

June 29, 2017

Public Works Department
Engineering Branch
City of San Diego
525 B Street Ste. 750
MS# 908A
San Diego, CA 92101

RE: HYDROLOGY/HYDRAULICS FOR 8405 PASEO DEL OCASO

The purpose of this letter is to address the hydrology and water quality of the proposed improvements associated with the above referenced property.

HYDROLOGY

The site consists of an existing residence, driveway, and detached garage. The lot generally slopes in a southwest direction. The property has an existing total gross area of 6,031 sf or 0.14 acres. The total amount of existing impervious area is 2,930 sf or approximately 49% of the entire site. The proposed development includes the construction of a new single-family residences and associated grading improvements. The residence will be surrounded by new hardscape and landscape features typical to residential development. The development does not include the demolition of the existing garage, the garage will remain and be included as part of the site design. The total amount of new impervious area is 4,198 sf or approximately 70% of the entire site. No drainage patterns will be significantly altered as a result of the grading and runoff will continue to be collected and conveyed to Paseo Del Ocaso as it does in the current condition. Additionally, there is no measurable increase in the volume of runoff generated as a result of the proposed improvements.

WATER QUALITY

The proposed project is classified as not subject to permanent storm water requirements. As such, water quality and Low Impact Development (LID) features have been implemented to the maximum extent practicable. LID features selected for this project include: runoff from hardscape and roofs have been directed to planter areas. Impervious areas have been minimized by the implementation of gravel and landscaped areas where possible.

PASCO LARET SUITER


& ASSOCIATES
CIVIL ENGINEERING + LAND PLANNING + LAND SURVEYING

CONCLUSION

Based on the discussion in this letter and hydrology calculations in the attached Appendix, it is the professional opinion of Pasco Laret Suiter and Associates, Inc. that the proposed drainage system on the corresponding site plan will function to adequately intercept, contain, treat and convey flow from a 100 year storm to the appropriate points of discharge.

Please call if you have any questions.

Sincerely,



Tyler Lawson, PE
Associate Principal



PASCO LARET SUITER

& ASSOCIATES

CIVIL ENGINEERING + LAND PLANNING + LAND SURVEYING

APPENDIX

Rational Method Parameters and Calculations

Runoff Coefficient $C = 0.55^*$ for Single Family residential land use per Table A.1 in The City of San Diego Transportation & Storm Water Design Manuals

$I =$ Intensity in/hr, $I = 4.4^*$ for the 100-year storm with 5 minute duration at elevation between 0-1500 sf per Figure A.1 in in The City of San Diego Transportation & Storm Water Design Manuals

Duration (D) = Time of Concentration, T_c^* for T_c less than 5 minutes, use 5 minutes

$A =$ Total Site Area

$Q =$ Peak Runoff, $Q = C \cdot I \cdot A$ (cfs)

AREA:

Proposed Conditions:

Proposed Impervious Area = 4,198 sf

Total Area = 6,031 sf

Runoff Coefficient, $C = 0.55$

$A = 0.14$ ac

$C = 0.55$

$T = 5.0$ minutes

$I = 4.4$ in/hr

$Q_{100} = 0.55 * 4.4 \text{ in/hr} * 0.14 \text{ acres}$

$Q_{100} = 0.34$ cfs

Table A-1. Runoff Coefficients for Rational Method

Land Use	Runoff Coefficient (C)
	Soil Type ⁽¹⁾
Residential:	
Single Family	0.55
Multi-Units	0.70
Mobile Homes	0.65
Rural (lots greater than 1/2 acre)	0.45
Commercial ⁽²⁾	
80% Impervious	0.85
Industrial ⁽²⁾	
90% Impervious	0.95

Note:

⁽¹⁾ Type D soil to be used for all areas.

⁽²⁾ Where actual conditions deviate significantly from the tabulated imperviousness values of 80% or 90%, the values given for coefficient C, may be revised by multiplying 80% or 90% by the ratio of actual imperviousness to the tabulated imperviousness. However, in case shall the final coefficient be less than 0.50. For example: Consider commercial property on D soil.

$$\begin{aligned}
 \text{Actual imperviousness} &= 50\% \\
 \text{Tabulated imperviousness} &= 80\% \\
 \text{Revised C} &= (50/80) \times 0.85 = 0.53
 \end{aligned}$$

The values in Table A-1 are typical for urban areas. However, if the basin contains rural or agricultural land use, parks, golf courses, or other types of nonurban land use that are expected to be permanent, the appropriate value should be selected based upon the soil and cover and approved by the City.

A.1.3. Rainfall Intensity

The rainfall intensity (I) is the rainfall in inches per hour (in/hr.) for a duration equal to the T_c for a selected storm frequency. Once a particular storm frequency has been selected for design and a T_c calculated for the drainage area, the rainfall intensity can be determined from the Intensity-Duration-Frequency Design Chart (Figure A-1).



APPENDIX A: RATIONAL METHOD AND MODIFIED RATIONAL METHOD

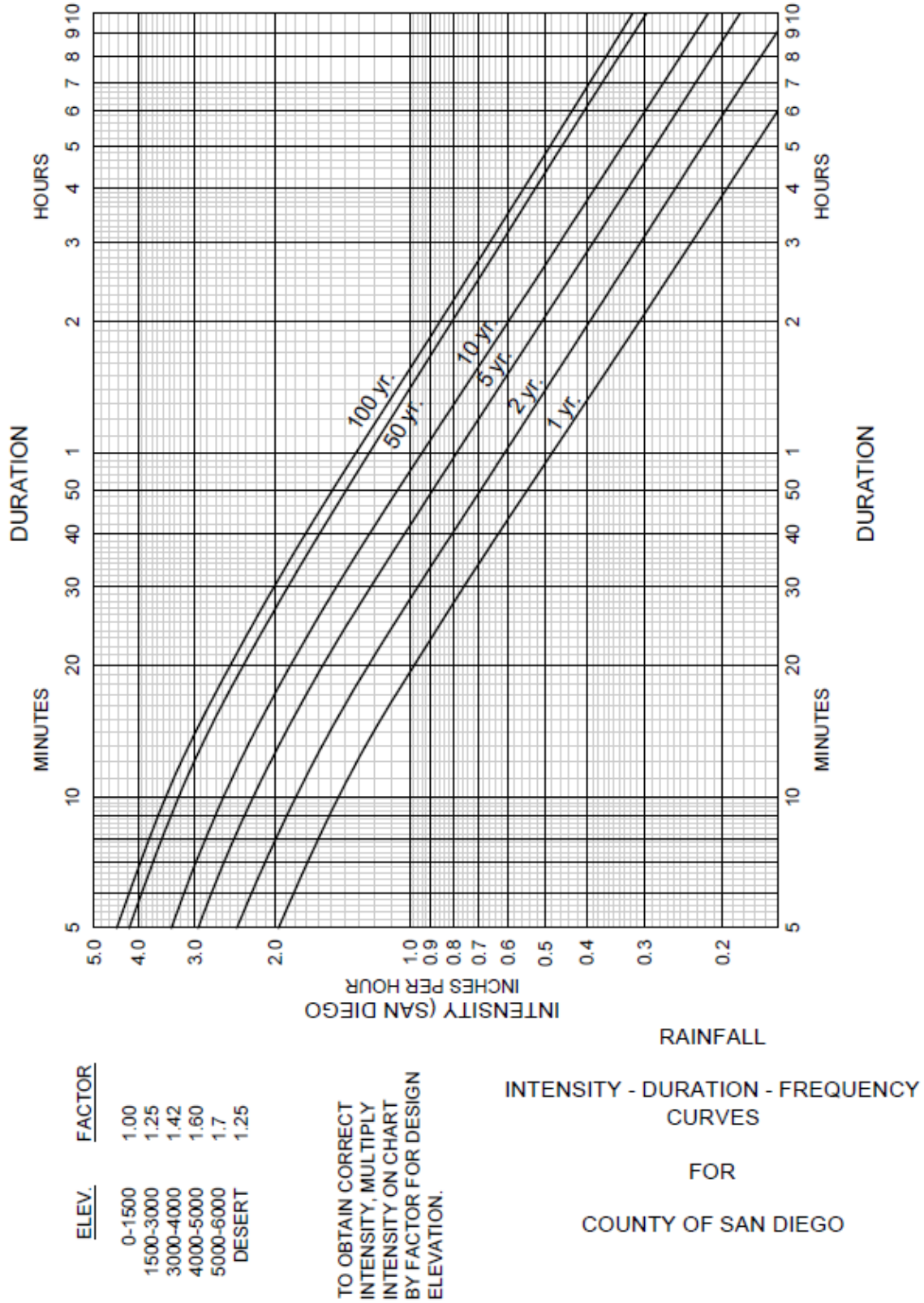


Figure A-1. Intensity-Duration-Frequency Design Chart



