501 West Route 66 and 532 Parker Drive Project

Initial Study/Proposed Mitigated Negative Declaration

Volume II: Appendices

Prepared for:

City of Glendora
116 East Foothill Boulevard
Glendora, CA 91741

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Appendix G

Preliminary Hydrology Analysis

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Preliminary Hydrology Analysis

Building Address: 501 W. Route 66 Ave.,
Glendora, CA 91006

EGL JOB NO. 19-128-004
DATE: 12/05/19

DATA:

1. Maximum flow in a 50 yr period (PRE DEVELOPMENT- Subarea A)

AREA (ACRES)	IMP. (%)	FREQUENCY	SOIL TYPE	LENGTH	SLOPE	Isohyet
0.34	59	50	006	203	0.024	7.4

$Q_{50\text{-Pre Sub A}}$ = 1.34 CFS

2. Maximum flow in a 50 yr period (PRE DEVELOPMENT- Subarea B)

AREA (ACRES)	IMP. (%)	FREQUENCY	SOIL TYPE	LENGTH	SLOPE	Isohyet
0.38	79	50	006	271	0.017	7.4

$Q_{50\text{-Pre Sub B}}$ = 1.51 CFS

3. Maximum flow in a 50 yr period (POST DEVELOPMENT- Subarea A)

AREA (ACRES)	IMP. (%)	FREQUENCY	SOIL TYPE	LENGTH	SLOPE	Isohyet
0.34	73	50	006	243	0.020	7.4

$Q_{50\text{-Pre}}$ = 1.35 CFS

4. Maximum flow in a 50 yr period (POST DEVELOPMENT- Subarea B)

AREA (ACRES)	IMP. (%)	FREQUENCY	SOIL TYPE	LENGTH	SLOPE	Isohyet
0.38	76	50	006	262	0.015	7.4

$Q_{50\text{-Post}}$ = 1.51 CFS

Based on the results of HydroCalc, there is a 0.01 cfs increase at the post development from subarea A and no increase in peak flow from subarea B. All existing drainage pattern will be maintained at the post development.
The Impervious area has changed from 59% to 73% in subarea A and 79% to 76% in subarea B; therefore two of the mitigation measures from the LA County LID (Low Impact Development) Manual 2009 requirements will be taken into action to mitigate the storm runoff:

1. Downspout routing:
   All the roof drain downspouts shall be connected to the nearby catch basins/ drainage pipes. When over flow occurs, the run-off will slowly discharge to the public street.

2. Disconnect Impervious surfaces:
   Direct the runoff from the impervious surfaces to landscaping areas by designed flow lines. The runoff will infiltrate as much as possible when it flows on the natural grass areas. When overflow occurs, the run-off will slowly discharge to the public street.

The existing drainage pattern of this project is draining from the most northeast point to southwest in subarea A and toward south of the property in subarea B. At post development the drainage pattern will be maintain the same and drain through catch basins and pipes, and it will be delivered to the street through underground Curb-O-Let. Runoff in Subarea A will be drained and discharge to Parker Dr., while Subarea B will drain to W Route 66.

Pipe Capacity Calculation

Subarea A

1. AREA = A1 = 0.16 AC

   Q = 1.35 x (0.16/0.34) = 0.63 cfs

   Use 1-6" PVC Pipe

   D = 0.50' S = 0.75%
   Q = 0.63 cfs $\geq$ 0.63 cfs (OK)

2. AREA = A2 = 0.22 AC

   Q = 1.35 x (0.22/0.34) = 0.87 cfs

   Use 1-6" PVC Pipe

   D = 0.50' S = 1.50%
   Q = 0.89 cfs > 0.87 cfs (OK)

Subarea A Curb-O-Let Capacity Check
Q= 1.35 cfs
Use Curb-O-Let Model TCD-317

Size = 3" x 17"
Q = 1.39 cfs > 1.35 cfs (OK)

Subarea B

3. AREA = A3 = 0.10 AC

   Q = 1.51 x (0.10/0.38) = 0.40 cfs

   Use 1-6" PVC Pipe

   D = 0.50' S = 0.50%
   Q = 0.52 cfs > 0.40 cfs (OK)

Subarea B Curb-O-Let Capacity Check
Q= 1.51 cfs
Use Curb-O-Let Model TCD-414

Size = 4" x 14"
Q = 1.72 cfs > 1.51 cfs (OK)

About | Legend | Layers

LA County Hydrology Map

501 w Route 66

Layers

- [x] 50yr Two Tenths (Rainfall)
- [ ] DPA Zones
- [ ] Soils 2004
- [ ] Final 85th Percentile, 24-hr Rainfall
- [ ] Final 95th Percentile, 24-hr Rainfall
- [ ] 1-year, 1-hour Rainfall Intensity
- [ ] LA County Parcel

Imagery with Labels

Search result

501 West Sthy 66, Glendora, CA, 91740

Show more results

Zoom to

HYDROLOGY MAP

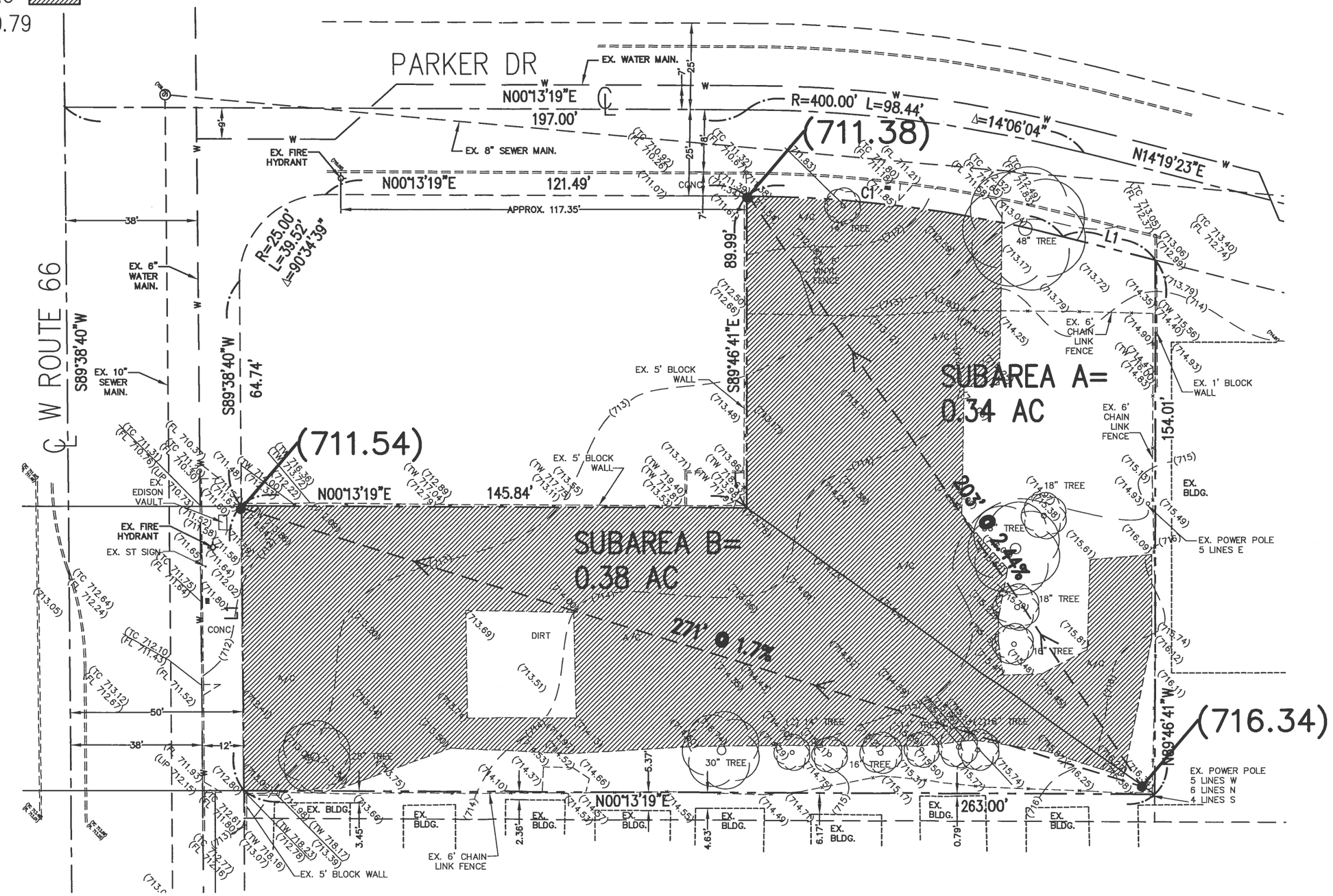
PRE-DEVELOPMENT

TOTAL AREA=0.72 AC
IMPERVIOUS SUBAREA A =0.20 AC
IMPERVIOUS RATIO= 0.20/0.34=0.59

IMPERVIOUS SUBAREA B =0.30 AC
IMPERVIOUS RATIO= 0.30/0.38=0.79

NORTH

SCALE : 1"=30'-0"



HYDROLOGY MAP

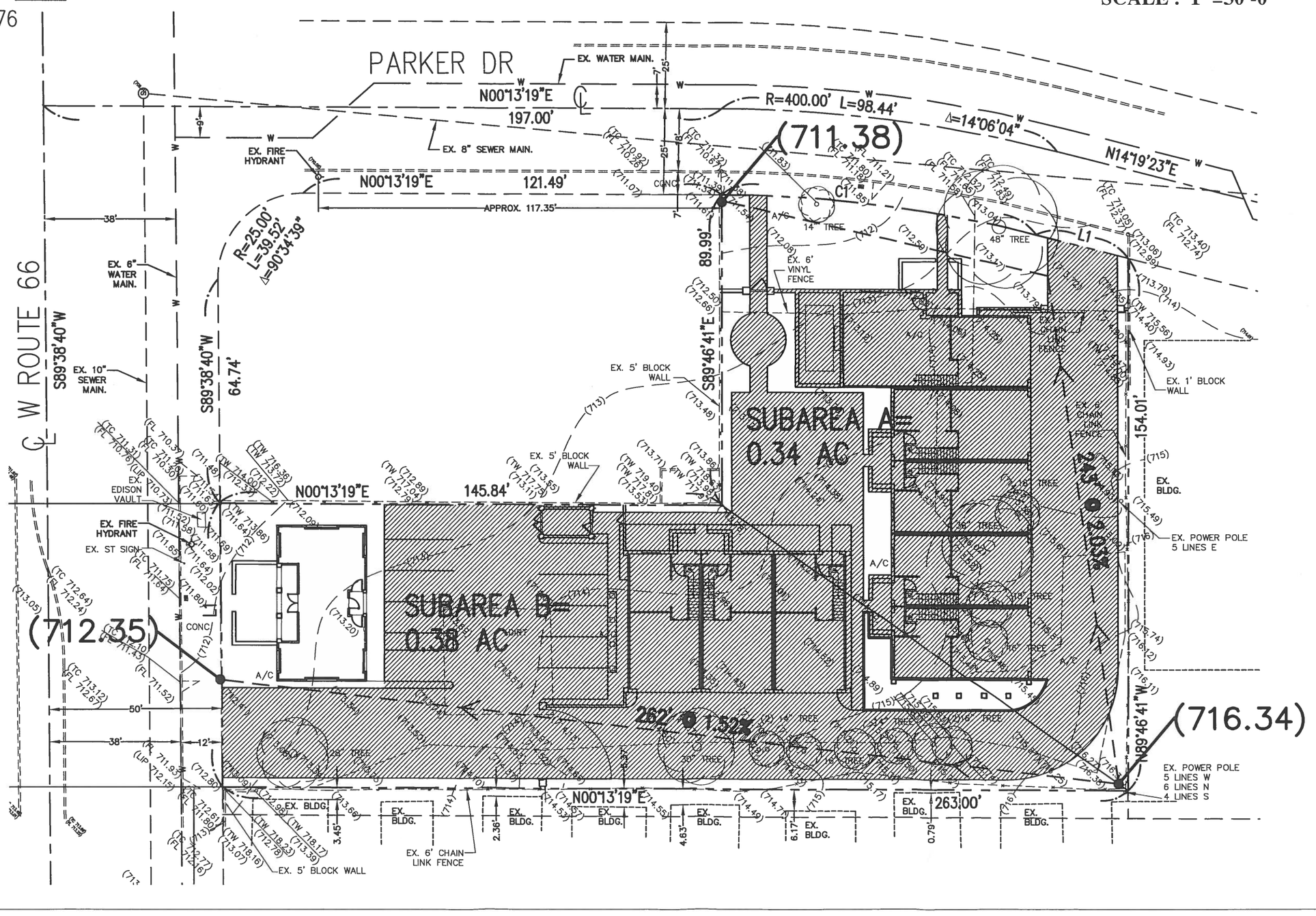
POST-DEVELOPMENT

TOTAL AREA=0.72 AC
IMPERVIOUS SUBAREA A =0.25 AC
IMPERVIOUS RATIO= 0.20/0.34=0.73

IMPERVIOUS SUBAREA B =0.29 AC
IMPERVIOUS RATIO= 0.29/0.38=0.76

NORTH

SCALE : 1"=30'-0"



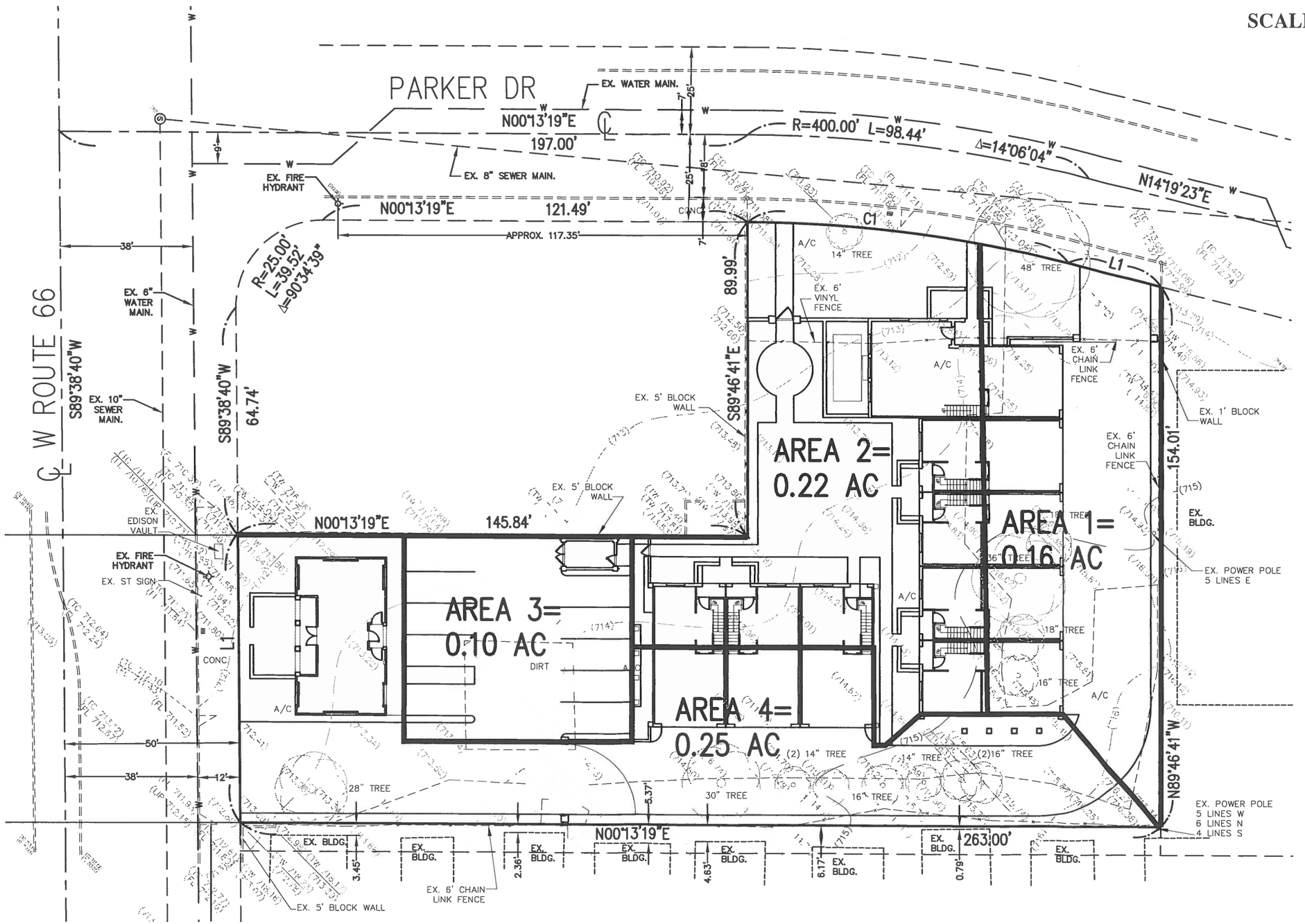
HYDROLOGY MAP

PIPE CALCULATION

TOTAL AREA=0.73 AC

NORTH

SCALE : 1"=30'-0"



About | Legend | Layers

Layers

- [ ] 50yr Two Tenths (Rainfall)
- [ ] DPA Zones
- [x] Soils 2004
- [ ] Final 85th Percentile, 24-hr Rainfall
- [ ] Final 95th Percentile, 24-hr Rainfall
- [ ] 1-year, 1-hour Rainfall Intensity
- [ ] LA County Parcel

LA County Hydrology Map

501 w Route 66

Imagery with Labels

Search result

501 West Sthy 66, Glendora, CA, 91740

Show more results

Zoom to

Peak Flow Hydrologic Analysis

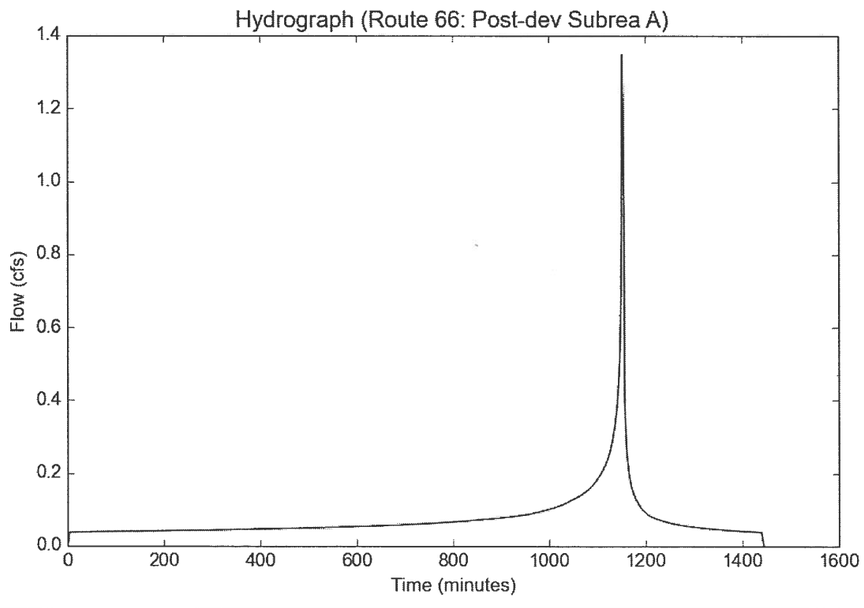
File location: Z:/Hank/ACAD/Mursol (128)/2019/19128004/Conceptual Grading/Route 66 - Post-dev Subrea A.pdf
Version: HydroCalc 1.0.2

Input Parameters

Project Name	Route 66
Subarea ID	Post-dev Subrea A
Area (ac)	0.34
Flow Path Length (ft)	243.0
Flow Path Slope (vft/hft)	0.02
50-yr Rainfall Depth (in)	7.4
Percent Impervious	0.73
Soil Type	6
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	7.4
Peak Intensity (in/hr)	4.415
Undeveloped Runoff Coefficient (Cu)	0.8924
Developed Runoff Coefficient (Cd)	0.8979
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	1.3479
Burned Peak Flow Rate (cfs)	1.3479
24-Hr Clear Runoff Volume (ac-ft)	0.1505
24-Hr Clear Runoff Volume (cu-ft)	6557.8664



Peak Flow Hydrologic Analysis

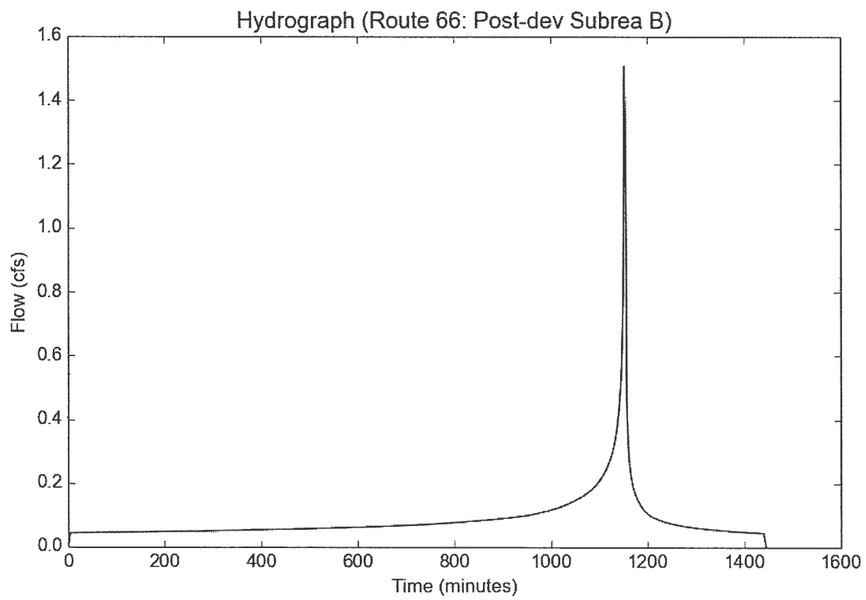
File location: Z:/Hank/ACAD/Mursol (128)/2019/19128004/Conceptual Grading/Route 66 - Post-dev Subrea B.pdf
Version: HydroCalc 1.0.2

Input Parameters

Project Name	Route 66
Subarea ID	Post-dev Subrea B
Area (ac)	0.38
Flow Path Length (ft)	262.0
Flow Path Slope (vft/hft)	0.015
50-yr Rainfall Depth (in)	7.4
Percent Impervious	0.76
Soil Type	6
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	7.4
Peak Intensity (in/hr)	4.415
Undeveloped Runoff Coefficient (Cu)	0.8924
Developed Runoff Coefficient (Cd)	0.8982
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	1.5069
Burned Peak Flow Rate (cfs)	1.5069
24-Hr Clear Runoff Volume (ac-ft)	0.1728
24-Hr Clear Runoff Volume (cu-ft)	7527.3249



Peak Flow Hydrologic Analysis

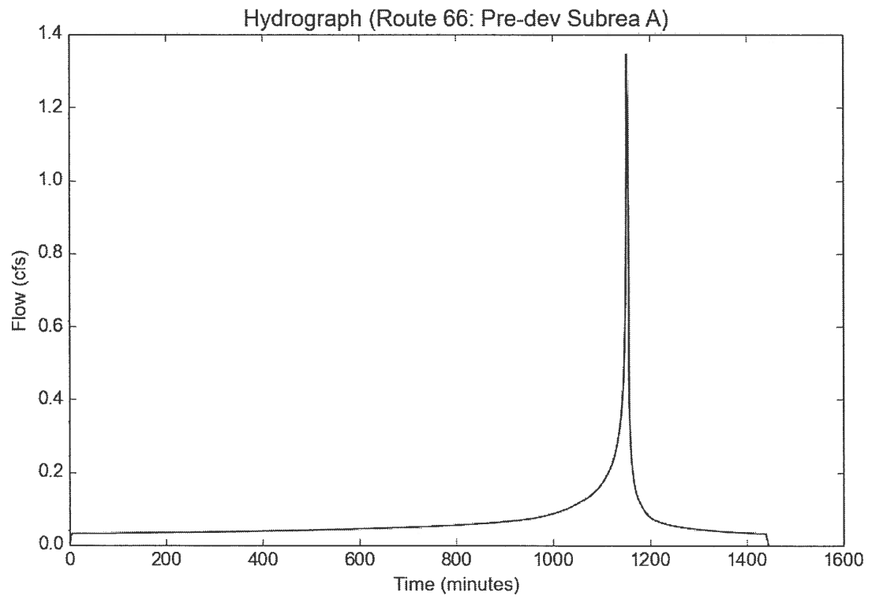
File location: Z:/Hank/ACAD/Mursol (128)/2019/19128004/Conceptual Grading/Route 66 - Pre-dev Subrea A.pdf
Version: HydroCalc 1.0.2

Input Parameters

Project Name	Route 66
Subarea ID	Pre-dev Subrea A
Area (ac)	0.34
Flow Path Length (ft)	203.0
Flow Path Slope (vft/hft)	0.024
50-yr Rainfall Depth (in)	7.4
Percent Impervious	0.59
Soil Type	6
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	7.4
Peak Intensity (in/hr)	4.415
Undeveloped Runoff Coefficient (Cu)	0.8924
Developed Runoff Coefficient (Cd)	0.8969
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	1.3463
Burned Peak Flow Rate (cfs)	1.3463
24-Hr Clear Runoff Volume (ac-ft)	0.1316
24-Hr Clear Runoff Volume (cu-ft)	5731.3603



Peak Flow Hydrologic Analysis

File location: Z:/Hank/ACAD/Mursol (128)/2019/19128004/Conceptual Grading/Route 66 - Pre-dev Subrea B.pdf
Version: HydroCalc 1.0.2

Input Parameters

Project Name	Route 66
Subarea ID	Pre-dev Subrea B
Area (ac)	0.38
Flow Path Length (ft)	271.0
Flow Path Slope (vft/hft)	0.017
50-yr Rainfall Depth (in)	7.4
Percent Impervious	0.79
Soil Type	6
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	7.4
Peak Intensity (in/hr)	4.415
Undeveloped Runoff Coefficient (Cu)	0.8924
Developed Runoff Coefficient (Cd)	0.8984
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	1.5073
Burned Peak Flow Rate (cfs)	1.5073
24-Hr Clear Runoff Volume (ac-ft)	0.1773
24-Hr Clear Runoff Volume (cu-ft)	7725.2696