume 50%) = 4 / 2 = 2.0 sf.

50% clogging factor = 2.0 / 2 = 1.0 sf.

G =32.2 ft/s^2

A=1.0 sf.

C = 0.67

Q_{25} = 1.07 cfs

1.07 = 0.67 X 1.0 $\sqrt{2X\ 32.2\ X\ h}$

h = 0.040 ft. = 0.475" ← Depth of ponding over grated inlet # 1.

3.2 24" BY 24" GRATED INLET SIZE ANALYSIS AT NODE 201

For sizing the grated inlet the 25 year storm event was analyzed.

Q_{25} = C A $\sqrt{2Gh}$

Total area: 2' X 2' = 4 sf.

Total area of opening (assume 50%) = 4 / 2 = 2.0 sf.

50% clogging factor = 2.0 / 2 = 1.0 sf.

G =32.2 ft/s^2

A=1.0 sf.

C = 0.67

Q_{25} = 0.97 cfs

0.97 = 0.67 X 1.0 $\sqrt{2X\ 32.2\ X\ h}$

h = 0.033 ft. = 0.39" ← Depth of ponding over grated inlet # 2.

3.3 24" BY 24" GRATED INLET SIZE ANALYSIS AT NODE 301

For sizing the grated inlet the 25 year storm event was analyzed.

Q_{25} = C A $\sqrt{2Gh}$

Total area: 2' X 2' = 4 sf.

Total area of opening (assume 50%) = 4 / 2 = 2.0 sf.

50% clogging factor = 2.0 / 2 = 1.0 sf.

G =32.2 ft/s^2

A=1.0 sf.

C = 0.67

Q_{25} = 1.32 cfs

1.32 = 0.67 X 1.0 $\sqrt{2X\ 32.2\ X\ h}$

h = 0.060 ft. = 0.72" ← Depth of ponding over grated inlet # 3.

3.4 24" BY 24" GRATED INLET SIZE ANALYSIS AT NODE 401

For sizing the grated inlet the 25 year storm event was analyzed.

Q_{25} = C A $\sqrt{2Gh}$

Total area: 2' X 2' = 4 sf.

Total area of opening (assume 50%) = 4 / 2 = 2.0 sf.

50% clogging factor = 2.0 / 2 = 1.0 sf.

G =32.2 ft/s^2

A=1.0 sf.

C = 0.67

Q_{25} = 1.06 cfs

1.06 = 0.67 X 1.0 $\sqrt{2X\ 32.2\ X\ h}$

h = 0.039 ft. = 0.47" ← Depth of ponding over grated inlet # 4.

3.5 24" BY 24" GRATED INLET SIZE ANALYSIS AT NODE 501

For sizing the grated inlet the 25 year storm event was analyzed.

$Q_{25} = C\ A\ \sqrt{2Gh}$

Total area: 2' X 2' = 4 sf.

Total area of opening (assume 50%) = 4 / 2 = 2.0 sf.

50% clogging factor = 2.0 / 2 = 1.0 sf.

G =32.2 ft/s^2

A=1.0 sf.

C = 0.67

Q_{25} = 0.54 cfs

$0.54 = 0.67\ X\ 1.0\ \sqrt{2X\ 32.2\ X\ h}$

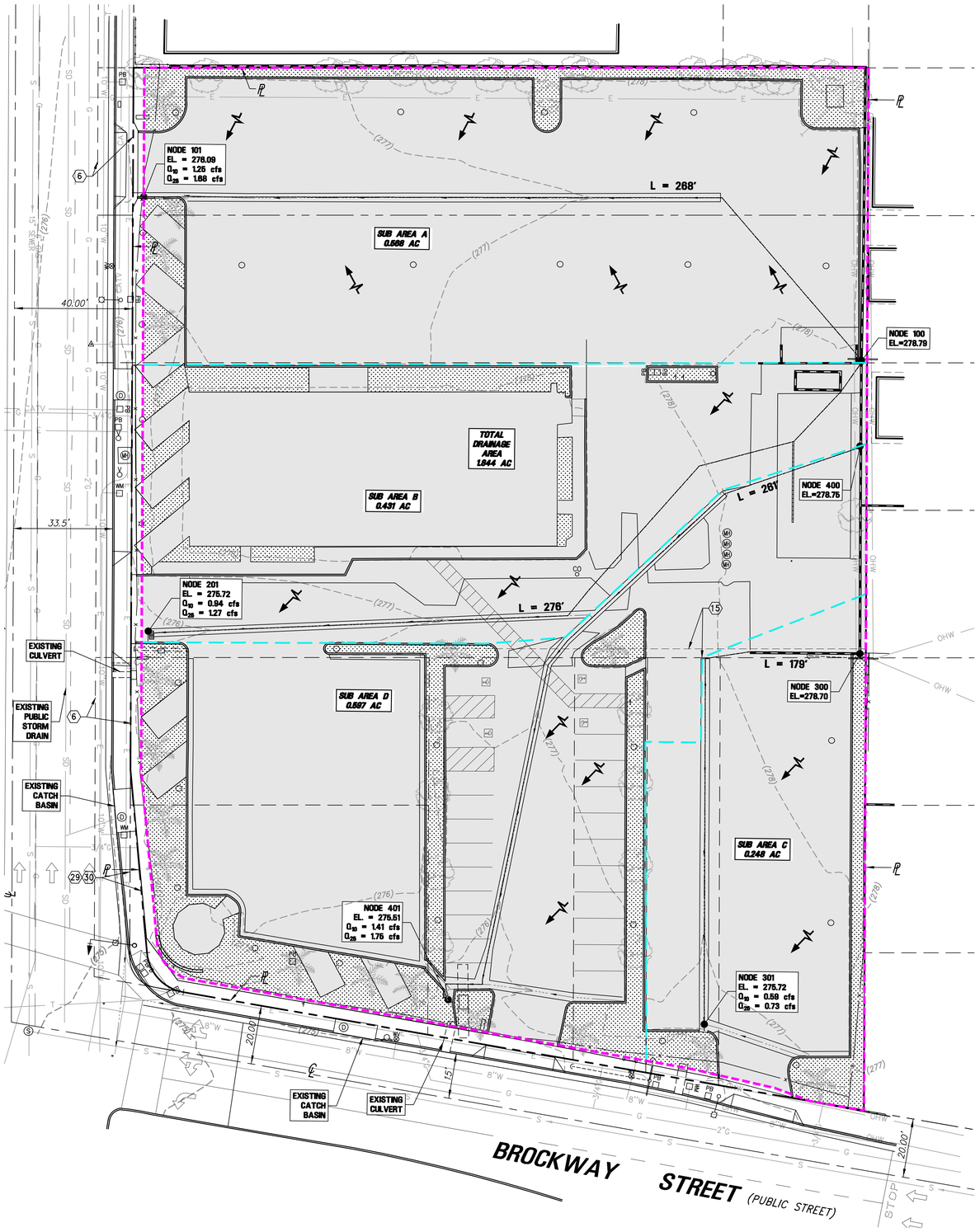
h = 0.010 ft. = 0.12" ← Depth of ponding over grated inlet # 5.

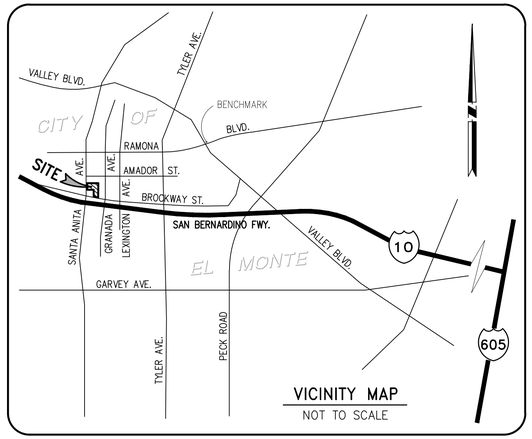
4.0 APPENDIX “A”

4.1 REFERENCE MAPS

5.0 HYDROLOGY MAPS

5.1 HYDROLOGY MAP (EXISTING CONDITION)





LEGEND

- DRAINAGE BOUNDARY
- DRAINAGE SUB-AREA BOUNDARY
- FLOWPATH
- PROPERTY LINE

101 / 450 — NODE, CONCENTRATION POINT, ELEVATION

0.497 — AREA IN ACRES

Q_{10} = 1.17 cfs — DESIGN FLOW

PERVIOUS SRUFACE
10,355 SF (0.238 AC)

IMPERVIOUS SURFACE
69,965 SF (1.606 AC)

TOTAL DESIGN FLOW RATE

TOTAL Q_{25} = 5.43 cfs

ALLOWABLE FLOW RATE

TOTAL Q_{10} = 4.19 cfs

DRAINAGE AREAS

SUB-AREA	SURFACE TYPE	AREA	PERVIOUS		IMPERVIOUS	
A	PAVEMENT	24,734 sf	2,088 sf		22,646 sf	
	LANDSCAPE	= 0.568 ac	= 0.048 ac	8.4%	= 0.520 ac	91.6%
B	PAVEMENT	18,765 sf	1,962 sf		16,803 sf	
	LANDSCAPE	= 0.431 ac	= 0.045 ac	10.5%	= 0.386 ac	89.5%
C	PAVEMENT	10,816 sf	1,305 sf		9,511 sf	
	LANDSCAPE	= 0.248 ac	= 0.030 ac	12.1%	= 0.218 ac	87.9%
D	PAVEMENT	26,005 sf	5,000 sf		21,005 sf	
	LANDSCAPE	= 0.597 ac	= 0.115 ac	19.2%	= 0.482 ac	80.8%

THIS PLAN IS:

PRELIMINARY

(NOT FOR CONSTRUCTION)

REGISTERED PROFESSIONAL ENGINEER
RANDY J. DECKER
No. 81077
CIVIL
STATE OF CALIFORNIA

NO.	REVISIONS	DATE

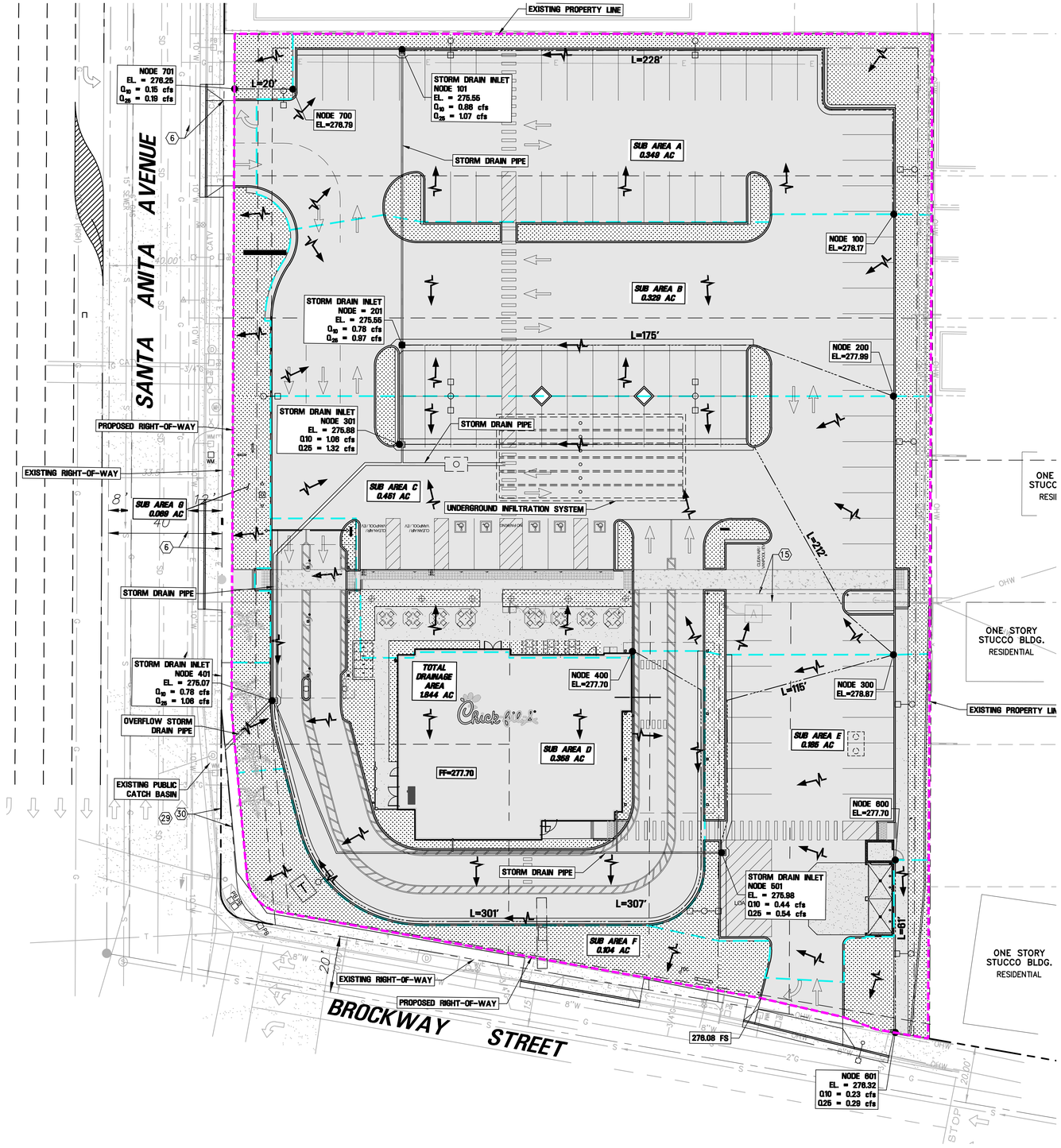
Prepared by:
Joseph C. Truxaw and Associates, Inc.
Civil Engineers and Land Surveyors
1915 W. Orangewood Ave., Suite 101, Orange, CA 92868 (714) 935-0265 Truxaw.com

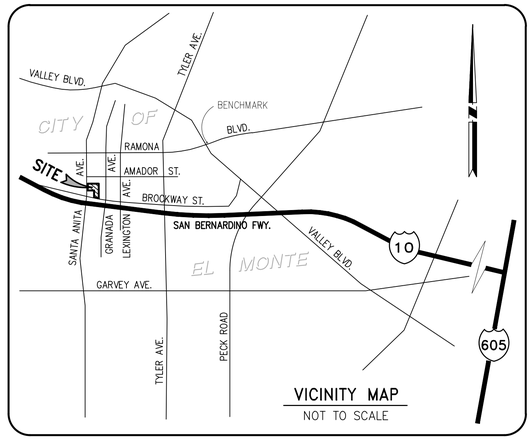
HYDROLOGY MAP–PRE COND.

CHICK–FIL A RESTAURANT #4098
3342 SANTA ANITA AVENUE
IN THE CITY OF EL MONTE, STATE OF CALIFORNIA

DATE	12/15/22
DRAWN BY	KSV
CHECKED BY	RJD
JOB NO.	CFA17030
SHEET NO.	1 OF 2 SHEETS

5.2 HYDROLOGY MAP (PROPOSED CONDITION)





LEGEND

- DRAINAGE BOUNDARY
- DRAINAGE SUB-AREA BOUNDARY
- FLOWPATH
- PROPERTY LINE
- 101 / 450 — NODE / CONCENTRATION POINT / ELEVATION
- 0.497 — AREA IN ACRES
- Q_{10}= 1.17 cfs — DESIGN FLOW
- PERVIOUS SRUFACE 18,603 SF (0.427 AC)
- IMPERVIOUS SURFACE 61,717 SF (1.417 AC)

DESIGN STORM CRITERIA

50-YEAR 24-HR ISOHYET = 6.30 in
85TH PERCENTILE RAINFALL DEPTH = 0.63 in
SOIL CLASS: 006

TOTAL DESIGN FLOW RATE

TOTAL Q_{25}= 5.44 cfs

ALLOWABLE FLOW RATE

TOTAL Q_{10}= 4.30 cfs

DRAINAGE AREAS

SUB-AREA	SURFACE TYPE	AREA	PERVIOUS		IMPERVIOUS	
A	PAVEMENT	15,191 sf	2,637 sf	17.4%	12,554 sf	
	LANDSCAPE	= 0.349 ac	= 0.061 ac		= 0.288 ac	82.6%
B	PAVEMENT	14,313 sf	1,900 sf	13.3%	12,413 sf	
	LANDSCAPE	= 0.329 ac	= 0.044 ac		= 0.285 ac	86.7%
C	PAVEMENT	19,626 sf	4,464 sf	22.7%	15,162 sf	
	LANDSCAPE	= 0.451 ac	= 0.102 ac		= 0.348 ac	77.3%
D	PAVEMENT	15,593 sf	1,703 sf	10.9%	13,890 sf	
	LANDSCAPE	= 0.358 ac	= 0.039 ac		= 0.319 ac	89.1%
E	ROOF - PAVEMENT	8,077 sf	1,277 sf	15.8%	6,800 sf	
	LANDSCAPE	= 0.185 ac	= 0.029 ac		= 0.156 ac	84.2%
F	PAVEMENT	4,534 sf	3,944 sf	87.0%	590 sf	
	LANDSCAPE	= 0.104 ac	= 0.091 ac		= 0.014 ac	13.0%
G	PAVEMENT	2,986 sf	2,678 sf	89.7%	308 sf	
	LANDSCAPE	= 0.069 ac	= 0.061 ac		= 0.007 ac	10.3%

20 10 0 20 40 60
SCALE: 1"=20'

REGISTERED PROFESSIONAL ENGINEER
RANDY J. DECKER
No. 81077
CIVIL
STATE OF CALIFORNIA

NO.	REVISIONS	DATE

Prepared by:
Joseph C. Truxaw and Associates, Inc.
Civil Engineers and Land Surveyors
1915 W. Orangewood Ave., Suite 101, Orange, CA 92868 (714) 935-0265 Truxaw.com

HYDROLOGY MAP–POST COND.

CHICK-FIL A RESTAURANT #4098
3342 SANTA ANITA AVENUE
IN THE CITY OF EL MONTE, STATE OF CALIFORNIA

DATE	12/15/22
DRAWN BY	KSV
CHECKED BY	RJD
JOB NO.	CFA17030
SHEET NO.	2
	OF 2 SHEETS

Low Impact Development Plan

Project Name:
Chick-fil-A #4098

For:
Chick-fil-A Store #4098
3342 Santa Anita Avenue
City of El Monte, County of Los Angeles, California 90746

Prepared for:
Chick-fil-A Inc.
105 Progress, Suite 100
Irvine, CA 92618

Prepared by:
Joseph C. Truxaw & Associates, Inc.
Civil Engineers & Land Surveyors
1915 W. Orangewood Avenue, Suite 101
Orange, CA 92868
(714) 935-0265

January 27, 2023

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FIGURES

Project Description

EXISTING SITE CONDITION

The project site is located at the 3342 Santa Anita Avenue on the northeast corner of the intersection of Santa Anita and Brockway in the city of El Monte. In the existing condition the site is a vacant lot that is paved with AC pavement. The site is bound on the north by an apartment complex, Santa Anita drive to the west, Brockway St to the south, and single-family houses to the east. The existing drainage condition has a ridgeline that runs roughly east-west through the parking lot that separates drainage to sheet flow north-south. The drainage from the parking lot will sheet flow west until it reaches a v-gutter and then discharge into the public R/W or it is captured by a catch basin. These catch basins appear to discharge into the public R/W through various curb face drains on Brockway St and Santa Anita Ave. Once runoff has entered the curb & gutter in both Santa Anita and Brockway St, it is conveyed by the curb & gutter to a catch basin on Brockway St that is approximately 60' east of the curb ramp at the intersection of Santa Anita and Brockway St and a catch basin on Santa Anita Ave. that is approximately 40' north of the same curb ramp. Finally, the runoff is conveyed from the catch basin to the municipal storm drain system. See Pre-Development Hydrology Plan in the Hydrology & Hydraulics Report.

PROPOSED SITE CONDITION

The proposed improvements for this site include complete demolition of existing improvements and site preparation for a single-story Chick-fil-A restaurant (5,017 sf) with a drive-thru (9,137 sf). Other planned impervious improvements include : a trash enclosure, sidewalks, a patio, and a parking field, for a total area of 47,563 sf. Associated parking will be constructed and paved with AC pavement, the drive-thru will be paved with PCC. The proposed building will be located at the southern portion of the site. The proposed grading will maintain the existing topography as best as possible. Runoff from Sub-area A, B, C, D, E, F & G will be collected into proposed catch basins on-site and will be routed via storm drainpipes and conveyed to an underground infiltration system to infiltrate the SWQDv. The underground infiltration system is located in the drive-aisle north of the proposed building. After the underground infiltration system has reached capacity, runoff will begin to fill up the pipes upstream of the system until it reaches the overflow pipe connected to the catch basin at node 401. The overflow pipe will connect into the back of the existing public catch basin along Santa Anita Avenue The proposed grading will create a slope in the proposed landscaped area around the drive-thru where runoff from the landscaped area will enter the public R/W directly at the back of sidewalk.

METHODOLOGY

The total runoff from the site will be computed using the information given by the L.A.C.D.P.W. (Los Angeles County Department of Public Works) Hydrology Manual, related to Soil Classification and 10-Year and 25-Year 24-Hour Isohyet for existing and proposed conditions. The project site is located near rainfall isohyet 6.3 in. and soil type of 06 per 1-H1.20 El Monte, 50-year 24-HOUR ISOHYET MAP (See Appendix A in the Hydrology and Hydraulics report). Calculating the 10 and 25-year storm event is consistent with County standards for the design of storm drain facilities with a flow-by condition. Nodes have been placed for the initial areas and other locations in which drainage either exits or enters the flow path. See existing and proposed hydrology map in this report.

A preliminary calculation of the 85th Percentile Rainfall Depth will provide a preliminary review of the feasibility of the Best Management Practice (BMP's). The proposed BMP shall consist of fossil filters as pretreatment then store the design storm volume in and underground storage system and finally pump the design storm volume to a biofiltration system where it will discharge by gravity flow through a curb drain in Carson Plaza Dr.

SUMMARY AND CONCLUSION

The proposed development will not substantially alter the existing drainage pattern and the onsite drainage will be conveyed by local gutters and pipes that ultimately convey the runoff to an infiltration system. Fossil Filter Inserts will be placed in all grated inlet catch basins for pretreatment prior to entering the infiltration system.

The site is located in the Los Angeles River Watershed. The pollutants of concern, as per the 2010 CWA Section 303(d) Listed Waters with Adopted TMDLs are:

Rio Hondo

a) Coliform Bacteria
b) Coper
c) Lead
d) Toxicity
e) Trash
f) Zinc
g) pH

Los Angeles River Reach 2 (Carson to Figureoa St)

a) Ammonia
b) Coliform Bacteria
c) Copper
d) Lead
e) Nurtients
f) Oil
g) Trash

Los Angeles Harbor – Consolidated Slip:

a) 2-Methylnaphthalene
b) Benthic Community Effects
c) Benzo(a)anthracene
d) Benzo(a)pyrene (3,4-Benzopyrene-7-d)
e) Cadmium (sediment)
f) Chlordane (tissue and sediment)
g) Chromium (sediment)
h) Chrysene (C1-C4)
i) Copper (sediment)
j) DDT (tissue & sediment)
k) Dieldrin
l) Lead (sediment)
m) Mercury (sediment)
n) Nickel
o) PAHs (Polycyclic Aromatic Hydrcarbons)
p) PCBs (Polychlorinated biphenyls) (tissue and sediment)
q) Phenanthrene
r) Pyrene
s) Sediment Toxicity
t) Toxaphene (tissue)
u) Zinc (sediment)

Los Angeles/Long Beach Inner Harbor:

a) Beach Closures
b) Benthic Community Effects
c) Benzo(a)pyrene (3,4-Benzopyrene-7-d)
d) Chrysene (C1-C4)
e) Copper
f) DDT (Dichlorodiphenyltrichloroethane)
g) PAHs (Polycyclic Aromatic Hydrocarbons)
h) Sediment Toxicity
i) Zinc

Los Angeles/Long Beach Outer Harbor (inside breakwater):

a) Chromium
b) Copper
c) DDt (Dichlorodiphenyltrichlorethane)
d) Nickel
e) PAHs (Polycyclic Aromatic Hydrocarbons)
f) Sediment Toxicity
g) Zinc

The Standard Industrial Classification Code which best describes the facility operations are: **5812** Restaurants, Sandwich Shops and Cafes.

The following activities will take place at this site: Preparation of meals, snacks, and beverages to customer order for immediate on-premises and off-premises consumption. Food preparation, consumption, and cleanup produce organic waste.

- Organic material will be properly stored inside the Restaurant.
- There is an outdoor walled and covered storage area next to the refuse enclosure.
- No vehicle maintenance, washing, cleaning or repair will take place at the site.
- No service bays will be provided.
- No loading dock will be necessary and no storage will take place onsite.

Existing impervious area = 87.1%	Proposed impervious area = 76.8%
Existing Site pervious area = 12.9%	Proposed pervious area = 23.2%

As per the “County of Los Angeles Department of Public Works” Low Impact Development. Standards Manual dated February 2014, and as per the activities and the characteristics of this project, it is cataloged as a **Designated Project** and requires the elaboration of a Standard Urban Stormwater Mitigation Plan.

LID SPECIFIC REQUIREMENTS

1. Treatment BMP Feasibility Study

a. *Infiltration* - The L.A.C.P.W. LID Manual defines 3 categories for feasibility of infiltration systems. The infiltration rate primarily determines whether the site is feasible for infiltration or not. The initial infiltration rates determined by Giles Engineering Associates for this site are 7.5, 12.7 & 11.4 in/hr. respectively. Backup Soils Report and testing results to follow the submittal of this report.

Other factors that determine infiltration feasibility are groundwater, Hillside Grading, and geotechnical hazards.

Because the infiltration rate is 11.4 in/hr, at the percolation test boring B-7.

Reduction Factor

Per GS200.1: $RF = RF_t + RF_v + RF_s$

Assumed $RF_t = 1$
Assumed $RF_v = 1$
Assumed $RF_s = 1$

RF=3

Reduced infiltration rate = 3.8 in/hr. → Infiltration is feasible.

b. *Harvest & Use*- The L.A.C.P.W. LID Manual defines a Harvest & Use BMP system as a system that will collect stormwater runoff and can be sued for irrigation of landscaped areas on-site. To become feasible the water demand of the landscaped areas over the course of 96 hours must exceed the Stormwater Quality Design Volume (SWQDv).

Harvest & Use was NOT Analyzed.

c. *Proprietary Bio-Treatment Device*- BioTreatment was NOT analyzed

See Section VI in Appendix for Storage and Treatment Sizing calculation.

2. Peak Stormwater Runoff Discharge Rates and Calculations

The time of concentration was computed using the HydroCalc program from LACDPW.

$$Tc = 10^{-0.507}\left(C_D I_X\right)^{-0.519} L^{0.483} s^{-0.135}$$

C_D = (0.9 x Imp) + [(1.0 – Imp) x C_u)] If $C_D < C_u$, use $C_D = C_u$

The discharge Q was computed using the Rational Formula.

EXISTING CONDITION

Sub-area A Node 100 to Node 101

Area = 0.568 acres
L = 268 ft. S = 0.01

Using the HydroCalc from LACDPW, the following values were found:

Q_{10} = 1.25 cfs.	Q_{25} = 1.68 cfs
Tc = 6 min.	Tc = 5 min.
I = 2.46 in/hr.	I = 3.30 in/hr

Sub-area B Node 200 to Node 201

Area = 0.431 acres
L = 276 ft. S = 0.011

Using the HydroCalc from LACDPW, the following values were found:

Q_{10} = 0.94 cfs.	Q_{25} = 1.27 cfs
Tc = 6 min.	Tc = 5 min.
I = 2.46 in/hr.	I = 3.30 in/hr

Sub-area C Node 300 to Node 301

Area = 0.248 acres
L = 179 ft. S = 0.0166

Using the HydroCalc from LACDPW, the following values were found:

Q_{10} = 0.59 cfs.	Q_{25} = 0.73 cfs
Tc = 5 min.	Tc = 5 min.
I = 2.68 in/hr.	I = 3.30 in/hr

Sub-area D Node 400 to Node 401

Area = 0.597 acres
L = 261 ft. S = 0.0125

Using the HydroCalc from LACDPW, the following values were found:

Q_{10} = 1.41 cfs.	Q_{25} = 1.75 cfs
Tc = 5 min.	Tc = 5 min.
I = 2.68 in/hr.	I = 3.30 in/hr

Total Site Area

Total runoff pre-development condition 10 yr Storm Event

=> 1.25 + 0.94 + 0.59 + 1.41 = 4.19 cfs

Total runoff pre-development condition 25 yr Storm Event

⇨ 1.68 + 1.27 + 0.73 + 1.75 = 5.43 cfs

PROPOSED CONDITION

Sub-area A Node 100 to Node 101

Area = 0.365 acres
L = 228 ft. S = 0.0115

Using the HydroCalc from LACDPW, the following values were found:

Q_{10} = 0.86 cfs.	Q_{25} = 1.07 cfs
Tc = 5 min.	Tc = 5 min.
I = 2.68 in/hr.	I = 3.30 in/hr

Sub-area B Node 100 to Node 201

Area = 0.329 acres
L = 175 ft. S = 0.0139

Using the HydroCalc from LACDPW, the following values were found:

Q_{10} = 0.78 cfs.	Q_{25} = 0.97 cfs
Tc = 5 min.	Tc = 5 min.
I = 2.68 in/hr.	I = 3.30 in/hr

Sub-area C Node 300 to Node 301

Area = 0.451 acres
L = 212 ft. S = 0.0141

Using the HydroCalc from LACDPW, the following values were found:

Q_{10} = 1.06 cfs.	Q_{25} = 1.32 cfs
Tc = 5 min.	Tc = 5 min.
I = 2.68 in/hr.	I = 3.30 in/hr

Sub-area D Node 400 to Node 401

Area = 0.358 acres
L = 301 ft. S = 0.0087

Using the HydroCalc from LACDPW, the following values were found:

Q_{10} = 0.78 cfs.	Q_{25} = 1.06 cfs
Tc = 6 min.	Tc = 5 min.
I = 2.46 in/hr.	I = 3.30 in/hr

Sub-area E Node 300 to Node 501

Area = 0.185 acres
L = 115 ft. S = 0.0251

Using the HydroCalc from LACDPW, the following values were found:

Q_{10} = 0.44 cfs.	Q_{25} = 0.54 cfs
Tc = 5 min.	Tc = 5 min.
I = 2.68 in/hr.	I = 3.30 in/hr

Sub-area F Node 600 to Node 601

Area = 0.104 acres
L = 61 ft. S = 0.0226

Using the HydroCalc from LACDPW, the following values were found:

Q_{10} = 0.23 cfs.	Q_{25} = 0.29 cfs
Tc = 5 min.	Tc = 5 min.
I = 2.68 in/hr.	I = 3.30 in/hr

Sub-area G Node 700 to Node 701

Area = 0.069 acres
L = 20 ft. S = 0.027

Using the HydroCalc from LACDPW, the following values were found:

Q_{10} = 0.15 cfs.	Q_{25} = 0.19 cfs
Tc = 5 min.	Tc = 5 min.
I = 2.68 in/hr.	I = 3.30 in/hr

Total Site Area

Total runoff post-development condition 10 yr Storm Event

=> 0.86 + 0.78 + 1.06 + 0.78 + 0.44 + 0.23 + 0.15 = 4.30 cfs

Total runoff post-development condition 25 yr Storm Event

=> 1.07 + 0.97 + 1.32 + 1.06 + 0.54 + 0.29 + 0.19 = 5.44 cfs

EXISTING CONDITION vs PROPOSED CONDITION DISCHARGE RATES

Q_{10} (PROPOSED) – Q_{10} (EXISTING)

Q_{10} = 4.30 – 4.19 = 0.11 [Increase of 2.6%]

Q_{25} (PROPOSED) – Q_{25} (EXISTING)

Q_{25} = 5.44 – 5.43 = 0.01 [Increase of 0.2%]

3. Minimize Stormwater Pollutants of Concern

Anticipated Pollutants of the Project Area

The anticipated pollutants in the restaurant and parking lot of this project as per Table 7-3: "Typical Pollutants of Concern by Land Use" are as follows:

Commercial – food related

- Suspended Solids
- Total Phosphorous
- Total Nitrogen
- Total Kjeldahl Nitrogen
- Copper Total
- Lead Total
- Zinc Total

The Los Angeles Co. Low Impact Development Manual defines the Water Quality Benchmarks Applicable to Stormwater Runoff Conveyed to Offsite Mitigation Site in Table 7-2.

Table 7-2. Water Quality Benchmarks Applicable to Stormwater Runoff Conveyed to Off-Site Mitigation Sites

Pollutant	Effluent Concentration
Suspended solids	14 mg/L
Total phosphorus	0.13 mg/L
Total nitrogen	1.28 mg/L
Total Kjehldahl nitrogen (TKN)	1.09 mg/L
Cadmium, total	0.3 µg/L
Copper, total	6 µg/L
Chromium, total	2.8 µg/L
Lead, total	2.5 µg/L
Zinc, total	23 µg/L

The traditional way to remove sediments is by sedimentation. Many toxic metals are attached to suspended solids and may settle out as sediment. Oil and grease as floating substances will be reduced by filtration/adsorption within the fossil filter inserts and sediment will be reduced by settling within the detention system. Pollutants will be captured in the SWQDv, detained onsite in the underground detention system, and discharged into the landscaped area. The pollutants will not enter the municipal storm drain system.

4. Source Control BMPs

Source Control BMPs, structural and non-structural and Treatment BMPs will be implemented after construction and before the operation of the restaurant, inspection, maintenance frequency and inspection criteria and the responsible party is described in detail in the "BMP Operations and Maintenance Plan" see page 33.

IMPLEMENTED?	YES	NO	NOT APPLICABLE
S-1 Storm Drain Message and Signage	X		.
S-2 Outdoor Material Storage Area			X
S-3 Outdoor Trash Storage/Waste Handling Area	X		
S-4 Outdoor Loading/Unloading Dock Area			X
S-5 Outdoor Vehicle/Equipment Repair/Maint. Area			X
S-6 Outdoor Vehicle/Equipment Accessory Wash Area			X
S-7 Fuel & Maintenance Area			X
S-8 Landscape Irrigation Practices	X		
S-9 Building Materials	X		
S-10 Animal Care and Handling Facilities			X
S-11 Outdoor Horticulture Areas			X

S-1: Storm Drain Message and Signage

Purpose

Waste material dumped into storm drain inlets can adversely impact surface and ground waters. In fact, any material discharged into the storm drain system has the potential to significantly impact downstream receiving waters. Storm drain messages have become a popular method of alerting and reminding the public about the effects of and the prohibitions against waste disposal into the storm drain system. The signs are typically stenciled or affixed near the storm drain inlet or catch basin. The message simply informs the public that dumping of wastes into storm drain inlets is prohibited and/or that the drain ultimately discharges into receiving waters.

General Guidance

- The signs must be placed so they are easily visible to the public.
- Be aware that signs placed on sidewalk will be worn by foot traffic.

Design Specifications

- Signs with language and/or graphical icons that prohibit illegal dumping, must be posted at designated public access points within the project area.
- Storm drain message markers, placards, concrete stamps, or stenciled language/icons (e.g., “No Dumping – Drains to the Ocean”) are required at all storm drain inlets and catch basins within the project area to discourage illegal or inadvertent dumping. Signs should be placed in clear sight facing anyone approaching the storm drain inlet or catch basin from either side. A stencil can be purchased for a nominal fee from LACDPW Building and Safety Office by calling (626) 458-3171. All storm drain inlet and catch basin locations are identified on the project site map.

S-2: Outdoor Material Storage Area

No Applicable.

S-3: Outdoor Trash Storage and Waste Handling Area

Purpose

Stormwater runoff from areas where trash is stored or handled can be polluted. Loose trash and debris can be easily transported by water or wind into nearby storm drain inlets, channels, and/or receiving waters. Waste handling operations (i.e., dumpsters, litter control, waste piles) may be sources of stormwater pollution.

Design Specifications

Wastes from industrial sites are typically hauled away for disposal by either public or commercial carriers that may have design or access requirements for waste storage areas. The waste hauler should be contacted prior to the design of trash storage and collection areas to determine established and accepted

guidelines for designing trash collection areas. All hazardous waste must be handled in accordance with the legal requirements established in Title 22 of the California Code of Regulations.

S-4: Outdoor Loading/Unloading Dock Area

No Applicable.

S-5: Outdoor Vehicle/Equipment Repair/Maintenance Area

No Applicable.

S-6: Outdoor Vehicle/Equipment/Accessory Washing Area

No Applicable.

S-7: Fuel and Maintenance Area

No Applicable.

S-8: Landscape Irrigation Practices

Purpose

Irrigation runoff provides a pathway for pollutants (i.e., nutrients, bacteria, organics, sediment) to enter the storm drain system. By effectively irrigating, less runoff is produced resulting in less potential for pollutants to enter the storm drain system.

General Guidance

- Do not allow irrigation runoff from the landscaped area to drain directly to storm drain system.
- Minimize use of fertilizer, pesticides, and herbicides on landscaped areas.
- Plan sites with sufficient landscaped area and dispersal capacity (e.g., ability to receive irrigation water without generating runoff).
- Consult a landscape professional regarding appropriate plants, fertilizer, mulching applications, and irrigation requirements to ensure healthy vegetation growth.

Design Specifications

- Choose plants that minimize the need for fertilizer and pesticides.
- Group plants with similar water requirements and water accordingly.
- Use mulch to minimize evaporation and erosion.
- Include a vegetative boundary around project site to act as a filter.
- Design the irrigation system to only water areas that need it.

- Install an approved subsurface drip, pop-up, or other irrigation system.[1] The irrigation system should employ effective energy dissipation and uniform flow spreading methods to prevent erosion and facilitate efficient dispersion.
- Install rain sensors to shut off the irrigation system during and after storm events.
- Include pressure sensors to shut off flow-through system in case of sudden pressure drop. A sudden pressure drop may indicate a broken irrigation head or water line.
- If the hydraulic conductivity in the soil is not sufficient for the necessary water application rate, implement soil amendments to avoid potential geotechnical hazards (i.e., liquefaction, landslide, collapsible soils, and expansive soils).

For sites located on or within 50 feet of a steep slope (15% or greater), do not irrigate landscape within three days of a storm event to avoid potential geotechnical instability.

- Implement Integrated Pest Management practices.

S-9: Building Materials Selection

Purpose

Building materials can potentially contribute pollutants of concern to stormwater runoff through leaching. For example, metal buildings, roofing, and fencing materials may be significant sources of metals in stormwater runoff, especially due to acidic precipitation. The use of alternative building materials can reduce pollutant sources in stormwater runoff by eliminating compounds that can leach into stormwater runoff. Alternative building materials may also reduce the need to perform maintenance activities (i.e., painting) that involve pollutants of concern, and may reduce the volume of stormwater runoff. Alternative materials are available to replace lumber and paving.

Design Specifications

Lumber

Decks and other house components constructed using pressure-treated wood that is typically treated using arsenate, copper, and chromium compounds are hazardous to the environment. Pressure-treated wood may be replaced with cement-fiber or vinyl.

Roofs, Fencing, and Metals

Minimizing the use of copper and galvanized (zinc-coated) metals on buildings and fencing can reduce leaching of these pollutants into stormwater runoff. The following building materials are conventionally made of galvanized metals:

- Metal roofs;
- Chain-link fencing and siding; and
- Metal downspouts, vents, flashing, and trim on roofs.

Architectural use of copper for roofs and gutters should be avoided. As an alternative to copper and galvanized materials, coated metal products are available for both roofing and gutter application. Vinyl-coated fencing is an alternative to traditional galvanized chain-link fences. These products eliminate contact of bare metal with precipitation or stormwater runoff, and reduce the potential for stormwater runoff contamination. Roofing materials are also made of recycled rubber and plastic.

S-10: Animal Care and Handling Facilities

No Applicable.

S-11: Outdoor Horticulture Areas

No Applicable.

5. Conserve Natural Areas

Total landscape area is 15093 sf. New landscape is implemented using native and drought tolerant plants. Parking lot islands and other landscaped areas are used.

6. Provide Proof of Ongoing BMP Maintenance

See V. Maintenance Covenant at the end on the document.

BMP Operations and Maintenance Plan

BMP	Responsible Party	Maintenance Activity	Inspection/Maintenance Frequency
Source Control BMPs			
S-1 Storm Drain Message and Signage	Chick-fil-A	Legibility and visibility of markers and signs should be maintained (e.g., signs should be repainted or replaced as necessary). If required by LACDPW, the owner/operator shall enter into a maintenance agreement with the agency or record a deed restriction upon the property title to maintain the legibility of placards and signs.	Once every 6 months.
S-3 Outdoor Trash Storage and Waste Handling Area	Chick-fil-A	The integrity of structural elements that are subject to damage (e.g., screens, covers, signs) must be maintained by the owner/operator as required by local codes and ordinances. Outdoor material storage areas must be checked periodically to ensure containment of accumulated water and prevention of stormwater run-on. Any enclosures should be checked periodically to ensure spills are contained efficiently. Maintenance agreements between LACDPW and the owner/operator may be required. Failure to properly maintain building and property may subject the property owner to citation.	Once a week with maintenance activities.
S-8 Landscape Irrigation	Chick-fil-A	Maintain irrigation areas to remove trash and debris and loose vegetation. Rehabilitate areas of bare soil. If a rain or pressure	Once a week with maintenance activities

Practices		sensor is installed, it should be checked periodically to ensure proper function. Inspect and maintain irrigation equipment and components to ensure proper functionality. Clean equipment as necessary to prevent algae growth and vector breeding. Maintenance agreements between LACDPW and the owner/operator may be required. Failure to properly maintain building and property may subject the property owner to citation.	
S-9 Building Materials Selection	Chick-fil-A	The integrity of structural elements that are subject to damage (e.g., signs) must be maintained by the owner/operator as required by local codes and ordinances. Maintenance agreements between LACDPW and the owner/operator may be required. Failure to properly maintain building and property may subject the property owner to citation.	Once a week with maintenance activities
Treatment Control BMPs			
Cultec Infiltration System	Chick-fil-A	The owner will routinely inspect the stormwater infiltration system. Owner to contract with manufacturer of the infiltration system, located as shown on plans, the service of maintenance.	Monthly and prior to October 1st each year. Per manufacturer's specifications.

The funding for the treatment by the treatment and structural BMPs will be provided by the Chick-fil-A, Inc., through the current budget for Operation and Maintenance.

Responsible Party Information:

Name: Carlos Arias
Company: Chick-fil-A Inc.
105 Progress, Suite 105
Irvine CA 92618
Phone Number: (404) 305-4834

7. Properly Design to Limit Oil Contamination and Perform Maintenance

Remove oil and petroleum hydrocarbons if any at the drive-way using housekeeping cleaning fluids or calling industrial and commercial cleaning services contractors. Remove oil and petroleum hydrocarbons at the drive way per BMP Operation and Maintenance Plan above (Private Street sweeping)

Follow the procedures given by CASQA "Parking/Storage Area Maintenance SC-43" when cleaning heavy oily deposits:

- Clean oily spots with absorbent materials
- Use a screen or filter fabric over inlet, then wash surfaces
- Do not allow discharges to the storm drain
- Vacuum/pump discharges to a tank or discharge to sanitary sewer
- Appropriately dispose of spilled materials and absorbents

The best demonstration that the above BMP measures will remove oil and petroleum hydrocarbons at the driveway and drive thru is to contract with a commercial cleaning service contractor for regular maintenance. He must keep a log book of maintenance and procedures performed and are ready to share results when required.

8. Hydromodification Requirements

Hydromodification is the consideration within a drainage design to control the peak discharge flow rate so that the discharge velocity remains relatively low. Agencies under an MS4 permit are required to investigate hydromodification in their design of new and redevelopment projects. The goal of hydromodification design considerations are to match existing/pre-development flow velocities as best as possible. Increased flow velocities can have a drastic effect on natural drainage passageways including erosion and increased sediment transport, both of which can have negative effects on the local ecology.

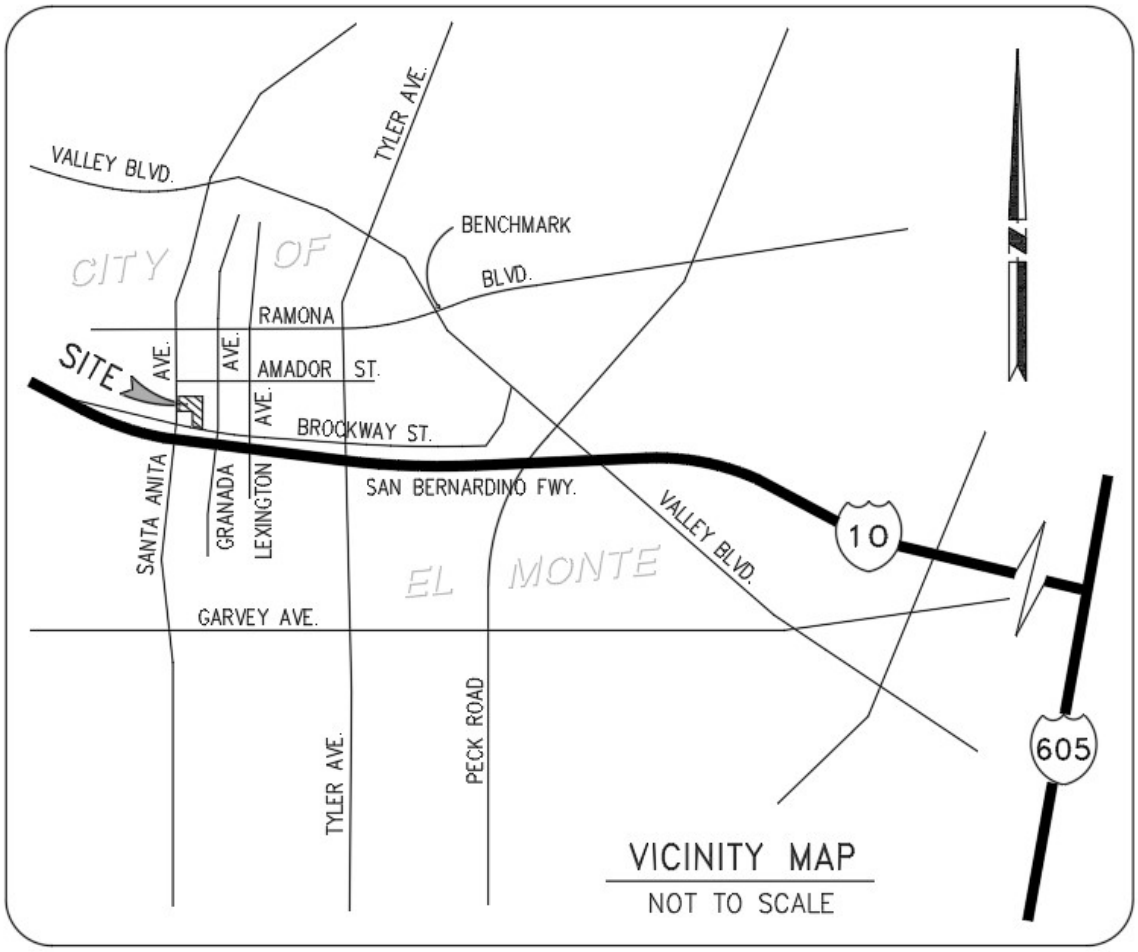
This site design will implement a treatment BMP to store the SWQDv to infiltrate on-site. In events where the peak discharge flowrate is greater than the 85^{th} percentile discharge the site runoff will backup up in the storm drain system and

discharge out of the 18” storm drain pipe in the drive-thru. This pipe will be connected directly to a City owned catch basin where the runoff will be conveyed to the Rio Hondo Channel completely by concrete lined storm drain pipes

Per LACDPW Low Impact Development Section 8.2 Exemptions to Hydromodification Requirements, any site draining to a concrete lined or otherwise engineered channel is **exempt** from hydromodificaiton requirements, therefore this site does not need to fulfill any hydromodification requirements.

Appendix

I. Vicinity Map



II. Site and Project Plans

CITY OF EL MONTE

GRADING AND DRAINAGE PLAN

NEC SANTA ANITA AVE & BROCKWAY ST.

APN: 8579-005-024, -026, -027, -028

LEGAL DESCRIPTION: SEE SHEET 2

TENTATIVE MAP NO. 83565

GRADING AND DRAINAGE NOTES & REQUIREMENTS

1. NO WORK SHALL BE DONE WITHOUT APPROVED PLANS FROM THE CITY ENGINEER.
2. PROVISIONS SHALL BE MADE FOR CONTRIBUTORY DRAINAGE AT ALL TIMES.
3. THE UNDERSIGNED CIVIL ENGINEER HEREBY STATES THAT THESE PLANS WERE PREPARED BY HIM/HER OR UNDER HIS/HER SUPERVISION, AND THAT THE PLANS CONFORM TO ALL PERTINENT PROVISIONS OF CHAPTERS 18 AND 33 OF THE LATEST EDITION OF THE CALIFORNIA BUILDING CODE AND ALL CITY ORDINANCES.
4. REGISTERED GEOTECHNICAL ENGINEER OF RECORD WHO PREPARED THE SOILS REPORT FOR THE PROJECT SHALL MONITOR AND SUPERVISE ALL ASPECTS OF THE GRADING OPERATIONS. REGISTERED GEOTECHNICAL ENGINEER SHALL ENSURE SOIL STABILITY AND JOB SITE CONSTRUCTION SAFETY AND SUBMIT PERIODIC REPORTS TO THE CITY ENGINEER. A FINAL SOILS REPORT AND COMPACTION REPORT PREPARED BY THE REGISTERED GEOTECHNICAL ENGINEER SHALL BE SUBMITTED PRIOR TO POURING OF THE FOUNDATIONS. THIS REPORT SHALL INDICATE THAT ALL GRADING OPERATIONS WERE PERFORMED IN COMPLIANCE WITH THE APPROVED SOILS REPORT.
5. THE PLANNING DEPARTMENT MUST APPROVE HEIGHT OF THE PROPOSED PROPERTY STRUCTURES, WALLS, AND FENCES. THIS PLAN DOES NOT PROVIDE APPROVAL FOR THOSE ITEMS.
6. IT IS THE APPLICANT'S RESPONSIBILITY TO OBTAIN APPROVAL FOR BUILDING SETBACKS, LAYOUTS, HEIGHT, AND SIZE OF ALL STRUCTURES FROM THE CITY'S PLANNING DEPARTMENT. THIS PLAN DOES NOT GRANT APPROVAL FOR THESE ITEMS.
7. ALL BLOCK WALLS SHOWN ON THE PLAN SHALL BE CONSTRUCTED AFTER OBTAINING A PERMIT FROM THE BUILDING DEPARTMENT.
8. APPROVED PROTECTIVE MEASURES AND DRAINAGE PROVISIONS SHALL BE PROVIDED TO PROTECT ADJOINING PROPERTIES FROM DEPOSITION OF MATERIAL OR RUNOFF ORIGINATING FROM THIS PROPERTY BOTH DURING AND AFTER ALL PHASES OF CONSTRUCTION. EXISTING NATURAL DRAINAGE, EXISTING FLOW LINES, EXISTING SHEET FLOW RUNOFF, EXISTING DRAINAGE IN PIPES, SWALES, AND CONDUITS ALLOWED TO DISCHARGE ONTO THIS PROPERTY FROM ADJACENT LAND SHALL NOT BE BLOCKED, REDIRECTED, CONCENTRATED OR ACCELERATED BY THE CONSTRUCTION OF WALLS, CURBS, BERMS OR ANY OTHER STRUCTURES, AND THE PLACEMENT OF ANY OTHER CONSTRUCTION. ABSOLUTELY NO CROSS LOT DRAINAGE ALLOWED.
9. ALL OFFSITE AND ONSITE IMPROVEMENTS SHALL BE COMPLETED TO THE SATISFACTION OF THE CITY ENGINEER.
10. NO GRADING SHALL COMMENCE PRIOR TO THE APPROVAL AND SIGNATURE OF THIS GRADING PLAN BY THE CITY ENGINEER AND ISSUANCE OF A GRADING PERMIT BY THE ENGINEERING DEPARTMENT.
11. THESE PLANS HAVE BEEN CHECKED BY THE CITY ONLY IN CONFORMANCE WITH CITY STANDARDS, COMPLIANCE WITH DEVELOPMENT CONDITIONS, AND FOR GENERAL CONCEPTUAL APPROVAL OF THE DRAINAGE AND PARKWAY IMPROVEMENTS SHOWN HEREON. NO DETAILED MATHEMATICAL CHECK OR FIELD SURVEY WAS MADE FOR THE ACCURACY OF THE EXISTING OR PROPOSED DIMENSIONS, LINES, SIZES OF PIPES, AND STORM DRAIN STRUCTURES OR GRADES SHOWN INCLUDING ALL EXISTING UTILITIES SHOWN OR NOT SHOWN. NO CHECKS WERE MADE ON THE DESIGN INFRASTRUCTURES AND STRUCTURES SHOWN ON THESE PLANS. THESE PLANS WERE CHECKED ON THE ASSUMPTION THAT ALL BUILDING LAYOUTS, SETBACKS, AND SITE PLANS WERE INITIALLY APPROVED BY THE APPROPRIATE ENTITIES.
12. THE CIVIL ENGINEER FOR THE PROJECT SHALL SUBMIT TO THE CITY ENGINEER, UPON COMPLETION OF THE GRADING OPERATIONS AND PRIOR TO POURING OF FOUNDATIONS, A PAD GRADING CERTIFICATION LETTER INDICATING THE PAD WAS GRADED TO WITHIN 0.1 FEET OF THE GRADES SHOWN ON THE APPROVED GRADING PLAN. THIS CERTIFICATE SHALL BE VALID, IN THE ABSENCE OF RAIN, FOR 90 DAYS AFTER COMPLETION OF THE GRADING OPERATIONS.

    NOTE: A BUILDING PERMIT WILL NOT BE ISSUED UNTIL A PAD GRADING CERTIFICATION LETTER HAS BEEN SUBMITTED TO THE BUILDING DEPARTMENT.
13. ALL WORK PROPOSED IN THE PUBLIC RIGHT-OF-WAY REQUIRES A SEPARATE ENCROACHMENT OR CONSTRUCTION PERMIT. A LICENSED CONTRACTOR FROM THE STATE OF CALIFORNIA MUST POSSESS LIABILITY INSURANCE, WORKERS COMPENSATION, AND A VALID CONTRACTORS LICENSE TO PERFORM THE SPECIFIC DUTY IN THE PUBLIC RIGHT-OF-WAY.
14. OWNER/DEVELOPER/CONTRACTOR TO INSTALL LANDSCAPING AND AN AUTOMATIC IRRIGATION SYSTEM IN THE PUBLIC RIGHT-OF-WAY
15. LOTS SHALL SLOPE OR DRAIN TO AN ADJACENT PUBLIC STREET AT A MINIMUM RATE OF 1%, UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER.
16. THE EARTHWORK QUANTITIES SHOWN HERE UNDER ARE FOR PERMIT AND BONDING PURPOSES. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF THE QUANTITIES.
17. CUBIC YARDS OF CUT: 3,400
    CUBIC YARDS OF OVER-EXCAVATIONS: N/A
    TOTAL CUBIC YARDS OF CUT/EXCAVATION: 3,400
    ESTIMATED PERCENTAGE (%) OF SHRINKAGE LOSS: N/A
    AVAILABLE CUBIC YARDS FOR FILL/BACKFILL: 3,400
    CUBIC YARDS OF FILL: 200
    CUBIC YARDS OF OVER-EXCAVATION BACKFILL: N/A
    TOTAL CUBIC YARDS OF FILL/BACKFILL: 200
    CUBIC YARDS OF IMPORT/EXPORT: 3,200 (EXPORT)
18. ALL GROUND OR PAVED AREA ADJACENT TO ANY STRUCTURE SHALL SLOPE AT A MINIMUM OF 2% AWAY FROM THE STRUCTURE FOR A MINIMUM OF 5 FEET. ALL FINISHED GRADE FLOW LINE ELEVATIONS WITHIN 5 FEET OF STRUCTURES SHALL BE AT AN ELEVATION OF 4 INCHES BELOW THE FINISHED FLOOR OF THE STRUCTURE. MINIMUM 6 INCH YARD DRAIN WITH 6 INCH PIPE TO BE INSTALLED IN SIDE YARDS AND BACK YARDS AT 20 FEET SPACING, AND AT LOCATIONS WHERE IT WOULD INTERCEPT THE RUNOFF.
19. CONTRACTOR SHALL IMPLEMENT ALL CITY, COUNTY, STATE, AND FEDERAL JOB SITE SAFETY REQUIREMENTS AS THEY RELATE TO DUST CONTROL, EMPLOYEE AND PUBLIC SAFETY, EQUIPMENT MOVEMENT, NOISE, HOURS OF WORK AND CONSTRUCTION STANDARDS, EXCAVATION, GRADING, TOXIC, DELETERIOUS AND HAZARDOUS MATERIALS AND SHALL MINIMIZE ANY INCONVENIENCE TO THE PUBLIC.
20. THESE NOTES SHALL TAKE PRECEDENCE OVER THE INFORMATION APPEARING ON THE GRADING/DRAINAGE PLANS.
21. THE PROPERTY OWNER/DEVELOPER/CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF CLEANING AND HAULING ANY HAZARDOUS AND DETRIMENTAL MATERIAL FROM THE SITE DISCOVERED DURING AND AFTER GRADING.
22. CONTRACTOR SHALL REMOVE AND REPLACE ALL BROKEN, CRACKED OR RAISED SIDEWALKS, DRIVEWAYS, AND/OR CURB AND GUTTER WITHIN THE PUBLIC RIGHT-OF-WAY AT THE DIRECTION OF THE PUBLIC WORKS INSPECTOR/CITY ENGINEER.
23. CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL UNDERGROUND UTILITY LINES OR STRUCTURES WHETHER SHOWN OR NOT SHOWN ON THIS PLAN AND SHALL BE RESPONSIBLE FOR PROTECTING THEM FROM DAMAGE. THE CONTRACTOR SHALL CALL UNDERGROUND SERVICE ALERT AT 1-800-422-4133 TWO (2) WORKING DAYS PRIOR TO DIGGING.
24. IN THE EVENT THE CITY HAS PERMITTED THE USE OF SUMP PUMPS TO PROVIDE SURFACE DRAINAGE FOR THIS PROJECT, THE OPERATION AND MAINTENANCE OF SUCH PUMPS SHALL BE SOLELY THE RESPONSIBILITY OF THE PROPERTY OWNERS. THE CITY SHALL BEAR NO LIABILITY FOR ANY DAMAGES FROM FLOODING OR OTHER DAMAGES CAUSED BY INOPERABLE OR IMPROPERLY OPERATING OR MAINTAINED SUMP PUMPS.
25. ALL DRAINAGE SYSTEMS, DRAIN PIPES, CATCH BASINS, CURB DRAINS, CULVERTS, GUTTERS, SWALES, OPEN CHANNELS, AND UNDERGROUND STORM DRAIN PIPES SERVING THE DEVELOPMENT AND LOCATED ON PRIVATE PROPERTY AND PUBLIC RIGHT-OF-WAY, SHALL BE MAINTAINED BY THE PROPERTY OR BUSINESS OWNERS.
26. ALL STRUCTURES MUST HAVE RAIN GUTTERS AND DOWNDRAINS INSTALLED.
27. ALL DEVELOPMENTS WITH SURFACE DRAINAGE DIRECTED TOWARDS THE DRIVEWAY APPROACH MUST HAVE A 12" TRENCH DRAIN INSTALLED AT THE PROPERTY LINE. THE TRENCH DRAIN MUST BE CONNECTED TO A CURB DRAIN WITH A MINIMUM 14" WIDE RECTANGULAR BOX CULVERT IN THE PARKWAY AREA.
28. ALL PARKWAY DRAINS MUST BE A MINIMUM 4" X 14" CULVERT BOX, OR THREE 4" CAST IRON CURB DRAINS.

NPDES REQUIREMENTS: ALL CONSTRUCTION ON OFF-SITE OR ON-SITE IMPROVEMENTS SHALL ADHERE TO NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES) BEST MANAGEMENT PRACTICES (BMP) TO PREVENT DELETERIOUS MATERIALS OR POLLUTANTS FROM ENTERING THE CITY OR COUNTY STORM DRAIN SYSTEMS.

THE FOLLOWING SHOULD BE ADHERED TO:

A. PRE-CONSTRUCTION AND DURING CONSTRUCTION REQUIREMENTS

1. HANDLE, STORE, AND DISPOSE OF MATERIALS PROPERLY.
2. AVOIDING EXCAVATION AND GRADING ACTIVITIES DURING WET WEATHER.
3. CONSTRUCT DIVERSION DIKES AND DRAINAGE SWALES AROUND WORKING SITES.
4. COVER STOCKPILES AND EXCAVATED SOIL WITH SECURED TARPS OR PLASTIC SHEETING.
5. DEVELOP AND IMPLEMENT EROSION CONTROL PLANS.
6. CHECK AND REPAIR LEAKING EQUIPMENT AWAY FROM CONSTRUCTION SITE.
7. DESIGNATE A LOCATION AWAY FROM STORM DRAINS FOR REFUELING.
8. COVER AND SEAL CATCH BASINS WHENEVER WORKING IN THEIR VICINITY.
9. USE VACUUM WITH ALL CONCRETE SAWING OPERATIONS.
10. NEVER WASH EXCESS MATERIAL FROM AGGREGATE, CONCRETE OR EQUIPMENT ONTO A STREET.
11. CATCH DRIPS FROM PAVER WITH DRIP PANS OR ABSORBENT MATERIAL.
12. CLEAN UP ALL SPILLS USING DRY METHODS.
13. SWEEP ALL GUTTERS AT THE END OF EACH WORKING DAY. GUTTERS SHALL BE KEPT CLEAN AFTER LEAVING CONSTRUCTION SITE.
14. DURING CONSTRUCTION, DUMPSTER(S) SHALL BE SET ON SITE, AT ALL TIMES.
15. CALL 911 IN CASE OF A HAZARDOUS SPILL.
16. KEEP A RUNNING LOG OF ALL ACTIVITIES IN CONNECTION WITH THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP)
17. NAME A PERSON, ON SITE RESPONSIBLE FOR COMPLYING WITH SWPPP.
18. PROVIDE EVIDENCE OF SUBMITTAL OF A STATE NOTICE OF INTENT (NOI) TO OBTAIN COVERAGE UNDER THE GENERAL CONSTRUCTION ACTIVITIES STORM WATER PERMIT (GCASP) NPDES CAS000002, (IF APPLICABLE).

CONTRACTOR MUST COMPLY WITH NPDES REQUIREMENTS, REGULATIONS, AND CITY ENGINEER'S DIRECTIONS DURING THE COURSE OF CONSTRUCTION.

B. POST-CONSTRUCTION REQUIREMENTS (LOW IMPACT DEVELOPMENT, LID; CITY ORDINANCE 2840.)

DEVELOPERS MUST INCORPORATE APPROPRIATE LID REQUIREMENTS INTO THEIR PROJECT PLANS (LOCATION OF PROPOSED BMPS W/MANUFACTURER'S INSTALLATION NOTES AND CONSTRUCTION REQUIREMENTS: MODEL, SIZE, MATERIAL, TYPE, DIMENSIONS, VOLUMETRIC CAPACITY AND MANUFACTURER'S TREATMENT CAPACITY). THE CITY ENGINEER WILL APPROVE THE PROJECT PLAN AS PART OF THE DEVELOPMENT PLAN APPROVAL PROCESS AND PRIOR TO ISSUING BUILDING AND GRADING PERMITS FOR THE PROJECTS COVERED BY THE LID.

1. PEAK STORM WATER RUNOFF DISCHARGE RATE: POST-DEVELOPMENT PEAK STORM WATER RUNOFF DISCHARGE RATE SHALL NOT EXCEED THE ESTIMATED PRE-DEVELOPMENT RATE FOR DEVELOPMENTS WHERE THE INCREASED PEAK STORM WATER DISCHARGE RATE WILL RESULT IN INCREASED POTENTIAL FOR DOWNSTREAM EROSION.
2. CONSERVE NATURAL AREAS.
3. MINIMIZE STORMWATER POLLUTANTS OF CONCERN.
4. PROTECT SLOPES AND CHANNELS.
5. PROVIDE STORM DRAIN SYSTEM STENCILING AND SIGNAGE.
6. PROPERLY DESIGN OUTDOOR MATERIAL STORAGE AREAS.
7. PROPERLY DESIGN TRASH STORAGE AREAS.
8. PROVIDE PROOF OF ONGOING BMP MAINTENANCE.
9. DESIGN STANDARDS FOR STRUCTURAL OR TREATMENT CONTROL BMPS. INFILTRATE, FILTER OR TREAT THE STORMWATER RUNOFF (EITHER VOLUMETRIC OR FLOW BASED TREATMENT CONTROL DESIGN, OR BOTH).
10. PROPERLY DESIGN LOADING/UNLOADING DOCK AREAS (IF APPLICABLE).
11. PROPERLY DESIGN REPAIR/MAINTENANCE BAYS (IF APPLICABLE).
12. PROPERLY DESIGN VEHICLE/EQUIPMENT WASH AREAS (IF APPLICABLE).
13. PROPERLY DESIGN FUELING AREAS (IF APPLICABLE).
14. PROPERLY DESIGN PARKING AREA (IF APPLICABLE); LIMIT OIL CONTAMINATION AND PERFORM MAINTENANCE.

I, THE UNDERSIGNED, AGREE TO COMPLY WITH ALL POST CONSTRUCTION NPDES REQUIREMENTS, AND ALSO AGREE TO MAINTAIN THE STORMWATER POLLUTION PREVENTION SYSTEMS INSTALLED FOR AN INDEFINITE PERIOD OF TIME.

_____ _____ _____
DEVELOPER/APPLICANT/OWNER (PRINT NAME) | SIGNATURE | DATE

I, THE UNDERSIGNED, OWNER/REPRESENTATIVE OF THE CONTRACTING COMPANY PERFORMING THE GRADING/DRAINAGE OPERATIONS, WILL COMPLY WITH THESE NOTES AND ALL OTHER APPLICABLE RULES.

_____ _____ _____ _____
COMPANY NAME (PRINT NAME) | LIC #, EXP DATE | SIGNATURE | DATE

THE CITY DOES NOT POSSESS THE ADEQUATE RESOURCES TO CONSTANTLY MONITOR THE OPERATIONS DESCRIBED ON THIS PLAN. THE CITY'S REVIEW AND FINAL INSPECTION AND ACCEPTANCE OF THE GRADING, DRAINAGE, AND OFFSITE/ONSITE IMPROVEMENTS ON THIS PROPERTY ARE DISCRETIONARY AND THE RESPONSIBILITY TO CORRECT ANY DEFICIENCIES OR VIOLATIONS REMAINS WITH THE PROPERTY OWNER.

THE DEVELOPER, CONTRACTOR, AND PROPERTY OWNER ARE RESPONSIBLE FOR COMPLIANCE WITH THIS PLAN AND CITY, STATE, AND FEDERAL ORDINANCES RELATED TO GRADING ,DRAINAGE, AND OFFSITE/ONSITE IMPROVEMENTS.

I, NAMED BELOW, AGREE TO COMPLY WITH ALL REQUIREMENTS ON THIS PLAN AND ALL ORDINANCES, LAWS, AND CODES RELATED TO GRADING, DRAINAGE, AND OFFSITE/ONSITE IMPROVEMENTS AND AGREE TO CORRECT ANY DEFICIENCIES AND ADDRESS ANY COMPLAINTS RELATING TO GRADING, DRAINAGE, AND OFFSITE/ONSITE IMPROVEMENTS ON THE PROPERTY SHOWN ON THIS PLAN. I ALSO AGREE TO CORRECT ANY DEFICIENCIES LOCATED ON THE ADJACENT PROPERTIES AND PUBLIC RIGHT OF WAY AFFECTED BY THIS PLAN.

ALL OF THE ABOVE REQUIREMENTS CONTAINED ON THIS PLAN SHALL REMAIN INTO EFFECT INDEFINITELY AND SHOULD BECOME THE RESPONSIBILITY OF ANY FUTURE OWNERS OF THE PROPERTY.

DEVELOPER/APPLICANT	CONTRACTOR	OWNER
BY: _____	BY: _____	BY: _____
_____ PRINT NAME	_____ PRINT NAME	_____ PRINT NAME
_____ DATE	_____ DATE	_____ DATE

CONTRACTOR'S RESPONSIBILITY FOR SAFETY

IN SUBMITTING A BID FOR THIS WORK, THE CONTRACTOR AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT INCLUDING SAFETY OF ALL PERSONS AND PROPERTY, THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO WORKING HOURS, AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE OWNER, THE ENGINEER AND THE CITY OF EL MONTE HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR THE ENGINEER.

ALL CONTRACTORS AND SUBCONTRACTORS PERFORMING WORK SHOWN ON OR RELATED TO THESE PLANS SHALL CONDUCT THEIR OPERATIONS SO THAT THE EMPLOYEES ARE PROVIDED A SAFE PLACE TO WORK AND THE PUBLIC IS PROTECTED. ALL CONTRACTORS AND SUBCONTRACTORS SHALL COMPLY WITH THE "OCCUPATIONAL SAFETY AND HEALTH REGULATIONS" OF THE U.S. DEPARTMENT OF LABOR AND WITH "CONSTRUCTION SAFETY ORDERS." THE CIVIL ENGINEER SHALL NOT BE HELD RESPONSIBLE IN ANY WAY FOR THE CONTRACTOR OR SUBCONTRACTOR'S COMPLIANCE WITH SAID REGULATION AND ORDERS.

ENGINEER'S NOTICE TO CONTRACTOR

THE INFORMATION SHOWN ON THESE PLANS REGARDING THE EXISTENCE AND LOCATION OF UNDERGROUND UTILITIES OR STRUCTURES IS BASED UPON A SEARCH OF AVAILABLE RECORDS. TO THE BEST OF OUR KNOWLEDGE, THE UTILITIES OR STRUCTURES SHOWN ON THESE PLANS ARE ALL THAT EXIST. THE ENGINEER ASSUMES NO LIABILITY FOR ANY UTILITY, STRUCTURE OR IRRIGATION LINE AND ITS LOCATION, WHETHER SHOWN OR NOT SHOWN ON THESE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING ALL UTILITY AND IRRIGATION COMPANIES PRIOR TO START OF CONSTRUCTION, TO DETERMINE EXACT LOCATION OF LINES AFFECTING THIS WORK, WHETHER OR NOT SHOWN HEREON, AND FOR ANY DAMAGE OR PROTECTION OF THESE LINES.

THE CONTRACTOR SHALL CALL IN A LOCATION REQUEST TO UNDERGROUND SERVICE ALERT (USA) PHONE NUMBER 1-800-422-4133 TWO WORKING DAYS BEFORE DIGGING. PUBLIC WORKS DEPARTMENT CONSTRUCTION PERMITS, INVOLVING UNDERGROUND FACILITIES, ARE NOT VALID UNLESS THE APPLICANT HAS AN INQUIRY IDENTIFICATION NUMBER ISSUED BY THE USA.

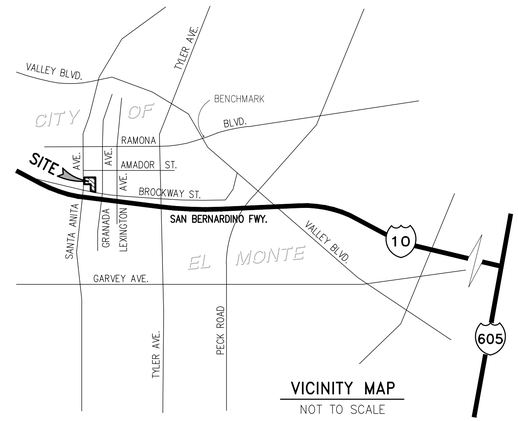
CONSTRUCTION CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONSTRUCTION CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO DEFEND, INDEMNIFY AND HOLD DESIGN PROFESSIONAL HARMLESS FROM ANY AND ALL LIABILITY REAL OR ALLEGED IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT EXCEPTING LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF DESIGN PROFESSIONAL.

UTILITY LINES SHOWN ON THESE PLANS WERE LOCATED FROM THE PUBLIC RECORDS WHEN POSSIBLE FROM THE RESPECTIVE UTILITY'S OFFICE AND HAVE BEEN ASSUMED RELIABLE. HOWEVER, LAND DEVELOPMENT CONSULTANTS ASSUME NO LIABILITY FOR THE DAMAGE OF UNDERGROUND UTILITIES DURING OR AFTER CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICES ALERT AT LEAST 48 HOURS PRIOR TO COMMENCEMENT OF EXCAVATION TO ARRANGE FOR FIELD LOCATION OF UTILITY LINES. CALL 1-800-422-4133 FOR THIS SERVICE WHICH IS PROVIDED FREE OF CHARGE. ANY UTILITY NOT SUBSCRIBING TO THIS SERVICE SHALL BE CONTACTED DIRECTLY. IT SHALL BE THE CONTRACTOR'S DUTY TO DETERMINE WHETHER ALL UTILITIES HAVE BEEN NOTIFIED. THE CONTRACTOR SHALL TAKE PRECAUTIONARY MEASURES TO PROTECT ALL UTILITY LINES HEREON AND ANY OTHER UTILITY LINES OTHERWISE LOCATED.

SHOULD THE CONTRACTOR, CITY ENGINEER, CITY INSPECTOR, OR ANY OTHER INDIVIDUAL USING THESE PLANS FOR ANY REASON, NOTICE, BE MADE AWARE OF OR ENCOUNTER CONDITIONS CONTRARY TO THOSE SHOWN OR SPECIFIED IN THESE PLANS OR SHOULD CIRCUMSTANCES CHANGE SINCE THE DATE OF THESE PLANS; THE PUBLIC WORKS DEPARTMENT SHALL BE NOTIFIED IMMEDIATELY AT 626-580-2058.

CITY'S FRANCHISE WASTE HAULER

THE DISPOSAL, REMOVAL, RECYCLING, AND DIVERSION OF ALL CONSTRUCTION AND DEMOLITION WASTE AND DEBRIS GENERATED BY THE PROJECT MUST BE PERFORMED BY THE CITY'S DULY AUTHORIZED AND DULY FRANCHISED CONSTRUCTION AND DEMOLITION SOLID WASTE HAULER: VALLEY VISTA SERVICES.



VICINITY MAP
NOT TO SCALE

NOT TO SCALE

VICINITY MAP

PROJECT INFORMATION

DEVELOPER/APPLICANT

CHICK-FIL-A
5200 BUFFINGTON ROAD
ATLANTA, GEORGIA 30349
CARLOS.ARIAS2@CFACORP.COM
CARLOS ARIAS

CIVIL ENGINEER

JOSEPH C. TRUXAW & ASSOCIATES, INC.
1915 W. ORANGEWOOD AVE, SUITE 101
ORANGE, CA 92868
(714) 935-0265
RANDYDECKER@TRUXAW.COM
RANDY DECKER

SITE AREA

TOTAL SITE AREA: 60,660 S.F. OR 1.89 AC
TOTAL DISTURBED AREA: 1.87 AC
TOTAL PRE-DEVELOPMENT IMPERVIOUS AREA: 1.68 AC
TOTAL POST-DEVELOPMENT IMPERVIOUS AREA: 1.52 AC

GEOTECHNICAL ENGINEER

GILES ENGINEERING ASSOCIATES, INC.
1965 NORTH MAIN STREET
ORANGE, CA. 92865
(714) 279-0817

WALTER M. LOPEZ

FLOOD HAZARD ZONE

COMMUNITY NUMBER 060658 1675F
EFFICTIVE DATE: SEPTEMBER 26, 2008.
ZONE X (UNSHADED)

PROPERTY NOT IN A SPECIAL FLOOD HAZARD AREA, AREA DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN.

DATE OF SURVEY

06/13/2019

UTILITY AGENCIES

CITY OF EL MONTE PUBLIC WORKS (SEWER)	(626) 580-2250
LA COUNTY SANITATION DISTRICT	(562) 699-7411
SOUTHERN CALIFORNIA EDISON	(909) 360-3748
SOUTHERN CALIFORNIA GAS COMPANY	(213) 231-7261
VALLEY VISTA SERVICES (WASTE DISPOSAL)	(626) 736-7782
AT&T	(626) 318-9039
CITY OF EL MONTE WATER COMPANY	(626) 580-2024
CHARTER	(626) 639-1622

* FOR REFERENCE

SHEET INDEX

NOTICE TO CONTRACTOR

THE CONTRACTOR SHALL ASCERTAIN THE TRUE VERTICAL AND HORIZONTAL LOCATION AND SIZE OF ALL UTILITIES, PIPES, AND/OR STRUCTURES AND SHALL BE RESPONSIBLE FOR DAMAGE TO ANY PUBLIC OR PRIVATE UTILITIES, SHOWN OR NOT SHOWN HEREON.

IMPORTANT NOTICE
Section 4216 of the Government Code requires a Dig Alert Identification Number be issued before a "Permit to Excavate" will be valid. For your Dig Alert I.D. Number call Underground Service Alert CALL 811 Two working days before you dig.

THIS PLAN IS:

PRELIMINARY

(NOT FOR CONSTRUCTION)

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

REVISIONS

NO.	DATE	DESCRIPTION	ENGR.	APPROV.

BASIS OF BEARINGS

THE BEARING NORTH 00°27'00" WEST FOR THE CENTERLINE OF SANTA ANITA AVENUE PER TRACT NO. 3886, IN BOOK 42, PAGE 18 OF MAPS, RECORDS OF LOS ANGELES COUNTY, STATE OF CALIFORNIA, WAS USED AS THE BASIS OF BEARINGS FOR THIS SURVEY.

BENCHMARK

COUNTY OF LOS ANGELES BENCHMARK NO. MG5567 ELEVATION = 287.805 FEET (QUAD YEAR 2005)
L&T IN E. C.B. 4FT N/O ECR @ NE COR VALLEY BL & RAMONA BL (@ S. END C.B.)

PLANS PREPARED BY:
JOSEPH C. TRUXAW & ASSOC.
1915 W. Orangewood Ave., Suite 101, Orange, CA 92868
(714) 935-0265 - Truxaw.com
UNDER THE SUPERVISION OF:
11/14/2022
RANDY J. DECKER

REGISTERED PROFESSIONAL ENGINEER — RANDY J. DECKER — No. 81077 — CIVIL — STATE OF CALIFORNIA

CITY OF EL MONTE — CITY OF THE SAN GABRIEL VALLEY — INC. 1912 — TRAIL — CALIFORNIA

CITY OF EL MONTE
PUBLIC WORKS DEPARTMENT
APPROVED BY:
CITY OF EL MONTE CITY ENGINEER — DATE
REVIEWED AND RECOMMENDED BY — DATE

CITY OF EL MONTE
DEPARTMENT OF PUBLIC WORKS - ENGINEERING DIVISION
TITLE SHEET
NEC SANTA ANITA AVE. & BROCKWAY ST.

DESIGNED BY: RD	DRAWN BY: TM	CHECKED BY: RD	SHEET 1 OF 12

** TITLE REPORT

THIS SURVEY AND EASEMENTS SHOWN HEREON ARE BASED ON INFORMATION CONTAINED IN THE PRELIMINARY TITLE REPORT PREPARED BY:

FIRST AMERICAN TITLE INSURANCE COMPANY
4380 LA JOLLA VILLAGE DRIVE, SUITE 110
SAN DIEGO, CA 92122
(858) 410-2151
COMMITMENT NUMBER: NCS-839698-SD
COMMITMENT DATE: OCTOBER 14, 2020
UPDATE DATE: NOVEMBER 06, 2020
TITLE OFFICER: TRIXY BROWN / JANICE TREANOR

** LEGAL DESCRIPTION

THE LAND REFERRED TO HEREIN IS SITUATED IN THE CITY OF EL MONTE, COUNTY OF LOS ANGELES, STATE OF CALIFORNIA, AND IS DESCRIBED AS FOLLOWS:

PARCEL 1:

THE SOUTH 50 FEET OF LOT 14 OF TRACT NO. 883, IN THE CITY OF EL MONTE, COUNTY OF LOS ANGELES, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 18 PAGE 39 OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY.

PARCEL 2:

THE NORTH 50 FEET OF LOT 14 OF TRACT NO. 883, IN THE CITY OF EL MONTE, COUNTY OF LOS ANGELES, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 18 PAGE 39 OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY.

PARCEL 3:

LOT 15 OF TRACT 883, IN THE CITY OF EL MONTE, AS PER MAP RECORDED IN BOOK 18 PAGE 39 OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY.

PARCEL 4:

ALL OF LOT 5 AND THE EASTERLY HALF OF LOT 4, MEASURED ALONG THE NORTHERLY AND SOUTHERLY LINES OF SAID LOT 4 OF TRACT NO. 3886, IN THE CITY OF EL MONTE, COUNTY OF LOS ANGELES, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 42 PAGE 18 OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY.

APN: 8579-005-027 (AFFECTS PARCEL 2)
8579-005-028 (AFFECTS PARCEL 1)
8579-005-024 (AFFECTS PARCEL 3) AND
8579-005-026 (AFFECTS PARCEL 4)

** EASEMENT NOTES

(6) AN EASEMENT AFFECTING THE PORTION OF SAID LAND AND FOR THE PURPOSES STATED HEREIN, AND INCIDENTAL PURPOSES, CONDEMNED BY FINAL DECREE:

FOR: STREET PURPOSES
CASE NO. 256040
RECORDED: IN BOOK 9749 PAGE 22, OF OFFICIAL RECORDS

SAID MATTER AFFECTS A PORTION OF SAID LAND AS MORE PARTICULARLY DESCRIBED IN SAID DOCUMENT.

(14) AN EASEMENT AFFECTING THE PORTION OF SAID LAND AND FOR THE PURPOSES STATED HEREIN, AND INCIDENTAL PURPOSES, CONDEMNED BY FINAL DECREE:

FOR: STREET PURPOSES
CASE NO. 256040
RECORDED: IN BOOK 9749 PAGE 22, OF OFFICIAL RECORDS

SAID MATTER AFFECTS A PORTION OF SAID LAND AS MORE PARTICULARLY DESCRIBED IN SAID DOCUMENT.

(AFFECTS PARCEL 3)

(15) AN EASEMENT FOR PUBLIC UTILITIES AND INCIDENTAL PURPOSES IN THE DOCUMENT RECORDED AUGUST 28, 1979 AS INSTRUMENT NO. 954660 OF OFFICIAL RECORDS.

** SOURCE OF BOUNDARY, EASEMENT & TOPGRAPHIC INFORMATION.

THE BOUNDARY, EASEMENT & TOPOGRAPHIC INFORMATION SHOWN ON THESE PLANS WERE TAKEN FROM THE PLAN REFERENCED BELOW.

DATE OF SURVEY: APRIL 9, 2020 (DELTA 1)
PERFORMED BY: TRUXAW AND ASSOCIATES, INC.
1915 W ORANGEWOOD AVE, SUITE 101
ORANGE, CA 92868
(714) 935-0265
JOB # CFA17030

** BENCHMARK

COUNTY OF LOS ANGELES BENCHMARK NO. MG5567

ELEVATION = 287.805 FEET (QUAD YEAR 2005)

L&T IN E. C.B. 4FT N/O ECR @ NE COR VALLEY BL & RAMONA BL (@ S. END C.B.)

** BASIS OF BEARINGS

THE BEARING NORTH 00°27'00" WEST FOR THE CENTERLINE OF SANTA ANITA AVENUE PER TRACT NO. 3886, IN BOOK 42, PAGE 18 OF MAPS, RECORDS OF LOS ANGELES COUNTY, STATE OF CALIFORNIA, WAS USED AS THE BASIS OF BEARINGS FOR THIS SURVEY.

** RECORD DATA

(R1) = RECORD DATA PER TRACT MAP NO. 883, BOOK 18, PAGE 39

(R2) = RECORD DATA PER TRACT MAP NO. 3886, BOOK 42, PAGE 18

(R3) = NOT USED.

(R4) = RECORD DATA PER TRACT MAP NO. 77, BOOK 13, PAGE 33

** SITE PLANNING DATA

DISCLAIMER: INFORMATION PROVIDED BY 4G DEVELOPMENT AND CONSULTING, INC. IN THE SITE INVESTIGATION REPORT DATED 5/13/2019.

ZONING: C-3 (GENERAL COMMERCIAL)

MAXIMUM BUILDING HEIGHT: 40 FEET

SETBACKS

BUILDING: NORTH = 0 FEET; SOUTH = 0 FEET;
EAST = 20 FEET; WEST = 5 FEET

LANDSCAPE: NORTH = 0 FEET; SOUTH = 0 FEET;
EAST = 0 FEET; WEST = 4-6 FEET

** PARKING COUNT

NO STRIPED PARKING STALLS EXIST ON THE SITE.

LEGEND

AB = AGGREGATE BASE
AC = ASPHALT CONCRETE
BLK = CONCRETE BLOCK
BS = BACK OF SIDEWALK
CB = CATCH BASIN
CF = CURB FACE
CL = CENTERLINE
CLF = CHAIN LINK FENCE
CO = CLEANOUT
DCV = DETECTOR CHECK VALVE
DS = ROOF DOWNSPOUT
EG = EDGE OF GUTTER
EP = EDGE OF PAVEMENT
FD = FOUND
FDC = FIRE DEPT. CONNECTION
FF = FINISHED FLOOR
FG = FINISHED GRADE
FH = FIRE HYDRANT
FL = FLOW LINE
FS = FINISHED SURFACE
GB = GRADE BREAK
GM = GAS METER
GR = TOP OF GRATE
GV = GAS VALVE
HP = HIGH POINT
HT = HEIGHT
ICV = IRRIGATION CONTROL VALVE
INV = INVERT
IP = IRON PIPE
LS = LIGHT STANDARD
L&T = LEAD & TAG
MH = MANHOLE
NG = NATURAL GROUND
N&T = NAIL & TAG
OHW = OVERHEAD WIRE
PB = PULL BOX
PCC = CONCRETE
PIV = POST INDICATOR VALVE
PL = PROPERTY LINE
RD = ROOF DRAIN
RWH = REDWOOD HEADER
SCB = SIGNAL CONTROL BOX
SMH = SEWER MANHOLE
SPK = SPIKE
SW = SIDEWALK
TC = TOP OF CURB
TE = TRASH ENCLOSURE
TP = TELEPHONE POLE
TRAN = TRANSITION
TRANS= TRANSFORMER

TRW = TOP OF RETAINING WALL
TW = TOP OF WALL
UG = UNDERGROUND
UP = UTILITY POLE
VAR = VARIABLE
W = WASHER
WDF = WOOD FENCE
WM = WATER METER
WV = WATER VALVE

N. = NORTH
S. = SOUTH
E. = EAST
W. = WEST
N'LY = NORTHERLY
S'LY = SOUTHERLY
E'LY = EASTERLY
W'LY = WESTERLY
N/O = NORTH OF
S/O = SOUTH OF
E/O = EAST OF
W/O = WEST OF
℄ = PROPERTY LINE
℄ = CENTERLINE
R/W = RIGHT OF WAY
△ = DELTA
R = RADIUS
L = LENGTH
T = TANGENT
M = MEASURED DATA
C = CALCULATED DATA
(RAD)= RADIAL BEARING
PRO = PROPORTIONATE MEASUREMENT
(210.00' R) = RECORD DATA
210.00' M. = MEASURED DATA
210.00' PRO. = PRORATED DATA
210.00' C. = CALCULATED DATA
(427.00) TC = EXISTING ELEVATION
427.00 TC = DESIGN ELEVATION

——CATV—— = CABLE TV LINE
——E—— = ELECTRICAL LINE
——FW—— = FIRE WATER LINE
——G—— = GAS LINE
——GB——GB—— = GRADE BREAK LINE
——R——R—— = RIDGE LINE
——S—— = SEWER LINE
——SD—— = STORM DRAIN LINE
——T—— = TELEPHONE LINE
——W—— = WATER LINE

SYMBOLS

FIRE HYDRANT
STREET LIGHT
TRAFFIC SIGNAL
TRAFFIC SIGNAL ARM & POLE
LIGHT STANDARD
UTILITY POLE
GUY WIRE & ANCHOR
WM WATER METER
GM GAS METER
WV WATER VALVE
GAS VALVE
PB PULL BOX
GRATE INLET
SIGN
VENT
(S) SEWER MANHOLE
(D) STORM DRAIN MANHOLE
(T) TELEPHONE MANHOLE
(MH) MANHOLE
SEWER CLEANOUT
(M) MONITORING WELL
HANDICAP PARKING STALL
(L) LANDSCAPED AREA
(P) PROTECT IN PLACE
(R) REMOVE AND DISPOSE OFFSITE
(R) RELOCATE
(1) PLOTABLE EASEMENT ITEM No. PER TITLE REPORT
(427.0) EXIST. CONTOUR
427.0 DESIGN CONTOUR

NOTICE TO CONTRACTOR

THE CONTRACTOR SHALL ASCERTAIN THE TRUE VERTICAL AND HORIZONTAL LOCATION AND SIZE OF ALL UTILITIES, PIPES, AND/OR STRUCTURES AND SHALL BE RESPONSIBLE FOR DAMAGE TO ANY PUBLIC OR PRIVATE UTILITIES, SHOWN OR NOT SHOWN HEREON.

IMPORTANT NOTICE
Section 4216 of the Government Code requires a Dig Alert Identification Number be issued before a "Permit to Excavate" will be valid. For your Dig Alert I.D. Number call Underground Service Alert CALL 811 Two working days before you dig.

THIS PLAN IS:
PRELIMINARY
(NOT FOR CONSTRUCTION)

SOILS ENGINEER
THESE PLANS HAVE BEEN DESIGNED IN ACCORDANCE WITH THE GEOTECHNICAL RECOMMENDATIONS MADE BY:
GILES ENGINEERING ASSOCIATES, INC.
1965 NORTH MAIN STREET
ORANGE, CA 92865
PH (714) 279-0817 FAX (714) 279-9687
PROJECT No. 2G-2107004
REPORT DATE: 10-05-22
CONTRACTOR SHALL OBTAIN A COPY OF THIS REPORT AND ALL ADDENDUM AND FOLLOW THE RECOMMENDATIONS THEREIN. NOTIFY TRUXAW AND ASSOCIATES OF ANY DISCREPANCIES OR FIELD CHANGES PRIOR TO CONSTRUCTION.

DEVELOPER
CHICK-FIL-A
5200 BUFFINGTON ROAD
ATLANTA, GEORGIA 30349

ARCHITECT
CRHO ARCHITECTS
1833 E 17TH STREET; SUITE 301
SANTA ANA, CA 92705
(714) 832-1834 FAX (714) 832-1910

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

REVISIONS

NO.	DATE	DESCRIPTION	ENGR.	APPROV.

BASIS OF BEARINGS
THE BEARING NORTH 00°27'00" WEST FOR THE CENTERLINE OF SANTA ANITA AVENUE PER TRACT NO. 3886, IN BOOK 42, PAGE 18 OF MAPS, RECORDS OF LOS ANGELES COUNTY, STATE OF CALIFORNIA, WAS USED AS THE BASIS OF BEARINGS FOR THIS SURVEY.

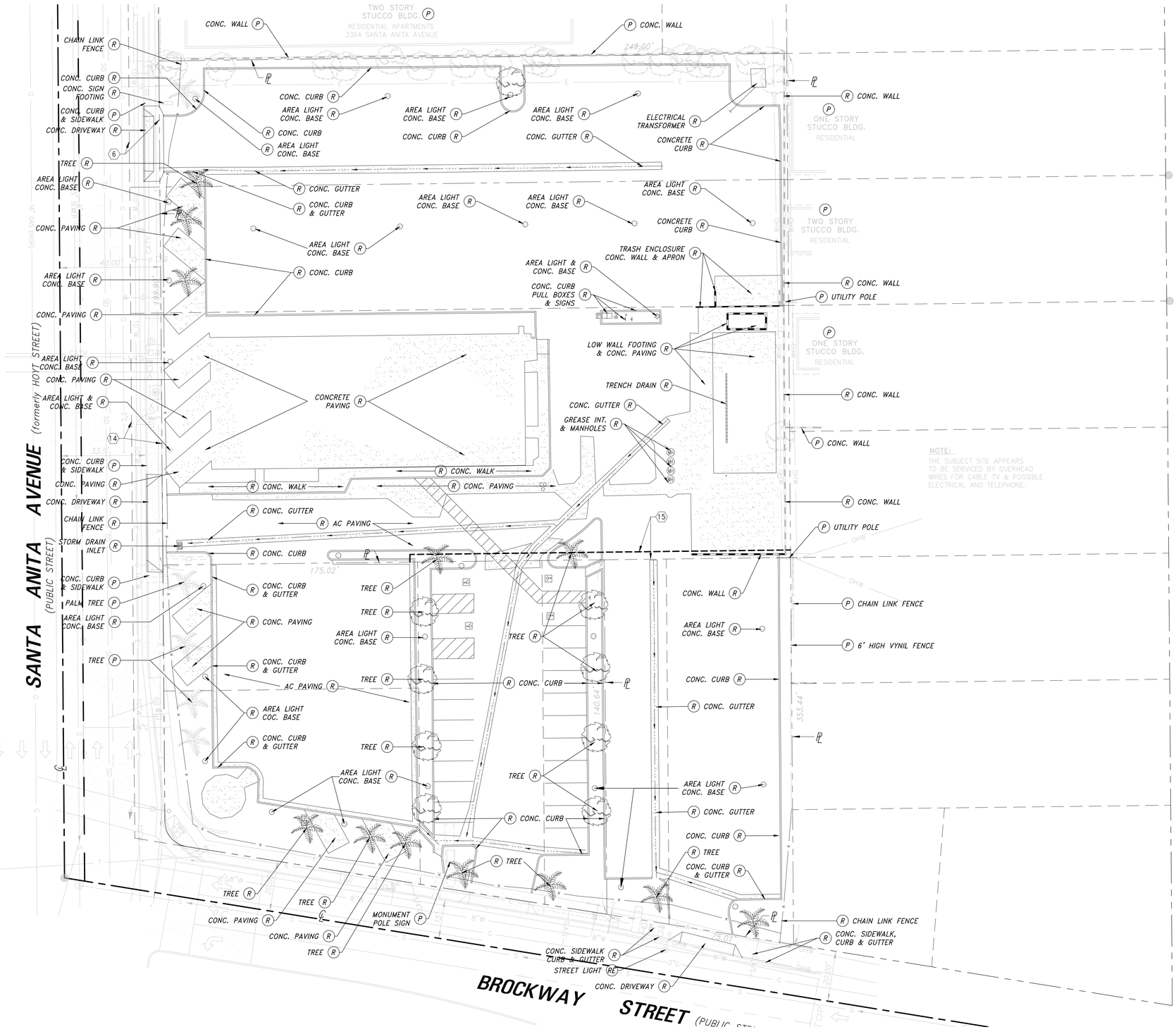
BENCHMARK
COUNTY OF LOS ANGELES BENCHMARK NO. MG5567 ELEVATION = 287.805 FEET (QUAD YEAR 2005)
L&T IN E. C.B. 4FT N/O ECR @ NE COR VALLEY BL & RAMONA BL (@ S. END C.B.)

PLANS PREPARED BY:
JOSEPH C. TRUXAW & ASSOC.
1915 W. Orangewood Ave., Suite 101, Orange, CA 92868
(714) 935-0265 - Truxaw.com
UNDER THE SUPERVISION OF:
11/14/2022
RANDY J. DECKER
REGISTERED PROFESSIONAL ENGINEER — RANDY J. DECKER — No. 81077 — CIVIL — STATE OF CALIFORNIA

CITY OF EL MONTE
PUBLIC WORKS DEPARTMENT
APPROVED BY:
CITY OF EL MONTE CITY ENGINEER — DATE
REVIEWED AND RECOMMENDED BY — DATE

CITY OF EL MONTE
DEPARTMENT OF PUBLIC WORKS - ENGINEERING DIVISION
CITY NOTES
NEC SANTA ANITA AVE. & BROCKWAY ST.

DESIGNED BY: RD | DRAWN BY: TM | CHECKED BY: RD | SHEET 2 OF 12



DISPOSITION NOTES

(P) = PROTECT IN PLACE

(R) = REMOVE AND DISPOSE OF OFFSITE

(A) = ADJUST TO GRADE

(RE) = REMOVE AND RELOCATE

NOTE:
COORDINATE REMOVAL/PROTECTION OF EXISTING TREES WITH LANDSCAPE PLAN.

NOTE:
DEMOLITION CONTRACTOR SHALL LOCATE AND MARK ALL EXISTING SEWER, WATER, GAS & ELECTRICAL LATERALS ON A PLAN & IN THE FIELD.

NOTE:
CONTRACTOR TO PROTECT ALL UNDERGROUND AND OVERHEAD UTILITIES IN PLACE UNLESS NOTED OTHERWISE OR AS DIRECTED BY THE DEVELOPER

* **NOTE:** REMOVE ALL PAVEMENT, CONCRETE, FOOTINGS, AND STRUCTURES WITHIN THE LIMITS OF DEMOLITION AS SHOWN. PRIOR TO ANY DEMOLITION, CONTRACTOR SHALL SCHEDULE FIELD REVIEW WITH PROPERTY OWNER, DEVELOPER AND HIMSELF AND FIELD VERIFY ALL ITEMS TO BE DEMOLISHED, RELOCATED, AND PROTECTED. EXISTING UTILITIES ON SITE TO BE REMOVED OR CAPPED PER CITY REQUIREMENTS.

1. DUST CONTROL – CONTRACTOR WILL OBTAIN A WATER METER AND WILL CONTROL DUST BY WATER.
2. BUILDING DEBRIS – WILL BE TRANSPORTED TO LANDFILL.
3. STAGING OF EQUIPMENT – STAGING WILL BE WITHIN GRADING LIMITS.

20 10 0 20 40 60
SCALE: 1"=20'

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11/14/2022
RANDY J. DECKER
REGISTERED PROFESSIONAL ENGINEER RANDY J. DECKER No. 81077 CIVIL STATE OF CALIFORNIA

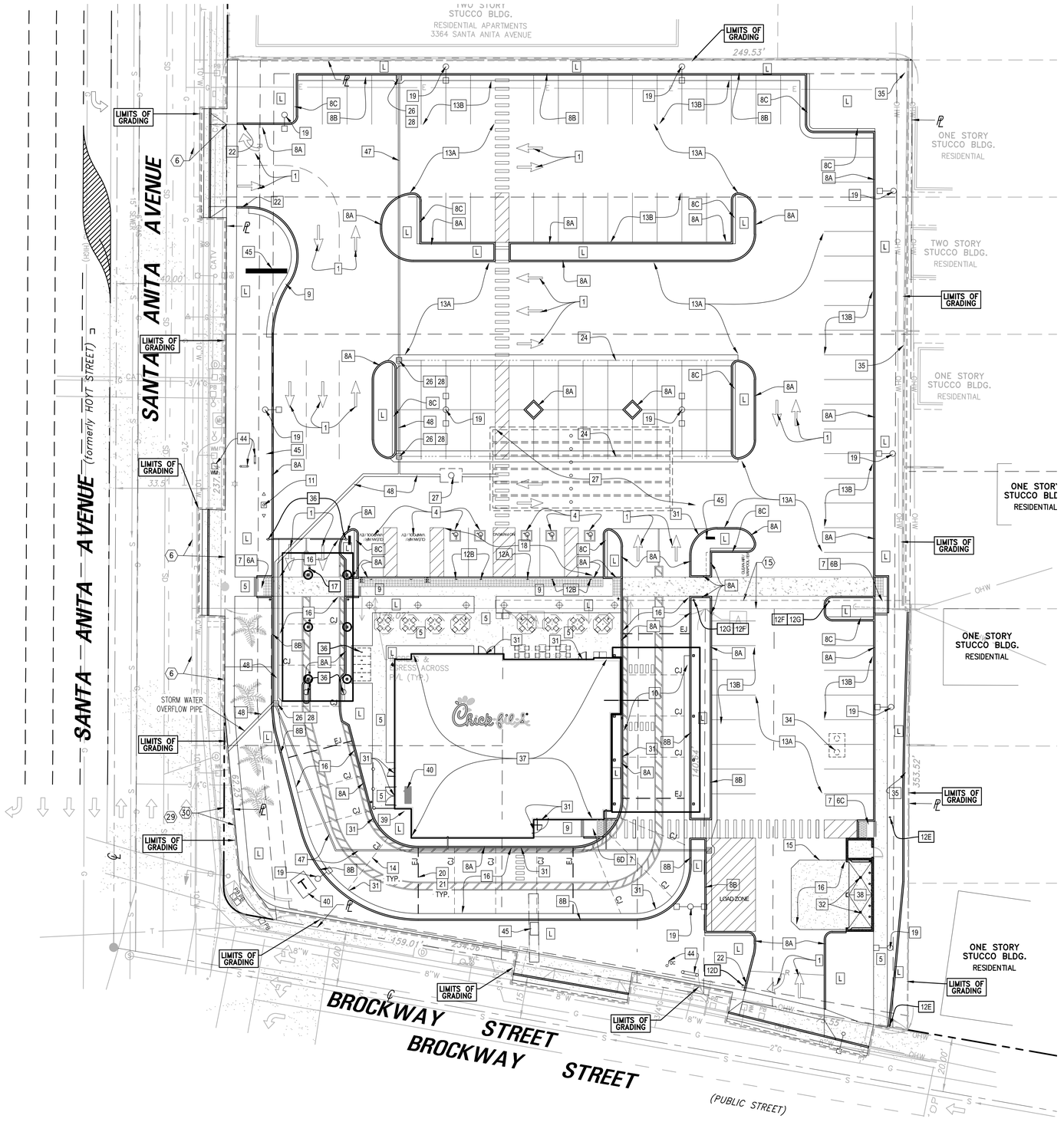
CITY OF EL MONTE
PUBLIC WORKS DEPARTMENT
APPROVED BY:
CITY OF EL MONTE CITY ENGINEER — DATE
REVIEWED AND RECOMMENDED BY — DATE

CITY OF EL MONTE

DEPARTMENT OF PUBLIC WORKS - ENGINEERING DIVISION

DEMOLITION PLAN
NEC SANTA ANITA AVE. & BROCKWAY ST.

DESIGNED BY: RD	DRAWN BY: TM	CHECKED BY: RD	SHEET 3 OF 12



20 10 0 20 40 60

SCALE: 1"=20'

SITE PLAN DESIGN NOTES & KEY PLAN

ONSITE

1. DIRECTIONAL ARROW
2. DRIVE-THRU GRAPHICS
3. STOP LINE GRAPHIC
4. PAINTED ACCESSIBLE PARKING SYMBOL/NO PARKING AND CLEAN AIR VEHICLE GRAPHIC
5. CONCRETE SIDEWALK DETAIL WITH FRAME PATTERN CONSTRUCT TURNED DOWN EDGE WHERE SHOWN ON PLAN
6. RAMP DETAIL (6A, 6B, 6C & 6D)
7. TRUNCATED DOME DETECTABLE WARNING DETAIL
8. CONCRETE CURB AND GUTTER
   - 8A 6-INCH CONCRETE CURB.
   - 8B 6-INCH CONCRETE CURB & 18" GUTTER.
   - 8C 6-INCH CONCRETE CURB WITH 12-INCH CONCRETE STEP OFF SIDEWALK.
9. SIDEWALK WITH CURB SECTION DETAIL
10. DRIVE THRU PLAN VIEW
11. FLAG POLE PER ARCHITECTURAL PLAN
12. DIRECTIONAL SIGNAGE
    ALL SIGNS SHALL CONFORM TO THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" BY THE U.S. DEPARTMENT OF TRANSPORTATION AND THE CALIFORNIA BUILDING CODE (CBC).
    - 12A ACCESSIBLE PARKING SIGN (VAN)
    - 12B ACCESSIBLE PARKING SIGN
    - 12C ACCESSIBLE SIGN (DRIVEWAY ENTRANCE)
    - 12D STOP SIGN AND POST
    - 12E POINTS OF INTERSECTION ACCESSIBLE PATH OF TRAVEL
    - 12F "PEDESTRIAN CROSSWALK" SIGN AND POST
    - 12G "WATCH FOR VEHICLES" SIGN AND POST
13. TYPICAL ASPHALT PAVEMENT SECTION (13A & 13B)
14. TRANSVERSE CONTRACTION JOINT (CJ)
15. CONCRETE APRON EDGE @ TRASH ENCLOSURE
16. CONCRETE PAVING @ DRIVE THRU LANE, & TRASH ENCLOSURE APRON
17. PIPE BUMPER POST DETAIL
18. ACCESSIBLE/STANDARD PARKING STALL & ADA STRIPING DETAIL.
19. SITE LIGHT: PROPOSED =
20. TRANSVERSE AND LONGITUDINAL DOWELED CONSTRUCTION JOINT
21. EXPANSION JOINT (EJ)
22. CURB FACE TRANSISTION DETAIL (6-INCH TO 0-INCH)
23. 6-INCH SQUARE NDS 920B BRASS GRATE WITH 3-INCH RISER PIPE. OUTLET 3-INCH SDR-35 PVC DRAIN PIPE THROUGH WALL AT FINISHED GRADE.
24. 48-INCH CONCRETE V-GUTTER.
25. PARKWAY CULVERT PER SPPWC STD. 151-2, TYPE 2. (W=24-INCHES)
26. 24-INCH SQUARE CONCRETE CATCH BASIN
27. CULTEC RECHARGER 330XLHD SYSTEM WITH STORMFILTER 330 XL CHAMBER.
28. "NO DUMPING, THIS DRAINS TO OCEAN" GRAPHIC PER CITY REQUIREMENTS
31. BITUMASTIC EXPANSION JOINT, TYPICAL. INSTALL EXPANSION JOINT BETWEEN ALL CONCRETE PAVEMENT INTERFACE WITH BUILDINGS, CURB & GUTTER, AND OTHER CONSTRAINED OBJECTS.
32. DRAIN IN TRASH ENCLOSURE (PER PLUMBING PLANS)
33. 3-INCH X 12.5-INCH RECTANGULAR CAST IRON PIPE (ALHAMBRA FOUNDRY A-470) THROUGH BLOCK WALL AT FINISHED SURFACE FOR DRAINAGE.
34. GREASE INTERCEPTOR (PER PLUMBING PLANS)
35. BLOCK WALL PER ARCHITECTURAL PLANS. (UNDER SEPARATE PLAN CHECK AND PERMIT)
36. MENU ORDER BOARD, HEIGHT ARM, AND BIKE RACK
37. SITE CONTRACTOR SHALL REFER TO ARCHITECTURAL PLANS FOR THE EXACT DIMENSIONS OF THE BUILDING AND THE LOCATION OF DOORWAYS, UTILITIES, ETC.
38. TRASH ENCLOSURE PER ARCHITECTURAL PLANS
39. GAS METER
40. PROPOSED TRANSFORMER AND ELECTRICAL PANEL.
41. NOT USED.
42. NOT USED.
43. THE CONTRACTOR SHALL INSTALL NECESSARY TRAFFIC CONTROL SAFETY BARRICADES, LIGHTING, AND OTHER REQUIRED CONTROL MEASURES TO SECURE THE WORK AREA FROM EXISTING TRAFFIC AND TO ASSURE PUBLIC SAFETY.
44. DOUBLE DETECTOR CHECK, BACKFLOW ASSEMBLIES AND WATER METER (SEE UTILITY PLANS AND PLUMBING PLANS)
45. SIGNAGE PER SEPARATE SIGN PLANS.
46. NOTE USED
47. PLACE 8-INCH SDR-35 PVC DRAIN PIPE WITH NECESSARY FITTINGS & ADAPTERS.
48. PLACE 12-INCH SDR-35 PVC DRAIN PIPE WITH NECESSARY FITTINGS & ADAPTERS.

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NO.	DATE	DESCRIPTION	ENGR.	APPROV.

BASIS OF BEARINGS

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L&T IN E. C.B. 4FT N/O ECR @ NE COR VALLEY BL & RAMONA BL (@ S. END C.B.)

PLANS PREPARED BY:

JOSEPH C. TRUXAW & ASSOC.
1915 W. Orangewood Ave., Suite 101, Orange, CA 92868
(714) 935-0265 - Truxaw.com

UNDER THE SUPERVISION OF:

11/14/2022

RANDY J. DECKER

REGISTERED PROFESSIONAL ENGINEER — RANDY J. DECKER — No. 81077 — CIVIL — STATE OF CALIFORNIA

CITY OF EL MONTE
PUBLIC WORKS DEPARTMENT

APPROVED BY:

CITY OF EL MONTE CITY ENGINEER — DATE

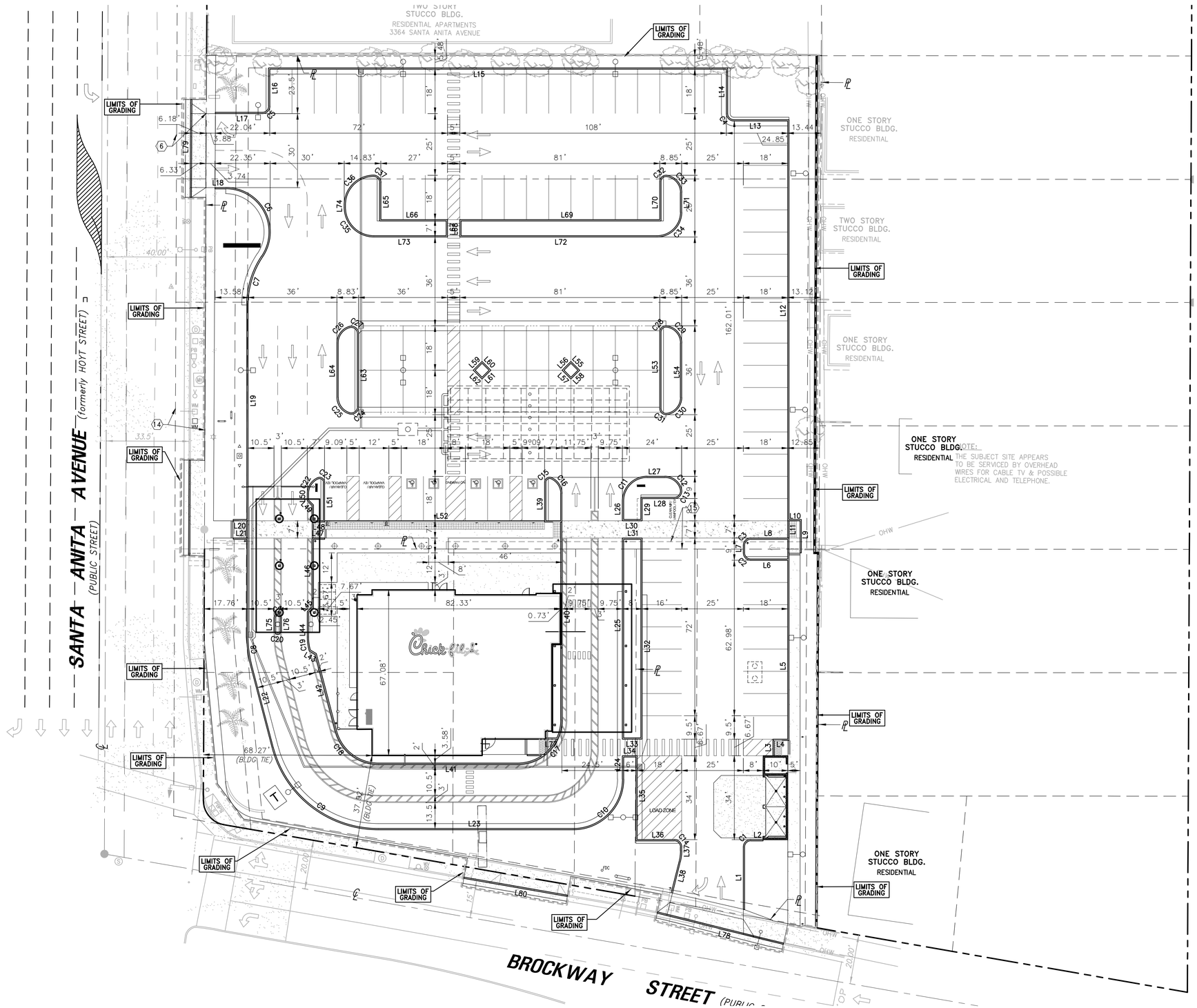
REVIEWED AND RECOMMENDED BY — DATE

CITY OF EL MONTE

DEPARTMENT OF PUBLIC WORKS - ENGINEERING DIVISION

CONSTRUCTION NOTES SITE PLAN
NEC SANTA ANITA AVE. & BROCKWAY ST.

DESIGNED BY: RD	DRAWN BY: TM	CHECKED BY: RD	SHEET 4 OF 12



LINE DATA TABLE		
SEGMENT	L	BRG
L1	25.23'	N0° 42' 02"W
L2	5.00'	N89° 17' 58"E
L3	6.68'	S0° 42' 02"E
L4	6.00'	S89° 17' 58"W
L5	72.49'	S0° 42' 02"E
L6	15.00'	N89° 17' 58"E
L7	2.99'	S0° 42' 02"E
L8	15.50'	S89° 17' 58"W
L9	13.01'	S0° 43' 49"E
L10	5.00'	N89° 17' 58"E
L11	7.01'	S0° 42' 02"E
L12	162.00'	S0° 42' 02"E
L13	21.85'	N89° 17' 58"E
L14	18.00'	S0° 42' 02"E
L15	185.00'	N89° 17' 58"E
L16	15.00'	N0° 42' 02"W
L17	19.04'	N89° 17' 58"E
L18	4.35'	N89° 17' 58"E
L19	134.57'	S0° 42' 02"E
L20	6.00'	N89° 17' 58"E
L21	6.00'	S89° 19' 22"W
L22	34.70'	S15° 23' 25"E
L23	78.88'	N89° 17' 58"E
L24	9.50'	N0° 42' 02"W
L25	81.46'	N0° 42' 02"W
L26	8.00'	N0° 42' 02"W
L27	7.13'	N89° 17' 58"E
L28	13.00'	S89° 17' 58"W
L29	9.00'	S0° 42' 02"E
L30	8.00'	S89° 17' 58"W
L31	7.99'	N89° 17' 58"E
L32	81.45'	S0° 42' 02"E
L33	8.00'	S89° 13' 27"W
L34	6.00'	N89° 17' 58"E
L35	34.00'	S0° 42' 02"E
L36	15.01'	N89° 17' 58"E
L37	1.57'	S0° 42' 02"E
L38	13.08'	S13° 25' 37"W
L39	16.09'	S0° 42' 02"E
L40	91.67'	N0° 42' 02"W
L41	56.38'	N89° 17' 58"E
L42	32.17'	S15° 23' 25"E
L43	2.83'	S60° 23' 25"E
L44	10.15'	S0° 42' 02"E
L45	2.83'	S44° 17' 58"W
L46	41.17'	S0° 42' 02"E
L47	5.09'	S89° 17' 58"W
L48	5.09'	N89° 17' 58"E
L49	2.83'	S45° 42' 02"E
L50	2.78'	S0° 42' 02"E

LINE DATA TABLE		
SEGMENT	L	BRG
L51	16.08'	N0° 42' 02"W
L52	89.18'	N89° 17' 58"E
L53	31.09'	S0° 42' 02"E
L54	22.06'	N0° 42' 02"W
L55	5.00'	N45° 42' 02"W
L56	5.00'	S44° 17' 58"W
L57	5.00'	S45° 42' 02"E
L58	5.00'	N44° 17' 58"E
L59	5.00'	S44° 17' 58"W
L60	5.00'	N45° 42' 02"W
L61	5.00'	N44° 17' 58"E
L62	5.00'	S45° 42' 02"E
L63	29.64'	N0° 42' 02"W
L64	21.99'	S0° 42' 02"E
L65	15.00'	N0° 42' 02"W
L66	27.00'	S89° 17' 58"W
L67	7.01'	N0° 42' 02"W
L68	7.01'	S0° 42' 02"E
L69	81.00'	S89° 17' 58"W
L70	15.45'	S0° 42' 02"E
L71	8.01'	N0° 42' 02"W
L72	79.85'	N89° 17' 58"E
L73	29.83'	N89° 17' 58"E
L74	1.01'	S0° 42' 02"E
L75	5.00'	N0° 42' 02"W
L76	5.00'	S0° 42' 02"E
L77	4.87'	N89° 17' 58"E
L78	52.62'	S76° 48' 16"E
L79	39.68'	S0° 25' 20"E

CURVE DATA TABLE			
SEGMENT	∠	R	D
C1	4.71'	3.00'	90°00'00"
C2	4.71'	3.00'	90°00'00"
C3	4.71'	3.00'	90°00'00"
C4	4.71'	3.00'	90°00'00"
C5	4.71'	3.00'	90°00'00"
C6	38.91'	18.00'	123°52'06"
C7	20.69'	35.00'	33°52'07"
C8	11.28'	44.00'	14°41'18"
C9	57.83'	44.00'	75°18'38"
C10	31.42'	20.00'	90°00'00"
C11	15.71'	10.00'	90°00'00"
C12	9.23'	7.00'	75°31'22"
C13	5.47'	3.00'	104°28'42"
C14	4.71'	3.00'	90°00'00"
C15	3.96'	2.00'	113°34'38"
C16	8.12'	7.00'	66°25'16"
C17	28.27'	18.00'	90°00'00"
C18	23.66'	18.00'	75°18'38"
C19	5.66'	20.36'	15°56'14"
C20	4.71'	1.50'	180°00'00"
C21	4.71'	1.50'	180°00'00"
C22	8.11'	7.00'	66°25'19"
C23	3.96'	2.00'	113°34'41"
C24	5.61'	3.00'	107°03'44"
C25	8.92'	6.98'	73°12'15"
C26	8.91'	7.00'	72°56'16"
C27	5.61'	3.00'	107°03'44"
C28	4.29'	2.50'	98°14'42"
C29	9.99'	7.00'	81°45'20"
C30	9.99'	7.00'	81°45'20"
C31	4.17'	2.50'	95°31'03"
C32	4.29'	2.50'	98°16'53"
C33	9.98'	7.00'	81°43'07"
C34	15.71'	10.00'	90°00'00"
C35	18.85'	12.00'	90°00'00"
C36	18.63'	12.00'	88°56'20"
C37	4.77'	3.00'	91°03'40"

NOTICE TO CONTRACTOR

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THIS PLAN IS:

PRELIMINARY

(NOT FOR CONSTRUCTION)

20 10 0 20 40 60

SCALE: 1"=20'

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

REVISIONS

NO.	DATE	DESCRIPTION	ENGR.	APPROV.

BASIS OF BEARINGS

THE BEARING NORTH 00°27'00" WEST FOR THE CENTERLINE OF SANTA ANITA AVENUE PER TRACT NO. 3886, IN BOOK 42, PAGE 18 OF MAPS, RECORDS OF LOS ANGELES COUNTY, STATE OF CALIFORNIA, WAS USED AS THE BASIS OF BEARINGS FOR THIS SURVEY.

BENCHMARK

COUNTY OF LOS ANGELES BENCHMARK NO. MG5567 ELEVATION = 287.805 FEET (QUAD YEAR 2005)
L&T IN E. C.B. 4FT N/O ECR @ NE COR VALLEY BL & RAMONA BL (@ S. END C.B.)

PLANS PREPARED BY:

JOSEPH C. TRUXAW & ASSOC.
1915 W. Orangewood Ave., Suite 101, Orange, CA 92868
(714) 935-0265 - Truxaw.com

UNDER THE SUPERVISION OF:

11/14/2022

RANDY J. DECKER

REGISTERED PROFESSIONAL ENGINEER RANDY J. DECKER No. 81077 CIVIL STATE OF CALIFORNIA

CITY OF EL MONTE
PUBLIC WORKS DEPARTMENT

APPROVED BY:

CITY OF EL MONTE CITY ENGINEER — DATE

REVIEWED AND RECOMMENDED BY — DATE

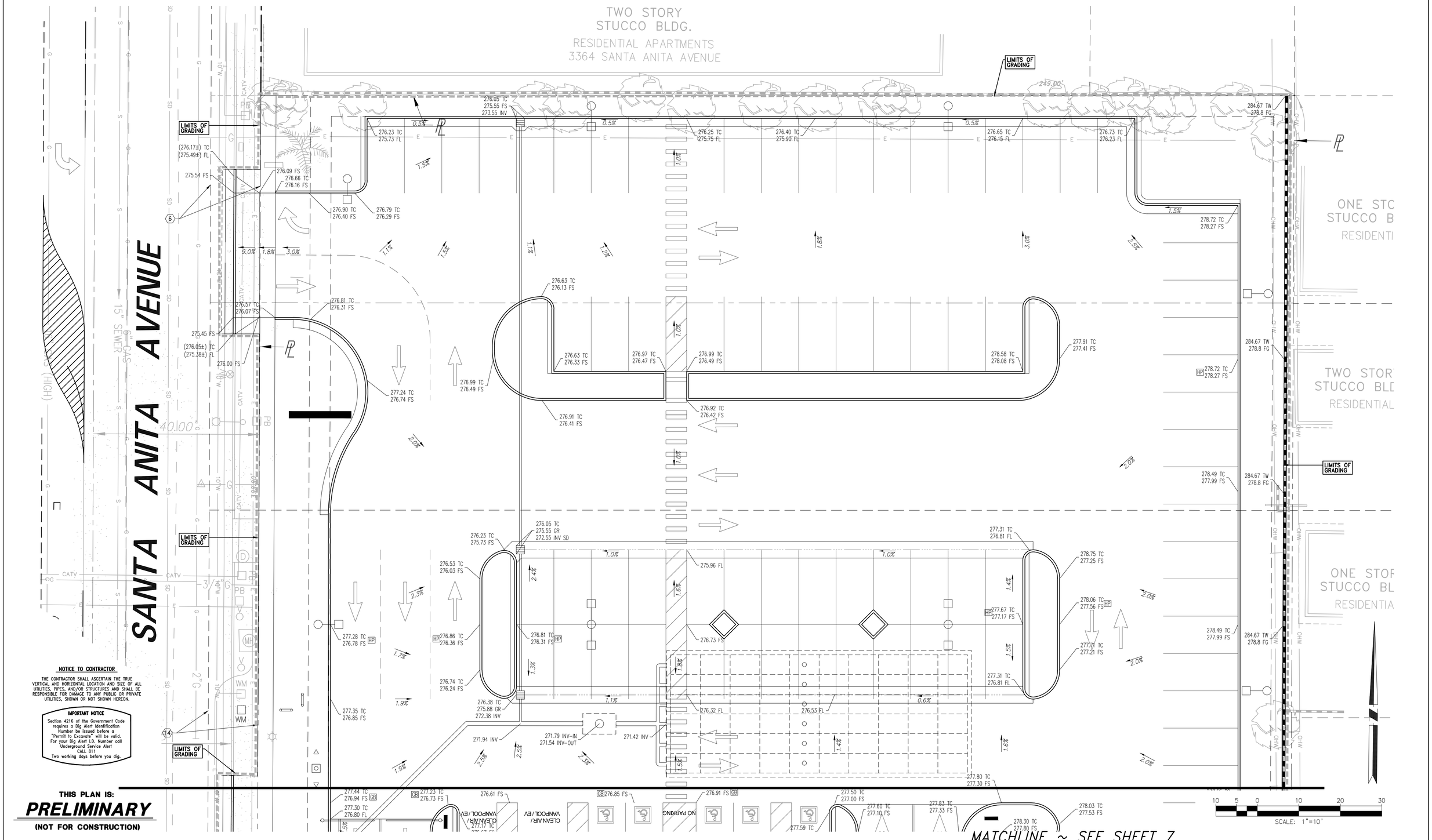
CITY OF EL MONTE

DEPARTMENT OF PUBLIC WORKS - ENGINEERING DIVISION

HORIZONTAL CONTROL PLAN

NEC SANTA ANITA AVE. & BROCKWAY ST.

DESIGNED BY: RD | DRAWN BY: TM | CHECKED BY: RD | SHEET 5 OF 12



MATCHLINE ~ SEE SHEET 7

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UNDER THE SUPERVISION OF:

11/14/2022

RANDY J. DECKER

CITY OF EL MONTE
PUBLIC WORKS DEPARTMENT

APPROVED BY:

CITY OF EL MONTE
CITY ENGINEER — DATE

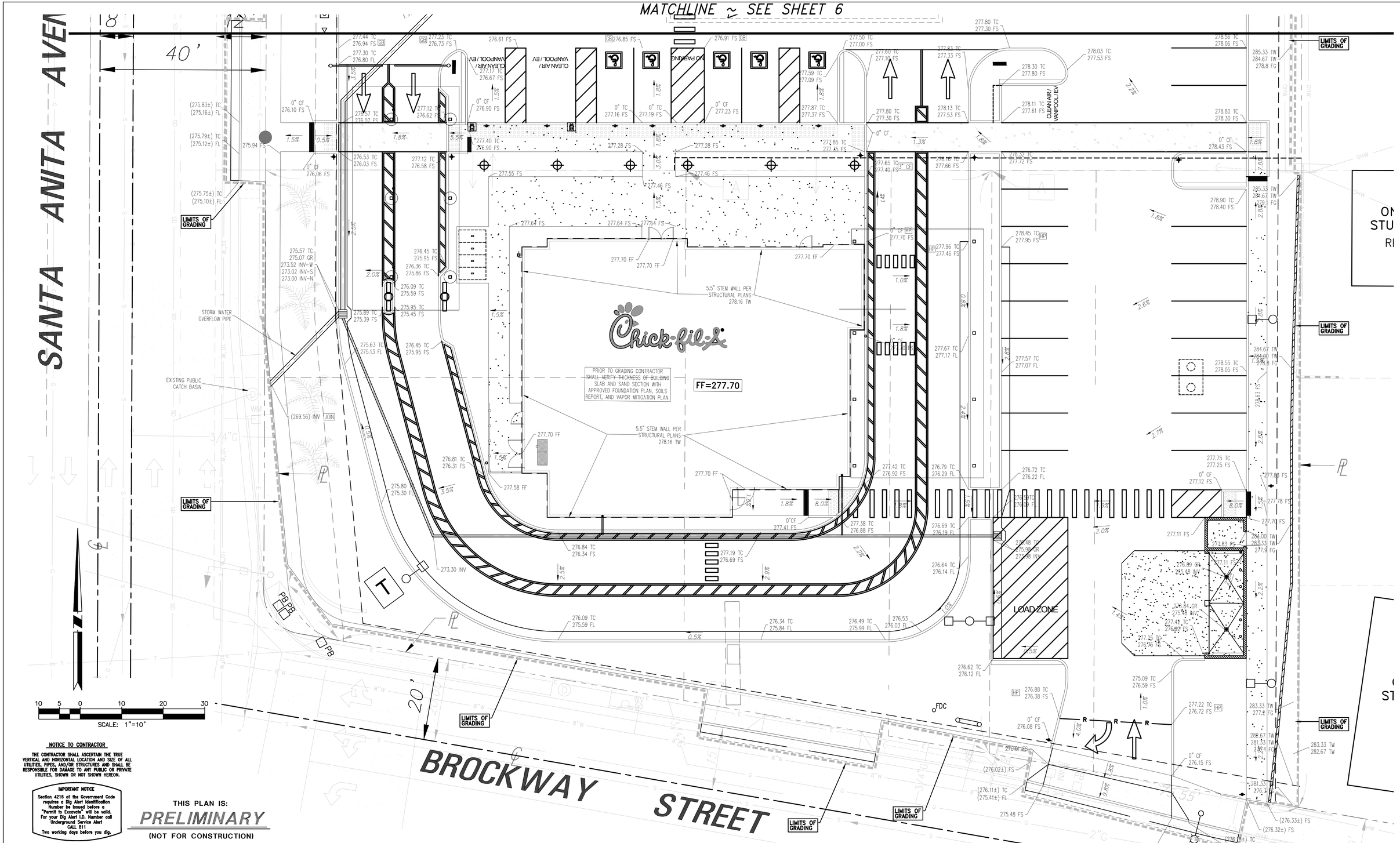
REVIEWED AND RECOMMENDED BY — DATE

CITY OF EL MONTE

DEPARTMENT OF PUBLIC WORKS - ENGINEERING DIVISION

PRECISE GRADING PLAN 1
NEC SANTA ANITA AVE. & BROCKWAY ST.

DESIGNED BY: RD	DRAWN BY: TM	CHECKED BY: RD	SHEET 6 OF 12



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CITY OF EL MONTE
PUBLIC WORKS DEPARTMENT

APPROVED BY:

CITY OF EL MONTE
CITY ENGINEER — DATE

REVIEWED AND RECOMMENDED BY — DATE

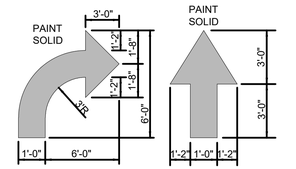
CITY OF EL MONTE

DEPARTMENT OF PUBLIC WORKS - ENGINEERING DIVISION

PRECISE GRADING PLAN 2

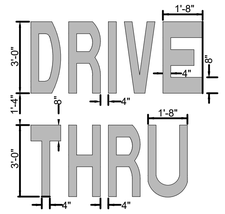
NEC SANTA ANITA AVE. & BROCKWAY ST.

DESIGNED BY: RD	DRAWN BY: TM	CHECKED BY: RD	SHEET 7 OF 12

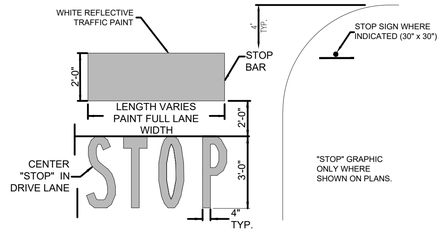


1 DIRECTIONAL ARROW
NOT TO SCALE

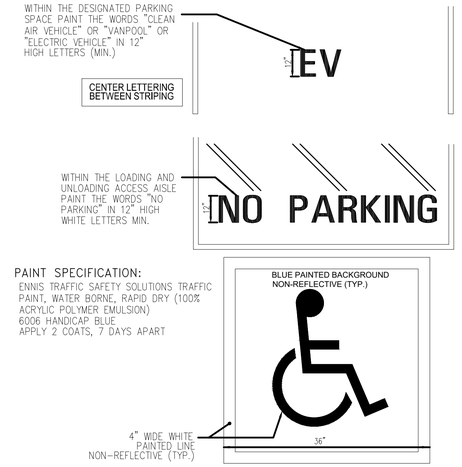
NOTES:
1. CONTRACTOR SHALL USE WHITE REFLECTIVE PAINT ON ASPHALT & YELLOW REFLECTIVE PAINT ON CONCRETE.



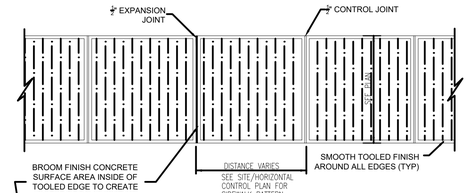
2 DRIVE–THRU GRAPHICS
NOT TO SCALE



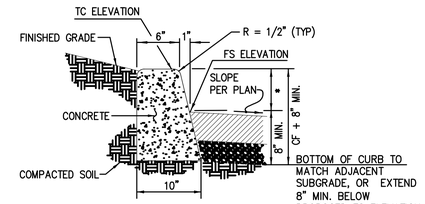
3 STOP LINE GRAPHIC
NOT TO SCALE



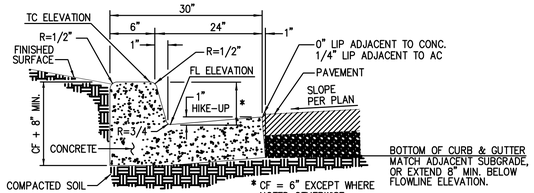
* 4 36" SQ. PAINTED ACCESSIBLE SYMBOL, NO PARKING & CLEAN AIR VEHICLE GRAPHICS
CBC 11B.502.3, 502.6 CGBC 5.106.5.2.1
NOT TO SCALE



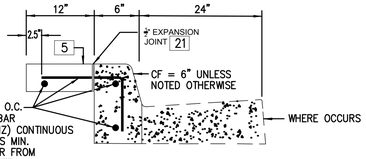
5 TYPICAL CONCRETE SIDEWALK
NOT TO SCALE



8A CURB DETAIL
NOT TO SCALE



8B CURB & GUTTER DETAIL
NOT TO SCALE



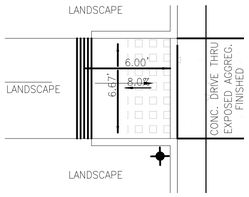
8C CURB DETAIL W/ STEP OFF SIDEWALK
NOT TO SCALE

NOTES
1. ALL CURBS & GUTTERS SHALL BE PORTLAND CEMENT CONCRETE.
2. CONSTRUCTION JOINTS AT 10 FOOT INTERVALS.
3. CONCRETE FOR CURBING SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 P.S.I. AT 28 DAYS.
4. CONTRACTION JOINTS AT 10'–0" O.C. TOOLED 1/4" (±1/16",–0) WIDE, 1" OR MAX. D/4 DEEP WHICHEVER IS GREATER. EXPANSION JOINTS AT 40' MAX. AND ALL P.C.'s, UNLESS APPROVED OR INDICATED OTHERWISE ON PLAN VIEW JOINT PATTERN.
5. CONSTRUCTION STAKING FOR CURBING INSTALLATION SHALL BE REFERENCED (CUT OR FILL) TO THE FACE OF CURB AT CONTRACTOR'S OPTION THE CUTTER
6. THICKNESS MAY BE INCREASED AT THE EDGE OF PAVEMENT TO MAKE BOTTOM OF GUTTER PARALLEL WITH PAVING OF BASE COURSE.

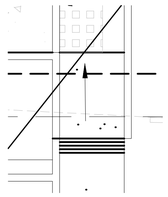
ADDITIONAL NOTES
1. BOTTOM OF CURB OR CURB & GUTTER TO BE SET ON COMPACTED SUB–GRADE OR NATURAL UNDISTURBED SOIL.
2. FINISH ALL EXPOSED CONCRETE SURFACES SMOOTH.
3. PROVIDE 1/2" EXPANSION JOINTS @ 25' O.C. MAXIMUM AT CURVES, TANGENTS AND CORNERS.
4. CONCRETE SHALL CONFORM TO THE REQUIREMENTS OF THE LATEST EDITION OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (THE GREEN BOOK) AND THE SPECIFIC REQUIREMENTS OF THE GOVERNING AGENCY.

* BASE UNDER LAYMENT SHALL BE PLACED UNDER WALKS, CURBS, AND GUTTERS AS REQUIRED BY THE SOILS ENGINEER AND PUBLIC AGENCY. CONTRACTOR SHALL VERIFY PRIOR TO CONSTRUCTION.

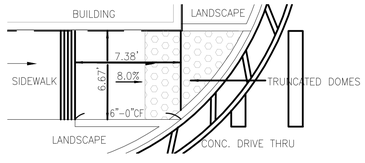
8 CONCRETE CURB AND CONCRETE CURB & GUTTER
NOT TO SCALE



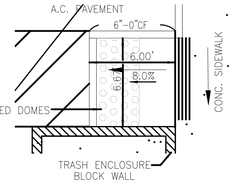
6A



6B



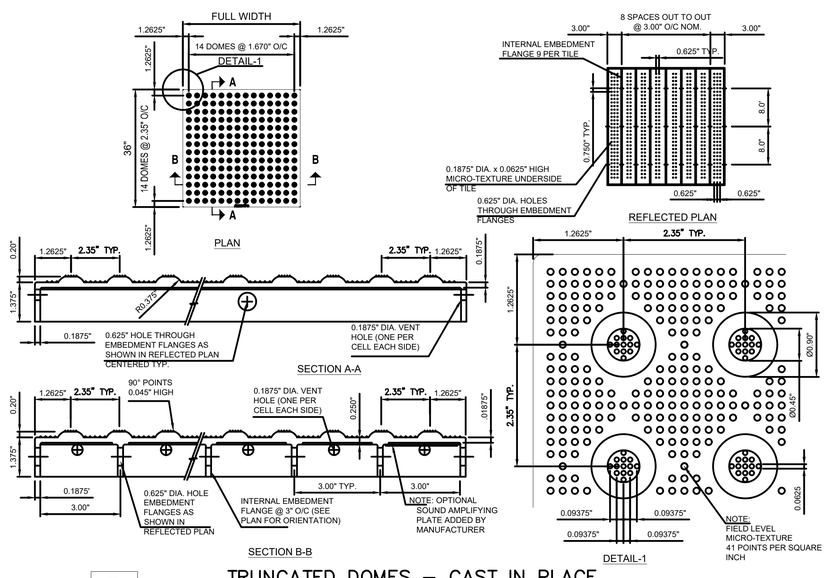
6C



6D

RAMP NOTES: (ALL NOTES)
1. LIGHT BROOM FINISH (TYP.)
2. MONOLITHIC CONCRETE ACCESSIBLE RAMP (3000 PSI) (TYP.)
3. 12" WIDE GROOVE BAND AT TOP OF RAMP PER ADA REQUIREMENTS (TYP.)
4. TRUNCATED DOMES PER DETAIL 7 (TYP.)

6 RAMP DETAIL
NOT TO SCALE



7 TRUNCATED DOMES – CAST IN PLACE
NOT TO SCALE
PER CBC FIG. 11B-23A

NOTES:
1. CURB RAMP RUNNING SLOPES SHALL NOT BE STEEPER THAN 1:12 AND CROSS SLOPE SHALL BE 2% OR FLATTER.
2. DETECTABLE WARNING SURFACES SHALL BE CONSTRUCTED BY TEXTURING PRODUCTS CONFORMING TO CBC 11B–705. TRANSITION SLOPES ARE NOT TO HAVE DETECTABLE WARNINGS. CONTRACTOR SHALL CONFIRM LOCAL CODES ARE MET.
3. WHERE A CURB RAMP IS CONSTRUCTED WITHIN AN EXISTING CURB, CURB & GUTTER AND/OR SIDEWALK, THE EXISTING CURB & GUTTER SHALL BE REMOVED TO THE NEAREST JOINT BEYOND THE CURB TRANSITIONS OR TO THE EXTENT THAT NO REMAINING SECTION OF CURB OR CURB & GUTTER IS LESS THAN 5' LONG. THE EXISTING SIDEWALK SHALL BE REMOVED TO THE NEAREST JOINT BEYOND THE TRANSITION SLOPE WALK AROUND OR TO THE EXTENT THAT NO REMAINING SECTION OF SIDEWALK IS LESS THAN 5'.
4. THE PLAN MUST PROVIDE FOR DETECTABLE WARNING SURFACE COLORS OR MATERIALS THAT PROVIDE THE NECESSARY CONTRAST, EITHER DARK–ON–LIGHT, OR LIGHT–ON–DARK.
5. TRUNCATED DOMES TO BE INSTALLED USING ARMOR TILE CAST IN PLACE DOME TACTILE TILE. PART NUMBER ADA–2424 OR OTHER EQUIVALENT APPROVED MATERIAL. PREFERRED MANUFACTURER ARMOR TILE TACTILE SYSTEMS LANCE MITCHELL(919–622–4615 UNLESS PAVERS ARE REQUIRED. CONTRACTOR TO VERIFY THAT ACCESSIBLE RAMPS MEET LOCAL CODES AND ADA REQUIREMENTS.

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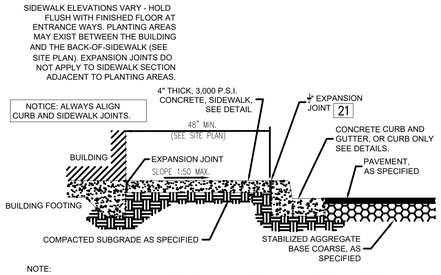
11/14/2022
REGISTERED PROFESSIONAL ENGINEER RANDY J. DECKER No. 81077 CIVIL STATE OF CALIFORNIA

CITY OF EL MONTE
PUBLIC WORKS DEPARTMENT
APPROVED BY:
CITY OF EL MONTE CITY ENGINEER — DATE
REVIEWED AND RECOMMENDED BY — DATE

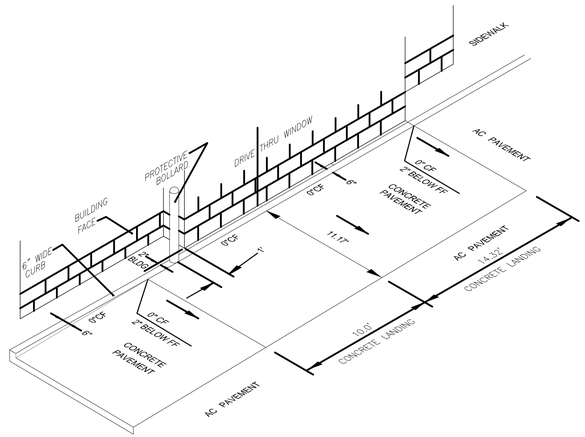
CITY OF EL MONTE
DEPARTMENT OF PUBLIC WORKS - ENGINEERING DIVISION
SITE DETAILS 1
NEC SANTA ANITA AVE. & BROCKWAY ST.

DESIGNED BY: RD	DRAWN BY: TM	CHECKED BY: RD	SHEET 8 OF 12

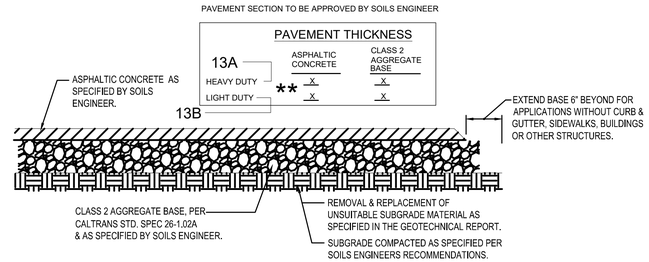


NOTE:
CONTRACTION JOINTS AT 5'-0" O.C. TOOLED ½" (+¼", -0") WIDE, 1" OR MAX. ¼ DEEP WHICHEVER IS GREATER. EXPANSION JOINTS AT 20' MAX. & ALL P.C.s, UNLESS APPROVED OR INDICATED OTHERWISE ON PLAN VIEW JOINT PATTERN.

9 SIDEWALK WITH CURB SECTION
NOT TO SCALE

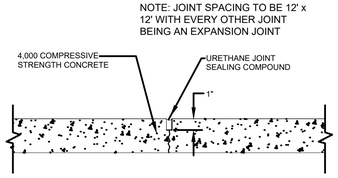


10 DRIVE-THRU ISOMETRIC
NOT TO SCALE

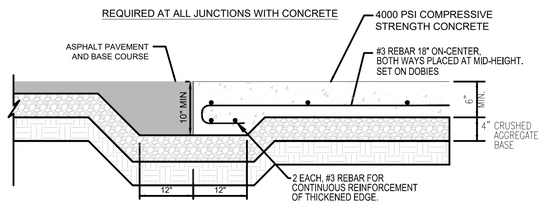


13 PAVEMENT SECTION
NOT TO SCALE

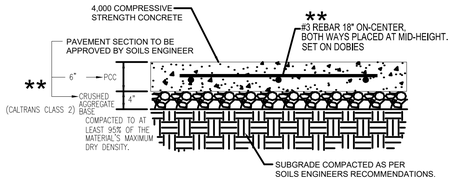
** PAVEMENT SECTIONS & REBAR TO BE DETERMINED BY THE SOILS ENGINEER



14 TRANSVERSE CONTRACTION JOINT (CJ)
NOT TO SCALE

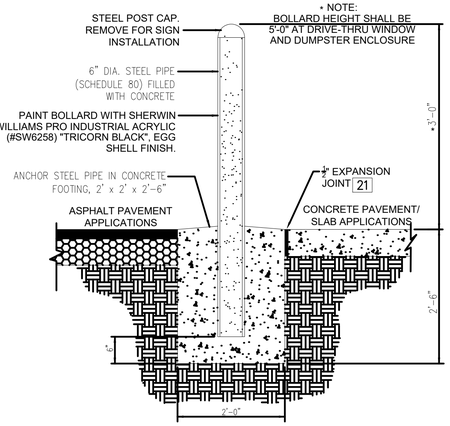


15 CONCRETE APRON @ TRASH ENCLOSURE
NOT TO SCALE

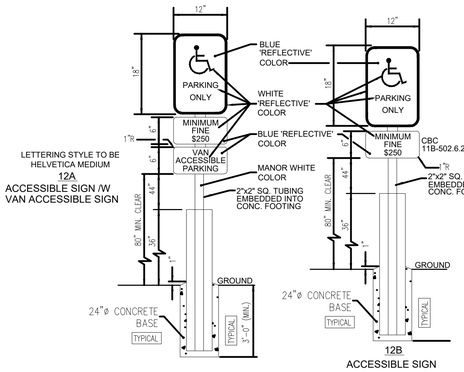


MATERIALS AND CONSTRUCTION PROCEDURES FOR CONCRETE PAVEMENT SHOULD BE IN ACCORDANCE WITH SECTION 40 OF THE CALTRANS STANDARD SPECIFICATIONS.

16 CONCRETE PAVING @ DRIVE-THRU LANE
NOT TO SCALE



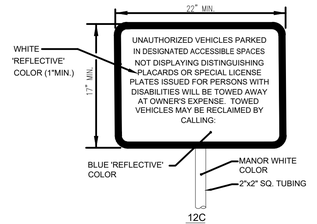
17 PIPE BUMPER POST (BOLLARD)
NOT TO SCALE



LETTERING STYLE TO BE HELVETICA MEDIUM

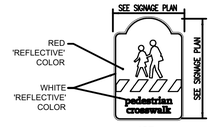
12A ACCESSIBLE SIGN /W VAN ACCESSIBLE SIGN

12B ACCESSIBLE SIGN

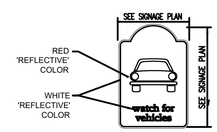


12C ACCESSIBLE INFORMATION SIGN
NOTE: "SIGNS PROVIDED AND INSTALLED BY CFA CONTRACTOR"

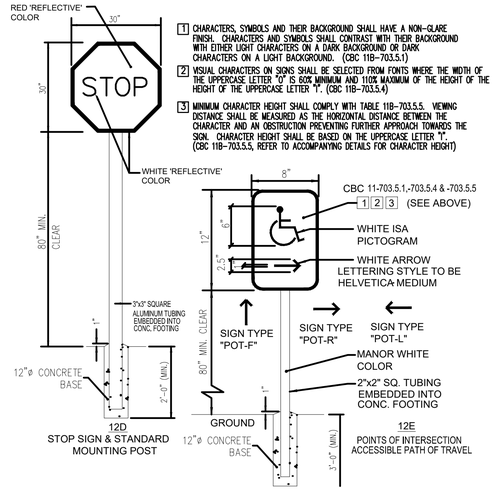
12 DIRECTIONAL SIGNAGE
NOT TO SCALE



12F pedestrian crosswalk



12G watch for vehicles



12D STOP SIGN & STANDARD MOUNTING POST

12E POINTS OF INTERSECTION ACCESSIBLE PATH OF TRAVEL

NOTICE TO CONTRACTOR

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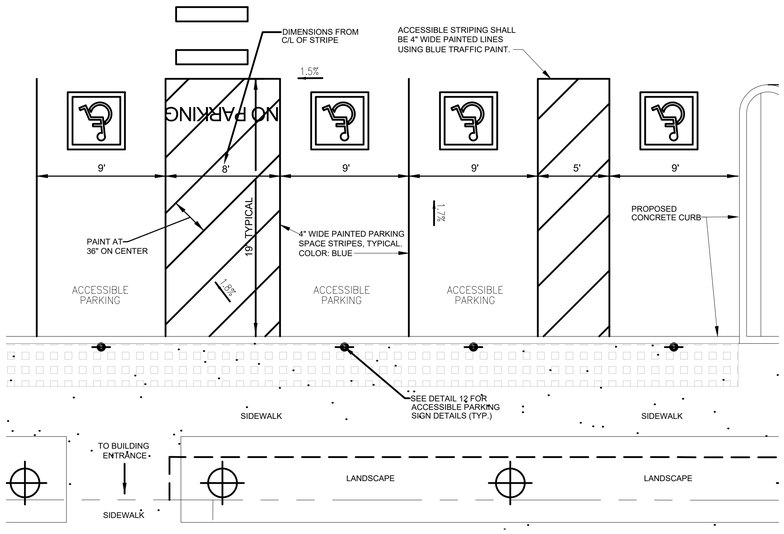
L&T IN E. C.B. 4FT N/O ECR @ NE COR VALLEY BL & RAMONA BL (@ S. END C.B.)

PLANS PREPARED BY:
JOSEPH C. TRUXAW & ASSOC.
1915 W. Orangewood Ave., Suite 101, Orange, CA 92868
(714) 935-0265 - Truxaw.com
UNDER THE SUPERVISION OF:
11/14/2022
RANDY J. DECKER
REGISTERED PROFESSIONAL ENGINEER RANDY J. DECKER No. 81077 CIVIL STATE OF CALIFORNIA

CITY OF EL MONTE
PUBLIC WORKS DEPARTMENT
APPROVED BY:
CITY OF EL MONTE CITY ENGINEER — DATE
REVIEWED AND RECOMMENDED BY — DATE

CITY OF EL MONTE
DEPARTMENT OF PUBLIC WORKS - ENGINEERING DIVISION
SITE DETAILS 2
NEC SANTA ANITA AVE. & BROCKWAY ST.

DESIGNED BY: RD	DRAWN BY: TM	CHECKED BY: RD	SHEET 9 OF 12



NOTE: STRIPING DETAILS TO COMPLY WITH SPECIFIC AGENCY REQUIREMENTS.

TRAFFIC MARKING PAINT

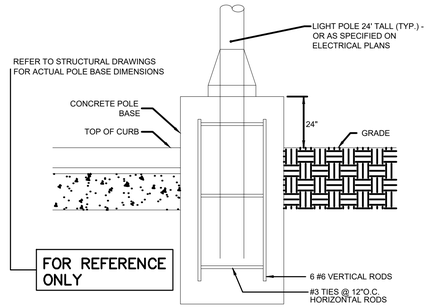
1. SURFACE PREPARATION:
SURFACE MUST BE CLEAN, DRY, AND IN SOUND CONDITION. REMOVE ALL OIL, DUST, GREASE, DIRT, AND OTHER FOREIGN MATERIAL TO ENSURE ADEQUATE ADHESION.

2. RECOMMENDED SPREADING RATE PER COAT:
APPROXIMATELY 320 LINEAL FEET OF STANDARD 4" STRIPE PER GALLON.
WET MILS: 15.0
DRY MILS: 9.0
COVERAGE: 100 SQ. FT./GAL APPROXIMATE

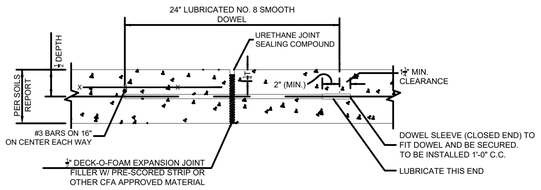
NOTE:
ACCESSIBLE PARKING AND ACCESSIBLE AISLES SHALL NOT EXCEED 1:50 IN SLOPE IN ANY DIRECTION. IF ONLY ONE ACCESS ISLE IS INSTALLED, IT IS TO BE A VAN SIZE.

NOTE:
PARKING STALL DIMENSIONING SHALL BE IN ACCORDANCE WITH APPLICABLE GOVERNING AUTHORITY'S STANDARDS FOR THE DIMENSIONING SHOWN ON THE SITE LAYOUT PLAN.

18 ACCESSIBLE PARKING STALL & STRIPING DETAIL
NOT TO SCALE

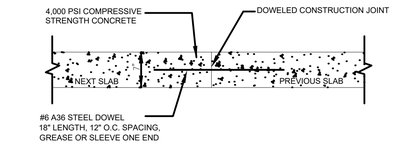


19 TYPICAL POLE BASE (UNDER SEPARATE PERMIT FOR EXTERIOR LIGHTING)
NOT TO SCALE

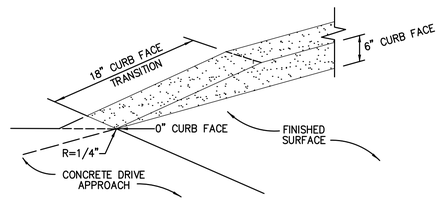


NOTES:
1. NO. 5 SMOOTH DOWEL BAR MAY BE USED IN 5 INCH AND 6 INCH PAVEMENT THICKNESS.
2. LONGITUDINAL BUTT CONSTRUCTION MAY BE UTILIZED IN PLACE OF LONGITUDINAL HINGED (KEYWAY) JOINT AT CONTRACTORS OPTION.
3. DOWEL BARS SHALL BE DRILLED INTO PAVEMENT HORIZONTALLY BY USE OF A MECHANICAL EQUIPMENT.
4. DRILLING BY HAND IS NOT ACCEPTABLE, PUSHING DOWEL BARS INTO WET CONCRETE NOT ACCEPTABLE.
5. JOINT SPACING TO BE 24'X24' (EVERY OTHER JOINT)

21 EXPANSION JOINT (EJ)
NOT TO SCALE



20 TRANSVERSE AND LONGITUDINAL DOWELED CONSTRUCTION JOINT
NOT TO SCALE



22 CURB FACE TRANSITION DETAIL
NOT TO SCALE

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APPROVED BY:
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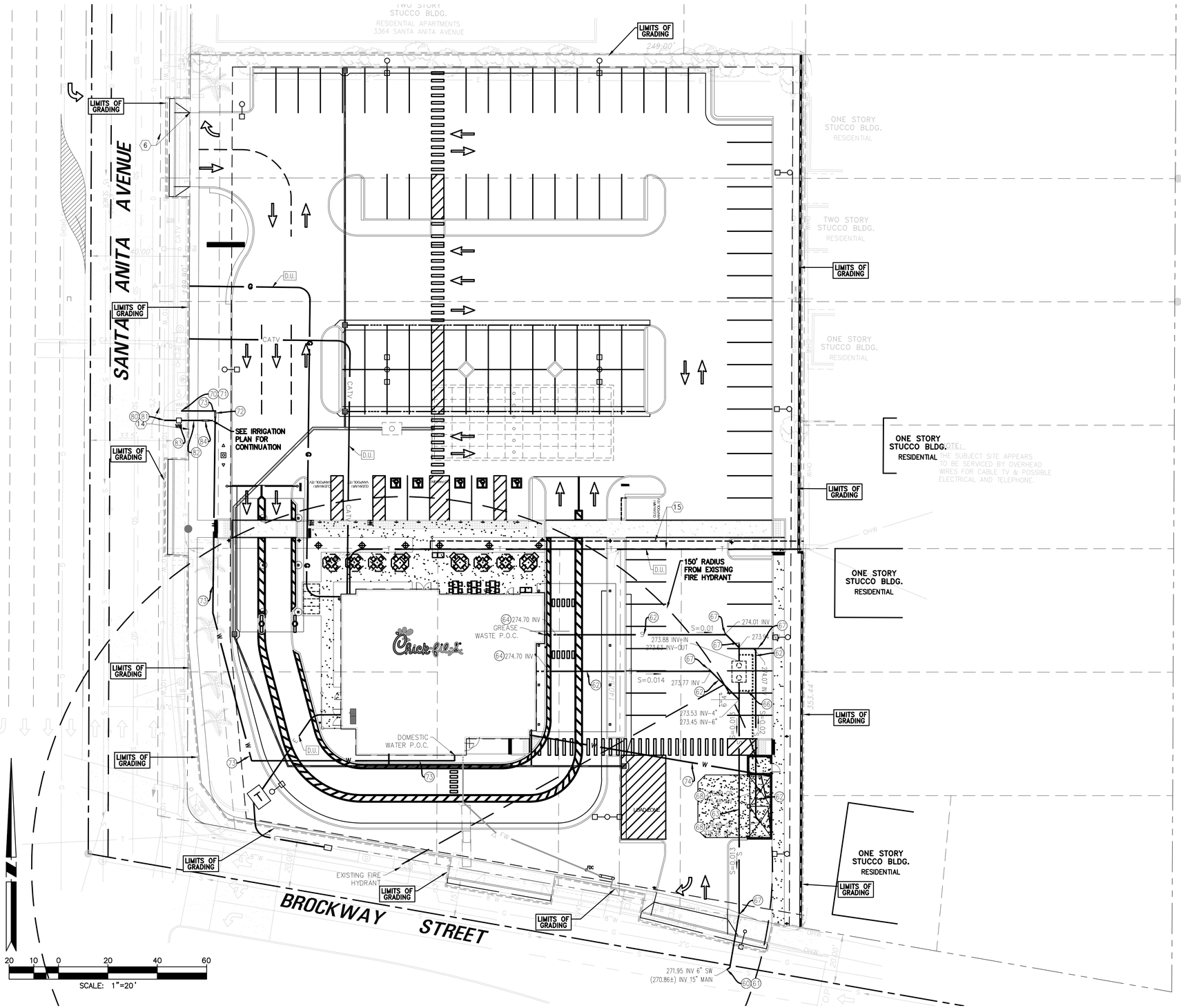
CITY OF EL MONTE
DEPARTMENT OF PUBLIC WORKS - ENGINEERING DIVISION
SITE DETAILS 3
NEC SANTA ANITA AVE. & BROCKWAY ST.

DESIGNED BY: RD	DRAWN BY: TM	CHECKED BY: RD	SHEET 10 OF 12



CONSTRUCTION NOTES–SEWER

(60) POTHOLE AND VERIFY THE EXISTENCE, LOCATION, DEPTH, MATERIAL, SIZE, AND CONDITION OF EXISTING SEWER MAIN. REPORT FINDINGS TO TRUXAW & ASSOCIATES PRIOR TO CONSTRUCTION.

(61) CONNECT TO EXISTING SEWER MAIN. SIZE SHOWN ON PLAN.

(62) PLACE 4–INCH SDR–35 PVC SEWER PIPE PER CPC REQUIREMENTS. PIPE BEDDING AND BACKFILL PER THE RECOMMENDATIONS OF THE SOILS ENGINEER.

(63) PLACE 6–INCH SDR–35 PVC SEWER PIPE PER CPC REQUIREMENTS. PIPE BEDDING & BACKFILL PER RECOMMENDATIONS OF THE SOILS ENGINEER.

(64) INSTALL TWO–WAY CLEANOUT SIZE TO MATCH DOWNSTREAM PIPE SIZE.

(65) GREASE INTERCEPTOR AND SAMPLE BOX PER PLUMBING PLANS.

(66) PLACE 4–INCH SDR–35 PVC VENT LINE PER PLUMBING PLANS. BEDDING & BACKFILL PER THE RECOMMENDATIONS OF THE SOILS ENGINEER.

(67) INSTALL SEWER CLEANOUT. SIZE TO MATCH DOWNSTREAM PIPE SIZE.

(68) DRAIN IN TRASH ENCLOSURE PER PLUMBING PLANS

CONSTRUCTION NOTES–DOMESTIC WATER

(70) POTHOLE AND VERIFY THE EXISTENCE, LOCATION, DEPTH, MATERIAL, SIZE, AND CONDITION OF EXISTING WATER METER. CONFIRM 1–1/2 –INCH WATER METER SIZE. REPORT FINDINGS TRUXAW & ASSOCIATES PRIOR TO CONSTRUCTION.

(71) CONNECT TO EXISTING WATER METER PER CITY OF EL MONTE STANDARDS AND SPECIFICATIONS.

(72) INSTALL 2–INCH REDUCED PRESSURE BACKFLOW PREVENTOR PER CITY OF EL MONTE STANDARDS AND SPECIFICATIONS.

(73) PLACE 2–INCH SCH. 80 PVC WATER PIPE. PIPE BEDDING & BACKFILL PER RECOMMENDATIONS OF SOILS ENGINEER.

(74) PLACE 3/4–INCH SCH. 80 PVC WATER PIPE. CONNECT TO POST HYDRANT IN TRASH ENCLOSURE PER PLUMBING PLANS. PIPE BEDDING & BACKFILL PER RECOMMENDATIONS OF SOILS ENGINEER.

CONSTRUCTION NOTES–IRRIGATION WATER

(80) POTHOLE AND VERIFY THE EXISTENCE, LOCATION, DEPTH, MATERIAL, SIZE, AND CONDITION OF EXISTING 10–INCH WATER MAIN. REPORT FINDINGS TRUXAW & ASSOCIATES PRIOR TO CONSTRUCTION.

(81) CONNECT TO EXISTING 10–INCH WATER MAIN PER CITY OF EL MONTE STANDARDS AND SPECIFICATIONS.

(82) PLACE 1–INCH SCH. 80 PVC WATER LINE. PIPE BEDDING & BACKFILL PER RECOMMENDATIONS OF SOILS ENGINEER.

(83) INSTALL 1–INCH WATER METER PER CITY OF EL MONTE STANDARDS AND SPECIFICATIONS.

(84) INSTALL 1–INCH REDUCED PRESSURE BACKFLOW PREVENTOR PER CITY OF EL MONTE STANDARDS AND SPECIFICATIONS.

CONSTRUCTION NOTES – FIRE WATER (SEE FIRE PLAN)

FIRE PROTECTION PIPE LINE AND SPRINKLERS IN THE BUILDING TO BE DESIGNED AND PERMITTED BY SEPARATE PLANS. PRIOR TO CONSTRUCTION OF FIRE WATER SYSTEM SHOWN ON THIS PLAN, CONTRACTOR SHALL VERIFY VIA HYDRAULIC CALCULATIONS ACCEPTABLE TO THE FIRE DEPARTMENT THAT SIZE OF FIRE SERVICE AND DETECTOR CHECK ARE OF SUFFICIENT SIZE TO SERVE BUILDING. (SIZE SHOWN FOR PLAN CHECK AND BID PURPOSES ONLY).

DRY UTILITIES

PROPOSED ELECTRIC, TELEPHONE, CABLE TV, AND GAS LINES ARE SHOWN HEREON FOR COORDINATION PURPOSES. CONTRACTOR TO VERIFY POINTS OF CONNECTION AND CONSTRUCT PROPOSED SERVICE LINES IN ACCORDANCE WITH SERVICE PLANNING DOCUMENTS PREPARED BY EACH RESPECTIVE UTILITY COMPANY.

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PLANS PREPARED BY:

JOSEPH C. TRUXAW & ASSOC.
1915 W. Orangewood Ave., Suite 101,
Orange, CA 92868
(714) 935-0265 – Truxaw.com

UNDER THE SUPERVISION OF:

11/14/2022

RANDY J. DECKER

REGISTERED PROFESSIONAL ENGINEER — RANDY J. DECKER — No. 81077 — CIVIL — STATE OF CALIFORNIA

CITY OF EL MONTE
PUBLIC WORKS DEPARTMENT

APPROVED BY:

CITY OF EL MONTE
CITY ENGINEER — DATE

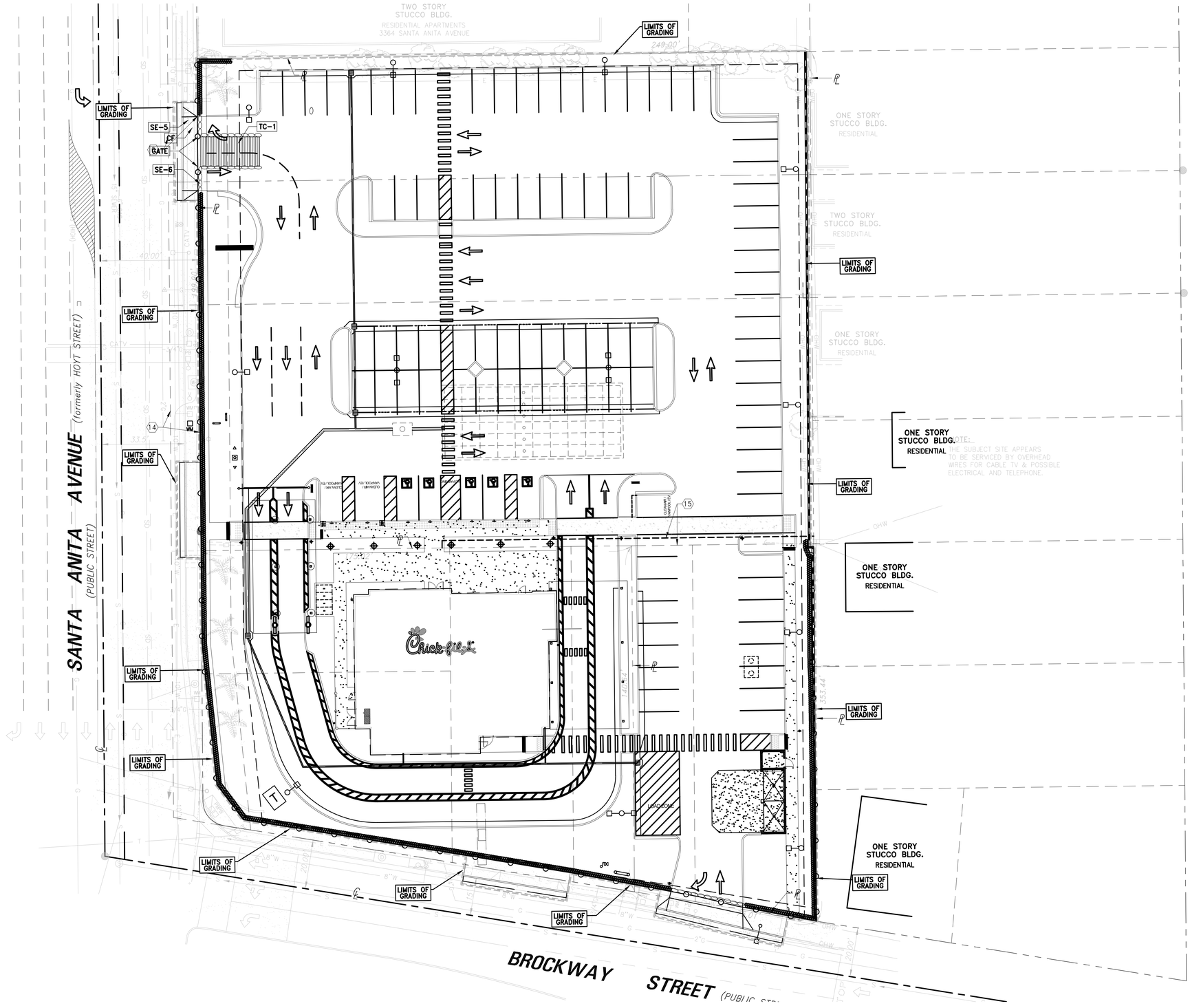
REVIEWED AND RECOMMENDED BY — DATE

CITY OF EL MONTE

DEPARTMENT OF PUBLIC WORKS - ENGINEERING DIVISION

DOMESTIC WATER & SEWER PLAN
NEC SANTA ANITA AVE. & BROCKWAY ST.

DESIGNED BY: RD	DRAWN BY: TM	CHECKED BY: RD	SHEET 11 OF 12



TEMPORARY NON-STROMWATER BMP

- WM-1 MATERIAL DELIVERY AND STORAGE PER CASQA
- WM-2 MATERIAL USE PER CASQA
- WM-3 STOCKPILE MANAGEMENT PER CASQA
- WM-8 CONCRETE WASTE MANAGEMENT PER CASQA
- WM-9 SANITARY-SEPTIC WATER MANAGEMENT PER CASQA
- TC-1 STABILIZED CONSTRUCTION ENTRANCE

TEMPORARY SEDIMENT CONTROL BMP

- CF CONSTRUCTION FENCE
- SE-5 FIBER ROLLS
- SE-6 GRAVEL BAG BERM
- SE-7 STREET SWEEPING VACUUMING PER CASQA
- SE-10 INLET PROTECTION

LEGEND

- GRAVEL BAGS
- CONSTRUCTION FENCE W/SCRIM
- FIBER ROLLS
- CONSTRUCTION ENTRANCE

EROSION CONTROL NOTES

1. IN CASE EMERGENCY WORK IS REQUIRED, CONTACT: **CARLOS ARIAS (951) 970-9138 MOBILE (24 HR.)**
2. EQUIPMENT AND WORKERS FOR EMERGENCY WORK SHALL BE MADE AVAILABLE AT ALL TIMES DURING THE RAINY SEASON. ALL NECESSARY MATERIALS SHALL BE STOCKPILED ON SITE AT CONVENIENT LOCATIONS TO FACILITATE RAPID CONSTRUCTION OF TEMPORARY EROSION CONTROL DEVICES WHEN RAIN IS IMMINENT.
3. EROSION CONTROL DEVICES SHOWN ON PLANS SHALL NOT BE MOVED OR MODIFIED WITHOUT THE APPROVAL OF THE PUBLIC WORKS INSPECTOR.
4. THE CONTRACTOR SHALL RESTORE ALL EROSION CONTROL DEVICES TO WORKING ORDER, INCLUDING SILT AND OTHER DEBRIS REMOVAL, TO THE SATISFACTION OF THE PUBLIC WORKS INSPECTOR AFTER EACH RUN-OFF PRODUCING RAINFALL.
5. THE CONTRACTOR SHALL INSTALL ADDITIONAL EROSION CONTROL MEASURES AS MAY BE REQUIRED BY THE PUBLIC WORKS INSPECTOR DUE TO UNCOMPLETED GRADING OPERATIONS OR UNFORESEEN CIRCUMSTANCES WHICH MAY ARISE.
6. THE CONTRACTOR SHALL BE RESPONSIBLE AND SHALL TAKE NECESSARY PRECAUTIONS TO PREVENT PUBLIC TRESPASS ONTO AREAS WHERE IMPOUNDED WATERS CREATE A HAZARDOUS CONDITION.
7. ALL EROSION CONTROL MEASURES PROVIDED PER THE APPROVED GRADING PLAN SHALL BE INCORPORATED HEREON.
8. GRADED AREAS AROUND THE PROJECT PERIMETER MUST DRAIN AWAY FROM THE FACE OF SLOPE AT THE CONCLUSION OF EACH WORKING DAY.
9. ALL REMOVABLE PROTECTIVE EROSION CONTROL DEVICES SHOWN SHALL BE IN PLACE AT THE END OF EACH WORKING DAY WHEN THE FIVE-DAY RAIN PROBABILITY FORECAST EXCEEDS 40%.
10. ALL GRAVEL BAGS SHALL BE BURLAP TYPE WITH 3/4" INCH MINIMUM ROCK AGGREGATE.

NOTE: THIS PLAN IS FOR EROSION AND SEDIMENT CONTROL ONLY, NOT FOR GRADING

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20 10 0 20 40 60

SCALE: 1"=20'

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CITY OF EL MONTE
PUBLIC WORKS DEPARTMENT

APPROVED BY:

CITY OF EL MONTE
CITY ENGINEER — DATE

REVIEWED AND RECOMMENDED BY — DATE

CITY OF EL MONTE

DEPARTMENT OF PUBLIC WORKS - ENGINEERING DIVISION

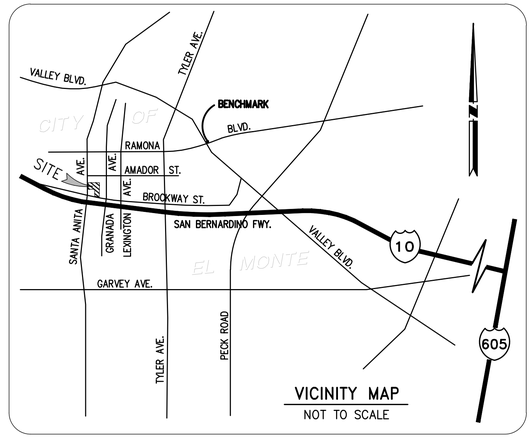
EROSION CONTROL PLAN
NEC SANTA ANITA AVE. & BROCKWAY ST.

DESIGNED BY: RD	DRAWN BY: TM	CHECKED BY: RD	SHEET 12 OF 12

UNDERGROUND FIRE PROTECTION PLAN

for

CHICK-FIL-A RESTAURANT NO. 04098
NEC SANTA ANITA AVE & BROCKWAY ST.
EL MONTE, CA.



VICINITY MAP
NOT TO SCALE

SHEET #	TITLE
FP-100	UNDERGROUND FIRE PROTECTION PLAN TITLE SHEET
FP-101	UNDERGROUND FIRE PROTECTION PLAN

COUNTY OF LOS ANGELES FIRE DEPARTMENT REGULATION #7 NOTES

MINIMUM REQUIREMENTS

A. IT IS THE RESPONSIBILITY OF THE OWNER TO PROPERLY MAINTAIN THE FIRE PROTECTION SYSTEM IN AN OPERABLE CONDITION AT ALL TIMES.

B. THE FIRE PROTECTION CONTRACTOR WILL PROVIDE THE OWNER WITH THE NECESSARY INSTRUCTION MANUALS FOR THE UPKEEP OF THE SYSTEM, AS WELL AS A COPY OF NFPA 25.

C. ONLY NEW SPRINKLERS SHALL BE EMPLOYED IN THE INSTALLATION OF THE SPRINKLER SYSTEM.

D. THE SYSTEM SHALL ONLY EMPLOY THE USE OF APPROVED MATERIALS AND DEVICES.

E. FIRE PROTECTION PLANS SHALL BE APPROVED PRIOR TO THE INSTALLATION OF ANY PIPE. A SET OF APPROVED PLANS SHALL BE MAINTAINED AT ALL TIMES AT THE JOB SITE.

F. AN APPOINTMENT SHALL BE MADE A MINIMUM OF TWO WORKING DAYS IN ADVANCE, WITH THE APPROPRIATE FIRE PREVENTION DIVISION REGIONAL OFFICE FOR ALL INSPECTIONS AND TESTS.

G. ALL UNDERGROUND MAINS AND LEAD-IN CONNECTIONS SHALL BE FLUSHED, AS INDICATED IN NFPA PRIOR TO CONNECTING TO THE OVERHEAD PIPING. THE FLUSHING SHALL CONTINUE UNTIL THE WATER IS CLEAR. FLUSHING SHOULD BE PERFORMED AT THE TIME OF THE HYDROSTATIC TEST, AND SHALL BE WITNESSED BY A FIRE PREVENTION DIVISION INSPECTOR.

H. SYSTEM PIPING SHALL BE HYDROSTATIC ALLY TESTED AT 200 PSI FOR TWO HOURS OR AT 50 PSI ABOVE THE MAXIMUM SYSTEM OPERATING PRESSURE, WHICHEVER IS GREATER.

I. FIRE DEPARTMENT CONNECTIONS SHALL BE LOCATED ON THE ADDRESS SIDE OF THE BUILDING, FACE THE STREET, BE VISIBLE AND ACCESSIBLE, HAVE NST FEMALE INLETS, HAVE PROTECTIVE CAPS, AND AN ACCESSIBLE, APPROVED CHECK VALVE LOCATED IN THE MAIN LINE (AS CLOSE TO THE INLETS AS POSSIBLE).

J. ALL VALVES AND FIRE DEPARTMENT CONNECTIONS SHALL HAVE PERMANENTLY AFFIXED SIGNS, INDICATING THEIR FUNCTION.

K. A STOCK OF SPARE SPRINKLERS IN EACH STYLE, TYPE, AND TEMPERATURE RATING ALONG WITH A SPRINKLER WRENCH SHALL BE LOCATED AT THE MAIN RISER.

L. ANY PORTION OF A WET FIRE PROTECTION SYSTEM EXPOSED TO FREEZING TEMPERATURES SHALL BE ADEQUATELY PROTECTED. (HEAT TAPE IS NOT AN ACCEPTABLE METHOD OF PROTECTION).

M. WELDING SHALL BE PERFORMED PER NFPA 13 REQUIREMENTS.

N. AUTOMATIC SPRINKLER SYSTEMS SHALL BE SUPERVISED BY A LISTED/APPROVED CENTRAL, PROPRIETARY, OR REMOTE STATION, OR A LOCAL ALARM WHEN APPROVED BY THE CHIEF, WHICH WILL GIVE AN AUDIBLE SIGNAL AT A CONSTANTLY ATTENDED LOCATION WHEN THE NUMBER OF SPRINKLERS IS 100 OR MORE. EXCEPTION: 20 OR MORE IN GROUP I, DIVISION 1.1 AND 1.2 OCCUPANCIES.

NOTE REGARDING FIRE SPRINKLER UNDERGROUND CONTRACTOR:

THE UNDERGROUND FIRE SPRINKLER SUPPLY LINE IS THE PIPING BETWEEN THE SYSTEM SHUT-OFF VALVE, OR THE FIRE DEPARTMENT CONNECTION, UP TO AND INCLUDING THE FIRST PIPE CONNECTION ABOVE GRADE AT THE BUILDING. SUCH SUPPLY LINES, AND/OF ANY EXTERIOR ON-SITE PRIVATE FIRE HYDRANTS, MAY BE INSTALLED BY THE FOLOWING LICENSED CONTRACTOR:

(a) GENERAL ENGINEERING CONTRACTOR (A)
(b) FIRE PROTECTION CONTRACTOR (C-16)
(c) PIPELINE CONTRACTOR (C-34)
(d) PLUMBING CONTRACTOR (C-36)

FIRE INSPECTION NOTE:

THE INSPECTION, HYDROSTATIC TEST AND FLUSHING OF UNDERGROUND FIRE PROTECTION PIPING SHALL BE WITNESSED BY AN AUTHORIZED FIRE DEPARTMENT REPRESENTATIVE. NO UNDERGROUND PIPING OR THRUST BLOCKS SHALL BE COVERED WITH EARTH OR HIDDEN FROM VIEW UNTIL THEY HAVE BEEN OBSERVED BY AN AUTHORIZED FIRE DEPARTMENT REPRESENTATIVE. CONTACT THE REGIONAL FIRE INSPECTION OFFICE TO SCHEDULE AN INSPECTION NOT LESS THAN 48 HOURS PRIOR TO THE DESIRED INSPECTION TIME. LACOFD REGULATION #7.

NOTES:

THE DESIGN AND INSTALLATION OF THE PRIVATE UNDERGROUND FIRE LINE SHALL BE IN ACCORDANCE WITH THE 2016 NFPA 24 AND LACOFD REGULATIONS #7.

UNDERGROUND PLANS WILL NOT BE APPROVED UNTIL THE BUILDING PLANS HAVE BEEN APPROVED BY THE LOS ANGELES COUNTY FIRE DEPATMENT, BUILDING PLAN CHECK UNIT. LACOFD REGULATION #7

GENERAL WATER NOTES

1. ALL WORK SHALL CONFORM TO THE STANDARDS & REQUIREMENTS OF THE CITY OF NORWALK, UNIFORM PLUMBING CODE AND THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, LATEST EDITION.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND CONFORMING WITH THE REQUIREMENTS OF THE ENCROACHMENT PERMIT REQUIRED FOR WORK IN THE PUBLIC RIGHT-OF-WAY.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRAFFIC CONTROL AND PROTECTION OF PEDESTRIANS. THIS RESPONSIBILITY SHALL BE CONTINUOUS.
4. PIPE BEDDING AND BACKFILL SHALL CONFORM TO THE REQUIREMENTS OF THE CITY OF NORWALK AND THE RECOMMENDATIONS OF THE SOILS ENGINEER.
5. NO ON-SITE PIPE MAY BE LAID UNTIL THE WATER CONNECTION AT THE PUBLIC MAIN HAS BEEN MADE.

FDC NOTES:

SIGNS SHALL INDICATE THE TYPE OF SYSTEM, ADDRESS, AND BUILDINGS SERVED BY THE FDC, AND SYSTEM PUMPING PRESSURE (IF OVER 150PSI). SIGNS SHALL BE PROVIDED AS OUTLINED IN LACOFD REGULATION #7 AND FIRE CODE 912.4

FIRE DEPARTMENT COOECTION SHALL BE PAINTED RED ON ANY EXPOSED SURFACES SUBJECT TO RUST OR CORROSION. COUPLING THREADS, OPERTAION MECHANISMS, ANY COMPONENTS OR PORTION OF THE VALVE WHERE THE APPLICATION OF PAINT WOULD VIOLATE THE ISTING OR HINDER ITS OPERATION SHALL NOT BE PAINTED. PER FIRE CODE 912.7

DEVELOPER

CHICK-FIL-A
5200 BUFFINGTON ROAD
ATLANTA, GEORGIA 30349

ARCHITECT

CRHO ARCHITECTS
1833 E 17TH STREET; SUITE 301
SANTA ANA, CA 92705
(714) 832-1834 FAX (714) 832-1910

SOILS ENGINEER

THESE PLANS HAVE BEEN DESIGNED IN ACCORDANCE WITH THE GEOTECHNICAL RECOMMENDATIONS MADE BY:
GILES ENGINEERING ASSOCIATES, INC.
1965 NORTH MAIN STREET
ORANGE, CA 92865
PH (714) 279-0817 FAX (714) 279-9687
PROJECT No. 2G-2107004
REPORT DATE: 10-05-22
CONTRACTOR SHALL OBTAIN A COPY OF THIS REPORT AND ALL ADDENDUM AND FOLLOW THE RECOMMENDATIONS THEREIN. NOTIFY TRUXAW AND ASSOCIATES OF ANY DISCREPANCIES OR FIELD CHANGES PRIOR TO CONSTRUCTION.

FOR FIRE DEPARTMENT USE

NOTICE TO CONTRACTOR

THE CONTRACTOR SHALL ASCERTAIN THE TRUE VERTICAL AND HORIZONTAL LOCATION AND SIZE OF ALL UTILITIES, PIPES, AND/OR STRUCTURES AND SHALL BE RESPONSIBLE FOR DAMAGE TO ANY PUBLIC OR PRIVATE UTILITIES, SHOWN OR NOT SHOWN HEREON.

IMPORTANT NOTICE
Section 4216 of the Government Code requires a Dig Alert Identification Number be issued before a "Permit to Excavate" will be valid. For your Dig Alert I.D. Number call Underground Service Alert CALL 811 Two working days before you dig.

THIS PLAN IS:
PRELIMINARY
(NOT FOR CONSTRUCTION)

Chick-fil-A
5200 Buffington Road
Atlanta, Georgia
30349-2998

Prepared by:

JOSEPH C. TRUXAW & ASSOCIATES, INC.
Civil Engineers and Land Surveyors
1915 W. ORANGEWOOD AVE.
SUITE 101
ORANGE, CA 92868
(714) 935-0265
(714) 935-0106 (FAX)

REGISTERED PROFESSIONAL ENGINEER
RANDY J. DECKER
No. 81077
CIVIL
STATE OF CALIFORNIA

CHICK-FIL-A
I-10 & SANTA ANITA
NEC SANTA ANITA AVE & BROCKWAY ST.
EL MONTE, CA.

FSR# 04098

REVISION SCHEDULE

NO.	DATE	DESCRIPTION

ENGINEER'S PROJECT #	CF17030
PRINTED FOR	CD'S
DATE	10/11/22
DRAWN BY	TM

SHEET
UNDERGROUND FIRE PROTECTION PLAN TITLE SHEET

SHEET NUMBER
FP-100

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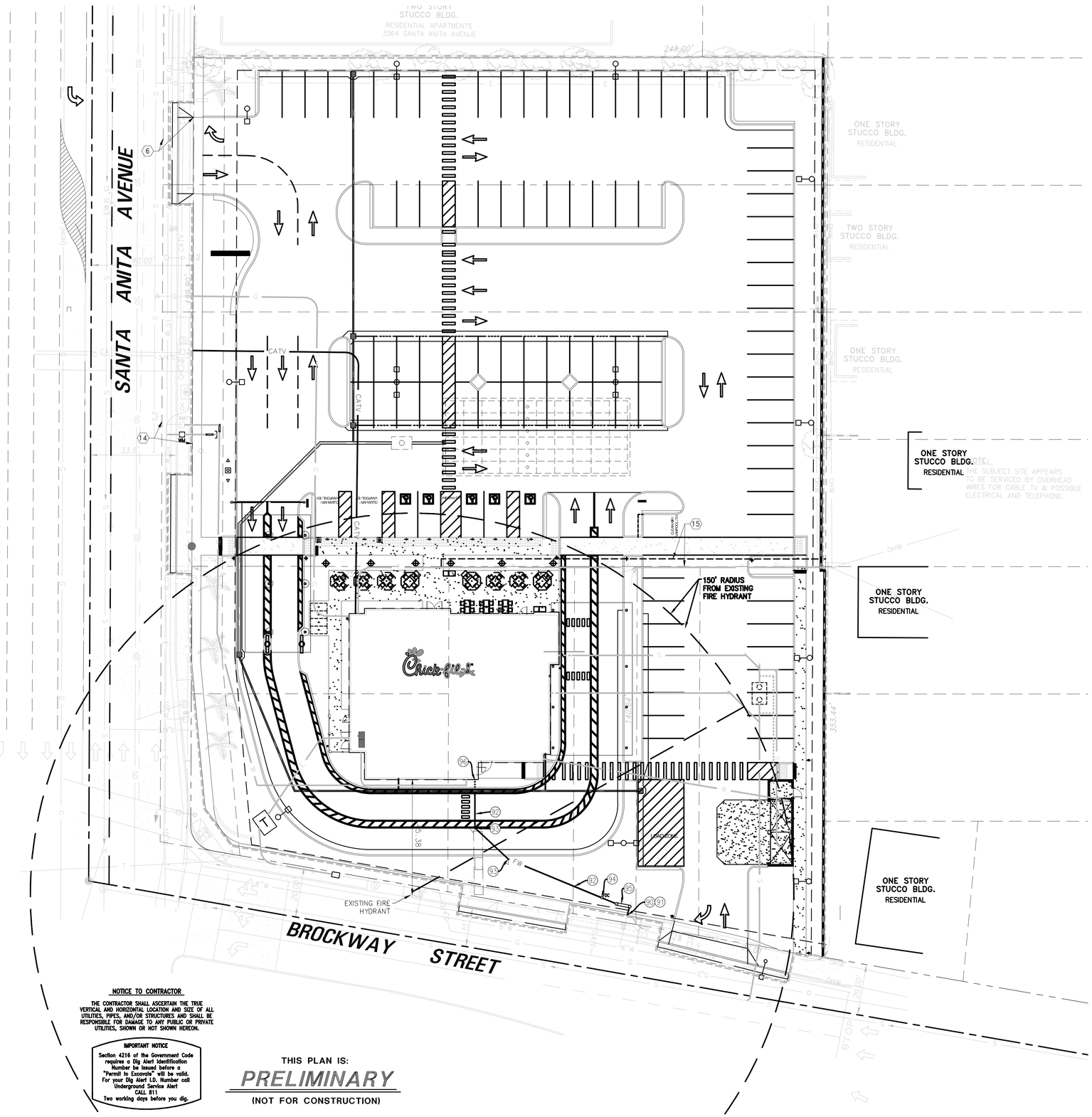

CONSTRUCTION NOTES – FIRE WATER ****

(90) POTHOLE AND VERIFY EXISTENCE, LOCATION, DEPTH, MATERIAL, SIZE, AND CONDITION OF EXISTING 6–INCH WATER SERVICE. REPORT FINDINGS TO TRUXAW & ASSOCIATES PRIOR TO CONSTRUCTION.

(91) CONNECT TO EXISTING 6–INCH WATER SERVICE PER CITY OF EL MONTE STANDARDS AND SPECIFICATIONS.

*** (92) PLACE 6–INCH CLASS C–900 PVC PIPE. PIPE BEDDING & BACKFILL PER RECOMMENDATIONS OF SOILS ENGINEER.

*** (93) PLACE 6–INCH 90° ELBOW AND CONSTRUCT THRUST BLOCK PER CITY OF EL MONTE STANDARDS AND SPECIFICATIONS.

(94) INSTALL 4–INCH FIRE DEPARTMENT CONNECTION (FDC).

*** (95) INSTALL 6–INCH DETECTOR CHECK VALVE ASSEMBLY (DCVA)

(96) CONNECT TO FIRE RISER WITH 5–FOOT ONE PIECE STAINLESS STEEL PIPE.

*** FIRE PROTECTION PIPE LINE AND SPRINKLERS IN THE BUILDING TO BE DESIGNED AND PERMITTED BY SEPARATE PLANS. PRIOR TO CONSTRUCTION OF FIRE WATER SYSTEM SHOWN ON THIS PLAN, CONTRACTOR SHALL VERIFY VIA HYDRAULIC CALCULATIONS ACCEPTABLE TO THE FIRE DEPARTMENT THAT SIZE OF FIRE SERVICE AND DETECTOR CHECK ARE OF SUFFICIENT SIZE TO SERVE BUILDING. (SIZE SHOWN FOR PLAN CHECK AND BID PURPOSES ONLY).

FIRE DEPARTMENT NOTES:

1. FIRE DEPARTMENT VEHICULAR ACCESS ROADS MUST BE INSTALLED AND MAINTAINED IN A SERVICEABLE MANNER PRIOR TO AND DURING THE TIME OF CONSTRUCTION. PER FIRE CODE 501.4 & 503.1.
2. APPROVED SIGNS OR OTHER APPROVED NOTICES OR MARKINGS THAT INCLUDE THE WORDS NO PARKING---FIRE LANE SHALL BE PROVIDED FOR FIRE APPARATUS ACCESS ROADS TO IDENTIFY SUCH ROADS, TO CLEARLY INDICATE THE ACCESS TO SUCH ROADS, OR TO PROHIBIT THE OBSTRUCTION THEREOF. THE MEANS BY WHICH FIRE LANES ARE DESIGNATED SHALL BE MAINTAINED IN A CLEAN AND LEGIBLE CONDITION AT ALL TIMES AND BE REPLACED OR REPAIRED WHEN NECESSARY TO PROVIDE ADEQUATE VISIBILITY. A NO–PARKING DESIGNATION SHALL MEET THE REQUIREMENTS OF CALIFORNIA VEHICLE CODE SECTION 22500.1 AND APPROVED BY THE FIRE CODE OFFICIAL. SIGNS SHALL BE A MINIMUM DIMENSION OF 12 INCHES WIDE BY 18 INCHES HIGH AND HAVE RED LETTERS ON A WHITE REFLECTIVE BACKGROUND. SINGS SHALL BE POSTED ON ONE OR BOTH SIDES OF THE FIRE APPARATUS ROAD AS REQUIRED. PER FIRE CODE 503.3.
3. APPROVED BUILDING ADDRESS NUMBERS, BUILDING NUMBERS OR APPROVED BUILDING IDENTIFICATION SHALL BE PROVIDED AND MAINTAINED SO AS TO BE PLAINLY VISIBLE AND LEGIBLE FROM THE STREET FRONTING OF THE PROPERTY. THE NUMBERS SHALL CONTRAST WITH THEIR BACKGROUND, BE ARABIC NUMERALS OR ALPHABET LETTERS, AND BE A MINIMUM OF 4 INCHES HIGH WITH A MINIMUM STROKE WIDTH OF 0.5 INCH. PER FIRE CODE 505.1.
4. ALL FIRE HYDRANTS SHALL MEASURE 6"X 4"X 2–1/2", BRASS OR BRONZE, CONFORMING TO AMERICAN WATER WORKS ASSOCIATION STANDARD C503, OR APPROVED EQUAL, AND SHALL BE INSTALLED IN ACCORDANCE WITH THE COUNTY OF LOS ANGELES FIRE DEPARTMENT REGULATION 8.
5. ALL REQUIRED PUBLIC FIRE HYDRANTS SHALL BE INTALLED, TESTED AND ACCEPTED PRIOR TO BEGINNING CONSTRUCTION. PER FIRE CODE 501.4.
6. VALVES CONTROLLING THE WATER SUPPLY FOR AUTOMATIC SPRINKLER SYSTEMS, PUMPS, TANKS, WATER LEVELS AND TEMPERATURES, CRITICAL AIR PRESSURES AND WATERFLOW SWITCHES ON ALL SPRINKLER SYSTEMS SHALL BE ELECTRICALLY SUPERVISED BY A LISTED FIRE ALARM CONTROL UNIT. PLANS SHALL BE SUBMITTED TO THE ALARM PLAN CHECK UNIT FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION. PER FIRE CODE 903.4.
7. THE MEANS OF EGRESS ILLUMINATION LEVEL SHALL BE NOT LESS THAN 1 FOOT–CANDLE AT THE WALKING SURFACE LEVEL. PER BUILDING CODE 1008.2.1
8. THE EMERGENCY POWER SYSTEM SHALL PROVIDE POWER FOR A DURATION OF NOT LESS THAN 90 MINUTES AND SHALL CONSIST OF STORAGE BATTERIES, UNIT EQUIPMENT OR AN ON–SITE GENERATOR. THE INSTALLATION OF THE EMERGENCY POWER SYSTEM SHALL BE IN ACCORDANCE WITH SECTION 2702. PER BUILDING CODE 1008.3.4.
9. EGRESS DOORS SHALL BE READILY OPENABLE FROM THE EGRESS SIDE WITHOUT THE USE OF A KEY OR ANY SPECIAL KNOWLEDGE OR EFFORT. PER BUILDING CODE 1010.1.9.
10. EACH DOOR IN A MEANS OF EGRESS FROM A GROUP A, OR ASSEMBLY AREA NOT CLASSIFIED AS ASSEMBLY OCCUPANCY, HAVING AN OCCUPANT LOAD OF 50 OR MORE SHALL NOT BE PROVIDED WITH A LATCH OR LOCK UNLESS IT IS PANIC HARDWARE OR FIRE EXIT HARDWARE. PER BUILDING CODE 1010.1.10 AND FIRE CODE 1010.1.10.
11. PORTABLE FIRE EXTINGUISHERS SHALL BE INSTALLED IN LOCATIONS AS REQUIRED BY FIRE CODE 906.
12. EACH REQUIRED COMMERCIAL KITCHEN EXHAUST HOOD AND DUCT SYSTEM SHALL HAVE A TYPE I HOOD PROTECTED WITH AN APPROVED AUTOMATIC FIRE–EXTINGUISHING SYSTEM INSTALLED IN ACCORDANCE WITH BUILDING CODE 904.2.2 AND FIRE CODE 607.

NOTICE TO CONTRACTOR

THE CONTRACTOR SHALL ASCERTAIN THE TRUE VERTICAL AND HORIZONTAL LOCATION AND SIZE OF ALL UTILITIES, PIPES, AND/OR STRUCTURES AND SHALL BE RESPONSIBLE FOR DAMAGE TO ANY PUBLIC OR PRIVATE UTILITIES, SHOWN OR NOT SHOWN HEREON.

IMPORTANT NOTICE

Section 4216 of the Government Code requires a Dig Alert Identification Number be issued before a "Permit to Excavate" will be valid. For your Dig Alert I.D. Number call Underground Service Alert CALL 811 Two working days before you dig.

THIS PLAN IS:

PRELIMINARY

(NOT FOR CONSTRUCTION)

FOR FIRE DEPARTMENT USE

20 10 0 20 40 60

SCALE: 1"=20'

Chick-fil-A
5200 Buffington Road
Atlanta, Georgia
30349-2998

Prepared by:

JOSEPH C. TRUXAW & ASSOCIATES, INC.
Civil Engineers and Land Surveyors
1915 W. ORANGEWOOD AVE.
SUITE 101
ORANGE, CA 92868
(714) 935-0265
(714) 935-0106 (FAX)

REGISTERED PROFESSIONAL ENGINEER
RANDY J. DECKER
No. 81077
CIVIL
STATE OF CALIFORNIA

CHICK-FIL-A

I-10 & SANTA ANITA

NEC SANTA ANITA AVE & BROCKWAY ST.
EL MONTE, CA.

FSR# 04098

REVISION SCHEDULE

NO.	DATE	DESCRIPTION

ENGINEER'S PROJECT #	CF17030
PRINTED FOR	CD'S
DATE	10/11/22
DRAWN BY	TM

SHEET
UNDERGROUND FIRE PROTECTION PLAN

SHEET NUMBER

FP-101

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TITLE REPORT

THIS SURVEY AND EASEMENTS SHOWN HEREON ARE BASED ON INFORMATION CONTAINED IN THE PRELIMINARY TITLE REPORT PREPARED BY:

FIRST AMERICAN TITLE INSURANCE COMPANY
4380 LA JOLLA VILLAGE DRIVE, SUITE 110
SAN DIEGO, CA 92122
(858) 410-2151
COMMITMENT NUMBER: NCS-839698-SD
COMMITMENT DATE: JUNE 14, 2022
TITLE OFFICER: TRIXY BROWN / JANICE TREANOR

2 LEGAL DESCRIPTION

THE LAND REFERRED TO HEREON IS SITUATED IN THE CITY OF EL MONTE, COUNTY OF LOS ANGELES, STATE OF CALIFORNIA, AND IS DESCRIBED AS FOLLOWS:

PARCEL 1:

THE SOUTH 50 FEET OF LOT 14 OF TRACT NO. 883, IN THE CITY OF EL MONTE, COUNTY OF LOS ANGELES, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 18 PAGE 39 OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY.

PARCEL 2:

THE NORTH 50 FEET OF LOT 14 OF TRACT NO. 883, IN THE CITY OF EL MONTE, COUNTY OF LOS ANGELES, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 18 PAGE 39 OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY.

PARCEL 3:

LOT 15 OF TRACT 883, IN THE CITY OF EL MONTE, AS PER MAP RECORDED IN BOOK 18 PAGE 39 OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY.

PARCEL 4:

ALL OF LOT 5 AND THE EASTERLY HALF OF LOT 4, MEASURED ALONG THE NORTHERLY AND SOUTHERLY LINES OF SAID LOT 4 OF TRACT NO. 3886, IN THE CITY OF EL MONTE, COUNTY OF LOS ANGELES, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 42 PAGE 18 OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY.

PARCEL 5:

PARCEL A:
LOT 1 OF TRACT NO. 3886, IN THE CITY OF EL MONTE, COUNTY OF LOS ANGELES, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 42 PAGE 18 OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY.

PARCEL B:
LOT 2 OF TRACT NO. 3886, IN THE CITY OF EL MONTE, COUNTY OF LOS ANGELES, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 42 PAGE 18 OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY.

EXCEPT FROM THE ABOVE PARCELS A AND B: ALL OIL, OIL RIGHTS, NATURAL GAS RIGHTS, MINERAL RIGHTS, ALL OTHER HYDROCARBON SUBSTANCES BY WHATSOEVER NAME KNOWN, AND ALL WATER, CLAIMS OR RIGHTS TO WATER, TOGETHER WITH APPURTENANT RIGHTS THERETO, WITHOUT, HOWEVER, ANY RIGHT TO ENTER UPON THE SURFACE OF SAID LAND NOR ANY PORTION OF THE SUBSURFACE LYING ABOVE, AS EXCEPTED OR RESERVED BY DEED RECORDED JULY 23, 1998 AS INSTRUMENT NO. 98-1266542, OF OFFICIAL RECORDS.

PARCEL 6:

LOT 3 AND THAT PART OF LOT 4 OF TRACT NO. 3886, IN THE CITY OF EL MONTE, AS PER MAP RECORDED IN BOOK 42 PAGE 18 OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, DESCRIBED AS FOLLOWS:

BEGINNING THE SOUTHWESTERLY CORNER OF LOT 4, RUNNING THENCE NORTHERLY ALONG THE WESTERLY LINE OF SAID LOT TO THE NORTHWESTERLY CORNER THEREOF; THENCE EASTERLY ALONG THE NORTHERLY LINE OF SAID LOT, 24.66 FEET TO A POINT; THENCE SOUTHERLY IN A DIRECT LINE TO A POINT IN THE SOUTHERLY LINE OF SAID LOT, 25 FEET EASTERLY FROM THE SOUTHWESTERLY CORNER THEREOF; THENCE WESTERLY ALONG THE SOUTHERLY LINE OF SAID LOT, 25 FEET TO THE POINT OF BEGINNING.

FOR CONVEYANCING PURPOSES ONLY: APNS
8579-005-003 (AFFECTS PARCEL 6)
8579-005-024 (AFFECTS PARCEL 3)
8579-005-025 (AFFECTS PARCEL 5)
8579-005-026 (AFFECTS PARCEL 4)
8579-005-027 (AFFECTS PARCEL 2)
8579-005-028 (AFFECTS PARCEL 1)

EASEMENT NOTES

REFER TO TITLE REPORT FOR ADDITIONAL INFORMATION AND DETAILS:

1 ITEM THAT DEALS WITH TAXES.

2 ITEM THAT DEALS WITH TAXES.

3 THIS ITEM HAS BEEN INTENTIONALLY DELETED.

4 THIS ITEM HAS BEEN INTENTIONALLY DELETED.

5 THE LIEN OF SUPPLEMENTAL TAXES, IF ANY, ASSESSED PURSUANT TO CHAPTER 3.5 COMMENCING WITH SECTION 75 OF THE CALIFORNIA REVENUE AND TAXATION CODE.

6 AN EASEMENT AFFECTING THE PORTION OF SAID LAND AND FOR THE PURPOSES STATED HEREIN, AND INCIDENTAL PURPOSES, CONDEMNED BY FINAL DECREE:

FOR: STREET PURPOSES
CASE NO. 256040
RECORDED: IN BOOK 9749 PAGE 22, OF OFFICIAL RECORDS

SAID MATTER AFFECTS A PORTION OF SAID LAND AS MORE PARTICULARLY DESCRIBED IN SAID DOCUMENT.
(AFFECTS PARCELS 1, 2, 3 AND 5)

NOTE: SAID DOCUMENT APPEARS TO BE A FEE TAKING FOR STREET PURPOSES AS PLOTTED HEREON.

7 THIS ITEM HAS BEEN INTENTIONALLY DELETED.

8 EASEMENTS, COVENANTS AND CONDITIONS CONTAINED IN THE DEED FROM EL MONTE COMMUNITY REDEVELOPMENT AGENCY, A PUBLIC BODY CORPORATE AND POLITIC, A CALIFORNIA LIMITED LIABILITY COMPANY, AS GRANTOR, TO GSL DEVELOPMENT, LLC, A CALIFORNIA LIMITED LIABILITY COMPANY, AS GRANTEE, RECORDED MARCH 26, 2007 AS INSTRUMENT NO. 20070693747 OF OFFICIAL RECORDS. REFERENCE BEING MADE TO THE DOCUMENT FOR FULL PARTICULARS.
(AFFECTS PARCELS 1, 2, 4 AND 5)

NOTE: SAID DOCUMENT IS BLANKET IN NATURE AND NOT PLOTTED HEREON. AFFECTS THE TITLE REPORT LEGAL DESCRIPTION FOR PARCELS 1, 2 & 4 LISTED HEREON.

9 THE TERMS AND PROVISIONS CONTAINED IN THE DOCUMENT ENTITLED "NOTICE OF REDEVELOPMENT AGREEMENT" RECORDED MARCH 26, 2007 AS INSTRUMENT NO. 07-693748 OF OFFICIAL RECORDS.
(AFFECTS ALL PARCELS)

NOTE: SAID DOCUMENT IS BLANKET IN NATURE AND NOT PLOTTED HEREON. AFFECTS THE TITLE REPORT LEGAL DESCRIPTIONS LISTED HEREON AND STATES HEIGHT RESTRICTIONS IN SAID DOCUMENT.

EASEMENT NOTES CONTINUED

10 THIS ITEM HAS BEEN INTENTIONALLY DELETED.

11 WATER RIGHTS, CLAIMS OR TITLE TO WATER, WHETHER OR NOT SHOWN BY THE PUBLIC RECORDS.
(AFFECTS ALL PARCELS)

12 THIS ITEM HAS BEEN INTENTIONALLY DELETED.

13 RIGHTS OF PARTIES IN POSSESSION.
(AFFECTS ALL PARCELS)

14 THIS ITEM HAS BEEN INTENTIONALLY DELETED.

15 AN EASEMENT FOR PUBLIC UTILITIES AND INCIDENTAL PURPOSES IN THE DOCUMENT RECORDED AUGUST 28, 1979 AS INSTRUMENT NO. 954660 OF OFFICIAL RECORDS.
(AFFECTS PARCEL 3)

16 THIS ITEM HAS BEEN INTENTIONALLY DELETED.

17 THIS ITEM HAS BEEN INTENTIONALLY DELETED.

18 THIS ITEM HAS BEEN INTENTIONALLY DELETED.

19 THIS ITEM HAS BEEN INTENTIONALLY DELETED.

20 THIS ITEM HAS BEEN INTENTIONALLY DELETED.

21 THIS ITEM HAS BEEN INTENTIONALLY DELETED.

22 THIS ITEM HAS BEEN INTENTIONALLY DELETED.

23 THIS ITEM HAS BEEN INTENTIONALLY DELETED.

24 THIS ITEM HAS BEEN INTENTIONALLY DELETED.

25 THIS ITEM HAS BEEN INTENTIONALLY DELETED.

26 THIS ITEM HAS BEEN INTENTIONALLY DELETED.

27 THIS ITEM HAS BEEN INTENTIONALLY DELETED.

28 ANY FACTS, RIGHTS, INTERESTS OR CLAIMS THAT MAY EXIST OR ARISE BY REASON OF THE FOLLOWING MATTERS DISCLOSED BY AN ALTA/NSPS SURVEY MADE BY JOSEPH C. TRUXAW & ASSOCIATES, INCORPORATED FOR CHICK-FIL-A ON APRIL 9, 2020 LAST REVISED JULY 26, 2021, DESIGNATED CFA17030:
(A) 6" HIGH VINYL FENCE EXTENDS OVER EAST BORDER ONTO SUBJECT LAND.
(B) BUILDING ROOF EXTENDS OVER EAST BORDER ONTO SUBJECT LAND BY AS MUCH AS 0.74'
(B) 6" HIGH CHAIN LINK FENCE EXTENDS OVER SOUTHEAST BORDER ONTO ADJOINING LAND.
(C) 7" WIDE BLOCK WALL LIES OVER THE NORTHERLY BOUNDARY BY UP TO 0.33' NORTH, OWNERSHIP UNKNOWN.
(D) 7" WIDE BLOCK WALL LIES OVER THE EASTERLY BOUNDARY BY AN UNDISCLOSED DISTANCE ONTO THE SUBJECT LAND.
(E) 6' HIGH CHAIN LINK FENCE EXTENDS OVER SOUTHEAST BORDER ONTO ADJOINING LAND.
(F) GUY ANCHOR EXTENDS OVER SOUTH BORDER ONTO SUBJECT LAND WITHOUT BENEFIT OF AN EASEMENT.
(G) TRANSFORMER NEAR NORTHEAST BORDER OF SUBJECT LAND LACKS BENEFIT OF AN EASEMENT.
(H) OVERHEAD WIRE AND POLES ALONG THE EASTERLY BORDER WITHOUT BENEFIT OF AN EASEMENT.

29 AN EASEMENT FOR PUBLIC ROAD AND HIGHWAY AND INCIDENTAL PURPOSES IN THE DOCUMENT RECORDED JANUARY 04, 1966 AS INSTRUMENT NO. 3821 OF OFFICIAL RECORDS.
(AFFECTS PARCEL 5)

30 AN EASEMENT FOR PUBLIC ROAD AND HIGHWAY AND INCIDENTAL PURPOSES IN THE DOCUMENT RECORDED JANUARY 04, 1966 AS INSTRUMENT NO. 3822 OF OFFICIAL RECORDS.
(AFFECTS PARCEL 5)

31 THIS ITEM HAS BEEN INTENTIONALLY DELETED.

32 THE TERMS, PROVISIONS AND EASEMENT(S) CONTAINED IN THE DOCUMENT ENTITLED "ACCESS AGREEMENT GRANTING RIGHT OF ENTRY" RECORDED MARCH 28, 2005 AS INSTRUMENT NO. 05-700865 OF OFFICIAL RECORDS.
(AFFECTS PARCEL 5)

NOTE: SAID DOCUMENT, AMONG OTHER ITEMS IS A BLANKET RESTRICTIVE ACCESS FOR UNDER GROUND TANKS. (AFFECTS PARCEL 5)

33 THIS ITEM HAS BEEN INTENTIONALLY DELETED.

34 THE EFFECT OF A DOCUMENT ENTITLED "GRANT DEED", RECORDED SEPTEMBER 02, 2020 AS INSTRUMENT NO. 20201045944 OF OFFICIAL RECORDS.

SAID DOCUMENT CONTAINS AN ERRONEOUS LEGAL DESCRIPTION.
(AFFECTS PARCEL 6)

35 WE FIND NO OUTSTANDING VOLUNTARY LIENS OF RECORD AFFECTING SUBJECT PROPERTY. AN INQUIRY SHOULD BE MADE CONCERNING THE EXISTENCE OF ANY UNRECORDED LIEN OR OTHER INDEBTEDNESS WHICH COULD GIVE RISE TO ANY SECURITY INTEREST IN THE SUBJECT PROPERTY.

BENCHMARK

COUNTY OF LOS ANGELES BENCHMARK NO. MG5567

ELEVATION = 287.805 FEET (QUAD YEAR 2005)

L&T IN E. C.B. 4FT N/O ECR @ NE COR VALLEY BL & RAMONA BL (@ S. END C.B.)

BASIS OF BEARINGS

THE BEARING NORTH 00°27'00" WEST FOR THE CENTERLINE OF SANTA ANITA AVENUE PER TRACT NO. 3886, IN BOOK 42, PAGE 18 OF MAPS, RECORDS OF LOS ANGELES COUNTY, STATE OF CALIFORNIA, WAS USED AS THE BASIS OF BEARINGS FOR THIS SURVEY.

2 SITE AREA

THE SUBJECT SITE, PER TITLE REPORT LEGAL DESCRIPTION CONTAINS APPROXIMATELY:

82,344 SQ. FT. OR 1.890 ACRES

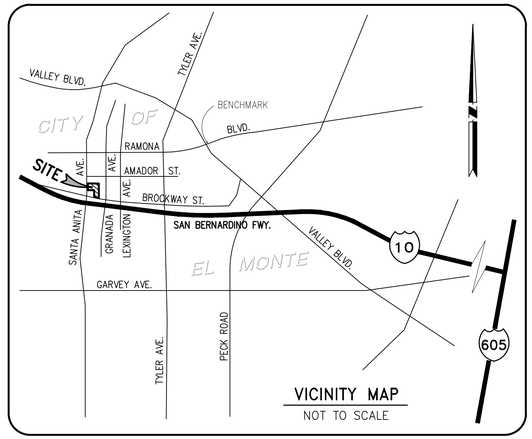
RECORD DATA

(R1) = RECORD DATA PER TRACT MAP NO. 883, BOOK 18, PAGE 39

(R2) = RECORD DATA PER TRACT MAP NO. 3886, BOOK 42, PAGE 18

(R3) = NOT USED.

(R4) = RECORD DATA PER TRACT MAP NO. 77, BOOK 13, PAGE 33



VICINITY MAP
NOT TO SCALE

1 UTILITY PROVIDERS

STORM DRAIN....LOS ANGELES COUNTY, 900 S. FREMONT AVE., ALHAMBRA, 91803, PUBLIC WORKS (626) 458-4002
STORM DRAIN....CITY OF EL MONTE, 11333 VALLEY BLVD., EL MONTE, 91731, RICHARD RUYLE (626) 580-2058
WATER.....CITY OF EL MONTE, 11333 VALLEY BLVD., EL MONTE, 91731, RICHARD RUYLE (626) 580-2058
SEWER.....CITY OF EL MONTE, 11333 VALLEY BLVD., EL MONTE, 91731, RICHARD RUYLE (626) 580-2058
ELECTRIC.....SOUTHERN CALIFORNIA EDISON, 1000 E. POTRERO GRANDE DR., MONTEREY PARK, 91755, PLANNING (323) 720-5263
GAS.....SOUTHERN CALIFORNIA GAS, 1919 S. STATE COLLEGE BLVD., ANAHEIM, 92806, WILTON SHEN (714) 634-5062
TELEPHONE.....AT&T, 100 W. ALONDRA BLVD., GARDENA, 90248, CRAIG CHINEN (310) 515-2429; CARL RANDOLPH, CR2936@ATT.COM
CABLE.....CHARTER COMMUNICATIONS, 1041 E. ROUTE 66, GLENDORA, 91740, DAVID SCHARRER (626) 639-1622

ROADWAY.....CITY OF EL MONTE, 11333 VALLEY BLVD., EL MONTE, 91731, EMMA ESCOBAR (626) 580-2058

SITE PLANNING DATA

DISCLAIMER: INFORMATION PROVIDED BY 4G DEVELOPMENT AND CONSULTING, INC. IN THE SITE INVESTIGATION REPORT DATED 5/13/2019.

ZONING: C-3 (GENERAL COMMERCIAL)

MAXIMUM BUILDING HEIGHT: 40 FEET

SETBACKS

BUILDING: NORTH = 0 FEET; SOUTH = 0 FEET;
EAST = 20 FEET; WEST = 5 FEET

LANDSCAPE: NORTH = 0 FEET; SOUTH = 0 FEET;
EAST = 0 FEET; WEST = 4-6 FEET

PARKING COUNT

NO STRIPED PARKING STALLS EXIST ON THE SUBJECT SITE.

FLOOD ZONE

COMMUNITY NUMBER: 060658 1675F, EFFECTIVE DATE: SEPTEMBER 26, 2008

ZONE X (UNSHADED)

PROPERTY NOT IN A SPECIAL FLOOD HAZARD AREA, AREA DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN.

INFORMATION OBTAINED FROM CERTIFIED FLOOD SYSTEMS, INC. ON 6/14/2019

SURVEYOR'S NOTES

1. IT IS NOT WITHIN THE PURVIEW OF THIS SURVEYOR TO MAKE DETERMINATIONS OF OWNERSHIP. AS TO "ENCROACHMENTS" SPECIFICALLY, NO INFERENCE TO SUCH DETERMINATION IS INTENDED OR IMPLIED.
2. LOCATIONS OF UNDERGROUND UTILITIES / STRUCTURES MAY VARY FROM LOCATIONS SHOWN HEREON. ADDITIONAL BURIED UTILITIES / STRUCTURES MAY EXIST. NO EXCAVATIONS WERE MADE DURING THE PROGRESS OF THIS SURVEY TO LOCATE BURIED UTILITIES / STRUCTURES. THE LOCATIONS OF UNDERGROUND FEATURES SHOWN HEREON ARE PLOTTED FROM AVAILABLE RECORD INFORMATION AND VISIBLE SURFACE INDICATIONS. BEFORE ANY EXCAVATIONS ARE PERFORMED, UTILITY PURVEYORS SHOULD BE CONTACTED FOR VERIFICATION OF UTILITY TYPE AND FIELD LOCATIONS.
3. VEHICULAR ACCESS TO THE "SUBJECT SITE" IS CURRENTLY FROM A DRIVE ENTRANCES ALONG SANTA ANITA AVENUE AND BROCKWAY STREET.
4. ALL MATTERS SHOWN ON RECORDED PLATS LISTED IN RECORD DATA HEREON THAT ARE PERTINENT TO THE SURVEY OF THE SUBJECT SITE ARE SHOWN ON THIS ALTA SURVEY HEREON.
5. AT THE TIME OF SURVEY NO EVIDENCE OF RECENT EARTH MOVING WORK, BUILDING CONSTRUCTION OR ADDITIONS WERE OBSERVED ON THE SUBJECT SITE.
6. NO RECENT CHANGES IN STREET RIGHTS-OF-WAY OR STREET CONSTRUCTION OR REPAIRS WERE OBSERVED AT THE TIME OF SURVEY.
7. NO VISIBLE EVIDENCE WAS OBSERVED THAT THE SITE IS BEING USED AS A SOLID WASTE DUMP, SUMP OR SANITARY LANDFILL AT THE TIME OF SURVEY.

2 1 SURVEY CERTIFICATION

TO: CHICK-FIL-A, INC. AND FIRST AMERICAN TITLE INSURANCE COMPANY,

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2021 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS 2, 3, 4, 5, 6(a), 8, 9, 11, 13, 16 & 17 OF "TABLE A" THEREOF.
THE FIELD WORK WAS COMPLETED ON JUNE 13, 2019.

THIS CERTIFICATION IS SUBMITTED PURSUANT TO SECTION 8770.6 OF THE PROFESSIONAL LAND SURVEYORS ACT, BUSINESS AND PROFESSIONS CODE, STATE OF CALIFORNIA.

07/18/2022

3 MICHAEL P. HERNANDEZ DATE
REGISTERED LAND SURVEYOR NO. 9281

REGISTERED LAND SURVEYOR
MICHAEL P. HERNANDEZ
NO. 9281
STATE OF CALIFORNIA

Chick-fil-A
5200 Buffington Road
Atlanta, Georgia
30349-2998

Prepared by:

JOSEPH C. TRUXAW & ASSOCIATES, INC.
Civil Engineers and Land Surveyors
1915 W. ORANGEWOOD AVE.
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ORANGE, CA 92868
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CHICK-FIL-A

I-10 & SANTA ANITA FSU

3342 SANTA ANITA AVENUE
EL MONTE, CA 91731

FSR# 04098

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SHEET
ALTA/NSPS LAND TITLE SURVEY

SHEET NUMBER
1 of 3

RAMONA BOULEVARD

AMADOR STREET

SANTA ANITA AVENUE (formerly HOYT STREET) (PUBLIC STREET)

BROCKWAY STREET (PUBLIC STREET)

GRANADA AVENUE

LEXINGTON AVENUE

FREEWAY OFF-RAMP

LOT 13

LOT 14

LOT 15

TRACT NO. 883
BOOK 18, PAGE 39

TRACT NO. 3886
BOOK 42, PAGE 18
LOT 1
LOT 2
LOT 3
LOT 4
LOT 5

PARCEL 1 PER TITLE REPORT LEGAL DESCRIPTION

PARCEL 2 PER TITLE REPORT LEGAL DESCRIPTION

PARCEL 3 PER TITLE REPORT LEGAL DESCRIPTION

PARCEL 4 PER TITLE REPORT LEGAL DESCRIPTION

PARCEL 5A PER TITLE REPORT LEGAL DESCRIPTION

PARCEL 5B PER TITLE REPORT LEGAL DESCRIPTION

PARCEL 6 PER TITLE REPORT LEGAL DESCRIPTION

A.P.N.: 8579-005-015
OWNER: 4JSE, LLC

A.P.N.: 8579-005-013
OWNER: MORAR AND PADMABEN TRS

A.P.N.: 8579-005-027
OWNER: GSL DEVELOPMENT, LLC

A.P.N.: 8579-005-012
OWNER: LEON/SOLIS

A.P.N.: 8579-005-028
OWNER: GSL DEVELOPMENT, LLC

A.P.N.: 8579-005-011
OWNER: VILLEGAS

A.P.N.: 8579-005-024
OWNER: GSL DEVELOPMENT, LLC

A.P.N.: 8579-005-010
OWNER: RODRIGUEZ

A.P.N.: 8579-005-009
OWNER: BESERRA

A.P.N.: 8579-005-008
OWNER: SANDOVAL

A.P.N.: 8579-005-025
OWNER: GSL DEVELOPMENT, LLC

A.P.N.: 8579-005-003
OWNER: DISTINCTIMAGE INT. LLC

A.P.N.: 8579-005-026
OWNER: GSL DEVELOPMENT LLC

A.P.N.: 8579-005-007
OWNER: GAW/HLA

A.P.N.: 8579-005-005
OWNER: RAYGOZA

S.F.N. RE-ESTABLISHED AT INTERSECTION OF TIES PER P.W.F.B. 1327-2132. ACCEPTED & HELD AS NEW CENTERLINE OF SANTA ANITA AVE.

FOUND LEAD AND TACK, NO REF. ACCEPTED AND HELD AS CENTERLINE INTERSECTION PER P.W.F.B. 1327-2128.

FOUND GEAR SPIKE W/WASHER "L.S. 5411", NO REF. ACCEPTED AND HELD AS CENTERLINE INTERSECTION LEXINGTON AVE. & AMADOR ST. PER C.E.F.B. 411/73.

FOUND LEAD & TACK, NO REF. ACCEPTED AS ℄ PROD. SLY' LINE LOT 73 (R4). 1.15' E/O R/W

FOUND LEAD & TACK, NO REF. ACCEPTED AS ℄ PROD. SLY' LINE LOT 72 (R4). 1.14' E/O R/W.

FOUND LEAD AND TACK, NO REF. ACCEPTED AND HELD AS CENTERLINE INTERSECTION PER P.W.F.B. 1327-2126.

S.F.N. RE-ESTABLISHED BY INTERSECTION.

FOUND GEAR SPIKE W/WASHER "L.S. 5411", NO REF. ACCEPTED AND HELD AS CENTERLINE LEXINGTON AVE.

S.F.N. RE-ESTABLISHED BY INTERSECTION.

NEW C/L PER C.E.F.B. 411/56

OLD C/L SANTA ANITA AVENUE

NORTH LINE LOT 14 (R1)

NORTH LINE LOT 15 (R1)

WEST LINE LOTS 14 & 15 (R1)

EAST LINE LOTS 14 & 15 (R1)

SOUTH LINE LOT 15 (R1)

NORTH LINE LOT 5 (R2)

WEST LINE LOT 3 (R2)

WEST LINE LOTS 1 & 2 (R2)

NORTH LINE LOT 1 (R2)

WEST LINE LOT 4 (R2)

EAST LINE LOT 4 (R2)

EAST LINE LOT 5 (R2)

SOUTH LINE LOTS 1, 3, 4 & 5 (R2)

SOUTH LINE LOT 4 (R2)

SOUTH LINE LOT 5 (R2)

N89°19'22"E 469.00'

N89°17'45"E 828.49' M. (N89°17'30"E R1)

461.00' (R1)

469.00'

359.49' (358.68' R4)

261.00' (R1)

104.95' (105.00' R1)

104.98' (105.00' R1)

N89°18'15"E 261.00' (N89°17'30"E 261.00' R1)

249.00'

150.00' (R4)

99.984' (100.00' R1)

N00°27'00"W 449.77' (R2)

N00°27'00"W 450.07' R1)

(Basis of Bearings per R1) N00°27'00"W (R1) 1026.10' M.

N00°27'00"W 448.46'

N00°27'00"W 449.85'

237.95' (M&R)

(413.04' (413.25' R1) -

N00°27'00"W 353.49' R1)

N00°27'00"W 1107.43'

N00°25'43"W 599.84' M.

530.00'

97'

57'

40.00'

8'

20'

12'

175.02'

N89°19'12"E 187.02' (N89°18'00"E 187.02' R2)

24.66' (R2)

49.32' (R2)

99.984' (100.00' R1)

N00°27'00"W 353.44' (N00°27'00"W 353.49' R1)

N00°27'37"W 140.64'

(153.55' R2)

153.47' (153.49' R1)

62.27'

62.18'(DEED)

N05°50'04"W

N00°07'30"W

D=74°59'56" D=75°03'27"

R=15.00' R=15.00'

L=19.63' L=19.65'(DEED)

264.72' (264.70' R2)

N80°50'00"W

234.02'

25.002' (25.00' R2)

50.004' (50.00' R2)

75.01'

N80°50'00"W (R2) (N80°52'00"W R1) 475.68'

467.57' (468.00' R2)

N80°50'00"W 364.38'

7.37'

60'

30'

30'

40'

20'

20.00'

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

Chick-fil-A
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Atlanta, Georgia
30349-2998

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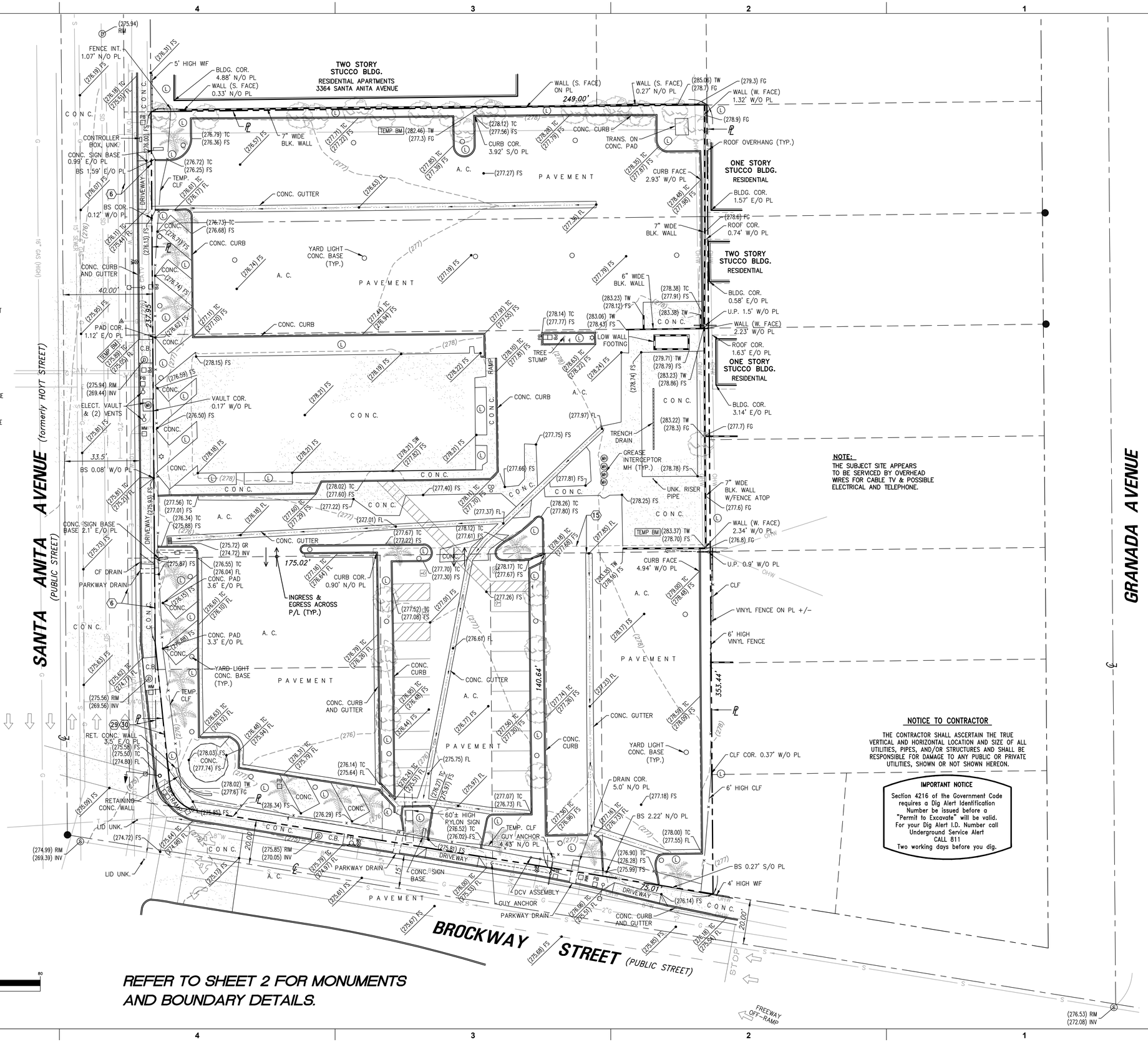
LEGEND

AB = AGGREGATE BASE	TW = TOP OF WALL
AC = ASPHALT CONCRETE	UG = UNDERGROUND
BLK = CONCRETE BLOCK	UNK = UNKNOWN
BS = BACK OF SIDEWALK	UP = UTILITY POLE
CB = CATCH BASIN	VAR = VARIABLE
CF = CURB FACE	W = WASHER
CL = CENTERLINE	WDF = WOOD FENCE
CLF = CHAIN LINK FENCE	WM = WATER METER
CO = CLEANOUT	WV = WATER VALVE
DCV = DETECTOR CHECK VALVE	
DS = ROOF DOWNSPOUT	N. = NORTH
EG = EDGE OF GUTTER	S. = SOUTH
EP = EDGE OF PAVEMENT	E. = EAST
FD = FOUND	W. = WEST
FDC = FIRE DEPT. CONNECTION	N'LY = NORTHERLY
FF = FINISHED FLOOR	S'LY = SOUTHERLY
FG = FINISHED GRADE	E'LY = EASTERLY
FH = FIRE HYDRANT	W'LY = WESTERLY
FL = FLOW LINE	N/O = NORTH OF
FS = FINISHED SURFACE	S/O = SOUTH OF
GB = GRADE BREAK	E/O = EAST OF
GM = GAS METER	W/O = WEST OF
GR = TOP OF GRATE	℄ = PROPERTY LINE
GV = GAS VALVE	℄ = CENTERLINE
HP = HIGH POINT	R/W = RIGHT OF WAY
HT = HEIGHT	△ = DELTA
ICV = IRRIGATION CONTROL VALVE	R = RADIUS
IP = IRON PIPE	L = LENGTH
LS = LIGHT STANDARD	T = TANGENT
L&T = LEAD & TAG	M = MEASURED DATA
MH = MANHOLE	C = CALCULATED DATA
NG = NATURAL GROUND	(RAD)= RADIAL BEARING
N&T = NAIL & TAG	PRO = PROPORTIONATE MEASUREMENT
OHW = OVERHEAD WIRE	(210.00' R) = RECORD DATA
PB = PULL BOX	210.00' M. = MEASURED DATA
PCC = CONCRETE	210.00' PRO. = PRORATED DATA
PIV = POST INDICATOR VALVE	210.00' C. = CALCULATED DATA
PL = PROPERTY LINE	(427.00) TC = EXISTING ELEVATION
RD = ROOF DRAIN	427.00 TC = DESIGN ELEVATION
REF = REFERENCE	
SFN = SEARCHED FOUND NOTHING	CATV = CABLE TV LINE
SMH = SEWER MANHOLE	E = ELECTRICAL LINE
SPK = SPIKE	G = GAS LINE
SW = SIDEWALK	GB—GB = GRADE BREAK LINE
TC = TOP OF CURB	R—R = RIDGE LINE
TE = TRASH ENCLOSURE	S = SEWER LINE
TP = TELEPHONE POLE	SD = STORM DRAIN LINE
TRAN = TRANSITION	T = TELEPHONE LINE
TRANS= TRANSFORMER	W = WATER LINE

SYMBOLS

- FIRE HYDRANT
- STREET LIGHT
- TRAFFIC SIGNAL
- TRAFFIC SIGNAL ARM & POLE
- LIGHT STANDARD
- UTILITY POLE
- GUY WIRE & ANCHOR
- WM WATER METER
- GM GAS METER
- WV WATER VALVE
- PB PULL BOX
- GRATE INLET
- SIGN
- VENT
- (S) SEWER MANHOLE
- (D) STORM DRAIN MANHOLE
- (T) TELEPHONE MANHOLE
- (MH) MANHOLE
- SEWER CLEANOUT
- (W) MONITORING WELL
- HANDICAP PARKING STALL
- (L) LANDSCAPED AREA
- (P) PROTECT IN PLACE
- (R) REMOVE AND DISPOSE OFFSITE
- (RE) RELOCATE
- (3) PLOTABLE EASEMENT ITEM No. PER TITLE REPORT
- (427.0) EXIST. CONTOUR
- 427.0 DESIGN CONTOUR



GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

REFER TO SHEET 2 FOR MONUMENTS AND BOUNDARY DETAILS.

NOTE:
THE SUBJECT SITE APPEARS TO BE SERVICED BY OVERHEAD WIRES FOR CABLE TV & POSSIBLE ELECTRICAL AND TELEPHONE.

NOTICE TO CONTRACTOR

THE CONTRACTOR SHALL ASCERTAIN THE TRUE VERTICAL AND HORIZONTAL LOCATION AND SIZE OF ALL UTILITIES, PIPES, AND/OR STRUCTURES AND SHALL BE RESPONSIBLE FOR DAMAGE TO ANY PUBLIC OR PRIVATE UTILITIES, SHOWN OR NOT SHOWN HEREON.

IMPORTANT NOTICE
Section 4216 of the Government Code requires a Dig Alert Identification Number be issued before a "Permit to Excavate" will be valid. For your Dig Alert I.D. Number call Underground Service Alert CALL 811 Two working days before you dig.

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CITY OF EL MONTE
PUBLIC STREET IMPROVEMENTS
NEC SANTA ANITA AVE & BROCKWAY ST.

LEGAL DESCRIPTION: SEE SHEET 2

GRADING AND DRAINAGE NOTES & REQUIREMENTS

1. NO WORK SHALL BE DONE WITHOUT APPROVED PLANS FROM THE CITY ENGINEER.
2. PROVISIONS SHALL BE MADE FOR CONTRIBUTORY DRAINAGE AT ALL TIMES.
3. THE UNDERSIGNED CIVIL ENGINEER HEREBY STATES THAT THESE PLANS WERE PREPARED BY HIM/HER OR UNDER HIS/HER SUPERVISION, AND THAT THE PLANS CONFORM TO ALL PERTINENT PROVISIONS OF CHAPTERS 18 AND 33 OF THE LATEST EDITION OF THE CALIFORNIA BUILDING CODE AND ALL CITY ORDINANCES.
4. REGISTERED GEOTECHNICAL ENGINEER OF RECORD WHO PREPARED THE SOILS REPORT FOR THE PROJECT SHALL MONITOR AND SUPERVISE ALL ASPECTS OF THE GRADING OPERATIONS. REGISTERED GEOTECHNICAL ENGINEER SHALL ENSURE SOIL STABILITY AND JOB SITE CONSTRUCTION SAFETY AND SUBMIT PERIODIC REPORTS TO THE CITY ENGINEER. A FINAL SOILS REPORT AND COMPACTION REPORT PREPARED BY THE REGISTERED GEOTECHNICAL ENGINEER SHALL BE SUBMITTED PRIOR TO POURING OF THE FOUNDATIONS. THIS REPORT SHALL INDICATE THAT ALL GRADING OPERATIONS WERE PERFORMED IN COMPLIANCE WITH THE APPROVED SOILS REPORT.
5. THE PLANNING DEPARTMENT MUST APPROVE HEIGHT OF THE PROPOSED PROPERTY STRUCTURES, WALLS, AND FENCES. THIS PLAN DOES NOT PROVIDE APPROVAL FOR THOSE ITEMS.
6. IT IS THE APPLICANT'S RESPONSIBILITY TO OBTAIN APPROVAL FOR BUILDING SETBACKS, LAYOUTS, HEIGHT, AND SIZE OF ALL STRUCTURES FROM THE CITY'S PLANNING DEPARTMENT. THIS PLAN DOES NOT GRANT APPROVAL FOR THESE ITEMS.
7. ALL BLOCK WALLS SHOWN ON THE PLAN SHALL BE CONSTRUCTED AFTER OBTAINING A PERMIT FROM THE BUILDING DEPARTMENT.
8. APPROVED PROTECTIVE MEASURES AND DRAINAGE PROVISIONS SHALL BE PROVIDED TO PROTECT ADJOINING PROPERTIES FROM DEPOSITION OF MATERIAL OR RUNOFF ORIGINATING FROM THIS PROPERTY BOTH DURING AND AFTER ALL PHASES OF CONSTRUCTION. EXISTING NATURAL DRAINAGE, EXISTING FLOW LINES, EXISTING SHEET FLOW RUNOFF, EXISTING DRAINAGE IN PIPES, SWALES, AND CONDUITS ALLOWED TO DISCHARGE ONTO THIS PROPERTY FROM ADJACENT LAND SHALL NOT BE BLOCKED, REDIRECTED, CONCENTRATED OR ACCELERATED BY THE CONSTRUCTION OF WALLS, CURBS, BERMS OR ANY OTHER STRUCTURES, AND THE PLACEMENT OF ANY OTHER CONSTRUCTION. ABSOLUTELY NO CROSS LOT DRAINAGE ALLOWED.
9. ALL OFFSITE AND ONSITE IMPROVEMENTS SHALL BE COMPLETED TO THE SATISFACTION OF THE CITY ENGINEER.
10. NO GRADING SHALL COMMENCE PRIOR TO THE APPROVAL AND SIGNATURE OF THIS GRADING PLAN BY THE CITY ENGINEER AND ISSUANCE OF A GRADING PERMIT BY THE ENGINEERING DEPARTMENT.
11. THESE PLANS HAVE BEEN CHECKED BY THE CITY ONLY IN CONFORMANCE WITH CITY STANDARDS, COMPLIANCE WITH DEVELOPMENT CONDITIONS, AND FOR GENERAL CONCEPTUAL APPROVAL OF THE DRAINAGE AND PARKWAY IMPROVEMENTS SHOWN HEREON. NO DETAILED MATHEMATICAL CHECK OR FIELD SURVEY WAS MADE FOR THE ACCURACY OF THE EXISTING OR PROPOSED DIMENSIONS, LINES, SIZES OF PIPES, AND STORM DRAIN STRUCTURES OR GRADES SHOWN INCLUDING ALL EXISTING UTILITIES SHOWN OR NOT SHOWN. NO CHECKS WERE MADE ON THE DESIGN INFRASTRUCTURES AND STRUCTURES SHOWN ON THESE PLANS. THESE PLANS WERE CHECKED ON THE ASSUMPTION THAT ALL BUILDING LAYOUTS, SETBACKS, AND SITE PLANS WERE INITIALLY APPROVED BY THE APPROPRIATE ENTITIES.
12. THE CIVIL ENGINEER FOR THE PROJECT SHALL SUBMIT TO THE CITY ENGINEER, UPON COMPLETION OF THE GRADING OPERATIONS AND PRIOR TO POURING OF FOUNDATIONS, A PAD GRADING CERTIFICATION LETTER INDICATING THE PAD WAS GRADED TO WITHIN 0.1 FEET OF THE GRADES SHOWN ON THE APPROVED GRADING PLAN. THIS CERTIFICATE SHALL BE VALID, IN THE ABSENCE OF RAIN, FOR 90 DAYS AFTER COMPLETION OF THE GRADING OPERATIONS.

   NOTE: A BUILDING PERMIT WILL NOT BE ISSUED UNTIL A PAD GRADING CERTIFICATION LETTER HAS BEEN SUBMITTED TO THE BUILDING DEPARTMENT.
13. ALL WORK PROPOSED IN THE PUBLIC RIGHT-OF-WAY REQUIRES A SEPARATE ENCROACHMENT OR CONSTRUCTION PERMIT. A LICENSED CONTRACTOR FROM THE STATE OF CALIFORNIA MUST POSSESS LIABILITY INSURANCE, WORKERS COMPENSATION, AND A VALID CONTRACTORS LICENSE TO PERFORM THE SPECIFIC DUTY IN THE PUBLIC RIGHT-OF-WAY.
14. OWNER/DEVELOPER/CONTRACTOR TO INSTALL LANDSCAPING AND AN AUTOMATIC IRRIGATION SYSTEM IN THE PUBLIC RIGHT-OF-WAY
15. LOTS SHALL SLOPE OR DRAIN TO AN ADJACENT PUBLIC STREET AT A MINIMUM RATE OF 1%, UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER.
16. THE EARTHWORK QUANTITIES SHOWN HERE UNDER ARE FOR PERMIT AND BONDING PURPOSES. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF THE QUANTITIES.
17. CUBIC YARDS OF CUT: N/A
    CUBIC YARDS OF OVER-EXCAVATIONS: N/A
    TOTAL CUBIC YARDS OF CUT/EXCAVATION: N/A
    ESTIMATED PERCENTAGE (%) OF SHRINKAGE LOSS: N/A
    AVAILABLE CUBIC YARDS FOR FILL/BACKFILL: N/A
    CUBIC YARDS OF FILL: N/A
    CUBIC YARDS OF OVER-EXCAVATION BACKFILL: N/A
    TOTAL CUBIC YARDS OF FILL/BACKFILL: N/A
    CUBIC YARDS OF IMPORT/EXPORT: N/A
18. ALL GROUND OR PAVED AREA ADJACENT TO ANY STRUCTURE SHALL SLOPE AT A MINIMUM OF 2% AWAY FROM THE STRUCTURE FOR A MINIMUM OF 5 FEET. ALL FINISHED GRADE FLOW LINE ELEVATIONS WITHIN 5 FEET OF STRUCTURES SHALL BE AT AN ELEVATION OF 4 INCHES BELOW THE FINISHED FLOOR OF THE STRUCTURE. MINIMUM 6 INCH YARD DRAIN WITH 6 INCH PIPE TO BE INSTALLED IN SIDE YARDS AND BACK YARDS AT 20 FEET SPACING, AND AT LOCATIONS WHERE IT WOULD INTERCEPT THE RUNOFF.
19. CONTRACTOR SHALL IMPLEMENT ALL CITY, COUNTY, STATE, AND FEDERAL JOB SITE SAFETY REQUIREMENTS AS THEY RELATE TO DUST CONTROL, EMPLOYEE AND PUBLIC SAFETY, EQUIPMENT MOVEMENT, NOISE, HOURS OF WORK AND CONSTRUCTION STANDARDS, EXCAVATION, GRADING, TOXIC, DELETERIOUS AND HAZARDOUS MATERIALS AND SHALL MINIMIZE ANY INCONVENIENCE TO THE PUBLIC.
20. THESE NOTES SHALL TAKE PRECEDENCE OVER THE INFORMATION APPEARING ON THE GRADING/DRAINAGE PLANS.
21. THE PROPERTY OWNER/DEVELOPER/CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF CLEANING AND HAULING ANY HAZARDOUS AND DETRIMENTAL MATERIAL FROM THE SITE DISCOVERED DURING AND AFTER GRADING.
22. CONTRACTOR SHALL REMOVE AND REPLACE ALL BROKEN, CRACKED OR RAISED SIDEWALKS, DRIVEWAYS, AND/OR CURB AND GUTTER WITHIN THE PUBLIC RIGHT-OF-WAY AT THE DIRECTION OF THE PUBLIC WORKS INSPECTOR/CITY ENGINEER.
23. CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL UNDERGROUND UTILITY LINES OR STRUCTURES WHETHER SHOWN OR NOT SHOWN ON THIS PLAN AND SHALL BE RESPONSIBLE FOR PROTECTING THEM FROM DAMAGE. THE CONTRACTOR SHALL CALL UNDERGROUND SERVICE ALERT AT 1-800-422-4133 TWO (2) WORKING DAYS PRIOR TO DIGGING.
24. IN THE EVENT THE CITY HAS PERMITTED THE USE OF SUMP PUMPS TO PROVIDE SURFACE DRAINAGE FOR THIS PROJECT, THE OPERATION AND MAINTENANCE OF SUCH PUMPS SHALL BE SOLELY THE RESPONSIBILITY OF THE PROPERTY OWNERS. THE CITY SHALL BEAR NO LIABILITY FOR ANY DAMAGES FROM FLOODING OR OTHER DAMAGES CAUSED BY INOPERABLE OR IMPROPERLY OPERATING OR MAINTAINED SUMP PUMPS.
25. ALL DRAINAGE SYSTEMS, DRAIN PIPES, CATCH BASINS, CURB DRAINS, CULVERTS, GUTTERS, SWALES, OPEN CHANNELS, AND UNDERGROUND STORM DRAIN PIPES SERVING THE DEVELOPMENT AND LOCATED ON PRIVATE PROPERTY AND PUBLIC RIGHT-OF-WAY, SHALL BE MAINTAINED BY THE PROPERTY OR BUSINESS OWNERS.
26. ALL STRUCTURES MUST HAVE RAIN GUTTERS AND DOWNDRAINS INSTALLED.
27. ALL DEVELOPMENTS WITH SURFACE DRAINAGE DIRECTED TOWARDS THE DRIVEWAY APPROACH MUST HAVE A 12" TRENCH DRAIN INSTALLED AT THE PROPERTY LINE. THE TRENCH DRAIN MUST BE CONNECTED TO A CURB DRAIN WITH A MINIMUM 14" WIDE RECTANGULAR BOX CULVERT IN THE PARKWAY AREA.
28. ALL PARKWAY DRAINS MUST BE A MINIMUM 4" X 14" CULVERT BOX, OR THREE 4" CAST IRON CURB DRAINS.

NPDES REQUIREMENTS: ALL CONSTRUCTION ON OFF-SITE OR ON-SITE IMPROVEMENTS SHALL ADHERE TO NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES) BEST MANAGEMENT PRACTICES (BMP) TO PREVENT DELETERIOUS MATERIALS OR POLLUTANTS FROM ENTERING THE CITY OR COUNTY STORM DRAIN SYSTEMS.

THE FOLLOWING SHOULD BE ADHERED TO:

A. PRE-CONSTRUCTION AND DURING CONSTRUCTION REQUIREMENTS

1. HANDLE, STORE, AND DISPOSE OF MATERIALS PROPERLY.
2. AVOIDING EXCAVATION AND GRADING ACTIVITIES DURING WET WEATHER.
3. CONSTRUCT DIVERSION DIKES AND DRAINAGE SWALES AROUND WORKING SITES.
4. COVER STOCKPILES AND EXCAVATED SOIL WITH SECURED TARPS OR PLASTIC SHEETING.
5. DEVELOP AND IMPLEMENT EROSION CONTROL PLANS.
6. CHECK AND REPAIR LEAKING EQUIPMENT AWAY FROM CONSTRUCTION SITE.
7. DESIGNATE A LOCATION AWAY FROM STORM DRAINS FOR REFUELING.
8. COVER AND SEAL CATCH BASINS WHENEVER WORKING IN THEIR VICINITY.
9. USE VACUUM WITH ALL CONCRETE SAWING OPERATIONS.
10. NEVER WASH EXCESS MATERIAL FROM AGGREGATE, CONCRETE OR EQUIPMENT ONTO A STREET.
11. CATCH DRIPS FROM PAVER WITH DRIP PANS OR ABSORBENT MATERIAL.
12. CLEAN UP ALL SPILLS USING DRY METHODS.
13. SWEEP ALL GUTTERS AT THE END OF EACH WORKING DAY. GUTTERS SHALL BE KEPT CLEAN AFTER LEAVING CONSTRUCTION SITE.
14. DURING CONSTRUCTION, DUMPSTER(S) SHALL BE SET ON SITE, AT ALL TIMES.
15. CALL 911 IN CASE OF A HAZARDOUS SPILL.
16. KEEP A RUNNING LOG OF ALL ACTIVITIES IN CONNECTION WITH THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP)
17. NAME A PERSON, ON SITE RESPONSIBLE FOR COMPLYING WITH SWPPP.
18. PROVIDE EVIDENCE OF SUBMITTAL OF A STATE NOTICE OF INTENT (NOI) TO OBTAIN COVERAGE UNDER THE GENERAL CONSTRUCTION ACTIVITIES STORM WATER PERMIT (GCASP) NPDES CAS000002, (IF APPLICABLE).

CONTRACTOR MUST COMPLY WITH NPDES REQUIREMENTS, REGULATIONS, AND CITY ENGINEER'S DIRECTIONS DURING THE COURSE OF CONSTRUCTION.

B. POST-CONSTRUCTION REQUIREMENTS (LOW IMPACT DEVELOPMENT, LID; CITY ORDINANCE 2840.)

DEVELOPERS MUST INCORPORATE APPROPRIATE LID REQUIREMENTS INTO THEIR PROJECT PLANS (LOCATION OF PROPOSED BMPS W/MANUFACTURER'S INSTALLATION NOTES AND CONSTRUCTION REQUIREMENTS: MODEL, SIZE, MATERIAL, TYPE, DIMENSIONS, VOLUMETRIC CAPACITY AND MANUFACTURER'S TREATMENT CAPACITY). THE CITY ENGINEER WILL APPROVE THE PROJECT PLAN AS PART OF THE DEVELOPMENT PLAN APPROVAL PROCESS AND PRIOR TO ISSUING BUILDING AND GRADING PERMITS FOR THE PROJECTS COVERED BY THE LID.

1. PEAK STORM WATER RUNOFF DISCHARGE RATE: POST-DEVELOPMENT PEAK STORM WATER RUNOFF DISCHARGE RATE SHALL NOT EXCEED THE ESTIMATED PRE-DEVELOPMENT RATE FOR DEVELOPMENTS WHERE THE INCREASED PEAK STORM WATER DISCHARGE RATE WILL RESULT IN INCREASED POTENTIAL FOR DOWNSTREAM EROSION.
2. CONSERVE NATURAL AREAS.
3. MINIMIZE STORMWATER POLLUTANTS OF CONCERN.
4. PROTECT SLOPES AND CHANNELS.
5. PROVIDE STORM DRAIN SYSTEM STENCILING AND SIGNAGE.
6. PROPERLY DESIGN OUTDOOR MATERIAL STORAGE AREAS.
7. PROPERLY DESIGN TRASH STORAGE AREAS.
8. PROVIDE PROOF OF ONGOING BMP MAINTENANCE.
9. DESIGN STANDARDS FOR STRUCTURAL OR TREATMENT CONTROL BMPS. INFILTRATE, FILTER OR TREAT THE STORMWATER RUNOFF (EITHER VOLUMETRIC OR FLOW BASED TREATMENT CONTROL DESIGN, OR BOTH).
10. PROPERLY DESIGN LOADING/UNLOADING DOCK AREAS (IF APPLICABLE).
11. PROPERLY DESIGN REPAIR/MAINTENANCE BAYS (IF APPLICABLE).
12. PROPERLY DESIGN VEHICLE/EQUIPMENT WASH AREAS (IF APPLICABLE).
13. PROPERLY DESIGN FUELING AREAS (IF APPLICABLE).
14. PROPERLY DESIGN PARKING AREA (IF APPLICABLE); LIMIT OIL CONTAMINATION AND PERFORM MAINTENANCE.

I, THE UNDERSIGNED, AGREE TO COMPLY WITH ALL POST CONSTRUCTION NPDES REQUIREMENTS, AND ALSO AGREE TO MAINTAIN THE STORMWATER POLLUTION PREVENTION SYSTEMS INSTALLED FOR AN INDEFINITE PERIOD OF TIME.

DEVELOPER/APPLICANT/OWNER (PRINT NAME) _____ SIGNATURE _____ DATE _____

I, THE UNDERSIGNED, OWNER/REPRESENTATIVE OF THE CONTRACTING COMPANY PERFORMING THE GRADING/DRAINAGE OPERATIONS, WILL COMPLY WITH THESE NOTES AND ALL OTHER APPLICABLE RULES.

COMPANY NAME (PRINT NAME) _____ LIC #, EXP DATE _____ SIGNATURE _____ DATE _____

THE CITY DOES NOT POSSESS THE ADEQUATE RESOURCES TO CONSTANTLY MONITOR THE OPERATIONS DESCRIBED ON THIS PLAN. THE CITY'S REVIEW AND FINAL INSPECTION AND ACCEPTANCE OF THE GRADING, DRAINAGE, AND OFFSITE/ONSITE IMPROVEMENTS ON THIS PROPERTY ARE DISCRETIONARY AND THE RESPONSIBILITY TO CORRECT ANY DEFICIENCIES OR VIOLATIONS REMAINS WITH THE PROPERTY OWNER.

THE DEVELOPER, CONTRACTOR, AND PROPERTY OWNER ARE RESPONSIBLE FOR COMPLIANCE WITH THIS PLAN AND CITY, STATE, AND FEDERAL ORDINANCES RELATED TO GRADING ,DRAINAGE, AND OFFSITE/ONSITE IMPROVEMENTS.

I, NAMED BELOW, AGREE TO COMPLY WITH ALL REQUIREMENTS ON THIS PLAN AND ALL ORDINANCES, LAWS, AND CODES RELATED TO GRADING, DRAINAGE, AND OFFSITE/ONSITE IMPROVEMENTS AND AGREE TO CORRECT ANY DEFICIENCIES AND ADDRESS ANY COMPLAINTS RELATING TO GRADING, DRAINAGE, AND OFFSITE/ONSITE IMPROVEMENTS ON THE PROPERTY SHOWN ON THIS PLAN. I ALSO AGREE TO CORRECT ANY DEFICIENCIES LOCATED ON THE ADJACENT PROPERTIES AND PUBLIC RIGHT OF WAY AFFECTED BY THIS PLAN.

ALL OF THE ABOVE REQUIREMENTS CONTAINED ON THIS PLAN SHALL REMAIN INTO EFFECT INDEFINITELY AND SHOULD BECOME THE RESPONSIBILITY OF ANY FUTURE OWNERS OF THE PROPERTY.

DEVELOPER/APPLICANT	CONTRACTOR	OWNER
BY: _____	BY: _____	BY: _____
PRINT NAME	PRINT NAME	PRINT NAME
DATE	DATE	DATE

CONTRACTOR'S RESPONSIBILITY FOR SAFETY

IN SUBMITTING A BID FOR THIS WORK, THE CONTRACTOR AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT INCLUDING SAFETY OF ALL PERSONS AND PROPERTY, THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO WORKING HOURS, AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE OWNER, THE ENGINEER AND THE CITY OF EL MONTE HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR THE ENGINEER.

ALL CONTRACTORS AND SUBCONTRACTORS PERFORMING WORK SHOWN ON OR RELATED TO THESE PLANS SHALL CONDUCT THEIR OPERATIONS SO THAT THE EMPLOYEES ARE PROVIDED A SAFE PLACE TO WORK AND THE PUBLIC IS PROTECTED. ALL CONTRACTORS AND SUBCONTRACTORS SHALL COMPLY WITH THE "OCCUPATIONAL SAFETY AND HEALTH REGULATIONS" OF THE U.S. DEPARTMENT OF LABOR AND WITH "CONSTRUCTION SAFETY ORDERS." THE CIVIL ENGINEER SHALL NOT BE HELD RESPONSIBLE IN ANY WAY FOR THE CONTRACTOR OR SUBCONTRACTOR'S COMPLIANCE WITH SAID REGULATION AND ORDERS.

ENGINEER'S NOTICE TO CONTRACTOR

THE INFORMATION SHOWN ON THESE PLANS REGARDING THE EXISTENCE AND LOCATION OF UNDERGROUND UTILITIES OR STRUCTURES IS BASED UPON A SEARCH OF AVAILABLE RECORDS. TO THE BEST OF OUR KNOWLEDGE, THE UTILITIES OR STRUCTURES SHOWN ON THESE PLANS ARE ALL THAT EXIST. THE ENGINEER ASSUMES NO LIABILITY FOR ANY UTILITY, STRUCTURE OR IRRIGATION LINE AND ITS LOCATION, WHETHER SHOWN OR NOT SHOWN ON THESE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING ALL UTILITY AND IRRIGATION COMPANIES PRIOR TO START OF CONSTRUCTION, TO DETERMINE EXACT LOCATION OF LINES AFFECTING THIS WORK, WHETHER OR NOT SHOWN HEREON, AND FOR ANY DAMAGE OR PROTECTION OF THESE LINES.

THE CONTRACTOR SHALL CALL IN A LOCATION REQUEST TO UNDERGROUND SERVICE ALERT (USA) PHONE NUMBER 1-800-422-4133 TWO WORKING DAYS BEFORE DIGGING. PUBLIC WORKS DEPARTMENT CONSTRUCTION PERMITS, INVOLVING UNDERGROUND FACILITIES, ARE NOT VALID UNLESS THE APPLICANT HAS AN INQUIRY IDENTIFICATION NUMBER ISSUED BY THE USA.

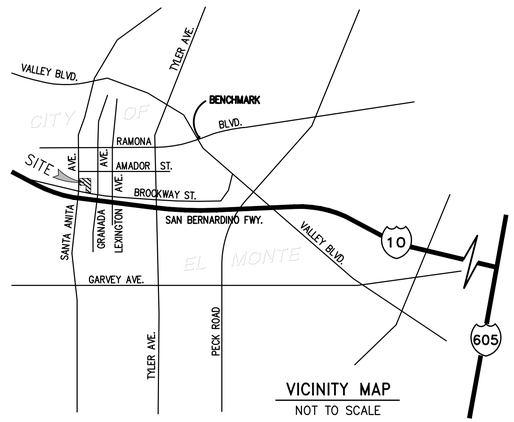
CONSTRUCTION CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONSTRUCTION CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO DEFEND, INDEMNIFY AND HOLD DESIGN PROFESSIONAL HARMLESS FROM ANY AND ALL LIABILITY REAL OR ALLEGED IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT EXCEPTING LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF DESIGN PROFESSIONAL.

UTILITY LINES SHOWN ON THESE PLANS WERE LOCATED FROM THE PUBLIC RECORDS WHEN POSSIBLE FROM THE RESPECTIVE UTILITY'S OFFICE AND HAVE BEEN ASSUMED RELIABLE. HOWEVER, LAND DEVELOPMENT CONSULTANTS ASSUME NO LIABILITY FOR THE DAMAGE OF UNDERGROUND UTILITIES DURING OR AFTER CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICES ALERT AT LEAST 48 HOURS PRIOR TO COMMENCEMENT OF EXCAVATION TO ARRANGE FOR FIELD LOCATION OF UTILITY LINES. CALL 1-800-422-4133 FOR THIS SERVICE WHICH IS PROVIDED FREE OF CHARGE. ANY UTILITY NOT SUBSCRIBING TO THIS SERVICE SHALL BE CONTACTED DIRECTLY. IT SHALL BE THE CONTRACTOR'S DUTY TO DETERMINE WHETHER ALL UTILITIES HAVE BEEN NOTIFIED. THE CONTRACTOR SHALL TAKE PRECAUTIONARY MEASURES TO PROTECT ALL UTILITY LINES HEREON AND ANY OTHER UTILITY LINES OTHERWISE LOCATED.

SHOULD THE CONTRACTOR, CITY ENGINEER, CITY INSPECTOR, OR ANY OTHER INDIVIDUAL USING THESE PLANS FOR ANY REASON, NOTICE, BE MADE AWARE OF OR ENCOUNTER CONDITIONS CONTRARY TO THOSE SHOWN OR SPECIFIED IN THESE PLANS OR SHOULD CIRCUMSTANCES CHANGE SINCE THE DATE OF THESE PLANS; THE PUBLIC WORKS DEPARTMENT SHALL BE NOTIFIED IMMEDIATELY AT 626-580-2058.

CITY'S FRANCHISE WASTE HAULER

THE DISPOSAL, REMOVAL, RECYCLING, AND DIVERSION OF ALL CONSTRUCTION AND DEMOLITION WASTE AND DEBRIS GENERATED BY THE PROJECT MUST BE PERFORMED BY THE CITY'S DULY AUTHORIZED AND DULY FRANCHISED CONSTRUCTION AND DEMOLITION SOLID WASTE HAULER: VALLEY VISTA SERVICES.



VICINITY MAP
NOT TO SCALE

VICINITY MAP
NOT TO SCALE

PROJECT INFORMATION

DEVELOPER/APPLICANT
CHICK-FIL-A
5200 BUFFINGTON ROAD
ATLANTA, GEORGIA 30349
CARLOS.ARIAS2@CFACORP.COM
CARLOS ARIAS

CIVIL ENGINEER
JOSEPH C. TRUXAW AND ASSOCIATES
1915 EAST ORANGEWOOD AVE.
ORANGE, CA. 92868
(714) 935-0265
RANDYDECKER@TRUXAW.COM
RANDY J. DECKER

SITE AREA
TOTAL SITE AREA: 60,660 S.F. OR 1.89 AC
TOTAL DISTURBED AREA: 1.87 AC
TOTAL PRE-DEVELOPMENT IMPERVIOUS AREA: 1.68 AC
TOTAL POST-DEVELOPMENT IMPERVIOUS AREA: 1.52 AC

GEOTECHNICAL ENGINEER
GILES ENGINEERING ASSOCIATES, INC.
1965 NORTH MAIN STREET
ORANGE, CA. 92865
(714) 279-0817

WALTER M. LOPEZ

FLOOD HAZARD ZONE
COMMUNITY NUMBER 060658 1675F
EFFICTIVE DATE: SEPTEMBER 26, 2008.
ZONE _X_ (UNSHADED)

PROPERTY NOT IN A SPECIAL FLOOD HAZARD AREA, AREA DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN.

DATE OF SURVEY
APRIL 09, 2020 (DELTA 1)

UTILITY AGENCIES

CITY OF EL MONTE PUBLIC WORKS (SEWER)	(626) 580-2250
LA COUNTY SANITATION DISTRICT	(562) 699-7411
SOUTHERN CALIFORNIA EDISON	(909) 360-3748
SOUTHERN CALIFORNIA GAS COMPANY	(213) 231-7261
VALLEY VISTA SERVICES (WASTE DISPOSAL)	(626) 736-7782
AT&T	(626) 318-9039
CITY OF EL MONTE WATER COMPANY	(626) 580-2024
CHARTER	(626) 639-1622

SHEET INDEX

CONSTRUCTION NOTES/QUANTITIES

(SEE SHEET 2 FOR CONSTRUCTION NOTES & QUANTITIES)

NOTICE TO CONTRACTOR

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IMPORTANT NOTICE
Section 4216 of the Government Code requires a Dig Alert Identification Number be issued before a "Permit to Excavate" will be valid. For your Dig Alert I.D. Number call Underground Service Alert CALL 811 Two working days before you dig.

THIS PLAN IS:
PRELIMINARY
(NOT FOR CONSTRUCTION)

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

REVISIONS

NO.	DATE	DESCRIPTION	ENGR.	APPROV.

BASIS OF BEARINGS
THE BEARING NORTH 00°27'00" WEST FOR THE CENTERLINE OF SANTA ANITA AVENUE PER TRACT NO. 3886, IN BOOK 42, PAGE 18 OF MAPS, RECORDS OF LOS ANGELES COUNTY, STATE OF CALIFORNIA, WAS USED AS THE BASIS OF BEARINGS FOR THIS SURVEY.

BENCHMARK
COUNTY OF LOS ANGELES BENCHMARK NO. MG5567 ELEVATION = 287.805 FEET (QUAD YEAR 2005)
L&T IN E. C.B. 4FT N/O ECR @ NE COR VALLEY BL & RAMONA BL (@ S. END C.B.)

PLANS PREPARED BY:
JOSEPH C. TRUXAW & ASSOC.
1915 W. Orangewood Ave., Suite 101, Orange, CA 92868
(714) 935-0265 - Truxaw.com
UNDER THE SUPERVISION OF:
11/14/2022
RANDY J. DECKER

REGISTERED PROFESSIONAL ENGINEER — RANDY J. DECKER — No. 81077 — CIVIL — STATE OF CALIFORNIA

CITY OF EL MONTE — END OF THE SANTA ANITA TRAIL — INC. 1912 — CALIFORNIA

CITY OF EL MONTE
PUBLIC WORKS DEPARTMENT
APPROVED BY:
CITY OF EL MONTE CITY ENGINEER _____ DATE _____
REVIEWED AND RECOMMENDED BY _____ DATE _____

CITY OF EL MONTE
DEPARTMENT OF PUBLIC WORKS - ENGINEERING DIVISION
PUBLIC STREET IMPROVEMENTS
NEC SANTA ANITA AVE. & BROCKWAY ST.

DESIGNED BY: RD	DRAWN BY: TM	CHECKED BY: RD	SHEET 1 OF 4

** TITLE REPORT

THIS SURVEY AND EASEMENTS SHOWN HEREON ARE BASED ON INFORMATION CONTAINED IN THE PRELIMINARY TITLE REPORT PREPARED BY:

FIRST AMERICAN TITLE INSURANCE COMPANY
4380 LA JOLLA VILLAGE DRIVE, SUITE 110
SAN DIEGO, CA 92122
(858) 410-2151
COMMITMENT NUMBER: NCS-839698-SD
COMMITMENT DATE: OCTOBER 14, 2020
UPDATE DATE: NOVEMBER 06, 2020
TITLE OFFICER: TRIXY BROWN / JANICE TREANOR

** LEGAL DESCRIPTION

THE LAND REFERRED TO HEREIN IS SITUATED IN THE CITY OF EL MONTE, COUNTY OF LOS ANGELES, STATE OF CALIFORNIA, AND IS DESCRIBED AS FOLLOWS:

PARCEL 1:

THE SOUTH 50 FEET OF LOT 14 OF TRACT NO. 883, IN THE CITY OF EL MONTE, COUNTY OF LOS ANGELES, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 18 PAGE 39 OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY.

PARCEL 2:

THE NORTH 50 FEET OF LOT 14 OF TRACT NO. 883, IN THE CITY OF EL MONTE, COUNTY OF LOS ANGELES, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 18 PAGE 39 OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY.

PARCEL 3:

LOT 15 OF TRACT 883, IN THE CITY OF EL MONTE, AS PER MAP RECORDED IN BOOK 18 PAGE 39 OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY.

PARCEL 4:

ALL OF LOT 5 AND THE EASTERLY HALF OF LOT 4, MEASURED ALONG THE NORTHERLY AND SOUTHERLY LINES OF SAID LOT 4 OF TRACT NO. 3886, IN THE CITY OF EL MONTE, COUNTY OF LOS ANGELES, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 42 PAGE 18 OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY.

APN: 8579-005-027 (AFFECTS PARCEL 2)
8579-005-028 (AFFECTS PARCEL 1)
8579-005-024 (AFFECTS PARCEL 3) AND
8579-005-026 (AFFECTS PARCEL 4)

** EASEMENT NOTES

(6) AN EASEMENT AFFECTING THE PORTION OF SAID LAND AND FOR THE PURPOSES STATED HEREIN, AND INCIDENTAL PURPOSES, CONDEMNED BY FINAL DECREE:

FOR: STREET PURPOSES
CASE NO. 256040
RECORDED: IN BOOK 9749 PAGE 22, OF OFFICIAL RECORDS

SAID MATTER AFFECTS A PORTION OF SAID LAND AS MORE PARTICULARLY DESCRIBED IN SAID DOCUMENT.

(14) AN EASEMENT AFFECTING THE PORTION OF SAID LAND AND FOR THE PURPOSES STATED HEREIN, AND INCIDENTAL PURPOSES, CONDEMNED BY FINAL DECREE:

FOR: STREET PURPOSES
CASE NO. 256040
RECORDED: IN BOOK 9749 PAGE 22, OF OFFICIAL RECORDS

SAID MATTER AFFECTS A PORTION OF SAID LAND AS MORE PARTICULARLY DESCRIBED IN SAID DOCUMENT.

(AFFECTS PARCEL 3)

(15) AN EASEMENT FOR PUBLIC UTILITIES AND INCIDENTAL PURPOSES IN THE DOCUMENT RECORDED AUGUST 28, 1979 AS INSTRUMENT NO. 954660 OF OFFICIAL RECORDS.

** SOURCE OF BOUNDARY, EASEMENT & TOPGRAPHIC INFORMATION.

THE BOUNDARY, EASEMENT & TOPOGRAPHIC INFORMATION SHOWN ON THESE PLANS WERE TAKEN FROM THE PLAN REFERENCED BELOW.

DATE OF SURVEY: APRIL 9, 2020 (DELTA 1)

PERFORMED BY: TRUXAW AND ASSOCIATES, INC.
1915 W ORANGEWOOD AVE, SUITE 101
ORANGE, CA 92868
(714) 935-0265
JOB # CFA17030

** BENCHMARK

COUNTY OF LOS ANGELES BENCHMARK NO. MG5567

ELEVATION = 287.805 FEET (QUAD YEAR 2005)

L&T IN E. C.B. 4FT N/O ECR @ NE COR VALLEY BL & RAMONA BL (@ S. END C.B.)

** BASIS OF BEARINGS

THE BEARING NORTH 00°27'00" WEST FOR THE CENTERLINE OF SANTA ANITA AVENUE PER TRACT NO. 3886, IN BOOK 42, PAGE 18 OF MAPS, RECORDS OF LOS ANGELES COUNTY, STATE OF CALIFORNIA, WAS USED AS THE BASIS OF BEARINGS FOR THIS SURVEY.

** RECORD DATA

(R1) = RECORD DATA PER TRACT MAP NO. 883, BOOK 18, PAGE 39

(R2) = RECORD DATA PER TRACT MAP NO. 3886, BOOK 42, PAGE 18

(R3) = NOT USED.

(R4) = RECORD DATA PER TRACT MAP NO. 77, BOOK 13, PAGE 33

** SITE PLANNING DATA

DISCLAIMER: INFORMATION PROVIDED BY 4G DEVELOPMENT AND CONSULTING, INC. IN THE SITE INVESTIGATION REPORT DATED 5/13/2019.

ZONING: C-3 (GENERAL COMMERCIAL)

MAXIMUM BUILDING HEIGHT: 40 FEET

SETBACKS

BUILDING: NORTH = 0 FEET; SOUTH = 0 FEET;
EAST = 20 FEET; WEST = 5 FEET

LANDSCAPE: NORTH = 0 FEET; SOUTH = 0 FEET;
EAST = 0 FEET; WEST = 4-6 FEET

** PARKING COUNT

NO STRIPED PARKING STALLS EXIST ON THE SITE.

LEGEND

AB = AGGREGATE BASE
AC = ASPHALT CONCRETE
BLK = CONCRETE BLOCK
BS = BACK OF SIDEWALK
CB = CATCH BASIN
CF = CURB FACE
CL = CENTERLINE
CLF = CHAIN LINK FENCE
CO = CLEANOUT
DCV = DETECTOR CHECK VALVE
DS = ROOF DOWNSPOUT
EG = EDGE OF GUTTER
EP = EDGE OF PAVEMENT
FD = FOUND
FDC = FIRE DEPT. CONNECTION
FF = FINISHED FLOOR
FG = FINISHED GRADE
FH = FIRE HYDRANT
FL = FLOW LINE
FS = FINISHED SURFACE
GB = GRADE BREAK
GM = GAS METER
GR = TOP OF GRATE
GV = GAS VALVE
HP = HIGH POINT
HT = HEIGHT
ICV = IRRIGATION CONTROL VALVE
INV = INVERT
IP = IRON PIPE
LS = LIGHT STANDARD
L&T = LEAD & TAG
MH = MANHOLE
NG = NATURAL GROUND
N&T = NAIL & TAG
OHW = OVERHEAD WIRE
PB = PULL BOX
PCC = CONCRETE
PIV = POST INDICATOR VALVE
PL = PROPERTY LINE
RD = ROOF DRAIN
RWH = REDWOOD HEADER
SCB = SIGNAL CONTROL BOX
SMH = SEWER MANHOLE
SPK = SPIKE
SW = SIDEWALK
TC = TOP OF CURB
TE = TRASH ENCLOSURE
TP = TELEPHONE POLE
TRAN = TRANSITION
TRANS= TRANSFORMER

TRW = TOP OF RETAINING WALL
TW = TOP OF WALL
UG = UNDERGROUND
UP = UTILITY POLE
VAR = VARIABLE
W = WASHER
WDF = WOOD FENCE
WM = WATER METER
WV = WATER VALVE

N. = NORTH
S. = SOUTH
E. = EAST
W. = WEST
N'LY = NORTHERLY
S'LY = SOUTHERLY
E'LY = EASTERLY
W'LY = WESTERLY
N/O = NORTH OF
S/O = SOUTH OF
E/O = EAST OF
W/O = WEST OF
℄ = PROPERTY LINE
℄ = CENTERLINE
R/W = RIGHT OF WAY
Δ = DELTA
R = RADIUS
L = LENGTH
T = TANGENT
M = MEASURED DATA
C = CALCULATED DATA
(RAD)= RADIAL BEARING
PRO = PROPORTIONATE MEASUREMENT
(210.00' R) = RECORD DATA
210.00' M. = MEASURED DATA
210.00' PRO. = PRORATED DATA
210.00' C. = CALCULATED DATA
(427.00) TC = EXISTING ELEVATION
427.00 TC = DESIGN ELEVATION

CATV = CABLE TV LINE
E = ELECTRICAL LINE
FW = FIRE WATER LINE
G = GAS LINE
GB—GB = GRADE BREAK LINE
R—R = RIDGE LINE
S = SEWER LINE
SD = STORM DRAIN LINE
T = TELEPHONE LINE
W = WATER LINE

SYMBOLS

FIRE HYDRANT
STREET LIGHT
TRAFFIC SIGNAL
TRAFFIC SIGNAL ARM & POLE
LIGHT STANDARD
UTILITY POLE
GUY WIRE & ANCHOR
WM WATER METER
GM GAS METER
WV WATER VALVE
GAS VALVE
PB PULL BOX
GRATE INLET
SIGN
VENT
(S) SEWER MANHOLE
(D) STORM DRAIN MANHOLE
(T) TELEPHONE MANHOLE
(MH) MANHOLE
SEWER CLEANOUT
(M) MONITORING WELL
HANDICAP PARKING STALL
(L) LANDSCAPED AREA
(P) PROTECT IN PLACE
(R) REMOVE AND DISPOSE OFFSITE
(RE) RELOCATE
(3) PLOTABLE EASEMENT ITEM No. PER TITLE REPORT
(427.0) EXIST. CONTOUR
427.0 DESIGN CONTOUR

CONSTRUCTION NOTES/QUANTITIES

	CONSTRUCTION NOTES	QUANTITIES	UNITS
50	CONCRETE CURB & GUTTER	100	LF
51	CONCRETE SIDEWALK	1,890	SF
52	CONCRETE DRIVEWAY	808	SF
53	FULL DEPTH AC PATCH (8" MINIMUM THICKNESS)	178	SF
54	SAWCUT AND REMOVE	1,900	SF

NOTICE TO CONTRACTOR

THE CONTRACTOR SHALL ASCERTAIN THE TRUE VERTICAL AND HORIZONTAL LOCATION AND SIZE OF ALL UTILITIES, PIPES, AND/OR STRUCTURES AND SHALL BE RESPONSIBLE FOR DAMAGE TO ANY PUBLIC OR PRIVATE UTILITIES, SHOWN OR NOT SHOWN HEREON.

IMPORTANT NOTICE
Section 4216 of the Government Code requires a Dig Alert Identification Number be issued before a "Permit to Excavate" will be valid. For your Dig Alert I.D. Number call Underground Service Alert CALL 811! Two working days before you dig.

THIS PLAN IS:
PRELIMINARY
(NOT FOR CONSTRUCTION)

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

REVISIONS

NO.	DATE	DESCRIPTION	ENGR.	APPROV.

BASIS OF BEARINGS
THE BEARING NORTH 00°27'00" WEST FOR THE CENTERLINE OF SANTA ANITA AVENUE PER TRACT NO. 3886, IN BOOK 42, PAGE 18 OF MAPS, RECORDS OF LOS ANGELES COUNTY, STATE OF CALIFORNIA, WAS USED AS THE BASIS OF BEARINGS FOR THIS SURVEY.

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L&T IN E. C.B. 4FT N/O ECR @ NE COR VALLEY BL & RAMONA BL (@ S. END C.B.)

PLANS PREPARED BY:
JOSEPH C. TRUXAW & ASSOC.
1915 W. Orangewood Ave., Suite 101, Orange, CA 92868
(714) 935-0265 - Truxaw.com
UNDER THE SUPERVISION OF:
11/14/2022
RANDY J. DECKER
REGISTERED PROFESSIONAL ENGINEER — RANDY J. DECKER — No. 81077 — CIVIL — STATE OF CALIFORNIA

CITY OF EL MONTE
PUBLIC WORKS DEPARTMENT
APPROVED BY:
CITY OF EL MONTE
CITY ENGINEER — DATE
REVIEWED AND RECOMMENDED BY — DATE

CITY OF EL MONTE

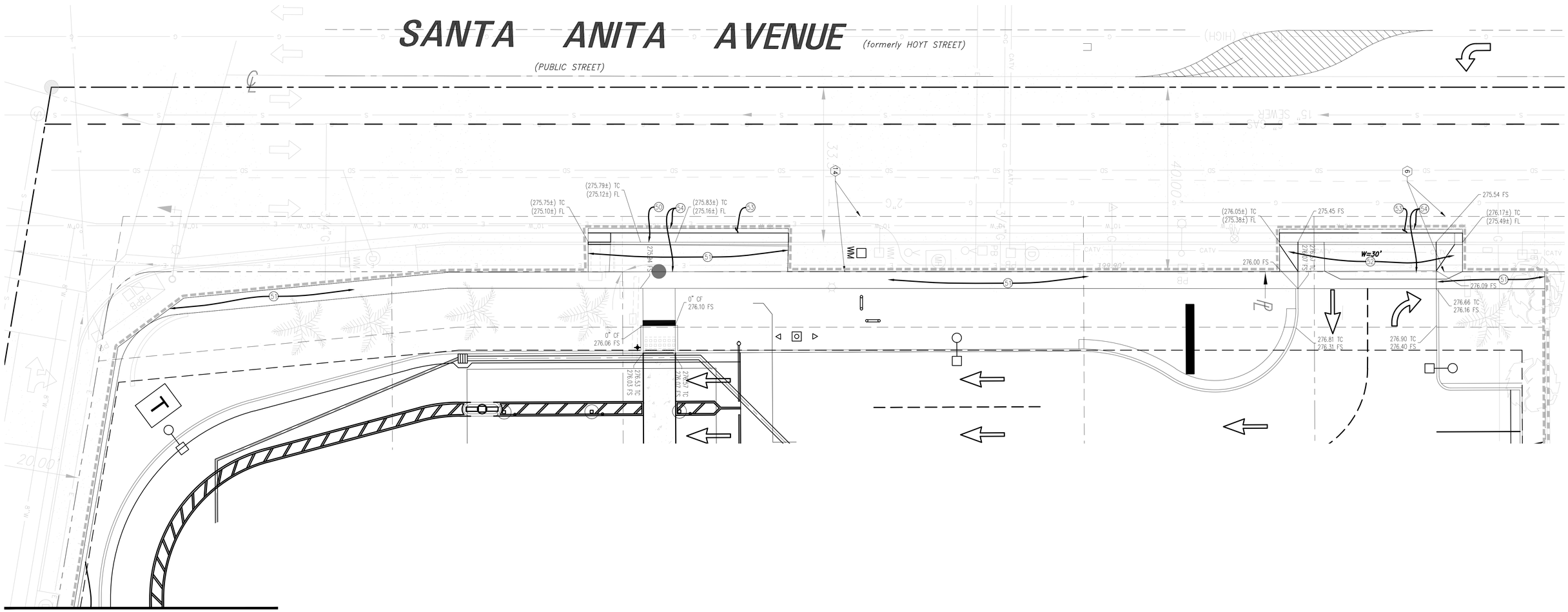
DEPARTMENT OF PUBLIC WORKS - ENGINEERING DIVISION

PUBLIC STREET IMPROVEMENTS
NEC SANTA ANITA AVE. & BROCKWAY ST.

DESIGNED BY: RD | DRAWN BY: TM | CHECKED BY: RD | SHEET 2 OF 4

SANTA ANITA AVENUE (formerly HOYT STREET)

(PUBLIC STREET)



MATCHLINE ~ SEE SHEET ST-4

NOTICE TO CONTRACTOR

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THIS PLAN IS:

PRELIMINARY

(NOT FOR CONSTRUCTION)

10 5 0 10 20 30

SCALE: 1"=10'

CONSTRUCTION NOTES

- 50 CONCRETE CURB & GUTTER PER CITY STD. CURB-HEIGHT TO MATCH EXISTING IN KIND.
- 51 CONCRETE SIDEWALK PER CITY STD.
- 52 CONCRETE COMMERCIAL DRIVEWAY PER CITY STD. (W=PER PLAN)
- 53 FULL DEPTH AC PATCH (8-INCH MINIMUM THICKNESS) AND PER CITY REQUIREMENTS.
- 54 SAWCUT AND REMOVE EXISTING CONCRETE DRIVEWAY, SIDEWALK, ETC.

L LANDSCAPE

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

REVISIONS

NO.	DATE	DESCRIPTION	ENGR.	APPROV.

BASIS OF BEARINGS

THE BEARING NORTH 00°27'00" WEST FOR THE CENTERLINE OF SANTA ANITA AVENUE PER TRACT NO. 3886, IN BOOK 42, PAGE 18 OF MAPS, RECORDS OF LOS ANGELES COUNTY, STATE OF CALIFORNIA, WAS USED AS THE BASIS OF BEARINGS FOR THIS SURVEY.

BENCHMARK

COUNTY OF LOS ANGELES BENCHMARK NO. MG5567 ELEVATION = 287.805 FEET (QUAD YEAR 2005)
L&T IN E. C.B. 4FT N/O ECR @ NE COR VALLEY BL & RAMONA BL (@ S. END C.B.)

PLANS PREPARED BY:
JOSEPH C. TRUXAW & ASSOC.
1915 W. Orangewood Ave., Suite 101,
Orange, CA 92868
(714) 935-0265 - Truxaw.com

UNDER THE SUPERVISION OF:

11/14/2022

RANDY J. DECKER

REGISTERED PROFESSIONAL ENGINEER — RANDY J. DECKER — No. 81077 — CIVIL — STATE OF CALIFORNIA

CITY OF EL MONTE
PUBLIC WORKS DEPARTMENT

APPROVED BY:

CITY OF EL MONTE
CITY ENGINEER — DATE

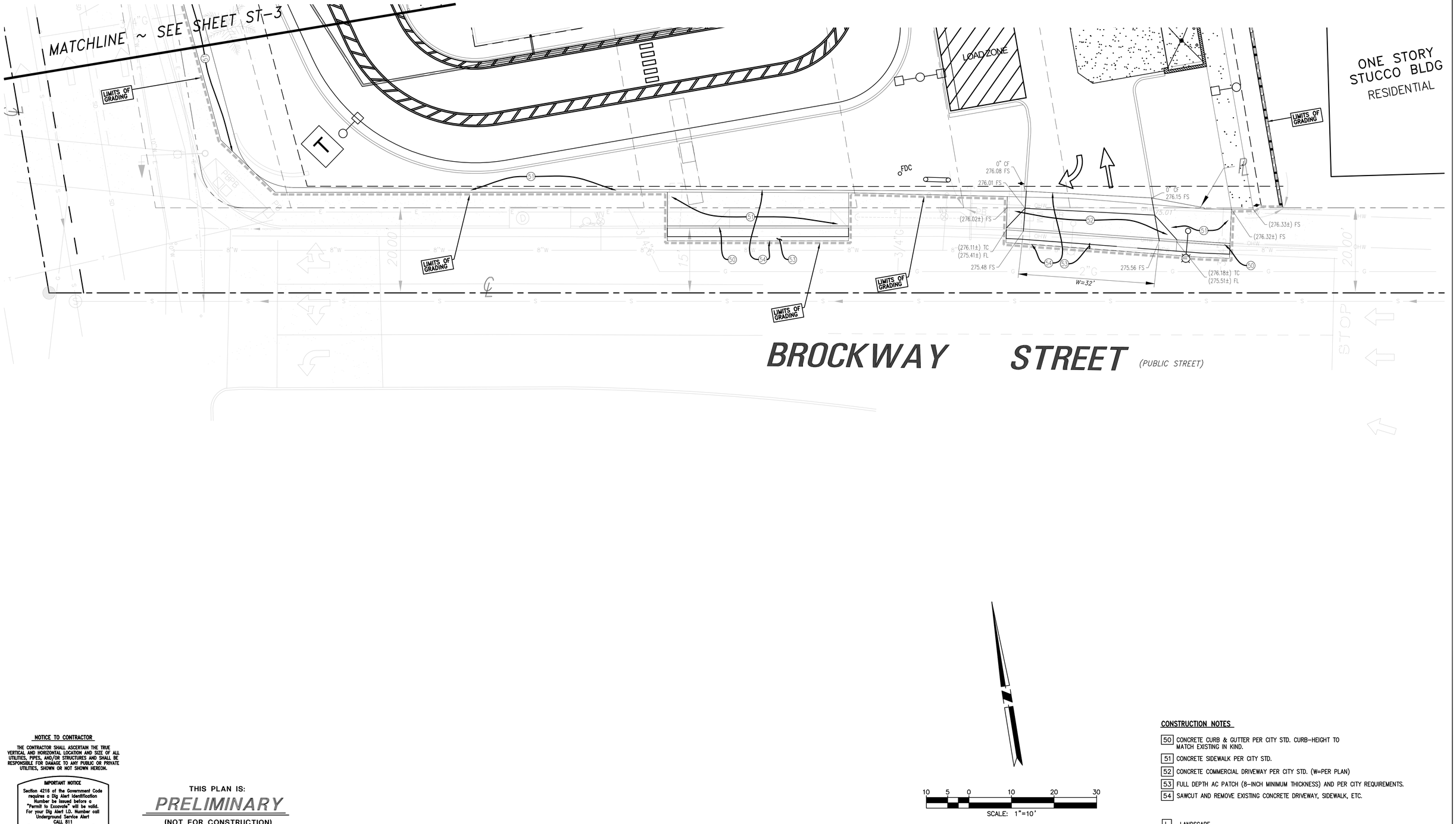
REVIEWED AND RECOMMENDED BY — DATE

CITY OF EL MONTE

DEPARTMENT OF PUBLIC WORKS - ENGINEERING DIVISION

SANTA ANITA AVENUE IMPROVEMENTS
NEC SANTA ANITA AVE. & BROCKWAY ST.

DESIGNED BY: RD	DRAWN BY: TM	CHECKED BY: RD	SHEET 3 OF 4



CONSTRUCTION NOTES

- 50 CONCRETE CURB & GUTTER PER CITY STD. CURB-HEIGHT TO MATCH EXISTING IN KIND.
- 51 CONCRETE SIDEWALK PER CITY STD.
- 52 CONCRETE COMMERCIAL DRIVEWAY PER CITY STD. (W=PER PLAN)
- 53 FULL DEPTH AC PATCH (8-INCH MINIMUM THICKNESS) AND PER CITY REQUIREMENTS.
- 54 SAWCUT AND REMOVE EXISTING CONCRETE DRIVEWAY, SIDEWALK, ETC.
- L LANDSCAPE

NOTICE TO CONTRACTOR

THE CONTRACTOR SHALL ASCERTAIN THE TRUE VERTICAL AND HORIZONTAL LOCATION AND SIZE OF ALL UTILITIES, PIPES, AND/OR STRUCTURES AND SHALL BE RESPONSIBLE FOR DAMAGE TO ANY PUBLIC OR PRIVATE UTILITIES, SHOWN OR NOT SHOWN HEREON.

IMPORTANT NOTICE

Section 4216 of the Government Code requires a Dig Alert Identification Number be issued before a "Permit to Excavate" will be valid. For your Dig Alert I.D. Number call Underground Service Alert CALL 811 Two working days before you dig.

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

THIS PLAN IS:

PRELIMINARY

(NOT FOR CONSTRUCTION)

REVISIONS

NO.	DATE	DESCRIPTION	ENGR.	APPROV.

BASIS OF BEARINGS

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PLANS PREPARED BY:
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UNDER THE SUPERVISION OF:
11/14/2022
RANDY J. DECKER
REGISTERED PROFESSIONAL ENGINEER RANDY J. DECKER No. 81077 CIVIL STATE OF CALIFORNIA

CITY OF EL MONTE
PUBLIC WORKS DEPARTMENT

APPROVED BY:

CITY OF EL MONTE CITY ENGINEER — DATE

REVIEWED AND RECOMMENDED BY — DATE

CITY OF EL MONTE

DEPARTMENT OF PUBLIC WORKS - ENGINEERING DIVISION

BROCKWAY STREET IMPROVEMENTS
NEC SANTA ANITA AVE. & BROCKWAY ST.

DESIGNED BY: RD	DRAWN BY: TM	CHECKED BY: RD	SHEET 4 OF 4

III. Soils Report

GREEN

Geotechnical Engineering Exploration and Analysis

Proposed Chick-fil-A Restaurant #4098
I-10 & Santa Anita FSU
NEC Santa Anita Avenue and Brockway Street
El Monte, California

Prepared for:

Chick-fil-A, Inc.
Irvine, California

Prepared by:

Giles Engineering Associates, Inc.

October 5, 2022
Project No. 2G-2107004

GILES
ENGINEERING ASSOCIATES, INC.

GILES
ENGINEERING ASSOCIATES, INC.
GEOTECHNICAL, ENVIRONMENTAL & CONSTRUCTION MATERIALS CONSULTANTS

• Dallas, TX
• Los Angeles, CA
• Manassas, VA
• Milwaukee, WI

October 5, 2022

Chick-fil-A, Inc.
105 Progress, Suite 100
Irvine, California 92618

Attention: Ms. Leslie Clay
New Restaurant Growth

Subject: Geotechnical Engineering Exploration and Analysis
Proposed Chick-fil-A Restaurant #4098
I-10 & Santa Anita FSU
NEC Santa Anita Avenue and Brockway Street
El Monte, California
Project No. 2G-2107004

Dear Ms. Clay:

Giles Engineering Associates, Inc. (Giles) is pleased to present our *Geotechnical Engineering Exploration and Analysis* report prepared for the above-referenced project. Conclusions and recommendations developed from the exploration and analysis are discussed in the accompanying report.

We appreciate the opportunity to be of service on this project. If we may be of additional assistance, should geotechnical related problems occur or to provide construction observation and testing services, please do not hesitate to call at any time.

Respectfully submitted,

GILES ENGINEERING ASSOCIATES, INC.

John L Maier, P.E., G.E.
Branch Manager

Walter M. Lopez, P.E.
Project Engineer II

Distribution: Chick-fil-A, Inc.
Attn: Ms. Leslie Clay (email: Leslie.Clay@cfacorp.com)
Attn: Mr. Carlos Arias (email: Carlos.Arias2@cfacorp.com)
Attn: Mr. Brent Ryhlick (email: Brent.Ryhlick@cfacorp.com)

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I-10 & SANTA ANITA FSU
NEC SANTA ANITA AVENUE AND BROCKWAY STREET
EL MONTE, CALIFORNIA
PROJECT NO. 2G-2107004

GEOTECHNICAL ENGINEERING EXPLORATION AND ANALYSIS

PROPOSED CHICK-FIL-A RESTAURANT #4098
I-10 & SANTA ANITA FSU
NEC SANTA ANITA AVENUE AND BROCKWAY STREET
EL MONTE, CALIFORNIA
PROJECT NO. 2G-2107004

1.0 EXECUTIVE SUMMARY OUTLINE

The executive summary is provided solely for purposes of overview. Any party who relies on this report must read the full report. The executive summary omits a number of details, any one of which could be crucial to the proper application of this report.

Subsurface Conditions

- Site Class designation D is recommended for seismic design considerations.
- Existing pavement encountered within test borings B-1 through B-6 consisted of approximately 2 to 3 inches of asphaltic concrete over 4 to 6 inches of aggregate base materials, and 12 inches of concrete (B-1 and B-3).
- Our review of the *Quaternary Geologic Map of the El Monte and Baldwin Park Quadrangles* compiled by United States Geological Survey indicated that the subject site is underlain by alluvial gravel, sand, and silt of valleys and floodplains.
- Onsite soils encountered within our test borings consisted generally of damp to moist, loose to dense in relative density silty fine sand with trace gravel. Fill was encountered within boring B-1 to a depth of 3 ½ feet below existing grade.
- Groundwater was not encountered during our subsurface investigation to the maximum depth explored (51.5 feet).
- Tested onsite soils generally possess a very low expansion potential.
- Tested on-site soils have moderate corrosive potential when in contact with ferrous materials.

Site Development

- The proposed site development will include the construction of a new Chick-fil-A single-story building and site improvements that will include drive-thru lane with canopies, new parking stalls, menu board signs, a new trash enclosure, new concrete walkways, and new planter areas.
- Clearing operations should include removal of all foundations from previous buildings, floor slabs, and any existing below grade construction, if encountered. Soils disturbed by the clearing operations should be removed and stockpiled for future use.
- New Building: Due to the presence of relatively low and variable strength characteristics of the near surface onsite soils, it is recommended that the soils within the proposed new building area and an appropriate distance beyond (5 feet minimum) be overexcavated to a depth of at least 4 feet below existing grade or planned pad grade, and at least 3 feet below the bottom of foundations and floor slab, whichever is lower in elevation. The soils exposed at the base of this recommended over-excavation should be examined by the geotechnical engineer to document that the soils are suitable for building support. Depending on examination by the geotechnical engineer, deeper removals may be warranted. Prior to placement of fill, the exposed surface approved for fill placement should first be scarified to a depth of at least 6 to 8 inches, moisture conditioned and then recompacted to at least 90% of the maximum dry density as determined by Modified Proctor (ASTM D 1557-00).

Building Foundation

- The proposed structure may be supported by a shallow spread footing foundation system or turned-down slabs designed for a maximum, net allowable soil bearing pressure of 2,500 pounds per square foot (psf) underlain by a minimum 3 feet structural fill layer.
- Foundation reinforcement should be determined by the structural engineer.

Canopy Foundation

- Option 1: The proposed canopies may be supported by a shallow spread footing foundation system designed for a maximum, net allowable soil bearing pressure of 2,500 per square foot (psf) underlain by a minimum 1 foot structural fill layer.
- Option 2: The proposed canopies may be supported by drilled piers, with a minimum embedment length of 5 feet. In compacted fill, or native soils encountered within the area of the proposed canopy, the piers may be designed for a maximum, net allowable soil bearing pressure of 2,500 psf plus a skin friction of 50 psf. For uplift resistance, an average allowable side resistance of 50 psf may be used for the piers.

Building Floor Slab

- It is recommended that on grade slab be a minimum 4 inch thick slab-on-grade or turned-down slab, underlain by a minimum 4-inch thick granular base supported on a properly prepared subgrade.
- A minimum 15-mil vapor retarder is recommended to be directly below the floor slab or base course where required to protect moisture sensitive floor coverings.
- The non-load bearing floor is recommended to be designed based on a maximum modulus of subgrade reaction (k_s) of 200 pci.

New Pavement

- Asphalt Pavements: 3 inches of asphaltic concrete underlain by 6 or 9 inches of base course in parking stall and drive lane areas, respectively.
- Portland Cement Concrete: 6 inches in thickness underlain by 4 inches of base course in high stress areas such as entrance/exit aprons, drive-thru lane and the trash enclosure-loading zone.

Construction Considerations

- The near surface soils consist mostly of sandy soil and may be unstable in steep, unbraced excavations.

GREEN – This site has been given a Green designation to indicate that there are no significant geotechnical related construction or recognized problems foreseen which are unusual or not typical to this general area.

2.0 SCOPE OF SERVICES

This report provides the results of the *Geotechnical Engineering Exploration and Analysis* that Giles Engineering Associates, Inc. ("Giles") conducted regarding the proposed development. The *Geotechnical Engineering Exploration and Analysis* included several separate, but related, service areas referenced hereafter as the Geotechnical Subsurface Exploration Program, Geotechnical Laboratory Services, and Geotechnical Engineering Services. The scope of each service area was narrow and limited, as directed by our client and in consideration of the proposed project. The scope of each service area is briefly explained in this report. The scope of work performed for this report was consistent with the scope of work outlined within Proposal No. 2GEP-2107001 and associated Change Order Request Proposed Scope of Work for Cone Penetrometer Testing (CPT).

Geotechnical-related recommendations for design and construction of the foundation and ground-bearing floor slab for the proposed building are provided in this report. Geotechnical-related recommendations are also provided for the proposed parking lot improvement. Site preparation recommendations are also given; however, those recommendations are only preliminary since the means and methods of site preparation will depend on factors that were unknown when this report was prepared. Those factors include the weather before and during construction, the water table at the time of construction, subsurface conditions that are exposed during construction, and finalized details of the proposed development.

Giles conducted a Phase I Environmental Site Assessment (ESA) for the subject site. The results of that assessment are provided under separate cover (2E-2010005).

3.0 SITES AND PROJECT DESCRIPTION

3.1 Site Description

A new Chick-fil-A restaurant is to be constructed at the northeast corner of Santa Anita Avenue and Brockway Street, in the City of El Monte, California. The site is currently a vacant fenced-in lot with two former parking lot improvements consisting of concrete and asphaltic concrete. The site is bordered on the north by a commercial property and then Amador Street, on the south by Brockway Street, on the east by residential properties, and on the west by Santa Anita Avenue.

The existing parking lot within the site is considered to be in poor to fair condition. The property is situated at approximately latitude 34.0693° North and longitude -118.0416° West.

Other existing improvements include concrete curb and gutter, concrete walkways, an in-ground clarifier, and underground utilities.

3.2 Proposed Project Description

The proposed development includes the construction of a new, single-story Chick-fil-A restaurant building to be located within the southern portion of the subject property. Although detailed building plans are not yet ready for our review, the new building will be a single-story wood-frame structure, 5,001 square feet, with no basement or underground levels. We were not provided with specific loading information for this project at the time of this report; however, based on previous experience with similar projects, we expect the maximum combined dead and live loads supported by the bearing walls and columns will be 2 to 3 kips per lineal foot (klf) and 40 to 50 kips, respectively. The live load supported by the floor slab is expected to be a maximum of 100 pounds per square foot (psf).

Other planned improvements include a drive-thru lane with canopies, new parking stalls, menu board signs, a new trash enclosure, new concrete walkways, and new planter areas.

Preliminary project information based on Conceptual Grading Plan Sheet C-3, dated June 3, 2022, indicates the planned finished floor elevation for the proposed building at EL. 277.70. Therefore, site grading is anticipated to include only minor cutting or filling in order to establish the necessary site grade to accommodate the assumed floor elevation, exclusive of site preparation or over-excavation requirements necessary to create a stable site suited for the proposed development.

The traffic loading on the proposed parking lot improvement is understood to predominantly consist of automobiles with occasional heavy trucks resulting from deliveries and trash removal. The parking lot pavement sections have been designed on the basis of daily traffic intensity equivalent to five equivalent 18-kip single axle loads and 1,500 automobiles within the main drive lanes and only automobiles of a lesser intensity within the parking stalls. Pavement designs are based on a 20-year design period. Therefore, the parking lot pavement sections have been designed on the basis of a Traffic Index (TI) of 4.0 for the automobile traffic parking stalls (light duty) and a TI of 5.0 for drive lane areas (medium duty).

3.3 Background Information

The subject property is currently asphalt and concrete paved land with former foundations remaining along the southern and eastern portions. The subject property was formerly occupied by a medical office and a Hyundai automobile dealership. Prior to that, the subject property was occupied by residential buildings or undeveloped. An in-ground clarifier (oil-water separator) was observed near the eastern former building foundation.

Giles previously completed a Limited Phase II ESA on the entire property at the northeastern corner of Santa Anita Avenue and Brockway Street, including the subject property and the adjacent parcel to the south in which a Texaco gasoline station (later referred to as Shell) was formerly located. Based on the findings and conclusions of the Limited Phase II assessment, the following recognized environmental conditions in connection with the property that will affect geotechnical considerations were identified:

- Soil at the property was impacted with arsenic, barium, and mercury above their respective DTSC SL for residential and/or commercial land uses and/or USEPA groundwater protection SSL. Soil generated from the subject property that requires off-site disposal should be characterized and disposed at a licensed disposal facility or other commercial/industrial property after written approval from the disposal site owner is obtained.

- VOCs were detected in soil gas at the subject property. 1,3-Butadiene and benzene were detected above their respective attenuated DTSC ambient air SL for residential land use. PCE was detected above its respective attenuated DTSC ambient air SL for residential or commercial land uses. PCE was not detected in the soil samples. The source of the PCE detected in soil gas at the subject property may be from the regional impacted groundwater associated with Area 1 of the San Gabriel Valley Superfund site.

- The risk of soil gas migration into new structures at the subject property was considered low to moderate. It was Giles' opinion that it would be prudent to install a passive vapor mitigation system for the proposed occupied buildings at the subject property.

- Residual groundwater impacts, associated with the former gasoline and automotive service station, are present on the subject property. The residual groundwater impacts are considered a recognized environmental condition with respect to the subject property.

4.0 SUBSURFACE EXPLORATION

4.1 Subsurface Exploration

Our subsurface exploration consisted of the drilling of eight (8) test borings (B-1 to B-8) to depths of approximately 5 to 51 ½ feet below existing ground surfaces utilizing a truck rig with hollow-stem auger drilling equipment; and two (2) CPTs (CPT-1 and CPT-2) to 59 feet where refusal was encountered. The approximate test boring and CPT locations are shown in the Test Boring and CPT Location Plan (Figure 1). The Test Boring and CPT Location Plan and Test Boring Logs and CPT Soundings (Records of Subsurface Exploration) are enclosed in Appendix A. Field and laboratory test procedures are enclosed in Appendix B and C, respectively. The terms and symbols used on the Test Boring Logs are defined on the General Notes in Appendix D.

Our subsurface exploration included the collection of relatively undisturbed samples of subsurface soil materials for laboratory testing purposes in accordance with ASTM D 3550, Standard Practice for Thick Wall, Ring-Lined, Split Barrel, Drive Sampling of Soils (CS). Bulk samples consisted of

composite soil materials obtained at selected depth intervals from the borings. The sampler was driven with successive 30-inch drops of a hydraulically operated, 140-pound automatic trip hammer. Blow counts for each 6-inch driving increment were recorded on the field exploration logs with the number of blows required to drive the standard split-spoon sampler for the last 12 of the 18 inches reported. The central portions of the driven core samples were placed in sealed containers and transported to our laboratory for testing.

Where deemed appropriate, standard split-spoon tests (SS), also called Standard Penetration Test (SPT), were also performed at selected depth intervals in accordance with the American Society for Testing Materials (ASTM) Standard Procedure D 1586. This method consists of mechanically driving an unlined standard split-barrel sampler 18 inches into the soil with successive 30-inch drops of the 140-pound automatic trip hammer. Blow counts for each 6-inch driving increment were recorded on the exploration logs. The number of blows required to drive the standard split-spoon sampler for the last 12 of the 18 inches was identified as the uncorrected standard penetration resistance (N). Disturbed soil samples from the unlined standard split-spoon samplers were placed in plastic bags and transported to our laboratory for testing.

Cone Penetrometer Tests (CPTs) soundings was also performed at the site, per ASTM D 5779-12, at the approximate location is noted on Figure 1. The CPT soundings were drilled near conventional test borings to allow correlation of the CPT data to the conventional soil borings. The CPT data was used to better assess the liquefaction potential of the site soils since the CPT results in continuous data throughout the depth of the CPT sounding. The sounding was extended to a depth of 59 feet below grade where refusal was encountered. The CPT field data is provided within Appendix A.

4.2 Subsurface Conditions

The subsurface conditions as subsequently described have been simplified somewhat for ease of report interpretation. A more detailed description of the subsurface conditions at the test boring locations is provided by the logs of the test borings enclosed in Appendix B of this report.

Pavement

Existing pavement encountered within test borings B-1 through B-6 consisted of approximately 2 to 3 inches of asphaltic concrete over 4 to 6 inches of aggregate base materials, and 12 inches of concrete (B-1 and B-3).

Site Geology

Our review of the *Quaternary Geologic Map of the El Monte and Baldwin Park Quadrangles* compiled by United States Geological Survey indicated that the subject site is underlain by alluvial gravel, sand, and silt of valleys and floodplains.

Soil

Onsite soils encountered within our test borings consisted generally of damp to moist, very loose to dense in relative density silty fine sand with trace gravel. Possible fill was encountered within some of our borings to a depth ranging from about 1 to 3 ½ feet below existing grade.

Groundwater

Groundwater was not encountered during our subsurface investigation to the maximum depth explored (51.5 feet). A CPT Pore Water Dissipation (PWD) test was performed also resulting in no groundwater encountered. Historic high groundwater is about 6 feet below existing ground surface. A review of information on GeoTracker for nearby sites indicated that groundwater was more recently measured around 70 feet below grade.

Fluctuations of the groundwater table, localized zones of perched water, and rise in soil moisture content should be anticipated during and after the rainy season. Irrigation of landscape areas on or adjacent to the site could also cause fluctuations of local or shallow perched groundwater levels.

4.3 Percolation Testing

It is our understanding that an on-site below grade storm water infiltration system is being considered for the subject site. Therefore, three percolation tests were performed to assess the infiltration characteristics of the site soils.

The percolation testing consisted of drilling a 8-inch-diameter hole using a hollow-stem auger, installing a 2-inch-diameter slotted pvc casing with a solid end cap and then surrounding the casing with a granular filter pack. The test holes (B-5, B-6. And B-7) were then pre-soaked to a minimum depth of 1 foot above the bottom of the boring. After pre-soaking, test water was added to the casing and refilled after each consecutive percolation test reading. The drop in water level over time is the percolation rate at the test location. The percolation rate was reduced to account for the discharge of water from both the sides and bottom of the boring. A summary of the result of the percolation test is provided in Table 1 below.

The pre-adjusted percolation rate is generally reduced to account for the discharge of water from both the sides and bottom of the boring. The formula below was used to calculate for the tested infiltration rate.

Design Infiltration Rate = $\Delta H\ (60r) / \Delta t\ (r + 2Havg)$

Where: r is the radius of the test hole (in)
ΔH is the change in height over the time interval (in)
Δt is the time interval (min)
Havg is the average head height over the time interval

The results obtained from our percolation testing are summarized below. The infiltration rate noted below has not been reduced to account for a factor of safety.

TABLE 1 – PERCOLATION TEST RESULTS

Test Hole	Test Depth[1] (feet)	Design Infiltration Rate (in/hr)	Soil Type
B-5	5.0	7.5	Silty Fine Sand
B-6	5.0	12.7	Silty Fine Sand
B-7	5.0	11.4	Silty Fine Sand

1) Depth is referenced to the existing surface grade at the test location.
2) No Factor of Safety has been applied.

It should be noted that the infiltration rate of the on-site soils represents a specific area and depth tested and may fluctuate throughout other parts of the site. Based on environmental data for this site infiltration system feasibility should be reviewed. An infiltration system may not be feasible.

5.0 LABORATORY TESTING

Several laboratory tests were performed on selected samples considered representative of those encountered in order to evaluate the engineering properties of the on-site soils. The following are brief description of our laboratory test results.

In Situ Moisture and Density

Tests were performed on select samples from the test borings to determine the subsoils dry density and natural moisture contents in accordance with Test Method ASTM 2216. The results of these tests are included in the Test Boring Logs enclosed in Appendix A.

Expansive Potential

To evaluate the expansive potential of the near surface soils encountered during our subsurface exploration, a composite sample collected from Test Borings B-1 through B-4 (1 to 5 feet) was subjected to Expansive Index (EI) testing in accordance with Test Method ASTM D 4829. The result of our expansion index (EI) test indicates that the near surface sample has a very low expansion potential (EI = 0 to 9).

Sieve Analysis

Sieve Analyses (Passing No. 200 Sieve) were performed on selected samples from the test borings to assist in soil classification. These tests were performed in accordance with Test Method ASTM D 1140. The results of the Passing No. 200 Sieve tests are presented in Test Boring Logs in Appendix A.

Soluble Sulfate Analysis and Soil Corrosivity

A representative sample of the near surface soils which may contact shallow buried utilities and structural concrete was performed to determine the corrosion potential for buried ferrous metal conduits and the concentrations present of water soluble sulfate which could result in chemical attack of cement. The following table presents the results of our laboratory testing.

Parameter	**B-1 through B-4 1 to 5 feet**
pH	7.25
Chloride	60 ppm
Sulfate	0.0042%
Resistivity	3,800 ohm-cm

The chloride content of near-surface soils was determined for a selected sample in accordance with California Test Method No. 422. The results of this test indicated that **tested on-site soils have a Low exposure to chloride.**

The results of limited testing of soil pH and minimum resistivity were determined in accordance with California Test Method No. 643. The test results for pH indicated the **tested soil was neutral**. The results from the minimum resistivity test generally indicate that the tested soils have a **moderate corrosive potential** when in contact with ferrous materials. Therefore, special protection for underground cast iron pipe or ductile pipe may be warranted depending on the actual materials in contact with the pipe. We recommend that a corrosion engineer review these results in order to provide specific recommendations for corrosion protection as well as appropriate recommendations for other types of buried metal structures.

A representative sample of the near surface soils which may contact shallow buried utilities and structural concrete was performed to determine the concentrations present of water soluble sulfate which could result in chemical attack of cement. Our laboratory test data indicated that **near surface soils contain approximately 0.0042 percent of water soluble sulfates**. Based on Section 1904.1 of the 2019 California Building Code (CBC), concrete that may be exposed to sulfate containing soils shall comply with the provisions of ACI 318, Section 4.3. Therefore, according to Table 4.3.1 of the ACI 318 a negligible exposure to sulfate can be expected for concrete placed in contact with the tested on-site soils. **No special sulfate resistant cement is considered necessary for concrete** which will be in contact with the tested on-site soils.

6.0 GEOLOGIC AND SEISMIC HAZARDS

6.1 Active Fault Zones

The site is not located within an Alquist-Priolo Earthquake Fault Zone. The potential for fault rupture through the site is, therefore, considered to be low. The site may however be subject to strong groundshaking during seismic activity.

6.2 Seismic Hazard Zones

According to the Seismic Hazard Zone report for the El Monte Quadrangle (where the subject site is located) published by the CGS, the site is located within a liquefaction hazard zone. Additionally, as noted within the Seismic Hazard Zone Report, the historic high groundwater is anticipated to be about 6 feet below grade. Therefore, liquefaction analysis is deemed necessary for this site.

General types of ground failures that might occur as a consequence of severe ground shaking typically include landsliding, ground subsidence, ground lurching and shallow ground rupture. The probability of occurrence of each type of ground failure depends on the severity of the earthquake, distance from faults, topography, subsoils and groundwater conditions, in addition to other factors. Based on our subsurface exploration and the seismic designation for this site, all of the above effects of seismic activity are considered unlikely at the site.

7.0 CONCLUSIONS AND RECOMMENDATIONS

Conditions imposed by the planned development have been evaluated on the basis of the assumed floor elevation and engineering characteristics of the subsurface materials encountered during our subsurface investigation and their anticipated behavior both during and after construction. Conclusions and recommendations presented for the design of building foundations and floor slab, and pavement along with site preparation recommendations and construction considerations are discussed in the following sections of this report.

From a soils engineering point of view, the subject property is considered geotechnically suitable for the proposed new improvements provided the following recommendations are incorporated in the design and construction of the project.

We recommend that Giles Engineering Associates, Inc. be involved in the review of the grading and foundation plans for the site to ensure our recommendations are interpreted correctly. Based on the results of our review, modifications to our recommendations or the plans may be warranted.

Effect of Proposed Grading and Construction on Adjacent Property

It is our opinion that the proposed construction and grading will be safe against geotechnical hazards from landslides, settlement, or slippage and the proposed work will not adversely affect the geologic stability of the adjacent property provided grading and construction are performed in compliance with the local city code and in accordance with the recommendations presented herein.

7.1 Seismic Design Considerations

Faulting/Seismic Design Parameters

The site is not located within an Alquist-Priolo Earthquake Fault Zone. The potential for fault rupture through the site is, therefore, considered to be low. The site may however be subject to strong groundshaking during seismic activity. The proposed structure should be designed in accordance with the current version of the *California Building Code (CBC)* and applicable local codes. In accordance with *ASCE 7*, Chapter 20, a Site Classification D is recommended for this site based upon the mapped geological features of the site also verified by test borings.

According to the maps of known active fault near-source zones to be used with the CBC, the Elysian Park (Upper) and Raymond faults are the closest known active faults and located about 3.4 and 4.7 miles from the site, respectively. These faults would probably generate the most severe site ground motions at the site with an anticipated maximum moment magnitude (Mw) of 6.8.

The proposed structure should be designed in accordance with the current version of the *California Building Code (CBC)*, *Minimum Design Loads and Associated Criteria for Buildings and Other Structures ASCE 7*, and applicable local codes. The following values are determined by using the SEAOC/OSHPD Seismic Design Map Tool based upon the *CBC 2019* and *ASCE 7-16*.

ASCE 7-16 / CBC 2019, Earthquake Loads	
Site Class Definition (Table 20.3-1)	D
Mapped Spectral Response Acceleration Parameter, S_s (for 0.2 second)	1.875
Mapped Spectral Response Acceleration Parameter, S_1 (for 1.0 second)	0.678
Site Coefficient, F_a short period	1.0
Site Coefficient, F_v 1-second period	1.7
Adjusted Maximum Considered Earthquake Spectral Response Acceleration Parameter, S_{MS}	1.875
Adjusted Maximum Considered Earthquake Spectral Response Acceleration Parameter, S_{M1}	1.153
Design Spectral Response Acceleration Parameter, S_{DS}	1.25
Design Spectral Response Acceleration Parameter, S_{D1}	0.769

According to Section 11.4.7 of ASCE 7-16, a ground motion hazard analysis is required and should be performed in accordance with Section 21.2 for structures on Site Class D with S_1 greater than or equal to 0.2. However, as an exception to performing the ground motion hazard analysis, the value of the Seismic Response Coefficient (Cs) must be determined by Equation (12.8-2) for values of the fundamental period of the building (T) ≤ 1.5Ts, and taken as 1.5 times the value computed in accordance with either Equation (12.8-3) for T_L ≥ 1.5Ts, or Equation (12.8-4) for T > T_L.

Liquefaction

Our review of the published Seismic Hazard Evaluation report for the El Monte Quadrangle (where the subject site is located) indicates that the site is located in a zone of required investigation due to potential of earthquake induced liquefaction. Historical high groundwater is about 6 feet below existing ground surface. A review of information on GeoTracker for nearby sites indicated that groundwater was more recently measured around 70 feet below grade. Accordingly, a detailed liquefaction analysis was deemed appropriate and was performed.

The liquefaction analysis was performed utilizing the computer software program LiquefyPro and based on the 2019 CBC. For this analysis we used the soil profile identified within CPT-1 and CPT-2. The site acceleration (PGA_M) of 0.888g was determined from ASCE7-16 (site modified peak ground acceleration) based on a 2% probability of exceedance in 50 years, or an actual return period of 2,475 years. The predominant earthquake magnitude (Mw) at the site is 6.5 based upon a deaggregation analysis for a return period of 2,475 years, obtained from the USGS website. Input parameters for blow count data were corrected for borehole diameter, sampling type, automatic hammer type, and depth.

The liquefaction analysis was completed using a Factor of Safety (FS) of 1.3, as required per the County of Los Angeles Department of Public Works, Geotechnical and Materials Engineering Division memo GS045.

The potentially liquefiable layers at the location of boring CPT-1 and CPT-2 are presented graphically in Plate A1 of Appendix A. The computer output files are also included.

Based on the results of the liquefaction analysis (assumed high water of 6 feet), we estimate that ground total settlement resulting from the design-level earthquake will be about 1.18 to 1.45 inches.

Liquefaction-Induced Lateral Spreading

Lateral spreading of the ground surface during a seismic activity usually occurs along the weak shear zones within a liquefiable soil layer and has been observed to generally take place toward a free face (i.e. retaining wall, slope or channel) and to lesser extent on ground surfaces with a very gentle slope. Due to absence of any slope or channel within or near the subject site, the potential for lateral spread occurring within the site is considered to be very low.

Liquefaction–Induced Potential for Surface Manifestation

Based on our review of the relationships between the thickness of potentially liquefiable soil layers relative to the thickness of non-liquefiable soil layers developed by Ishihara (1985), it is our opinion that the potential for surface manifestations (sand boils, loss of bearing, etc.) resulting from soil liquefaction at this site is very low.

7.2 Site Development Recommendations

The recommendations for site development as subsequently described are based upon the conditions encountered at the test boring locations and the results of our laboratory testing.

Site Clearing

Clearing and demolition operations should include the removal of all landscape vegetation and existing structural features such as building footings and floor slab, the existing in-ground clarifier within the proposed parking lot areas, asphaltic concrete pavement, and concrete walkways within the area of the proposed new building and site improvements. Existing pavement within areas of proposed development should be removed or processed to a maximum 3-inch size and may be used as compacted fill or stabilizing material for the new development. Processed asphalt may be used as fill, sub-base course material, or subgrade stabilization material beyond the building perimeter. Processed concrete or existing base may be used as fill, sub-base course material, or subgrade stabilization material both within and outside of the building perimeter. Due to the moisture sensitivity and variable support characteristics of the on-site soils, the pavement is recommended to remain in-place as long as possible to help protect the subgrade from construction traffic disturbance.

Should any unusual soil conditions or subsurface structures be encountered during demolition operations or during grading, they should be brought to the immediate attention of the project geotechnical consultant for corrective recommendations.

Existing Utilities

All existing utilities should be located. Utilities that are not reused should be capped off and removed or properly abandoned in-place in accordance with city codes and ordinances. The excavations made for removed utilities that are in the influence zone of new construction are recommended to be backfilled with structural compacted fill. Underground utilities, which are to be reused or abandoned in-place, are recommended to be evaluated by the structural engineer and utility backfill is recommended to be evaluated by the geotechnical engineer, to determine their potential effect on the new development. If any existing utilities are to be preserved, construction operations must be carefully performed so as not to disturb or damage the existing utility.

Building Area

Due to the presence of relatively low and variable strength characteristics of the near surface onsite soils, the presence of existing/possible fill, and disturbance during removal of existing prior structures (foundations, floor slabs, utilities), it is recommended that the soils within the proposed new building area and an appropriate distance beyond (5 feet minimum) be overexcavated to a depth of at least 4 feet below existing grade or planned pad grade, and at least 3 feet below the bottom of foundations and floor slab, whichever is lower in elevation. The soils exposed at the base of this recommended over-excavation should be examined by the geotechnical engineer to document that the soils are suitable for building support. Depending on examination by the geotechnical engineer, deeper removals may be warranted. Prior to placement of fill, the exposed surface approved for fill placement should first be scarified to a depth of at least 6 to 8 inches, moisture conditioned and then recompacted to at least 90% of the maximum dry density as determined by Modified Proctor (ASTM D 1557-00). A representative of the project geotechnical consultant should be present on site during grading operations to verify proper placement and adequate compaction of all fills.

Positive drainage devices such as sloped concrete flatwork, earth swales, and sheet flow gradients in landscape, setback, and easement areas should be designed for the site. The drainage system should drain to a suitable discharge area. The purpose of this drainage system is to reduce water infiltration into the subgrade soils and to direct water away from buildings and site improvements.

All utility trench backfill should be placed in lifts no greater than 12 inches in thickness, moisture conditioned and then compacted to a minimum of 90 percent of the soil's maximum density near the optimum moisture content. A representative of the project geotechnical engineer should observe, probe, and test the backfills to document adequacy of compaction.

Proofroll and Compact Subgrade

Following site clearing, removal of disturbed soils and lowering of site grades where necessary, the subgrades within the proposed building, pavement and drive through areas should be proofrolled in the presence of the geotechnical engineer with appropriate rubber-tire mounted heavy construction equipment or a loaded truck to detect very loose/soft yielding soil which should be removed to a stable subgrade, or stabilized in place. Depending on examination by the geotechnical engineer, some over-excavation may be required. Any unsuitable materials discovered should be removed and backfilled with structural fill. Following proofrolling and completion of any necessary over-excavation, the subgrades in the building, parking lot and drive thru areas should be scarified to a depth of 6 to 8 inches, air dried and recompacted to at least 90 percent of the Modified Proctor (ASTM D1557-00) maximum density. The upper 1 foot of the pavement subgrade should have minimum in-place density of at least 95% of the maximum dry density. Low areas and excavations may then be backfilled in lifts with suitable low-expansive structural compacted fill. The selection, placement and compaction of structural fill should be performed in accordance with the project specifications.

The Guide Specifications included in Appendix D (Modified Proctor) of this report are recommended to be used, at a minimum, as an aid in developing the project specifications. The floor slab subgrade may need to be recompacted prior to slab construction due to weather and equipment traffic effects on the previously compacted soil.

Reuse of On-site Soil

On-site material may be reused as structural compacted fill (if needed) within the proposed building and pavement area provided they do not contain oversized materials and significant quantities of organic matter or other deleterious materials. Care should be used in controlling the moisture content of the soils to achieve proper compaction for load bearing. All subgrade soil compaction as well as the selection, placement and compaction of new fill soils should be performed in accordance with the project specifications under engineering controlled conditions.

Soil at the subject property is impacted with arsenic, barium, and mercury above their respective DTSC SL for residential and/or commercial land uses and/or USEPA groundwater protection SSL. Therefore, soil generated from the subject property that requires off-site disposal should be characterized and disposed at a licensed disposal facility or other commercial/industrial property after written approval from the disposal site owner is obtained.

Subgrade Protection

The near surface soils that are expected to comprise the subgrade are sensitive to water and disturbance from construction activities. Unstable soil conditions will develop if the soils are exposed to moisture increases or are disturbed (rutted) by construction traffic. If unstable soil conditions occur, recommendations for stabilization should be provided by the geotechnical engineer at the time of grading/construction based on the conditions encountered. The site should be graded to prevent water from ponding within construction areas and/or flowing into excavations. Accumulated water must be removed immediately along with any unstable soil. Foundation concrete should be placed and excavations backfilled as soon as possible to protect the bearing grade. The degree of subgrade instability and associated remedial construction is dependent, in part, upon precautions taken by the contractor to protect the subgrade during site development.

Silt fences or other appropriate erosion control devices should be installed in accordance with local, state and federal requirements at the perimeter of the development areas to control sediment from erosion. Since silt fences or other erosion control measures are temporary structures, careful and continuous monitoring and periodic maintenance to remove accumulated soil and/or replacement should be anticipated.

Fill Placement

All fill should be placed in 8-inch-thick maximum loose lift, moisture conditioned and then compacted to at least 90 percent of the Modified Proctor maximum density. A representative of the project geotechnical consultant should be present on-site during grading operations to document proper placement and compaction of all fill, as well as to verify compliance with the other geotechnical recommendations presented herein.

Import Structural Fill

Any soils imported to the site for use as structural fill should consist of very low expansive (EI less than 21) soils. Materials designated for import should be submitted to the project geotechnical engineer no less than three working days for evaluation. In addition to expansion criteria, soils imported to the site should exhibit adequate shear strength characteristics for the recommended allowable soil bearing pressure, soluble sulfate content and corrosivity and pavement support characteristics.

7.3 Construction Considerations

Construction Dewatering

Groundwater was not encountered during our subsurface exploration to the maximum depth explored (51.5 feet). However, the site may be susceptible to a shallower perched water table due to seasonal precipitation and runoff characteristics of the site. Conventional filtered sump pumps placed in excavations are expected to be suitable for dewatering should any excess water conditions be observed.

Soil Excavation

Some localized slope stability problems may be encountered in steep, unbraced excavations considering the nature of the subsoils. All excavations must be performed in accordance with CAL-OSHA requirements, which is the responsibility of the contractor. Shallow excavations may be adequately sloped for bank stability while deeper excavations or excavations where adequate back sloping cannot be performed may require some form of external support such as shoring or bracing.

Environmental

Soil at the property was impacted with arsenic, barium, and mercury above their respective DTSC SL for residential and/or commercial land uses and/or USEPA groundwater protection SSL. Soil generated from the subject property that requires off-site disposal should be characterized and disposed at a licensed disposal facility or other commercial/industrial property after written approval from the disposal site owner is obtained.

VOCs were detected in soil gas at the subject property. 1,3-Butadiene and benzene were detected above their respective attenuated DTSC ambient air SL for residential land use. PCE was detected above its respective attenuated DTSC ambient air SL for residential or commercial land uses.

The risk of soil gas migration into new structures at the subject property was considered low to moderate. It was Giles' opinion that it would be prudent to install a passive vapor mitigation system for the proposed occupied buildings at the subject property. An infiltration system may not be acceptable.

7.4 Foundation Recommendations

Vertical Load Capacity

Upon completion of the recommended building pad preparation, it is our opinion the proposed structure may be supported by a shallow foundation system. Foundations may be designed for a maximum, net, allowable soil-bearing pressure of 2,500 pounds per square foot (psf). Minimum foundation widths for walls and columns should be 18 and 24 inches, respectively, for bearing considerations, regardless of actual soil pressure. The maximum bearing value applies to combined dead and sustained live loads. This allowable soil bearing pressure may be increased by one-third for short term wind and/or seismic loads.

Drilled Pier Recommendations for Canopy

For this foundation system embedded into compacted fill, or native material encountered within our borings, the axial (downward) skin friction (side resistance) resistance was determined to be 50 psf from our field data obtained during our site investigations at the site. This capacity is in addition to the allowable soil bearing pressure of 2,500 psf. We recommend a minimum pile spacing of 3 pier diameters with no reduction in axial capacity for group effects. The minimum recommended pile length is 5 feet.

Reduction to axial capacity loads as a result of downdrag forces is considered in the pier skin resistance capacity of 50 psf. Capacities for other pile types, dimensions, and lengths can be provided upon request.

For uplift resistance, an average allowable side resistance of 50 psf may be used for the piers.

It is recommended that a geotechnical engineer observe the drilled pier excavation procedures to confirm that the support soils are similar to those encountered at the test borings, and to confirm that the design parameters and estimated depths in the previous tables are representative of the actual subsurface conditions within the drilled pier excavations. If the design parameters are not appropriate for the actual conditions that are encountered, Giles must be contacted so that the design parameters in this report can be revised. Depending on the actual subsurface conditions

within the pier excavations, the drilled piers might need to be wider and/or deeper than planned to adequately resist the proposed loads. The recommended soil design parameters are provided assuming that concrete for the drilled pier will be in direct contact with the surrounding soil.

General Drilled-Pier Construction Recommendations for Canopy

Concrete should consist of a Portland cement mixture properly air-entrained, and with an appropriate water/cement ratio for proper strength and durability. Slump and maximum aggregate size must be selected so that the concrete will easily flow between reinforcing bars and will completely fill all voids.

It is recommended that a geotechnical engineer monitor the drilling operations to confirm that proper construction techniques are used, and soil encountered within our borings is similar to soil encountered within the boreholes. Strict safety precautions must be implemented and followed when near open excavations, such as pier excavations. An uncased pier excavation should not be approached, as it could rapidly cave. Concrete is recommended to be placed in accordance with "state-of-the-practice" procedures under engineering controlled conditions as noted below. Drilled pier construction should be done in accordance with local codes, and other pertinent requirements.

Pier excavations should not be allowed to stand open, since a time delay could result in serious construction problems. A clean-out bucket should be used to remove disturbed soils within the drilled pier excavations. All bottom of excavations should be observed by the geotechnical engineer during drilling and prior to concrete placement to observe that all loose or disturbed soil has been removed.

Drilled Pier Lateral Loads

Resistance to lateral loads will be provided by the drilled piers. Active, At-Rest, and Passive Resistance (Equivalent Fluid Pressures) of 30 pcf, 45 pcf, and 400 pcf may be used for soil parameters, respectively. Reduction factors may be needed for group action for lateral capacities, dependent on the configuration of pier groups and the direction of applied lateral loads. The maximum recommended allowable passive pressure is 2,000 pcf.

Reinforcing

The determination of the actual quantity of steel reinforcing and dimensions should be performed by the project structural engineer.

Lateral Load Resistance

Lateral load resistance will be developed by a combination of friction acting at the base of foundations and slabs and the passive earth pressure developed by footings below grade. Passive pressure and friction may be used in combination, without reduction, in determining the total resistance to lateral loads. A one-third increase in the passive pressure value may be used for short duration wind or seismic loads.

A coefficient of friction of 0.45 may be used with dead load forces for footings placed on newly placed compacted fill soil. An allowable passive earth pressure of 250 psf per foot of footing depth (pcf) below the lowest adjacent grade may be used for the sides of footings placed against newly placed structural fill. The maximum recommended allowable passive pressure is 2,000 psf.

Bearing Material Criteria

Soil suitable to serve as the foundation bearing grade should exhibit at least a loose relative density (average N value of at least 7) for non-cohesive soils, and an unconfined compressive strength of 1.25 tsf for cohesive soils, for the recommended 2,500 psf. For design and construction estimating purposes, suitable bearing soils are expected to be encountered at nominal foundation depths following the recommended site preparation activities. However, field testing by the Geotechnical Engineer within the foundation bearing soils is recommended to document that the foundation support soils possess the minimum strength parameters noted above. If unsuitable bearing soils are encountered, they should be recompacted in-place, if feasible, or excavated to a suitable bearing soil subgrade and to a lateral extent as defined by Item No. 3 of the enclosed Guide Specifications, with the excavation backfilled with structural compacted fill to develop a uniform bearing grade.

Foundation Embedment

The California Building Code (CBC) requires a minimum 12-inch foundation embedment depth. However, it is recommended that exterior foundations extend at least 18 inches below the adjacent exterior grade for bearing capacity and to provide greater protection of the moisture sensitive bearing soils. Interior footings may be supported at nominal depth below the floor. All footings must be protected against weather and water damage during and after construction, and must be supported within suitable bearing materials.

Estimated Foundation Movement

Post-construction static total and differential settlement of a shallow foundation system designed and constructed in accordance with the recommendations provided in this report are estimated to be less than ¾ and ½ inch, respectively, for static. The estimated static differential movement is anticipated to result in an angular distortion of about 0.002 inches per inch on the basis of a minimum clear span of 20 feet. The estimated seismic induced total and differential settlements is estimated to be less than

1.45 and 0.73 inches, respectively. The combined static and seismic differential settlement is therefore estimated to be less than 1 inch over 30 feet. Therefore, resulting in an angular distortion of less than 0.0028 inches per inch, which is suitable for standard construction.

Pier Settlement Estimates and Considerations

Post-construction total and differential settlements of a pier foundation system designed in accordance with this report are estimated to be less than ⅔ and ⅓ inch, respectively. The angular distortion will be less than 0.002 inch per inch across the planned span of 20 feet. The estimated settlements are considered within tolerable limits for the proposed structure provided they are appropriately considered in the structural design. Estimated settlements are based on the assumption that foundation support soil will be tested and approved by a geotechnical engineer and drilled pier construction will be observed by a geotechnical engineer during construction.

Giles should review the final approved design/plans prior to construction.

7.5 New Pavement

The following recommendations for the new pavement are intended for vehicular traffic associated with the restaurant development within the subject property.

New Pavement Subgrades

Following completion of the recommended subgrade preparation procedures, the subgrade in areas of new pavement construction are expected to consist of existing on-site soil that exhibit a very low expansion potential. An R-value of 40 has been assumed in the preparation of the pavement design. It should however, be recognized that the City of El Monte may require a specific R-value test to verify the use of the following design. It is recommended that this testing, if required, be conducted following completion of rough grading in the proposed pavement areas so that the R-value test results are indicative of the actual pavement subgrade soils. Alternatively, a minimum code pavement section may be required if a specific R-value test is not performed. To use this R-value, all fill added to the pavement subgrade must have pavement support characteristics at least equivalent to the existing soils, and must be placed and compacted in accordance with the project specifications.

Asphalt Pavements

The following table presents recommended thicknesses for a new flexible pavement structure consisting of asphaltic concrete over a granular base, along with the appropriate CALTRANS specifications for proper materials and placement procedures. An alternate pavement section has been provided for use in parking stall areas due to the anticipated lower traffic intensity in these areas. However, care must be used so that truck traffic is excluded from areas where the thinner pavement

section is used, since premature pavement distress may occur. In the event that heavy vehicle traffic cannot be excluded from the specific areas, the pavement section recommended for drive lanes should be used throughout the parking lot.

ASPHALT PAVEMENTS			
Materials	**Thickness (inches)**		**CALTRANS Specifications**
	Parking Stalls (TI=4.0)	**Drive Lanes (TI=5.0)**	
Asphaltic Concrete Surface Course (b)	1	1	Section 39, (a)
Asphaltic Concrete Binder Course (b)	2	2	Section 39, (a)
Crushed Aggregate Base Course	4	6	Section 26, Class 2 (R-value at least 78)
NOTES: (a) Compaction to density between 95 and 100 percent of the 50-Blow Marshall Density (b) The surface and binder course may be combined as a single layer placed in one lift if similar materials are utilized.			

Pavement recommendations are based upon CALTRANS design parameters for a twenty-year design period and assume proper drainage and construction monitoring. It is, therefore, recommended that the geotechnical engineer monitors and tests subgrade preparation, and that the subgrade be evaluated immediately before pavement construction.

Portland Concrete Pavements

Portland Cement Concrete pavements are recommended in areas where traffic is concentrated such as the entrance/exit aprons as well as areas subjected to heavy loads such as the trash enclosure loading zone. The preparation of the subgrade soils within concrete pavement areas should be performed as previously described in this report. Portland Cement Concrete pavements in high stress areas are recommended to be at least 6 inches thick containing No. 3 bars at 18-inch on-center both ways placed at mid-height. The pavement should be constructed in accordance with Section 40 of the CALTRANS Standard Specifications. A minimum 4-inch thick layer of base course (CALTRANS Class 2) is recommended below the concrete pavement. This base course should be compacted to at least 95% of the material's maximum dry density.

The maximum joint spacing within all of the Portland Cement Concrete pavements is recommended to be 15 feet or less to control shrinkage cracking. Load transfer reinforcing is recommended at construction joints perpendicular to traffic flow if construction joints are not properly keyed. In this event, ¾-inch diameter smooth dowel bars, 18 inches in length placed at 12 inches on-center are recommended where joints are perpendicular to the anticipated traffic flow. Expansion joints are

recommended only where the pavement abuts fixed objects such as light standard foundations. Tie bars are recommended at the first joint within the perimeter of the concrete pavement area. Tie bars are recommended to be No. 4 bars at 42-inch on-center spacings and at least 48 inches in length.

General Considerations

Pavement recommendations assume proper drainage and construction monitoring and are based on traffic loads as indicated previously. Pavement designs are based on either PCA or CALTRANS design parameters for twenty (20) year design period. However, these designs are also based on a routine pavement maintenance program and significant asphalt concrete pavement rehabilitation after about 8 to 10 years, in order to obtain a reasonable pavement service life. Due to the presence of variable strength characteristics of the near surface on-site soils, some increased pavement maintenance should be expected.

7.6 Recommended Construction Materials Testing Services

The report was prepared assuming that Giles will perform Construction Materials Testing (CMT) services during construction of the proposed development. In general, CMT services are recommended (and expected) to at least include observation and testing of foundation and pavement support soil and other construction materials. It might be necessary for Giles to provide supplemental geotechnical recommendations based on the results of CMT services and specific details of the project not known at this time.

7.7 Basis of Report

This report is based on Giles' proposal, which is dated July 30, 2021 and is referenced by Giles' proposal number 2GEP-2107001. The actual services for the project varied somewhat from those described in the proposal because of the conditions that were encountered while performing the services and in consideration of the proposed project.

This report is strictly based on the project description given earlier in this report. Giles must be notified if any parts of the project description or our assumptions are not accurate so that this report can be amended, if needed. This report is based on the assumption that the facility will be designed and constructed according to the codes that govern construction at the site.

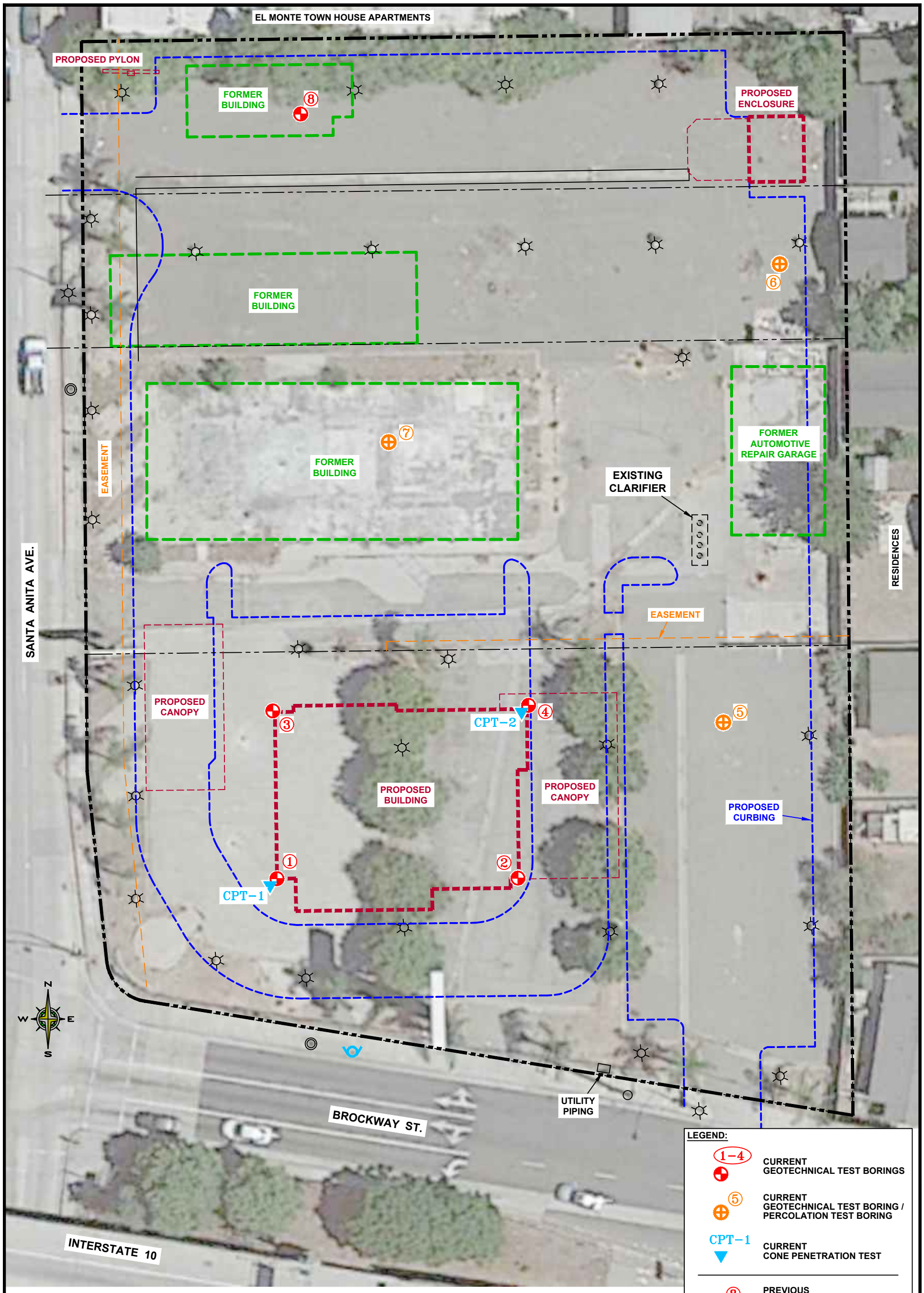
The conclusions and recommendations in this report are based on estimated subsurface conditions as shown on the *Records of Subsurface Exploration*. Giles must be notified if the subsurface conditions that are encountered during construction of the proposed development differ from those shown on the *Records of Subsurface Exploration* because this report will likely need to be revised. General comments and limitations of this report are given in the appendix.

APPENDIX A

FIGURES AND TEST BORING LOGS

The Test Boring Location Plan contained herein was prepared based upon information supplied by *Giles'* client, or others, along with *Giles'* field measurements and observations. The diagram is presented for conceptual purposes only and is intended to assist the reader in report interpretation.

The Test Boring Logs and related information enclosed herein depict the subsurface (soil and water) conditions encountered at the specific boring locations on the date that the exploration was performed. Subsurface conditions may differ between boring locations and within areas of the site that were not explored with test borings. The subsurface conditions may also change at the boring locations over the passage of time.



LEGEND:

- 1–4 — CURRENT GEOTECHNICAL TEST BORINGS
- 5 — CURRENT GEOTECHNICAL TEST BORING / PERCOLATION TEST BORING
- CPT–1 — CURRENT CONE PENETRATION TEST
- 8 — PREVIOUS GEOTECHNICAL TEST BORING (PROJECT NO. 2G-2010007)
- 6–7 — PREVIOUS GEOTECHNICAL TEST BORING / PERCOLATION TEST BORING (PROJECT NO. 2G-2010007)
- PROPERTY LINE
- ELECTRIC POLE
- LIGHT POLE
- MANHOLE
- FIRE HYDRANT

0 15' 30'

APPROXIMATE SCALE

NOTES:

1.) PROPOSED FEATURES ARE APPROXIMATE BASED ON THE "PRELIMINARY SITE PLAN", (SHEET PSP-22) REV. 10-19-2020, PREPARED BY CRHO ARCHITECTS.

2.) FORMER BUILDING FEATURES ARE APPROXIMATE BASED ON A 2003 AERIAL.

GILES ENGINEERING ASSOCIATES, INC.
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FIGURE 1
TEST BORING LOCATION PLAN
PROPOSED CHICK-FIL-A RESTAURANT NO. 04098
I-10 & SANTA ANITA FSU
NEC, SANTA ANITA AVENUE AND BROCKWAY STREET
EL MONTE, CALIFORNIA

DESIGNED	DRAWN	SCALE	DATE	REVISED
JLM	JLM	approx. 1"=30'	08-23-22	--
PROJECT NO.: 2G-2107004			CAD No. 2g2107004-blp	

BORING NO. & LOCATION: B-1	TEST BORING LOG	GILES ENGINEERING ASSOCIATES, INC.
SURFACE ELEVATION: 273 feet	PROPOSED CHICK-FIL-A RESTAURANT #4098	
COMPLETION DATE: 07/16/21	NEC SANTA ANITA AVENUE AND BROCKWAY STREET EL MONTE, CA	
FIELD REP: VICTOR GUADALUPE	PROJECT NO: 2G-2107004	

MATERIAL DESCRIPTION	Depth (ft)	Elevation	Sample No. & Type	N	Q_u (tsf)	Q_p (tsf)	Q_s (tsf)	W (%)	PID	NOTES
Approximately 12 inches of concrete										
Brown fine Sand, trace Silt - Moist (Fill)			1-SS	12				6		
		270								
Brown fine to medium Silty Sand, trace Gravel - Moist (Fill)			2-SS	5				7		
			3-SS	7				11		P_{200}=23%
	10									
Brown fine Sand with Silt - Moist			4-SS	8				10		
		260								
Light Brown fine Sandy Silt - Moist			5-SS	7				16		P_{200}=60%
	20		6-SS	12				16		
		250								
Brown fine Sand, trace Silt - Moist			7-SS	24				2		P_{200}=2%
	30									
Light Brown Silty fine Sand - Moist			8-SS	8				14		P_{200}=35%
		240								
Brown fine Sand, trace Silt - Damp			9-SS	45				3		P_{200}=8%
	40		10-SS	38				3		
		230								
			11-SS	44				2		P_{200}=4%
	50		12-SS	78				10		P_{200}=7%
Boring Terminated at about 51.5 feet (EL. 221.5')										

Water Observation Data	Remarks:
Water Encountered During Drilling: None	SS = Standard Penetration Test
Water Level At End of Drilling:	
Cave Depth At End of Drilling:	
Water Level After Drilling:	
Cave Depth After Drilling:	

Changes in strata indicated by the lines are approximate boundary between soil types. The actual transition may be gradual and may vary considerably between test borings. Location of test boring is shown on the Boring Location Plan.

GILES LOG REPORT 2G-2107004.GPJ GILES.GDT 8/19/22

BORING NO. & LOCATION: B-2	TEST BORING LOG	GILES ENGINEERING ASSOCIATES, INC.
SURFACE ELEVATION: 274 feet	PROPOSED CHICK-FIL-A RESTAURANT #4098	
COMPLETION DATE: 07/16/21	NEC SANTA ANITA AVENUE AND BROCKWAY STREET EL MONTE, CA	
FIELD REP: VICTOR GUADALUPE	PROJECT NO: 2G-2107004	

MATERIAL DESCRIPTION	Depth (ft)	Elevation	Sample No. & Type	N	Q_u (tsf)	Q_p (tsf)	Q_s (tsf)	W (%)	PID	NOTES
Approximately 3 inches of asphaltic concrete over 6 inches of aggregate base										
Light Brown fine Sand - Moist			1-SS	6				8		
		270	2-CS	18				1		Dd=98.7 pcf
	5									
Brown Silty fine Sand - Moist			3-CS	22				6		Dd=92.2 pcf
		265								
	10									
Brown Silty fine to medium Sand - Moist			4-SS	7				3		
		260								
	15									
			5-SS	16				7		
Boring Terminated at about 16.5 feet (EL. 257.5')										

Water Observation Data	Remarks:
Water Encountered During Drilling: None	CS = California Split Spoon
Water Level At End of Drilling:	SS = Standard Penetration Test
Cave Depth At End of Drilling:	
Water Level After Drilling:	
Cave Depth After Drilling:	

GILES LOG REPORT 2G-2107004.GPJ GILES.GDT 8/19/22

Changes in strata indicated by the lines are approximate boundary between soil types. The actual transition may be gradual and may vary considerably between test borings. Location of test boring is shown on the Boring Location Plan.

BORING NO. & LOCATION: B-3	TEST BORING LOG	GILES ENGINEERING ASSOCIATES, INC.
SURFACE ELEVATION: 273 feet	PROPOSED CHICK-FIL-A RESTAURANT #4098	
COMPLETION DATE: 07/16/21	NEC SANTA ANITA AVENUE AND BROCKWAY STREET EL MONTE, CA	
FIELD REP: VICTOR GUADALUPE	PROJECT NO: 2G-2107004	

MATERIAL DESCRIPTION	Depth (ft)	Elevation	Sample No. & Type	N	Q_u (tsf)	Q_p (tsf)	Q_s (tsf)	W (%)	PID	NOTES
Approximatly 12 inches of concrete										
Light Brown fine Sand, some Silt - Moist		270	1-SS	15				9		
	5		2-CS	13				3		Dd=94.2 pcf
			3-CS	17				7		Dd=91.7 pcf
		265								
Brown Silty fine Sand - Moist	10		4-SS	7				13		
		260								
Brown fine to medium Sand, some Silt - Moist	15		5-SS	14				12		
Boring Terminated at about 16.5 feet (EL. 256.5')										

Water Observation Data	Remarks:
Water Encountered During Drilling: None	CS = California Split Spoon
Water Level At End of Drilling:	SS = Standard Penetration Test
Cave Depth At End of Drilling:	
Water Level After Drilling:	
Cave Depth After Drilling:	

GILES LOG REPORT 2G-2107004.GPJ GILES.GDT 8/19/22

Changes in strata indicated by the lines are approximate boundary between soil types. The actual transition may be gradual and may vary considerably between test borings. Location of test boring is shown on the Boring Location Plan.

BORING NO. & LOCATION: B-4	TEST BORING LOG	GILES ENGINEERING ASSOCIATES, INC.
SURFACE ELEVATION: 275 feet	PROPOSED CHICK-FIL-A RESTAURANT #4098	
COMPLETION DATE: 07/16/21	NEC SANTA ANITA AVENUE AND BROCKWAY STREET EL MONTE, CA	
FIELD REP: VICTOR GUADALUPE	PROJECT NO: 2G-2107004	

MATERIAL DESCRIPTION	Depth (ft)	Elevation	Sample No. & Type	N	Q_u (tsf)	Q_p (tsf)	Q_s (tsf)	W (%)	PID	NOTES
Approximately 2 inches of asphaltic concrete over 4 inches of aggregate base										
Brown fine Sand, little Silt - Moist			1-SS	5				10		
			2-SS	5						
	5	270								
			3-SS	6				9		
	10	265	4-SS	8				11		
Brown Silty fine Sand - Moist	15	260	5-SS	14				13		
	20	255	6-SS	12				10		
Boring Terminated at about 21.5 feet (EL. 253.5')										

Water Observation Data	Remarks:
Water Encountered During Drilling: None	SS = Standard Penetration Test
Water Level At End of Drilling:	
Cave Depth At End of Drilling:	
Water Level After Drilling:	
Cave Depth After Drilling:	

GILES LOG REPORT 2G-2107004.GPJ GILES.GDT 8/19/22

Changes in strata indicated by the lines are approximate boundary between soil types. The actual transition may be gradual and may vary considerably between test borings. Location of test boring is shown on the Boring Location Plan.

BORING NO. & LOCATION: B-5/P-1	TEST BORING LOG	GILES ENGINEERING ASSOCIATES, INC.
SURFACE ELEVATION: 274 feet	PROPOSED CHICK-FIL-A RESTAURANT #4098	
COMPLETION DATE: 07/16/21	NEC SANTA ANITA AVENUE AND BROCKWAY STREET EL MONTE, CA	
FIELD REP: VICTOR GUADALUPE	PROJECT NO: 2G-2107004	

MATERIAL DESCRIPTION	Depth (ft)	Elevation	Sample No. & Type	N	Q_u (tsf)	Q_p (tsf)	Q_s (tsf)	W (%)	PID	NOTES
Approximately 3 inches of asphaltic concrete over 6 inches of aggregate base										
Brown Silty fine Sand - Moist		272.5	1-SS	7				6		
	2.5									
		270.0	2-SS	20				5		P_{200}=17%
Boring Terminated at about 5 feet (EL. 269')	5.0									

Water Observation Data	Remarks:
Water Encountered During Drilling: None	SS = Standard Penetration Test
Water Level At End of Drilling:	
Cave Depth At End of Drilling:	
Water Level After Drilling:	
Cave Depth After Drilling:	

GILES LOG REPORT 2G-2107004.GPJ GILES.GDT 8/19/22

Changes in strata indicated by the lines are approximate boundary between soil types. The actual transition may be gradual and may vary considerably between test borings. Location of test boring is shown on the Boring Location Plan.

BORING NO. & LOCATION: B-6/P-2	TEST BORING LOG	GILES ENGINEERING ASSOCIATES, INC.
SURFACE ELEVATION: 278 feet	PROPOSED CHICK-FIL-A RESTAURANT #4098	
COMPLETION DATE: 11/17/20	NEC SANTA ANITA AVENUE AND BROCKWAY STREET EL MONTE, CA	
FIELD REP: ROBERT TORRES	PROJECT NO: 2G-2107004	

MATERIAL DESCRIPTION	Depth (ft)	Elevation	Sample No. & Type	N	Q_u (tsf)	Q_p (tsf)	Q_s (tsf)	W (%)	PID	NOTES
Approximately 3 inches of asphaltic concrete over 6 inches of aggregate base		277.5								
Brown Silty fine Sand - Moist (Possible Fill)			1-SS	3				18		
	2.5	275.0								
			2-SS	6				7		
	5.0									
Boring Terminated at about 5 feet (EL. 273')										

Water Observation Data	Remarks:
Water Encountered During Drilling: None	SS = Standard Penetration Test
Water Level At End of Drilling:	
Cave Depth At End of Drilling:	
Water Level After Drilling:	
Cave Depth After Drilling:	

GILES LOG REPORT 2G-2107004.GPJ GILES.GDT 8/19/22

Changes in strata indicated by the lines are approximate boundary between soil types. The actual transition may be gradual and may vary considerably between test borings. Location of test boring is shown on the Boring Location Plan.

BORING NO. & LOCATION: B-7/P-3	TEST BORING LOG	GILES ENGINEERING ASSOCIATES, INC.
SURFACE ELEVATION: 277 feet	PROPOSED CHICK-FIL-A RESTAURANT #4098	
COMPLETION DATE: 11/17/20	NEC SANTA ANITA AVENUE AND BROCKWAY STREET EL MONTE, CA	
FIELD REP: ROBERT TORRES	PROJECT NO: 2G-2107004	

MATERIAL DESCRIPTION	Depth (ft)	Elevation	Sample No. & Type	N	Q_u (tsf)	Q_p (tsf)	Q_s (tsf)	W (%)	PID	NOTES
Approximately 4 inches of asphaltic concrete										
Brown Silty fine Sand - Damp										
		275.0	1-SS	12				9		
	2.5									
		272.5	2-SS	4				5		
	5.0									
Boring Terminated at about 5 feet (EL. 272')										

	Water Observation Data	Remarks:
▽	Water Encountered During Drilling: None	SS = Standard Penetration Test
▼	Water Level At End of Drilling:	
⋯	Cave Depth At End of Drilling:	
▼	Water Level After Drilling:	
▬	Cave Depth After Drilling:	

Changes in strata indicated by the lines are approximate boundary between soil types. The actual transition may be gradual and may vary considerably between test borings. Location of test boring is shown on the Boring Location Plan.

GILES LOG REPORT 2G-2107004.GPJ GILES.GDT 8/19/22

BORING NO. & LOCATION: B-8	TEST BORING LOG	GILES ENGINEERING ASSOCIATES, INC.
SURFACE ELEVATION: 277 feet	PROPOSED CHICK-FIL-A RESTAURANT #4098	
COMPLETION DATE: 11/17/20	NEC SANTA ANITA AVENUE AND BROCKWAY STREET EL MONTE, CA	
FIELD REP: ROBERT TORRES	PROJECT NO: 2G-2107004	

MATERIAL DESCRIPTION	Depth (ft)	Elevation	Sample No. & Type	N	Q_u (tsf)	Q_p (tsf)	Q_s (tsf)	W (%)	PID	NOTES
Approximately 3 inches of asphaltic concrete over 6 inches of aggregate base										
Brown Silty fine Sand - Damp		275	1-SS	8				7		
			2-CS	12				3		Dd=79.5 pcf
	5									
		270	3-CS	13				7		Dd=101.1 pcf
	10		4-SS	5				4		
		265								
	15									
Brown to Light Brown Silty fine Sand - Moist			5-SS	7				14		
Boring Terminated at about 16.5 feet (EL. 260.5')										

Water Observation Data	Remarks:
Water Encountered During Drilling: None	CS = California Split Spoon
Water Level At End of Drilling:	SS = Standard Penetration Test
Cave Depth At End of Drilling:	
Water Level After Drilling:	
Cave Depth After Drilling:	

GILES LOG REPORT 2G-2107004.GPJ GILES.GDT 8/19/22

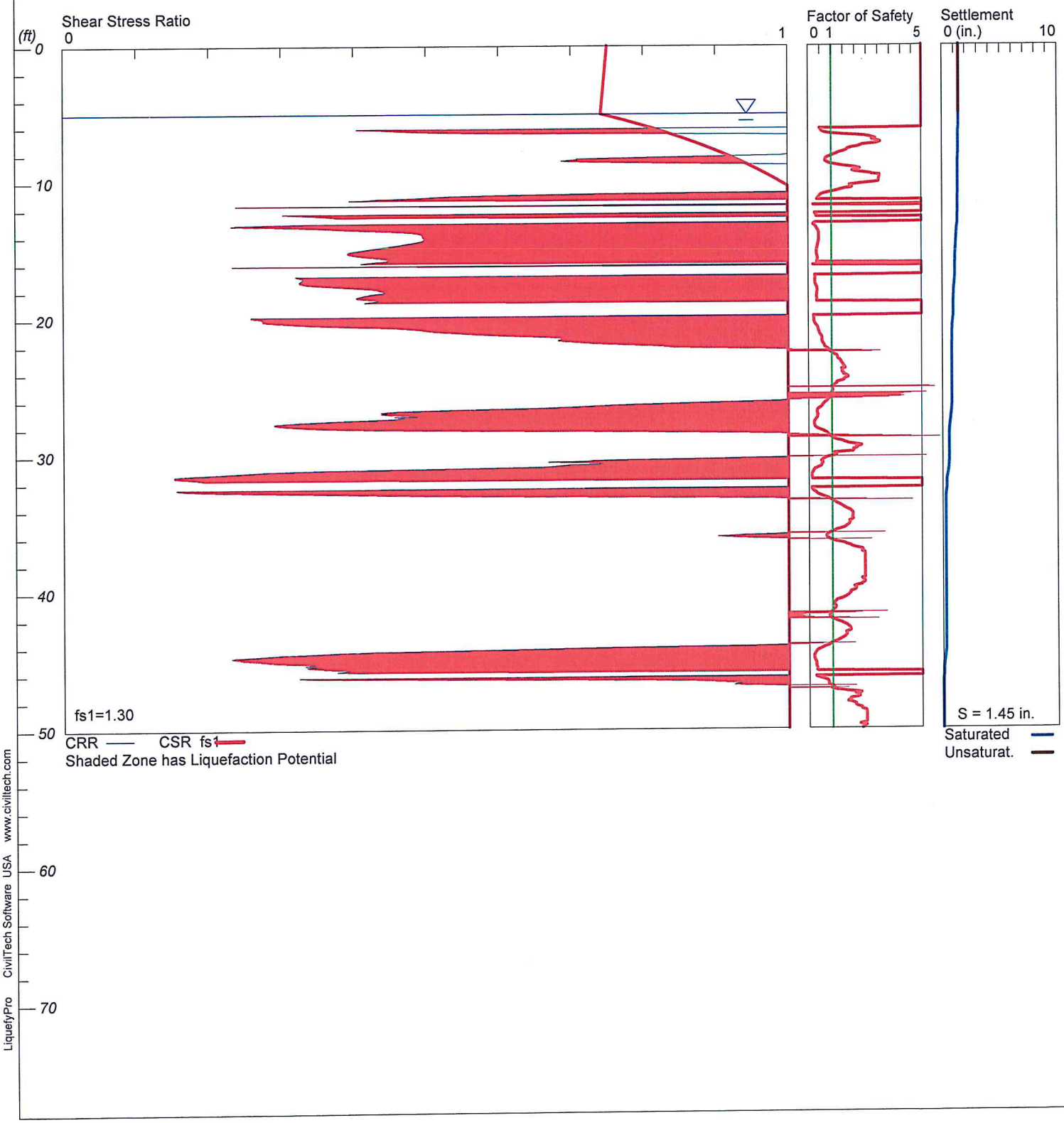
Changes in strata indicated by the lines are approximate boundary between soil types. The actual transition may be gradual and may vary considerably between test borings. Location of test boring is shown on the Boring Location Plan.

LIQUEFACTION ANALYSIS

El Monte CFA #4098

Hole No.=CPT-1 ***Water Depth=5 ft***

Magnitude=6.5
Acceleration=0.888g



El Monte CFA 4098 CPT-1 6 ft ox FS 1.3

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LIQUEFACTION ANALYSIS SUMMARY

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Input File Name: C:\Users\John Maier\Desktop\Liq Flies\El Monte CFA 4098 CPT-1 6 ft ox FS 1.3.liq
Title: El Monte CFA #4098
Subtitle:

Surface Elev.=
Hole No.=CPT-1
Depth of Hole= 50.00 ft
Water Table during Earthquake= 5.00 ft
Water Table during In-Situ Testing= 50.00 ft
Max. Acceleration= 0.89 g
Earthquake Magnitude= 6.50

Input Data:
Surface Elev.=
Hole No.=CPT-1
Depth of Hole=50.00 ft
Water Table during Earthquake= 5.00 ft
Water Table during In-Situ Testing= 50.00 ft
Max. Acceleration=0.89 g
Earthquake Magnitude=6.50
No-Liquefiable Soils: CL, OL are Non-Liq. Soil

1. CPT Calculation Method: Robertson et al.
2. Settlement Analysis Method: Tokimatsu, M-correction
3. Fines Correction for Liquefaction: Stark/Olson et al.*
4. Fine Correction for Settlement: During Liquefaction*
5. Settlement Calculation in: All zones*
9. User request factor of safety (apply to CSR) , User= 1.3
   Plot one CSR curve (fs1=User)
10. Use Curve Smoothing: Yes*
* Recommended Options

In-Situ Test Data:

El Monte CFA 4098 CPT-1 6 ft ox FS 1.3

Depth ft	qc atm	fs atm	Rf pcf	gamma %	Fines mm	D50
0.00	-0.10	0.30	-297.00	120.00	NoLiq	0.50
0.86	58.31	0.62	1.06	120.00	NoLiq	0.50
1.71	35.88	0.18	0.50	120.00	NoLiq	0.50
2.57	40.79	0.32	0.78	120.00	NoLiq	0.50
3.42	39.85	0.35	0.89	120.00	NoLiq	0.50
4.28	105.00	0.84	0.80	120.00	NoLiq	0.50
5.16	93.05	0.74	0.80	120.00	NoLiq	0.50
5.98	56.96	0.59	1.04	120.00	NoLiq	0.50
6.84	156.20	2.01	1.29	120.00	4.47	0.50
7.68	136.20	1.58	1.16	120.00	4.82	0.50
8.54	104.00	1.13	1.09	120.00	6.04	0.50
9.39	182.10	2.51	1.38	120.00	5.05	0.50
10.26	174.20	1.75	1.01	120.00	3.86	0.50
11.11	42.35	1.44	3.40	120.00	24.87	0.50
11.95	17.63	0.57	3.24	120.00	33.78	0.50
12.84	27.54	1.04	3.79	120.00	33.28	0.50
13.66	79.90	1.58	1.98	120.00	13.88	0.50
14.53	75.11	1.62	2.16	120.00	15.51	0.50
15.36	50.07	1.45	2.90	120.00	23.04	0.50
16.20	27.12	0.83	3.05	120.00	32.04	0.50
17.06	41.73	1.19	2.86	120.00	25.73	0.50
17.91	75.31	1.72	2.28	120.00	16.95	0.50
18.79	38.39	1.46	3.81	120.00	31.23	0.50
19.66	27.33	0.94	3.45	120.00	33.60	0.50
20.50	70.62	1.67	2.36	120.00	18.66	0.50
21.34	123.90	2.53	2.04	120.00	12.54	0.50
22.18	172.10	2.61	1.52	120.00	8.10	0.50
23.03	243.10	2.80	1.15	120.00	4.66	0.50
23.88	257.10	2.86	1.11	120.00	4.32	0.50
24.77	248.50	2.56	1.03	120.00	4.06	0.50
25.62	227.00	2.33	1.03	120.00	4.54	0.50
26.46	177.30	1.88	1.06	120.00	6.04	0.50
27.32	135.00	1.51	1.12	120.00	8.24	0.50
28.17	168.80	2.12	1.25	120.00	7.52	0.50
29.00	293.00	3.24	1.11	120.00	4.06	0.50
29.85	262.80	2.81	1.07	120.00	4.24	0.50
30.73	211.00	1.56	0.74	120.00	4.54	0.50
31.58	46.42	0.51	1.09	120.00	4.54	0.50
32.43	54.35	0.53	0.98	120.00	4.54	0.50
33.28	203.10	4.46	2.20	120.00	4.54	0.50
34.13	253.10	7.06	2.79	120.00	4.54	0.50
35.01	264.10	6.72	2.55	120.00	4.54	0.50
35.84	180.60	4.34	2.40	120.00	4.54	0.50
36.70	333.90	5.01	1.50	120.00	4.54	0.50
37.53	392.00	6.80	1.74	120.00	4.54	0.50

		El Monte	CFA 4098	CPT-1	6 ft ox	FS 1.3
38.39	435.50	7.20	1.65	120.00	4.54	0.50
39.24	377.90	6.21	1.64	120.00	4.54	0.50
40.10	336.90	5.52	1.64	120.00	4.54	0.50
40.96	277.70	4.20	1.51	120.00	4.54	0.50
41.81	260.40	3.78	1.45	120.00	4.54	0.50
42.65	353.40	5.16	1.46	120.00	4.54	0.50
43.51	308.70	5.09	1.65	120.00	4.54	0.50
44.35	180.90	1.66	0.92	120.00	4.54	0.50
45.21	136.10	2.27	1.67	120.00	4.54	0.50
46.08	71.25	2.31	3.24	120.00	4.54	0.50
46.91	252.70	5.35	2.12	120.00	4.54	0.50
47.77	417.10	4.94	1.18	120.00	4.54	0.50
48.62	426.00	5.92	1.39	120.00	4.54	0.50
49.48	471.80	5.39	1.14	120.00	4.54	0.50

Output Results:

Settlement of Saturated Sands=1.45 in.
Settlement of Unsaturated Sands=0.00 in.
Total Settlement of Saturated and Unsaturated Sands=1.45 in.
Differential Settlement=0.723 to 0.954 in.

Depth ft	CRRm	CSRfs	F.S.	S_sat. in.	S_dry in.	S_all in.
0.00	2.00	0.75	5.00	1.45	0.00	1.45
1.00	2.00	0.75	5.00	1.45	0.00	1.45
2.00	2.00	0.75	5.00	1.45	0.00	1.45
3.00	2.00	0.75	5.00	1.45	0.00	1.45
4.00	2.00	0.74	5.00	1.45	0.00	1.45
5.00	2.00	0.74	5.00	1.45	0.00	1.45
6.00	2.00	0.81	5.00	1.45	0.00	1.45
7.00	2.56	0.87	2.95	1.40	0.00	1.40
8.00	1.06	0.91	1.16	1.40	0.00	1.40
9.00	2.03	0.96	2.12	1.37	0.00	1.37
10.00	3.00	0.99	3.03	1.37	0.00	1.37
11.00	0.53	1.02	0.52*	1.36	0.00	1.36
12.00	2.00	1.05	5.00	1.35	0.00	1.35
13.00	0.33	1.07	0.31*	1.33	0.00	1.33
14.00	0.50	1.09	0.45*	1.22	0.00	1.22
15.00	0.40	1.11	0.36*	1.15	0.00	1.15
16.00	2.00	1.12	5.00	1.11	0.00	1.11
17.00	0.33	1.14	0.29*	1.09	0.00	1.09
18.00	0.44	1.15	0.39*	0.99	0.00	0.99
19.00	2.00	1.16	5.00	0.95	0.00	0.95
20.00	0.27	1.17	0.23*	0.92	0.00	0.92
21.00	0.55	1.18	0.46*	0.83	0.00	0.83
22.00	0.83	1.19	0.70*	0.81	0.00	0.81

		El Monte	CFA 4098	CPT-1	6 ft ox	FS 1.3
23.00	1.56	1.20	1.30	0.81	0.00	0.81
24.00	1.82	1.20	1.51	0.81	0.00	0.81
25.00	1.20	1.21	0.99*	0.81	0.00	0.81
26.00	0.99	1.22	0.82*	0.80	0.00	0.80
27.00	0.47	1.22	0.39*	0.72	0.00	0.72
28.00	0.40	1.22	0.33*	0.59	0.00	0.59
29.00	1.84	1.23	1.50	0.55	0.00	0.55
30.00	1.48	1.23	1.20	0.55	0.00	0.55
31.00	0.36	1.23	0.29*	0.50	0.00	0.50
32.00	2.00	1.22	5.00	0.34	0.00	0.34
33.00	0.69	1.22	0.57*	0.25	0.00	0.25
34.00	2.05	1.21	1.69	0.24	0.00	0.24
35.00	2.11	1.20	1.75	0.24	0.00	0.24
36.00	0.92	1.20	0.77*	0.24	0.00	0.24
37.00	2.77	1.19	2.33	0.24	0.00	0.24
38.00	2.84	1.18	2.40	0.24	0.00	0.24
39.00	2.82	1.18	2.40	0.24	0.00	0.24
40.00	2.13	1.17	1.82	0.24	0.00	0.24
41.00	1.27	1.16	1.10	0.24	0.00	0.24
42.00	1.12	1.15	0.98*	0.24	0.00	0.24
43.00	1.81	1.14	1.58	0.24	0.00	0.24
44.00	0.85	1.14	0.75*	0.24	0.00	0.24
45.00	0.27	1.13	0.24*	0.12	0.00	0.12
46.00	2.00	1.12	5.00	0.03	0.00	0.03
47.00	1.19	1.11	1.07	0.00	0.00	0.00
48.00	1.86	1.10	1.69	0.00	0.00	0.00
49.00	2.68	1.09	2.46	0.00	0.00	0.00
50.00	2.47	1.08	2.28	0.00	0.00	0.00

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* F.S.<1, Liquefaction Potential Zone
(F.S. is limited to 5, CRR is limited to 2, CSR is limited to 2)

Units: Unit: qc, fs, Stress or Pressure = atm (1.0581tsf); Unit Weight = pcf; Depth = ft; Settlement = in.

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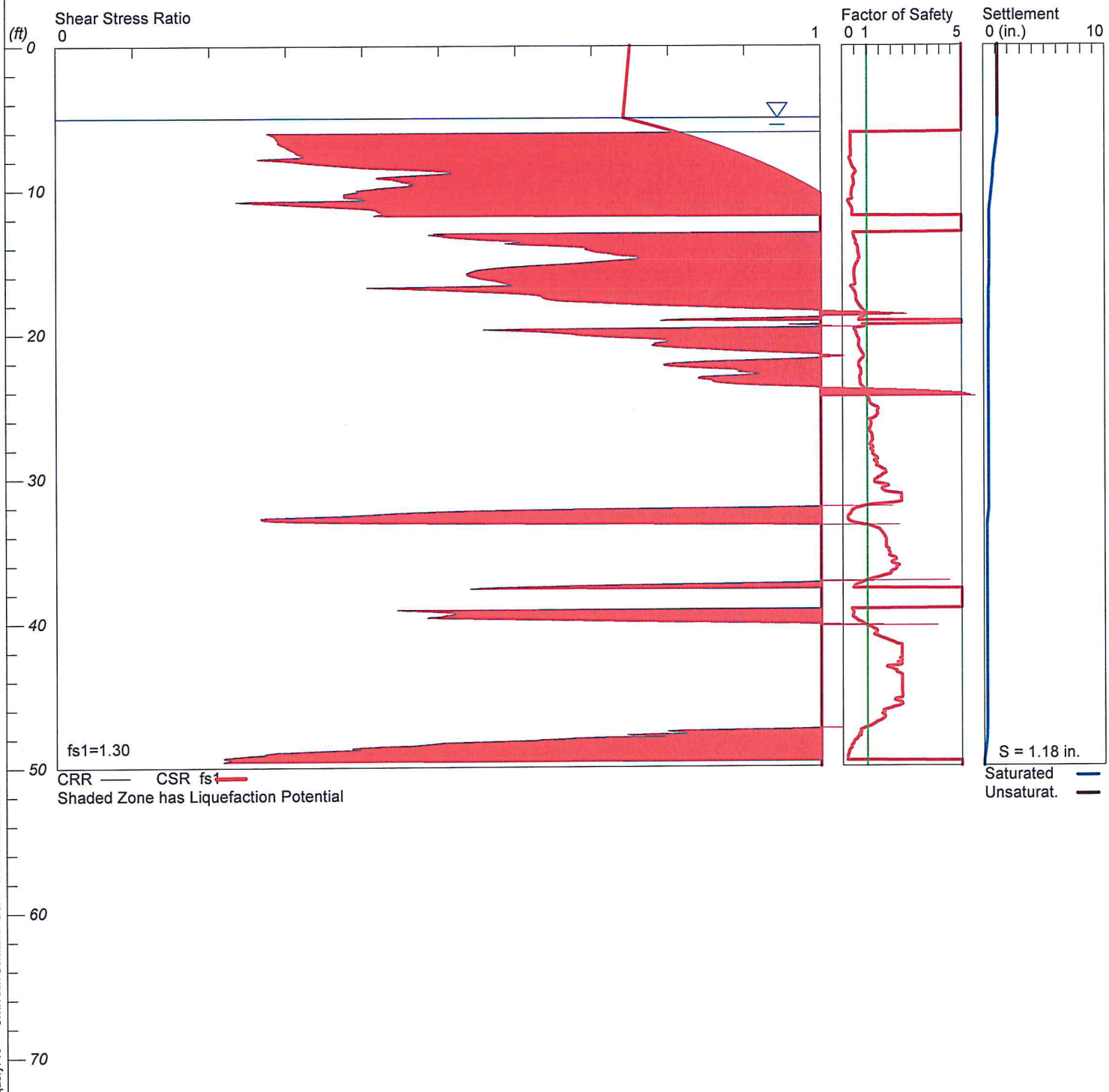
1 atm (atmosphere) = 1 tsf (ton/ft2)
CRRm Cyclic resistance ratio from soils
CSRsf Cyclic stress ratio induced by a given earthquake (with user request factor of safety)
F.S. Factor of Safety against liquefaction, F.S.=CRRm/CSRsf
S_sat Settlement from saturated sands
S_dry Settlement from Unsaturated Sands
S_all Total Settlement from Saturated and Unsaturated Sands
NoLiq No-Liquefy Soils

LIQUEFACTION ANALYSIS

El Monte CFA #4098

Hole No.=CPT-2 ***Water Depth=5 ft***

Magnitude=6.5
Acceleration=0.888g



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LIQUEFACTION ANALYSIS SUMMARY

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Input File Name: C:\Users\John Maier\Desktop\Liq Flies\El Monte CFA 4098 CPT-2 6 ft OX FS 1.3.liq
Title: El Monte CFA #4098
Subtitle:

Surface Elev.=
Hole No.=CPT-2
Depth of Hole= 50.00 ft
Water Table during Earthquake= 5.00 ft
Water Table during In-Situ Testing= 50.00 ft
Max. Acceleration= 0.89 g
Earthquake Magnitude= 6.50

Input Data:
Surface Elev.=
Hole No.=CPT-2
Depth of Hole=50.00 ft
Water Table during Earthquake= 5.00 ft
Water Table during In-Situ Testing= 50.00 ft
Max. Acceleration=0.89 g
Earthquake Magnitude=6.50
No-Liquefiable Soils: CL, OL are Non-Liq. Soil

1. CPT Calculation Method: Robertson et al.
2. Settlement Analysis Method: Tokimatsu, M-correction
3. Fines Correction for Liquefaction: Stark/Olson et al.*
4. Fine Correction for Settlement: During Liquefaction*
5. Settlement Calculation in: All zones*
9. User request factor of safety (apply to CSR) , User= 1.3
   Plot one CSR curve (fs1=User)
10. Use Curve Smoothing: Yes*
* Recommended Options

In-Situ Test Data:

	El Monte CFA 4098			CPT-2	6 ft OX	FS 1.3
Depth	qc	fs	Rf	gamma	Fines	D50
ft	atm	atm	pcf	%	mm	
0.00	0.00	1.03	100.00	120.00	NoLiq	0.50
0.74	105.50	1.90	1.81	120.00	NoLiq	0.50
1.45	50.76	1.20	2.37	120.00	NoLiq	0.50
2.18	24.81	0.40	1.61	120.00	NoLiq	0.50
2.89	22.83	0.31	1.34	120.00	NoLiq	0.50
3.63	40.44	0.36	0.89	120.00	NoLiq	0.50
4.36	65.88	0.67	1.02	120.00	NoLiq	0.50
5.06	34.71	0.71	2.04	120.00	NoLiq	0.50
5.80	37.94	0.57	1.49	120.00	NoLiq	0.50
6.53	42.42	0.65	1.54	120.00	5.84	0.50
7.24	51.28	0.70	1.36	120.00	3.25	0.50
7.95	64.52	0.49	0.75	120.00	4.36	0.50
8.67	51.28	1.34	2.61	120.00	6.41	0.50
9.39	82.14	0.96	1.17	120.00	5.05	0.50
10.10	70.46	1.05	1.49	120.00	6.44	0.50
10.84	61.81	0.57	0.92	120.00	9.40	0.50
11.55	45.55	1.31	2.88	120.00	32.48	0.50
12.28	19.91	0.76	3.82	120.00	31.38	0.50
13.00	33.67	1.38	4.08	120.00	29.42	0.50
13.71	64.94	1.92	2.96	120.00	14.16	0.50
14.43	58.69	2.26	3.84	120.00	15.27	0.50
15.18	68.90	2.17	3.15	120.00	20.39	0.50
15.89	70.46	1.93	2.74	120.00	29.30	0.50
16.61	79.85	2.15	2.70	120.00	34.34	0.50
17.33	86.62	2.30	2.65	120.00	20.35	0.50
18.07	95.59	2.81	2.94	120.00	19.17	0.50
18.77	89.54	3.52	3.93	120.00	31.23	0.50
19.49	109.90	3.44	3.13	120.00	93.30	0.50
20.21	76.61	2.68	3.50	120.00	15.17	0.50
20.93	88.29	2.99	3.39	120.00	18.78	0.50
21.66	95.59	3.65	3.82	120.00	10.53	0.50
22.40	117.10	3.21	2.74	120.00	7.77	0.50
23.13	126.90	3.21	2.53	120.00	4.35	0.50
23.82	175.00	3.27	1.87	120.00	4.69	0.50
24.57	215.60	3.05	1.41	120.00	4.14	0.50
25.29	250.60	3.60	1.44	120.00	4.50	0.50
25.99	234.40	2.85	1.22	120.00	5.38	0.50
26.71	197.60	4.15	2.10	120.00	6.53	0.50
27.47	227.30	3.96	1.74	120.00	9.45	0.50
28.16	250.30	3.28	1.31	120.00	7.52	0.50
28.87	278.70	2.82	1.01	120.00	4.08	0.50
29.59	302.20	4.02	1.33	120.00	2.96	0.50
30.32	289.10	2.98	1.03	120.00	4.54	0.50
31.04	337.00	1.86	0.55	120.00	4.54	0.50
31.77	358.80	1.96	0.55	120.00	4.54	0.50

		El Monte	CFA 4098	CPT-2	6 ft OX	FS 1.3
32.48	126.20	2.03	1.61	120.00	4.54	0.50
33.21	194.80	2.82	1.45	120.00	4.54	0.50
33.93	281.10	5.62	2.00	120.00	4.54	0.50
34.65	266.90	6.70	2.51	120.00	4.54	0.50
35.37	272.30	7.23	2.66	120.00	4.54	0.50
36.11	347.00	6.28	1.81	120.00	4.54	0.50
36.83	281.80	6.20	2.20	120.00	4.54	0.50
37.54	122.20	3.29	2.69	120.00	4.54	0.50
38.28	52.12	2.36	4.54	120.00	4.54	0.50
38.98	49.62	2.16	4.36	120.00	4.54	0.50
39.72	131.30	3.22	2.45	120.00	4.54	0.50
40.44	290.40	4.58	1.58	120.00	4.54	0.50
41.14	306.90	6.14	2.00	120.00	4.54	0.50
41.89	364.00	8.90	2.45	120.00	4.54	0.50
42.59	337.00	8.51	2.53	120.00	4.54	0.50
43.31	371.00	6.20	1.67	120.00	4.54	0.50
44.03	396.80	7.31	1.84	120.00	4.54	0.50
44.76	407.90	6.82	1.67	120.00	4.54	0.50
45.50	432.30	3.81	0.88	120.00	4.54	0.50
46.20	355.40	5.35	1.51	120.00	4.54	0.50
46.92	331.00	5.42	1.64	120.00	4.54	0.50
47.63	286.10	2.61	0.91	120.00	4.54	0.50
48.37	245.00	1.35	0.55	120.00	4.54	0.50
49.10	139.70	1.67	1.20	120.00	4.54	0.50
49.83	54.41	1.15	2.12	120.00	4.54	0.50

Output Results:

Settlement of Saturated Sands=1.18 in.
Settlement of Unsaturated Sands=0.00 in.
Total Settlement of Saturated and Unsaturated Sands=1.18 in.
Differential Settlement=0.588 to 0.777 in.

Depth ft	CRRm	CSRfs	F.S.	S_sat. in.	S_dry in.	S_all in.
0.00	2.00	0.75	5.00	1.18	0.00	1.18
1.00	2.00	0.75	5.00	1.18	0.00	1.18
2.00	2.00	0.75	5.00	1.18	0.00	1.18
3.00	2.00	0.75	5.00	1.18	0.00	1.18
4.00	2.00	0.74	5.00	1.18	0.00	1.18
5.00	2.00	0.74	5.00	1.18	0.00	1.18
6.00	2.00	0.81	5.00	1.18	0.00	1.18
7.00	0.30	0.87	0.35*	1.03	0.00	1.03
8.00	0.31	0.91	0.34*	0.88	0.00	0.88
9.00	0.45	0.96	0.47*	0.79	0.00	0.79
10.00	0.39	0.99	0.40*	0.67	0.00	0.67
11.00	0.30	1.02	0.30*	0.54	0.00	0.54

12.00	2.00	1.05	5.00	0.47	0.00	0.47
13.00	0.49	1.07	0.46*	0.47	0.00	0.47
14.00	0.69	1.09	0.63*	0.47	0.00	0.47
15.00	0.70	1.11	0.63*	0.47	0.00	0.47
16.00	0.54	1.12	0.48*	0.45	0.00	0.45
17.00	0.52	1.14	0.46*	0.42	0.00	0.42
18.00	0.77	1.15	0.66*	0.41	0.00	0.41
19.00	0.82	1.16	0.70*	0.41	0.00	0.41
20.00	0.67	1.17	0.57*	0.40	0.00	0.40
21.00	0.81	1.18	0.69*	0.40	0.00	0.40
22.00	0.83	1.19	0.70*	0.40	0.00	0.40
23.00	0.84	1.20	0.71*	0.40	0.00	0.40
24.00	1.14	1.20	0.95*	0.40	0.00	0.40
25.00	1.48	1.21	1.22	0.40	0.00	0.40
26.00	1.34	1.22	1.10	0.40	0.00	0.40
27.00	1.44	1.22	1.18	0.40	0.00	0.40
28.00	1.42	1.22	1.16	0.40	0.00	0.40
29.00	1.70	1.23	1.39	0.40	0.00	0.40
30.00	1.83	1.23	1.49	0.40	0.00	0.40
31.00	2.15	1.23	1.75	0.40	0.00	0.40
32.00	1.09	1.22	0.90*	0.40	0.00	0.40
33.00	0.32	1.22	0.26*	0.28	0.00	0.28
34.00	2.04	1.21	1.68	0.26	0.00	0.26
35.00	2.28	1.20	1.89	0.26	0.00	0.26
36.00	2.55	1.20	2.13	0.26	0.00	0.26
37.00	1.54	1.19	1.29	0.26	0.00	0.26
38.00	2.00	1.18	5.00	0.26	0.00	0.26
39.00	2.00	1.18	5.00	0.26	0.00	0.26
40.00	0.83	1.17	0.71*	0.25	0.00	0.25
41.00	1.67	1.16	1.44	0.25	0.00	0.25
42.00	2.78	1.15	2.41	0.25	0.00	0.25
43.00	2.74	1.14	2.40	0.25	0.00	0.25
44.00	2.75	1.14	2.42	0.25	0.00	0.25
45.00	2.74	1.13	2.43	0.25	0.00	0.25
46.00	2.25	1.12	2.01	0.25	0.00	0.25
47.00	1.51	1.11	1.36	0.25	0.00	0.25
48.00	0.68	1.10	0.62*	0.23	0.00	0.23
49.00	0.28	1.09	0.25*	0.10	0.00	0.10
50.00	2.00	1.08	5.00	0.00	0.00	0.00

* F.S.<1, Liquefaction Potential Zone
(F.S. is limited to 5, CRR is limited to 2, CSR is limited to 2)

Units: Unit: qc, fs, Stress or Pressure = atm (1.0581tsf); Unit Weight = pcf; Depth = ft; Settlement = in.

1 atm (atmosphere) = 1 tsf (ton/ft2)

CRRm	Cyclic resistance ratio from soils
CSRsf	Cyclic stress ratio induced by a given earthquake (with user request factor of safety)
F.S.	Factor of Safety against liquefaction, F.S.=CRRm/CSRsf
S_sat	Settlement from saturated sands
S_dry	Settlement from Unsaturated Sands
S_all	Total Settlement from Saturated and Unsaturated Sands
NoLiq	No-Liquefy Soils

SUMMARY

OF

CONE PENETRATION TEST DATA

Project:

CFA El Monte
Santa Anita Avenue & Brockway Street
El Monte, S.CA
August 9, 2022

Prepared for:

Mr. John Maier
Giles Engineering Associates, Inc.
1965 N. Main Street
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Office (714) 279-0817 / Fax (714) 279-9687

Prepared by:

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www.kehoetesting.com

TABLE OF CONTENTS

SUMMARY
OF
CONE PENETRATION TEST DATA

1. INTRODUCTION

This report presents the results of a Cone Penetration Test (CPT) program carried out for the CFA El Monte project located at Santa Anita Avenue & Brockway Street in El Monte, California. The work was performed by Kehoe Testing & Engineering (KTE) on August 9, 2022. The scope of work was performed as directed by Giles Engineering Associates, Inc. personnel.

2. SUMMARY OF FIELD WORK

The fieldwork consisted of performing CPT soundings at two locations to determine the soil lithology. A summary is provided in **TABLE 2.1**.

LOCATION	DEPTH OF CPT (ft)	COMMENTS/NOTES:
CPT-1	59	Refusal
CPT-2	59	Refusal

TABLE 2.1 - Summary of CPT Soundings

3. FIELD EQUIPMENT & PROCEDURES

The CPT soundings were carried out by **KTE** using an integrated electronic cone system manufactured by Vertek. The CPT soundings were performed in accordance with ASTM standards (D5778). The cone penetrometers were pushed using a 30-ton CPT rig. The cone used during the program was a 15 cm^2 cone with a cone net area ratio of 0.83. The following parameters were recorded at approximately 2.5 cm depth intervals:

- Cone Resistance (qc)
- Sleeve Friction (fs)
- Dynamic Pore Pressure (u)
- Inclination
- Penetration Speed
- Pore Pressure Dissipation (at selected depths)

The above parameters were recorded and viewed in real time using a laptop computer. Data is stored at the KTE office for up to 2 years for future analysis and reference. A complete set of baseline readings was taken prior to each sounding to determine temperature shifts and any zero load offsets. Monitoring base line readings ensures that the cone electronics are operating properly.

4. CONE PENETRATION TEST DATA & INTERPRETATION

The Cone Penetration Test data is presented in graphical form in the attached Appendix. These plots were generated using the CPeT-IT program. Penetration depths are referenced to ground surface. The soil behavior type on the CPT plots is derived from the attached CPT SBT plot (Robertson, "Interpretation of Cone Penetration Test…", 2009) and presents major soil lithologic changes. The stratigraphic interpretation is based on relationships between cone resistance (qc), sleeve friction (fs), and penetration pore pressure (u). The friction ratio (Rf), which is sleeve friction divided by cone resistance, is a calculated parameter that is used along with cone resistance to infer soil behavior type. Generally, cohesive soils (clays) have high friction ratios, low cone resistance and generate excess pore water pressures. Cohesionless soils (sands) have lower friction ratios, high cone bearing and generate little (or negative) excess pore water pressures.

The CPT data files have also been provided. These files can be imported in CPeT-IT (software by GeoLogismiki) and other programs to calculate various geotechnical parameters.

It should be noted that it is not always possible to clearly identify a soil type based on qc, fs and u. In these situations, experience, judgement and an assessment of the pore pressure data should be used to infer the soil behavior type.

If you have any questions regarding this information, please do not hesitate to call our office at (714) 901-7270.

Sincerely,

KEHOE TESTING & ENGINEERING

Steven P. Kehoe
President

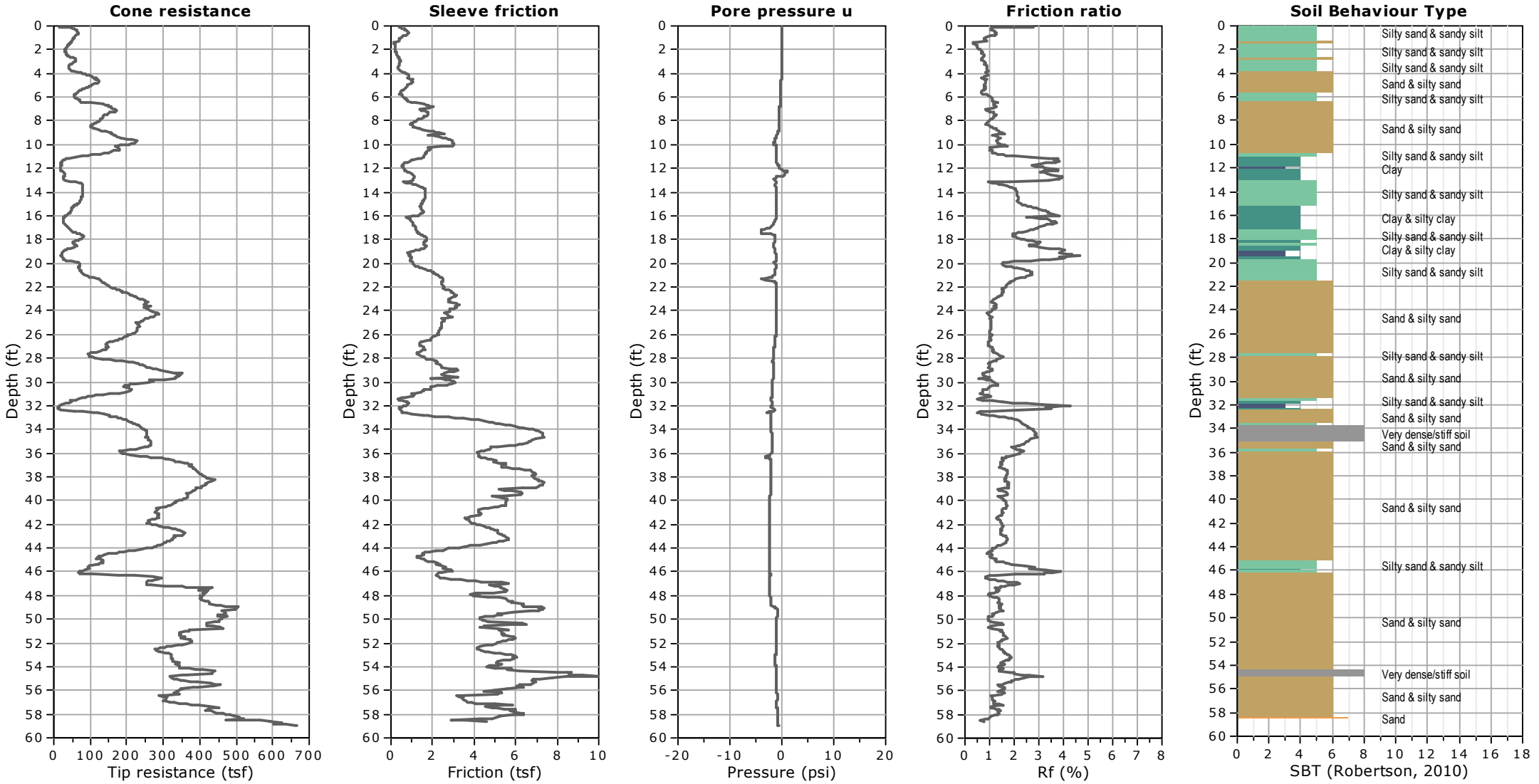
08/15/22-aa-4514

APPENDIX

Kehoe Testing and Engineering
714-901-7270
steve@kehoetesting.com
www.kehoetesting.com

Project: **Giles Engineering Associates / CFA El Monte**
Location: **Santa Anita Ave & Brockway St, El Monte, CA**

CPT-1
Total depth: 59.00 ft, Date: 8/9/2022



Kehoe Testing and Engineering
714-901-7270
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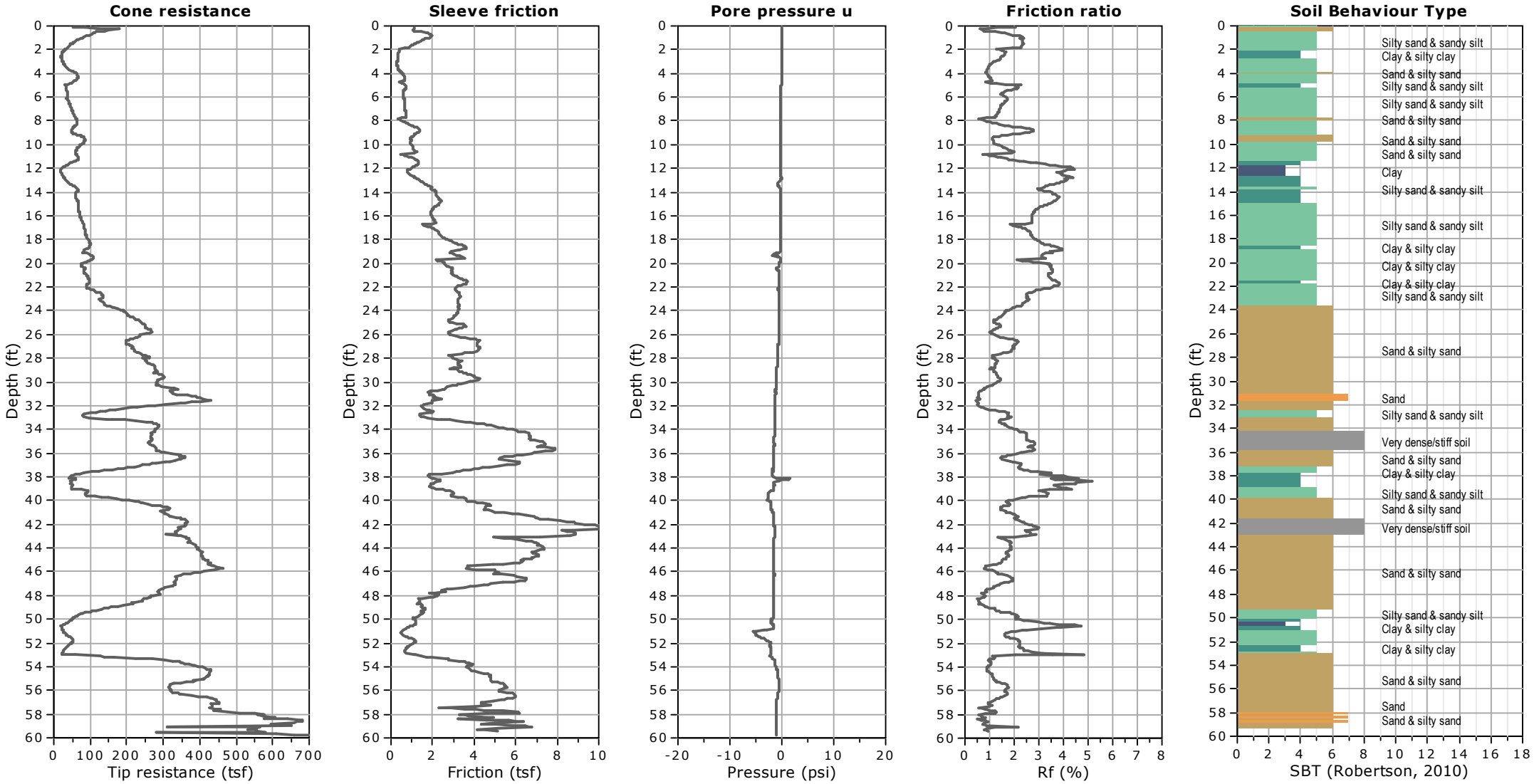
www.kehoetesting.com

Project: **Giles Engineering Associates / CFA El Monte**
Location: **Santa Anita Ave & Brockway St, El Monte, CA**

CPT-2
Total depth: 59.79 ft, Date: 8/9/2022



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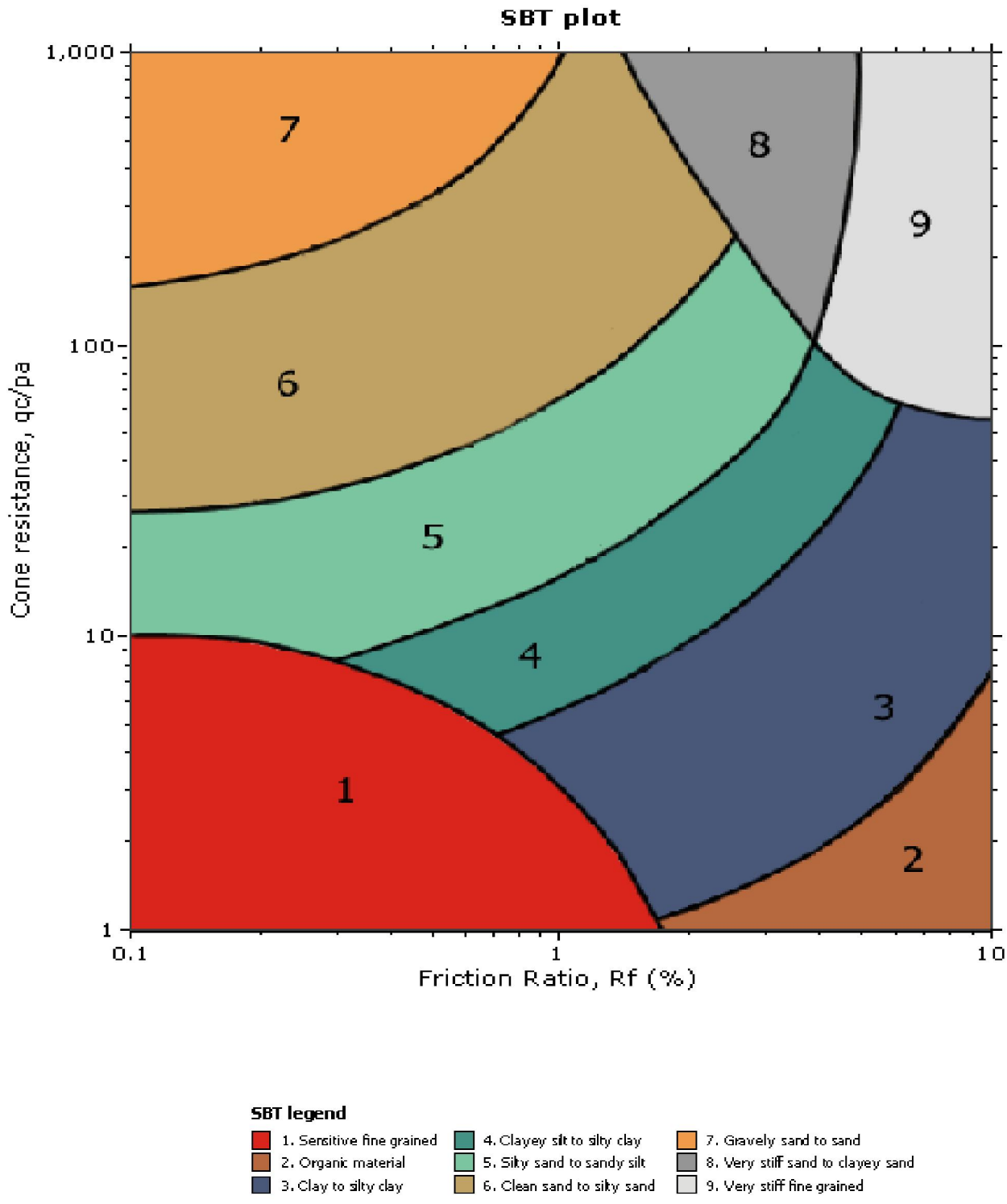
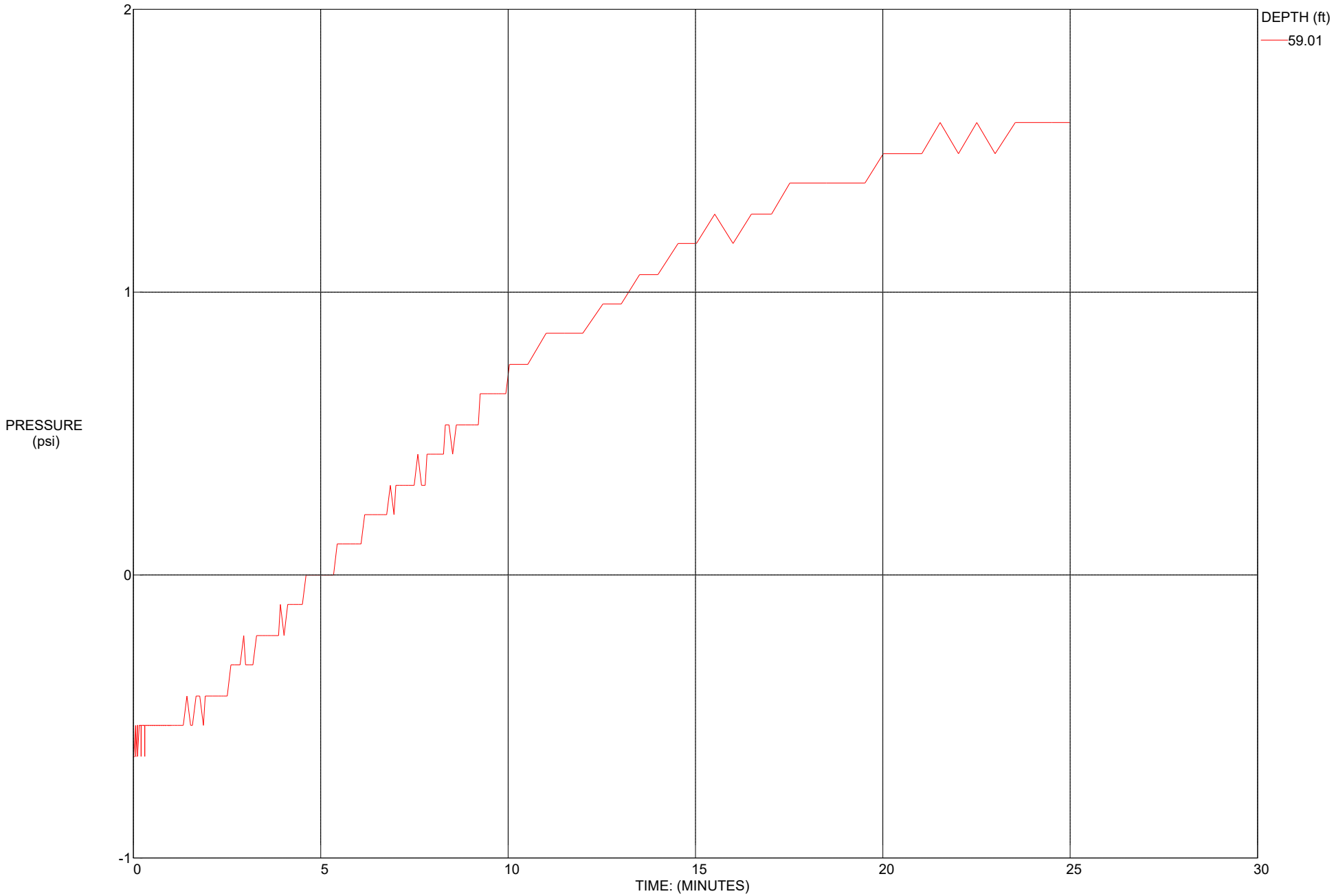


TEST ID: CPT-1



APPENDIX B

FIELD PROCEDURES

The field operations were conducted in general accordance with the procedures recommended by the American Society for Testing and Materials (ASTM) designation D

420 entitled “Standard Guide for Sampling Rock and Rock” and/or other relevant specifications. Soil samples were preserved and transported to *Giles'* laboratory in general accordance with the procedures recommended by ASTM designation D 4220 entitled “Standard Practice for Preserving and Transporting Soil Samples.” Brief descriptions of the sampling, testing and field procedures commonly performed by *Giles* are provided herein.

GENERAL FIELD PROCEDURES

Test Boring Elevations

The ground surface elevations reported on the Test Boring Logs are referenced to the assumed benchmark shown on the Boring Location Plan (Figure 1). Unless otherwise noted, the elevations were determined with a conventional hand-level and are accurate to within about 1 foot.

Test Boring Locations

The test borings were located on-site based on the existing site features and/or apparent property lines. Dimensions illustrating the approximate boring locations are reported on the Boring Location Plan (Figure 1).

Water Level Measurement

The water levels reported on the Test Boring Logs represent the depth of "free" water encountered during drilling and/or after the drilling tools were removed from the borehole. Water levels measured within a granular (sand and gravel) soil profile are typically indicative of the water table elevation. It is usually not possible to accurately identify the water table elevation with cohesive (clayey) soils, since the rate of seepage is slow. The water table elevation within cohesive soils must therefore be determined over a period of time with groundwater observation wells.

It must be recognized that the water table may fluctuate seasonally and during periods of heavy precipitation. Depending on the subsurface conditions, water may also become perched above the water table, especially during wet periods.

Borehole Backfilling Procedures

Each borehole was backfilled upon completion of the field operations. If potential contamination was encountered, and/or if required by state or local regulations, boreholes were backfilled with an "impervious" material (such as bentonite slurry). Borings that penetrated pavements, sidewalks, etc. were "capped" with Portland Cement concrete, asphaltic concrete, or a similar surface material. It must, however, be recognized that the backfill material may settle, and the surface cap may subside, over a period of time. Further backfilling and/or re-surfacing by *Giles'* client or the property owner may be required.

FIELD SAMPLING AND TESTING PROCEDURES

Auger Sampling (AU)

Soil samples are removed from the auger flights as an auger is withdrawn above the ground surface. Such samples are used to determine general soil types and identify approximate soil stratifications. Auger samples are highly disturbed and are therefore not typically used for geotechnical strength testing.

Split-Barrel Sampling (SS) – (ASTM D-1586)

A split-barrel sampler with a 2-inch outside diameter is driven into the subsoil with a 140-pound hammer free-falling a vertical distance of 30 inches. The summation of hammer-blows required to drive the sampler the final 12-inches of an 18-inch sample interval is defined as the "Standard Penetration Resistance" or N-value is an index of the relative density of granular soils and the comparative consistency of cohesive soils. A soil sample is collected from each SPT interval.

Shelby Tube Sampling (ST) – (ASTM D-1587)

A relatively undisturbed soil sample is collected by hydraulically advancing a thin-walled Shelby Tube sampler into a soil mass. Shelby Tubes have a sharp cutting edge and are commonly 2 to 5 inches in diameter.

Bulk Sample (BS)

A relatively large volume of soils is collected with a shovel or other manually-operated tool. The sample is typically transported to *Giles'* materials laboratory in a sealed bag or bucket.

Dynamic Cone Penetration Test (DC) – (ASTM STP 399)

This test is conducted by driving a 1.5-inch-diameter cone into the subsoil using a 15-pound steel ring (hammer), free-falling a vertical distance of 20 inches. The number of hammer-blows required to drive the cone 1¾ inches is an indication of the soil strength and density, and is defined as "N". The Dynamic Cone Penetration test is commonly conducted in hand auger borings, test pits and within excavated trenches.

- Continued -

Ring-Lined Barrel Sampling – (ASTM D 3550)

In this procedure, a ring-lined barrel sampler is used to collect soil samples for classification and laboratory testing. This method provides samples that fit directly into laboratory test instruments without additional handling/disturbance.

Sampling and Testing Procedures

The field testing and sampling operations were conducted in general accordance with the procedures recommended by the American Society for Testing and Materials (ASTM) and/or other relevant specifications. Results of the field testing (i.e. N-values) are reported on the Test Boring Logs. Explanations of the terms and symbols shown on the logs are provided on the appendix enclosure entitled “General Notes”.

APPENDIX C

LABORATORY TESTING AND CLASSIFICATION

The laboratory testing was conducted under the supervision of a geotechnical engineer in accordance with the procedures recommended by the American Society for Testing and Materials (ASTM) and/or other relevant specifications. Brief descriptions of laboratory tests commonly performed by *Giles* are provided herein.

LABORATORY TESTING AND CLASSIFICATION

Photoionization Detector (PID)

In this procedure, soil samples are "scanned" in *Giles'* analytical laboratory using a Photoionization Detector (PID). The instrument is equipped with an 11.7 eV lamp calibrated to a Benzene Standard and is capable of detecting a minute concentration of **certain** Volatile Organic Compound (VOC) vapors, such as those commonly associated with petroleum products and some solvents. Results of the PID analysis are expressed in HNu (manufacturer's) units rather than actual concentration.

Moisture Content (w) (ASTM D 2216)

Moisture content is defined as the ratio of the weight of water contained within a soil sample to the weight of the dry solids within the sample. Moisture content is expressed as a percentage.

Unconfined Compressive Strength (qu) (ASTM D 2166)

An axial load is applied at a uniform rate to a cylindrical soil sample. The unconfined compressive strength is the maximum stress obtained or the stress when 15% axial strain is reached, whichever occurs first.

Calibrated Penetrometer Resistance (qp)

The small, cylindrical tip of a hand-held penetrometer is pressed into a soil sample to a prescribed depth to measure the soils capacity to resist penetration. This test is used to evaluate unconfined compressive strength.

Vane-Shear Strength (qs)

The blades of a vane are inserted into the flat surface of a soil sample and the vane is rotated until failure occurs. The maximum shear resistance measured immediately prior to failure is taken as the vane-shear strength.

Loss-on-Ignition (ASTM D 2974; Method C)

The Loss-on-Ignition (L.O.I.) test is used to determine the organic content of a soil sample. The procedure is conducted by heating a dry soil sample to 440°C in order to burn-off or "ash" organic matter present within the sample. The L.O.I. value is the ratio of the weight loss due to ignition compared to the initial weight of the dry sample. L.O.I. is expressed as a percentage.

Particle Size Distribution (ASTB D 421, D 422, and D 1140)

This test is performed to determine the distribution of specific particle sizes (diameters) within a soil sample. The distribution of coarse-grained soil particles (sand and gravel) is determined from a “sieve analysis,” which is conducted by passing the sample through a series of nested sieves. The distribution of fine-grained soil particles (silt and clay) is determined from a “hydrometer analysis” which is based on the sedimentation of particles suspended in water.

Consolidation Test (ASTM D 2435)

In this procedure, a series of cumulative vertical loads are applied to a small, laterally confined soil sample. During each load increment, vertical compression (consolidation) of the sample is measured over a period of time. Results of this test are used to estimate settlement and time rate of settlement.

Classification of Samples

Each soil sample was visually-manually classified, based on texture and plasticity, in general accordance with the Unified Soil Classification System (ASTM D-2488-75). The classifications are reported on the Test Boring Logs.

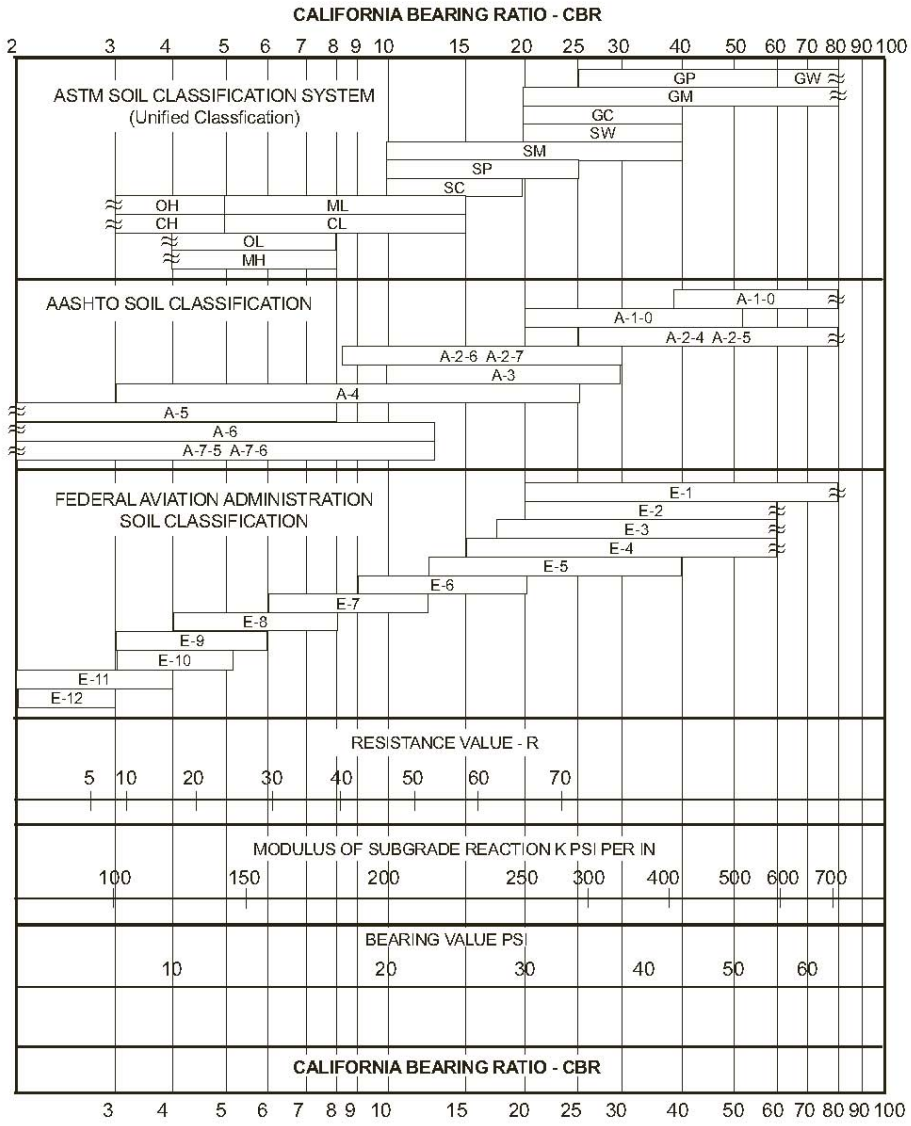
Laboratory Testing

The laboratory testing operations were conducted in general accordance with the procedures recommended by the American Society for Testing and Materials (ASTM) and/or other relevant specifications. Results of the laboratory tests are provided on the Test Boring Logs or other appendix enclosures. Explanation of the terms and symbols used on the logs is provided on the appendix enclosure entitled “General Notes.”

California Bearing Ratio (CBR) Test ASTM D-1833

The CBR test is used for evaluation of a soil subgrade for pavement design. The test consists of measuring the force required for a 3-square-inch cylindrical piston to penetrate 0.1 or 0.2 inch into a compacted soil sample. The result is expressed as a percent of force required to penetrate a standard compacted crushed stone.

Unless a CBR test has been specifically requested by the client, the CBR is estimated from published charts, based on soil classification and strength characteristics. A typical correlation chart is below.



APPENDIX D

GENERAL INFORMATION

GUIDE SPECIFICATIONS FOR SUBGRADE AND PREPARATION FOR FILL, FOUNDATION, FLOOR SLAB AND PAVEMENT SUPPORT; AND SELECTION, PLACEMENT AND COMPACTION OF FILL SOILS USING MODIFIED PROCTOR PROCEDURES

1. Construction monitoring and testing of subgrades and grades for fill, foundation, floor slab and pavement; and fill selection, placement and compaction shall be performed by an experienced soils engineer and/or his representatives.

2. All compacted fill, subgrades, and grades shall be (a) underlain by suitable bearing material, (b) free of all organic frozen, or other deleterious material, and (c) observed, tested and approved by qualified engineering personnel representing an experienced soils engineer. Preparation of subgrades after stripping vegetation, organic or other unsuitable materials shall consist of (a) proofrolling to detect soft, wet, yielding soils or other unstable materials that must be undercut, (b) scarifying top 6 to 8 inches, (c) moisture conditioning the soils as required, and (d) recompaction to same minimum in-situ density required for similar material indicated under Item 5. Note: Compaction requirements for pavement subgrade are higher than other areas. Weather and construction equipment may damage compacted fill surface and reworking and retesting may be necessary for proper performance.

3. In overexcavation and fill areas, the compacted fill must extend (a) a minimum 1 foot lateral distance beyond the exterior edge of the foundation at bearing grade or pavement at subgrade and down to compacted fill subgrade on a maximum 0.5(H):1(v) slope, (b) 1 foot above footing grade outside the building, and (c) to floor subgrade inside the building. Fill shall be placed and compacted on a 5(H):1(V) slope or must be stepped or benched as required to flatten if not specifically approved by qualified personnel under the direction of an experienced soils engineer.

4. The compacted fill materials shall be free of deleterious, organic, or frozen matter, shall contain no chemicals that may result in the material being classified as "contaminated", and shall be low-expansive with a maximum Liquid Limit (ASTM D-423) and Plasticity Index (ASTM D-424) of 30 and 15, respectively, unless specifically tested and found to have low expansive properties and approved by an experienced soils engineer. The top 12 inches of compacted fill should have a maximum 3 inch particle diameter and all underlying compacted fill a maximum 6 inch diameter unless specifically approved by an experienced soils engineer. All fill material must be tested and approved under the direction of an experienced soils engineer prior to placement. If the fill is to provide non-frost susceptible characteristics, it must be classified as a clean GW, GP, SW or SP per Unified Soils Classification System (ASTM D-2487).

5. For structural fill depths less than 20 feet, the density of the structural compacted fill and scarified subgrade and grades shall not be less than 90 percent of the maximum dry density as determined by Modified Proctor (ASTM D-1557) with the exception of the top 12 inches of pavement subgrade which shall have a minimum in-situ density of 95 percent of maximum dry density, or 5 percent higher than underlying structural fill materials. Where the structural fill depth is greater than 20 feet, the portion below 20 feet should have a minimum in-place density of 95 percent of its maximum dry density or 5 percent higher than the top 20 feet. Cohesive soils shall not vary by more than -1 to +3 percent moisture content and granular soil ±3 percent from the optimum when placed and compacted or recompacted, unless specifically recommended/approved by the soils engineer observing the placement and compaction. Cohesive soils with moderate to high expansion potentials (PI>15) should, however, be placed, compacted and maintained prior to construction at a 3±1 percent moisture content above optimum moisture content to limit future heave. Fill shall be placed in layers with a maximum loose thickness of 8 inches for foundations and 10 inches for floor slabs and pavements, unless specifically approved by the soils engineer taking into consideration the type of materials and compaction equipment being used. The compaction equipment should consist of suitable mechanical equipment specifically designed for soil compaction. Bulldozers or similar tracked vehicles are typically not suitable for compaction.

6. Excavation, filing, subgrade grade preparation shall be performed in a manner and sequence that will provide drainage at all times and proper control of erosion. Precipitation, springs, and seepage water encountered shall be pumped or drained to provide a suitable working platform. Springs or water seepage encountered during grade/foundation construction must be called to the soils engineer's attention immediately for possible construction procedure revision or inclusion of an underdrain system.

7. Non-structural fill adjacent to structural fill should typically be placed in unison to provide lateral support. Backfill along walls must be placed and compacted with care to ensure excessive unbalanced lateral pressures do not develop. The type of fill material placed adjacent to below grade walls (i.e. basement walls and retaining walls) must be properly tested and approved by an experienced soils engineer with consideration for the lateral pressure used in the wall design.

8. Wherever, in the opinion of the soils engineer or the Owner's Representatives, an unstable condition is being created either by cutting or filling, the work should not proceed into that area until an appropriate geotechnical exploration and analysis has been performed and the grading plan revised, if found necessary.

GENERAL COMMENTS

The soil samples obtained during the subsurface exploration will be retained for a period of thirty days. If no instructions are received, they will be disposed of at that time.

This report has been prepared exclusively for the client in order to aid in the evaluation of this property and to assist the architects and engineers in the design and preparation of the project plans and specifications. Copies of this report may be provided to contractor(s), with contract documents, to disclose information relative to this project. The report, however, has not been prepared to serve as the plans and specifications for actual construction without the appropriate interpretation by the project architect, structural engineer, and/or civil engineer. Reproduction and distribution of this report must be authorized by the client and *Giles*.

This report has been based on assumed conditions/characteristics of the proposed development where specific information was not available. It is recommended that the architect, civil engineer and structural engineer along with any other design professionals involved in this project carefully review these assumptions to ensure they are consistent with the actual planned development. When discrepancies exist, they should be brought to our attention to ensure they do not affect the conclusions and recommendations provided herein. The project plans and specifications may also be submitted to *Giles* for review to ensure that the geotechnical related conclusions and recommendations provided herein have been correctly interpreted.

The analysis of this site was based on a subsoil profile interpolated from a limited subsurface exploration. If the actual conditions encountered during construction vary from those indicated by the borings, *Giles* must be contacted immediately to determine if the conditions alter the recommendations contained herein.

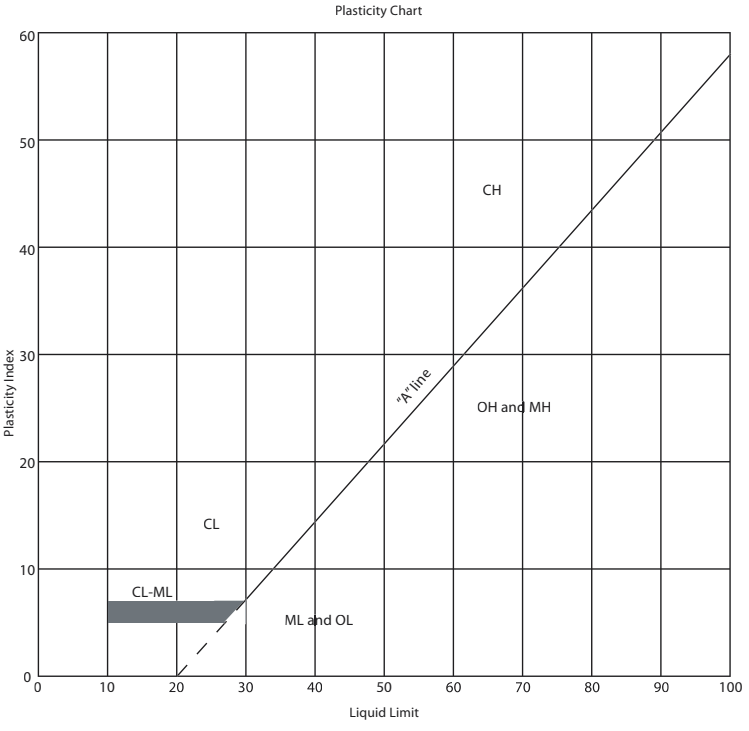
The conclusions and recommendations presented in this report have been promulgated in accordance with generally accepted professional engineering practices in the field of geotechnical engineering. No other warranty is either expressed or implied.

CHARACTERISTICS AND RATINGS OF UNIFIED SOIL SYSTEM CLASSES FOR SOIL CONSTRUCTION *									
Class	**Compaction Characteristics**	**Max. Dry Density Standard Proctor (pcf)**	**Compressibility and Expansion**	**Drainage and Permeability**	**Value as an Embankment Material**	**Value as Subgrade When Not Subject to Frost**	**Value as Base Course**	**Value as Temporary Pavement**	
								With Dust Palliative	**With Bituminous Treatment**
GW	Good: tractor, rubber-tired, steel wheel or vibratory roller	125-135	Almost none	Good drainage, pervious	Very stable	Excellent	Good	Fair to poor	Excellent
GP	Good: tractor, rubber-tired, steel wheel or vibratory roller	115-125	Almost none	Good drainage, pervious	Reasonably stable	Excellent to good	Poor to fair	Poor	
GM	Good: rubber-tired or light sheepsfoot roller	120-135	Slight	Poor drainage, semipervious	Reasonably stable	Excellent to good	Fair to poor	Poor	Poor to fair
GC	Good to fair: rubber-tired or sheepsfoot roller	115-130	Slight	Poor drainage, impervious	Reasonably stable	Good	Good to fair **	Excellent	Excellent
SW	Good: tractor, rubber-tired or vibratory roller	110-130	Almost none	Good drainage, pervious	Very stable	Good	Fair to poor	Fair to poor	Good
SP	Good: tractor, rubber-tired or vibratory roller	100-120	Almost none	Good drainage, pervious	Reasonably stable when dense	Good to fair	Poor	Poor	Poor to fair
SM	Good: rubber-tired or sheepsfoot roller	110-125	Slight	Poor drainage, impervious	Reasonably stable when dense	Good to fair	Poor	Poor	Poor to fair
SC	Good to fair: rubber-tired or sheepsfoot roller	105-125	Slight to medium	Poor drainage, impervious	Reasonably stable	Good to fair	Fair to poor	Excellent	Excellent
ML	Good to poor: rubber-tired or sheepsfoot roller	95-120	Slight to medium	Poor drainage, impervious	Poor stability, high density required	Fair to poor	Not suitable	Poor	Poor
CL	Good to fair: sheepsfoot or rubber-tired roller	95-120	Medium	No drainage, impervious	Good stability	Fair to poor	Not suitable	Poor	Poor
OL	Fair to poor: sheepsfoot or rubber-tired roller	80-100	Medium to high	Poor drainage, impervious	Unstable, should not be used	Poor	Not suitable	Not suitable	Not suitable
MH	Fair to poor: sheepsfoot or rubber-tired roller	70-95	High	Poor drainage, impervious	Poor stability, should not be used	Poor	Not suitable	Very poor	Not suitable
CH	Fair to poor: sheepsfoot roller	80-105	Very high	No drainage, impervious	Fair stability, may soften on expansion	Poor to very poor	Not suitable	Very poor	Not suitable
OH	Fair to poor: sheepsfoot roller	65-100	High	No drainage, impervious	Unstable, should not be used	Very poor	Not suitable	Not suitable	Not suitable
Pt	Not suitable		Very high	Fair to poor drainage	Should not be used	Not suitable	Not suitable	Not suitable	Not suitable

* "The Unified Classification: Appendix A - Characteristics of Soil, Groups Pertaining to Roads and Airfields, and Appendix B - Characteristics of Soil Groups Pertaining to Embankments and Foundations," Technical Memorandum 357, U.S. Waterways Ixperiment Station, Vicksburg, 1953.

** Not suitable if subject to frost.

UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D-2487)

Major Divisions			Group Symbols	Typical Names	Laboratory Classification Criteria	
Coarse-grained soils (more than half of material is larger than No. 200 sieve size)	Gravels (More than half of coarse fraction is larger than No. 4 sieve size)	Clean gravels (little or no fines)	GW	Well-graded gravels, gravel-sand mixtures, little or no fines	Determine percentages of sand and gravel from grain-size curve. Depending on percentage of fines (fraction smaller than No. 200 sieve size), coarse-grained soils are classified as follows: Less than 5 percent: GW, GP, SW, SP. More than 12 percent: GM, GC, SM, SC. 5 to 12 percent: *Borderline* cases requiring dual symbols[b]	$C_u = \frac{D_{60}}{D_{10}}$ greater than 4; $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3
			GP	Poorly graded gravels, gravel-sand mixtrues, little or no fines		Not meeting all gradation requirements for GW
		Gravels with fines (appreciable amount of fines)	GM[a] d	Silty gravels, gravel-sand-silt mixtures	Atterberg limits below "A" line or P.I. less than 4	Limits plotting within shaded area, above "A" line with P.I. between 4 and 7 are *borderline* cases requiring use of dual symbols
			GM[a] u			
			GC	Clayey gravels, gravel-sand-clay mixtures	Atterberg limits above "A" line or P.I. greater than 7	
	Sands (More than half of coarse fraction is smaller than No. 4 sieve size)	Clean sands (Little or no fines)	SW	Well-graded sands, gravelly sands, little or no fines	$C_u = \frac{D_{60}}{D_{10}}$ greater than 4; $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3	
			SP	Poorly graded sands, gravelly sands, little or no fines		Not meeting all gradation requirements for SW
		Sands with fines (Appreciable amount of fines)	SM[a] d	Silty sands, sand-silt mixtures	Atterberg limits below "A" line or P.I. less than 4	Limits plotting within shaded area, above "A" line with P.I. between 4 and 7 are *borderline* cases requiring use of dual symbols
			SM[a] u			
			SC	Clayey sands, sand-clay mixtures	Atterberg limits above "A" line or P.I. greater than 7	
Fine-grained soils (More than half material is smaller than No. 200 sieve size)	Silts and clays (Liquid limit less than 50)		ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands, or clayey silts with slight plasticity		
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays		
			OL	Organic silts and organic silty clays of low plasticity		
	Silts and clays (Liquid limit greater than 50)		MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts		
			CH	Inorganic clays of high plasticity, fat clays		
			OH	Organic clays of medium to high plasticity, organic silts		
	Highly organic soils		Pt	Peat and other highly organic soils		

[a] Division of GM and SM groups into subdivisions of d and u are for roads and airfields only. Subdivision is based on Atterberg limits, suffix d used when L.L. is 28 or less and the P.I. is 6 or less; the suffix u is used when L.L. is greater than 28.

[b] Borderline classifications, used for soils possessing characteristics of two groups, are designated by combinations of group sympols. For example GW-GC, well-graded gravel-sand mixture with clay binder.

GENERAL NOTES

SAMPLE IDENTIFICATION

All samples are visually classified in general accordance with the Unified Soil Classification System (ASTM D-2487-75 or D-2488-75)

DESCRIPTIVE TERM (% BY DRY WEIGHT)

Trace:	1-10%
Little:	11-20%
Some:	21-35%
And/Adjective	36-50%

PARTICLE SIZE (DIAMETER)

Boulders:	8 inch and larger
Cobbles:	3 inch to 8 inch
Gravel:	coarse - ¾ to 3 inch
	fine – No. 4 (4.76 mm) to ¾ inch
Sand:	coarse – No. 4 (4.76 mm) to No. 10 (2.0 mm)
	medium – No. 10 (2.0 mm) to No. 40 (0.42 mm)
	fine – No. 40 (0.42 mm) to No. 200 (0.074 mm)
Silt:	No. 200 (0.074 mm) and smaller (non-plastic)
Clay:	No 200 (0.074 mm) and smaller (plastic)

SOIL PROPERTY SYMBOLS

Dd:	Dry Density (pcf)
LL:	Liquid Limit, percent
PL:	Plastic Limit, percent
PI:	Plasticity Index (LL-PL)
LOI:	Loss on Ignition, percent
Gs:	Specific Gravity
K:	Coefficient of Permeability
w:	Moisture content, percent
qp:	Calibrated Penetrometer Resistance, tsf
qs:	Vane-Shear Strength, tsf
qu:	Unconfined Compressive Strength, tsf
qc:	Static Cone Penetrometer Resistance (correlated to Unconfined Compressive Strength, tsf)
PID:	Results of vapor analysis conducted on representative samples utilizing a Photoionization Detector calibrated to a benzene standard. Results expressed in HNU-Units. (BDL=Below Detection Limit)

DRILLING AND SAMPLING SYMBOLS

SS:	Split-Spoon
ST:	Shelby Tube – 3 inch O.D. (except where noted)
CS:	3 inch O.D. California Ring Sampler
DC:	Dynamic Cone Penetrometer per ASTM Special Technical Publication No. 399
AU:	Auger Sample
DB:	Diamond Bit
CB:	Carbide Bit
WS:	Wash Sample
RB:	Rock-Roller Bit
BS:	Bulk Sample
Note:	Depth intervals for sampling shown on Record of Subsurface Exploration are not indicative of sample recovery, but position where sampling initiated

N: Penetration Resistance per 12 inch interval, or fraction thereof, for a standard 2 inch O.D. (1⅜ inch I.D.) split spoon sampler driven with a 140 pound weight free-falling 30 inches. Performed in general accordance with Standard Penetration Test Specifications (ASTM D-1586). N in blows per foot equals sum of N-Values where plus sign (+) is shown.

Nc: Penetration Resistance per 1¾ inches of Dynamic Cone Penetrometer. Approximately equivalent to Standard Penetration Test N-Value in blows per foot.

Nr: Penetration Resistance per 12 inch interval, or fraction thereof, for California Ring Sampler driven with a 140 pound weight free-falling 30 inches per ASTM D-3550. Not equivalent to Standard Penetration Test N-Value.

SOIL STRENGTH CHARACTERISTICS

COHESIVE (CLAYEY) SOILS

COMPARATIVE CONSISTENCY	BLOWS PER FOOT (N)	UNCONFINED COMPRESSIVE STRENGTH (TSF)
Very Soft	0 - 2	0 - 0.25
Soft	3 - 4	0.25 - 0.50
Medium Stiff	5 – 8	0.50 - 1.00
Stiff	9 – 15	1.00 - 2.00
Very Stiff	16 – 30	2.00 - 4.00
Hard	31+	4.00+

NON-COHESIVE (GRANULAR) SOILS

RELATIVE DENSITY	BLOWS PER FOOT (N)
Very Loose	0 - 4
Loose	5 - 10
Firm	11 - 30
Dense	31 - 50
Very Dense	51+

DEGREE OF PLASTICITY	PI
None to Slight	0 - 4
Slight	5 - 10
Medium	11 - 30
High to Very High	31+

DEGREE OF EXPANSIVE POTENTIAL	PI
Low	0 - 15
Medium	15 - 25
High	25+

Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

The Geoprofessional Business Association (GBA) has prepared this advisory to help you – assumedly a client representative – interpret and apply this geotechnical-engineering report as effectively as possible. In that way, you can benefit from a lowered exposure to problems associated with subsurface conditions at project sites and development of them that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed herein, contact your GBA-member geotechnical engineer. Active engagement in GBA exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.

Understand the Geotechnical-Engineering Services Provided for this Report

Geotechnical-engineering services typically include the planning, collection, interpretation, and analysis of exploratory data from widely spaced borings and/or test pits. Field data are combined with results from laboratory tests of soil and rock samples obtained from field exploration (if applicable), observations made during site reconnaissance, and historical information to form one or more models of the expected subsurface conditions beneath the site. Local geology and alterations of the site surface and subsurface by previous and proposed construction are also important considerations. Geotechnical engineers apply their engineering training, experience, and judgment to adapt the requirements of the prospective project to the subsurface model(s). Estimates are made of the subsurface conditions that will likely be exposed during construction as well as the expected performance of foundations and other structures being planned and/or affected by construction activities.

The culmination of these geotechnical-engineering services is typically a geotechnical-engineering report providing the data obtained, a discussion of the subsurface model(s), the engineering and geologic engineering assessments and analyses made, and the recommendations developed to satisfy the given requirements of the project. These reports may be titled investigations, explorations, studies, assessments, or evaluations. Regardless of the title used, the geotechnical-engineering report is an engineering interpretation of the subsurface conditions within the context of the project and does not represent a close examination, systematic inquiry, or thorough investigation of all site and subsurface conditions.

Geotechnical-Engineering Services are Performed for Specific Purposes, Persons, and Projects, and At Specific Times

Geotechnical engineers structure their services to meet the specific needs, goals, and risk management preferences of their clients. A geotechnical-engineering study conducted for a given civil engineer will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client.

Likewise, geotechnical-engineering services are performed for a specific project and purpose. For example, it is unlikely that a geotechnical-engineering study for a refrigerated warehouse will be the same as one prepared for a parking garage; and a few borings drilled during a preliminary study to evaluate site feasibility will not be adequate to develop geotechnical design recommendations for the project.

Do not rely on this report if your geotechnical engineer prepared it:

- for a different client;
- for a different project or purpose;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, the reliability of a geotechnical-engineering report can be affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. *If you are the least bit uncertain* about the continued reliability of this report, contact your geotechnical engineer before applying the recommendations in it. A minor amount of additional testing or analysis after the passage of time – if any is required at all – could prevent major problems.

Read this Report in Full

Costly problems have occurred because those relying on a geotechnical-engineering report did not read the report in its entirety. Do not rely on an executive summary. Do not read selective elements only. *Read and refer to the report in full.*

You Need to Inform Your Geotechnical Engineer About Change

Your geotechnical engineer considered unique, project-specific factors when developing the scope of study behind this report and developing the confirmation-dependent recommendations the report conveys. Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the elevation, configuration, location, orientation, function or weight of the proposed structure and the desired performance criteria;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project or site changes – even minor ones – and request an assessment of their impact. *The geotechnical engineer who prepared this report cannot accept*

responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.

Most of the "Findings" Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site's subsurface using various sampling and testing procedures. *Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing is performed.* The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgement to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team through project completion to obtain informed guidance quickly, whenever needed.

This Report's Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, they are not final, because the geotechnical engineer who developed them relied heavily on judgement and opinion to do so. Your geotechnical engineer can finalize the recommendations *only after observing actual subsurface conditions* exposed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. *The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.*

This Report Could Be Misinterpreted

Other design professionals' misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a continuing member of the design team, to:

- confer with other design-team members;
- help develop specifications;
- review pertinent elements of other design professionals' plans and specifications; and
- be available whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction-phase observations.

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, *but be certain to note conspicuously that you've included the material for information purposes only.* To avoid misunderstanding, you may also want to note that "informational purposes" means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, *only* from the design drawings and specifications. Remind constructors that they may perform their own studies if they want to, and *be sure to allow enough time* to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. This happens in part because soil and rock on project sites are typically heterogeneous and not manufactured materials with well-defined engineering properties like steel and concrete. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a "phase-one" or "phase-two" environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually provide environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated subsurface environmental problems have led to project failures.* If you have not obtained your own environmental information about the project site, ask your geotechnical consultant for a recommendation on how to find environmental risk-management guidance.

Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, the engineer's services were not designed, conducted, or intended to prevent migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, ***proper implementation of the geotechnical engineer's recommendations will not of itself be sufficient to prevent moisture infiltration. Confront the risk of moisture infiltration*** by including building-envelope or mold specialists on the design team. ***Geotechnical engineers are not building-envelope or mold specialists.***

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IV. Peak Stormwater Runoff Discharge HydroCalc

Peak Flow Hydrologic Analysis

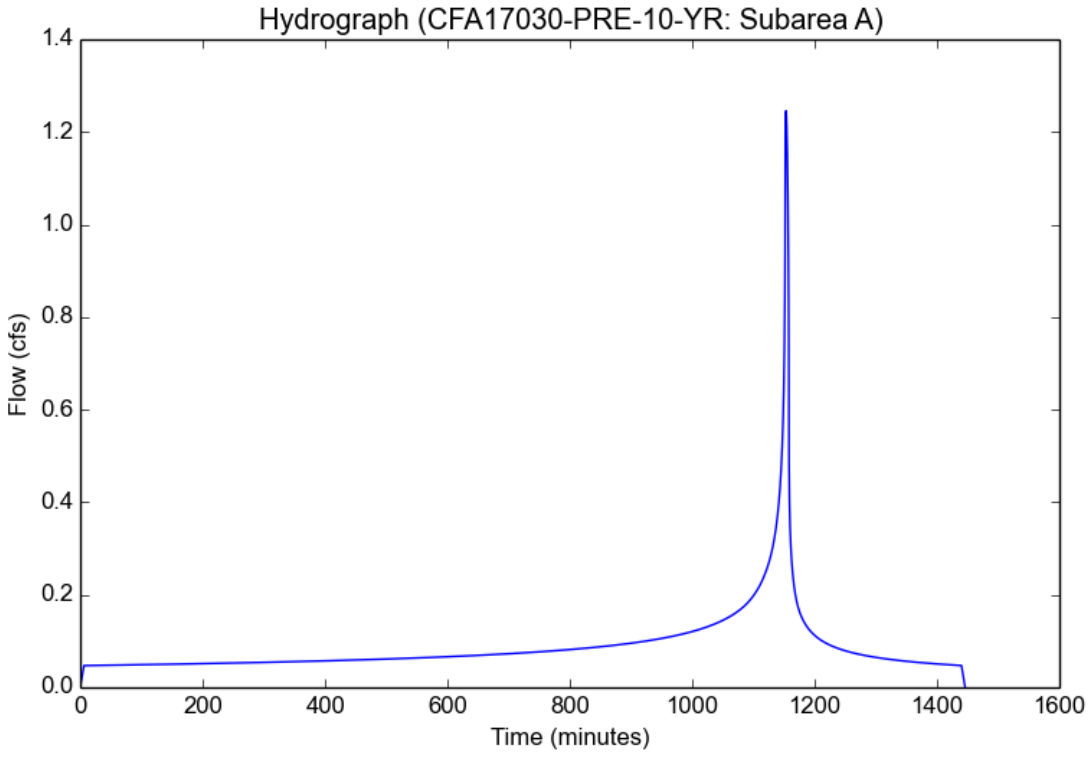
File location: P:/CFA17030/Reports/HYDROLOGY/HydroCalc/PRE/CFA 17030-PRE-10-YR - Subarea A.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	CFA17030-PRE
Subarea ID	Subarea A
Area (ac)	0.568
Flow Path Length (ft)	268.0
Flow Path Slope (vft/hft)	0.01
50-yr Rainfall Depth (in)	6.3
Percent Impervious	0.916
Soil Type	6
Design Storm Frequency	10-yr
Fire Factor	0
LID	False

Output Results

Modeled (10-yr) Rainfall Depth (in)	4.4982
Peak Intensity (in/hr)	2.4634
Undeveloped Runoff Coefficient (Cu)	0.7831
Developed Runoff Coefficient (Cd)	0.8902
Time of Concentration (min)	6.0
Clear Peak Flow Rate (cfs)	1.2455
Burned Peak Flow Rate (cfs)	1.2455
24-Hr Clear Runoff Volume (ac-ft)	0.1773
24-Hr Clear Runoff Volume (cu-ft)	7724.2661



Peak Flow Hydrologic Analysis

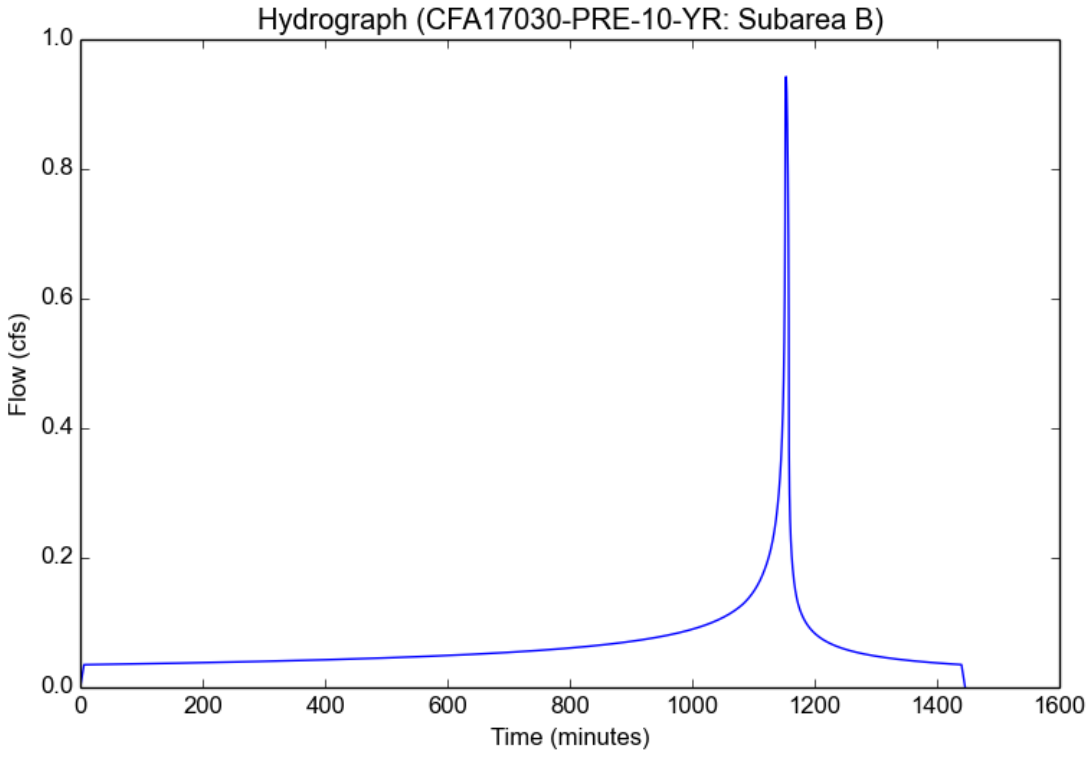
File location: P:/CFA17030/Reports/HYDROLOGY/HydroCalc/PRE/CFA 17030-PRE-10-YR - Subarea B.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	CFA17030-PRE
Subarea ID	Subarea B
Area (ac)	0.431
Flow Path Length (ft)	276.0
Flow Path Slope (vft/hft)	0.011
50-yr Rainfall Depth (in)	6.3
Percent Impervious	0.895
Soil Type	6
Design Storm Frequency	10-yr
Fire Factor	0
LID	False

Output Results

Modeled (10-yr) Rainfall Depth (in)	4.4982
Peak Intensity (in/hr)	2.4634
Undeveloped Runoff Coefficient (Cu)	0.7831
Developed Runoff Coefficient (Cd)	0.8877
Time of Concentration (min)	6.0
Clear Peak Flow Rate (cfs)	0.9425
Burned Peak Flow Rate (cfs)	0.9425
24-Hr Clear Runoff Volume (ac-ft)	0.1321
24-Hr Clear Runoff Volume (cu-ft)	5756.1263



Peak Flow Hydrologic Analysis

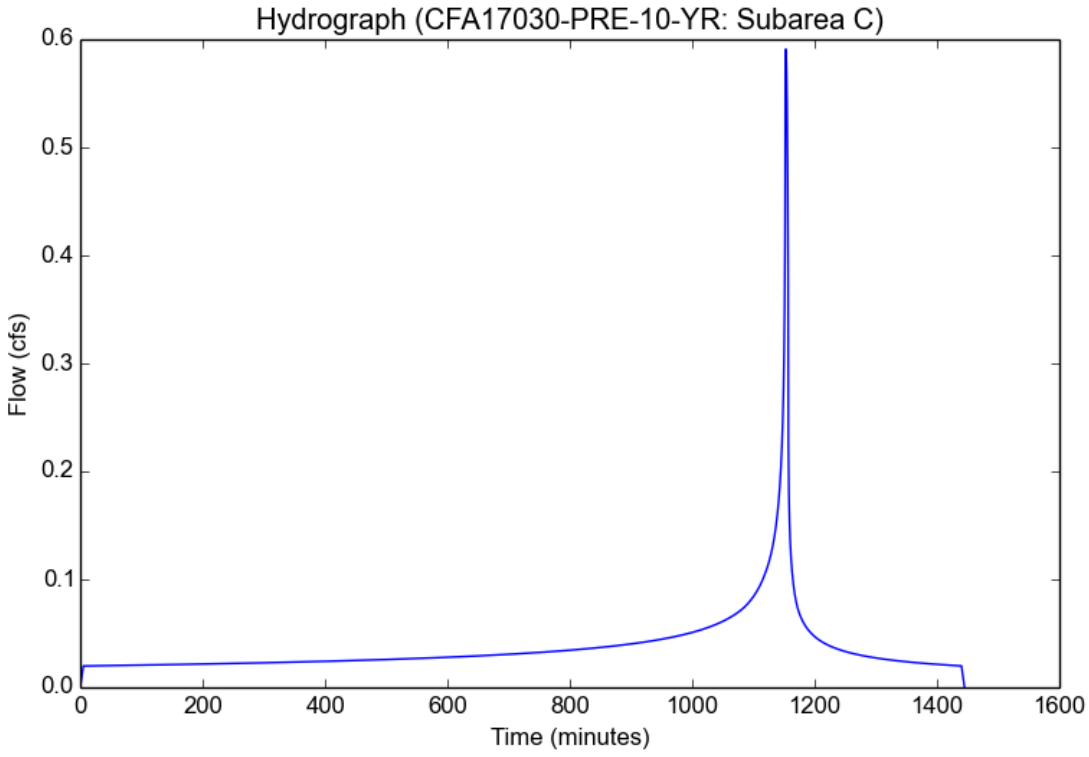
File location: P:/CFA17030/Reports/HYDROLOGY/HydroCalc/PRE/CFA 17030-PRE-10-YR - Subarea C.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	CFA17030-PRE
Subarea ID	Subarea C
Area (ac)	0.248
Flow Path Length (ft)	179.0
Flow Path Slope (vft/hft)	0.0166
50-yr Rainfall Depth (in)	6.3
Percent Impervious	0.879
Soil Type	6
Design Storm Frequency	10-yr
Fire Factor	0
LID	False

Output Results

Modeled (10-yr) Rainfall Depth (in)	4.4982
Peak Intensity (in/hr)	2.6837
Undeveloped Runoff Coefficient (Cu)	0.8001
Developed Runoff Coefficient (Cd)	0.8879
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	0.591
Burned Peak Flow Rate (cfs)	0.591
24-Hr Clear Runoff Volume (ac-ft)	0.075
24-Hr Clear Runoff Volume (cu-ft)	3266.2019



Peak Flow Hydrologic Analysis

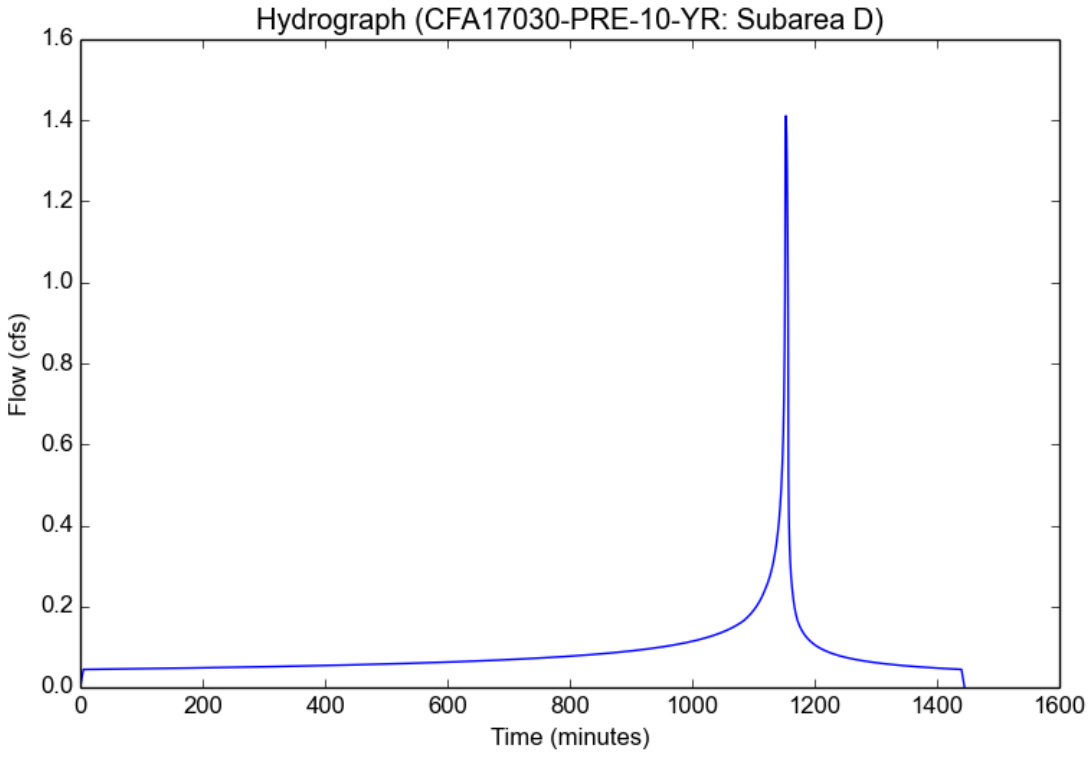
File location: P:/CFA17030/Reports/HYDROLOGY/HydroCalc/PRE/CFA 17030-PRE-10-YR - Subarea D.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	CFA17030-PRE
Subarea ID	Subarea D
Area (ac)	0.597
Flow Path Length (ft)	261.0
Flow Path Slope (vft/hft)	0.0125
50-yr Rainfall Depth (in)	6.3
Percent Impervious	0.808
Soil Type	6
Design Storm Frequency	10-yr
Fire Factor	0
LID	False

Output Results

Modeled (10-yr) Rainfall Depth (in)	4.4982
Peak Intensity (in/hr)	2.6837
Undeveloped Runoff Coefficient (Cu)	0.8001
Developed Runoff Coefficient (Cd)	0.8808
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	1.4112
Burned Peak Flow Rate (cfs)	1.4112
24-Hr Clear Runoff Volume (ac-ft)	0.1692
24-Hr Clear Runoff Volume (cu-ft)	7370.7602



Peak Flow Hydrologic Analysis

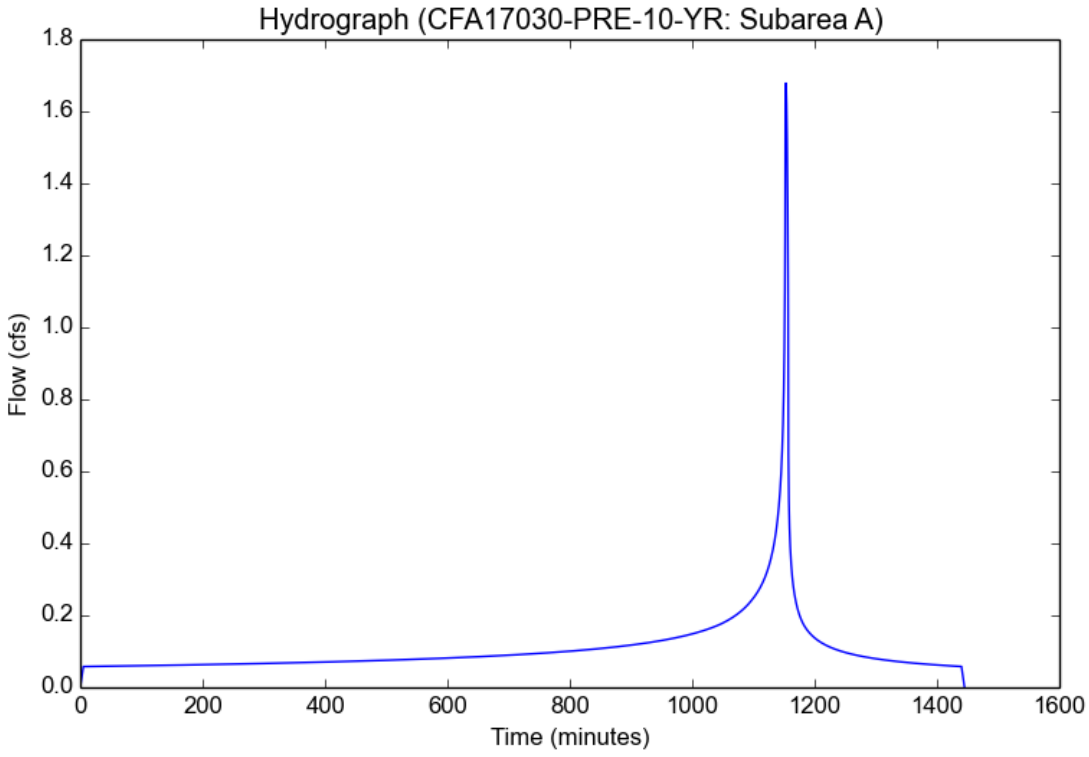
File location: P:/CFA17030/Reports/HYDROLOGY/HydroCalc/PRE/CFA 17030-PRE-25-YR - Subarea A.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	CFA17030-PRE
Subarea ID	Subarea A
Area (ac)	0.568
Flow Path Length (ft)	268.0
Flow Path Slope (vft/hft)	0.01
50-yr Rainfall Depth (in)	6.3
Percent Impervious	0.916
Soil Type	6
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	5.5314
Peak Intensity (in/hr)	3.3002
Undeveloped Runoff Coefficient (Cu)	0.8434
Developed Runoff Coefficient (Cd)	0.8952
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	1.6781
Burned Peak Flow Rate (cfs)	1.6781
24-Hr Clear Runoff Volume (ac-ft)	0.2186
24-Hr Clear Runoff Volume (cu-ft)	9520.3053



Peak Flow Hydrologic Analysis

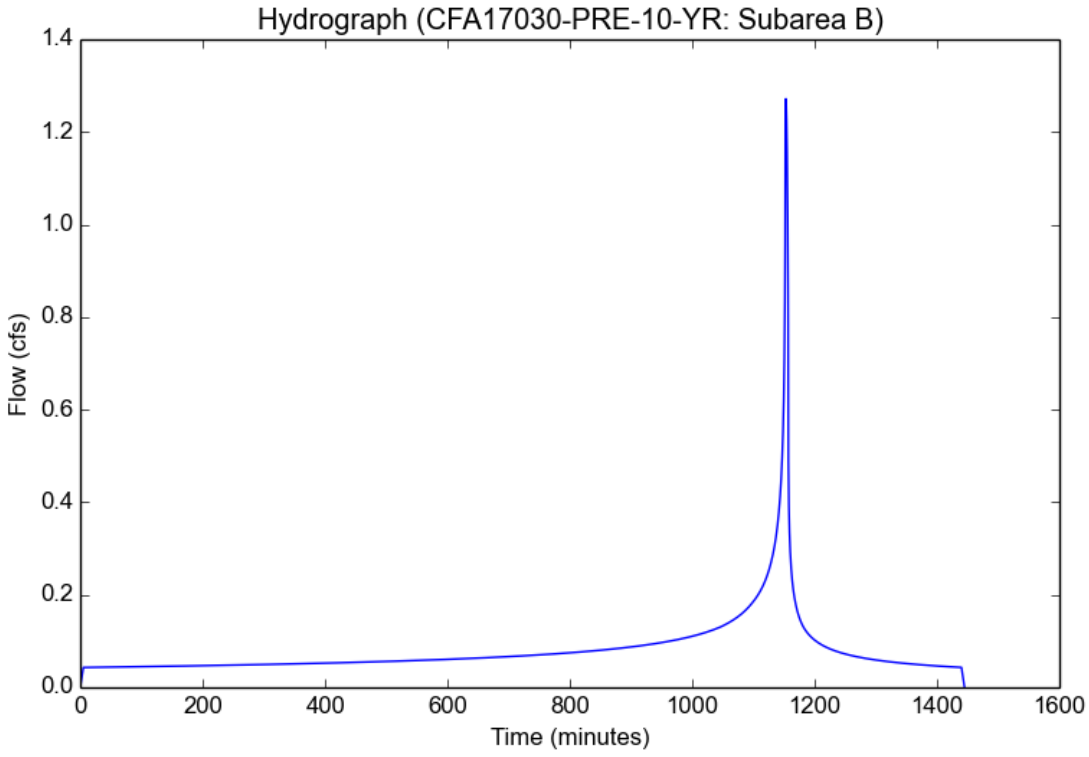
File location: P:/CFA17030/Reports/HYDROLOGY/HydroCalc/PRE/CFA 17030-PRE-25-YR - Subarea B.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	CFA17030-PRE
Subarea ID	Subarea B
Area (ac)	0.431
Flow Path Length (ft)	276.0
Flow Path Slope (vft/hft)	0.011
50-yr Rainfall Depth (in)	6.3
Percent Impervious	0.895
Soil Type	6
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	5.5314
Peak Intensity (in/hr)	3.3002
Undeveloped Runoff Coefficient (Cu)	0.8434
Developed Runoff Coefficient (Cd)	0.8941
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	1.2717
Burned Peak Flow Rate (cfs)	1.2717
24-Hr Clear Runoff Volume (ac-ft)	0.163
24-Hr Clear Runoff Volume (cu-ft)	7098.9754



Peak Flow Hydrologic Analysis

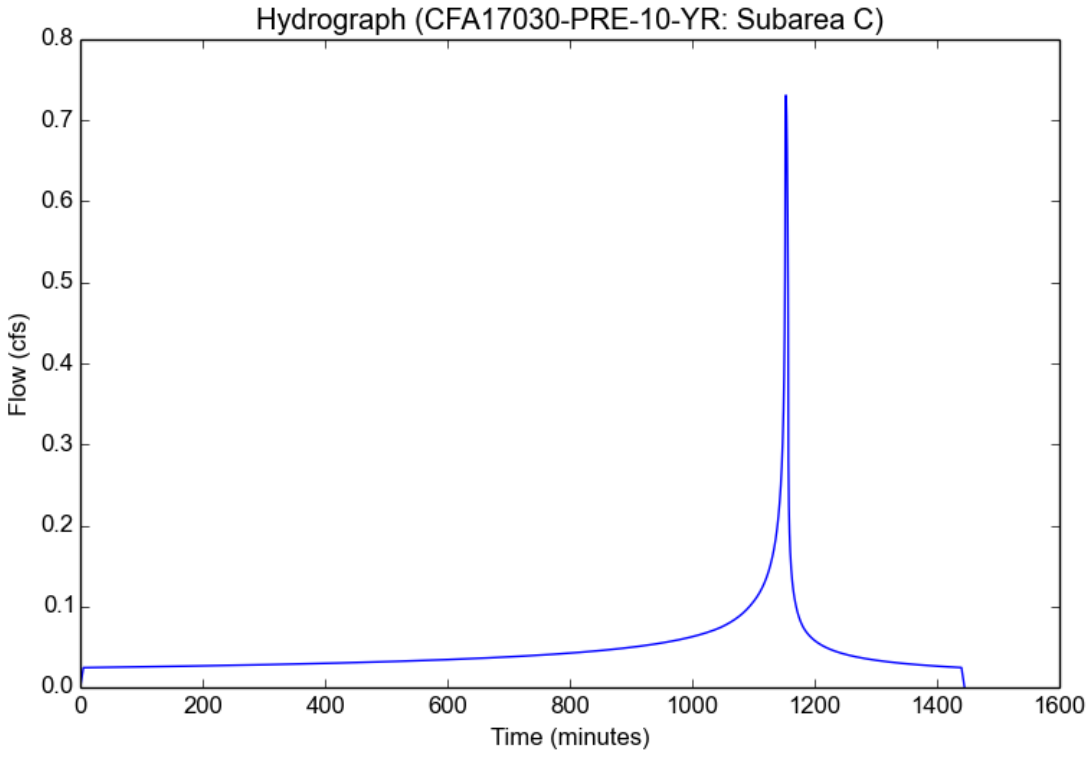
File location: P:/CFA17030/Reports/HYDROLOGY/HydroCalc/PRE/CFA 17030-PRE-25-YR - Subarea C.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	CFA17030-PRE
Subarea ID	Subarea C
Area (ac)	0.248
Flow Path Length (ft)	179.0
Flow Path Slope (vft/hft)	0.0166
50-yr Rainfall Depth (in)	6.3
Percent Impervious	0.879
Soil Type	6
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	5.5314
Peak Intensity (in/hr)	3.3002
Undeveloped Runoff Coefficient (Cu)	0.8434
Developed Runoff Coefficient (Cd)	0.8931
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	0.731
Burned Peak Flow Rate (cfs)	0.731
24-Hr Clear Runoff Volume (ac-ft)	0.0925
24-Hr Clear Runoff Volume (cu-ft)	4029.9668



Peak Flow Hydrologic Analysis

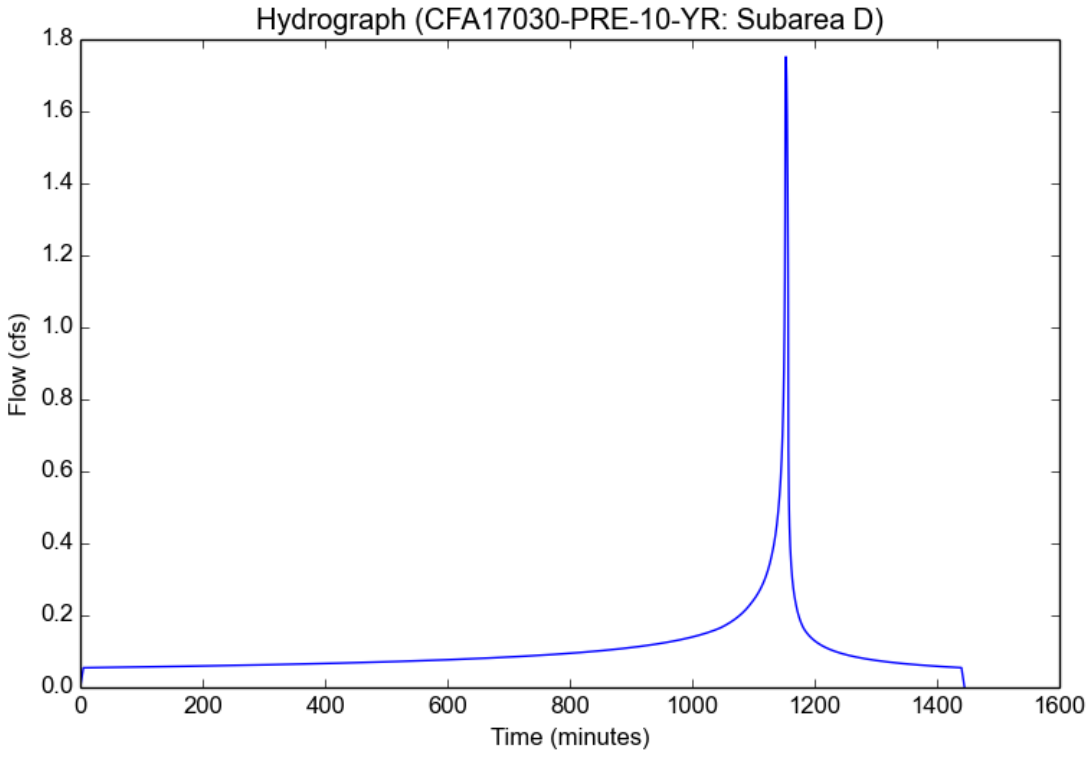
File location: P:/CFA17030/Reports/HYDROLOGY/HydroCalc/PRE/CFA 17030-PRE-25-YR - Subarea D.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	CFA17030-PRE-10-YR
Subarea ID	Subarea D
Area (ac)	0.597
Flow Path Length (ft)	261.0
Flow Path Slope (vft/hft)	0.0125
50-yr Rainfall Depth (in)	6.3
Percent Impervious	0.808
Soil Type	6
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	5.5314
Peak Intensity (in/hr)	3.3002
Undeveloped Runoff Coefficient (Cu)	0.8434
Developed Runoff Coefficient (Cd)	0.8891
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	1.7518
Burned Peak Flow Rate (cfs)	1.7518
24-Hr Clear Runoff Volume (ac-ft)	0.2093
24-Hr Clear Runoff Volume (cu-ft)	9115.5025



Peak Flow Hydrologic Analysis

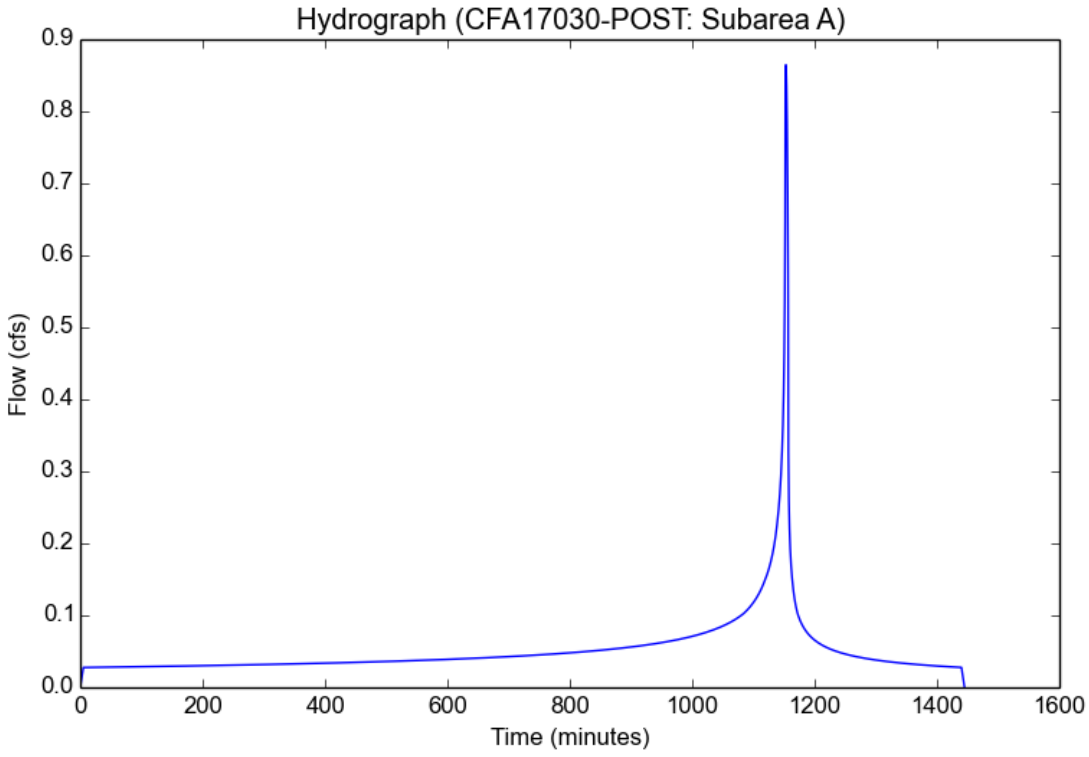
File location: P:/CFA17030/Reports/HYDROLOGY/HydroCalc/POST/CFA17030-POST-10 YR - Subarea A.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	CFA17030-POST
Subarea ID	Subarea A
Area (ac)	0.365
Flow Path Length (ft)	228.0
Flow Path Slope (vft/hft)	0.0115
50-yr Rainfall Depth (in)	6.3
Percent Impervious	0.826
Soil Type	6
Design Storm Frequency	10-yr
Fire Factor	0
LID	False

Output Results

Modeled (10-yr) Rainfall Depth (in)	4.4982
Peak Intensity (in/hr)	2.6837
Undeveloped Runoff Coefficient (Cu)	0.8001
Developed Runoff Coefficient (Cd)	0.8826
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	0.8646
Burned Peak Flow Rate (cfs)	0.8646
24-Hr Clear Runoff Volume (ac-ft)	0.1052
24-Hr Clear Runoff Volume (cu-ft)	4582.6451



Peak Flow Hydrologic Analysis

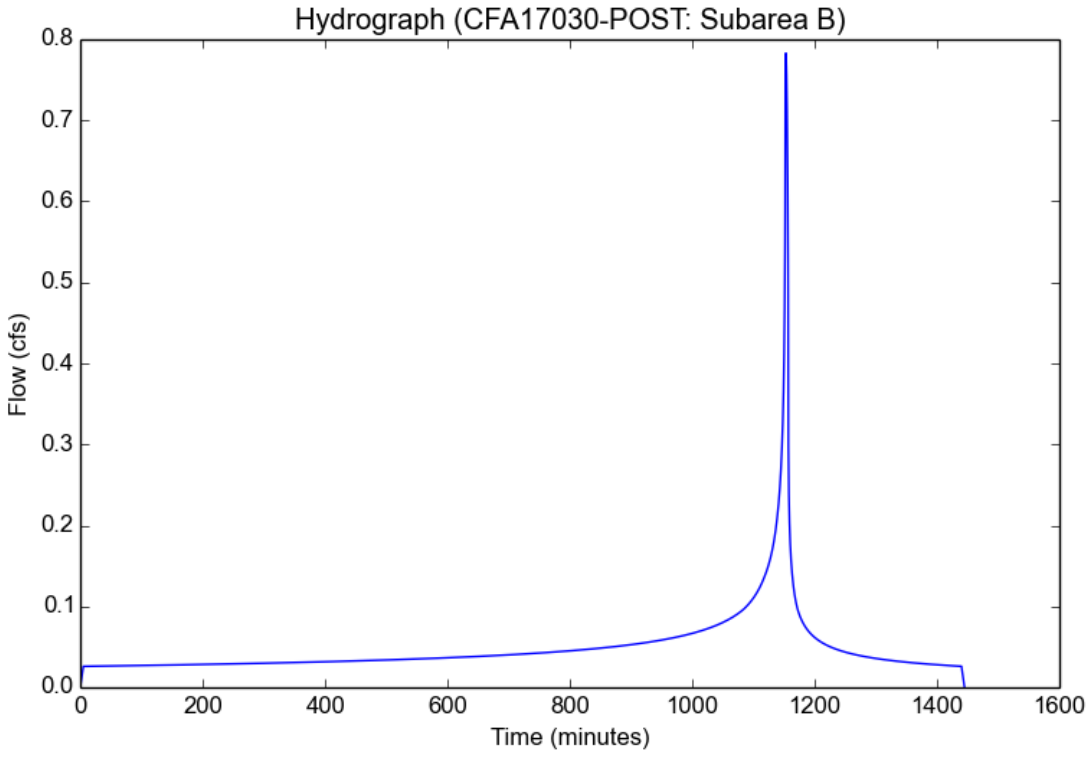
File location: P:/CFA17030/Reports/HYDROLOGY/HydroCalc/POST/CFA17030-POST-10 YR - Subarea B.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	CFA17030-POST
Subarea ID	Subarea B
Area (ac)	0.329
Flow Path Length (ft)	175.0
Flow Path Slope (vft/hft)	0.0139
50-yr Rainfall Depth (in)	6.3
Percent Impervious	0.867
Soil Type	6
Design Storm Frequency	10-yr
Fire Factor	0
LID	False

Output Results

Modeled (10-yr) Rainfall Depth (in)	4.4982
Peak Intensity (in/hr)	2.6837
Undeveloped Runoff Coefficient (Cu)	0.8001
Developed Runoff Coefficient (Cd)	0.8867
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	0.7829
Burned Peak Flow Rate (cfs)	0.7829
24-Hr Clear Runoff Volume (ac-ft)	0.0984
24-Hr Clear Runoff Volume (cu-ft)	4287.1756



Peak Flow Hydrologic Analysis

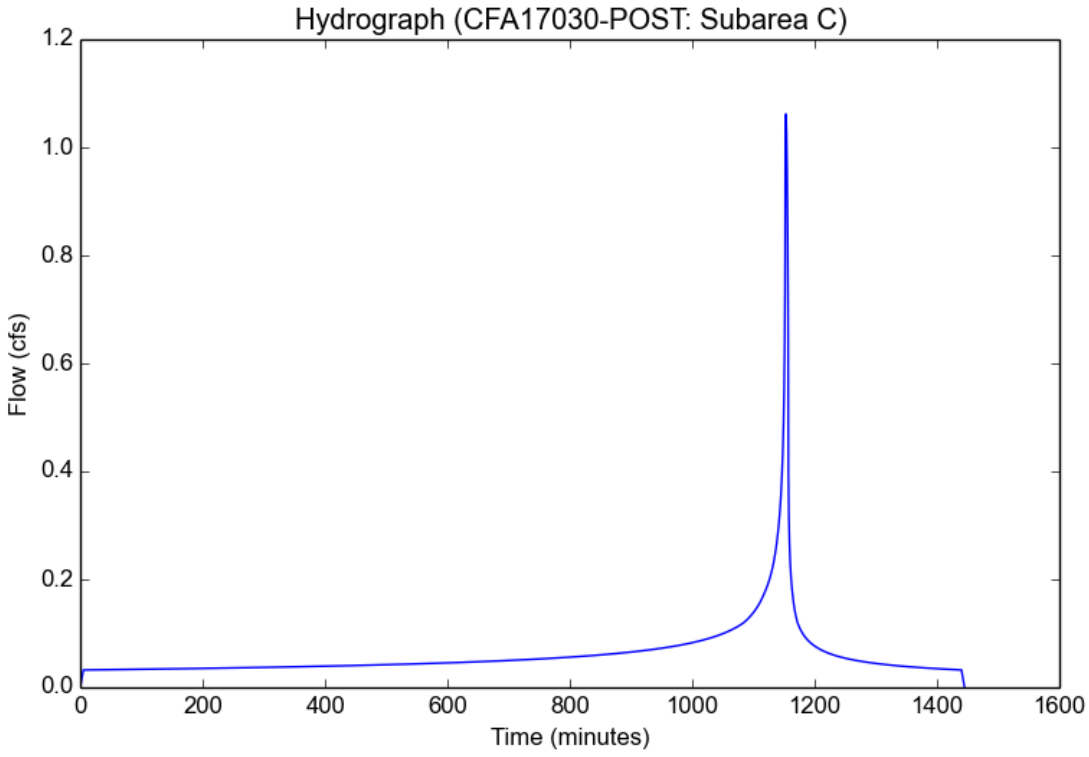
File location: P:/CFA17030/Reports/HYDROLOGY/HydroCalc/POST/CFA17030-POST-10 YR - Subarea C.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	CFA17030-POST
Subarea ID	Subarea C
Area (ac)	0.451
Flow Path Length (ft)	212.0
Flow Path Slope (vft/hft)	0.0141
50-yr Rainfall Depth (in)	6.3
Percent Impervious	0.773
Soil Type	6
Design Storm Frequency	10-yr
Fire Factor	0
LID	False

Output Results

Modeled (10-yr) Rainfall Depth (in)	4.4982
Peak Intensity (in/hr)	2.6837
Undeveloped Runoff Coefficient (Cu)	0.8001
Developed Runoff Coefficient (Cd)	0.8773
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	1.0619
Burned Peak Flow Rate (cfs)	1.0619
24-Hr Clear Runoff Volume (ac-ft)	0.1236
24-Hr Clear Runoff Volume (cu-ft)	5385.037



Peak Flow Hydrologic Analysis

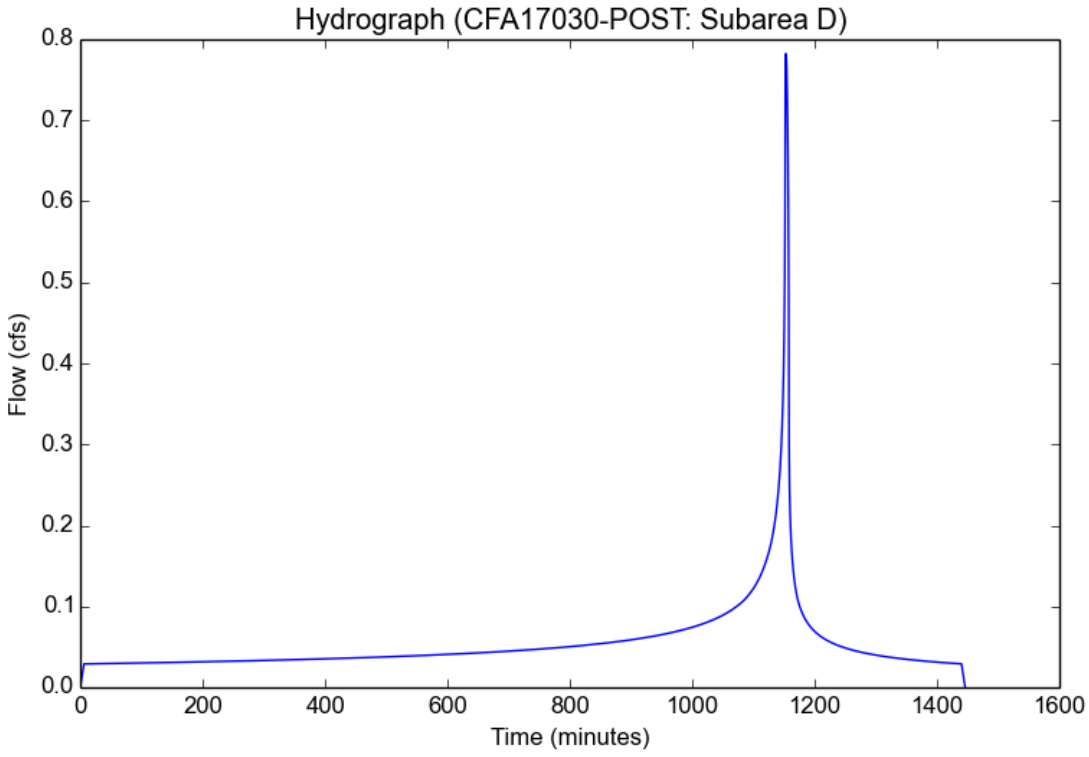
File location: P:/CFA17030/Reports/HYDROLOGY/HydroCalc/POST/CFA17030-POST-10 YR - Subarea D.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	CFA17030-POST
Subarea ID	Subarea D
Area (ac)	0.358
Flow Path Length (ft)	301.0
Flow Path Slope (vft/hft)	0.0087
50-yr Rainfall Depth (in)	6.3
Percent Impervious	0.891
Soil Type	6
Design Storm Frequency	10-yr
Fire Factor	0
LID	False

Output Results

Modeled (10-yr) Rainfall Depth (in)	4.4982
Peak Intensity (in/hr)	2.4634
Undeveloped Runoff Coefficient (Cu)	0.7831
Developed Runoff Coefficient (Cd)	0.8873
Time of Concentration (min)	6.0
Clear Peak Flow Rate (cfs)	0.7825
Burned Peak Flow Rate (cfs)	0.7825
24-Hr Clear Runoff Volume (ac-ft)	0.1094
24-Hr Clear Runoff Volume (cu-ft)	4764.5674



Peak Flow Hydrologic Analysis

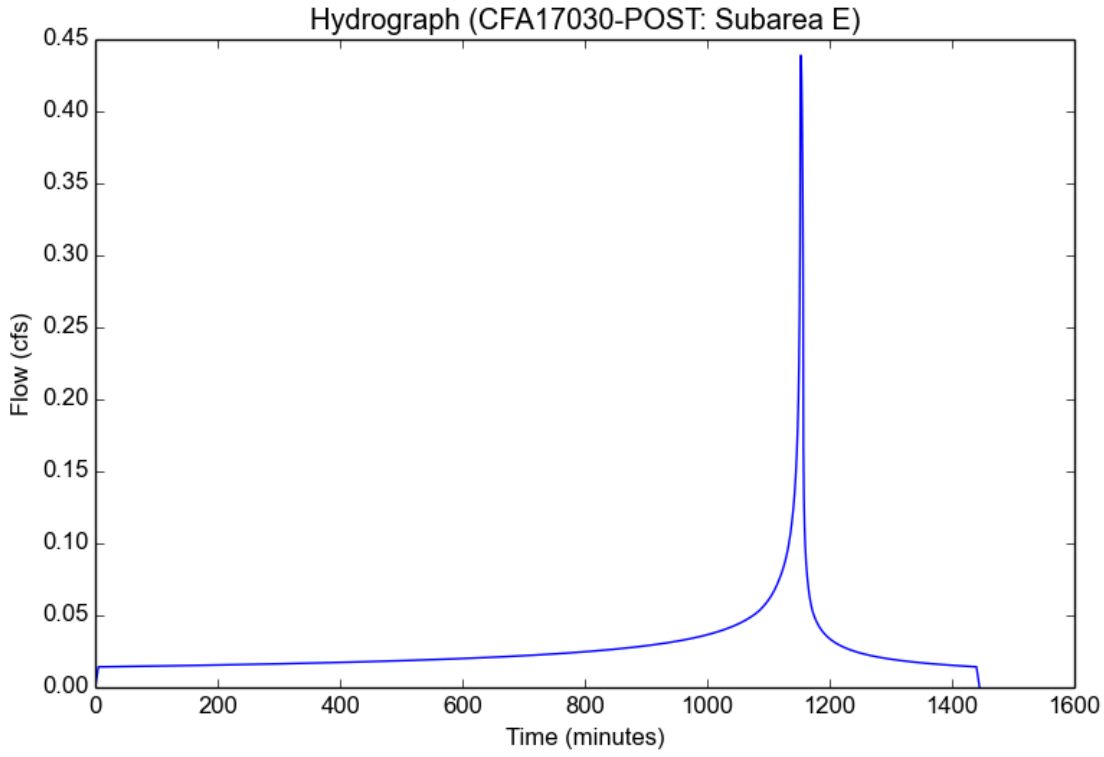
File location: P:/CFA17030/Reports/HYDROLOGY/HydroCalc/POST/CFA17030-POST-10 YR - Subarea E.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	CFA17030-POST
Subarea ID	Subarea E
Area (ac)	0.185
Flow Path Length (ft)	115.0
Flow Path Slope (vft/hft)	0.0251
50-yr Rainfall Depth (in)	6.3
Percent Impervious	0.842
Soil Type	6
Design Storm Frequency	10-yr
Fire Factor	0
LID	False

Output Results

Modeled (10-yr) Rainfall Depth (in)	4.4982
Peak Intensity (in/hr)	2.6837
Undeveloped Runoff Coefficient (Cu)	0.8001
Developed Runoff Coefficient (Cd)	0.8842
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	0.439
Burned Peak Flow Rate (cfs)	0.439
24-Hr Clear Runoff Volume (ac-ft)	0.0541
24-Hr Clear Runoff Volume (cu-ft)	2357.0564



Peak Flow Hydrologic Analysis

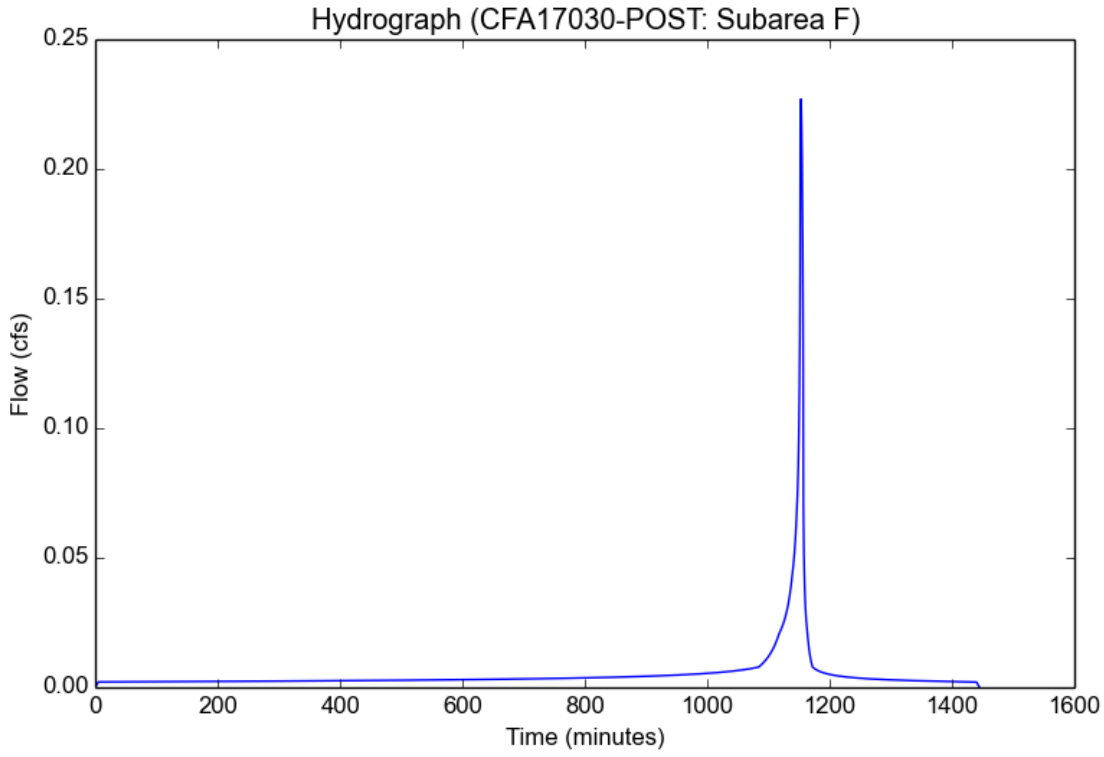
File location: P:/CFA17030/Reports/HYDROLOGY/HydroCalc/POST/CFA17030-POST-10 YR - Subarea F.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	CFA17030-POST
Subarea ID	Subarea F
Area (ac)	0.104
Flow Path Length (ft)	61.0
Flow Path Slope (vft/hft)	0.0226
50-yr Rainfall Depth (in)	6.3
Percent Impervious	0.13
Soil Type	6
Design Storm Frequency	10-yr
Fire Factor	0
LID	False

Output Results

Modeled (10-yr) Rainfall Depth (in)	4.4982
Peak Intensity (in/hr)	2.6837
Undeveloped Runoff Coefficient (Cu)	0.8001
Developed Runoff Coefficient (Cd)	0.8131
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	0.2269
Burned Peak Flow Rate (cfs)	0.2269
24-Hr Clear Runoff Volume (ac-ft)	0.0107
24-Hr Clear Runoff Volume (cu-ft)	465.844



Peak Flow Hydrologic Analysis

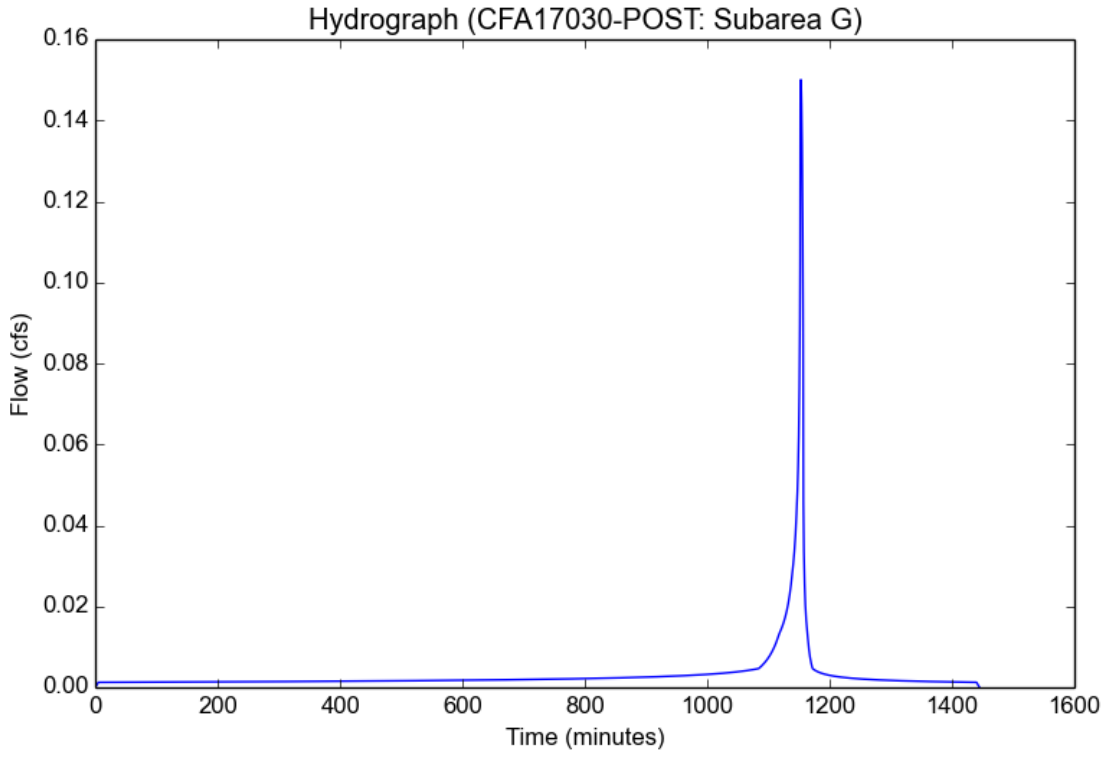
File location: P:/CFA17030/Reports/HYDROLOGY/HydroCalc/POST/CFA17030-POST-10 YR - Subarea G.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	CFA17030-POST
Subarea ID	Subarea G
Area (ac)	0.069
Flow Path Length (ft)	20.0
Flow Path Slope (vft/hft)	0.027
50-yr Rainfall Depth (in)	6.3
Percent Impervious	0.103
Soil Type	6
Design Storm Frequency	10-yr
Fire Factor	0
LID	False

Output Results

Modeled (10-yr) Rainfall Depth (in)	4.4982
Peak Intensity (in/hr)	2.6837
Undeveloped Runoff Coefficient (Cu)	0.8001
Developed Runoff Coefficient (Cd)	0.8104
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	0.1501
Burned Peak Flow Rate (cfs)	0.1501
24-Hr Clear Runoff Volume (ac-ft)	0.0066
24-Hr Clear Runoff Volume (cu-ft)	287.4526



Peak Flow Hydrologic Analysis

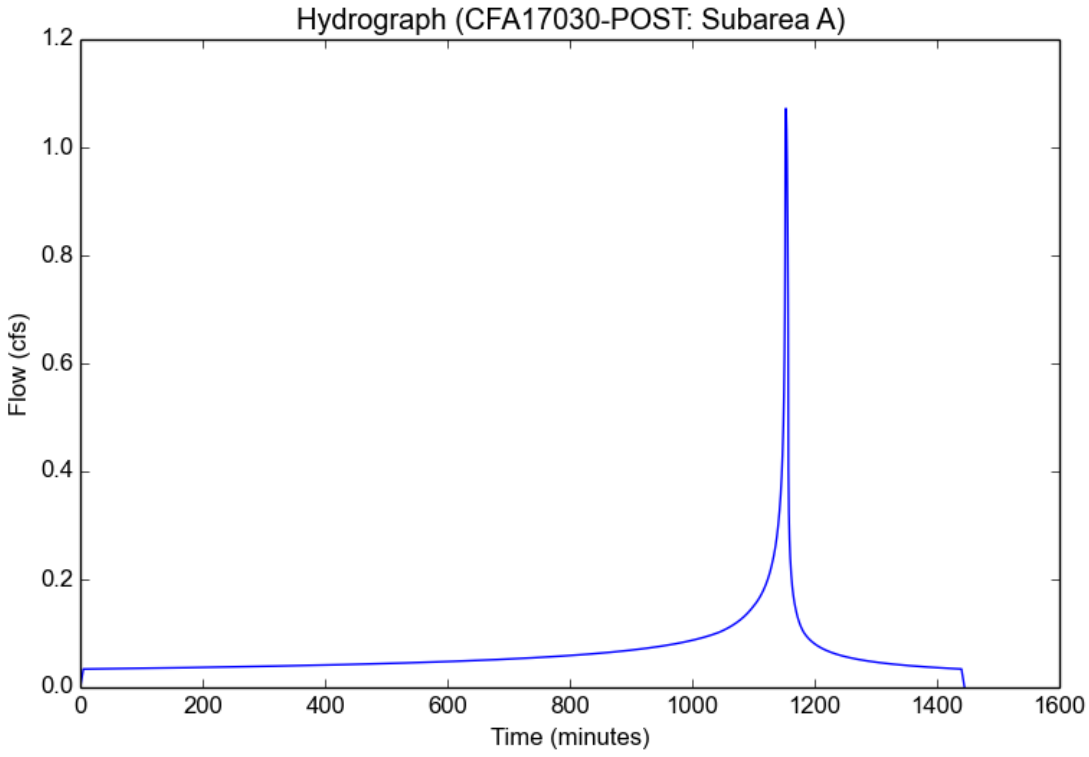
File location: P:/CFA17030/Reports/HYDROLOGY/HydroCalc/POST/CFA17030-POST-25 YR - Subarea A.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	CFA17030-POST
Subarea ID	Subarea A
Area (ac)	0.365
Flow Path Length (ft)	228.0
Flow Path Slope (vft/hft)	0.0115
50-yr Rainfall Depth (in)	6.3
Percent Impervious	0.826
Soil Type	6
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	5.5314
Peak Intensity (in/hr)	3.3002
Undeveloped Runoff Coefficient (Cu)	0.8434
Developed Runoff Coefficient (Cd)	0.8901
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	1.0722
Burned Peak Flow Rate (cfs)	1.0722
24-Hr Clear Runoff Volume (ac-ft)	0.13
24-Hr Clear Runoff Volume (cu-ft)	5663.9084



Peak Flow Hydrologic Analysis

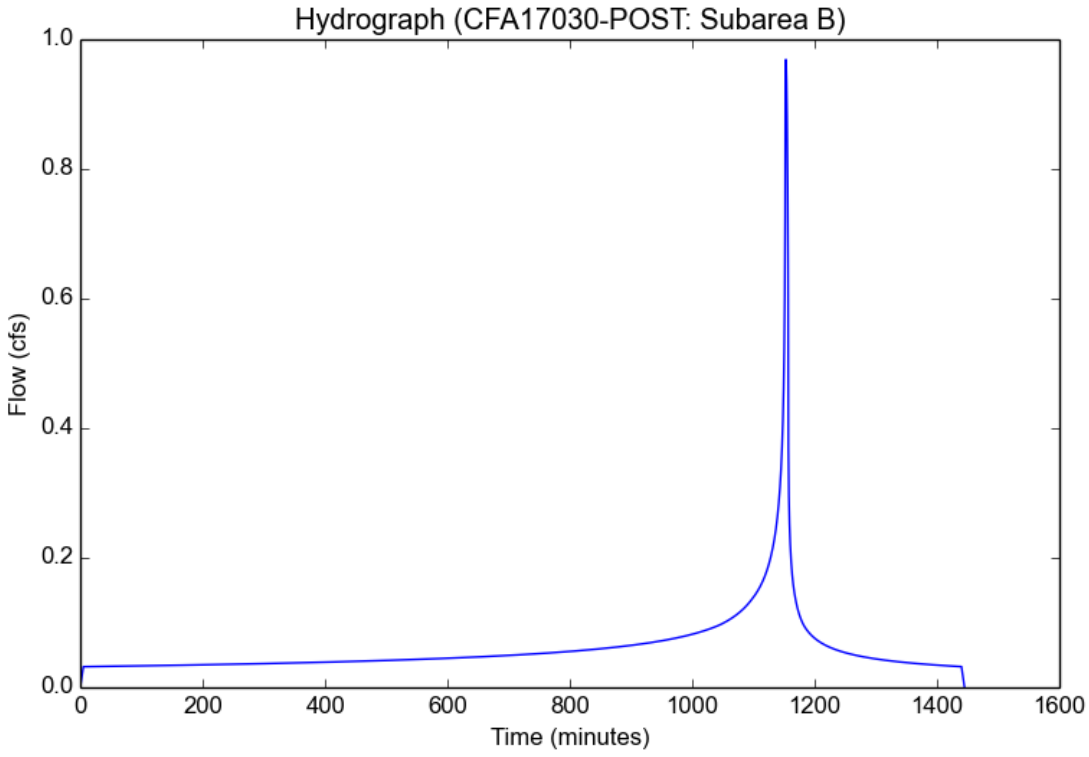
File location: P:/CFA17030/Reports/HYDROLOGY/HydroCalc/POST/CFA17030-POST-25 YR - Subarea B.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	CFA17030-POST
Subarea ID	Subarea B
Area (ac)	0.329
Flow Path Length (ft)	175.0
Flow Path Slope (vft/hft)	0.0139
50-yr Rainfall Depth (in)	6.3
Percent Impervious	0.867
Soil Type	6
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	5.5314
Peak Intensity (in/hr)	3.3002
Undeveloped Runoff Coefficient (Cu)	0.8434
Developed Runoff Coefficient (Cd)	0.8925
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	0.969
Burned Peak Flow Rate (cfs)	0.969
24-Hr Clear Runoff Volume (ac-ft)	0.1215
24-Hr Clear Runoff Volume (cu-ft)	5291.6559



Peak Flow Hydrologic Analysis

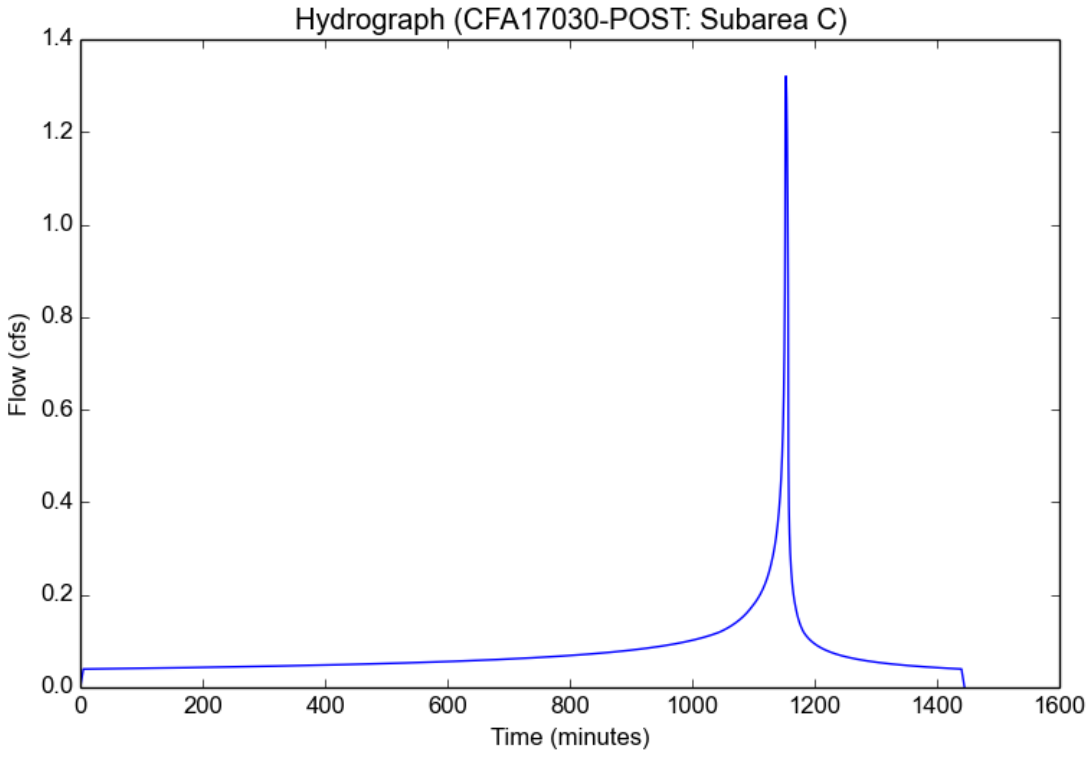
File location: P:/CFA17030/Reports/HYDROLOGY/HydroCalc/POST/CFA17030-POST-25 YR - Subarea C.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	CFA17030-POST
Subarea ID	Subarea C
Area (ac)	0.451
Flow Path Length (ft)	212.0
Flow Path Slope (vft/hft)	0.0141
50-yr Rainfall Depth (in)	6.3
Percent Impervious	0.773
Soil Type	6
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	5.5314
Peak Intensity (in/hr)	3.3002
Undeveloped Runoff Coefficient (Cu)	0.8434
Developed Runoff Coefficient (Cd)	0.8871
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	1.3204
Burned Peak Flow Rate (cfs)	1.3204
24-Hr Clear Runoff Volume (ac-ft)	0.1531
24-Hr Clear Runoff Volume (cu-ft)	6668.1469



Peak Flow Hydrologic Analysis

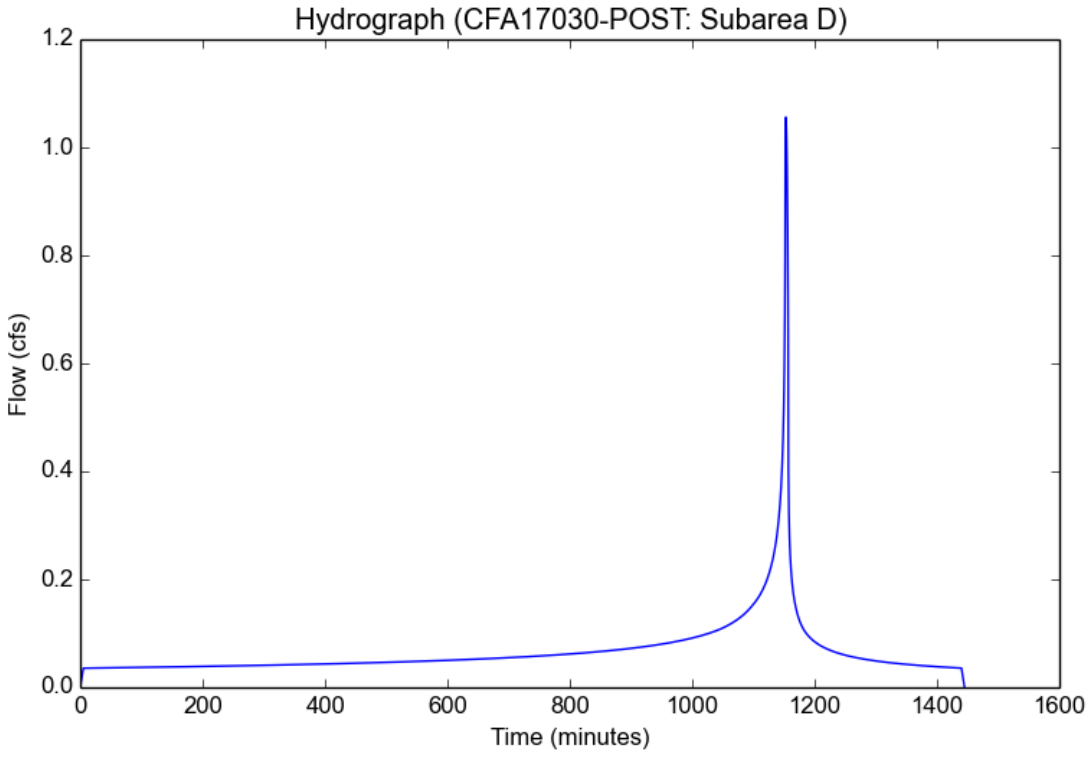
File location: P:/CFA17030/Reports/HYDROLOGY/HydroCalc/POST/CFA17030-POST-25 YR - Subarea D.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	CFA17030-POST
Subarea ID	Subarea D
Area (ac)	0.358
Flow Path Length (ft)	301.0
Flow Path Slope (vft/hft)	0.0087
50-yr Rainfall Depth (in)	6.3
Percent Impervious	0.891
Soil Type	6
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	5.5314
Peak Intensity (in/hr)	3.3002
Undeveloped Runoff Coefficient (Cu)	0.8434
Developed Runoff Coefficient (Cd)	0.8938
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	1.056
Burned Peak Flow Rate (cfs)	1.056
24-Hr Clear Runoff Volume (ac-ft)	0.1349
24-Hr Clear Runoff Volume (cu-ft)	5876.8106



Peak Flow Hydrologic Analysis

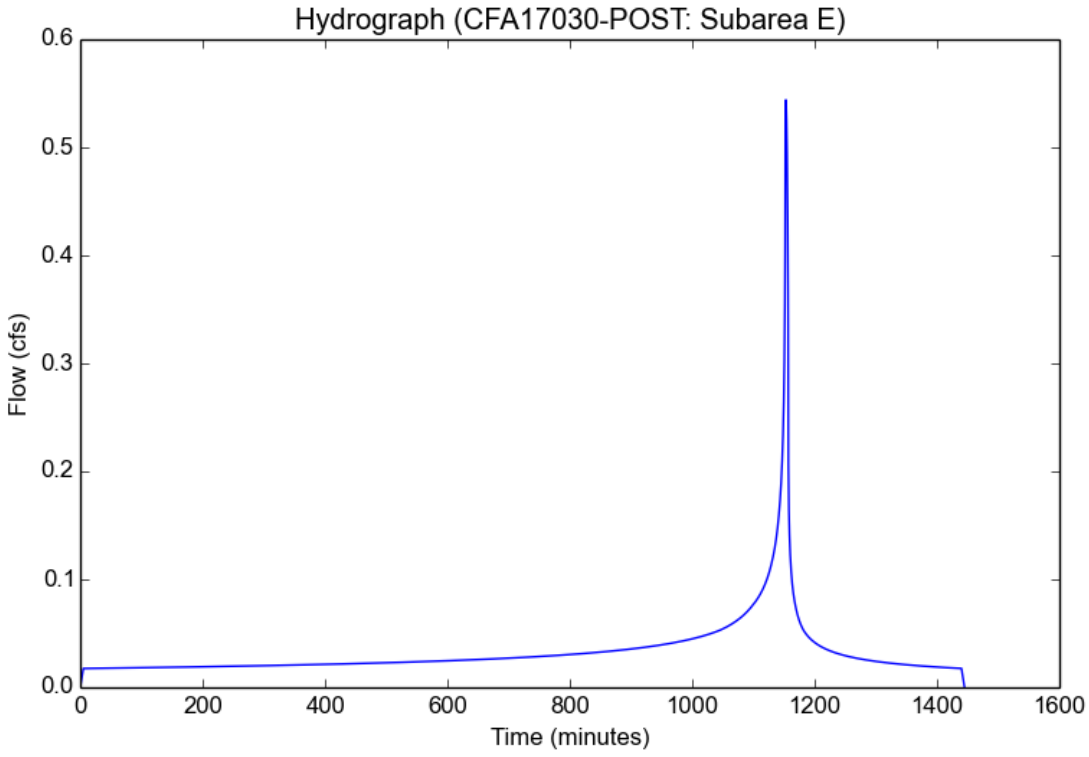
File location: P:/CFA17030/Reports/HYDROLOGY/HydroCalc/POST/CFA17030-POST-25 YR - Subarea E.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	CFA17030-POST
Subarea ID	Subarea E
Area (ac)	0.185
Flow Path Length (ft)	115.0
Flow Path Slope (vft/hft)	0.0251
50-yr Rainfall Depth (in)	6.3
Percent Impervious	0.842
Soil Type	6
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	5.5314
Peak Intensity (in/hr)	3.3002
Undeveloped Runoff Coefficient (Cu)	0.8434
Developed Runoff Coefficient (Cd)	0.8911
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	0.544
Burned Peak Flow Rate (cfs)	0.544
24-Hr Clear Runoff Volume (ac-ft)	0.0668
24-Hr Clear Runoff Volume (cu-ft)	2911.6468



Peak Flow Hydrologic Analysis

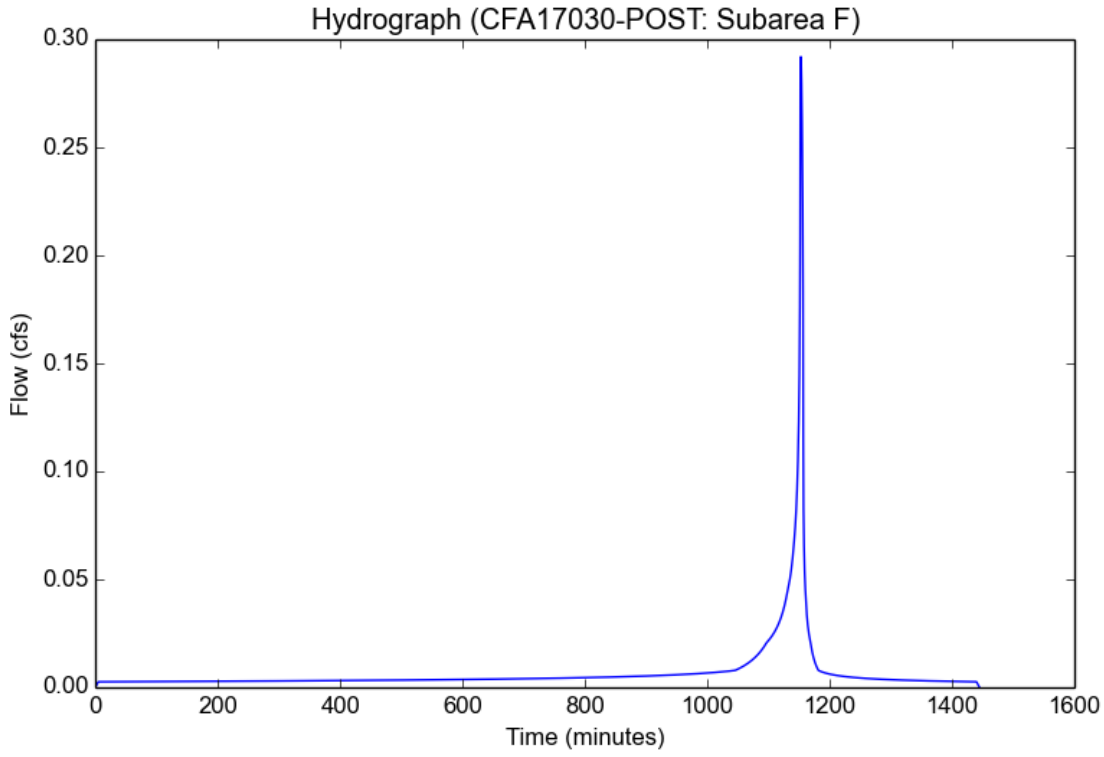
File location: P:/CFA17030/Reports/HYDROLOGY/HydroCalc/POST/CFA17030-POST-25 YR - Subarea F.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	CFA17030-POST
Subarea ID	Subarea F
Area (ac)	0.104
Flow Path Length (ft)	61.0
Flow Path Slope (vft/hft)	0.0226
50-yr Rainfall Depth (in)	6.3
Percent Impervious	0.13
Soil Type	6
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	5.5314
Peak Intensity (in/hr)	3.3002
Undeveloped Runoff Coefficient (Cu)	0.8434
Developed Runoff Coefficient (Cd)	0.8507
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	0.292
Burned Peak Flow Rate (cfs)	0.292
24-Hr Clear Runoff Volume (ac-ft)	0.0141
24-Hr Clear Runoff Volume (cu-ft)	613.6852



Peak Flow Hydrologic Analysis

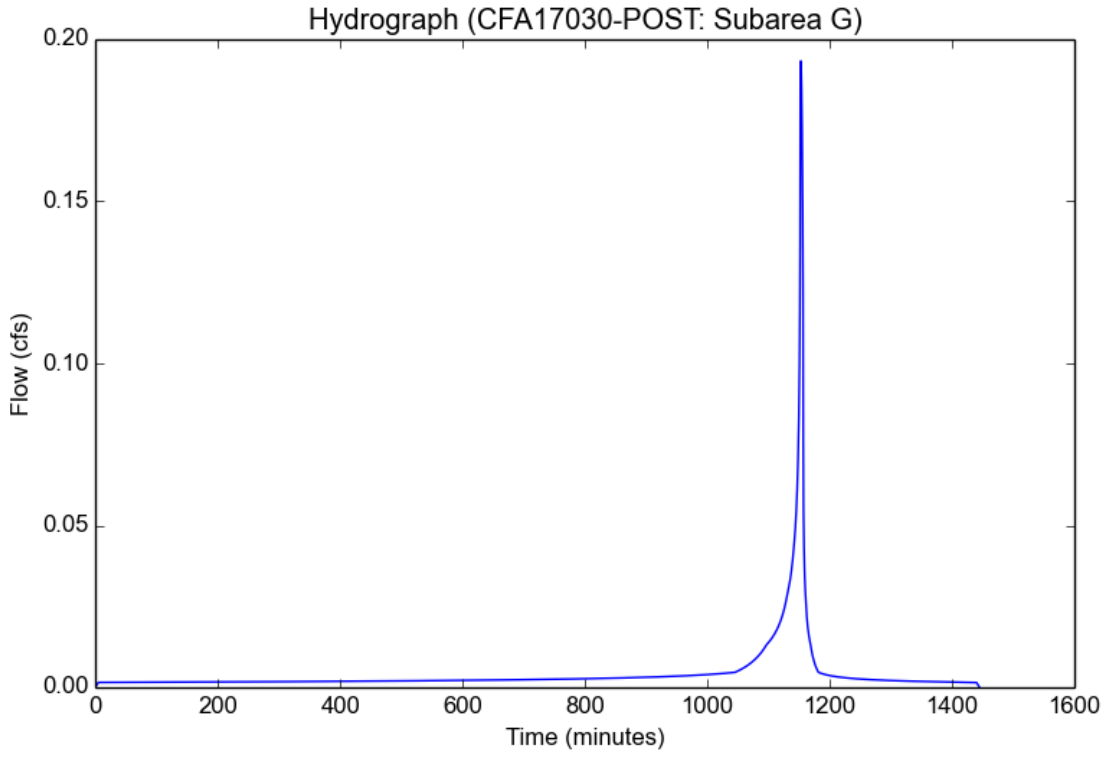
File location: P:/CFA17030/Reports/HYDROLOGY/HydroCalc/POST/CFA17030-POST-25 YR - Subarea G.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	CFA17030-POST
Subarea ID	Subarea G
Area (ac)	0.069
Flow Path Length (ft)	20.0
Flow Path Slope (vft/hft)	0.027
50-yr Rainfall Depth (in)	6.3
Percent Impervious	0.103
Soil Type	6
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	5.5314
Peak Intensity (in/hr)	3.3002
Undeveloped Runoff Coefficient (Cu)	0.8434
Developed Runoff Coefficient (Cd)	0.8492
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	0.1934
Burned Peak Flow Rate (cfs)	0.1934
24-Hr Clear Runoff Volume (ac-ft)	0.0088
24-Hr Clear Runoff Volume (cu-ft)	381.4152



V. BMP Details and Calculations

QUANTITY CONTROL.

Implement a stormwater management plan that prevents the post development peak discharge rate and quantity from exceeding the predevelopment peak discharge rate and quantity for the 10-year design storm.

Total runoff pre-development condition and ultimate disposition of on-site runoff.
The discharge for onsite drainage will be:
Total discharge:

Q_{10} = 4.19 cfs. **Q_{25} = 5.43 cfs.**

Total runoff post-development condition and ultimate disposition of on-site runoff.

The discharge for onsite drainage will be:
Total discharge:

Q_{10} = 4.30 cfs. **Q_{25} = 5.44 cfs.**

Volume to Retain
Volume retention is only required when the post-development condition increases by more than 5% of the pre-development condition. The difference in between the Post Q_{10} = 4.30 cfs minus the Pre Q_{10} = 4.19 cfs

ΔQ_{10} = 0.11 cfs.

Increase of 2.6%. Therefore, no volume retention is required.

QUALITY CONTROL.

LID Hydrology Analysis

As per LID Requirements, the non-residential development projects shall prioritize the selection of BMPs to treat stormwater pollutants, reduce stormwater runoff volume, and promote groundwater infiltration and stormwater reuse in the integrated approach to protecting water quality and managing water resources. It has been determined that **Infiltration IS a feasible solution** for stormwater treatment. A proprietary biotreatment device is being proposed as the treatment solution for this project.

Methodology
Current water quality requirements are based on treating a specific volume of stormwater runoff from the project site (stormwater quality design volume [SWQDv]). By treating the SWQDv, it is expected that pollutant loads, which are

typically higher during the beginning of storm events, will be reduced in the discharge to or prevented from reaching the receiving waters.

Stormwater Quality Design Volume (SWQDv)

The design storm, from which the SWQDv is calculated, is defined as **the greater of:**

- ☐ **The 0.75-inch, 24-hour rain event; or**
- ✓ **The 85th percentile, 24-hour rain event as determined from the Los Angeles County 85th percentile precipitation isohyetal map.**

The volume of stormwater runoff that must be retained at the project site is calculated using LACDPW hydrologic calculator (HydroCalc). HydroCalc completes the calculation process and produces the peak stormwater runoff flow rates and volumes for single subareas. Because HydroCalc does not have reach routing capabilities, it is limited to watersheds and project areas up to 40 acres.

As per the County of Los Angeles Department of Public Works Analysis of 85th Percentile 24-hour Rainfall Depth Analysis. Within the County of Los Angeles. The 85th Percentile 24-hr Rainfall Depth for the site is: **0.93 inch.**

The Modified Rational Method will be used to calculate the peak mitigation $Q_{PM.}$ and V_M
See results from the Los Angeles Department of Public Works' HydroCalc.

Predominant Soil Type:
From LACDPW Soil Classification Area: 006

Sub-area A Node 100 to Node 101

Area = 0.365 acres
L = 228 ft. S = 0.0115

Using the HydroCalc from LACDPW, the following values were found:

Q_{PM} = 0.0892 cfs.	**V_M = 0.0213 ac-ft**
Tc = 16 min.	**V_M = 929.72 cu.ft.**
I = 0.3212 in/hr.	

Sub-area B Node 100 to Node 201

Area = 0.329 acres
L = 175 ft. S = 0.0139

Using the HydroCalc from LACDPW, the following values were found:

Q_{PM} = 0.0925 cfs.	**V_M = 0.0201 ac-ft**
Tc = 13 min.	**V_M = 874.15 cu.ft.**
I = 0.3541 in/hr.	

Sub-area C Node 300 to Node 301

Area = 0.451 acres
L = 212 ft. S = 0.0141

Using the HydroCalc from LACDPW, the following values were found:

Q_{PM} = 0.1041 cfs.	**V_M = 0.0249 ac-ft**
Tc = 16 min.	**V_M = 1,084.75 cu.ft.**
I = 0.3212 in/hr.	

Sub-area D Node 400 to Node 401

Area = 0.358 acres
L = 301 ft. S = 0.0087

Using the HydroCalc from LACDPW, the following values were found:

Q_{PM} = 0.0842 cfs.	**V_M = 0.0224 ac-ft**
Tc = 20 min.	**V_M = 974.21 cu.ft.**
I = 0.2892 in/hr.	

Sub-area E Node 300 to Node 501

Area = 0.185 acres
L = 115 ft. S = 0.0251

Using the HydroCalc from LACDPW, the following values were found:

Q_{PM} = 0.0613 cfs.	**V_M = 0.011 ac-ft**
Tc = 9 min.	**V_M = 479.42 cu.ft.**
I = 0.421 in/hr.	

Sub-area F Node 600 to Node 601

Area = 0.104 acres
L = 61 ft. S = 0.0226

Using the HydroCalc from LACDPW, the following values were found:

Q_{PM} = 0.007 cfs.	**V_M = 0.002 ac-ft**
Tc = 15 min.	**V_M = 71.03 cu.ft.**
I = 0.331 in/hr.	

Sub-area F Node 700 to Node 701

Area = 0.069 acres
L = 20 ft. S = 0.027

Using the HydroCalc from LACDPW, the following values were found:

Q_{PM} = 0.016 cfs.	**V_M = 0.001 ac-ft**
Tc = 5 min.	**V_M = 44.13 cu.ft.**
I = 0.555 in/hr.	

Storage volume: 929.72 + 874.15 + 1,084.75 + 974.21 + 479.42 + 71.03 + 44.13 = 4,457.41 cu.ft.

PROPOSED TREATMENT SOLUTION

The proposed treatment solution is fossil filter inserts in all grated inlet catch basins as pretreatment, store the required treatment volume in an underground storage system where the stored runoff will infiltrate the underlying soil.

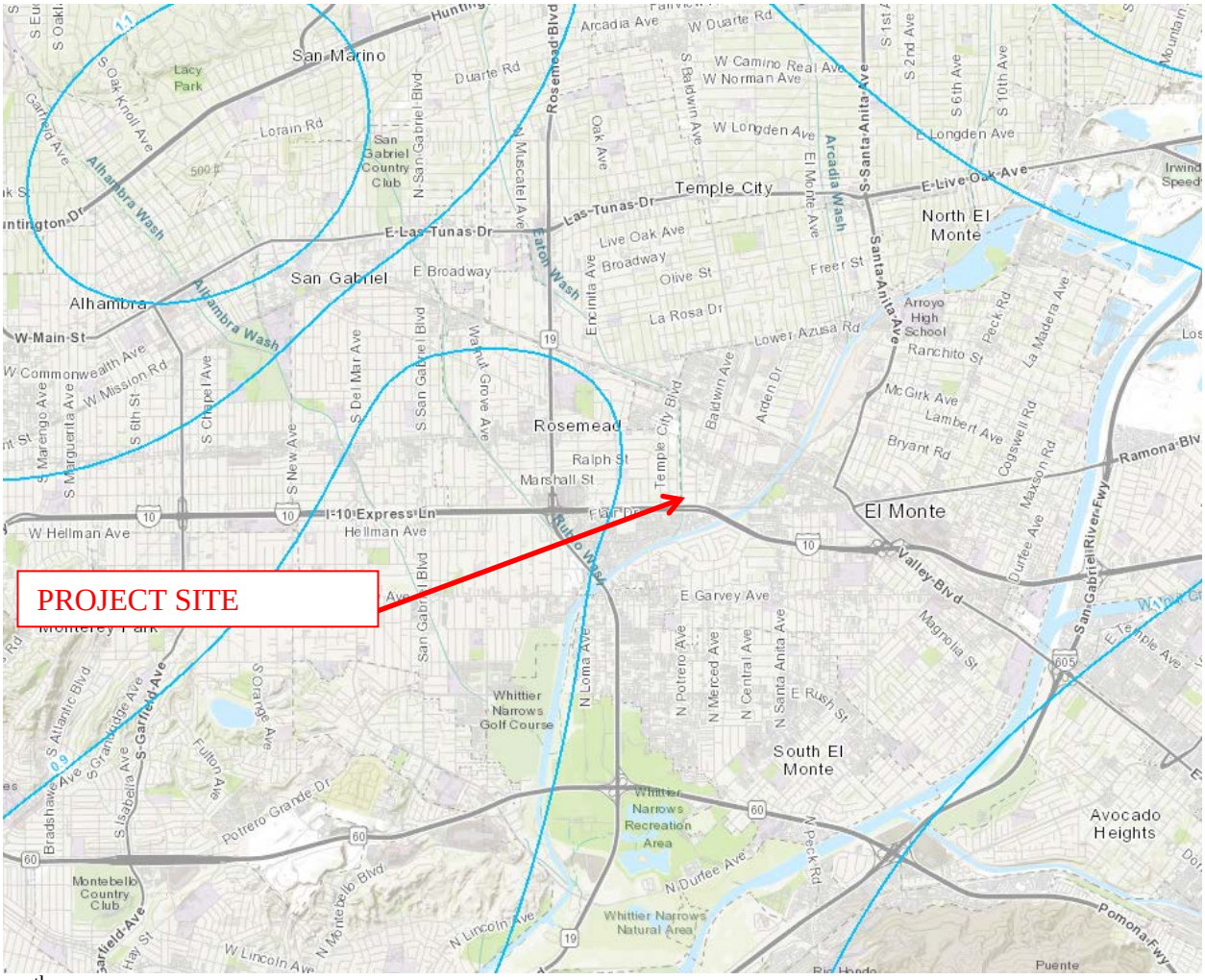
See attached detail and specification sheets by manufacturer

DRAWDOWN TIME CALCULATION

Infiltration rate: **11.4 in/hr** (B-7 boring location at proposed system)
Safety factor: **3**
System footprint: **30.5' x 66.5' = 2,028.25 ft^2**
Volume provided: **4,606.70 ft^3**

Draw Down Time

$$DD = \frac{4{,}607x12}{2{,}028.25x(11.4/3)} = 7.17\ hr. < 48\ \text{hr.}$$



85th Percentile Depth = 0.93 in.

Peak Flow Hydrologic Analysis

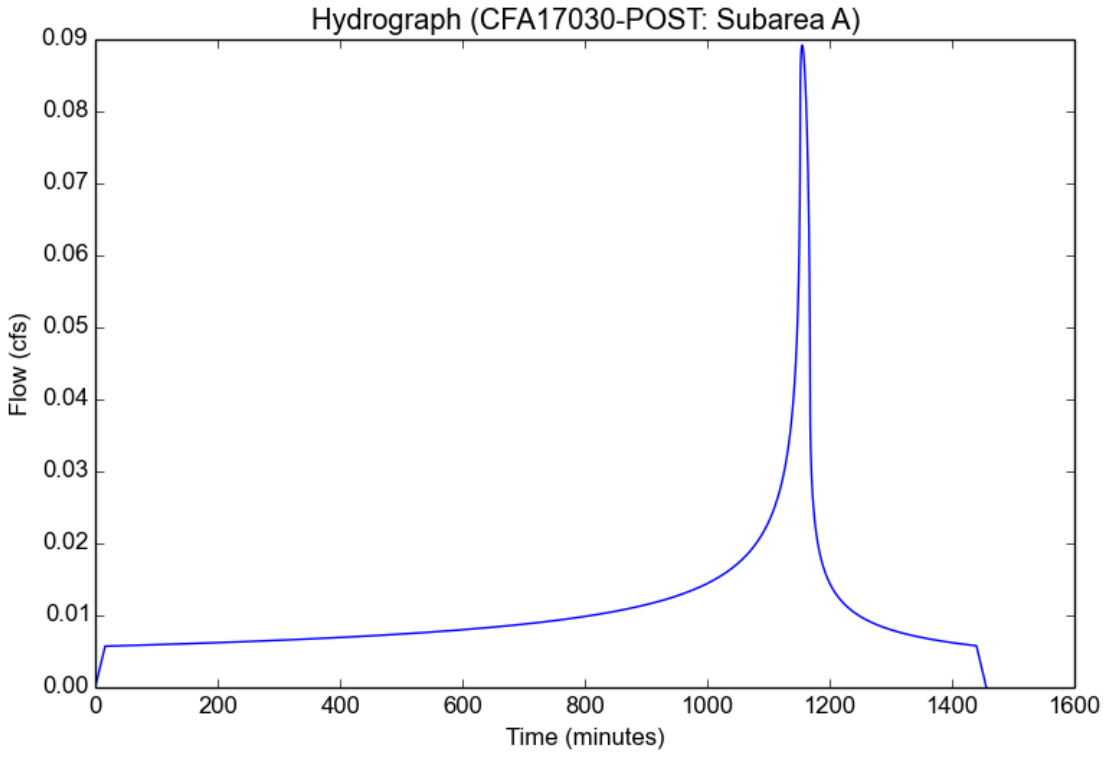
File location: P:/CFA17030/Reports/LID/Hydrocalc/CFA17030-POST-85th - A.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	CFA17030-POST
Subarea ID	Subarea A
Area (ac)	0.365
Flow Path Length (ft)	228.0
Flow Path Slope (vft/hft)	0.0115
85th Percentile Rainfall Depth (in)	0.93
Percent Impervious	0.826
Soil Type	6
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	0.93
Peak Intensity (in/hr)	0.3212
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.7608
Time of Concentration (min)	16.0
Clear Peak Flow Rate (cfs)	0.0892
Burned Peak Flow Rate (cfs)	0.0892
24-Hr Clear Runoff Volume (ac-ft)	0.0213
24-Hr Clear Runoff Volume (cu-ft)	929.7158



Peak Flow Hydrologic Analysis

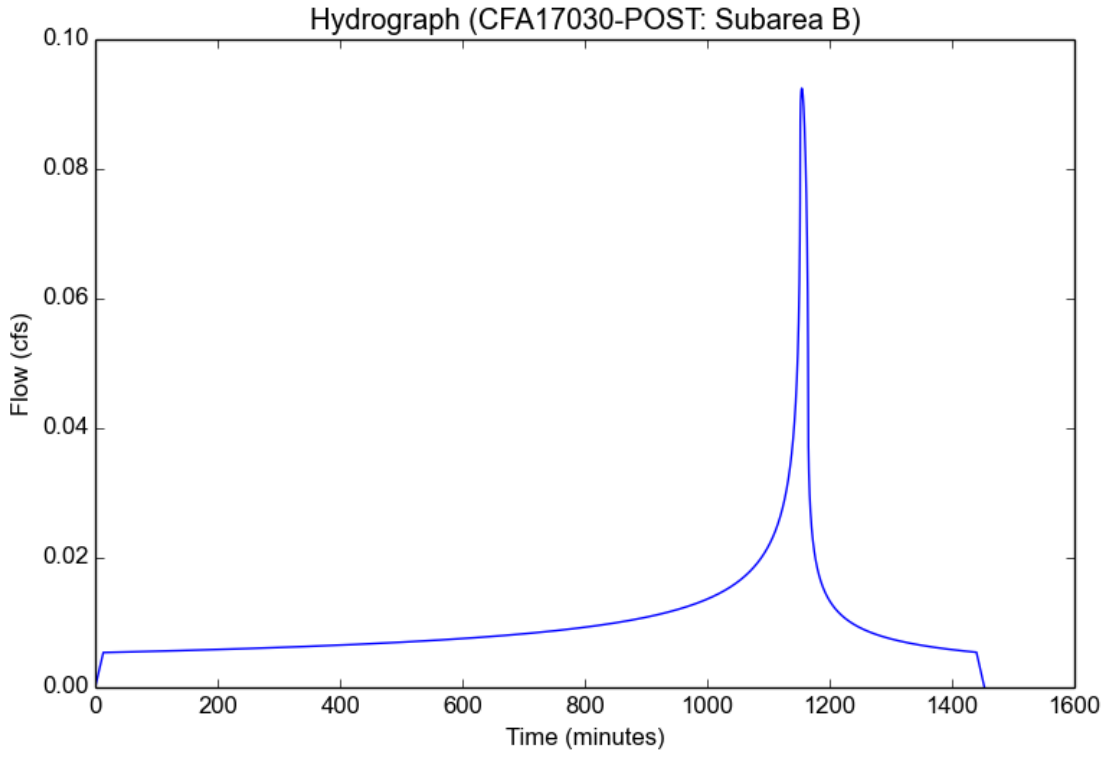
File location: P:/CFA17030/Reports/LID/Hydrocalc/CFA17030-POST-85th - B.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	CFA17030-POST
Subarea ID	Subarea B
Area (ac)	0.329
Flow Path Length (ft)	175.0
Flow Path Slope (vft/hft)	0.0139
85th Percentile Rainfall Depth (in)	0.93
Percent Impervious	0.867
Soil Type	6
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	0.93
Peak Intensity (in/hr)	0.3541
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.7936
Time of Concentration (min)	13.0
Clear Peak Flow Rate (cfs)	0.0925
Burned Peak Flow Rate (cfs)	0.0925
24-Hr Clear Runoff Volume (ac-ft)	0.0201
24-Hr Clear Runoff Volume (cu-ft)	874.1459



Peak Flow Hydrologic Analysis

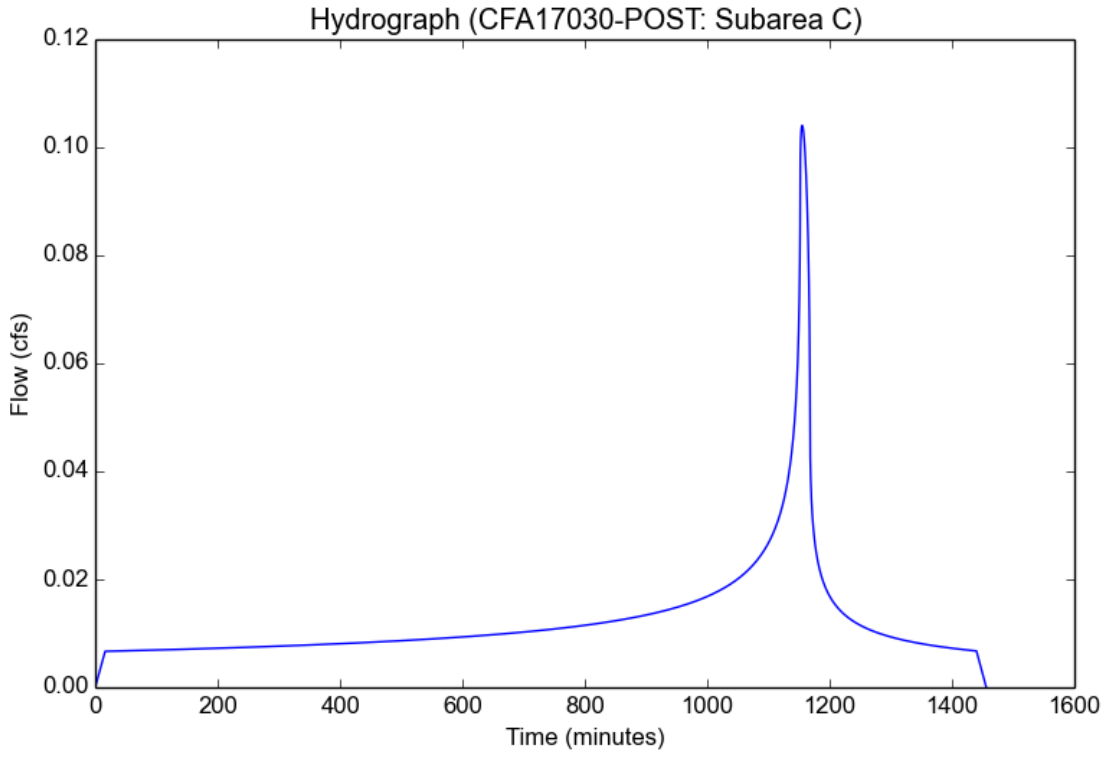
File location: P:/CFA17030/Reports/LID/Hydrocalc/CFA17030-POST-85th - C.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	CFA17030-POST
Subarea ID	Subarea C
Area (ac)	0.451
Flow Path Length (ft)	212.0
Flow Path Slope (vft/hft)	0.0141
85th Percentile Rainfall Depth (in)	0.93
Percent Impervious	0.773
Soil Type	6
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	0.93
Peak Intensity (in/hr)	0.3212
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.7184
Time of Concentration (min)	16.0
Clear Peak Flow Rate (cfs)	0.1041
Burned Peak Flow Rate (cfs)	0.1041
24-Hr Clear Runoff Volume (ac-ft)	0.0249
24-Hr Clear Runoff Volume (cu-ft)	1084.7502



Peak Flow Hydrologic Analysis

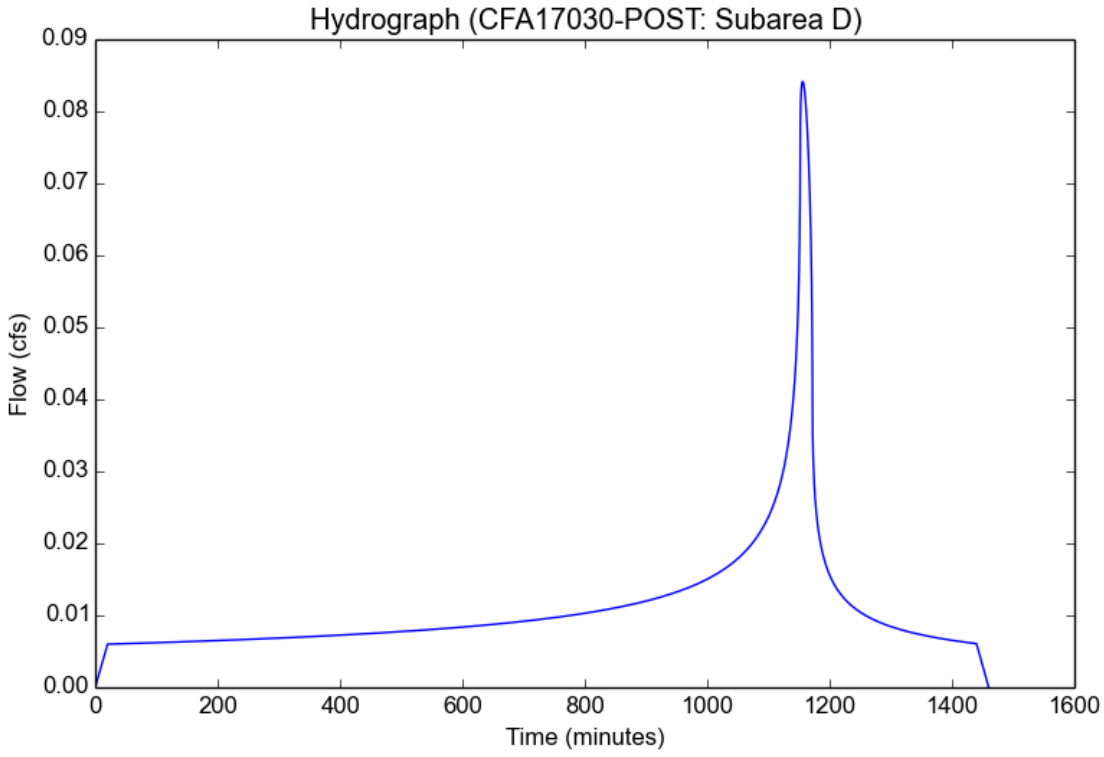
File location: P:/CFA17030/Reports/LID/Hydrocalc/CFA17030-POST-85th - D.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	CFA17030-POST
Subarea ID	Subarea D
Area (ac)	0.358
Flow Path Length (ft)	301.0
Flow Path Slope (vft/hft)	0.0087
85th Percentile Rainfall Depth (in)	0.93
Percent Impervious	0.891
Soil Type	6
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	0.93
Peak Intensity (in/hr)	0.2892
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.8128
Time of Concentration (min)	20.0
Clear Peak Flow Rate (cfs)	0.0842
Burned Peak Flow Rate (cfs)	0.0842
24-Hr Clear Runoff Volume (ac-ft)	0.0224
24-Hr Clear Runoff Volume (cu-ft)	974.214



Peak Flow Hydrologic Analysis

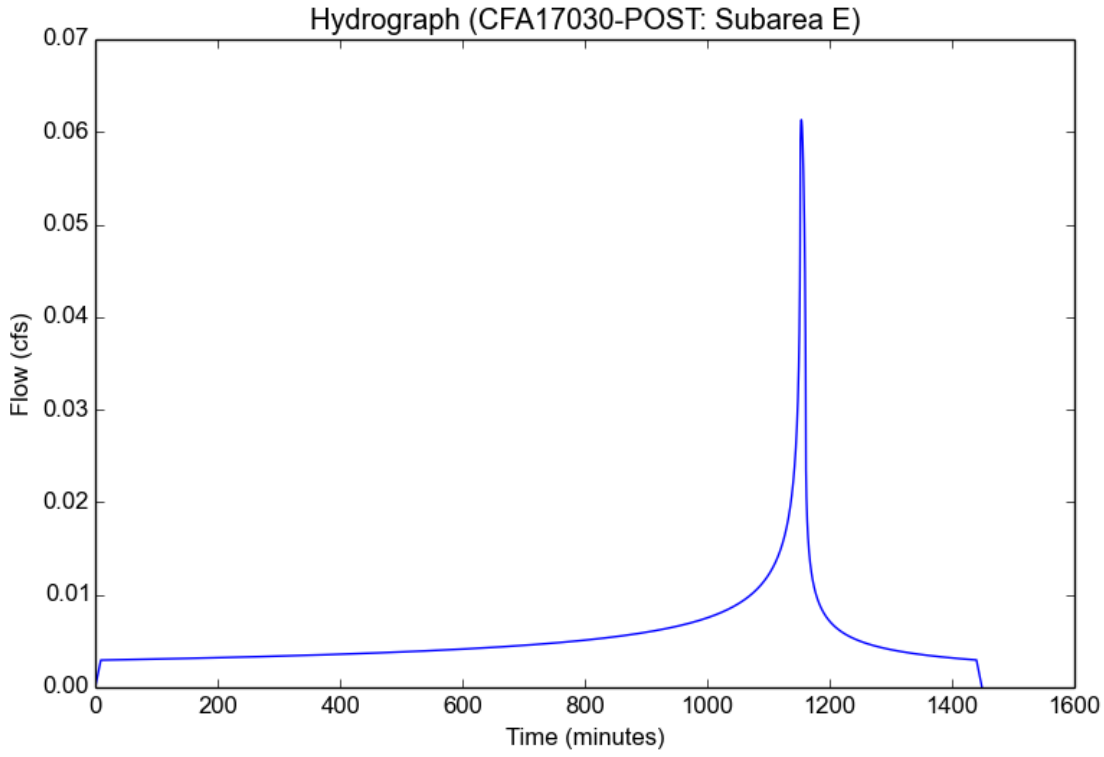
File location: P:/CFA17030/Reports/LID/Hydrocalc/CFA17030-POST-85th - E.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	CFA17030-POST
Subarea ID	Subarea E
Area (ac)	0.185
Flow Path Length (ft)	115.0
Flow Path Slope (vft/hft)	0.0251
85th Percentile Rainfall Depth (in)	0.93
Percent Impervious	0.842
Soil Type	6
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	0.93
Peak Intensity (in/hr)	0.4209
Undeveloped Runoff Coefficient (Cu)	0.1875
Developed Runoff Coefficient (Cd)	0.7874
Time of Concentration (min)	9.0
Clear Peak Flow Rate (cfs)	0.0613
Burned Peak Flow Rate (cfs)	0.0613
24-Hr Clear Runoff Volume (ac-ft)	0.011
24-Hr Clear Runoff Volume (cu-ft)	479.4249



Peak Flow Hydrologic Analysis

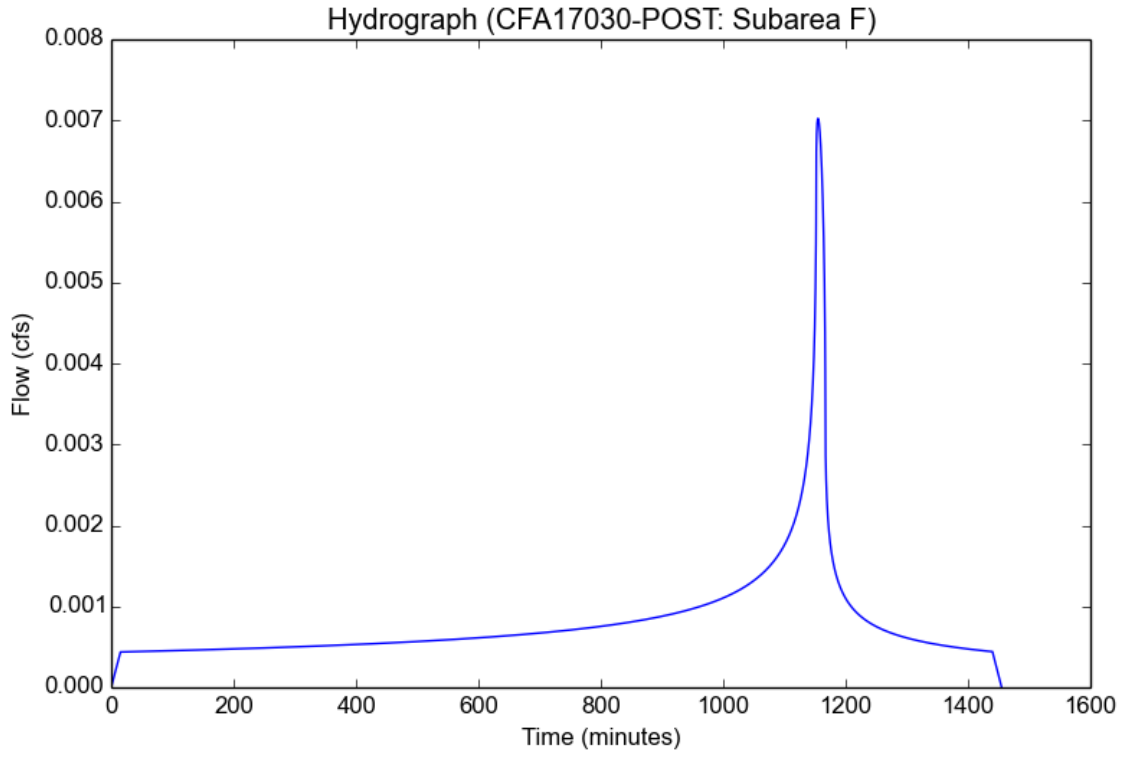
File location: P:/CFA17030/Reports/LID/Hydrocalc/CFA17030-POST-85th - F.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	CFA17030-POST
Subarea ID	Subarea F
Area (ac)	0.104
Flow Path Length (ft)	61.0
Flow Path Slope (vft/hft)	0.0226
85th Percentile Rainfall Depth (in)	0.93
Percent Impervious	0.13
Soil Type	6
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	0.93
Peak Intensity (in/hr)	0.3311
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.204
Time of Concentration (min)	15.0
Clear Peak Flow Rate (cfs)	0.007
Burned Peak Flow Rate (cfs)	0.007
24-Hr Clear Runoff Volume (ac-ft)	0.0016
24-Hr Clear Runoff Volume (cu-ft)	71.0314



Peak Flow Hydrologic Analysis

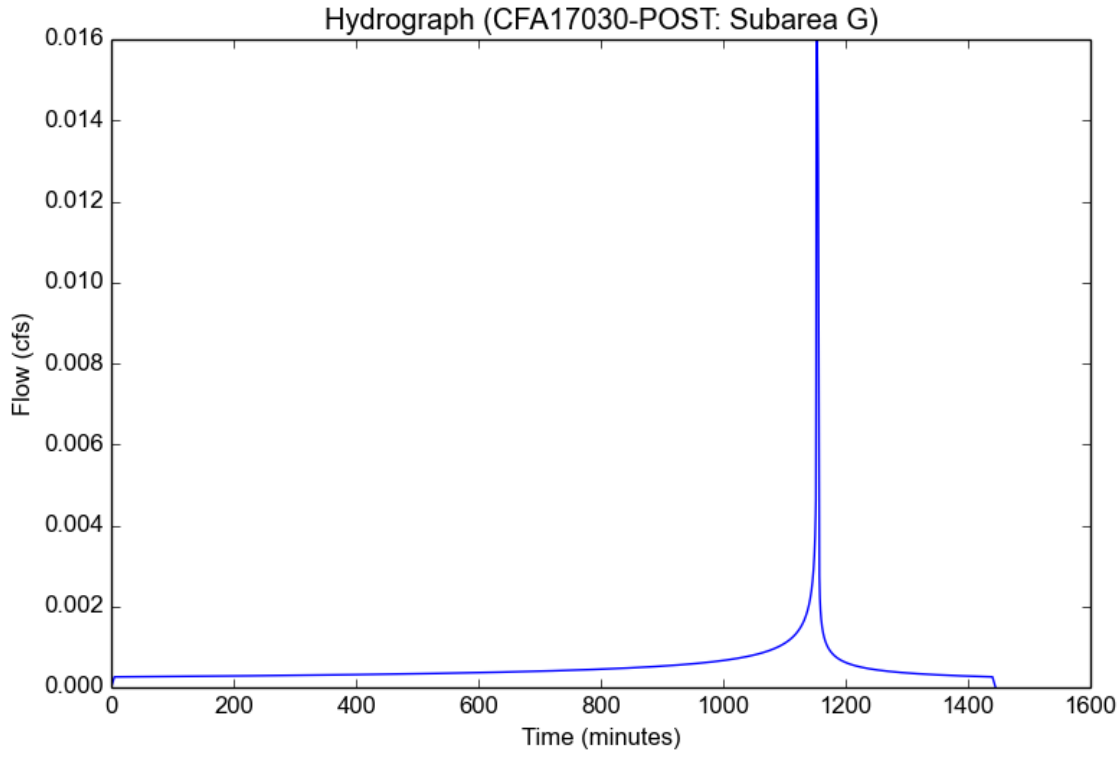
File location: P:/CFA17030/Reports/LID/Hydrocalc/CFA17030-POST-85th - G.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	CFA17030-POST
Subarea ID	Subarea G
Area (ac)	0.069
Flow Path Length (ft)	20.0
Flow Path Slope (vft/hft)	0.027
85th Percentile Rainfall Depth (in)	0.93
Percent Impervious	0.103
Soil Type	6
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	0.93
Peak Intensity (in/hr)	0.5549
Undeveloped Runoff Coefficient (Cu)	0.3621
Developed Runoff Coefficient (Cd)	0.4175
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	0.016
Burned Peak Flow Rate (cfs)	0.016
24-Hr Clear Runoff Volume (ac-ft)	0.001
24-Hr Clear Runoff Volume (cu-ft)	44.1317



Prepared For:	Project Information:	Engineer:	Calculations Performed By:
Chick-fil-A, Inc.	CFA #04098	Randy Decker	Jack Wagner
	I-10 & Santa Anita	Truxaw & Associates	Truxaw & Associates
5200 Buffington Road	El Monte	1915 W. Orangewood Ave., Suite 101	1915 W. Orangewood Ave., Suite 101
Atlanta	CA	Orange	Orange
GA 30349	Date: December 15, 2022	CA 92868	CA 92868
		714-935-0265	714-935-0265
		714-935-0106	714-935-0106
		randydecker@truxaw.com	randydecker@truxaw.com

Input Given Parameters

Unit of Measure	English	
Select Model	Recharger 330XLHD	
Stone Porosity	40.0%	
Number of Header Systems	1 Header	
Stone Depth **Above** Chamber	6	inches
Stone Depth **Below** Chamber	6	inches
Workable Bed Depth	10.00	feet
Max. Bed Width	33.00	feet
Storage Volume Required	4457.41	cu. feet

Image for visual reference only.May not reflect selected model.

Chamber Specifications

Height	30.5	inches
Width	52.00	inches
Length	8.50	feet
Installed Length	7.00	feet
Bare Chamber Volume	52.21	cu. feet
Installed Chamber Volume	79.26	cu. feet
Bed Depth	4.63	feet
Bed Width	30.50	feet
Storage Volume Provided	4606.70	cu. feet

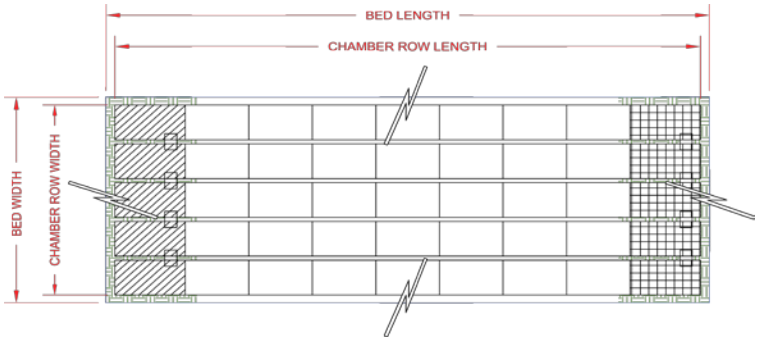
Materials List

Recharger 330XLHD Stormwater System by CULTEC, Inc.

Approx. Unit Count - not for construction	56	pieces
Actual Number of Chambers Required	54	pieces
Starter Chambers	6	pieces
Intermediate Chambers	42	pieces
End Chambers	6	pieces

HVLV FC-24 Feed Connector	5	pieces
CULTEC No. 410™ Filter Fabric	579.77	sq. yards
CULTEC No. 20L Polyethylene Liner	30.50	feet
Stone	159.05	cu. yards

Bed Detail



Number of Rows Wide	6	pieces
Number of Chambers Long	9	pieces
Chamber Row Width	28.50	feet
Chamber Row Length	64.50	feet
Bed Width	30.50	feet
Bed Length	66.50	feet
Bed Area Required	2028.25	sq. feet

Bed detail for reference only. Not project specific. Not to scale. Use CULTEC StormGenie to output project specific detail.

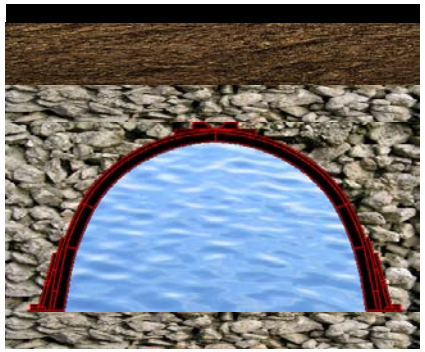
CULTEC, Inc.
P.O. Box 280, Brookfield, CT 06804 USA
Phone: 203-775-4416 - Fax: 203-775-1462 - **www.cultec.com**

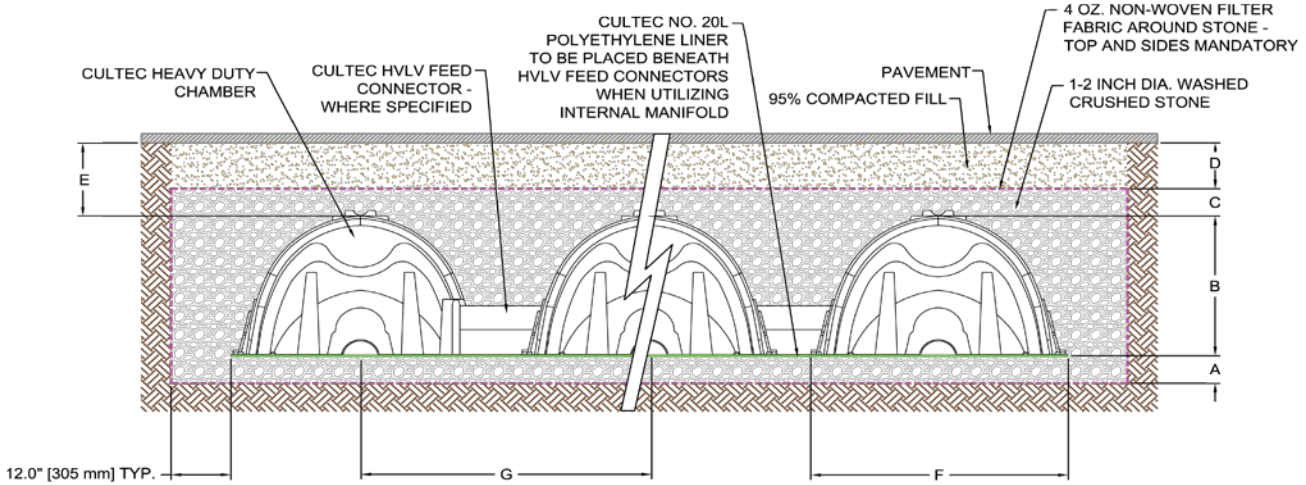
Project Name: CFA #04098 **Date:** December 15, 2022

Cross Section Detail

Conceptual graphic only. Not job specific.

Recharger 330XLHD		
Pavement	**3**	inches
95% Compacted Fill	**10**	inches
Stone Above	**6**	inches
Chamber Height	**30.5**	inches
Stone Below	**6**	inches
Effective Depth	**42.5**	inches
Bed Depth	**55.5**	inches

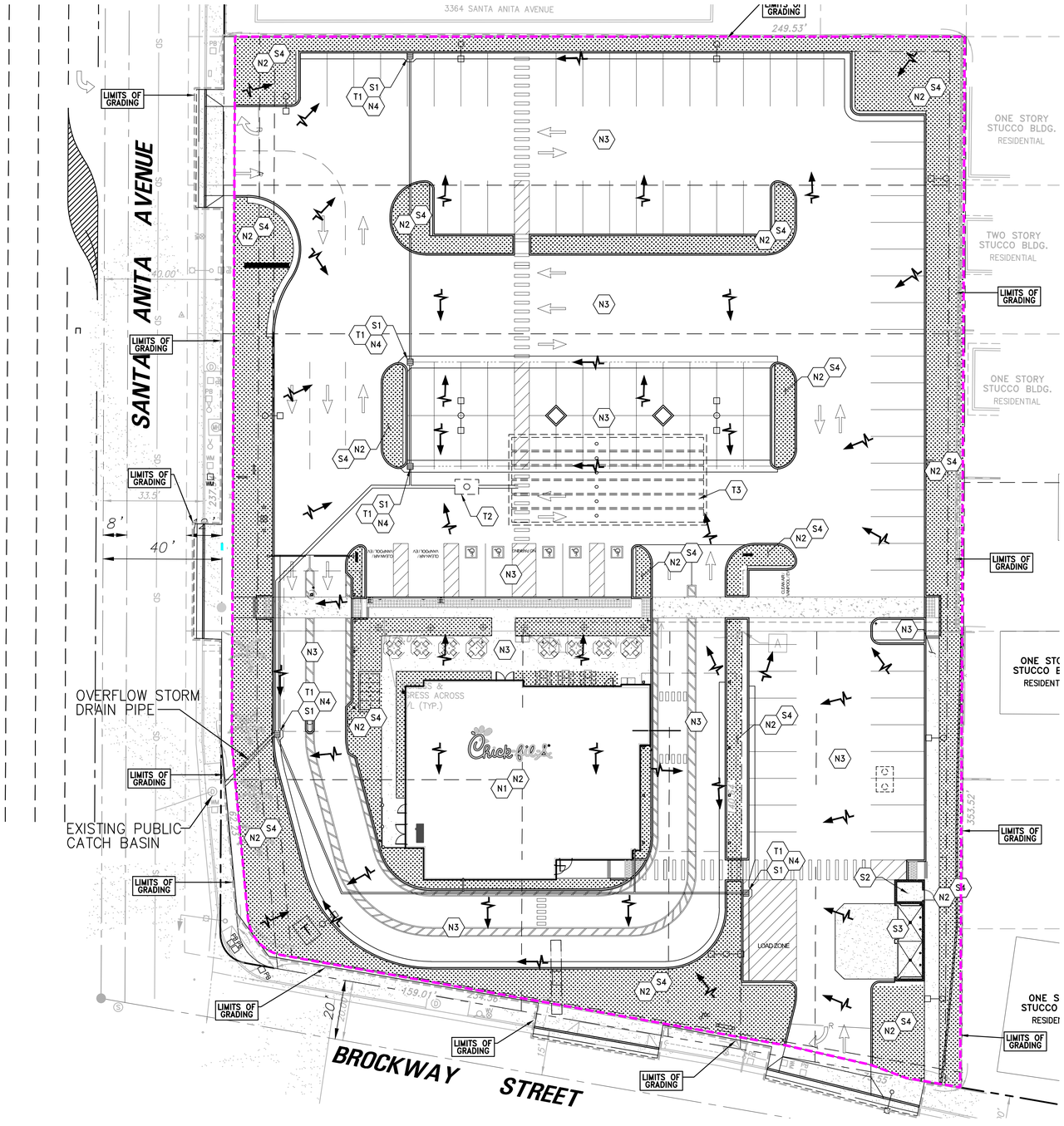


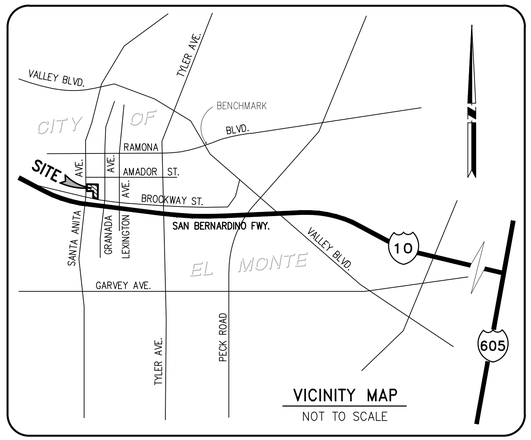


A	Depth of Stone Base	**6.0**	inches
B	Chamber Height	**30.5**	inches
C	Depth of Stone Above Units	**6.0**	inches
D	Depth of 95% Compacted Fill	**10.0**	inches
E	Max. Depth of Cover Allowed Above Crown of Chamber	**12.0**	feet
F	Chamber Width	**52.0**	inches
G	Center to Center Spacing	**4.83**	feet

Breakdown of Storage Provided by Recharger 330XLHD	Stormwater System	
Chambers	**2886.63**	cu. feet
Feed Connectors	**2.28**	cu. feet
Stone	**1717.79**	cu. feet
Total Storage Provided	**4606.70**	cu. feet

CULTEC, Inc.
P.O. Box 280, Brookfield, CT 06804 USA
Phone: 203-775-4416 - Fax: 203-775-1462 - **www.cultec.com**





INFILTRATOR COORDINATES:

34°04'10.80" N
118°02'29.39" W

LEGEND

NON-STRUCTURAL SOURCE CONTROL BMPs

- N1 EDUCATION FOR PROPERTY OWNERS, TENANTS, AND OCCUPANTS
- N2 COMMON AREA LANDSCAPE MANAGEMENT
- N3 COMMON AREA LITTER CONTROL
- N4 COMMON AREA CATCH BASIN INSPECTION
- N5 STREET SWEEPING PRIVATE STREETS AND PARKING LOTS

STRUCTURAL SOURCE CONTROL BMPs

- S1 PRIVATE STORM DRAIN STENCILING AND SIGNAGE
- S2 DESIGN AND CONSTRUCT OUTDOOR MATERIAL STORAGE AREAS TO REDUCE POLLUTION INTRODUCTION
- S3 DESIGN AND CONSTRUCT TRASH AND WASTE STORAGE AREAS TO REDUCE POLLUTION INTRODUCTION
- S4 USE EFFICIENT IRRIGATION SYSTEMS AND LANDSCAPE DESIGN, WATER CONSERVATION, SMART CONTROLLERS, AND SOURCE CONTROL

STRUCTURAL TREATMENT CONTROL BMPs

- T1 CATCH BASIN FOSSIL FILTER INSERTS
- T2 CULTEC SOTRMFILTER 300
- T3 CULTEC RECHARGERS 330XLHD

PATH OF FLOW

STORM DRAIN

DRAINAGE BOUNDARY

IMPERVIOUS AREA (BUILDING, TRASH ENCLOSURE, AC PAVEMENT, SIDEWALK)

IMPERVIOUS AREA (BUILDING, TRASH ENCLOSURE, AC PAVEMENT, SIDEWALK)

NOTES

1. THIS PLAN IS TO BE USED FOR INFORMATION PERTAINING TO POST-CONSTRUCTION BMPS ONLY. REFER TO OTHER PLAN SHEETS FOR CONSTRUCTION OF IMPROVEMENTS.
2. USE THIS PLAN IN CONJUNCTION WITH THE PROJECT'S LOW IMPACET DEVELOPMENT PLAN (LID).
3. IF THERE IS A CONFLICT BETWEEN DOCUMENTS, THE NARRATIVE BODY IN THE PROJECT'S LID WILL PREVAIL OVER THIS PLAN.

NOTE: ANY CHANGES (TYPE, SIZE, LOCATION) TO APPROVED STORMWATER BEST MANAGEMENT PRACTICE(S) (BMPS) MUST OBTAIN WRITTEN APPROVAL FROM LOST ANGELES, DEPARTMENT OF PUBLIC WORKS, BUREAU OF SANITATION PRIOR TO CONSTRUCTION OF BMP9S)

20 10 0 20 40 60

SCALE: 1"=20'

ON-SITE DRAINAGE MANAGEMENT AREAS

	SURFACE TYPE	AREA	PERVIOUS		IMPERVIOUS		PROPOSED BMP
DMA A	ROOF/PAVEMENT	1.844 ac			1.417 ac	76.84%	INFILTRATION SYSTEM
	LANDSCAPE		0.427 ac	23.16%			

THIS PLAN IS:

PRELIMINARY

(NOT FOR CONSTRUCTION)

NOTICE TO CONTRACTOR

THE CONTRACTOR SHALL ASCERTAIN THE TRUE VERTICAL AND HORIZONTAL LOCATION AND SIZE OF ALL UTILITIES, PIPES, AND/OR STRUCTURES AND SHALL BE RESPONSIBLE FOR DAMAGE TO ANY PUBLIC OR PRIVATE UTILITIES, SHOWN OR NOT SHOWN HEREON.

IMPORTANT NOTICE

Section 4216 of the Government Code requires a Dig Alert Identification Number be issued before a "Permit to Excavate" will be valid. For your Dig Alert I.D. Number call Underground Service Alert CALL 811 Two working days before you dig.

NO.	REVISIONS	DATE

Prepared by:

Joseph C. Truxaw and Associates, Inc.

Civil Engineers and Land Surveyors

1915 W. Orangewood Ave., Suite 101, Orange, CA 92868 (714) 935-0265 Truxaw.com

LOW IMPACT DEVELOPMENT PLAN

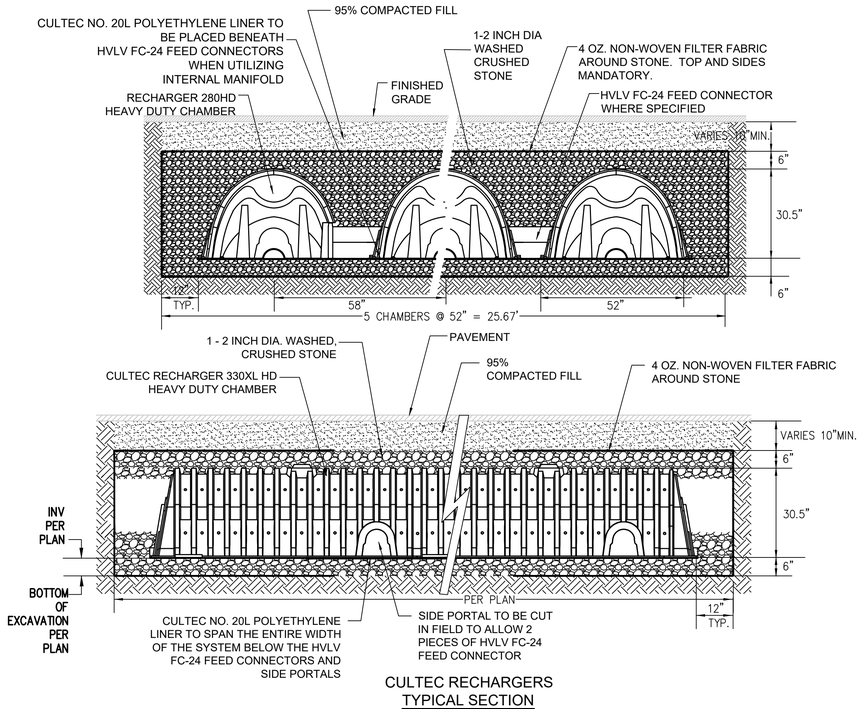
CHICK-FIL-A RESTAUANT #4098

3342 SANTA ANITA AVENUE

EL MONTE COUNTY OF LOS ANGELES, STATE OF CALIFORNIA

DATE	12/15/22
DRAWN BY	KSV
CHECKED BY	RJD
JOB NO.	CFA17030
SHEET NO.	1

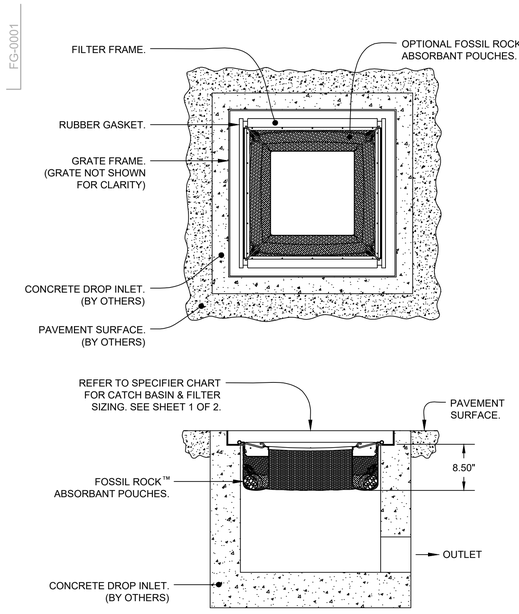
OF 2 SHEETS



CULTEC RECHARGERS
TYPICAL SECTION
NOT TO SCALE

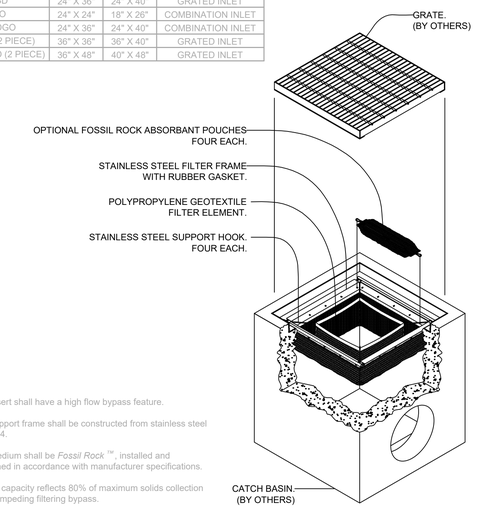
T3 CULTEC RECHARGER 330XLHD

4,606.7 CF PROVIDED



SECTION VIEW

SPECIFIER CHART			
MODEL	INLET ID	GRATE OD	COMMENTS
FF-12D	12" X 12"	15" X 15"	GRATED INLET
FF-16D	16" X 16"	18" X 18"	GRATED INLET
FF-18D	18" X 18"	20" X 20"	GRATED INLET
FF-1836SD	18" X 36"	18" X 40"	GRATED INLET
FF-1836DGO	18" X 36"	18" X 40"	COMBINATION INLET
FF-24D	24" X 24"	26" X 26"	GRATED INLET
FF-2436SD	24" X 36"	24" X 40"	GRATED INLET
FF-24DGO	24" X 24"	18" X 26"	COMBINATION INLET
FF-2436DGO	24" X 36"	24" X 40"	COMBINATION INLET
FF-36D (2 PIECE)	36" X 36"	36" X 40"	GRATED INLET
FF-3648D (2 PIECE)	36" X 48"	40" X 48"	GRATED INLET



NOTES:

1. Filter insert shall have a high flow bypass feature.
2. Filter support frame shall be constructed from stainless steel Type 304.
3. Filter medium shall be *Fossil Rock* ™, installed and maintained in accordance with manufacturer specifications.
4. Storage capacity reflects 80% of maximum solids collection prior to impeding filtering bypass.

FloGard® Catch Basin Insert Filter
Grated Inlet Style

Inlet Filtration

Oldcastle® Stormwater Solutions
7921 Southpark Plaza, Suite 200 | Littleton, CO | 80120 | Ph: 800.579.8819 | oldcastlestormwater.com

FG-0001	E	ECO-0142 JPR 7/13/16	JPR 12/18/06	SHEET 2 OF 2

FloGard® Catch Basin Insert Filter
Grated Inlet Style

Inlet Filtration

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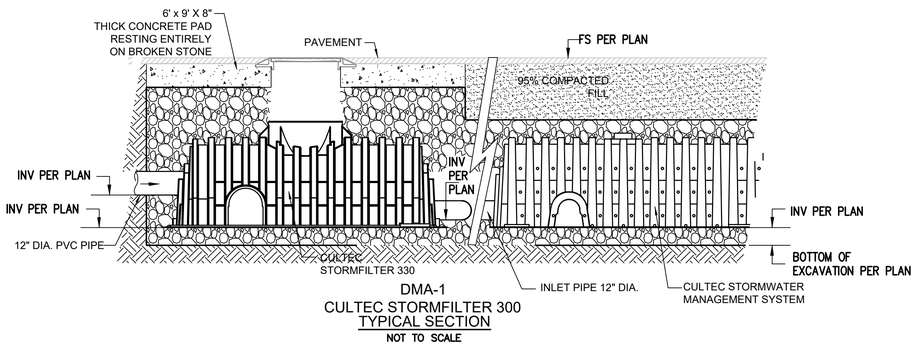
FG-0001	E	ECO-0142 JPR 7/13/16	JPR 12/18/06	SHEET 1 OF 2

T1 OLDCASTLE FLOGARD CATCH BASIN INSERT



DMA-1
CULTEC STORMFILTER 300
TYPICAL SECTION
NOT TO SCALE

T2 CULTEC STORMFILTER 330

S1 STORM DRAIN STENCILING

NOTICE TO CONTRACTOR

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CALL 811
Two working days before you dig.

THIS PLAN IS:
PRELIMINARY
(NOT FOR CONSTRUCTION)

NO.	REVISIONS	DATE

Prepared by:
Joseph C. Truxaw and Associates, Inc.
Civil Engineers and Land Surveyors
1915 W. Orangewood Ave., Suite 101, Orange, CA 92868 (714) 935-0265 Truxaw.com

LOW IMPACT DEVELOPMENT PLAN

CHICK-FIL-A RESTAUANT #4098
3342 SANTA ANITA AVENUE
EL MONTE COUNTY OF LOS ANGELES, STATE OF CALIFORNIA

DATE	12/15/22
DRAWN BY	KSV
CHECKED BY	RJD
JOB NO.	CFA17030
SHEET NO.	2
OF	2 SHEETS

VI. Maintenance Covenant

PENDING

RECORDING REQUESTED BY
AND MAIL TO:

COUNTY OF LOS ANGELES
DEPARTMENT OF PUBLIC WORKS
BUILDING AND SAFETY DIVISION
900 S. FREMONT AVENUE, 3RD FLOOR
ALHAMBRA, CA 91803-1331

Space above this line is for Recorder's use

COVENANT AND AGREEMENT
REGARDING THE MAINTENANCE OF LOW IMPACT DEVELOPMENT (LID) & NATIONAL POLLUTANTS DISCHARGE ELIMINATION SYSTEM (NPDES) BMPs

The undersigned, _____ ("Owner"), hereby certifies that it owns the real property described as follows ("Subject Property"), located in the County of Los Angeles, State of California:

LEGAL DESCRIPTION

ASSESSOR'S ID # 8579-005-024, -026, -027, -028 TRACT NO._____ LOT NO._____

ADDRESS: 3342 Santa Anita Avenue, El Monte, CA 91731

Owner is aware of the requirements of County of Los Angeles' Green Building Standards Code, Title 31 Section 4.106.4 (LID), and the National Pollutant Discharge Elimination System (NPDES) permit. The following post-construction BMP features have been installed on the Subject Property:

- □ Porous pavement
- □ Cistern/rain barrel
- □ Infiltration trench/pit
- □ Bioretention or biofiltration
- □ Rain garden/planter box
- □ Disconnect impervious surfaces
- □ Dry Well
- □ Storage containers
- □ Landscape and landscape irrigation
- □ Green roof
- ☑ Other Underground Infiltration system, catch basin filter inserts

The location, including GPS x-y coordinates, and type of each post-construction BMP feature installed on the Subject Property is identified on the site diagram attached hereto as Exhibit 1.

Owner hereby covenants and agrees to maintain the above-described post-construction BMP features in a good and operable condition at all times, and in accordance with the LID/NPDES Maintenance Guidelines, attached hereto as Exhibit 2.

Owner further covenants and agrees that the above-described post-construction BMP features shall not be removed from the Subject Property unless and until they have been replaced with other post-construction BMP features in accordance with County of Los Angeles' Green Building Standards Code, Title 31.

Owner further covenants and agrees to maintain all drainage devices located within his or her property in good condition and operable condition at all times.

Owner further covenants and agrees that if Owner hereafter sells the Subject Property, Owner shall provide printed educational materials to the buyer regarding the post-construction BMP features that are located on the Subject Property, including the type(s) and location(s) of all such features, and instructions for properly maintaining all such features.

Owner makes this Covenant and Agreement on behalf of itself and its successors and assigns. This Covenant and Agreement shall run with the Subject Property and shall be binding upon Owner, future owners, and their heirs, successors and assignees, and shall continue in effect until the release of this Covenant and Agreement by the County of Los Angeles, in its sole discretion.

Owner(s):

By:_____ Date:_____

By:_____ Date:_____

A notary public or other officer completing the attached certificate verifies only the identity of the individual who signed the document to which the certificate is attached, and not the truthfulness, accuracy, or validity of that document.

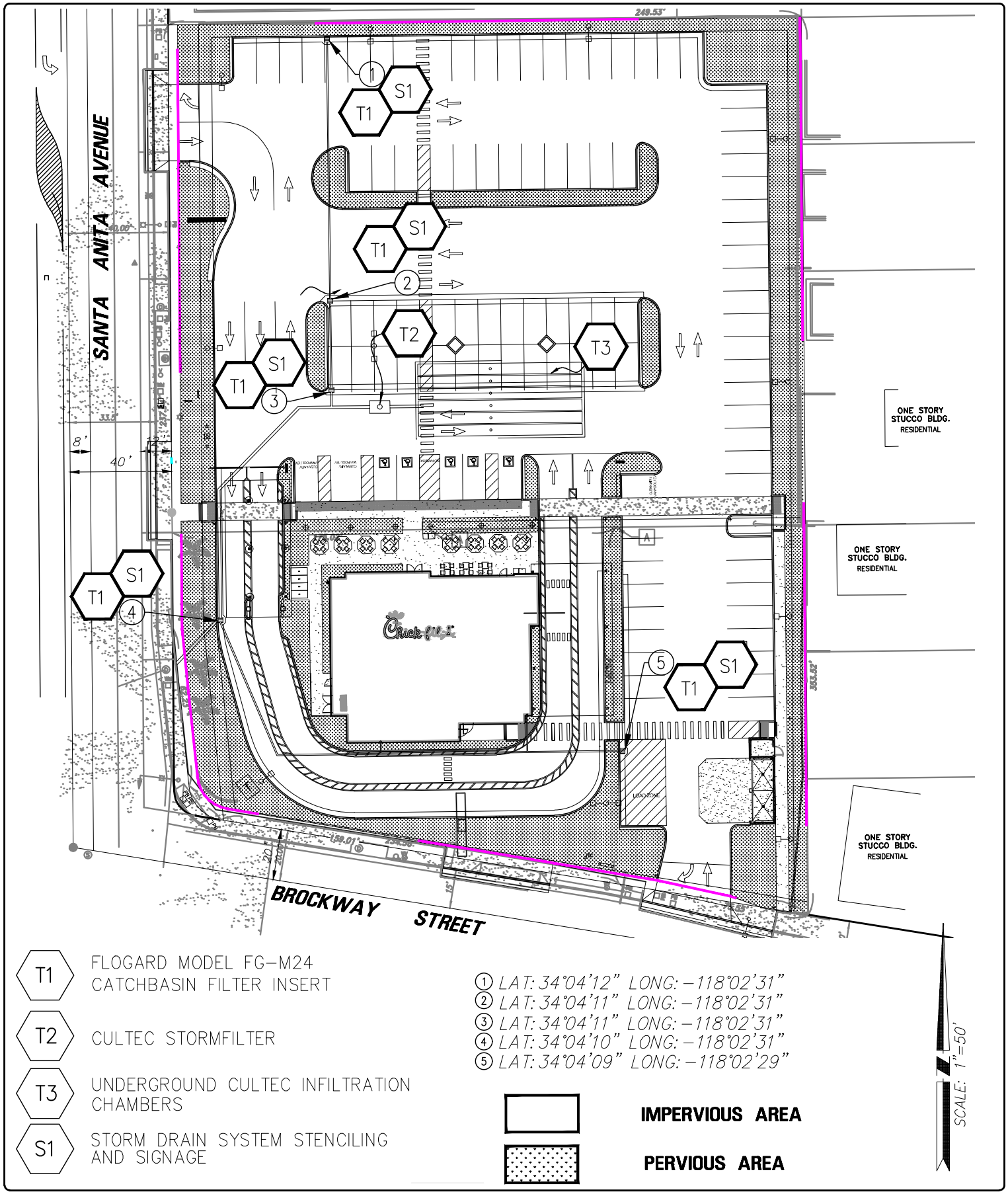
(PLEASE ATTACH NOTARY)

FOR DEPARTMENT USE ONLY:

MUST BE APPROVED BY COUNTY OF LOS ANGELES BUILDING AND SAFETY DIVISION PRIOR TO RECORDING.

APPROVED BY:_____ _____ Date _____
(Print Name) (Signature)

ATTACHMENTS



T1 FLOGARD MODEL FG-M24 CATCHBASIN FILTER INSERT

T2 CULTEC STORMFILTER

T3 UNDERGROUND CULTEC INFILTRATION CHAMBERS

S1 STORM DRAIN SYSTEM STENCILING AND SIGNAGE

① LAT: 34°04'12" LONG: -118°02'31"
② LAT: 34°04'11" LONG: -118°02'31"
③ LAT: 34°04'11" LONG: -118°02'31"
④ LAT: 34°04'10" LONG: -118°02'31"
⑤ LAT: 34°04'09" LONG: -118°02'29"

IMPERVIOUS AREA

PERVIOUS AREA

Prepared by:
Joseph C. Truxaw and Associates, Inc.
Civil Engineers and Land Surveyors
1915 W. Orangewood Ave., Suite 101, Orange, CA 92868
(714) 935-0265 Truxaw.com

EXHIBIT 1, BMP SITE PLAN

CHICK-FIL-A #4098, EL MONTE, CA

DRAWN: RJD	CHKD: RJD		
DATE: 01-27-23	DATE: 01-27-23		

Contactor® & Recharger®
Stormwater Chambers

Operation and Maintenance Guidelines
for CULTEC Stormwater Management Systems

The Founder of Plastic Chamber Technology

www.cultec.com | 1(800) 4-CULTEC |

CULTEC®

Published by
CULTEC, Inc.
P.O. Box 280
878 Federal Road
Brookfield, Connecticut 06804 USA
www.cultec.com

Disclaimers:
The drawings, photographs and illustrations shown in this document are for illustrative purposes only and are not necessarily to scale. Actual designs may vary.

CULTEC reserves the right to make design and/or specification changes at any time without notice at CULTEC's sole discretion.

CULTEC is not responsible for typographical errors.

Protected by one or more of the following patents:
Protected by one or more of the following patents:
U.S. Patents 6,129,482; 6,322,288; 6,854,925; 7,226,241; 7,806,627; 8,366,346; 8,425,148; and others; U.S. Designs D613819; D638,095; D668,318 and others; Canadian Patent 2,591,255 and others; Community Designs 1092191; 1745209; and others.

Contact Information:
For general information on our other products and services, please contact our offices within the United States at (800)428-5832, (203)775-4416 ext. 202, or e-mail us at custservice@cultec.com.

For technical support, please call (203)775-4416 ext. 203 or e-mail tech@cultec.com.

Visit www.cultec.com/downloads.html for Product Downloads and CAD details.

Doc ID: CULG008 05-17
May 2017

These instructions are for single-layer traffic applications only. For multi-layer applications, contact CULTEC.
All illustrations and photos shown herein are examples of typical situations. Be sure to follow the engineer's drawings.
Actual designs may vary.

This manual contains guidelines recommended by CULTEC, Inc. and may be used in conjunction with, but not to supersede, local regulations or regulatory authorities. OSHA Guidelines must be followed when inspecting or cleaning any structure.

Introduction

The CULTEC Subsurface Stormwater Management System is a high-density polyethylene (HDPE) chamber system arranged in parallel rows surrounded by washed stone. The CULTEC chambers create arch-shaped voids within the washed stone to provide stormwater detention, retention, infiltration, and reclamation. Filter fabric is placed between the native soil and stone interface to prevent the intrusion of fines into the system. In order to minimize the amount of sediment which may enter the CULTEC system, a sediment collection device (stormwater pretreatment device) is recommended upstream from the CULTEC chamber system. Examples of pretreatment devices include, but are not limited to, an appropriately sized catch basin with sump, pretreatment catchment device, oil grit separator, or baffled distribution box. Manufactured pretreatment devices may also be used in accordance with CULTEC chambers. Installation, operation, and maintenance of these devices shall be in accordance with manufacturer's recommendations. Almost all of the sediment entering the stormwater management system will be collected within the pretreatment device.

Best Management Practices allow for the maintenance of the preliminary collection systems prior to feeding the CULTEC chambers. The pretreatment structures shall be inspected for any debris that will restrict inlet flow rates. Outfall structures, if any, such as outlet control must also be inspected for any obstructions that would restrict outlet flow rates. OSHA Guidelines must be followed when inspecting or cleaning any structure.

Operation and Maintenance Requirements

I. Operation

CULTEC stormwater management systems shall be operated to receive only stormwater run-off in accordance with applicable local regulations. CULTEC subsurface stormwater management chambers operate at peak performance when installed in series with pretreatment. Pretreatment of suspended solids is superior to treatment of solids once they have been introduced into the system. The use of pretreatment is adequate as long as the structure is maintained and the site remains stable with finished impervious surfaces such as parking lots, walkways, and pervious areas are properly maintained. If there is to be an unstable condition, such as improvements to buildings or parking areas, all proper silt control measures shall be implemented according to local regulations.

II. Inspection and Maintenance Options

A. The CULTEC system may be equipped with an inspection port located on the inlet row. The inspection port is a circular cast box placed in a rectangular concrete collar. When the lid is removed, a 6-inch (150 mm) pipe with a screw-in plug will be exposed. Remove the plug. This will provide access to the CULTEC Chamber row below. From the surface, through this access, the sediment may be measured at this location. A stadia rod may be used to measure the depth of sediment if any in this row. If the depth of sediment is in excess of 3 inches (76 mm), then this row should be cleaned with high pressure water through a culvert cleaning nozzle. This would be carried out through an upstream manhole or through the CULTEC StormFilter Unit (or other pretreatment device). CCTV inspection of this row can be deployed through this access port to determine if any sediment has accumulated in the inlet row.

B. If the CULTEC bed is not equipped with an inspection port, then access to the inlet row will be through an upstream manhole or the CULTEC StormFilter.

1. Manhole Access

This inspection should only be carried out by persons trained in confined space entry and sewer inspection services. After the manhole cover has been removed a gas detector must be lowered into the manhole to ensure that there are not high concentrations of toxic gases present. The inspector should be lowered into the manhole with the proper safety equipment as per OSHA requirements. The inspector may be able to observe sediment from this location. If this is not possible, the inspector will need to deploy a CCTV robot to permit viewing of the sediment.

2. **StormFilter Access**
Remove the manhole cover to allow access to the unit. Typically a 30-inch (750 mm) pipe is used as a riser from the StormFilter to the surface. As in the case with manhole access, this access point requires a technician trained in confined space entry with proper gas detection equipment. This individual must be equipped with the proper safety equipment for entry into the StormFilter. The technician will be lowered onto the StormFilter unit. The hatch on the unit must be removed. Inside the unit are two filters which may be removed according to StormFilter maintenance guidelines. Once these filters are removed the inspector can enter the StormFilter unit to launch the CCTV camera robot.

C. The inlet row of the CULTEC system is placed on a polyethylene liner to prevent scouring of the washed stone beneath this row. This also facilitates the flushing of this row with high pressure water through a culvert cleaning nozzle. The nozzle is deployed through a manhole or the StormFilter and extended to the end of the row. The water is turned on and the inlet row is back-flushed into the manhole or StormFilter. This water is to be removed from the manhole or StormFilter using a vacuum truck.

III. Maintenance Guidelines

The following guidelines shall be adhered to for the operation and maintenance of the CULTEC stormwater management system:

A. The owner shall keep a maintenance log which shall include details of any events which would have an effect on the system's operational capacity.

B. The operation and maintenance procedure shall be reviewed periodically and changed to meet site conditions.

C. Maintenance of the stormwater management system shall be performed by qualified workers and shall follow applicable occupational health and safety requirements.

D. Debris removed from the stormwater management system shall be disposed of in accordance with applicable laws and regulations.

IV. Suggested Maintenance Schedules

A. Minor Maintenance
The following suggested schedule shall be followed for routine maintenance during the regular operation of the stormwater system:

Frequency	Action
Monthly in first year	Check inlets and outlets for clogging and remove any debris, as required.
Spring and Fall	Check inlets and outlets for clogging and remove any debris, as required.
One year after commissioning and every third year following	Check inlets and outlets for clogging and remove any debris, as required.

B. Major Maintenance
The following suggested maintenance schedule shall be followed to maintain the performance of the CULTEC stormwater management chambers. Additional work may be necessary due to insufficient performance and other issues that might be found during the inspection of the stormwater management chambers. (See table on next page)

	Frequency	Action
Inlets and Outlets	Every 3 years	• Obtain documentation that the inlets, outlets and vents have been cleaned and will function as intended.
	Spring and Fall	• Check inlet and outlets for clogging and remove any debris as required.
CULTEC Stormwater Chambers	2 years after commissioning	• Inspect the interior of the stormwater management chambers through inspection port for deficiencies using CCTV or comparable technique. • Obtain documentation that the stormwater management chambers and feed connectors will function as anticipated.
	9 years after commissioning every 9 years following	• Clean stormwater management chambers and feed connectors of any debris. • Inspect the interior of the stormwater management structures for deficiencies using CCTV or comparable technique. • Obtain documentation that the stormwater management chambers and feed connectors have been cleaned and will function as intended.
	45 years after commissioning	• Clean stormwater management chambers and feed connectors of any debris. • Determine the remaining life expectancy of the stormwater management chambers and recommended schedule and actions to rehabilitate the stormwater management chambers as required. • Inspect the interior of the stormwater management chambers for deficiencies using CCTV or comparable technique. • Replace or restore the stormwater management chambers in accordance with the schedule determined at the 45-year inspection. • Attain the appropriate approvals as required. • Establish a new operation and maintenance schedule.
Surrounding Site	Monthly in 1st year	• Check for depressions in areas over and surrounding the stormwater management system.
	Spring and Fall	• Check for depressions in areas over and surrounding the stormwater management system.
	Yearly	• Confirm that no unauthorized modifications have been performed to the site.

For additional information concerning the maintenance of CULTEC Subsurface Stormwater Management Chambers, please contact CULTEC, Inc. at 1-800-428-5832.

WQMP
Operation & Maintenance (O&M) Plan

Project Name:_____

Prepared for:

Project Name: _____

Address:_____

City, State Zip:_____

Prepared on:

Date:_____

This O&M Plan describes the designated responsible party for implementation of this WQMP, including: operation and maintenance of all the structural BMP(s), conducting the training/educational program and duties, and any other necessary activities. The O&M Plan includes detailed inspection and maintenance requirements for all structural BMPs, including copies of any maintenance contract agreements, manufacturer's maintenance requirements, permits, etc.

8.1.1 Project Information

Project name	
Address	
City, State Zip	
Site size	
List of structural BMPs, number of each	
Other notes	

8.1.2 Responsible Party

The responsible party for implementation of this WQMP is:

Name of Person or HOA Property Manager	
Address	
City, State Zip	
Phone number	
24-Hour Emergency Contact number	
Email	

8.1.3 Record Keeping

Parties responsible for the O&M plan shall retain records for at least 5 years.

All training and educational activities and BMP operation and maintenance shall be documented to verify compliance with this O&M Plan. A sample Training Log and Inspection and Maintenance Log are included in this document.

8.1.4 Electronic Data Submittal

This document along with the Site Plan and Attachments shall be provided in PDF format. AutoCAD files and/or GIS coordinates of BMPs shall also be submitted to the City.

Appendix ___

BMP SITE PLAN

Site plan is preferred on minimum 11” by 17” colored sheets, as long as legible.

BMP OPERATION & MAINTENANCE LOG

Project Name: _____

Today's Date:_____

Name of Person Performing Activity (Printed):_____

Signature: _____

BMP Name (As Shown in O&M Plan)	Brief Description of Implementation, Maintenance, and Inspection Activity Performed

Minor Maintenance

Frequency		Action
Monthly in first year		Check inlets and outlets for clogging and remove any debris, as required.
		Notes
□ Month 1	Date:	
□ Month 2	Date:	
□ Month 3	Date:	
□ Month 4	Date	
□ Month 5	Date:	
□ Month 6	Date:	
□ Month 7	Date:	
□ Month 8	Date:	
□ Month 9	Date:	
□ Month 10	Date:	
□ Month 11	Date:	
□ Month 12	Date:	
Spring and Fall		Check inlets and outlets for clogging and remove any debris, as required.
		Notes
□ Spring	Date:	
□ Fall	Date:	
□ Spring	Date:	
□ Fall	Date:	
□ Spring	Date:	
□ Fall	Date:	
□ Spring	Date:	
□ Fall	Date:	
□ Spring	Date:	
□ Fall	Date:	
□ Spring	Date:	
□ Fall	Date:	
One year after commissioning and every third year following		Check inlets and outlets for clogging and remove any debris, as required.
		Notes
□ Year 1	Date:	
□ Year 4	Date:	
□ Year 7	Date:	
□ Year 10	Date:	
□ Year 13	Date:	
□ Year 16	Date:	
□ Year 19	Date:	
□ Year 22	Date:	

Major Maintenance

	Frequency		Action
Inlets and Outlets	**Every 3 years**		Obtain documentation that the inlets, outlets and vents have been cleaned and will function as intended.
			Notes
	□ Year 1	Date:	
	□ Year 4	Date:	
	□ Year 7	Date:	
	□ Year 10	Date:	
	□ Year 13	Date:	
	□ Year 16	Date:	
	□ Year 19	Date:	
	□ Year 22	Date:	
	Spring and Fall		Check inlet and outlets for clogging and remove any debris, as required.
			Notes
	□ Spring	Date:	
	□ Fall	Date:	
	□ Spring	Date:	
	□ Fall	Date:	
	□ Spring	Date:	
	□ Fall	Date:	
	□ Spring	Date:	
	□ Fall	Date:	
	□ Spring	Date:	
	□ Fall	Date:	
	□ Spring	Date:	
	□ Fall	Date:	
CULTEC Stormwater Chambers	**2 years after commissioning**		□ Inspect the interior of the stormwater management chambers through inspection port for deficiencies using CCTV or comparable technique. □ Obtain documentation that the stormwater management chambers and feed connectors will function as anticipated.
			Notes
	□ Year 2	Date:	

Major Maintenance

	Frequency		Action
CULTEC Stormwater Chambers	**9 years after commissioning every 9 years following**		□ Clean stormwater management chambers and feed connectors of any debris. □ Inspect the interior of the stormwater management structures for deficiencies using CCTV or comparable technique. □ Obtain documentation that the stormwater management chambers and feed connectors have been cleaned and will function as intended.
			Notes
	□ Year 9	Date:	
	□ Year 18	Date:	
	□ Year 27	Date:	
	□ Year 36	Date:	
	45 years after commissioning		□ Clean stormwater management chambers and feed connectors of any debris. □ Determine the remaining life expectancy of the stormwater management chambers and recommended schedule and actions to rehabilitate the stormwater management chambers as required. □ Inspect the interior of the stormwater management chambers for deficiencies using CCTV or comparable technique. □ Replace or restore the stormwater management chambers in accordance with the schedule determined at the 45-year inspection. □ Attain the appropriate approvals as required. □ Establish a new operation and maintenance schedule.
			Notes
	□ Year 45	Date:	

Major Maintenance

	Frequency		Action
Surrounding Site	**Monthly in 1st year**		□ Check for depressions in areas over and surrounding the stormwater management system.
			Notes
	□ Month 1	Date:	
	□ Month 2	Date:	
	□ Month 3	Date:	
	□ Month 4	Date:	
	□ Month 5	Date:	
	□ Month 6	Date:	
	□ Month 7	Date:	
	□ Month 8	Date:	
	□ Month 9	Date:	
	□ Month 10	Date:	
	□ Month 11	Date:	
	□ Month 12	Date:	
	Spring and Fall		□ Check for depressions in areas over and surrounding the stormwater management system.
			Notes
	□ Spring	Date:	
	□ Fall	Date:	
	□ Spring	Date:	
	□ Fall	Date:	
	□ Spring	Date:	
	□ Fall	Date:	
	□ Spring	Date:	
	□ Fall	Date:	
	□ Spring	Date:	
	□ Fall	Date:	
	□ Spring	Date:	
	□ Fall	Date:	
	Yearly		□ Confirm that no unauthorized modifications have been performed to the site.
			Notes
	□ Year 1	Date:	
	□ Year 2	Date:	
	□ Year 3	Date:	
	□ Year 4	Date:	
	□ Year 5	Date:	
	□ Year 6	Date:	
	□ Year 7	Date:	

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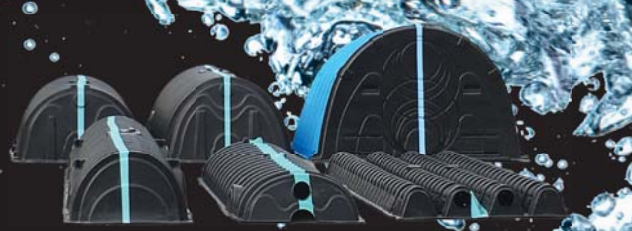

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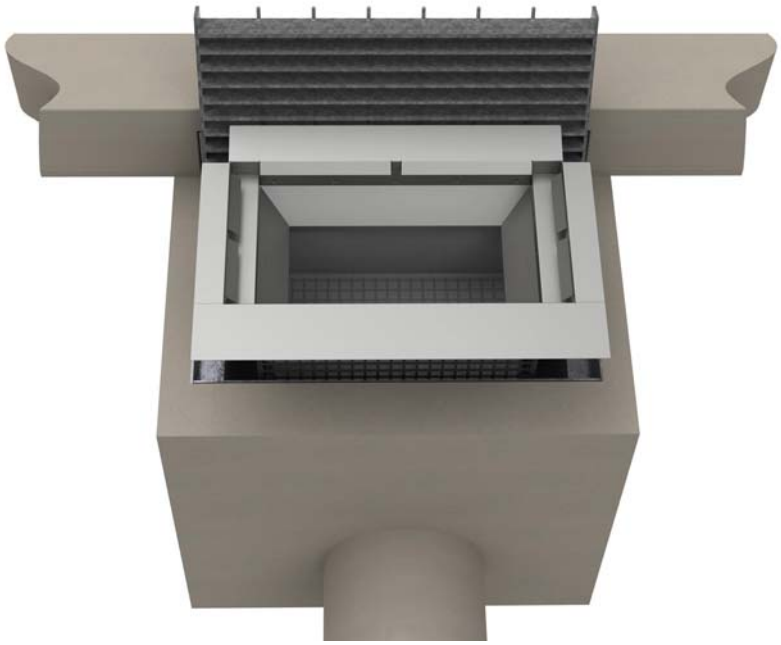
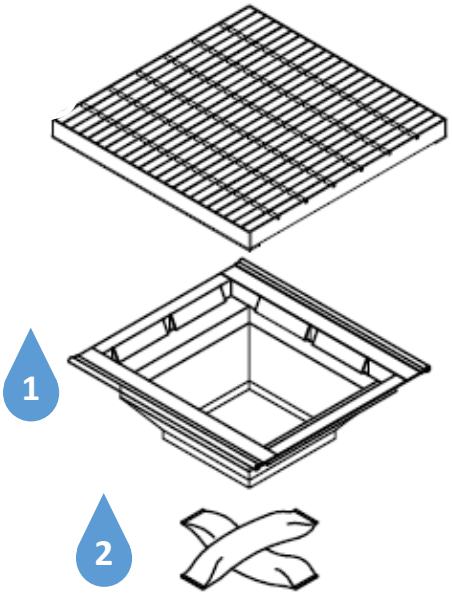
Replacement & Repair

Instruction Manual



Stormwater

FloGard Plus Replacement and Repair



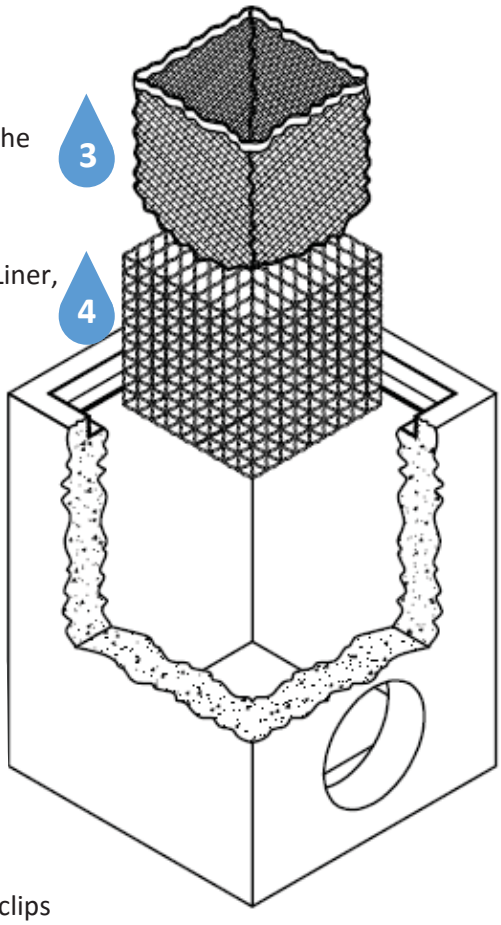
Parts of the FloGard Plus Inlet Filter-

1. FloGard Stainless Steel Support Frame
2. Fossil Rock Absorbent Pouches
3. Liner
4. GeoGrid Support Basket & Cable

* Grate and Basin NOT INCLUDED

Disassembly:

1. Clear FloGard of any existing debris by hand or vacuum.
2. Unclip and remove the Fossil Rock pouches from the inside Liner.
3. Lift the FloGard from the catch basin.
4. Using a slotted screw driver, carefully pry open the metal tabs holding the GeoGrid and Cable in place. Separate the GeoGrid and Liner from the FloGard frame.
5. Unclip the Liner from the inside of the GeoGrid. If you are reusing the Liner, rinse thoroughly with water and inspect for tears. (If torn, mend with stainless steel wire or replace the Liner).
6. Rinse and inspect the GeoGrid Basket and the reinforcing cable. (If torn, mend with stainless steel wire or replace the GeoGrid).
7. Rinse and inspect the Stainless Steel FloGard frame.



Reassembly:

1. Fully expand the GeoGrid Basket and orient to the FloGard frame. Hook cable and GeoGrid to the FloGard frame metal tabs and close the tabs using slotted screwdriver. Move around the FloGard until all tabs are closed and GeoGrid is secured to the Frame.
2. Expand and orient the Liner, locating the clips at each corner and side. Push the Liner through the center of the FloGard frame and secure the clips to the GeoGrid Basket close to the top support cable. Push the Liner to expand inside of the basket.
3. Clip new Fossil Rock Rubberizer pouches to the inside of the Liner.
4. Lower FloGard back into the basin, replace grate.

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COMMUNICATIONS

WATER

ENERGY

TRANSPORTATION

RECORDING REQUESTED BY
AND MAIL TO:

COUNTY OF LOS ANGELES
DEPARTMENT OF PUBLIC WORKS
BUILDING AND SAFETY DIVISION
900 S. FREMONT AVENUE, 3RD FLOOR
ALHAMBRA, CA 91803-1331

Space above this line is for Recorder's use

COVENANT AND AGREEMENT
REGARDING THE MAINTENANCE OF LOW IMPACT DEVELOPMENT (LID) & NATIONAL POLLUTANTS DISCHARGE ELIMINATION SYSTEM (NPDES) BMPs

The undersigned, _____ ("Owner"), hereby certifies that it owns the real property described as follows ("Subject Property"), located in the County of Los Angeles, State of California:

LEGAL DESCRIPTION

ASSESSOR'S ID # 8579-005-024, -026, -027, -028 TRACT NO._____ LOT NO._____

ADDRESS: 3342 Santa Anita Avenue, El Monte, CA 91731

Owner is aware of the requirements of County of Los Angeles' Green Building Standards Code, Title 31 Section 4.106.4 (LID), and the National Pollutant Discharge Elimination System (NPDES) permit. The following post-construction BMP features have been installed on the Subject Property:

- □ Porous pavement
- □ Cistern/rain barrel
- □ Infiltration trench/pit
- □ Bioretention or biofiltration
- □ Rain garden/planter box
- □ Disconnect impervious surfaces
- □ Dry Well
- □ Storage containers
- □ Landscape and landscape irrigation
- □ Green roof
- ☑ Other Underground Infiltration system, catch basin filter inserts

The location, including GPS x-y coordinates, and type of each post-construction BMP feature installed on the Subject Property is identified on the site diagram attached hereto as Exhibit 1.

Owner hereby covenants and agrees to maintain the above-described post-construction BMP features in a good and operable condition at all times, and in accordance with the LID/NPDES Maintenance Guidelines, attached hereto as Exhibit 2.

Owner further covenants and agrees that the above-described post-construction BMP features shall not be removed from the Subject Property unless and until they have been replaced with other post-construction BMP features in accordance with County of Los Angeles' Green Building Standards Code, Title 31.

Owner further covenants and agrees to maintain all drainage devices located within his or her property in good condition and operable condition at all times.

Owner further covenants and agrees that if Owner hereafter sells the Subject Property, Owner shall provide printed educational materials to the buyer regarding the post-construction BMP features that are located on the Subject Property, including the type(s) and location(s) of all such features, and instructions for properly maintaining all such features.

Owner makes this Covenant and Agreement on behalf of itself and its successors and assigns. This Covenant and Agreement shall run with the Subject Property and shall be binding upon Owner, future owners, and their heirs, successors and assignees, and shall continue in effect until the release of this Covenant and Agreement by the County of Los Angeles, in its sole discretion.

Owner(s):

By:_____ Date:_____

By:_____ Date:_____

A notary public or other officer completing the attached certificate verifies only the identity of the individual who signed the document to which the certificate is attached, and not the truthfulness, accuracy, or validity of that document.

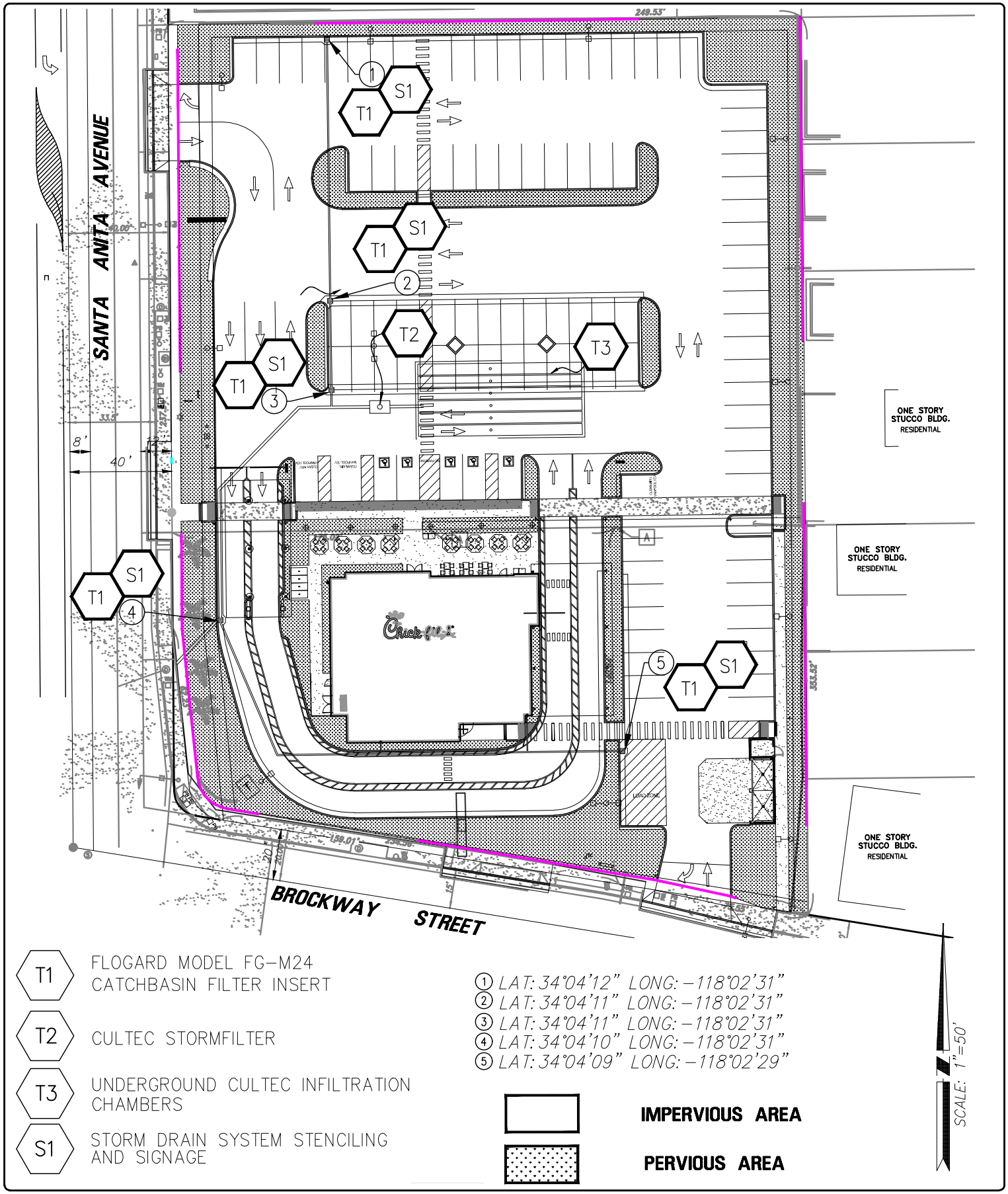
(PLEASE ATTACH NOTARY)

FOR DEPARTMENT USE ONLY:

MUST BE APPROVED BY COUNTY OF LOS ANGELES BUILDING AND SAFETY DIVISION PRIOR TO RECORDING.

APPROVED BY:_____ _____ Date _____
(Print Name) (Signature)

ATTACHMENTS



T1 FLOGARD MODEL FG-M24 CATCHBASIN FILTER INSERT

T2 CULTEC STORMFILTER

T3 UNDERGROUND CULTEC INFILTRATION CHAMBERS

S1 STORM DRAIN SYSTEM STENCILING AND SIGNAGE

① LAT: 34°04'12" LONG: -118°02'31"
② LAT: 34°04'11" LONG: -118°02'31"
③ LAT: 34°04'11" LONG: -118°02'31"
④ LAT: 34°04'10" LONG: -118°02'31"
⑤ LAT: 34°04'09" LONG: -118°02'29"

IMPERVIOUS AREA

PERVIOUS AREA

Prepared by:
Joseph C. Truxaw and Associates, Inc.
Civil Engineers and Land Surveyors
1915 W. Orangewood Ave., Suite 101, Orange, CA 92868
(714) 935-0265 Truxaw.com

EXHIBIT 1, BMP SITE PLAN

CHICK-FIL-A #4098, EL MONTE, CA

DRAWN: RJD	CHKD: RJD		
DATE: 01-27-23	DATE: 01-27-23		

Contactor® & Recharger®
Stormwater Chambers

Operation and Maintenance Guidelines
for CULTEC Stormwater Management Systems

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The drawings, photographs and illustrations shown in this document are for illustrative purposes only and are not necessarily to scale. Actual designs may vary.

CULTEC reserves the right to make design and/or specification changes at any time without notice at CULTEC's sole discretion.

CULTEC is not responsible for typographical errors.

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Protected by one or more of the following patents:
U.S. Patents 6,129,482; 6,322,288; 6,854,925; 7,226,241; 7,806,627; 8,366,346; 8,425,148; and others; U.S. Designs D613819; D638,095; D668,318 and others; Canadian Patent 2,591,255 and others; Community Designs 1092191; 1745209; and others.

Contact Information:
For general information on our other products and services, please contact our offices within the United States at (800)428-5832, (203)775-4416 ext. 202, or e-mail us at custservice@cultec.com.

For technical support, please call (203)775-4416 ext. 203 or e-mail tech@cultec.com.

Visit www.cultec.com/downloads.html for Product Downloads and CAD details.

Doc ID: CULG008 05-17
May 2017

These instructions are for single-layer traffic applications only. For multi-layer applications, contact CULTEC.
All illustrations and photos shown herein are examples of typical situations. Be sure to follow the engineer's drawings.
Actual designs may vary.

This manual contains guidelines recommended by CULTEC, Inc. and may be used in conjunction with, but not to supersede, local regulations or regulatory authorities. OSHA Guidelines must be followed when inspecting or cleaning any structure.

Introduction

The CULTEC Subsurface Stormwater Management System is a high-density polyethylene (HDPE) chamber system arranged in parallel rows surrounded by washed stone. The CULTEC chambers create arch-shaped voids within the washed stone to provide stormwater detention, retention, infiltration, and reclamation. Filter fabric is placed between the native soil and stone interface to prevent the intrusion of fines into the system. In order to minimize the amount of sediment which may enter the CULTEC system, a sediment collection device (stormwater pretreatment device) is recommended upstream from the CULTEC chamber system. Examples of pretreatment devices include, but are not limited to, an appropriately sized catch basin with sump, pretreatment catchment device, oil grit separator, or baffled distribution box. Manufactured pretreatment devices may also be used in accordance with CULTEC chambers. Installation, operation, and maintenance of these devices shall be in accordance with manufacturer's recommendations. Almost all of the sediment entering the stormwater management system will be collected within the pretreatment device.

Best Management Practices allow for the maintenance of the preliminary collection systems prior to feeding the CULTEC chambers. The pretreatment structures shall be inspected for any debris that will restrict inlet flow rates. Outfall structures, if any, such as outlet control must also be inspected for any obstructions that would restrict outlet flow rates. OSHA Guidelines must be followed when inspecting or cleaning any structure.

Operation and Maintenance Requirements

I. Operation

CULTEC stormwater management systems shall be operated to receive only stormwater run-off in accordance with applicable local regulations. CULTEC subsurface stormwater management chambers operate at peak performance when installed in series with pretreatment. Pretreatment of suspended solids is superior to treatment of solids once they have been introduced into the system. The use of pretreatment is adequate as long as the structure is maintained and the site remains stable with finished impervious surfaces such as parking lots, walkways, and pervious areas are properly maintained. If there is to be an unstable condition, such as improvements to buildings or parking areas, all proper silt control measures shall be implemented according to local regulations.

II. Inspection and Maintenance Options

A. The CULTEC system may be equipped with an inspection port located on the inlet row. The inspection port is a circular cast box placed in a rectangular concrete collar. When the lid is removed, a 6-inch (150 mm) pipe with a screw-in plug will be exposed. Remove the plug. This will provide access to the CULTEC Chamber row below. From the surface, through this access, the sediment may be measured at this location. A stadia rod may be used to measure the depth of sediment if any in this row. If the depth of sediment is in excess of 3 inches (76 mm), then this row should be cleaned with high pressure water through a culvert cleaning nozzle. This would be carried out through an upstream manhole or through the CULTEC StormFilter Unit (or other pretreatment device). CCTV inspection of this row can be deployed through this access port to determine if any sediment has accumulated in the inlet row.

B. If the CULTEC bed is not equipped with an inspection port, then access to the inlet row will be through an upstream manhole or the CULTEC StormFilter.

1. Manhole Access

This inspection should only be carried out by persons trained in confined space entry and sewer inspection services. After the manhole cover has been removed a gas detector must be lowered into the manhole to ensure that there are not high concentrations of toxic gases present. The inspector should be lowered into the manhole with the proper safety equipment as per OSHA requirements. The inspector may be able to observe sediment from this location. If this is not possible, the inspector will need to deploy a CCTV robot to permit viewing of the sediment.

2. **StormFilter Access**
Remove the manhole cover to allow access to the unit. Typically a 30-inch (750 mm) pipe is used as a riser from the StormFilter to the surface. As in the case with manhole access, this access point requires a technician trained in confined space entry with proper gas detection equipment. This individual must be equipped with the proper safety equipment for entry into the StormFilter. The technician will be lowered onto the StormFilter unit. The hatch on the unit must be removed. Inside the unit are two filters which may be removed according to StormFilter maintenance guidelines. Once these filters are removed the inspector can enter the StormFilter unit to launch the CCTV camera robot.

C. The inlet row of the CULTEC system is placed on a polyethylene liner to prevent scouring of the washed stone beneath this row. This also facilitates the flushing of this row with high pressure water through a culvert cleaning nozzle. The nozzle is deployed through a manhole or the StormFilter and extended to the end of the row. The water is turned on and the inlet row is back-flushed into the manhole or StormFilter. This water is to be removed from the manhole or StormFilter using a vacuum truck.

III. Maintenance Guidelines

The following guidelines shall be adhered to for the operation and maintenance of the CULTEC stormwater management system:

A. The owner shall keep a maintenance log which shall include details of any events which would have an effect on the system's operational capacity.

B. The operation and maintenance procedure shall be reviewed periodically and changed to meet site conditions.

C. Maintenance of the stormwater management system shall be performed by qualified workers and shall follow applicable occupational health and safety requirements.

D. Debris removed from the stormwater management system shall be disposed of in accordance with applicable laws and regulations.

IV. Suggested Maintenance Schedules

A. Minor Maintenance
The following suggested schedule shall be followed for routine maintenance during the regular operation of the stormwater system:

Frequency	Action
Monthly in first year	Check inlets and outlets for clogging and remove any debris, as required.
Spring and Fall	Check inlets and outlets for clogging and remove any debris, as required.
One year after commissioning and every third year following	Check inlets and outlets for clogging and remove any debris, as required.

B. Major Maintenance
The following suggested maintenance schedule shall be followed to maintain the performance of the CULTEC stormwater management chambers. Additional work may be necessary due to insufficient performance and other issues that might be found during the inspection of the stormwater management chambers. (See table on next page)

	Frequency	Action
Inlets and Outlets	Every 3 years	• Obtain documentation that the inlets, outlets and vents have been cleaned and will function as intended.
	Spring and Fall	• Check inlet and outlets for clogging and remove any debris as required.
CULTEC Stormwater Chambers	2 years after commissioning	• Inspect the interior of the stormwater management chambers through inspection port for deficiencies using CCTV or comparable technique. • Obtain documentation that the stormwater management chambers and feed connectors will function as anticipated.
	9 years after commissioning every 9 years following	• Clean stormwater management chambers and feed connectors of any debris. • Inspect the interior of the stormwater management structures for deficiencies using CCTV or comparable technique. • Obtain documentation that the stormwater management chambers and feed connectors have been cleaned and will function as intended.
	45 years after commissioning	• Clean stormwater management chambers and feed connectors of any debris. • Determine the remaining life expectancy of the stormwater management chambers and recommended schedule and actions to rehabilitate the stormwater management chambers as required. • Inspect the interior of the stormwater management chambers for deficiencies using CCTV or comparable technique. • Replace or restore the stormwater management chambers in accordance with the schedule determined at the 45-year inspection. • Attain the appropriate approvals as required. • Establish a new operation and maintenance schedule.
Surrounding Site	Monthly in 1st year	• Check for depressions in areas over and surrounding the stormwater management system.
	Spring and Fall	• Check for depressions in areas over and surrounding the stormwater management system.
	Yearly	• Confirm that no unauthorized modifications have been performed to the site.

For additional information concerning the maintenance of CULTEC Subsurface Stormwater Management Chambers, please contact CULTEC, Inc. at 1-800-428-5832.

WQMP
Operation & Maintenance (O&M) Plan

Project Name:_____

Prepared for:

Project Name: _____

Address:_____

City, State Zip:_____

Prepared on:

Date:_____

This O&M Plan describes the designated responsible party for implementation of this WQMP, including: operation and maintenance of all the structural BMP(s), conducting the training/educational program and duties, and any other necessary activities. The O&M Plan includes detailed inspection and maintenance requirements for all structural BMPs, including copies of any maintenance contract agreements, manufacturer's maintenance requirements, permits, etc.

8.1.1 Project Information

Project name	
Address	
City, State Zip	
Site size	
List of structural BMPs, number of each	
Other notes	

8.1.2 Responsible Party

The responsible party for implementation of this WQMP is:

Name of Person or HOA Property Manager	
Address	
City, State Zip	
Phone number	
24-Hour Emergency Contact number	
Email	

8.1.3 Record Keeping

Parties responsible for the O&M plan shall retain records for at least 5 years.

All training and educational activities and BMP operation and maintenance shall be documented to verify compliance with this O&M Plan. A sample Training Log and Inspection and Maintenance Log are included in this document.

8.1.4 Electronic Data Submittal

This document along with the Site Plan and Attachments shall be provided in PDF format. AutoCAD files and/or GIS coordinates of BMPs shall also be submitted to the City.

Appendix ___

BMP SITE PLAN

Site plan is preferred on minimum 11” by 17” colored sheets, as long as legible.

BMP OPERATION & MAINTENANCE LOG

Project Name: _____

Today's Date:_____

Name of Person Performing Activity (Printed):_____

Signature: _____

BMP Name (As Shown in O&M Plan)	Brief Description of Implementation, Maintenance, and Inspection Activity Performed

Minor Maintenance

Frequency		Action
Monthly in first year		Check inlets and outlets for clogging and remove any debris, as required.
		Notes
□ Month 1	Date:	
□ Month 2	Date:	
□ Month 3	Date:	
□ Month 4	Date	
□ Month 5	Date:	
□ Month 6	Date:	
□ Month 7	Date:	
□ Month 8	Date:	
□ Month 9	Date:	
□ Month 10	Date:	
□ Month 11	Date:	
□ Month 12	Date:	
Spring and Fall		Check inlets and outlets for clogging and remove any debris, as required.
		Notes
□ Spring	Date:	
□ Fall	Date:	
□ Spring	Date:	
□ Fall	Date:	
□ Spring	Date:	
□ Fall	Date:	
□ Spring	Date:	
□ Fall	Date:	
□ Spring	Date:	
□ Fall	Date:	
□ Spring	Date:	
□ Fall	Date:	
One year after commissioning and every third year following		Check inlets and outlets for clogging and remove any debris, as required.
		Notes
□ Year 1	Date:	
□ Year 4	Date:	
□ Year 7	Date:	
□ Year 10	Date:	
□ Year 13	Date:	
□ Year 16	Date:	
□ Year 19	Date:	
□ Year 22	Date:	

Major Maintenance

	Frequency		Action
Inlets and Outlets	**Every 3 years**		Obtain documentation that the inlets, outlets and vents have been cleaned and will function as intended.
			Notes
	□ Year 1	Date:	
	□ Year 4	Date:	
	□ Year 7	Date:	
	□ Year 10	Date:	
	□ Year 13	Date:	
	□ Year 16	Date:	
	□ Year 19	Date:	
	□ Year 22	Date:	
	Spring and Fall		Check inlet and outlets for clogging and remove any debris, as required.
			Notes
	□ Spring	Date:	
	□ Fall	Date:	
	□ Spring	Date:	
	□ Fall	Date:	
	□ Spring	Date:	
	□ Fall	Date:	
	□ Spring	Date:	
	□ Fall	Date:	
	□ Spring	Date:	
	□ Fall	Date:	
	□ Spring	Date:	
	□ Fall	Date:	
CULTEC Stormwater Chambers	**2 years after commissioning**		□ Inspect the interior of the stormwater management chambers through inspection port for deficiencies using CCTV or comparable technique. □ Obtain documentation that the stormwater management chambers and feed connectors will function as anticipated.
			Notes
	□ Year 2	Date:	

Major Maintenance

	Frequency		Action
CULTEC Stormwater Chambers	**9 years after commissioning every 9 years following**		□ Clean stormwater management chambers and feed connectors of any debris. □ Inspect the interior of the stormwater management structures for deficiencies using CCTV or comparable technique. □ Obtain documentation that the stormwater management chambers and feed connectors have been cleaned and will function as intended.
			Notes
	□ Year 9	Date:	
	□ Year 18	Date:	
	□ Year 27	Date:	
	□ Year 36	Date:	
	45 years after commissioning		□ Clean stormwater management chambers and feed connectors of any debris. □ Determine the remaining life expectancy of the stormwater management chambers and recommended schedule and actions to rehabilitate the stormwater management chambers as required. □ Inspect the interior of the stormwater management chambers for deficiencies using CCTV or comparable technique. □ Replace or restore the stormwater management chambers in accordance with the schedule determined at the 45-year inspection. □ Attain the appropriate approvals as required. □ Establish a new operation and maintenance schedule.
			Notes
	□ Year 45	Date:	

Major Maintenance

	Frequency		Action
Surrounding Site	**Monthly in 1st year**		□ Check for depressions in areas over and surrounding the stormwater management system.
			Notes
	□ Month 1	Date:	
	□ Month 2	Date:	
	□ Month 3	Date:	
	□ Month 4	Date:	
	□ Month 5	Date:	
	□ Month 6	Date:	
	□ Month 7	Date:	
	□ Month 8	Date:	
	□ Month 9	Date:	
	□ Month 10	Date:	
	□ Month 11	Date:	
	□ Month 12	Date:	
	Spring and Fall		□ Check for depressions in areas over and surrounding the stormwater management system.
			Notes
	□ Spring	Date:	
	□ Fall	Date:	
	□ Spring	Date:	
	□ Fall	Date:	
	□ Spring	Date:	
	□ Fall	Date:	
	□ Spring	Date:	
	□ Fall	Date:	
	□ Spring	Date:	
	□ Fall	Date:	
	□ Spring	Date:	
	□ Fall	Date:	
	Yearly		□ Confirm that no unauthorized modifications have been performed to the site.
			Notes
	□ Year 1	Date:	
	□ Year 2	Date:	
	□ Year 3	Date:	
	□ Year 4	Date:	
	□ Year 5	Date:	
	□ Year 6	Date:	
	□ Year 7	Date:	

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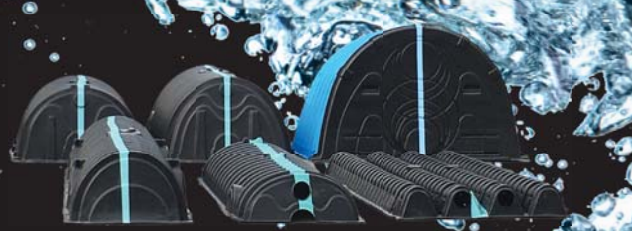

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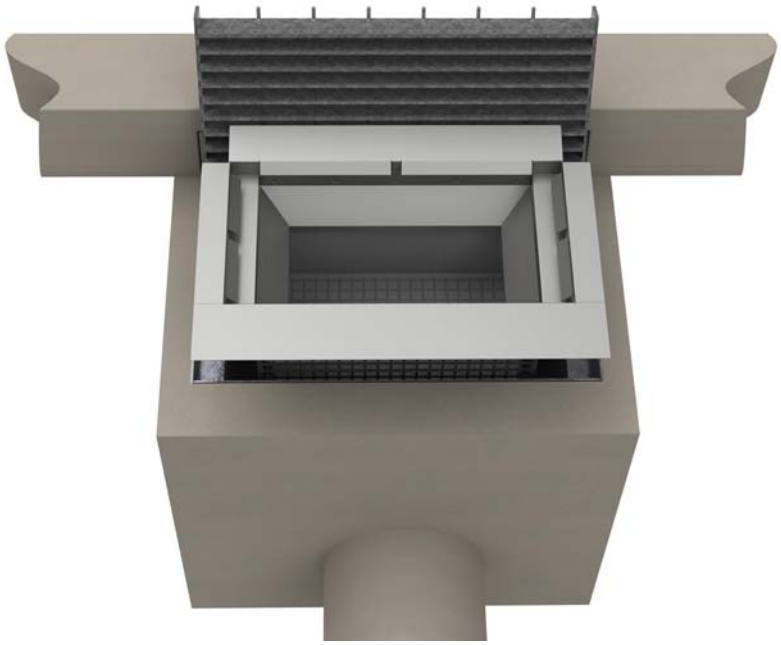
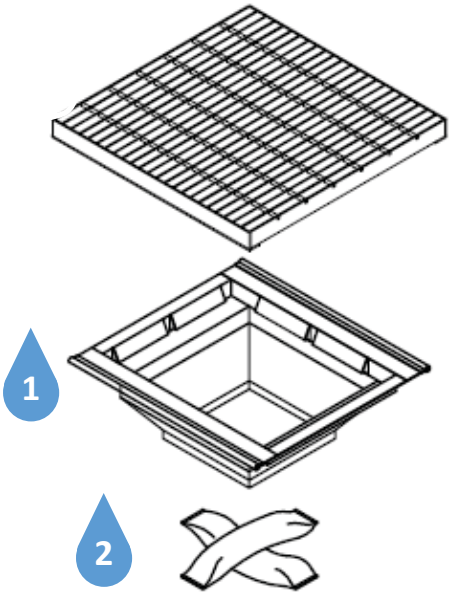
Replacement & Repair

Instruction Manual



Stormwater

FloGard Plus Replacement and Repair



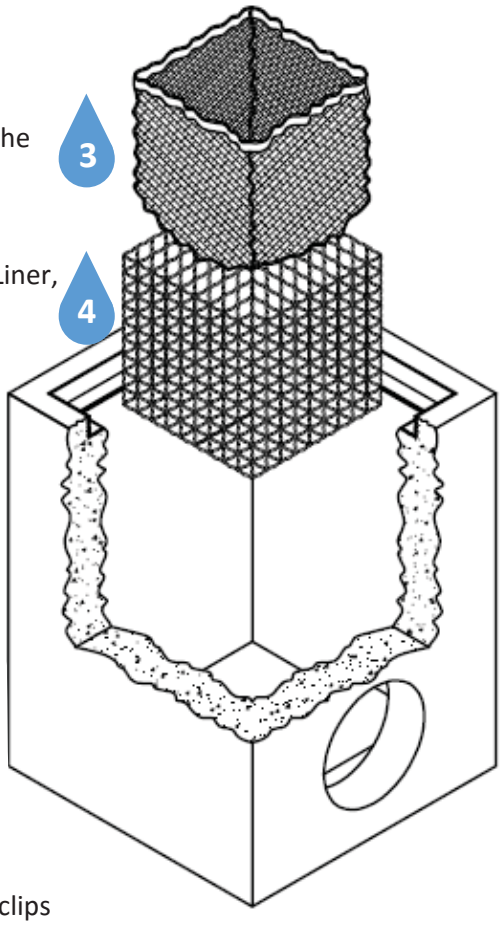
Parts of the FloGard Plus Inlet Filter-

1. FloGard Stainless Steel Support Frame
2. Fossil Rock Absorbent Pouches
3. Liner
4. GeoGrid Support Basket & Cable

* Grate and Basin NOT INCLUDED

Disassembly:

1. Clear FloGard of any existing debris by hand or vacuum.
2. Unclip and remove the Fossil Rock pouches from the inside Liner.
3. Lift the FloGard from the catch basin.
4. Using a slotted screw driver, carefully pry open the metal tabs holding the GeoGrid and Cable in place. Separate the GeoGrid and Liner from the FloGard frame.
5. Unclip the Liner from the inside of the GeoGrid. If you are reusing the Liner, rinse thoroughly with water and inspect for tears. (If torn, mend with stainless steel wire or replace the Liner).
6. Rinse and inspect the GeoGrid Basket and the reinforcing cable. (If torn, mend with stainless steel wire or replace the GeoGrid).
7. Rinse and inspect the Stainless Steel FloGard frame.



Reassembly:

1. Fully expand the GeoGrid Basket and orient to the FloGard frame. Hook cable and GeoGrid to the FloGard frame metal tabs and close the tabs using slotted screwdriver. Move around the FloGard until all tabs are closed and GeoGrid is secured to the Frame.
2. Expand and orient the Liner, locating the clips at each corner and side. Push the Liner through the center of the FloGard frame and secure the clips to the GeoGrid Basket close to the top support cable. Push the Liner to expand inside of the basket.
3. Clip new Fossil Rock Rubberizer pouches to the inside of the Liner.
4. Lower FloGard back into the basin, replace grate.

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