



ANDREASEN ENGINEERING, INC.

Civil Engineering • Land Surveying • Municipal Engineering

DRAINAGE REPORT

in the

CITY OF SAN DIMAS

at

NORTHWEST CORNER BASELINE ROAD & CHEROKEE COURT

for

**DEVELOPMENT 1, GROUP, INC.
2001 E. FINANCIAL WAY, SUITE 101
GLENDALE CA. 91741
APN 8661-017-010 & 011
At: Stan Stringfellow**

Prepared by:

**Andreassen Engineering, Inc.
580 N. Park Avenue
Pomona, CA. 91768**

September 13, 2022
JN3643




Stephen Ventura, R.C.E.
Vice-President

9/13/22
Date

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DISCUSSION

I. PURPOSE OF STUDY

The purpose of this study is to determine the amount of runoff difference between the pre-development volume and post-development volume and place the difference into a underground CONTECH system.

II. LOCATION

The project location is west side of Cherokee Court at the northwest street intersection of Baseline Road and Cherokee Court.

III. PRE-DEVELOPED SITE CONDITIONS

A residual dwelling, garage, storage shed, with asphalt pavement, occupies Lot 1 and a portion on lot 2. Lots 3 through 7 are vacant lots. Hydrology calculations were prepared for the pre-development conditions.


IV. POST DEVELOPED SITE CONDITIONS

The site development will have seven lots for single family houses. There is no available storm drain pipe to use for the runoff, for that reason a 36" perforated CMP CONTECH system will be placed on each lot to collect the difference of pre-development volume and post-development volume. Composite impervious ratios were calculated for each lot based on the building footprint, concrete driveway and walkway, and landscaping. Infiltration was included to meet the required volume.

IV. HYDROLOGY

The project was designed using the Los Angeles County Peak Flow Hydrologic Analysis program, 50-Year Event at 7.3", Soil Classification 007. A summary of the results are shown on page 2. A 25-year event was used as the design runoff.




Stephen Ventura, R.C.E.
Vice-President


Date



ANDREASEN ENGINEERING, INC.

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HYDROLOGY CALCULATIONS

**Contech Chamber Design
Cherokee Ctr.**

Factored Infiltration Rate: 2.25in/hr with 72 hr. to infiltrated: 2.25in/hr.X(1ft/12in)x72hr=13.5ft(in 72hrs.)

INFILTRATION AMOUNTS												
LOTS	CONTECH		WIDTH(FT)		LENGTH(FT)	INFIL. RATE ft	STONE VOIDS Decimal %	AMOUNT cu.ft	Chamber c.ft.	Total Vol. cu.ft.	Targe Vol. cu.ft.	OK
	RECTANGULAR FOOTPRINT		ft	ft								
1	4' X35'	4	35	13.5	0.4	756	368	1124	991	OK		
2	4' x41'	4	41	13.5	0.4	886	432	1318	1213	OK		
3	4' x41'	4	41	13.5	0.4	886	432	1318	1213	OK		
4	4' x41'	4	41	13.5	0.4	886	432	1318	1216	OK		
5	4' x41'	4	41	13.5	0.4	886	432	1318	1216	OK		
6	4' x32'	4	32	13.5	0.4	691	336	1027	931	OK		
7	4' x40'	4	40	13.5	0.4	864	421	1285	1185	OK		

Andreasen Engineering, Inc.
Stephen Ventura, RCE
Vice -President
9/7/2022

Pre-Development Hydrology
Tract Map No.83304

Area 1A: 0.65ac.,Q25=1.37cfs or 2.11 cfs per ac. Lots 1-3

Area 1B: 1.0ac.,Q25=1.71cfs or 1.71 cfs per ac. Lots 4-7

Area 1A: 0.65ac. Volume=3330 c.f or 5123c.f per ac.

Area 1B: 1.0ac. Volume=5103 c.f or 5103c.f per ac.

Lots No	Area (s.f.)	Area(ac.)	Q25	V25
1	8760	0.201	0.42	1030
2	7920	0.182	0.38	932
3	7920	0.182	0.38	932
4	7920	0.182	0.31	929
5	7920	0.182	0.31	929
6	9135	0.21	0.36	1072
7	11208	0.257	0.44	1311

Post-Development Hydrology
Tract Map No.83304

Determine Composite of Impervious Ratio

Lot No	Lot Area (s.f.)	Impervious		Grass/L.S. (s.f.)	Impervious Composite Ratio	V25 (c.f.)
		Area (s.f.)				
1	8760	3255		5505	0.38	2021
2	7920	3694		4226	0.48	2145
3	7920	3690		4230	0.48	2145
4	7920	3137		4783	0.48	2145
5	7920	3698		4222	0.48	2145
6	9135	3054		6081	0.35	2003
7	11208	3899		7309	0.36	2496

Impervious House/Hardscape: 100%

Impervious Grass/Landscape: 2%

Lot No	Post V25 (c.f.)	Pre V25 (c.f.)	Diff.Post V25 &PreV25 (c.f.)
1	2021	1030	991
2	2145	932	1213
3	2145	932	1213
4	2145	929	1216
5	2145	929	1216
6	2003	1072	931
7	2496	1311	1185

Peak Flow Hydrologic Analysis

File location: C:/Users/Steve/Desktop/Hyro Calc Results/Charokee Ctr. JN 3643/Pre Development/Charokee Ctr. - Subarea 1A.pdf
Version: HydroCalc 0.3.1-beta

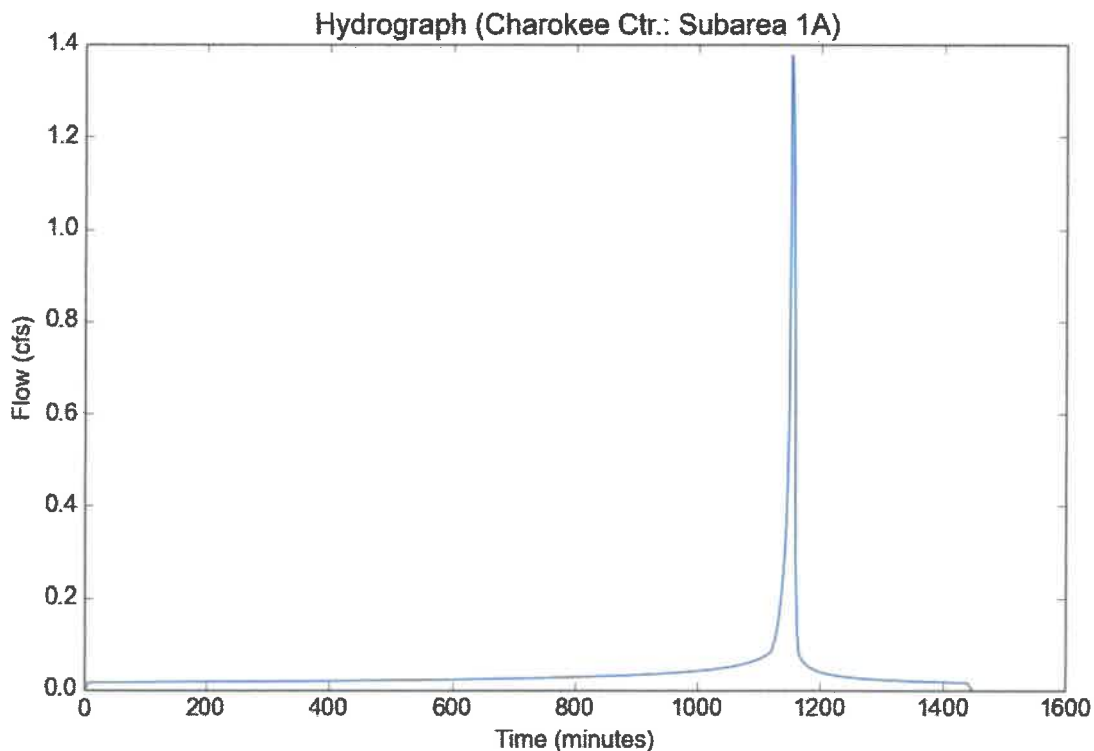
PRE-DEV

Input Parameters

Project Name	Charokee Ctr.
Subarea ID	Subarea 1A
Area (ac)	0.65
Flow Path Length (ft)	488.0
Flow Path Slope (vft/hft)	0.007
50-yr Rainfall Depth (in)	7.3
Percent Impervious	0.0954
Soil Type	7
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	6.4094
Peak Intensity (in/hr)	3.0661
Undeveloped Runoff Coefficient (Cu)	0.6686
Developed Runoff Coefficient (Cd)	0.6907
Time of Concentration (min)	8.0
Clear Peak Flow Rate (cfs)	1.3765
Burned Peak Flow Rate (cfs)	1.3765
24-Hr Clear Runoff Volume (ac-ft)	0.0764
24-Hr Clear Runoff Volume (cu-ft)	3329.5716



Peak Flow Hydrologic Analysis

File location: C:/Users/Steve/Desktop/Hyro Calc Results/Charokee Ctr. JN 3643/Pre Development/Charokee Ctr. - Subarea 1B.pdf
Version: HydroCalc 0.3.1-beta

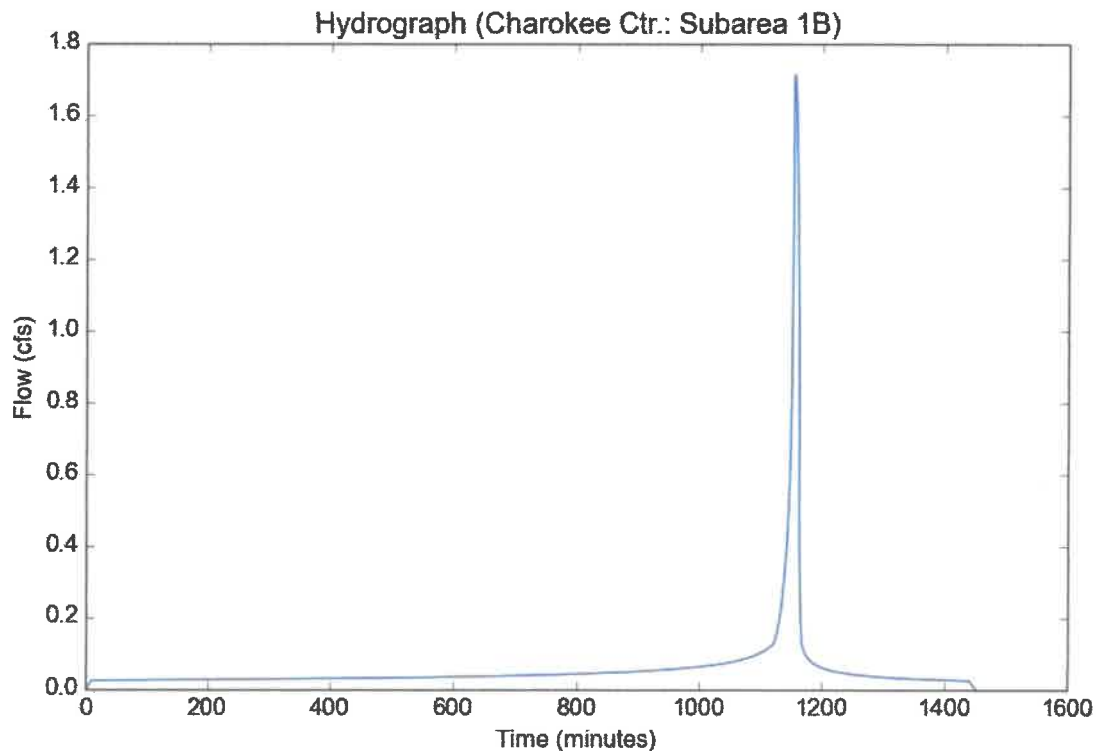
PRE-DEV

Input Parameters

Project Name	Charokee Ctr.
Subarea ID	Subarea 1B
Area (ac)	1.0
Flow Path Length (ft)	588.0
Flow Path Slope (vft/hft)	0.003
50-yr Rainfall Depth (in)	7.3
Percent Impervious	0.0954
Soil Type	7
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	6.4094
Peak Intensity (in/hr)	2.6399
Undeveloped Runoff Coefficient (Cu)	0.6229
Developed Runoff Coefficient (Cd)	0.6493
Time of Concentration (min)	11.0
Clear Peak Flow Rate (cfs)	1.714
Burned Peak Flow Rate (cfs)	1.714
24-Hr Clear Runoff Volume (ac-ft)	0.1171
24-Hr Clear Runoff Volume (cu-ft)	5102.5612



Peak Flow Hydrologic Analysis

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Version: HydroCalc 0.3.1-beta

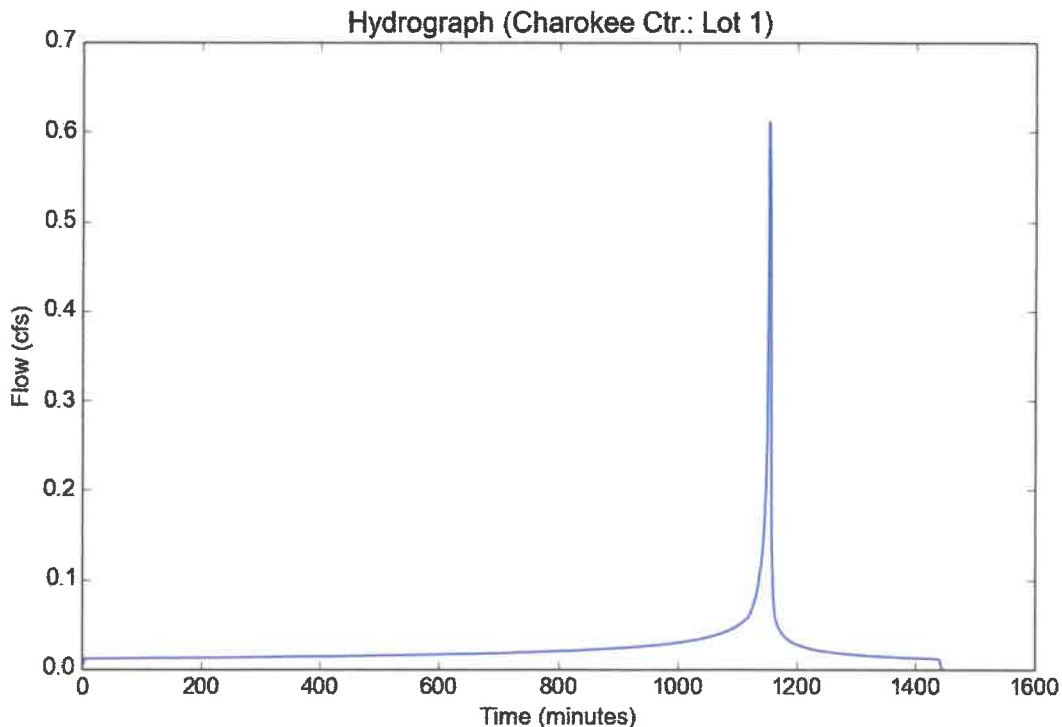
P15T 25Y

Input Parameters

Project Name	Charokee Ctr.
Subarea ID	Lot 1
Area (ac)	0.201
Flow Path Length (ft)	101.0
Flow Path Slope (vft/hft)	0.0347
50-yr Rainfall Depth (in)	7.3
Percent Impervious	0.38
Soil Type	7
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	6.4094
Peak Intensity (in/hr)	3.824
Undeveloped Runoff Coefficient (Cu)	0.7313
Developed Runoff Coefficient (Cd)	0.7954
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	0.6114
Burned Peak Flow Rate (cfs)	0.6114
24-Hr Clear Runoff Volume (ac-ft)	0.0464
24-Hr Clear Runoff Volume (cu-ft)	2021.7474



Peak Flow Hydrologic Analysis

File location: C:/Users/Steve/Desktop/Hyro Calc Results/Charokee Ctr. JN 3643/Charokee Ctr. - Lot 2.pdf
Version: HydroCalc 0.3.1-beta

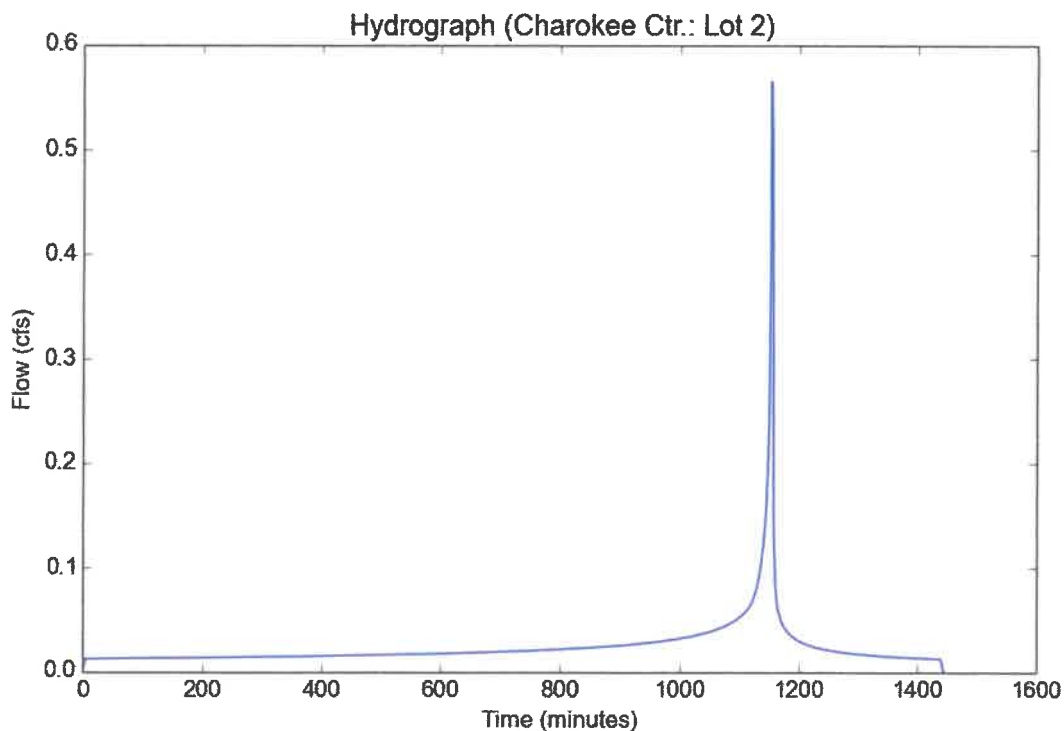
P1ST DEV.

Input Parameters

Project Name	Charokee Ctr.
Subarea ID	Lot 2
Area (ac)	0.182
Flow Path Length (ft)	147.0
Flow Path Slope (vft/hft)	0.0116
50-yr Rainfall Depth (in)	7.3
Percent Impervious	0.48
Soil Type	7
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	6.4094
Peak Intensity (in/hr)	3.824
Undeveloped Runoff Coefficient (Cu)	0.7313
Developed Runoff Coefficient (Cd)	0.8123
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	0.5653
Burned Peak Flow Rate (cfs)	0.5653
24-Hr Clear Runoff Volume (ac-ft)	0.0492
24-Hr Clear Runoff Volume (cu-ft)	2144.9691



Peak Flow Hydrologic Analysis

File location: C:/Users/Steve/Desktop/Hyro Calc Results/Charokee Ctr. JN 3643/Charokee Ctr. - Lot 3.pdf
Version: HydroCalc 0.3.1-beta

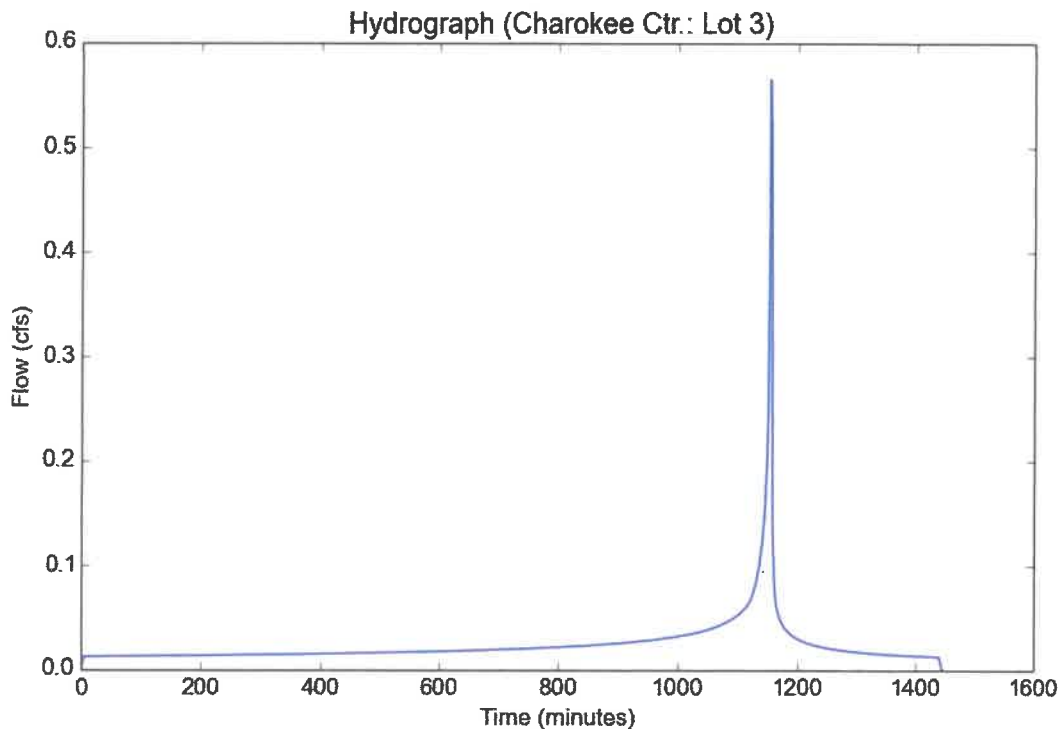
POST DEV

Input Parameters

Project Name	Charokee Ctr.
Subarea ID	Lot 3
Area (ac)	0.182
Flow Path Length (ft)	136.0
Flow Path Slope (vft/hft)	0.0118
50-yr Rainfall Depth (in)	7.3
Percent Impervious	0.48
Soil Type	7
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	6.4094
Peak Intensity (in/hr)	3.824
Undeveloped Runoff Coefficient (Cu)	0.7313
Developed Runoff Coefficient (Cd)	0.8123
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	0.5653
Burned Peak Flow Rate (cfs)	0.5653
24-Hr Clear Runoff Volume (ac-ft)	0.0492
24-Hr Clear Runoff Volume (cu-ft)	2144.9691



Peak Flow Hydrologic Analysis

File location: C:/Users/Steve/Desktop/Hyro Calc Results/Charokee Ctr. JN 3643/Charokee Ctr. - Lot 4.pdf
Version: HydroCalc 0.3.1-beta

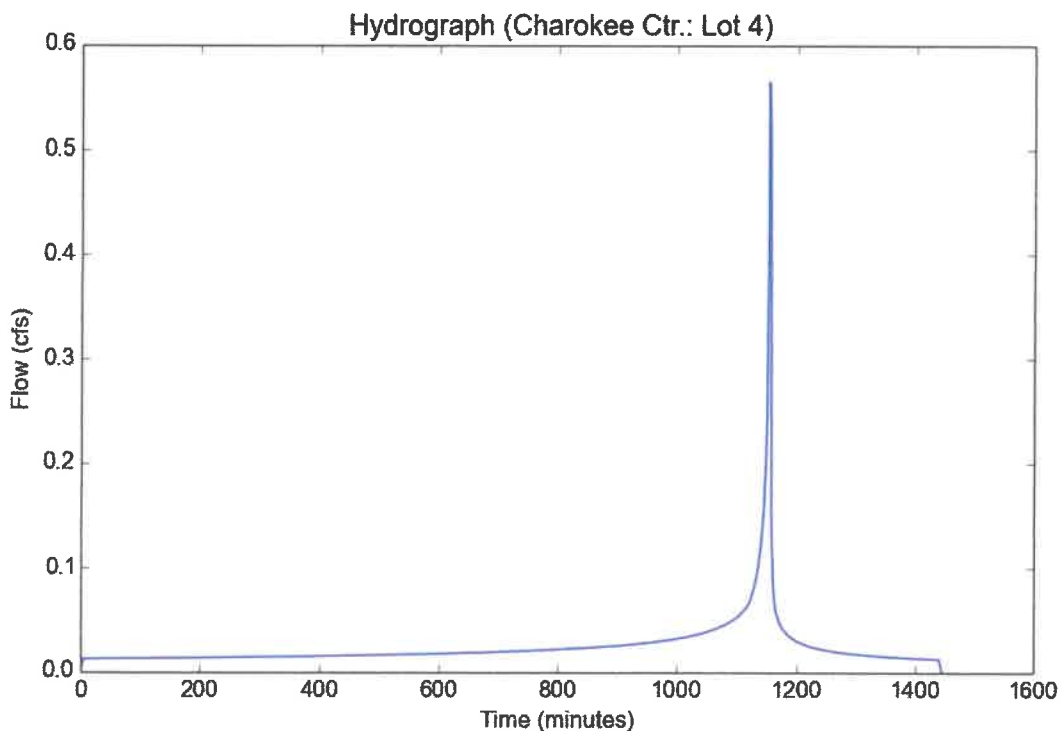
PAST DEV.

Input Parameters

Project Name	Charokee Ctr.
Subarea ID	Lot 4
Area (ac)	0.182
Flow Path Length (ft)	145.0
Flow Path Slope (vft/hft)	0.0117
50-yr Rainfall Depth (in)	7.3
Percent Impervious	0.48
Soil Type	7
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	6.4094
Peak Intensity (in/hr)	3.824
Undeveloped Runoff Coefficient (Cu)	0.7313
Developed Runoff Coefficient (Cd)	0.8123
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	0.5653
Burned Peak Flow Rate (cfs)	0.5653
24-Hr Clear Runoff Volume (ac-ft)	0.0492
24-Hr Clear Runoff Volume (cu-ft)	2144.9691



Peak Flow Hydrologic Analysis

File location: C:/Users/Steve/Desktop/Hyro Calc Results/Charokee Ctr. JN 3643/Charokee Ctr. - Lot 5.pdf
Version: HydroCalc 0.3.1-beta

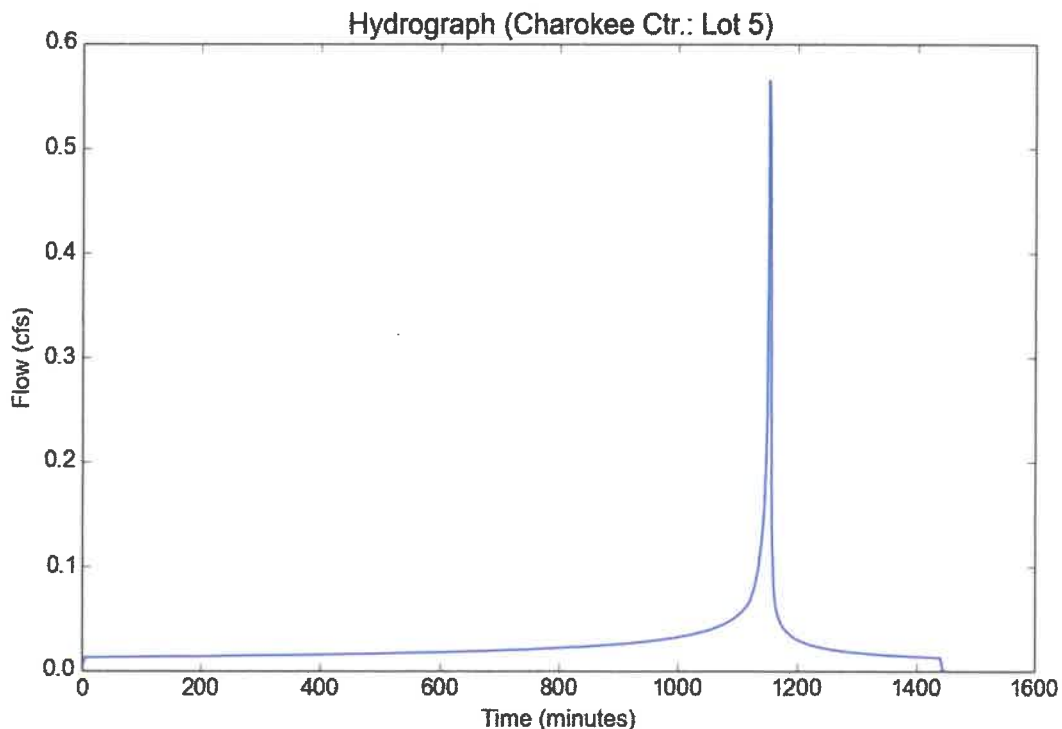
POST REV

Input Parameters

Project Name	Charokee Ctr.
Subarea ID	Lot 5
Area (ac)	0.182
Flow Path Length (ft)	133.0
Flow Path Slope (vft/hft)	0.0123
50-yr Rainfall Depth (in)	7.3
Percent Impervious	0.48
Soil Type	7
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	6.4094
Peak Intensity (in/hr)	3.824
Undeveloped Runoff Coefficient (Cu)	0.7313
Developed Runoff Coefficient (Cd)	0.8123
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	0.5653
Burned Peak Flow Rate (cfs)	0.5653
24-Hr Clear Runoff Volume (ac-ft)	0.0492
24-Hr Clear Runoff Volume (cu-ft)	2144.9691



Peak Flow Hydrologic Analysis

File location: C:/Users/Steve/Desktop/Hyro Calc Results/Charokee Ctr. JN 3643/Charokee Ctr. - Lot 6.pdf
Version: HydroCalc 0.3.1-beta

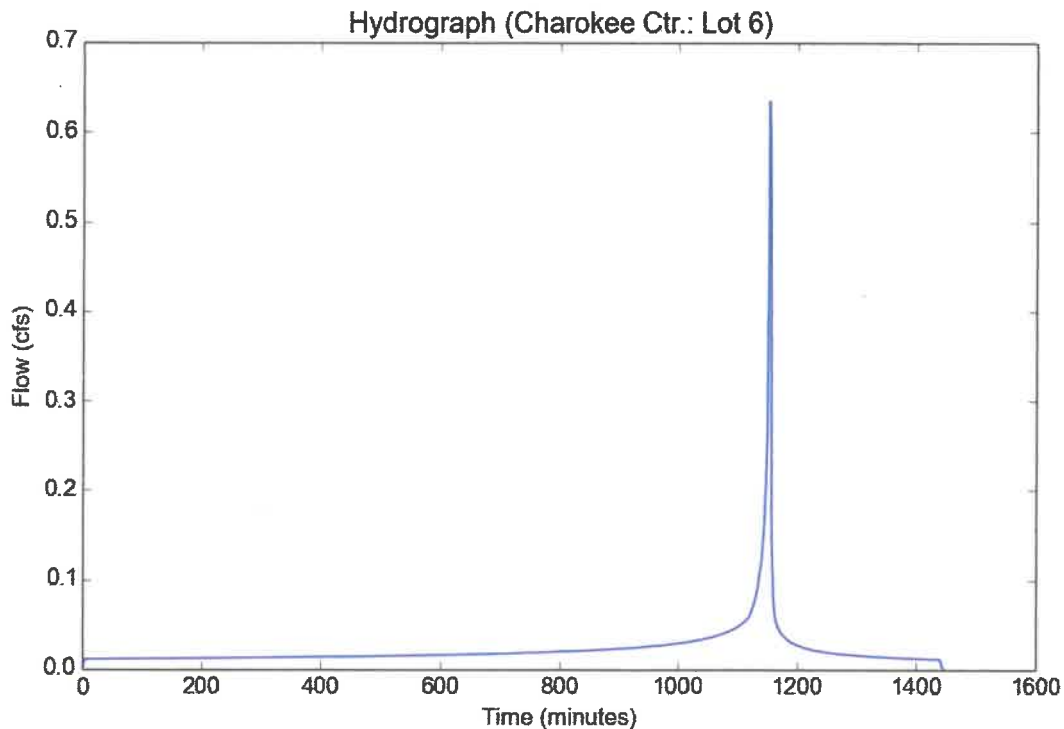
POST DEV.

Input Parameters

Project Name	Charokee Ctr.
Subarea ID	Lot 6
Area (ac)	0.21
Flow Path Length (ft)	170.0
Flow Path Slope (vft/hft)	0.0096
50-yr Rainfall Depth (in)	7.3
Percent Impervious	0.35
Soil Type	7
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	6.4094
Peak Intensity (in/hr)	3.824
Undeveloped Runoff Coefficient (Cu)	0.7313
Developed Runoff Coefficient (Cd)	0.7904
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	0.6347
Burned Peak Flow Rate (cfs)	0.6347
24-Hr Clear Runoff Volume (ac-ft)	0.046
24-Hr Clear Runoff Volume (cu-ft)	2003.4661



Peak Flow Hydrologic Analysis

File location: C:/Users/Steve/Desktop/Hyro Calc Results/Charokee Ctr. JN 3643/Charokee Ctr. - Lot 7.pdf
Version: HydroCalc 0.3.1-beta

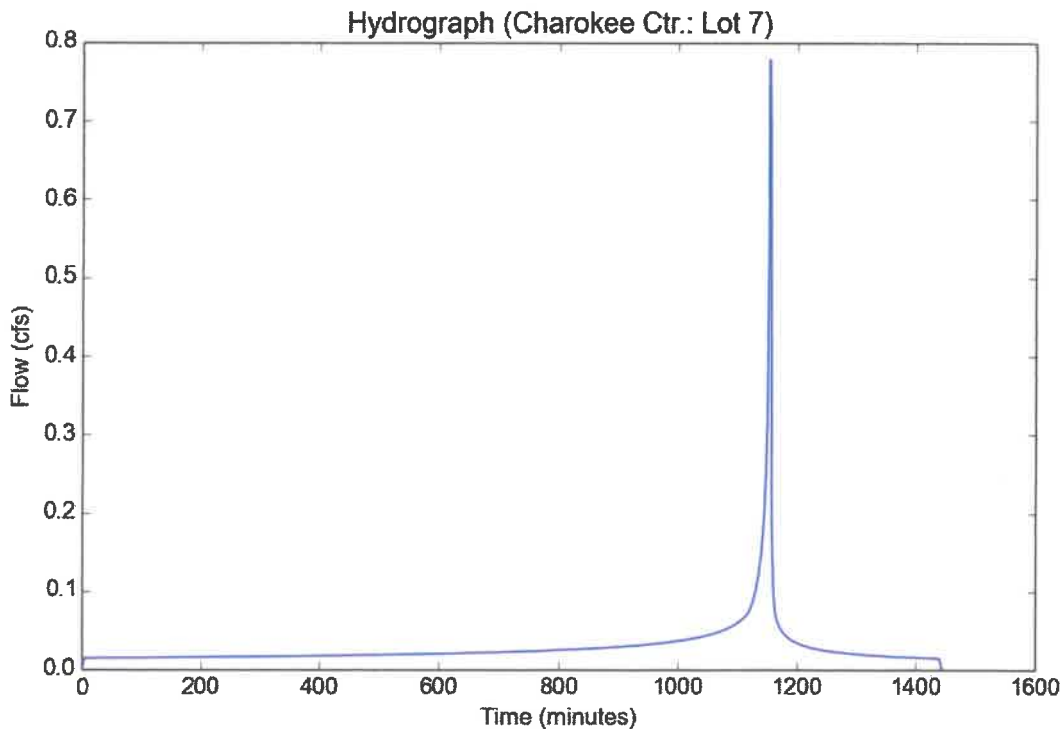
POST REV.

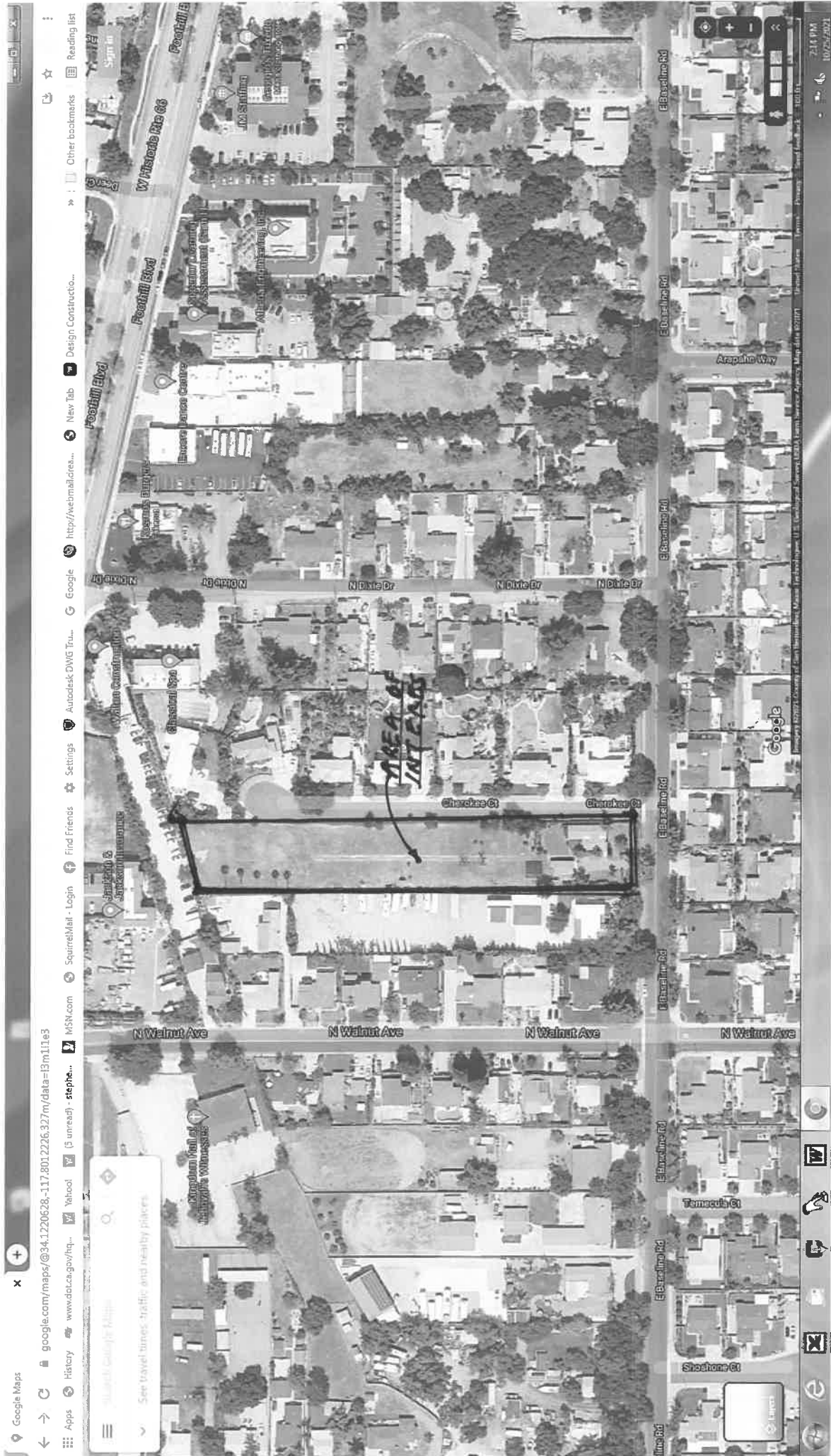
Input Parameters

Project Name	Charokee Ctr.
Subarea ID	Lot 7
Area (ac)	0.257
Flow Path Length (ft)	157.0
Flow Path Slope (vft/hft)	0.0121
50-yr Rainfall Depth (in)	7.3
Percent Impervious	0.36
Soil Type	7
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	6.4094
Peak Intensity (in/hr)	3.824
Undeveloped Runoff Coefficient (Cu)	0.7313
Developed Runoff Coefficient (Cd)	0.792
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	0.7784
Burned Peak Flow Rate (cfs)	0.7784
24-Hr Clear Runoff Volume (ac-ft)	0.0573
24-Hr Clear Runoff Volume (cu-ft)	2496.2474





LA County Hydrology Map x LA County Hydrology Map x dpw.lacounty.gov/hydrologygis/

History Yahooc (5 unread) - stephe... MSN.com SquirrelMail - Login Find Friends Settings Autodesk DWG Tru... Google http://webmail.drea... New Tab Design Constructio... Other bookmarks Reading list

LA County Hydrology Map

Layers

- Hydrology GIS
 - 50yr Two Tenths (Rainfall)
 - DPA Zones
 - Soils 2004
 - Final 85th Percentile, 24-hr Rainfall
 - 1-year, 1-hour Rainfall
 - Intensity
 - Final 95th Percentile, 24-hr Rainfall
- LA County Parcels

Cheroloe Court & Baseline Rd

Search result

Cheroloe Court & East Baseline Road, San Dimas, CA, 91773

Zoom to

LA County Hydrology Map

Public Works FAQ | Privacy / Terms of Use | Feedback | lacounty.gov

2:39 PM 10/25/2021

007

LA County Hydrology Map | dpw.lacounty.gov/ward/hydrologygis/ | 2:38 PM 10/25/2021

Layers

- Hydrology GIS
 - 50Yr Two Tenths (Rainfall)
 - DPA Zones
 - Soils 2004
 - Final 85th Percentile, 24-hr Rainfall
 - 1-year, 1-hour Rainfall Intensity
 - Final 95th Percentile, 24-hr Rainfall
- LA County Parcels

Search result: Cherokee Court & East Baseline Road, San Dimas, CA, 91773

50 yr event: 7.3"

CONTECH CALCULATIONS



For design assistance, drawings, and pricing send completed worksheet to:
dyods@contech-cpi.com

Project Summary

Date:	9/7/2022
Project Name:	Cherokee Ctr. Lot1
City / County:	City oa La Verne
State:	CA
Designed By:	Stephen
Company:	Andreasen
Telephone:	909-523-1592

Corrugated Metal Pipe Calculator	
Storage Volume Required (cf):	350
Limiting Width (ft):	6.00
Invert Depth Below Asphalt (ft):	10.00
Solid or Perforated Pipe:	Perforated
Shape Or Diameter (in):	36
Number Of Headers:	2
Spacing between Barrels (ft):	1.50
Stone Width Around Perimeter of System (ft):	0.5
Depth A: Porous Stone Above Pipe (in):	6
Depth C: Porous Stone Below Pipe (in):	6
Stone Porosity (0 to 40%):	40

Enter Information in Blue Cells

7.07 ft² Pipe Area

System Sizing

Pipe Storage:	240 cf
Porous Stone Storage:	128 cf
Total Storage Provided:	368 cf
Number of Barrels:	1 barrels
Length per Barrel:	28.0 ft
Length Per Header:	3.0 ft
Rectangular Footprint (W x L):	4. ft x 35. ft

105.2% Of Required Storage

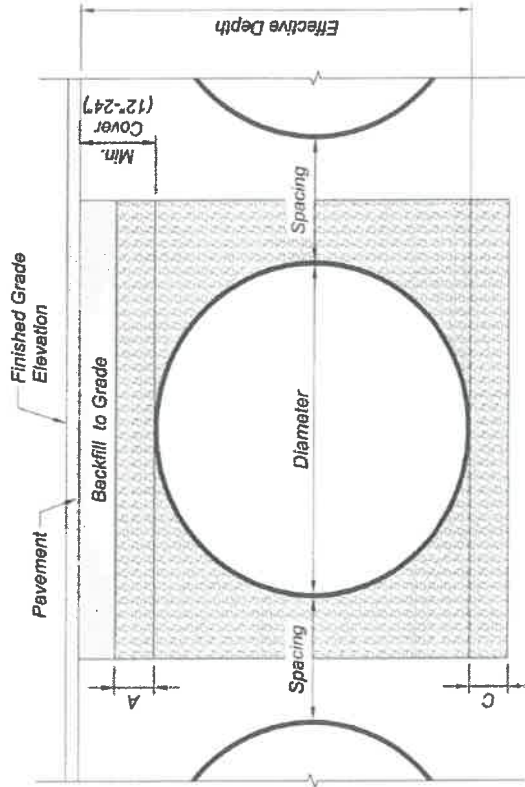
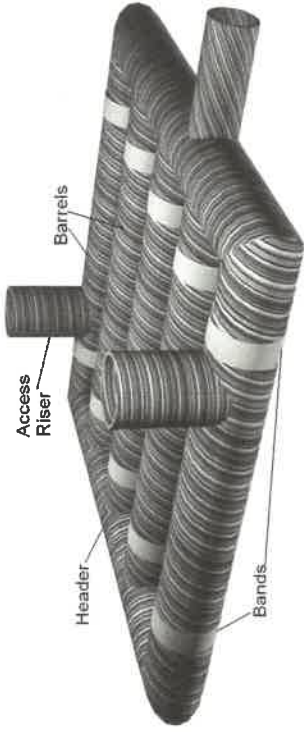
CONTECH Materials

Total CMP Footage:	34 ft
Approximate Total Pieces:	4 pcs
Approximate Coupling Bands:	3 bands
Approximate Truckloads:	1 trucks

Construction Quantities**

Total Excavation:	52 cy
Porous Stone Backfill For Storage:	12 cy stone
Backfill to Grade Excluding Stone:	31 cy fill

**Construction quantities are approximate and should be verified upon final design



System Layout

Barrel 12	0
Barrel 11	0
Barrel 10	0
Barrel 9	0
Barrel 8	0
Barrel 7	0
Barrel 6	0
Barrel 5	0
Barrel 4	0
Barrel 3	0
Barrel 2	0
Barrel 1	28

Barrel Footage (w/o headers)



For design assistance, drawings, and pricing send completed worksheet to: dyods@contech-cpi.com

Project Summary

Date:	9/7/2022
Project Name:	Cherokee Ctr. Lots 2, 3, 4, 5
City / County:	City of La Verne
State:	CA
Designed By:	Stephen
Company:	Andreasen
Telephone:	909-523-1592

Enter Information in Blue Cells

Corrugated Metal Pipe Calculator

Storage Volume Required (cf):	420	7.07 ft ² Pipe Area
Limiting Width (ft):	5.00	
Invert Depth Below Asphalt (ft):	10.00	
Solid or Perforated Pipe:	Perforated	
Shape Or Diameter (in):	36	
Number Of Headers:	2	
Spacing between Barrels (ft):	1.50	
Stone Width Around Perimeter of System (ft):	0.5	
Depth A: Porous Stone Above Pipe (in):	6	
Depth C: Porous Stone Below Pipe (in):	6	
Stone Porosity (0 to 40%):	40	

System Sizing

Pipe Storage:	283 cf	102.9% Of Required Storage
Porous Stone Storage:	149 cf	
Total Storage Provided:	432 cf	
Number of Barrels:	34.0 ft	
Length per Barrel:	3.0 ft	
Length Per Header:	4. ft x 41. ft	
Rectangular Footprint (W x L):	4. ft x 41. ft	

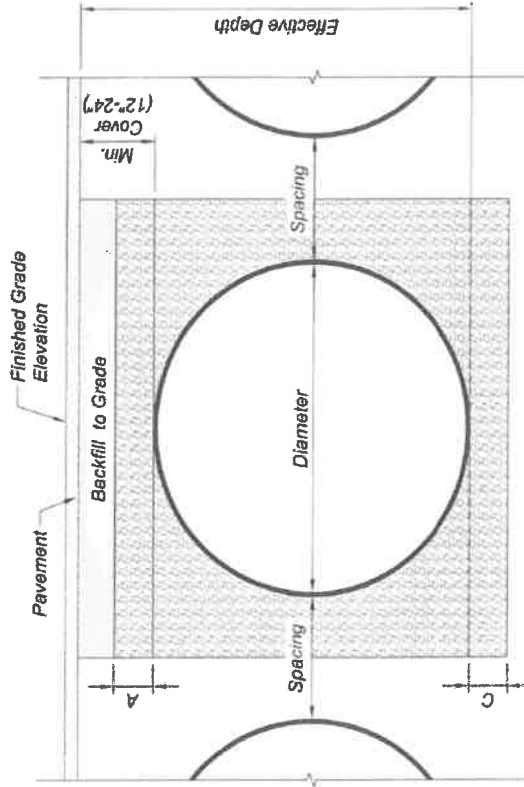
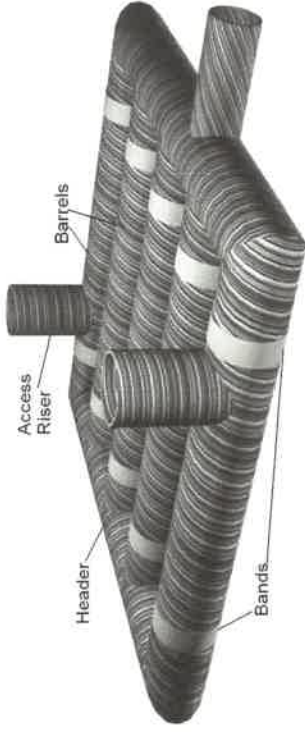
CONTECH Materials

Total CMP Footage:	40 ft
Approximate Total Pieces:	4 pcs
Approximate Coupling Bands:	3 bands
Approximate Truckloads:	1 trucks

Construction Quantities**

Total Excavation:	61 cy
Porous Stone Backfill For Storage:	14 cy stone
Backfill to Grade Excluding Stone:	37 cy fill

**Construction quantities are approximate and should be verified upon final design



System Layout





For design assistance, drawings, and pricing send completed worksheet to:
dyods@contech-cpi.com

Project Summary

Date:	9/7/2022
Project Name:	Cherokee Ctr. Lot 6
City / County:	City of La Verne
State:	CA
Designed By:	Stephen
Company:	Andreasen
Telephone:	909-523-1592
Enter Information in Blue Cells	

Corrugated Metal Pipe Calculator

Storage Volume Required (cf):	320
Limiting Width (ft):	5.00
Invert Depth Below Asphalt (ft):	10.00
Solid or Perforated Pipe:	Perforated
Shape Or Diameter (in):	36
Number Of Headers:	2
Spacing between Barrels (ft):	1.50
Stone Width Around Perimeter of System (ft):	0.5
Depth A: Porous Stone Above Pipe (in):	6
Depth C: Porous Stone Below Pipe (in):	6
Stone Porosity (0 to 40%):	40
7.07 ft² Pipe Area	

System Sizing

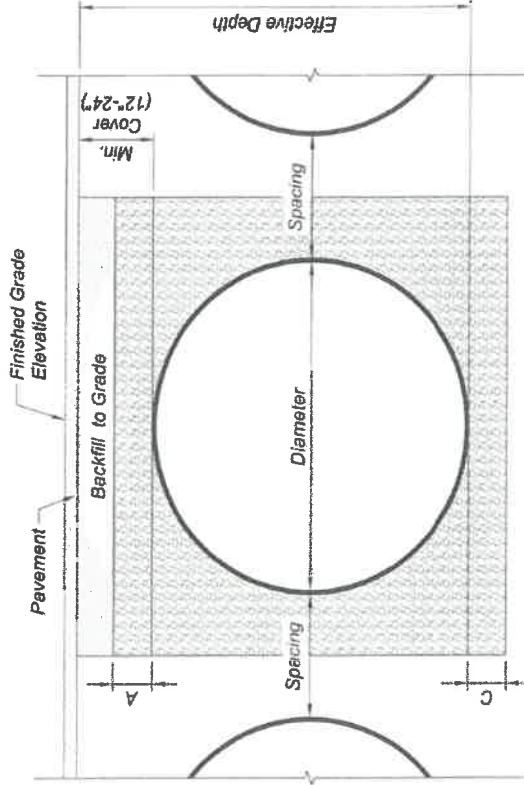
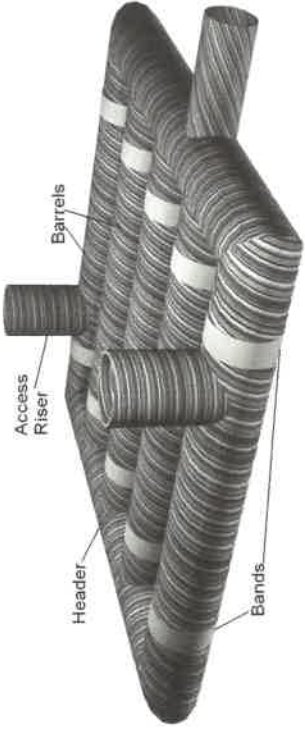
Pipe Storage:	219 cf
Porous Stone Storage:	117 cf
Total Storage Provided:	(336 cf) barrels
Number of Barrels:	25.0 ft
Length per Barrel:	3.0 ft
Length Per Header:	4. ft x 32. ft
Rectangular Footprint (W x L):	
105.1% Of Required Storage	

CONTECH Materials

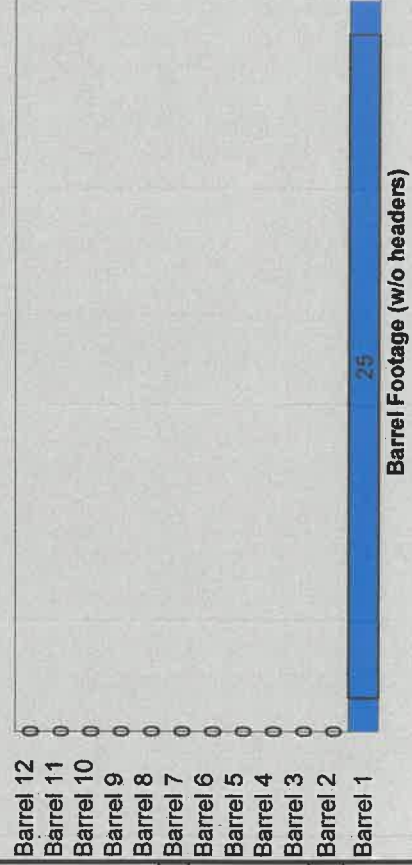
Total CMP Footage:	31 ft
Approximate Total Pieces:	4 pcs
Approximate Coupling Bands:	3 bands
Approximate Truckloads:	1 trucks

Construction Quantities**

Total Excavation:	48 cy
Porous Stone Backfill For Storage:	11 cy stone
Backfill to Grade Excluding Stone:	29 cy fill
**Construction quantities are approximate and should be verified upon final design	



System Layout



For design assistance, drawings,
and pricing send completed worksheet to:
dyods@contech-cpi.com

Project Summary

Date:	9/7/2022
Project Name:	Cherokee Ctr. Lot 7
City / County:	City of La Verne
State:	CA
Designed By:	Stephen
Company:	Andreasen
Telephone:	909-523-1592

Enter Information in
Blue Cells

Corrugated Metal Pipe Calculator

Storage Volume Required (cf):	410
Limiting Width (ft):	5.00
Invert Depth Below Asphalt (ft):	10.00
Solid or Perforated Pipe:	Perforated
Shape Or Diameter (in):	36
Number Of Headers:	2
Spacing between Barrels (ft):	1.50
Stone Width Around Perimeter of System (ft):	0.5
Depth A: Porous Stone Above Pipe (in):	6
Depth C: Porous Stone Below Pipe (in):	6
Stone Porosity (0 to 40%):	40

7.07 ft² Pipe Area

System Sizing

Pipe Storage:	276 cf
Porous Stone Storage:	146 cf
Total Storage Provided:	421 cf
Number of Barrels:	33 barrels
Length per Barrel:	33.0 ft
Length Per Header:	3.0 ft
Rectangular Footprint (W x L):	4. ft x 40. ft

102.8% Of Required Storage

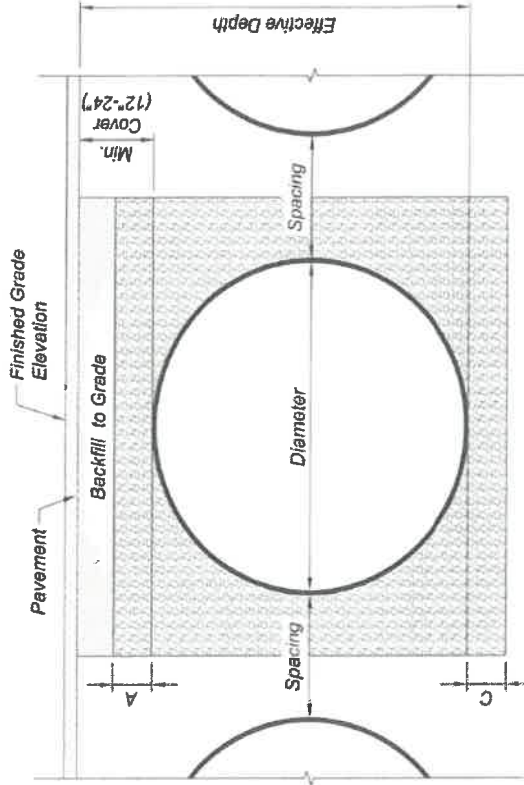
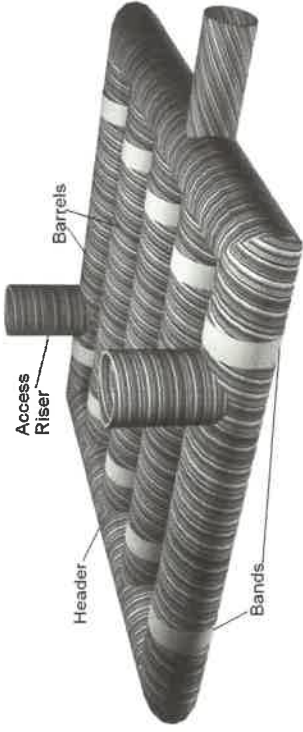
CONTECH Materials

Total CMP Footage:	39 ft
Approximate Total Pieces:	4 pcs
Approximate Coupling Bands:	3 bands
Approximate Truckloads:	1 trucks

Construction Quantities**

Total Excavation:	60 cy
Porous Stone Backfill For Storage:	13 cy stone
Backfill to Grade Excluding Stone:	36 cy fill

**Construction quantities are approximate and should be verified upon final design



System Layout

Barrel 12	0
Barrel 11	0
Barrel 10	0
Barrel 9	0
Barrel 8	0
Barrel 7	0
Barrel 6	0
Barrel 5	0
Barrel 4	0
Barrel 3	0
Barrel 2	0
Barrel 1	33

Barrel Footage (w/o headers)



DUCO ENGINEERING

GEOTECHNICAL EVALUATION REPORT

PROPOSED SEVEN-LOT SUBDIVISION
TENTATIVE TRACT 83304
CHEROKEE COURT
SAN DIMAS, CA 91773

JULY 19, 2021
JOB NO.: 21-061



DUCO ENGINEERING

July 19, 2021

Stan Stringfellow
Development 1 Group, Inc.
2011 E. Financial Way, Suite 203
Glendora, CA 91741

REPORT OF GEOTECHNICAL EVALUATION

Proposed Seven-lot Subdivision
Tentative Tract 83304
Cherokee Court
San Dimas, CA 91773
Job No.: 21-061

Mr. Stringfellow:

Thank you for the opportunity for Duco Engineering, Inc., to provide geotechnical services for the proposed seven-lot subdivision. It is our pleasure to serve as the geotechnical consultants for the design and construction of your project. The following presents a report of the geotechnical evaluation conducted for the subject site on July 2, 2021, in addition to an account of laboratory testing performed, and construction recommendations pertinent to the project. With the validating inclusion of this report and the recommendations herein, the proposed construction is considered geotechnically feasible. Upon completion, foundation and grading plans should be provided to this office for review and, if necessary, further comment. Please notify our office if any significant changes are made to the proposed development or plan, as such changes may warrant further geotechnical comment or revision of the provided recommendations.

Our office welcomes any further questions or comments you may have. It is our desire to serve our clients with the utmost efficiency and professionalism.

Respectfully submitted,

DUCO ENGINEERING INC.

James D. Collett, RCE 90814

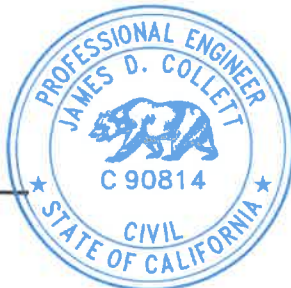


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5.9 Storm Water Infiltration

Storm water infiltration devices shall be located and constructed in conformance with local and county guidelines—namely, infiltration basin inverts shall maintain a setback of 15 feet from any structure and shall not intersect a 1:1 upward diagonal projection from any footing bottom. Premised upon Los Angeles County Guidelines, the field infiltration rate we obtained shall be a reduced safety factor of 4.0, based on the following criteria:

Table 2: Reduction factors for field-obtained infiltration rates

Rate Reduction Category	Reduction Factor
RF _T , reduction for test method	2.0
RF _V , reduction for site variability, certainty	1.0
RF _S , reduction for test method	2.0
FS = RF_T x RF_V x RF_S = 4.0	

This criteria was selected based on the requirements of the County standards, the frequency and uniformity of our test borings, and the assumption that moderate pre-treatment and system maintenance will occur over the intended life of the infiltration devices. Given this criteria, we recommend a factored, design infiltration rate of 2.25 in/hr for any proposed stormwater infiltration devices with invert depths on the order of three (3) to five (5) feet. However, given the coarser composition and higher gravel content of the underlying soils deeper than those tested, we anticipate this design value to be conservative should the basin invert depth exceed five (5) feet below existing. Additional testing or comment may be necessary at the discretion of the governing municipality and/or project civil engineer or should the proposed implementation of storm water retention/infiltration measures differ significantly from what we reasonably assume.

6.0 SUMMARY & CLOSURE

6.1 Future Work

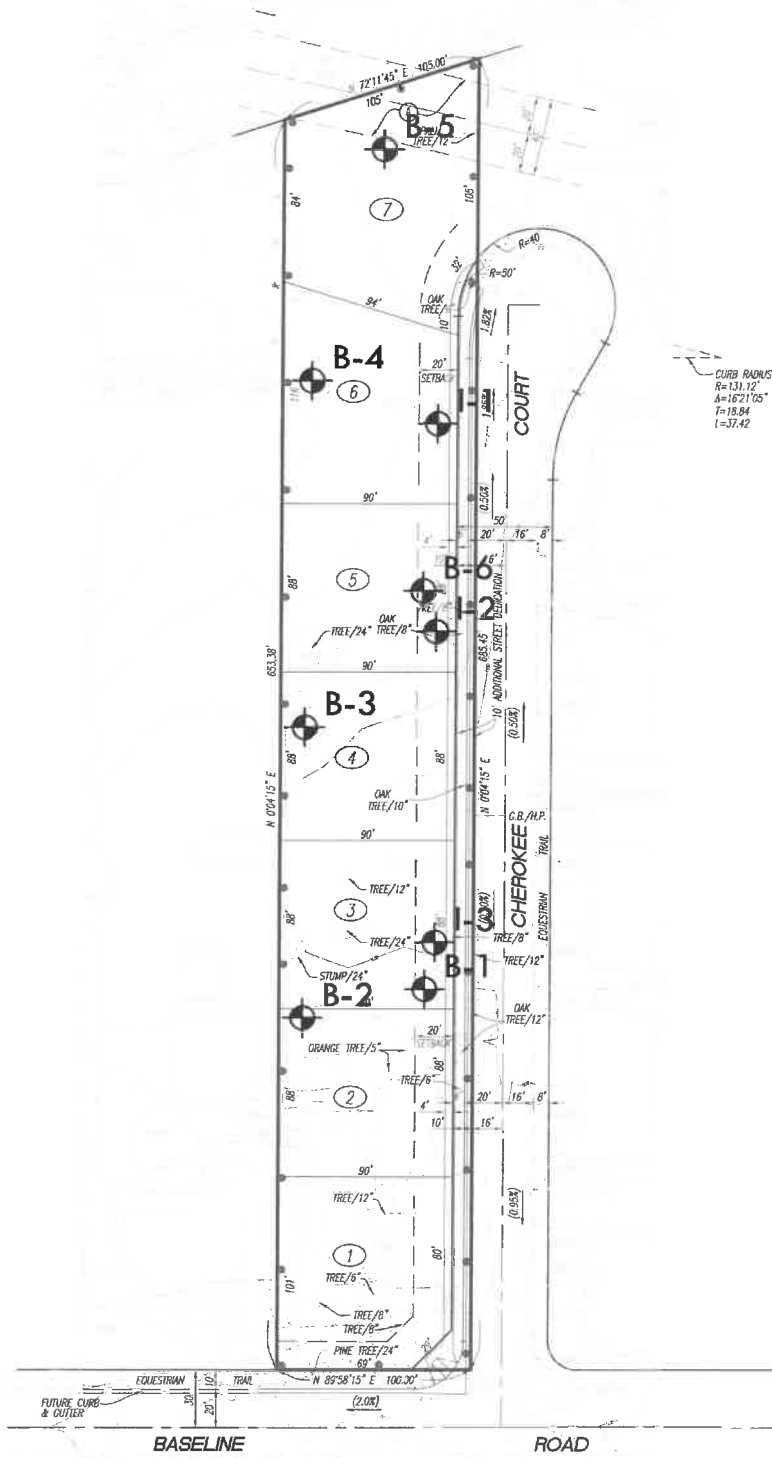
Foundation and grading plans, upon completion, shall be provided to this firm for review, further comment or analysis as necessary, and approval from a geotechnical standpoint. Inspection of the completed foundation excavations should be performed by a member of this firm, prior to the placement of any forms or reinforcement, to ensure conformance with the proposed design and design criteria. These additional services are not considered a part of this report, or within the scope of services currently contracted.

6.3 Closure

The findings in this report are based and prepared in accordance with pertinent state and local building and design codes, as well as generally accepted geotechnical engineering practices. No other warranty, guarantee, or assurance is expressed or implied. This firm is not responsible for work performed outside of its responsible charge as defined in the California Professional Engineers Act and governing board rules, or work for which this firm's recommendations were not adhered to or for which this firm was not provided the opportunity of oversight, comment, and/or inspection.

Should you have any questions with regard to this report of the recommendations contained herein, please contact this office.

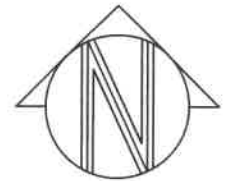
Boring locations are approximate and based on field measurements/sightings to existing features.




Site Plan from Andreasen Engineering Inc., 2021.

 **B-1**
Boring Location

 **I-1**
Infiltration Test Location



 DUCO ENGINEERING	PROJECT: PROPOSED 7-LOT SUBDIVISION Cherokee Ct. San Dimas, CA 91773	SHEET TITLE: BORING LOCATION MAP	Job No: 21-061 1"=100' FIG. 1
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