



August 16, 2021

Kontexture  
Attn: Mark Cunningham  
3334 N 20<sup>th</sup> Street  
Scottsdale, Arizona 85016  
Ph: 602-875-6221

**RE: 7314 E Minnezona Avenue (A.P.N.: 173-38-060 & 173-38-061)  
Drainage Statement**

Dear Mr. Cunningham,

**g-mar** is pleased to prepare this drainage statement for the analysis of existing and proposed drainage conditions for the proposed multi-family site located at 7314 E Minnezona Avenue, Scottsdale, Arizona. Our analysis and findings for the drainage conditions at the site are as follows:

**A. Introduction:**

This drainage letter presents the results of hydraulic drainage analysis for the local areas of potential off-site sheet flow that may contribute to the subject property.

The site in reference is “Minnezona Condominiums”, a multi-family site located near the northeast corner of Minnezona Avenue and Scottsdale Road. The site is two (2) parcels, Lots 38 and 39 of the Final Plat for “Darryl Estates, - Unit Two” subdivision located in the Northwest quarter of Section 23, Township 2 North, Range 4 East of the Gila and Salt River Base and Meridian, Maricopa County, Arizona.

The development of this lot will consist of the construction of two multi-family buildings, patios, walkways, pool, water features, perimeter fencing, driveways as well as landscaping and drainage facilities. All design parameters of the project comply with currently adopted standards as regulated by the City of Scottsdale.

**B. General:**

In general, the site and adjacent properties slope to the south and west at roughly 1-percent across the land. This is the slope of other existing lots located around the parcel. The existing residential lots surrounding the parcel generally slope to the adjacent right-of-way and discharge in to existing streets, as well as alley-ways in the back portions of the subdivision lots. Typically, no on-site retention for these lots has been provided unless certain said lots have been renovated and re-developed within a timeframe of current adopted design standards regulated by the City of Scottsdale. Most adjacent parcels slope towards the right-of-way. These flows continue east and then south to their historic watercourses.

Because this is an “infill” lot and there was no previous flood irrigation, on-site retention will be provided for the 1<sup>st</sup> flush storm event or the pre. Vs. post development conditions, whichever volume is greater. Based on analysis provided on the attached Grading and Drainage Plans, Sheet C1, the 1<sup>st</sup> flush storm event requires greater storm retention volume. Therefore, an earthen retention basin will be in the middle of the site. Drainage from the new adjacent buildings, hardscape and landscape areas will drain towards this central located earthen retention basin. Drainage will flow away from the foundation of the new buildings to this earthen retention basin.

**g-mar, llc**  
18223 w. orchid lane  
waddell, arizona 85355  
e: geoff@g-mareng.com  
cell: 602.524.7877

Additionally, a few local area catch basins and storm drains will be placed along the east side of both buildings in order to collect nuisance sheet flow in these areas and discharge to the earthen retention basin. Catch basins and storm drain piping will be sized according to their localized drainage areas. On-site storm run-off will not negatively impact the finished floor elevation of the new structures on the property. Refer to attached Grading and Drainage Plans for detailing and call-outs.

Due to the existing slope of development of this lot, the new buildings will have finished floors based upon the nearby high top of curb or high edge of pavement relative to Minnezona Avenue as well as the 16-foot alley to the north. The finished floors will be placed greater than 14 inches above the site ultimate outfall, which is located in the southeast corner of the site in to Minnezona Avenue. The finished floor will also be set at least 12-inches above the nearest 100-year water surface elevation for on-site retention basins.

This parcel is not located within a special "Flood Hazard" area. The parcel is located within Zone 'X' of the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM), Panel Number 1770M, Community Number 045012, Map Number 04013C1770M, dated September 18, 2020. Zone 'X' areas are defined by FEMA as areas of 0.2% annual chance of flood; areas of 1% annual chance of flood with average depths of less than 1-foot or with drainage areas less than 1-square mile; and areas protected by levees from the 1% annual chance flood.

#### **Finished Floor Elevation:**

The new finished floors of the two multi-family buildings will be set to 1271.10 and 1270.70, NAVD '88 datum. The existing houses were previously set less than this. The new earthen Retention Basin 'A' will have a water surface elevation of 1269.70. As shown, the new finished floor elevations have been set higher than the existing structures previously on the property. Also, it will be set 1.0-foot higher than the WSE for Retention Basin 'A'. The new finished floor elevations are both set at least 6-inches higher than the high top of curb along Minnezona Avenue and the edge of pavement for the 16-foot alley to the north. Based on the design for the lot, the new finished floor elevations are in compliance with the City of Scottsdale design standards and will be free from inundation from the 100-year design storm event.

#### **Off-site Runoff:**

Currently, there are no defined off-site flows that impact the site. No current master drainage studies have been or are being performed to analyze localized off-site hydraulic impacts for the subject property. The only drainage study in the area addresses the municipal storm drainage system installed within Scottsdale Road and Camelback Road to the south and west of the site. The majority of the lots located upstream of any potential drainage areas contributing to the site are developed with buildings and masonry fences. These structures either divert potential drainage areas elsewhere, trap run-off on these other lots, or re-direct flows in to adjacent street's right-of-way.

Based upon field observations witnessed in August of 2021 there is no evidence of off-site flow negatively impacting the Minnezona Condominiums site. The Arizona Canal west of the site impedes any off-site storm flow from impacting the site from the north and west. Lots and right-of-way located south and east of the site are lower in elevation, thus historical flows lead in this direction away from the site.

Upon analysis of the cross section for Minnezona Avenue, it was determined that the street cross section between the back of curb along the south and north face of the roadway can transfer approximately 13.1-cfs of flow on each half of the street within the limits of the curb and gutter and crown of the street. These flows will be discharged east of the site according to existing slope direction of Minnezona Avenue. No additional off-site flows impact the site from the south.

#### **D. Summary and Conclusion:**

Based on analysis of the local area and very conservative assumptions for the area, it was determined that no off-site storm runoff impacts the site. After analyzing the cross section of Minnezona Avenue, the total amount of storm flow both half streets can contain and discharge in total is approximately 26.2-cfs of storm flow total, which will discharge flows west of the site. Also, the site is in a designated Zone X flood prone area according to the FEMA FIRM. Potential 100-year sheet flows are expected to be less than 12-inches in depth of flow. The new lowest finished floor elevation of the new buildings has been set to 1271.10 and 1270.70. The site ultimate outfall is at the southeast corner of the property at an elevation of 1269.35 which is 1.75 and 1.35-feet below the finished floor elevations of the new buildings. Therefore, there is low likelihood of the new structures being

impacted by flooding. No additional on-site improvements or considerations are required to account for this potential, localized off-site storm flow.

It is strongly recommended that the property owner maintain the site and all on-site storm drainage structures and facilities to allow for all on-site and off-site storm runoff to flow freely to its natural watercourse and discharge point southwest of the site. Routine maintenance and inspection should be scheduled by the property owner.

Should you have any questions regarding this drainage letter, please contact us.

Respectfully submitted,

Geoff A. Markowski, P.E.  
Principal Civil Engineer

