



STORMWATER STORAGE WAIVER

Artesia

Prepared For:

STREET LIGHT RESIDENTIAL
5080 N. 40th Street, Suite 475
Phoenix, AZ 85018



Kimley»»Horn

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1. INTRODUCTION

This narrative has been prepared in support for a stormwater storage waiver for the proposed Artesia development located east of Scottsdale Road and north of Indian Bend Road in the City of Scottsdale, Arizona. The project is positioned in the southwest quarter of Section 2, Township 2 North, Range 4 East of the Gila and Salt River Base and Meridian in Maricopa County, Arizona. This parcel is bordered to the north by Mummy Mountain Wash and to the south by existing condominiums. The site is further bound on the east by McCormick Ranch Golf Club and Indian Bend Wash. It is bound on the west by Scottsdale Road.

The site was originally developed in the early 80's as a Radisson hotel and completely built out with a tennis complex and resort amenities. In 2005, the site was approved as 2-ZN-2005 for 480 residential units on 39+/- acres with an additional 5 acres of commercial property along the Scottsdale Road frontage. In 2007/2008, the project was engineered, platted and the onsite circulation system, utilities and drainage infrastructure was constructed in full. The commercial portion of the project was developed along with the luxury condos and townhomes but the main towers in the middle of the site and condominiums along the south and east boundary were never built due to the downturn of the economy.

In 2018, the site was planned to be redeveloped and a stormwater retention waiver was submitted and accepted by the City, but the redevelopment did not occur. This stormwater retention waiver follows the same methodology of that which was accepted in 2018. The weighted coefficient for the Radisson site prior to demolition was calculated using aerial imagery and current runoff coefficient per Scottsdale Design Standards and Policies Manual (DSPM). Then, the currently proposed Artesia development weighted coefficient was calculated using the current DSPM standards. Appendix A shows the current Artesia development plan with weighted runoff coefficients.

When comparing the new land use for the Artesia project to the original Radisson site, the proposed runoff coefficient for the site is slightly increased. The new runoff coefficient for the site has increased by 0.0437 which results in an additional 14,216 cf of stormwater storage volume required in order to maintain pre vs post runoff. The project is designed to convey all stormwater runoff to the adjacent Indian Bend Wash without negatively impacting any downstream properties (see Appendix A and B).

2. STORMWATER STORAGE REQUIREMENT CALCULATIONS

In order to determine the amount of stormwater storage required for the site, the procedures listed in Chapter 4-1.203C of the City DSMP were utilized. This involved determining the pre-developed and post-developed weighted runoff coefficients which are used in the following equation:

$$V_r = \Delta C(R/12)A$$

Where: V_r = Required storage volume in cubic feet
 R = precipitation amount for the 100-year, 2-hour storm, 2.19 inches
 A = Total disturbed area, 1,782,568 square feet
 ΔC = increase in weighted runoff coefficient ($C_{\text{post}} - C_{\text{pre}}$)

Runoff coefficient values were taken from Figure 4-1.5 of the City of Scottsdale DSPM as 0.30 for turf landscaping, 0.45 for desert landscaping, and 0.95 for pavement/impervious areas. To determine the pre-developed weighted runoff coefficient, aerial imagery and CAD files were used to measure areas of landscaping and imperviousness. It was determined that the pre-developed runoff coefficient is 0.6851 and the post-developed runoff coefficient is 0.7288. Refer to the exhibit in Appendix A and B showing areas of landscaping and imperviousness for both the pre-developed and post-developed conditions. The volume required for the site was then calculated as shown below:

$$V_r = (0.7288 - 0.6851) \times 2.19/12 \times 1,782,568 = 14,216 \text{ cubic feet}$$

An in-lieu fee based on what it could cost the City to provide a storage basin sized for the calculated volume is \$3.00 per cubic foot. Therefore, the total in-lieu fee for this project is calculated as:

$$\text{In-lieu fee} = \$3.00 \times 14,216 \text{ cf} = \$42,648$$

A completed stormwater storage waiver with fee calculation is included in Appendix C for reference.

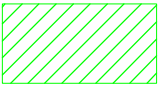
Appendix A: Runoff Coefficient Exhibit

K:\PRJ_Civil\2017\2000 - 144444\2022\0300\0300\ARTESIA\INTERVIOUS\ARTESIA_0300.dwg, Nov 03, 2022, Sheet: 1 of 1
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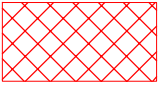


Weighted 'C' Value - Proposed		
Surface Type	Area (SF)	Runoff Coefficient
Turf Landscape	389,291	0.3
Desert Landscape	282,470	0.45
Pavement	1,110,807	0.95
Weighted 'C' =		0.7288

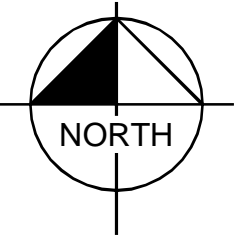
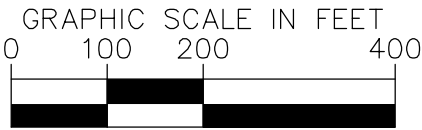
LEGEND



TURF LANDSCAPE AREA



DESERT LANDSCAPE AREA



WEIGHTED "C"
CALCULATION EXHIBIT
(PROPOSED CONDITIONS)

Kimley»Horn

Appendix B: Pre Vs. Post Exhibit

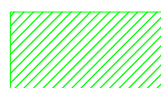


ORIGINAL DESIGN

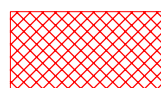


CURRENT DESIGN

LEGEND



TURF LANDSCAPE AREA

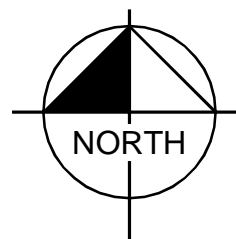
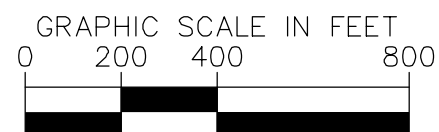


DESERT LANDSCAPE AREA

Weighted 'C' Value - Original		
Surface Type	Area (SF)	Runoff Coefficient
Turf Landscape	585,494	0.3
Desert Landscape	183,378	0.45
Pavement	1,013,696	0.95
Weighted 'C' =		0.6851

Weighted 'C' Value - Proposed		
Surface Type	Area (SF)	Runoff Coefficient
Turf Landscape	389,291	0.3
Desert Landscape	282,470	0.45
Pavement	1,110,807	0.95
Weighted 'C' =		0.7288

Summary Table	
Design Overall 'C' Value	0.7288
Original Overall 'C' Value	0.6851
Delta 'C'	0.0437
Disturbed Area (SF)	1,782,568
R	2.19
Volume Required (CF)	14,216
In-Lieu Fee per Cubic Foot (USD/CF)	\$ 3.00
Total In-Lieu Fee (USD)	\$ 42,648.00



WEIGHTED "C" VALUE DIFFERENTIAL

Kimley»»Horn

Appendix C: Stormwater Retention Waiver

Request for Stormwater Storage Waiver



City of Scottsdale Plan/Case Numbers:

_____ - DR - 2022 _____ - PP - _____ PC# _____

Requests for stormwater storage waivers are reviewed as part of case submittals for the associated project. This form should be included in the preliminary drainage report with the applicant's portion completed. The preliminary drainage report shall include supporting documentation and analysis as needed to support the requested waiver.

Date _____ Project Name _____
Project Location _____
Applicant Contact _____ Company Name _____
Phone _____ E-mail shane.johannsen@kimley-horn.com
Address _____

Waiver Criteria

A project must meet at least one of three criteria listed below for the city to consider waiving some or all required stormwater storage. **However, regardless of the criteria, a waiver will only be granted if the applicant can demonstrate that the effect of a waiver will not increase the potential for flooding on any property.** Check the applicable box and provide a signed and sealed engineering report and supporting engineering analysis that demonstrate the project meets the criteria and that the effect of a waiver will not increase the potential for flooding on any property.

If the runoff for the project has been included in a storage facility at another location, the applicant must demonstrate that the stormwater storage facility was specifically designed to accommodate runoff from the subject property and that the runoff will be conveyed to this location through an adequately designed conveyance facility.

It should be noted that reductions in stormwater storage relating to

- ☐ 1. The development is adjacent to a conveyance facility that an engineering analysis shows is designed and constructed to handle the additional runoff from the site as a result of development.
- ☐ 2. The development is on a parcel less than one-half acre in size.
- ☐ 3. Stormwater storage requirements conflict with requirements of the Environmentally Sensitive Lands Ordinance (ESLO).

For a full storage waiver, a conflict with ESLO is limited to:

- Property located in the hillside landform as defined in the city Zoning Ordinance
- Property in the upper desert landform that has a land slope steeper than 5% as defined in the city Zoning Ordinance
- Property within the ESL zoning overlay district where the only viable location for a stormwater storage basin requires blasting

This full waiver only applies to those portions of property meeting one of these three requirements.

100-year/2-hour storage is allowed, but not required for redevelopment projects and development within the ESL zoning overlay. Rather, these projects must store enough stormwater to attenuate post-development flows to predevelopment levels, considering the 10- and 100-year storm events (S.R.C. Sections 37-50 and 37-51).

By signing below, I certify that the stated project meets the waiver criteria selected above as demonstrated by the attached documentat

Stormwater Management Department

7447 E Indian School Road, Suite 125, Scottsdale, AZ 85251 • Phone: 480-312-2500

Request for Stormwater Storage Waiver



City of Scottsdale Plan/Case Numbers:

____ - DR - ____ - PP - ____ PC# _____

CITY STAFF TO COMPLETE THIS PAGE

Project Name _____

Check Appropriate Boxes:

☐ Meets waiver criteria (specify): ☐ 1 ☐ 2 ☐ 3

Recommended Conditions of Waiver:

- ☐ All storage requirements waived.
- ☐ Post-development peak discharge rates do not exceed pre-development conditions.
- ☐ Other:

Explain: _____

☐ **Waiver approved per above conditions.**

Floodplain Administrator or Designee

Date

Stormwater Management Department

7447 E Indian School Road, Suite 125, Scottsdale, AZ 85251 ♦ Phone: 480-312-2500

Request for Stormwater Storage Waiver



City of Scottsdale Plan/Case Numbers:

_____ - DR - _____ - PP - _____ PC# _____

In-Lieu Fee and In-Kind Contributions

In-lieu fees are only applicable to projects where post-development peak discharge rates exceed pre-development levels, based on the 10- and 100-year storm events. If the city grants a waiver, the developer is required to calculate and contribute an in-lieu fee based on what it would cost the city to provide a storage basin, sized as described below, including costs such as land acquisition, construction, landscaping, design, construction management, and maintenance over a 75-year design life. The fee for this cost is \$3.00 per cubic foot of stormwater storage for a virtual storage basin designed to mitigate the increase in runoff associated with the 100-year/2-hour storm event. The applicant may submit site-specific in-lieu fee calculations subject to the Floodplain Administrator's approval.

The Floodplain Administrator considers in-kind contributions on a case-by-case basis. An in-kind contribution can serve as part of or instead of the calculated in-lieu fee. In-kind contributions must be stormwater-related and must constitute a public benefit. In-lieu fees and in-kind contributions are subject to the approval of the Floodplain Administrator or designee.

Project Name _____

The waived stormwater storage volume is calculated using a simplified approach as follows:

$V = \Delta CRA$; where

V = stormwater storage volume required, in cubic feet,

ΔC = increase in weighted average runoff coefficient over disturbed area ($C_{\text{post}} - C_{\text{pre}}$),

R = 100-year/2-hour precipitation depth, in feet (DSPM, Appendix 4-1D, page 11), and

A = area of disturbed ground, in square feet

Furthermore,

$V_w = V - V_p$; where

V_w = volume waived,

V = volume required, and

V_p = volume provided

R = _____

ΔC = _____

A = _____

V = _____

V_p = _____

V_w = _____

☐ An in-lieu fee will be paid, based on the following calculations and supporting documentation:
In-lieu fee (\$) = V_w (cu. ft.) x \$3.00 per cubic foot = _____

☐ An in-kind contribution will be made, as follows:

☐ No in-lieu fee is required. Reason:

Approved by:

Floodplain Administrator or Designee

Date

Stormwater Management Department

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