Appendix IS-3

Water Resources Technical Report

PSOMAS

222 West 2nd Street Project
Water Resources Technical Report

November 10, 2016

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1.0 Introduction

1.1 Project Description

The 222 West 2nd Street Project involves the development of a 30-story mixed-use building consisting of 107 residential condominium units, approximately 534,044 square feet of office uses, and approximately 7,200 square feet of ground level commercial retail floor area on a 2.71-acre site that currently includes a surface parking lot and a five-story parking structure. The Project Site, which is bounded by Broadway on the west, 2nd Street on the north, and Spring Street on the east, will also house a Regional Connector Metro rail station on the northwest corner of the site (2nd Street and Broadway), which is currently under construction.

The existing five-level parking structure on the southern portion of the Project Site will remain and provide the required vehicular and long-term bicycle parking for the proposed uses. The parking structure also will continue to provide parking for the nearby L.A. Times buildings located on the north side of 2nd Street, as well as for other uses in the area. Access to the parking structure will occur via one existing driveway on Broadway and two existing driveways on Spring Street. In addition, one new driveway on Spring Street is proposed to access the loading area for the new building.

1.2 Scope of Work

This report provides a description of the surface water hydrology and surface water quality at the Project Site and an analysis of the Project's potential significance related to the impact on surface water hydrology and surface water quality.

2.0 Surface Water Hydrology

2.1 General Approach

The watershed of the project was identified and characterized for the proposed condition. Computer modeling was used to estimate the runoff flow rate for the 85th % storm (SUSMP/LID), 5-,10-, 25-, 50-, and 100-year storm events.

2.2 Data Sources

The primary sources of data are the *LACDPW Hydrology / Sedimentation Manual and Appendices* (LACDPW 2006), and the Los Angeles County *Standard Urban Stormwater Mitigation Plan* (September 2002).

Rainfall and soil characteristics for the Project Site are given in Isohyetal Map Figure LACDPW 1-HI.19 (Section 4). A copy of the map is provided in Section 6.0. The 50-year (24-hour) rainfall isohyet nearest the project area is approximately 5.95-inches. The isohyets for all of the storm events, based on factors from the LA County Hydrology Manual in Table 5.3.1, are as listed:

- 5-Year 24-Hour: 3.47-inches
- 10-Year 24-Hour: 4.25-inches
- 25-Year 24-Hour: 5.22-inches
- 50-Year 24-Hour: 5.95-inches
- 100-Year 24-Hour: 6.68-inches

As shown on the Isohyetal Map, the soil classification of the project site falls predominantly into Soil Type 006. The project area to be disturbed is approximately 1.27 acres.

2.3 Existing Site Conditions

The existing Project Site is comprised of a 5-story parking garage and an at grade parking lot totaling approximately 2.71 acres with an average imperviousness of 81%. The site is bounded by 2nd Street to the north, Spring Street to the east, Broadway to the west, and private property to the south.

The existing site drainage flows either west to Broadway, north to 2nd St or east to Spring St via sheet flow. All runoff leaving the Project Site ultimately enters a catch basin via the street gutter located at either the northwest corner of Spring St and 3rd St or the northeast corner of Broadway and 3rd St.

2.4 Proposed Project Site Conditions

The proposed project will consist of a 30-story tower that tiers down to multiple podium levels. The average imperviousness of the proposed Project Site will be approximately 80% and will continue to drain to either Broadway, 2nd St, or Spring Street, as to not change the existing drainage pattern.

2.5 Hydrology Results

Table below summarizes the hydrology results:

Table 1. Existing and Proposed Peak Runoff Flows

	Existing	Proposed*	
Storm Event	**Q_{Total} [cfs]**	**Q_{Total} [cfs]**	**% Reduction**
5-Yr	1.13	0.95	**16%**
10-Yr	1.50	1.32	**12%**
25-Yr	1.98	1.79	**9.6%**
50-Yr	2.42	2.24	**7.4%**
100-Yr	2.84	2.65	**6.7%**

* Includes reduction from LID implementation (subtracting the 85th Percentile storm flow)

The Project Site behaves in a similar manner as paved or impervious surfaces. Thus, while existing paved areas of the existing parking lot would be replaced by new impervious surfaces, from a hydrological perspective, these areas would be considered to have the same properties as existing pervious surfaces during an intense rain event.

As discussed above, based on the drainage patterns and flow paths of stormwater that are tributary to a common point or area within the Project Site, the boundaries of the drainage areas would remain as under existing conditions (see grading plan in section 7.0 for more information on the proposed runoff pattern).Therefore, the flow patterns and discharge points under existing conditions would be maintained with the Project.

Expected peak runoff flows for the 5-, 10-, 25-, 50- and 100-year storm events for the Project are shown in Table 1. This table also contains a comparison of the existing and proposed peak runoff flows at the discharge points from the Project Site to the public right-of-way. The proposed runoff reduction takes into account the Project's compliance with the Low Impact Development (LID) requirements which will manage post construction stormwater runoff. The Project would include the installation of catch basins, planter drains, and roof downspouts throughout the Project Site to collect roof and site runoff, and direct stormwater away from the structures through a series of underground storm drain pipes. This onsite stormwater conveyance system would serve to prevent onsite flooding and nuisance water on the Project Site. In addition, with implementation of a stormwater capture and use system (i.e. harvesting system for on-site irrigation use), the volume of water leaving the Project Site would be further reduced compared to the existing conditions. Additionally, the Project Site is not located within a FEMA or City of Los Angeles designation 100- or 500- year flood plain, nor is it located within a potential inundation area as designed by the City of Los Angeles General Plan Safety Element.

3.0 Surface Water Quality

3.1 General Approach

The project falls under the jurisdiction of the City of Los Angeles Department of Public Works, which follows the 2009 Low Impact Development (LID) Manual design guidelines. The purpose of this surface water quality report is:

- To meet City of Los Angeles Department of Public Works requirements;
- To document that the Los Angeles County LID requirements will be met;
- To determine the proposed development's impact on existing hydrologic conditions;
- To identify the pollutants of concern and provide BMPs that will mitigate those pollutants of concern; and
- To provide sufficient detailed information to support detailed hydraulic design of stormwater treatment systems.

3.2 Site Characterization for Water Quality Review

Current Property Use: At grade parking lot and open space, and parking structure (in the southern portion of the site), which will remain. The parking lot is currently being used as a temporary construction staging area for the Los Angeles County Metropolitan Transportation Authority's Regional Connector project.

Proposed Property Use: Mixed-use: residential, office and commercial development.

Soils: The soil of the watershed is classified as Type 006, as shown in the Hydrology Map from the Los Angeles County Department of Public Works (LACDPW) website (see section 6.0 for map).

Receiving Waters: The Project Site is tributary to the Los Angeles River Reach 2.

The Los Angeles River Reach 2 is listed on the 2012 CWA Section 303(d) list (approved by SWRCB June 30, 2015) as impaired due to the prevalence of the pollutants shown in Table 2, which is excerpted from the State Water Resources Control Board, "Quality Limited Segments" article dated June 9, 2016. Currently, this waterway's existing beneficial uses include ground water recharge, warm freshwater habitat, water contact recreation, and non-contact water recreation; potential uses include municipal and domestic supply, industrial service supply, and wildlife habitat.

Table 2: Receiving Waters for Urban Runoff from Site[1]

Receiving Waters	303(d) List Impairments[2]	Designated Beneficial Uses	Proximity to RARE Uses
Los Angeles River Reach 2	Ammonia, Coliform Bacteria, Copper, Lead, Nutrients (Algae), Oil, Trash	Existing/Intermittent: GWR, WARM Potential: MUN, IND, WILD	No

3.3 Pollutants of Concern

Table 3 lists the pollutants anticipated to be generated by the Project's proposed land uses. Because the Project falls under the category of commercial development, the following pollutants could potentially be generated: sediment/turbidity, nutrients, trash and debris, oxygen demanding substances, bacteria and viruses, oil and grease and pesticides.

Table 3: Potential Pollutants Generated by Land Use Type[3]

Type of Development (Land Use)	Sediment /Turbidity	Nutrients	Organic Compounds	Trash & Debris	Oxygen Demanding Substances	Bacteria & Viruses	Oil & Grease	Pesticides	Metals
Commercial Development	P(1)	P(1)	P(4)	P	P(4)	P(3)	P	P(1)	N
Residential	P	P	N	P	P(1)	P	P(2)	P	N

Abbreviations: P=Potential N=Not expected

Notes:

(1) A potential pollutant if landscaping or open area exists on the Project site
(2) A potential pollutant if land use involves animal waste
(3) Specifically, petroleum hydrocarbons
(4) Bacterial indicators are routinely detected in pavement runoff.

A comparison of the pollutants existing in the Los Angeles River Reach 2 based on the State 303(d) list and pollutants associated with the planned land use activities on the Project Site show an overlap of **sediment**, **trash, and bacteria & viruses** as pollutants. These common pollutants are considered the pollutants of concern. Stormwater best management practices (BMP) proposed for the Project will be designed to address these pollutants of concern. Table 4 summarizes the efficiency of general categories of BMPs in treating different types of pollutants.

The City of Los Angeles requires LID compliance for this Project. As noted above, the LID concept for this project is a stormwater capture and use system. The runoff within the cistern will be pumped up for irrigation of the landscape around the Project Site. High flow outlets for the rainwater harvesting cistern will be routed to discharge as per proposed conditions, as described in section 2.4.

[1] State Water Resources Control Board, Los Angeles Region. *Water Quality Control Plan Los Angeles Region*. June 13, 1994.

[2] Los Angeles Regional Water Quality Control Board. 2010 CWA Section 303(d*) List of Water Quality Limited Segments*. October 11, 2011.

[3] Riverside County Flood Control and Conservation District, Riverside County Water Quality Management Plan for Urban Runoff, July 24, 2006. Note: This source is utilized because the Los Angeles County Flood Control District has not established a table that outlines pollutants of concern.

Table 4: Treatment Control BMP Selection Matrix[4]

Los Angeles River Pollutant of Concern (Yes/No)	Treatment Control BMP Categories							
	Veg. Swale /Veg. Filter Strips	Detention Basins	**Planter Box / Harvesting /Infiltration Basins & Trenches**	Wet Ponds or Wetlands	Sand Filter or Filtration	**Water Quality Inlets**	Hydro-dynamic Separator Systems	Manufactured / Proprietary Devices
Sediment/Turbidity	H/M	M	H/M	H/M	H/M	L	H/M (L for turbidity)	U
Yes			✓			✓		
Nutrients	L	M	H/M	H/M	L/M	L	L	U
No								
Organic Compounds	U	U	U	U	H/M	L	L	U
No								
Trash & Debris	L	M	U	U	H/M	M	H/M	U
Yes			✓			✓		
Oxygen Demanding Substances	L	M	H/M	H/M	H/M	L	L	U
No								
Bacteria & Viruses	U	U	H/M	U	H/M	L	L	U
Yes			✓			✓		
Oils & Grease	H/M	M	U	U	H/M	M	L/M	U
No								
Pesticides (non-soil bound)	U	U	U	U	U	L	L	U
No								
Metals	H/M	M	H	H	H	L	L	U
No								

Abbreviations:
L: Low removal efficiency H/M: High or medium removal efficiency U: Unknown removal efficiency

[4] Riverside County Flood Control and Conservation District, Riverside County Water Quality Management Plan for Urban Runoff, July 24, 2006. Note: This table is utilized because the Los Angeles County Flood Control District has not established a table that summarizes each BMP's efficiency for treating pollutants of concern.

3.4 Best Management Practices

Source and Treatment Control Best Management Practices (BMPs) are required for this Project under the LA County Standard Urban Stormwater Mitigation Plan (SUSMP) and City of Los Angeles Low Impact Development (LID) Standards Manual.

3.4.1 Site Design BMPs

3.4.1.1 Minimize Stormwater Pollutants of Concern

The Project will minimize pollutants of concern by maximizing the reduction of pollutant loadings to the Maximum Extent Practicable. The pollutants of concern – namely, sediment, trash, and bacteria & viruses– will be addressed through a pre-treatment settlement device connected to the cistern within the Project Site. Building roof run-off, which comprises of the majority of the site, will be collected via roof drains and routed internally through the building and plumbed into the harvesting tank. Prior to connection to the harvesting tank, downspout filters will be installed to remove any debris that enters the on-site piping system. In addition, permeable pavement is proposed on-site to reduce the overall stormwater runoff. All other stormwater run-off will be collected via catch basins or trench drains fitted with an insert to collect debris and sediment and routed to the stormwater tank.

3.4.1.2 Conserve Natural Areas

The existing Project Site consist of a parking structure and an at-grade parking lot. There is minimal existing landscape along the parking structure adjacent to the parking lot. The existing parking structure will remain. The proposed development within the existing at-grade parking lot includes additional landscape features including permeable pavement and a landscaped paseo. The proposed development will modify a portion of the site but will provide water quality treatment not previously provided in the existing condition as well as an increase of landscape area.

3.4.2 Source Control BMPs

3.4.2.1 Protect Slopes and Channels

There are no unprotected slopes or unlined channels onsite. The entire area to be developed will be either vegetated or hardscaped.

3.4.2.2 Provide Storm Drain System Stenciling and Signage

Stenciling will be provided for public storm drains near the vicinity of the project.

3.4.2 Treatment Control BMPs

3.4.3.1 Mitigation Design (Volumetric or Flow based)

Volume-based or flow-based design standards may be used separately or in combination. Volume-based criteria are used in the sizing of the cistern. The LID requirements, approved by the Regional Water Quality Control Board, call for the treatment of the peak mitigation flow rate or volume of runoff produced either by a 0.75” 24-hr or the 85th percentile rainfall event, whichever is greater. The rainfall intensity of the 85th percentile rainfall is 1 inch, therefore the 85th percentile rainfall event governs.

The LID calculation methodology was used to calculate the required treatment volumes for each of the discharge points from the site. LID Calculations are provided in section 6.0. The results are summarized in the tables below.

Table 5. Proposed Condition SUSMP Results

Project Site Area [ac]	BMP Type	85th percentile
		*V_M [ft^3]
1.27	Stormwater Capture and Use	3,405

*The total volume (Vm) of stormwater runoff to be mitigated was calculated by analyzing the project area as one area. Using this Vm and the appropriate BMP calculation from the City of LA LID manual, Table 6 shows the requirements for the area.

Table 6. Summary SUSMP / LID Mitigation BMPs

Area	Area [ac]	Impervious Area [ac]	Required Storage Tank V_M [ft^3]	BMP Type	Provided Treatment V_M [ft^3]	% Treated	Impervious Area Untreated [ac]
1[5]	1.27	0.75	3,405	Storage Tank	3,410	100	0
Total Percent Treatment						**100%**	

The proposed BMP in place is able provide 100% treatment. The selected BMP for the site has the capacity to capture and reuse more than the required baseline volume of 3,405 ft^3. The total provided treatment volume is 3,410 ft^3.

4.0 Significance Thresholds

4.1 Surface Water Hydrology

The City of Los Angeles CEQA Thresholds Guide states that a project would normally have a significant impact on surface water hydrology if it would:

- Cause flooding during the projected 50-year developed storm event, which would have the potential to harm people or damage property or sensitive biological resources;
- Substantially reduce or increase the amount of surface water in a water body; or
- Result in permanent, adverse change to the movement of surface water sufficient to produce a substantial change in the current or direction of water flow.

4.2 Surface Water Quality

The City of Los Angeles CEQA Thresholds Guide states that a project would normally have a significant impact on surface water quality if discharges associated with the project would create pollution, contamination or nuisance, as defined in Section 13050 of the California Water Code (CWC) or that

[5] BMP required calculation based on City of LA LID manual.

cause regulatory standards to be violated, as defined in the applicable NPDES stormwater permit or Water Quality Control Plan for the receiving water body. The CEQA Thresholds Guide and CWC include the following definitions:

"Pollution" means an alteration of the quality of waters of the state to a degree which unreasonably affects either the following: 1) the waters for beneficial uses or 2) facilities which serve these beneficial uses. "Pollution" may include "Contamination".

"Contamination" means an impairment of the quality of the waters of the state by waste to a degree, which creates a hazard to the public health through poisoning or through the spread of disease. "Contamination" includes any equivalent effect resulting from the disposal of waste, whether or not waters of the state are affected.

"Nuisance" means anything which meets all of the following requirements: 1) is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property; 2) affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extend of the annoyance or damage inflicted upon individuals may be unequal; and 3) occurs during, or as a result of the treatment or disposal of wastes. [6]

5.0 Construction Activities

5.1 Construction General Permit

In 2003, the California State Water Resources Control board (SWRCB) adopted the General Construction Activity Stormwater Permit (CGP)[7], which is "…required for all storm water discharges associated with construction activity where clearing, grading, and excavation results in a land disturbance of one or more acres." Under the CGP, the following Permit Registration Documents must be submitted to SWRCB through the SMARTS website: a Notice of Intent (NOI), a Storm Water Pollution Prevention Plan (SWPPP), and other compliance related documents required by this CGP and mail the appropriate permit fee to the SWRCB. Because the land disturbance for the Project Site is over one acre, the requirements mentioned above will need to be implemented.

The CGP requires all SWPPPs be written, amended, and certified by a Qualified SWPPP Developer, emphasizing BMPs, which are defined as "schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the United States." The SWPPP has two major objectives:

- to help identify the sources of sediment and other pollutants that affect the quality of stormwater discharges; and
- to describe and ensure the implementation of BMPs to reduce or eliminate sediment and other pollutants in storm water and non-storm water discharges. The SWPPP must include BMPs that address source control, BMPs that address pollutant control, and BMPs that address treatment control.

Furthermore, the CGP requires that a project are enrolled for more than one continuous three-month period to submit information and annually certify that their site is in compliance with these requirements. The primary purpose of this requirement is to provide information needed for overall program evaluation and pubic information. The CGP requires that key personnel (e.g., Qualified SWPPP Developers, inspectors, etc.) have specific training or certifications to ensure their level of knowledge and skills are

[6] City of Los Angeles. LA CEQA Thresholds Guides. 2006

[7] Construction General Permit Water Quality Order 2009-0009-DWQ, Fact Sheet, website: http://www.waterboards.ca.gov/water_issues/programs/stormwater/docs/constpermits/wqo_2009_0009_complete.pdf, accessed October 25, 2016.

adequate to ensure their ability to design and evaluate project specifications that will comply with CGP requirements. Erosion control and drainage devices are required to be provided in accordance with the CGP and SWPPP as well as the MS4 Permit. Dewatering activities during construction will need to be implemented through BMPs targeting sediment specific pollutants such as Sediment Treatment, Sediment Basin, Sediment Trap, and other BMPs listed on CASQA's NS-2 Dewatering Operations[8].

6.0 Level of Significance

6.1 Significance Summary – Surface Water Hydrology

Based on the above, the Project would not result in an incremental impact for flooding on either on-site or off-site areas during a 50-year storm event, it would not substantially increase the amount of surface water in a water body, and it will not result in a permanent adverse change to the movement of surface water that would result in an incremental effect on the capacity of the existing storm drain system. Therefore, the development of the Project would result in less than significant impact on surface water hydrology.

6.2 Significance Summary – Surface Water Quality

Due to the nature of the proposed development to change the land use from an existing parking lot to a mixed-use residential and commercial development, the Project will result in a reduction of potential types of pollutants. As detailed in Section 3.0, a comparison between the potential pollutant based on land use and the 303(d) list for Los Angeles River Reach 2 indicates that the pollutants of concern are **sediment**, **trash, and bacteria & viruses.** These three pollutants of concern will be addressed through the proposed stormwater BMPs in order to comply with Los Angeles County's Standard Urban Stormwater Mitigation Plan (SUSMP) and City of Los Angeles' Low Impact Development Ordinance. These BMPs include elements such as permeable pavement, rainwater harvesting, and an increase of landscape area. During construction of the project, a SWPPP written by a Qualified SWPPP Developer will be prepared to implement temporary control measures throughout the construction phase. Based on the analysis contained in this report, there are no significant impacts for surface water quality as a result of the Project. With compliance under the SWPPP, SUSMP, and the City's LID Ordinance, construction and operational water quality impacts would be less than significant.

[8] California Stormwater BMP Handbook Construction, Fact Sheet NS-2 Dewatering Operations, July 2012.

7.0 Calculations and Site Plan

Project No 1TRI80200
222 West 2nd St.
Los Angeles, CA 90012

Tribune Volume Calculations:

Givens:

Areas = Building A

Breakdown	sqft	acre
Area Total	55,115	1.266
Impervious, Ai	44,147	1.014
Pervious, Ap	10,968	0.252
Undeveloped Area, Au	0	0
Exempt Area	0	0
TOTAL	**55,115**	**1.266**
Landscaped Areas Counted Towards Mitigation Volume*		
Landscaped Area Ground Level		0
Landscaped Area Level 8		0
Landscaped Area Level 15		0
Landscaped Area Level 27		0
TOTAL Pervious	**10,968**	**0.252**
Landscaped Areas Counted Towards ETWU**		
Additional Landscaped Area	1,098	0.026
TOTAL Additional Pervious	**1,098**	**0.026**
Exempt Area***		
Misc Areas	0	0
TOTAL Exempt	**0**	**0.00**

***Note these are landscaped areas exposed to the sky.**

****Note these are additional landscaped areas NOT EXPOSED to the sky.**

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*****Note these are water features exposed to the sky.**

Soil media infiltration rate:	2.5	in/hr	(Table 4.5)
T_{Fill} =	3	hrs	(Table 4.5)
Drawdown time, T (hr) =	48	hrs	(Table 4.5)
$K_{Sat,Design}$ Factor of Safety, FS =	2		
$V_{design\ Planter}$ Factor of Safety =	1.5		
Design Storm =	85th Percentile		(Per City of LA requirement)
Design Storm Intensity =	1	in	(Per LA County Hydrology GIS)
Planting Factor =	0.5		(Per Landscape Architect)
7 Month Evapotranspiration, ET_7	21.7		(Per City of LA Irrigation Guidelines, App C)

i. Determine the Mitigation Volume (V_M):

V_M (ft^3) = 85th Percentile Intensity (in) * Catchment Area (acres) * (3630 cuft/1ac-in)

where Catchment Area (acres) = (Impervious Area * 0.9) + [(Pervious area + Undeveloped area) * 0.1]

V_M (ft^3) = 1*[(1.014*0.9)+[(0.252+0)*0.1]] * 3630 ft^3

V_M (ft^3) = 3405 ft^3 or 25,500 Gallons

The design will be a rainwater harvesting system, therefore,

V_M (ft^3) =	**3405**	**ft^3**	**or**	**25,500**	**Gallons**

ii. Determine planting area (ft^2):

Planting Area (ft^2) = 10968 + 1098 ft^2

Planting Area (ft^2) = 12,066 ft^2

iii. Determine Planter Factor, PF, (ft^2)

Planter Factor (ft^2) = Planting Factor x Planting Area

Planter Factor (ft^2) = 0.5 x 12066 ft2

Planter Factor (ft^2) =	**6033** **ft^2**

iv. Determine the 7-month (Oct 1-April 30) Estimated Total Water Use (ETWU):

$ETWU_{(7\text{-month})}$ = ET_7 x 0.62 x PF

$ETWU_{(7\text{-month})}$ = 21.7 x 0.62 x 6033

$ETWU_{(7\text{-month})}$ =	**81168** **gal**

v. Verify $ETWU_{(7\text{-month})}$ is greater than or equal to V_{WQDV}:

$ETWU_{(7\text{-month})}$	≥	***$V_{(Design)}$ (gal)***
81,168	≥	***25,500***

CAPTURE AND USE IS FEASIABLE

Peak Flow Hydrologic Analysis

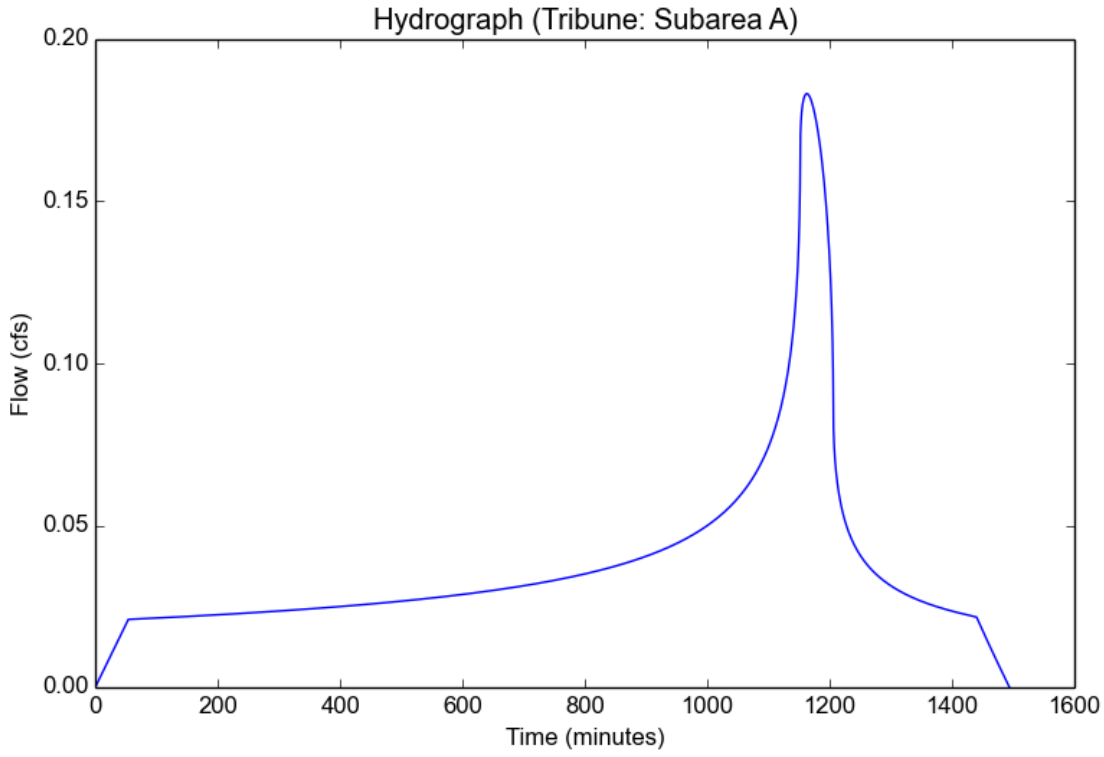
File location: W:/1TRI180200/ENGR/DOCS/EIR Hydrology Report/Hydro Calc/Tribune - Prop 85th.pdf
Version: HydroCalc 0.3.0-beta

Input Parameters

Project Name	Tribune
Subarea ID	Subarea A
Area (ac)	1.27
Flow Path Length (ft)	1500.0
Flow Path Slope (vft/hft)	0.01
85th Percentile Rainfall Depth (in)	1.0
Percent Impervious	0.8
Soil Type	6
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	1.0
Peak Intensity (in/hr)	0.195
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.74
Time of Concentration (min)	54.0
Clear Peak Flow Rate (cfs)	0.1832
Burned Peak Flow Rate (cfs)	0.1832
24-Hr Clear Runoff Volume (ac-ft)	0.0777
24-Hr Clear Runoff Volume (cu-ft)	3383.4079



Peak Flow Hydrologic Analysis

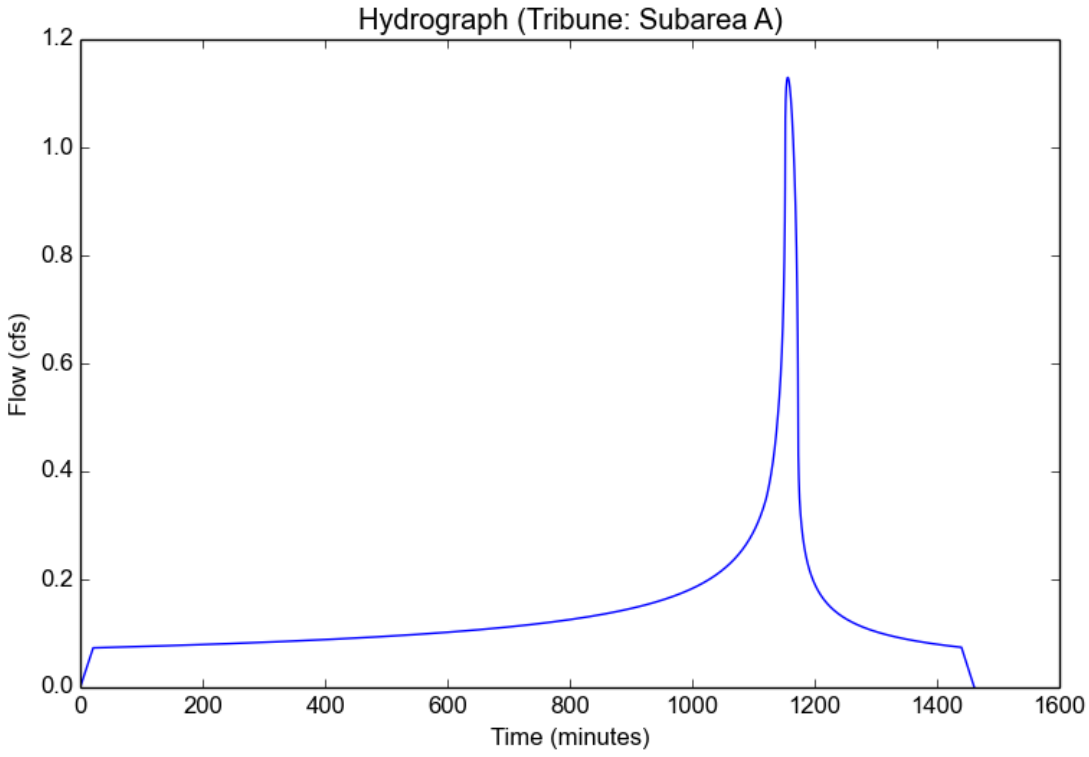
File location: W:/1TRI180200/ENGR/DOCS/EIR Hydrology Report/Hydro Calc/Tribune - Existing 5 Yr.pdf
Version: HydroCalc 0.3.0-beta

Input Parameters

Project Name	Tribune
Subarea ID	Subarea A
Area (ac)	1.27
Flow Path Length (ft)	1500.0
Flow Path Slope (vft/hft)	0.01
50-yr Rainfall Depth (in)	5.95
Percent Impervious	0.81
Soil Type	6
Design Storm Frequency	5-yr
Fire Factor	0
LID	False

Output Results

Modeled (5-yr) Rainfall Depth (in)	3.4748
Peak Intensity (in/hr)	1.0561
Undeveloped Runoff Coefficient (Cu)	0.5955
Developed Runoff Coefficient (Cd)	0.8422
Time of Concentration (min)	21.0
Clear Peak Flow Rate (cfs)	1.1295
Burned Peak Flow Rate (cfs)	1.1295
24-Hr Clear Runoff Volume (ac-ft)	0.277
24-Hr Clear Runoff Volume (cu-ft)	12064.2954



Peak Flow Hydrologic Analysis

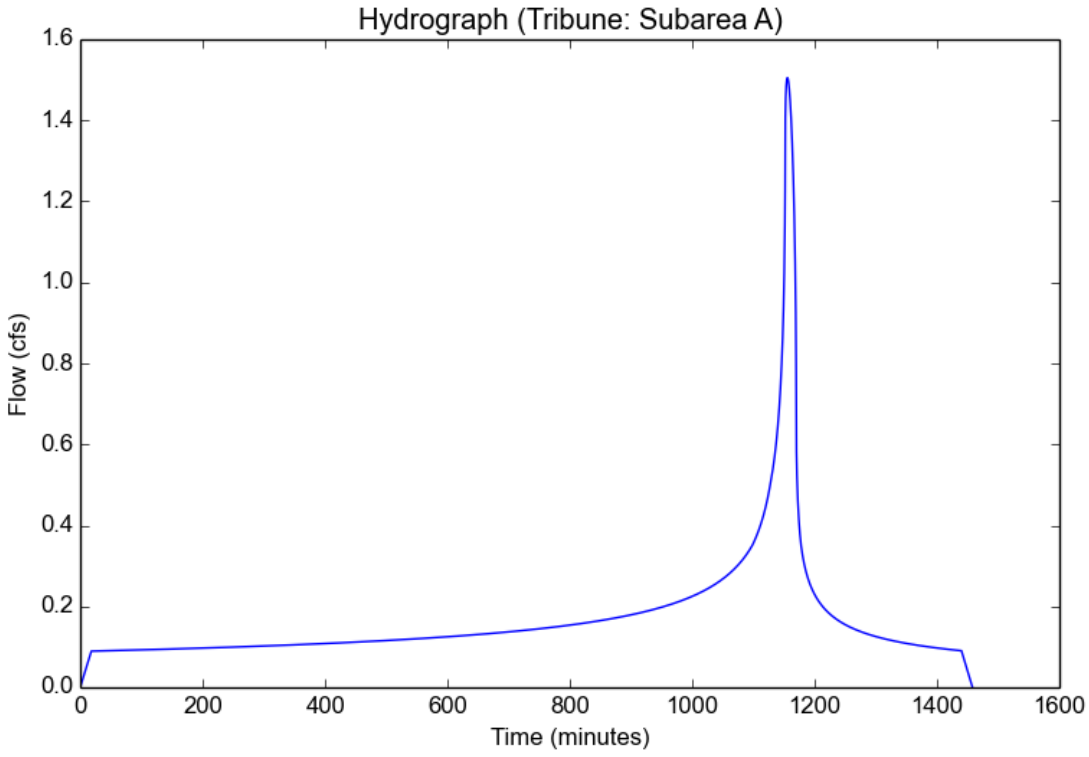
File location: W:/1TRI180200/ENGR/DOCS/EIR Hydrology Report/Hydro Calc/Tribune - Existing 10 Yr.pdf
Version: HydroCalc 0.3.0-beta

Input Parameters

Project Name	Tribune
Subarea ID	Subarea A
Area (ac)	1.27
Flow Path Length (ft)	1500.0
Flow Path Slope (vft/hft)	0.01
50-yr Rainfall Depth (in)	5.95
Percent Impervious	0.81
Soil Type	6
Design Storm Frequency	10-yr
Fire Factor	0
LID	False

Output Results

Modeled (10-yr) Rainfall Depth (in)	4.2483
Peak Intensity (in/hr)	1.3882
Undeveloped Runoff Coefficient (Cu)	0.6568
Developed Runoff Coefficient (Cd)	0.8538
Time of Concentration (min)	18.0
Clear Peak Flow Rate (cfs)	1.5053
Burned Peak Flow Rate (cfs)	1.5053
24-Hr Clear Runoff Volume (ac-ft)	0.34
24-Hr Clear Runoff Volume (cu-ft)	14808.9661



Peak Flow Hydrologic Analysis

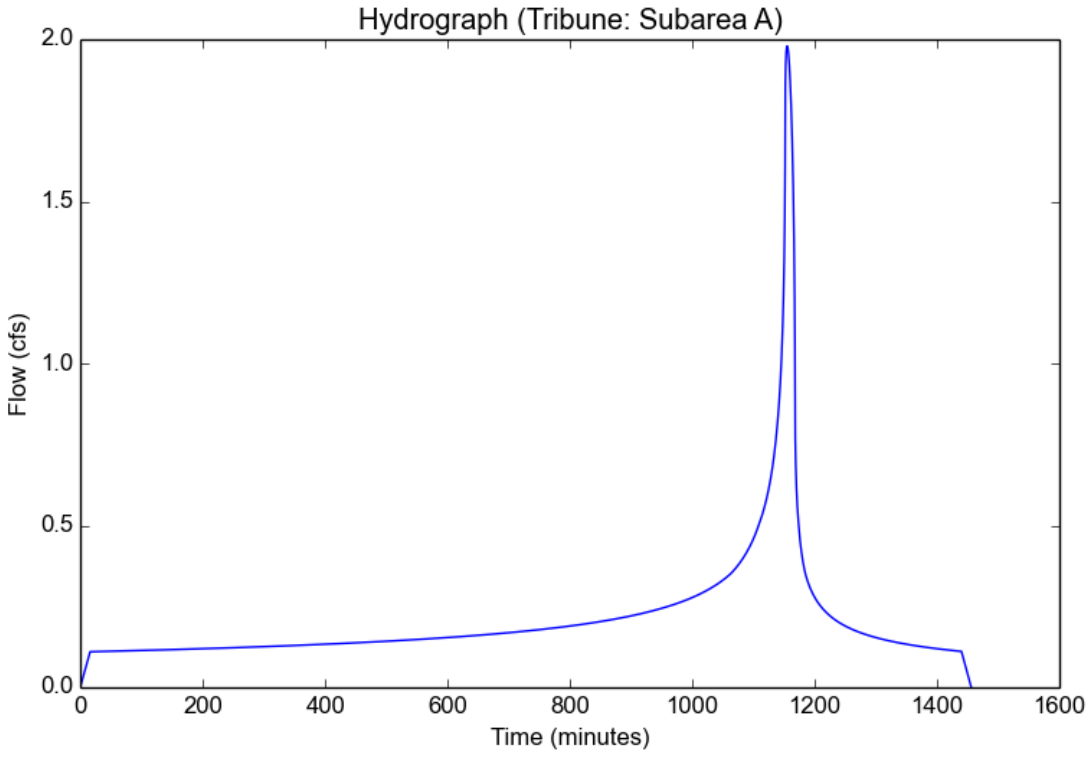
File location: W:/1TRI180200/ENGR/DOCS/EIR Hydrology Report/Hydro Calc/Tribune - Existing 25 Yr.pdf
Version: HydroCalc 0.3.0-beta

Input Parameters

Project Name	Tribune
Subarea ID	Subarea A
Area (ac)	1.27
Flow Path Length (ft)	1500.0
Flow Path Slope (vft/hft)	0.01
50-yr Rainfall Depth (in)	5.95
Percent Impervious	0.81
Soil Type	6
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	5.2241
Peak Intensity (in/hr)	1.8042
Undeveloped Runoff Coefficient (Cu)	0.7108
Developed Runoff Coefficient (Cd)	0.8641
Time of Concentration (min)	16.0
Clear Peak Flow Rate (cfs)	1.9799
Burned Peak Flow Rate (cfs)	1.9799
24-Hr Clear Runoff Volume (ac-ft)	0.4202
24-Hr Clear Runoff Volume (cu-ft)	18305.7467



Peak Flow Hydrologic Analysis

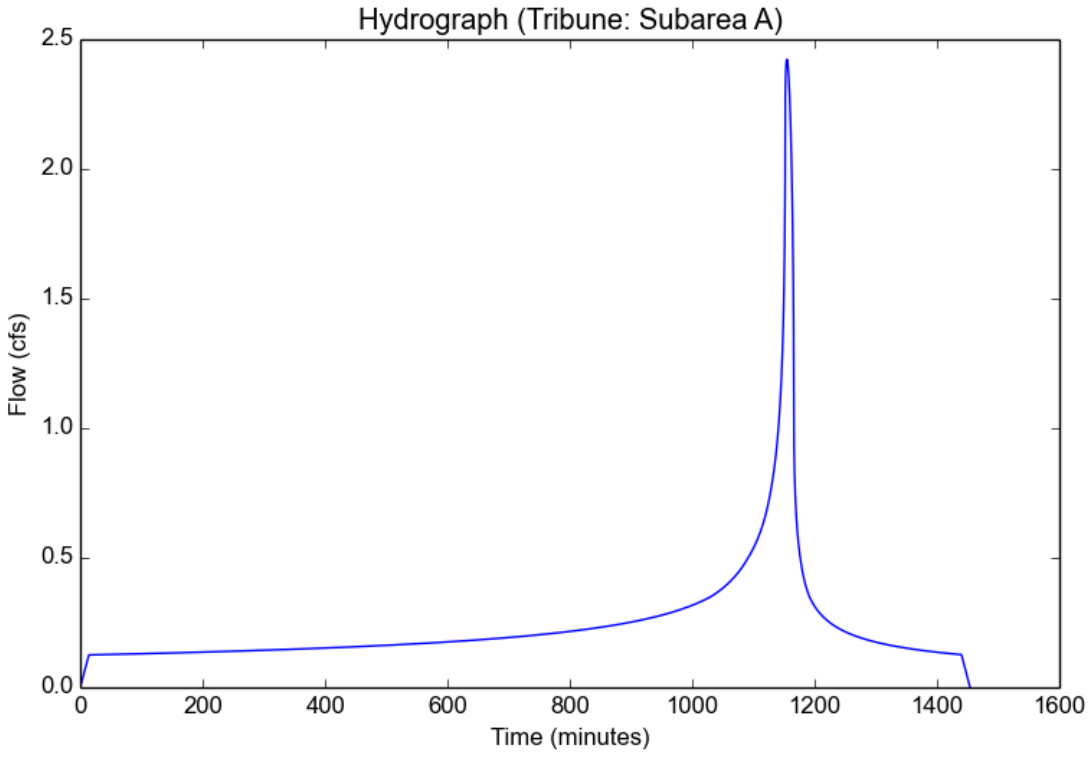
File location: W:/1TRI180200/ENGR/DOCS/EIR Hydrology Report/Hydro Calc/Tribune - Existing 50 Yr.pdf
Version: HydroCalc 0.3.0-beta

Input Parameters

Project Name	Tribune
Subarea ID	Subarea A
Area (ac)	1.27
Flow Path Length (ft)	1500.0
Flow Path Slope (vft/hft)	0.01
50-yr Rainfall Depth (in)	5.95
Percent Impervious	0.81
Soil Type	6
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.95
Peak Intensity (in/hr)	2.188
Undeveloped Runoff Coefficient (Cu)	0.7529
Developed Runoff Coefficient (Cd)	0.8721
Time of Concentration (min)	14.0
Clear Peak Flow Rate (cfs)	2.4233
Burned Peak Flow Rate (cfs)	2.4233
24-Hr Clear Runoff Volume (ac-ft)	0.4806
24-Hr Clear Runoff Volume (cu-ft)	20933.2947



Peak Flow Hydrologic Analysis

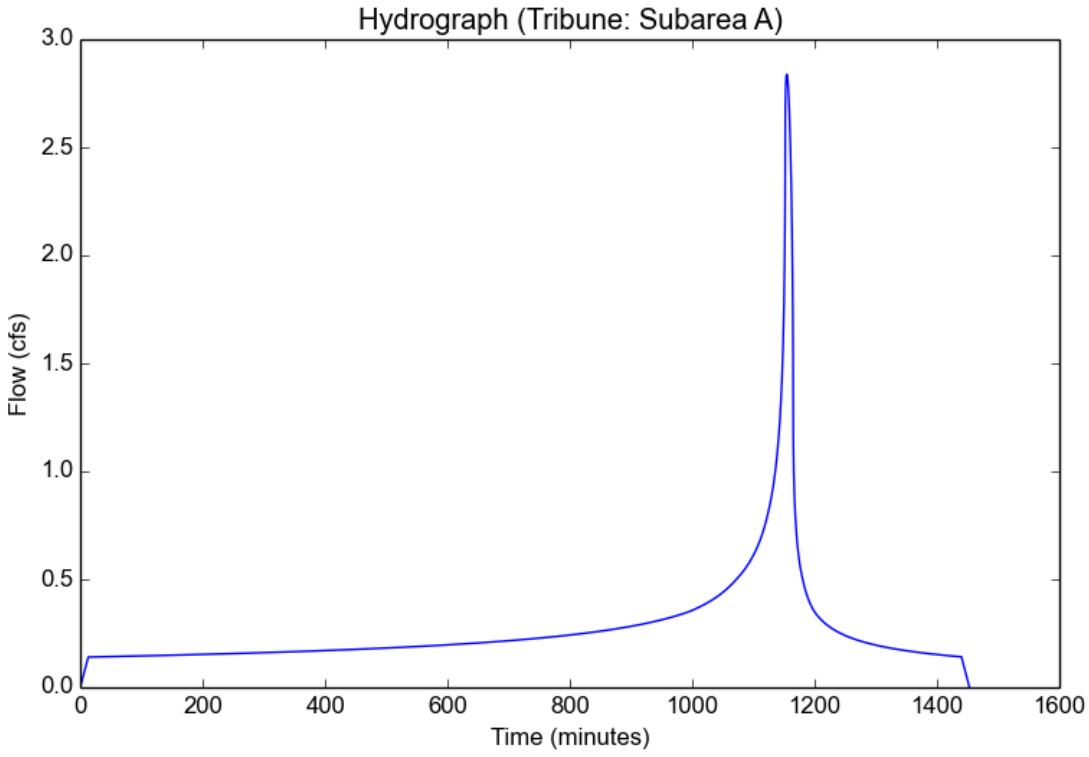
File location: W:/1TRI180200/ENGR/DOCS/EIR Hydrology Report/Hydro Calc/Tribune - Existing 100 Yr.pdf
Version: HydroCalc 0.3.0-beta

Input Parameters

Project Name	Tribune
Subarea ID	Subarea A
Area (ac)	1.27
Flow Path Length (ft)	1500.0
Flow Path Slope (vft/hft)	0.01
50-yr Rainfall Depth (in)	5.95
Percent Impervious	0.81
Soil Type	6
Design Storm Frequency	100-yr
Fire Factor	0
LID	False

Output Results

Modeled (100-yr) Rainfall Depth (in)	6.6759
Peak Intensity (in/hr)	2.542
Undeveloped Runoff Coefficient (Cu)	0.7901
Developed Runoff Coefficient (Cd)	0.8791
Time of Concentration (min)	13.0
Clear Peak Flow Rate (cfs)	2.8381
Burned Peak Flow Rate (cfs)	2.8381
24-Hr Clear Runoff Volume (ac-ft)	0.5414
24-Hr Clear Runoff Volume (cu-ft)	23584.514



Peak Flow Hydrologic Analysis

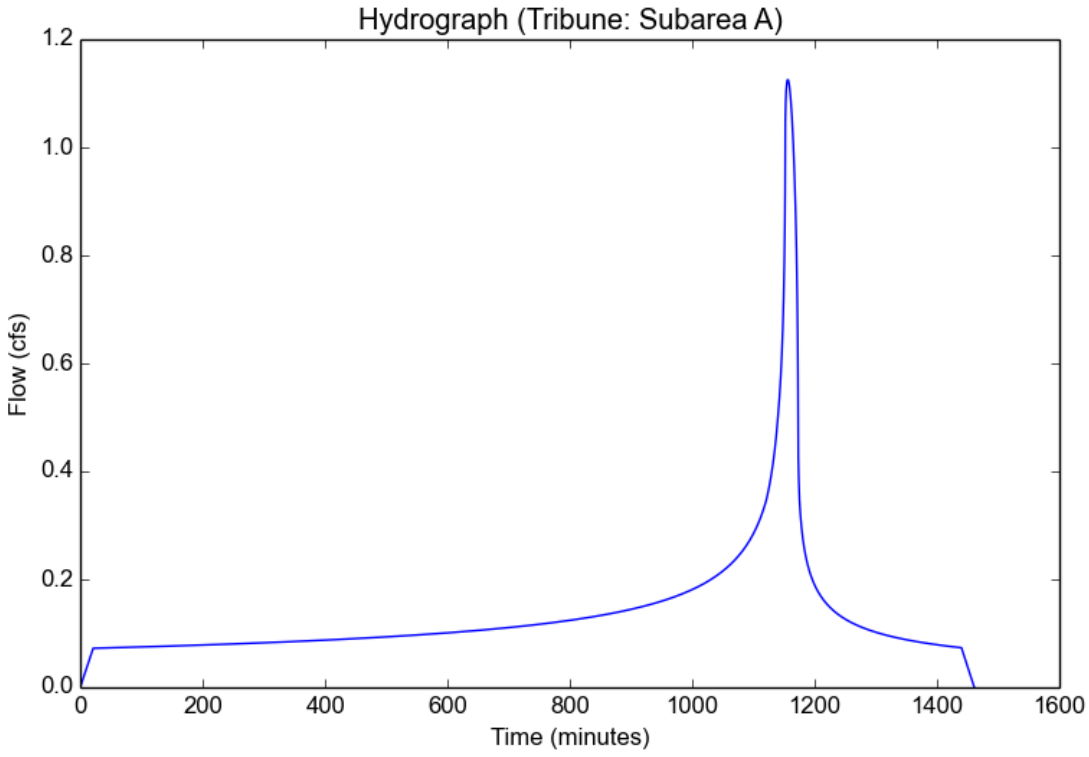
File location: W:/1TRI180200/ENGR/DOCS/EIR Hydrology Report/Hydro Calc/Tribune - Prop 5 Yr.pdf
Version: HydroCalc 0.3.0-beta

Input Parameters

Project Name	Tribune
Subarea ID	Subarea A
Area (ac)	1.27
Flow Path Length (ft)	1500.0
Flow Path Slope (vft/hft)	0.01
50-yr Rainfall Depth (in)	5.95
Percent Impervious	0.8
Soil Type	6
Design Storm Frequency	5-yr
Fire Factor	0
LID	False

Output Results

Modeled (5-yr) Rainfall Depth (in)	3.4748
Peak Intensity (in/hr)	1.0561
Undeveloped Runoff Coefficient (Cu)	0.5955
Developed Runoff Coefficient (Cd)	0.8391
Time of Concentration (min)	21.0
Clear Peak Flow Rate (cfs)	1.1255
Burned Peak Flow Rate (cfs)	1.1255
24-Hr Clear Runoff Volume (ac-ft)	0.2743
24-Hr Clear Runoff Volume (cu-ft)	11946.7221



Peak Flow Hydrologic Analysis

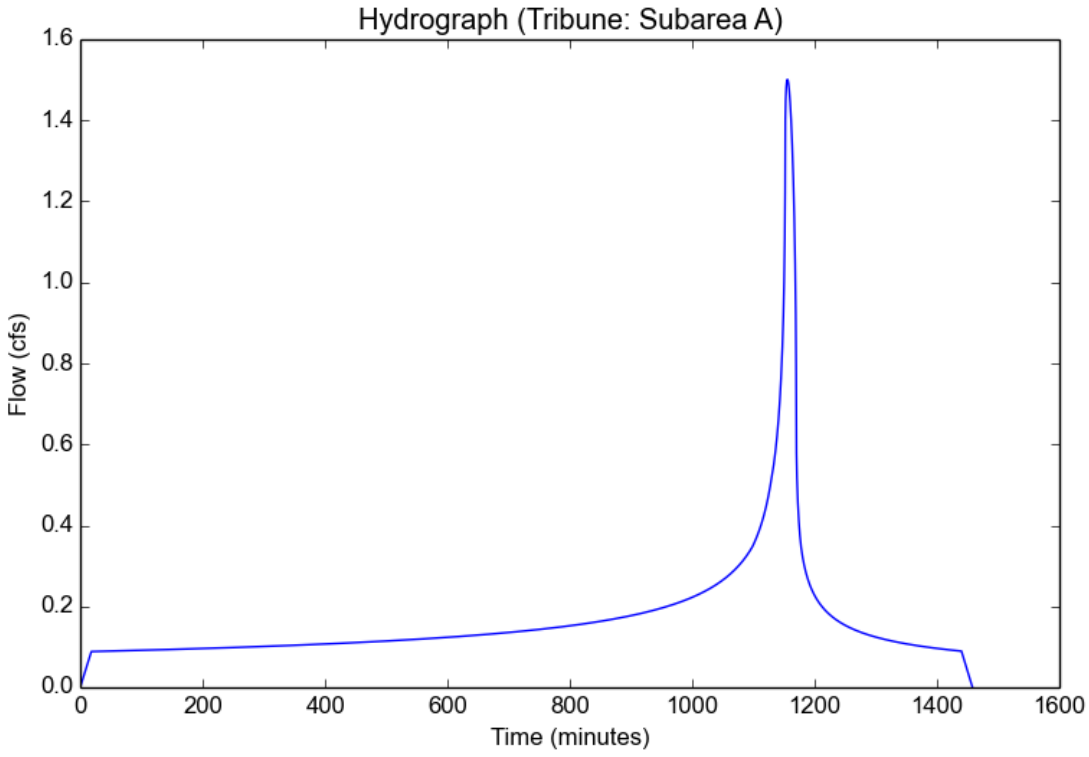
File location: W:/1TRI180200/ENGR/DOCS/EIR Hydrology Report/Hydro Calc/Tribune - Prop 10 Yr.pdf
Version: HydroCalc 0.3.0-beta

Input Parameters

Project Name	Tribune
Subarea ID	Subarea A
Area (ac)	1.27
Flow Path Length (ft)	1500.0
Flow Path Slope (vft/hft)	0.01
50-yr Rainfall Depth (in)	5.95
Percent Impervious	0.8
Soil Type	6
Design Storm Frequency	10-yr
Fire Factor	0
LID	False

Output Results

Modeled (10-yr) Rainfall Depth (in)	4.2483
Peak Intensity (in/hr)	1.3882
Undeveloped Runoff Coefficient (Cu)	0.6568
Developed Runoff Coefficient (Cd)	0.8514
Time of Concentration (min)	18.0
Clear Peak Flow Rate (cfs)	1.501
Burned Peak Flow Rate (cfs)	1.501
24-Hr Clear Runoff Volume (ac-ft)	0.3367
24-Hr Clear Runoff Volume (cu-ft)	14668.334



Peak Flow Hydrologic Analysis

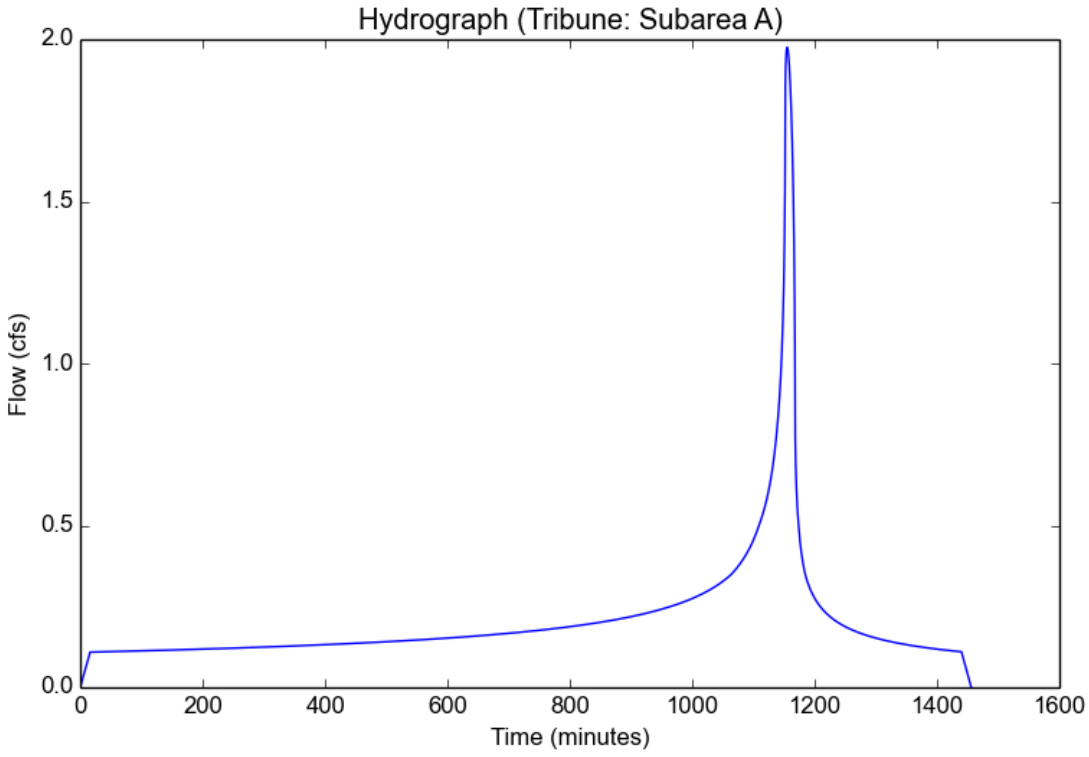
File location: W:/1TRI180200/ENGR/DOCS/EIR Hydrology Report/Hydro Calc/Tribune - Prop 25 Yr.pdf
Version: HydroCalc 0.3.0-beta

Input Parameters

Project Name	Tribune
Subarea ID	Subarea A
Area (ac)	1.27
Flow Path Length (ft)	1500.0
Flow Path Slope (vft/hft)	0.01
50-yr Rainfall Depth (in)	5.95
Percent Impervious	0.8
Soil Type	6
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	5.2241
Peak Intensity (in/hr)	1.8042
Undeveloped Runoff Coefficient (Cu)	0.7108
Developed Runoff Coefficient (Cd)	0.8622
Time of Concentration (min)	16.0
Clear Peak Flow Rate (cfs)	1.9755
Burned Peak Flow Rate (cfs)	1.9755
24-Hr Clear Runoff Volume (ac-ft)	0.4164
24-Hr Clear Runoff Volume (cu-ft)	18137.8283



Peak Flow Hydrologic Analysis

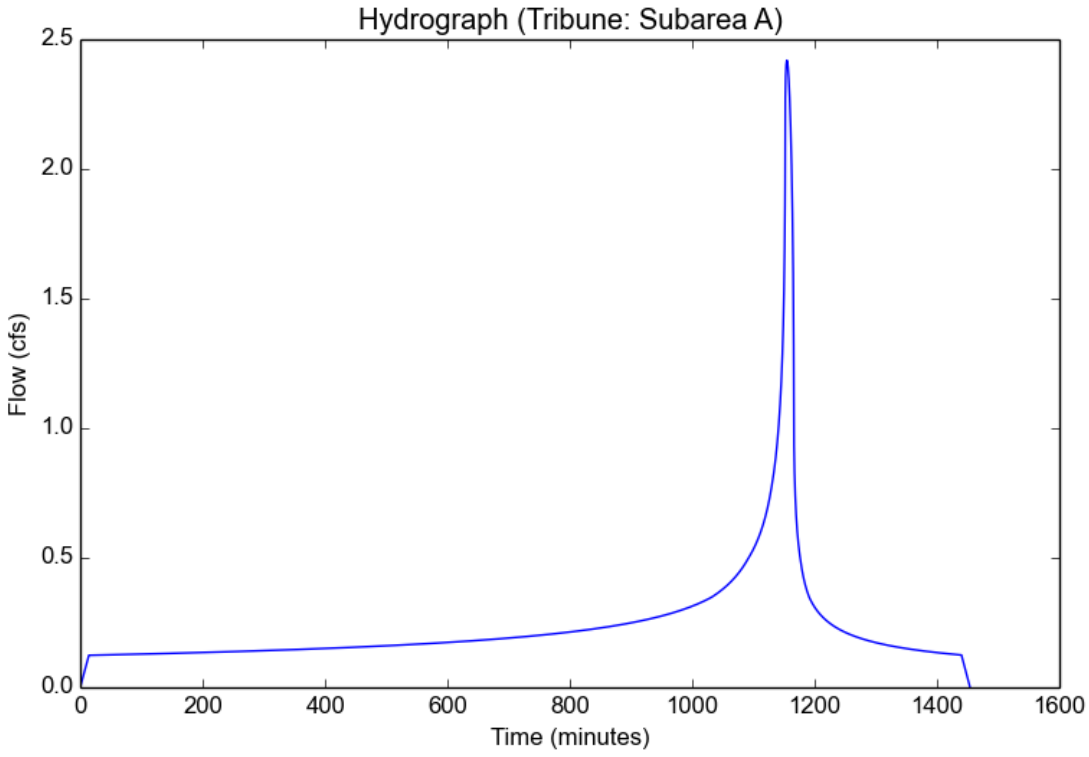
File location: W:/1TRI180200/ENGR/DOCS/EIR Hydrology Report/Hydro Calc/Tribune - Prop 50 Yr.pdf
Version: HydroCalc 0.3.0-beta

Input Parameters

Project Name	Tribune
Subarea ID	Subarea A
Area (ac)	1.27
Flow Path Length (ft)	1500.0
Flow Path Slope (vft/hft)	0.01
50-yr Rainfall Depth (in)	5.95
Percent Impervious	0.8
Soil Type	6
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.95
Peak Intensity (in/hr)	2.188
Undeveloped Runoff Coefficient (Cu)	0.7529
Developed Runoff Coefficient (Cd)	0.8706
Time of Concentration (min)	14.0
Clear Peak Flow Rate (cfs)	2.4192
Burned Peak Flow Rate (cfs)	2.4192
24-Hr Clear Runoff Volume (ac-ft)	0.4763
24-Hr Clear Runoff Volume (cu-ft)	20746.4618



Peak Flow Hydrologic Analysis

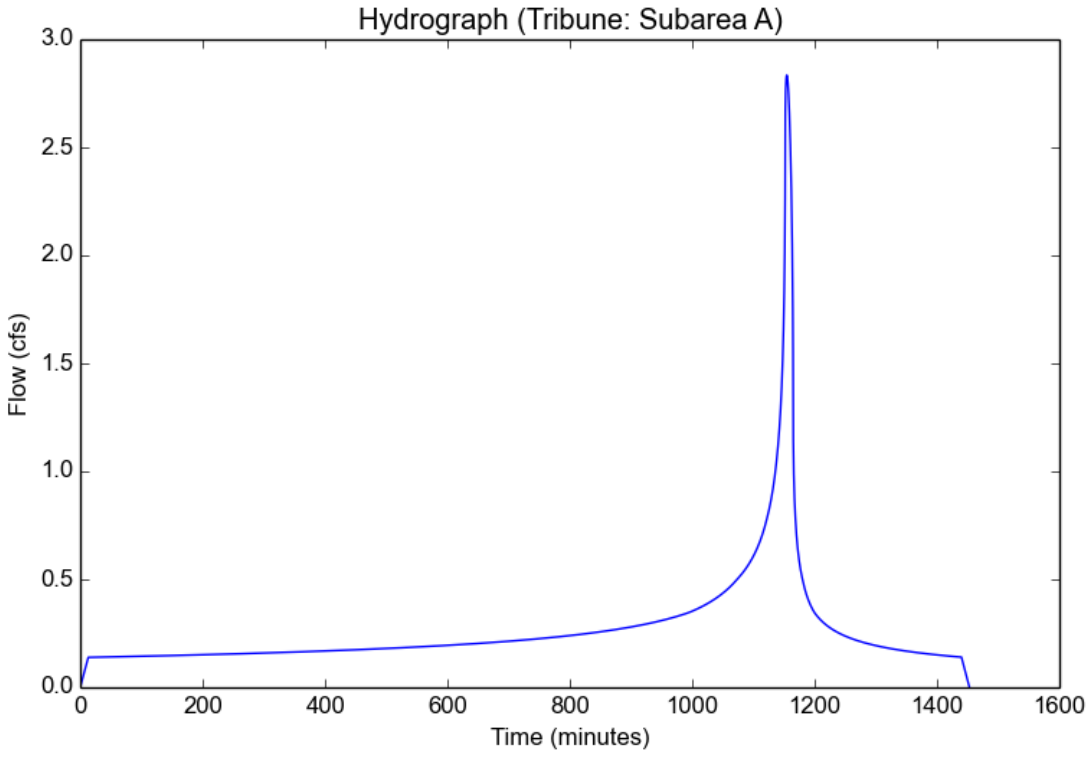
File location: W:/1TRI180200/ENGR/DOCS/EIR Hydrology Report/Hydro Calc/Tribune - Prop 100 Yr.pdf
Version: HydroCalc 0.3.0-beta

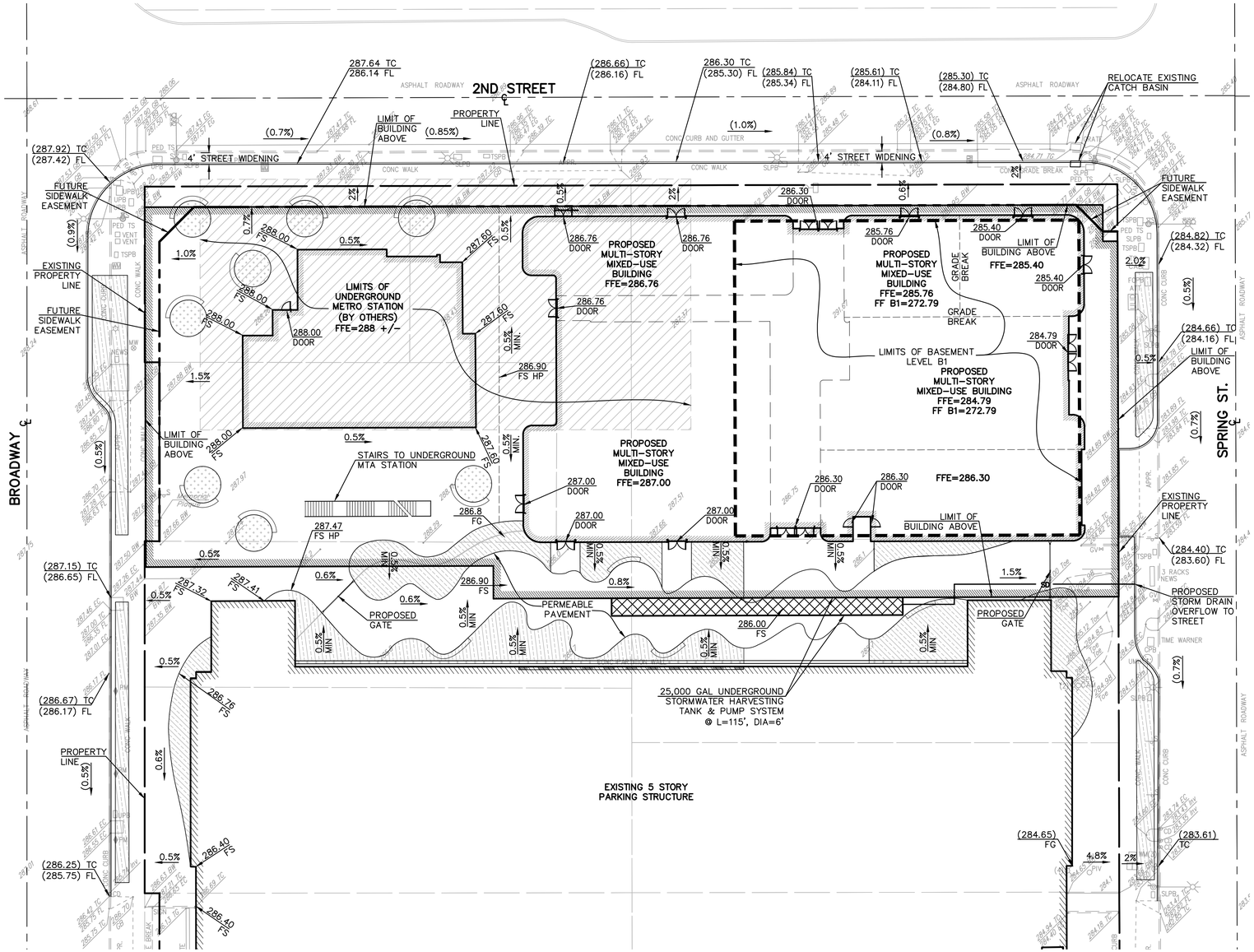
Input Parameters

Project Name	Tribune
Subarea ID	Subarea A
Area (ac)	1.27
Flow Path Length (ft)	1500.0
Flow Path Slope (vft/hft)	0.01
50-yr Rainfall Depth (in)	5.95
Percent Impervious	0.8
Soil Type	6
Design Storm Frequency	100-yr
Fire Factor	0
LID	False

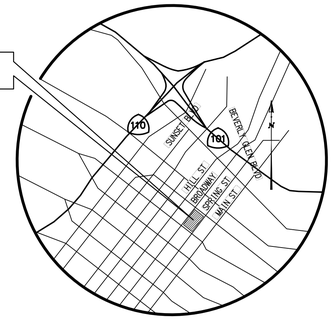
Output Results

Modeled (100-yr) Rainfall Depth (in)	6.6759
Peak Intensity (in/hr)	2.542
Undeveloped Runoff Coefficient (Cu)	0.7901
Developed Runoff Coefficient (Cd)	0.878
Time of Concentration (min)	13.0
Clear Peak Flow Rate (cfs)	2.8346
Burned Peak Flow Rate (cfs)	2.8346
24-Hr Clear Runoff Volume (ac-ft)	0.5367
24-Hr Clear Runoff Volume (cu-ft)	23380.012





PROJECT SITE



VICINITY MAP

NOT TO SCALE

ABBREVIATIONS:

AC	–	ASPHALTIC CONCRETE
APN	–	ASSESSORS PARCEL NUMBER
BK.	–	BOOK
BW	–	BACK OF WALK
CD	–	CULVERT DRAIN
CONC	–	CONCRETE
℄	–	CENTER LINE
DRWY	–	DRIVEWAY
E.	–	EAST
EC	–	EDGE OF CONCRETE
EG	–	EDGE OF GUTTER
FFE	–	FINISHED FLOOR ELEVATION
FG	–	FINISHED GRADE
FL.	–	FLOW LINE
FS	–	FINISHED SURFACE
FT.	–	FOOT
HP	–	HIGH POINT
INV.	–	INVERT
N.	–	NORTH
NE.	–	NORTHEAST
NO.	–	NUMBER
NW.	–	NORTHWEST
PA	–	PLANTER AREA
PG.	–	PAGE
P.M.	–	PARCEL MAPS
PS	–	PARKING STALL
R	–	RADIUS
REF.	–	REFERENCE
RET	–	RETAINING
S.	–	SOUTH
S	–	SIGN
SE.	–	SOUTHEAST
S.F.	–	SQUARE FEET
SLPB	–	STREET LIGHT PULL BOX
SQ.	–	SQUARE
SW.	–	SOUTHWEST
TC.	–	TOP OF CURB
TG.	–	TOP OF GRATE
UP	–	UTILITY POLE
VLT	–	VAULT
W/	–	WITH
W.	–	WEST
WM	–	WATER METER

LEGEND:

- EXISTING RIGHT-OF-WAY LINE
- LANDSCAPE AREA
- FLOW DIRECTION
- UNDERGROUND METRO STATION
- PROPOSED PROPERTY LINE
- EXISTING RIGHT-OF-WAY
- EXISTING BUILDING OUTLINE
- STREET CENTER LINE
- EXISTING EASEMENT LINE
- EXISTING CURB
- PROPOSED STORM DRAIN

PROJECT CONTACT INFORMATION

JOB ADDRESS:
213 S. SPRING STREET
LOS ANGELES, CA 90012

OWNER
CA-LATS SOUTH, LLC
202 WEST 1ST STREET
LOS ANGELES, CA 90012

ARCHITECT:
GENSLER
500 S FIGUEROA ST.
LOS ANGELES, CA 90071
PHONE: (213) 327-3600

CIVIL ENGINEER:
PSOMAS
555 S. FLOWER STREET, SUITE 4300
LOS ANGELES, CA 90071
PHONE: (213) 223-1400
CONTACT: DAVID J. CURTIS, P.E.

GENERAL NOTES:

1. PLUMBING SYSTEM TO ROUTE STORMWATER RUNOFF TO TANKS. RUNOFF TO BE PUMPED TO LANDSCAPED AREAS PER LANDSCAPE AND PLUMBING PLANS. CONNECTIONS FROM TANKS TO RAINWATER HARVESTING SYSTEM COMPONENTS AND LANDSCAPE PER PLUMBING AND LANDSCAPE PLANS.

ESTIMATED EARTHWORK QUANTITIES:

CUT 7000 CY. FILL 0 CY. EXPORT 7000 CY
OVEREXCAVATION AND RECOMPACTION @ 1' 472 CY.

THE ABOVE LISTED QUANTITIES REFLECT THE ENGINEER'S ESTIMATE OF THE EARTHWORK VOLUMES. 10% BULKING IS ASSUMED

THESE QUANTITIES ARE FOR INTERNAL DESIGN AND BIDDING PURPOSES ONLY, AND NOT FOR CONTRACT PURPOSES.

THE CONTRACTOR IS RESPONSIBLE FOR COMPUTING HIS OWN QUANTITIES.

PLAN
SCALE: 1" = 20'

20' 10' 0' 10' 20'
GRAPHIC SCALE

Gensler
500 S FIGUEROA ST
LOS ANGELES, CA 90071
T: 213.327.3600 F: 213.327.3601

CONSULTANT:
PSOMAS
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Los Angeles, CA 90071
t +213.223.1400
www.psomas.com

DATE 07/01/2016

SITE PLAN EXHIBIT

PROJECT NAME :	TRIBUNE SOUTH PARCEL
PROJECT NUMBER	
DESCRIPTION :	MIXED USE
SCALE	PER PLAN

C1.0