CITY OF SCOTTSDALE

# GRANITE REEF WATERSHED DRAINAGE AND FLOOD CONTROL IMPROVEMENTS

## GRANITE REEF WASH

### THOMAS ROAD TO McKELLIPS ROAD

## TECHNICAL SUPPORT DATA NOTEBOOK FOR CONDITIONAL LETTER OF MAP REVISION (CLOMR)

**Contract No.: 2010-140-COS**

November, 2022

*Prepared For:*

**City of Scottsdale**
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Job No. 1313

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# 1.0 INTRODUCTION

## 1.1 PROJECT DESCRIPTION

The purpose of this study is to redelineate the Granite Reef Wash Floodplain based on the implementation of the Granite Reef Watershed Drainage and Flood Control Improvements. Phase I of the improvements have been completed and the design of Phase II is underway. This request for a Conditional Letter of Map Revision (CLOMR) was prepared to gain approval from the Federal Emergency Management Agency (FEMA)

Granite Reef Wash is in the southeastern part of the City of Scottsdale and extends for two miles from Thomas Road downstream to McKellips Road. The existing wash consists of an urban conveyance system of open channels, inverted crown streets and storm drains. The Special Flood Hazard Area (SFHA) covering the wash is a Zone 'AE' floodplain that encompasses over 600 structures. The effective Zone 'AE' floodplain was developed in 1997 by Entellus, Inc. under contract to the Flood Control District of Maricopa County. Refer to the Vicinity Map in Figure 1 for the location of the existing floodplain.

The intent of the completed Phase I and the proposed Phase II drainage improvements is to reduce the width of the floodplain so that the SFHA designation can be removed from the structures located along Granite Reef Wash. The proposed Phase II drainage improvements consist of constructing a new regional detention basin, new storm drains and improvements to the conveyance capacity of the existing drainage channels. The proposed Phase II drainage improvements are projected to cost over $40 million to construct, therefore conditional acceptance of the redelineation is being sought before construction begins.

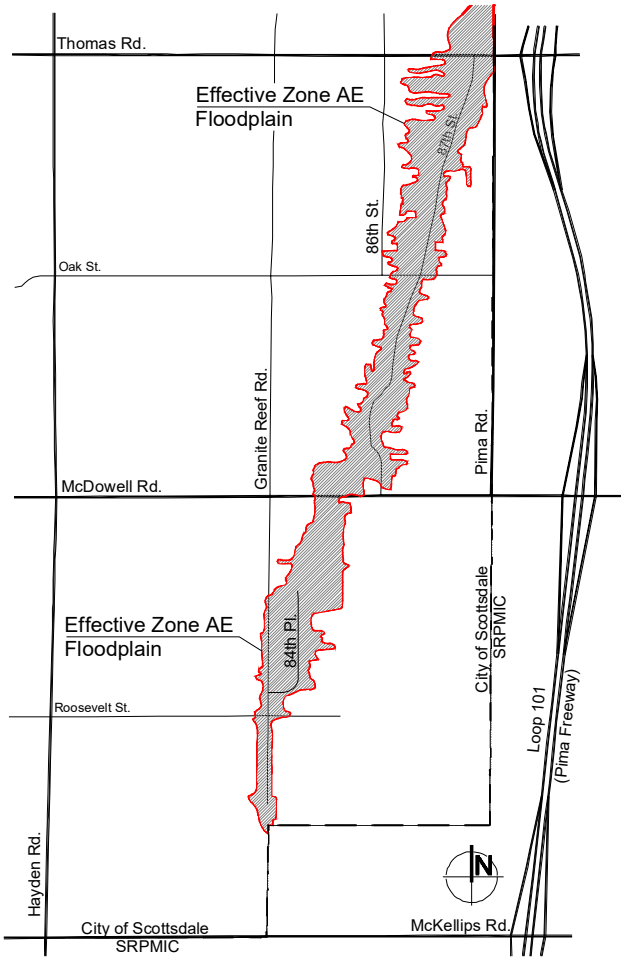


**Figure 1: Vicinity Map**

## 1.2 CHANGES IN THE WATERSHED

The current effective Granite Reef Wash floodplain was delineated over 20 years ago. Since that time, there have been several significant changes that have occurred in the watershed. These changes include the construction of the Loop 101 Freeway and the installation of four, large diameter storm drains in the upstream part of the watershed. The Freeway construction, which was done in 1998, captured and diverted the 100-year runoff to the Salt River. This diversion reduced the size of the Granite Reef Wash watershed by approximately 3.5 square miles, or about 42% of the total contributing watershed area; greatly reducing the peak flows along the Wash. Likewise, the four storm drains along Jackrabbit, Chaparral, Camelback and Indian School Roads capture and divert the 100-year runoff to Indian Bend Wash from the 1.8 square mile watershed area that lies north of Indian School Road. The combined effect of the Freeway construction and the storm drains resulted in a significant reduction in peak flows on Granite Reef Wash.

The Phase I drainage improvements consisted of adding new storm drain laterals and additional inlet capacity to the existing storm drains located in Jackrabbit, Chaparral, Camelback and Indian School Road. All four of the storm drains outlet to Indian Bend Wash. The Phase I improvements were designed to capture all runoff from the 100-year, 6-hour storm event upstream of Indian School Road. Therefore, with the completion of the Phase I improvements, Indian School Road acts as the northern watershed boundary for Granite Reef Wash.

The hydrologic and hydraulic analysis of the watershed, which includes the completed Phase I and the proposed Phase II Drainage Improvements, was performed using the FLO-2D program which utilizes the Environmental Protection Agency (EPA) Storm Water Management Model (SWMM) to simulate flow in the storm drains. The results from the proposed conditions FLO-2D model indicate that the SFHA designation will be removed from all but one (1) of the approximately 600 structures that are in the current effective floodplain.

## 1.3 PURPOSE OF TSDN

This Technical Support Data Notebook (TSDN) was prepared to support a request to obtain a Conditional Letter of Map Revision (CLOMR) for Granite Reef Wash. The TSDN includes documentation on the completed Phase I and the proposed Phase II Drainage Improvements. It also includes information on the watershed changes that have occurred since the time the effective floodplain was delineated, as described in Section 1.2.

### 1.4 PROJECT LOCATION

The current effective Zone 'AE' floodplain is located within the City of Scottsdale in Sections 25, and 36 of Township 2 North, Range 4 East and Section 1 of Township 1 North, Range 4 East of the Gila and Salt River Base and Meridian, Maricopa County, Arizona. Refer to Figure 1 for the Vicinity Map.

### 1.5 AUTHORIZATION

Gavan & Barker Inc. was contracted by the City of Scottsdale (Contract No. 2010-140-COS) to perform professional engineering services for the Granite Reef Watershed Drainage and Flood Control Improvements, Conditional Letter of Map Revision (CLOMR).

## 2.0 FEMA FORMS

The following are the pertinent FEMA MT-2 forms.

DEPARTMENT OF HOMELAND SECURITY
Federal Emergency Management Agency

# OVERVIEW & CONCURRENCE FORM

OMB Control Number: 1660-0016
Expiration: 1/31/2024

## PAPERWORK BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 1 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing, reviewing, and submitting the form. You are not required to respond to this collection of information unless it displays a valid OMB control number. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Department of Homeland Security, Federal Emergency Management Agency, 500 C Street, SW, Washington, DC 20472 , Paperwork Reduction Project (1660-0016). Submission of the form is required to obtain or retain benefits under the National Flood Insurance Program. **Please do not send your completed survey to the above address.**

## PRIVACY ACT STATEMENT

**AUTHORITY:** The National Flood Insurance Act of 1968, Public Law 90-448, as amended by the Flood Disaster Protection Act of 1973, Public Law 93-234.
**PRINCIPAL PURPOSE(S):** This information is being collected for the purpose of determining an applicant's eligibility to request changes to National Flood Insurance Program (NFIP) Flood Insurance Rate Maps (FIRM).
**ROUTINE USE(S):** The information on this form may be disclosed as generally permitted under 5 U.S.C § 552a(b) of the Privacy Act of 1974, as amended. This includes using this information as necessary and authorized by the routine uses published in DHS/FEMA/NFIP/LOMA-1 National Flood Insurance Program (NFIP); Letter of Map Amendment (LOMA) February 15, 2006, 71 FR 7990.
**DISCLOSURE:** The disclosure of information on this form is voluntary; however, failure to provide the information requested may delay or prevent FEMA from processing a determination regarding a requested change to a (NFIP) Flood Insurance Rate Maps (FIRM).

## A. REQUESTED RESPONSE FROM DHS-FEMA

This request is for a (check one):

☒ CLOMR: A letter from DHS-FEMA commenting on whether a proposed project, if built as proposed, would justify a map revision, or proposed hydrology changes (See 44 CFR Ch. 1, Parts 60, 65 & 72). All CLOMRs require documentation of compliance with the Endangered Species Act. Refer to the Instructions for details.

☐ LOMR: A letter from DHS-FEMA officially revising the current NFIP map to show the changes to floodplains, regulatory floodway or flood elevations. (See 44 CFR Ch. 1, Parts 60, 65 & 72).

## B. OVERVIEW

1. The NFIP map panel(s) affected for all impacted communities is (are):

| Community No. | Community Name | State | Map No. | Panel No. | Effective Date |
|---|---|---|---|---|---|
| Example: 480301; 480287 | City of Katy; Harris County | TX; TX | 48473C; 48201C | 0005D; 0220G | 02/08/83; 09/28/90 |
| 045012 | City of Scottsdale | AZ | 04013C | 2235L | 10/16/13 |
| | | | | | |

2. a. Flooding Source: Granite Reef Wash

b. Types of Flooding: ☒ Riverine ☐ Coastal ☐ Shallow Flooding (e.g., Zones AO and AH) ☐ Alluvial Fan ☐ Lakes ☐ Other (Attach Description)

3. Project Name/Identifier: Granite Reef Wash Conditional Letter of Map Revision (CLOMR)

4. FEMA zone designations (choices: A, AH, AO, A1-A30, A99, AE, AR, V, V1-V30, VE, B, C, D, X)

a. Effective: AE, X

b. Revised: AE, X

5. Basis for Request and Type of Revision:

a. The basis for this revision request is (check all that apply)

| | | | |
|---|---|---|---|
| ☒ Physical Change | ☒ Improved Methodology/Data | ☐ Regulatory Floodway Revision | ☐ Base Map Changes |
| ☐ Coastal Analysis | ☒ Hydraulic Analysis | ☒ Hydrologic Analysis | ☐ Corrections |
| ☐ Weir-Dam Changes | ☐ Levee Certification | ☐ Alluvial Fan Analysis | ☐ Natural Changes |
| ☒ New Topographic Data | ☐ Other (Attach Description) | | |

Note: A photograph and narrative description of the area of concern is not required, but is very helpful during review.

b. The area of revision encompasses the following structures (check all that apply)

| | | | |
|---|---|---|---|
| Structures: ☐ Channelization | ☐ Levee/Floodwall | ☐ Bridge/Culvert | |
| ☐ Dam | ☐ Fill | ☒ Other (Attach Description) | |

6. ☒ Documentation of ESA compliance is submitted (required to initiate CLOMR review). Please refer to the instructions for more information.

## C. REVIEW FEE

Has the review fee for the appropriate request category been included? ☒ Yes Fee amount: $ 6500

☐ No, Attach Explanation

- **Please see the DHS-FEMA Web site at http://www.fema.gov/forms-documents-and-software/flood-map-related-fees for Fee Amounts and Exemptions.**

## D. SIGNATURES

### 1. REQUESTOR'S SIGNATURE

All documents submitted in support of this request are correct to the best of my knowledge. I understand that any false statement may be punishable by fine or imprisonment under Title 18 of the United States Code, Section 1001.

| | | |
|---|---|---|
| Name: Mark T. Gavan | Company: Gavan & Barker Inc. | |
| Mailing Address:<br>3030 N Central Avenue, Suite 700<br>Phoenix, AZ 85012 | Daytime Telephone: 602-200-0031 | Fax No.: 602-200-0032 |
| | E-mail Address: mgavan@gavanbarker.com | |
| | Date: 11/7/2022 | |
| Signature of Requestor (required): | | |

### 2. COMMUNITY CONCURRENCE

As the community official responsible for floodplain management, I hereby acknowledge that we have received and reviewed this Letter of Map Revision (LOMR) or conditional LOMR request. Based upon the community's review, we find the completed or proposed project meets or is designed to meet all of the community floodplain management requirements, including the requirements for when fill is placed in the regulatory floodway, and that all necessary Federal, State, and local permits have been, or in the case of a conditional LOMR, will be obtained. For Conditional LOMR requests, the applicant has documented Endangered Species Act (ESA) compliance to FEMA prior to FEMA's review of the Conditional LOMR application. For LOMR requests, I acknowledge that compliance with Sections 9 and 10 of the ESA has been achieved independently of FEMA's process. For actions authorized, funded, or being carried out by Federal or State agencies, documentation from the agency showing its compliance with Section 7(a)(2) of the ESA will be submitted. In addition, we have determined that the land and any existing or proposed structures to be removed from the SFHA are or will be reasonably safe from flooding as defined in 44CFR 65.2(c), and that we have available upon request by FEMA, all analyses and documentation used to make this determination.

| | | |
|---|---|---|
| Community Official's Name and Title: Hasan Mushtaq, Ph.D., P.E., CFM, PMP | | |
| Mailing Address:<br>7447 E Indian School Road, Suite 125<br>Scottsdale, AZ 85251 | Community Name: City of Scottsdale | |
| | Daytime Telephone: 480-312-4317 | Fax No.: 480-312-7781 |
| | E-mail Address: hmushtaq@scottsdaleaz.gov | |
| Community Official's Signature (required): | Date: 11/7/2022 | |

## 3. CERTIFICATION BY REGISTERED PROFESSIONAL ENGINEER AND/OR LAND SURVEYOR

This certification is to be signed and sealed by a licensed land surveyor, registered professional engineer, or architect authorized by law to certify elevation information data, hydrologic and hydraulic analysis, and any other supporting information as per NFIP regulations paragraph 65.2(b) and as described in the MT-2 Forms Instructions. All documents submitted in support of this request are correct to the best of my knowledge. I understand that any false statement may be punishable by fine or imprisonment under Title 18 of the United States Code, Section 1001.

| | | | |
|---|---|---|---|
| Certifier's Name: Mark T. Gavan, PE | | License No.: 15594 | Expiration Date: 12-31-23 |
| Company Name: Gavan & Barker Inc. | | Mailing Address:<br>3030 N Central Avenue, Suite 700<br>Phoenix, AZ 85012 | |
| Telephone No.: 602-200-0031 | Fax No.: 602-200-0032 | | |
| E-mail Address: mgavan@gavanbarker.com | | | |
| Signature: | | | Date: 11/7/2022 |

**Ensure the forms that are appropriate to your revision request are included in your submittal.**

| Form Name and (Number) | Required if … |
|---|---|
| ☒ Riverine Hydrology and Hydraulics Form (Form 2) | New or revised discharges or water-surface elevations |
| ☐ Riverine Structures Form (Form 3) | Channel is modified, addition/revision of bridge/culverts, addition/revision of levee/floodwall, addition/revision of dam |
| ☐ Coastal Analysis Form (Form 4) | New or revised coastal elevations |
| ☐ Coastal Structures Form (Form 5) | Addition/revision of coastal structure |
| ☐ Alluvial Fan Flooding Form (Form 6) | Flood control measures on alluvial fans |

Seal (Optional)