# CLARK COUNTY BOARD OF COMMISSIONERS

# ZONING / SUBDIVISIONS / LAND USE

# AGENDA ITEM

**Petitioner:** Sami Real, Director, Department of Comprehensive Planning

**Recommendation:** CP-24-900629: Conduct a public hearing, adopt the Flood Control Master Plan Update, and authorize the Chair to sign a Resolution amending the Plan. (For possible action)

**FISCAL IMPACT:**

None by this action.

**BACKGROUND:**

The Flood Control Master Plan determines future community needs and promotes effective control of floods and services to meet those needs. Clark County Regional Flood Control District is proposing this Master Plan Update (MPU) for the Outlying Areas of Clark County, including Blue Diamond, Coyote Springs, Goodsprings, Indian Springs, Jean, Laughlin, Mount Charleston, Nelson, and Searchlight to replace the 2019 Las Vegas Valley Flood Control Master Plan. The Regional Flood Control District Board of Directors held a public hearing and unanimously adopted the MPU to update the Plan on September 12, 2024.

Nevada Revised Statutes (NRS) 543.597 subsection 6 states: "If a proposed amendment to the Master Plan is adopted unanimously by the Board, and by the governing body of the local government in whose jurisdiction will be located the structures necessary to carry out the purposes of the amendment, after a public hearing by each, the amendment becomes effective and no other hearing or approval is required by any other board or commission, including those responsible for decisions relating to planning or zoning."

To complete the adoption process, staff recommends that the Board of County Commissioners adopt the 2024 Clark County Outlying Areas Flood Control Master Plan Update.

All documents for this item are available for review at the Clark County Regional Flood Control District, 600 S. Grand Central Parkway, Suite 300, Las Vegas, NV 89155.

**Cleared For Agenda**
11/20/24

# RESOLUTION
# OF THE CLARK COUNTY BOARD OF COMMISSIONERS ADOPTING THE 2024 CLARK COUNTY OUTLYING AREAS FLOOD CONTROL MASTER PLAN UPDATE

**WHEREAS**, a copy of the 2024 Clark County Outlying Areas Flood Control Master Plan Update has been received by the Board as specified by Nevada Revised Statute 278.220; and;

**WHEREAS**, on November 20, 2024 a public hearing was held by the Board in accordance with Nevada Revised Statute 278.220 on Flood Control Master Plan Updates.

**NOW, THEREFORE, BE IT RESOLVED**: that the Board does adopt the "2024 Clark County Outlying Areas Flood Control Master Plan Update"

**PASSED, APPROVED, AND ADOPTED this 20th day of November, 2024.**

**CLARK COUNTY, NEVADA**

**By:** _____
TICK SEGERBLOM, CHAIR

ATTEST:

_____
LYNN MARIE GOYA, COUNTY CLERK

REGIONAL FLOOD CONTROL DISTRICT



September 12, 2024

Sami Real, Director
Clark County Comprehensive Planning
500 South Grand Central Parkway
Las Vegas, NV 89155

Dear Sami Real:

On September 12, 2024, the Regional Flood Control District Board of Directors unanimously adopted a Master Plan Update for the Outlying Areas of Clark County, including Blue Diamond, Coyote Springs, Goodsprings, Indian Springs, Jean, Laughlin, Mount Charleston, Nelson and Searchlight. The Master Plan Update was performed in accordance with NRS 543.597.

NRS 543.597, Subsection 6, states in part, if a proposed amendment to the master plan is adopted unanimously by the board, and by the governing body of the local government in whose jurisdiction will be located the structures necessary to carry out the purposes of the amendment, after a public hearing by each, the amendment becomes effective and no other hearing or approval is required by any other board or commission, including those responsible for decisions relating to planning or zoning.

A copy of the District's agenda item, including the related backup material is enclosed with this letter for your use in holding a public hearing to consider adoption of this amendment. If I can be of further assistance in this matter, please contact me at (702) 685-0000.

Sincerely,

Steven C. Parrish, P. E.
General Manager/Chief Engineer

SCP:dmh

c: Jennifer Ammerman, Deputy Director, Comprehensive Planning
Martin Gies, Planning Manager, Comprehensive Planning
Denis Cederburg, Public Works Director
Patsy Schrader, Program Administrator, CCPW
Glenda Sargent, Senior Management Analyst, CCPW
Lynn Goya, County Clerk

Enclosure

P:\Master Plan Letters\091224 MPU Outlying Areas-CC letter.docx

600 S. Grand Central Parkway, Suite 300 • Las Vegas, Nevada 89106-4511
(702) 685-0000 • FAX: (702) 685-0001
Website: https://www.regionalflood.org

**CLARK COUNTY**
**REGIONAL FLOOD CONTROL DISTRICT**

**AGENDA ITEM**

SUBJECT:

ADOPT THE FLOOD CONTROL MASTER PLAN UPDATE FOR THE OUTLYING AREAS OF CLARK COUNTY, INCLUDING BLUE DIAMOND, COYOTE SPRINGS, GOODSPRINGS, INDIAN SPRINGS, JEAN, LAUGHLIN, MOUNT CHARLESTON, NELSON AND SEARCHLIGHT, AND FIND THAT THE MPU IS THE MOST COST EFFECTIVE STRUCTURAL AND REGULATORY MEANS FOR CORRECTING EXISTING PROBLEMS OF FLOODING WITHIN THE AREA AND DEALING WITH THE PROBABLE EFFECTS OF FUTURE DEVELOPMENT – ***THIS IS A PUBLIC HEARING***

**RECOMMENDATION SUMMARY**

| | |
|---|---|
| STAFF: | Adopt and find that the MPU is the most cost effective structural and regulatory means for correcting existing problems of flooding within the area and dealing with the probable effects of future development. |
| TECHNICAL ADVISORY: | Follow staff recommendation. |
| CITIZENS ADVISORY: | Follow staff recommendation. |

RFCD AGENDA
ITEM #14
DATE: 09/12/2024

CLARK COUNTY
REGIONAL FLOOD CONTROL DISTRICT
AGENDA ITEM

**SUBJECT:**

MASTER PLAN UPDATE (MPU) FOR THE OUTLYING AREAS OF CLARK COUNTY INCLUDING BLUE DIAMOND, COYOTE SPRINGS, GOODSPRINGS, INDIAN SPRINGS, JEAN, LAUGHLIN, MOUNT CHARLESTON, NELSON AND SEARCHLIGHT

**PETITIONER:**

STEVEN C. PARRISH, P.E., GENERAL MANAGER/CHIEF ENGINEER

**RECOMMENDATION OF PETITIONER:**

THAT THE BOARD ADOPT THE FLOOD CONTROL MASTER PLAN UPDATE FOR THE OUTLYING AREAS OF CLARK COUNTY, INCLUDING BLUE DIAMOND, COYOTE SPRINGS, GOODSPRINGS, INDIAN SPRINGS, JEAN, LAUGHLIN, MOUNT CHARLESTON, NELSON AND SEARCHLIGHT, AND FIND THAT THE MPU IS THE MOST COST EFFECTIVE STRUCTURAL AND REGULATORY MEANS FOR CORRECTING EXISTING PROBLEMS OF FLOODING WITHIN THE AREA AND DEALING WITH THE PROBABLE EFFECTS OF FUTURE DEVELOPMENT (FOR POSSIBLE ACTION)

**FISCAL IMPACT:** None.

**BACKGROUND:** In accordance with Nevada Revised Statutes (NRS), NRS 543.596, the District is required to review its Master Plans every five years. The current Master Plan for the Outlying Areas of Clark County was adopted on February 13, 2020.

District staff prepared a flood control Master Plan Update (MPU) for the Outlying Areas of Clark County including the towns of Blue Diamond, Goodsprings, Indian Springs, Jean, Laughlin, Mt. Charleston, Nelson, Searchlight, and the master-planned community of Coyote Springs in coordination with representatives from Clark County Department of Public Works and technical support from AtkinsRealis.

| | |
|---|---|
| TAC AGENDA<br>ITEM #09<br>Date: 08/29/24 | RFCD AGENDA<br>ITEM # 14<br>Date: 09/12/24 |
| CAC AGENDA<br>ITEM #09<br>Date: 08/29/24 | |

The results and recommendations of this proposed MPU were presented to the Red Rock Citizens Advisory Council (CAC) for the Blue Diamond area at their July 31, 2024 meeting; Goodsprings CAC at their June 25, 2024, and August 27, 2024 meetings; Indian Springs Town Advisory Board (TAB) at their May 16, 2024 meeting; Laughlin TAB at their July 9, 2024, meeting; Mt. Charleston TAB at their August 1, 2024 meeting; and Searchlight TAB at their July 10, 2024, meeting.

A summary of the changes and amendments to the previous MPU are included in the Executive Summary that is provided as backup to this agenda item. The purpose of this update was to add new relevant information to the Master Plan, to assess progress towards fulfillment of the Master Plan during the past 5-year period, to identify obstacles to completing the Master Plan, and to recommend changes to the Master Plan resulting from growth and development. This effort included field investigation, data collection, hydrologic/hydraulic analyses, facility planning, cost estimate analysis, and coordination with Clark County Department of Public Works to develop the plan to mitigate flooding hazards in the planning areas.

The total plan recommended for the Clark County Outlying Areas is estimated to cost approximately $294 million. The total cost estimate presented in the 2019 MPU was approximately $163 million. These costs are based on the District's cost estimation tool developed for the 2023 Las Vegas Valley MPU. The total estimated cost of proposed facilities has increased due to increases in construction costs since 2019 and the addition/modification of proposed regional facilities in the plan. The following table details the estimated cost difference between the 2019 and 2024 Clark County Outlying Areas MPU.

**Estimated Cost of Proposed Facilities (Design, Construction, Right-of-Way):**

| WATERSHED | PROPOSED | | |
|---|---|---|---|
| | 2019 | 2024 | Difference |
| Blue Diamond | $ 1,801,107 | $1,997,596 | $196,489 |
| Coyote Springs | $ 36,585,182 | $70,516,947 | $33,931,765 |
| Goodsprings | $ 5,720,856 | $11,078,384 | $5,357,528 |
| Indian Springs | $ 6,566,949 | $7,950,595 | $1,383,646 |
| Jean | $ 152,581 | $1,872,985 | $1,720,404 |
| Laughlin | $103,177,772 | $178,141,404 | $74,963,632 |
| Mt. Charleston | $ 1,587,384 | $10,565,239 | $8,977,855 |
| Nelson | $ 1,466,840 | $1,799,130 | $332,290 |
| Searchlight | $ 6,697,676 | $9,961,546 | $3,263,870 |
| **Total** | **$163,756,347** | **$293,883,826** | **$130,127,479** |

A public notice has been issued to notify interested parties that a public hearing will be held to consider adoption of the proposed changes and amendment to the Master Plan. The proposed MPU is the most effective structural and regulatory means for correcting existing problems of flooding within the area and dealing with the probable effects of future development. A copy of the Executive Summary from the MPU report is included in the backup.

Respectfully submitted,

Steven C. Parrish, P.E.
General Manager/Chief Engineer

| | |
|---|---|
| TAC AGENDA<br>ITEM #09<br>Date: 08/29/24 | RFCD AGENDA<br>ITEM # 14<br>Date: 09/12/24 |
| CAC AGENDA<br>ITEM #09<br>Date: 08/29/24 | |

Regional Flood Control District
AGENDA ITEM DEVELOPMENT

**Staff Discussion:**

Date: 08/19/2024

MASTER PLAN UPDATE (MPU) FOR THE OUTLYING AREAS OF CLARK COUNTY; INCLUDING BLUE DIAMOND, COYOTE SPRINGS, GOODSPRINGS, INDIAN SPRINGS, JEAN, LAUGHLIN, MOUNT CHARLESTON, NELSON AND SEARCHLIGHT

In accordance with Nevada Revised Statutes (NRS), NRS 543.596, the District is required to review its Master Plans every five years. The current Master Plan for the Outlying Areas of Clark County was adopted on February 13, 2020.

District staff prepared a flood control Master Plan Update (MPU) for the Outlying Areas of Clark County including the towns of Blue Diamond, Goodsprings, Indian Springs, Jean, Laughlin, Mt. Charleston, Nelson, Searchlight, and the master-planned community of Coyote Springs in coordination with representatives from Clark County Department of Public Works and technical support from AtkinsRealis.

This study updated the hydrology for the Outlying Areas of Clark County using the most current soil studies and land use information. The hydrologic models were performed using standard practices and in conformance with the District *Hydrologic Criteria and Drainage Design Manual.* Costs were estimated using the cost tool developed for the 2023 Las Vegas Valley Master Plan Update.

The 2024 MPU does not represent a significant departure from the previous MPU with regard to size and location of proposed facilities. Proposed facilities were added to the plan in the Laughlin & Mt. Charleston areas to address storm flow conveyance based on recent storm events.

The updated estimated cost to complete the facilities remaining on the recommended plan for the Outlying Areas of Clark County in the 2024 MPU is approximately $294 million. The total cost estimate presented in the previous plan was approximately $163 million. The total estimated costs have increased from the cost estimates provided in the 2019 MPU because of the overall increase construction costs of flood control facilities in the past five years.

A copy of the Executive Summary is included in the backup.

**Staff Recommendation:**

Adopt the Master Plan Update of the Outlying Areas of Clark County, including Blue Diamond, Coyote Springs, Goodsprings, Indian Springs, Jean, Laughlin, Mount Charleston, Nelson and Searchlight as an amendment to the Master Plan and find that the MPU is the most cost effective structural and regulatory means for correcting existing problems of flooding within the area and dealing with the probable effects of future development. The MPU will not become effective until it is adopted by the Clark County Board of Commissioners.

**Discussion by Technical Advisory Committee:**

AGENDA
#09 Date: 08/29/2024

**Recommendation:**

Follow staff recommendation.

**Discussion by Citizens Advisory Committee:**

AGENDA
#09 Date: 08/29/2024

**Recommendation:**

Follow staff recommendation.

091224 MPU Outlying Areas-aid

# 2024
# FLOOD CONTROL
# MASTER PLAN UPDATE
# CLARK COUNTY OUTLYING AREAS

**Prepared By:**


**Clark County Regional Flood Control District**
600 South Grand Central Parkway, Suite 300
Las Vegas, Nevada 89106
**www.regionalfood.org**


**Assisted By:**


**Clark County Public Works**
500 South Grand Central Parkway
Las Vegas, NV 89106
**www.clarkcountynv.gov**

**AtkinsRealis**
2270 Corporate Circle, Suite 200
Henderson, Nevada 89074-6382
**www.atkinsrealis.com**


## July 2024

# Executive Summary

## Introduction

The Clark County Regional Flood Control District (CCRFCD) is responsible for developing and implementing a comprehensive flood control master plan to alleviate flooding in Clark County, Nevada. Nevada Revised Statutes (NRS) 543.596 require that flood control master plans be reviewed and updated at least every 5 years. The 2024 Flood Control Master Plan Update for Clark County Outlying Areas (2024 MPU) is one of these updates. The original flood control master plan in 1986 encompassed the entire county. Previous Master Plan Updates (MPU) for Clark County Outlying Areas were prepared and adopted in 1991, 1999, 2003, 2009, 2014 and 2019. This 2024 MPU documents the updates to the plan since the last MPU was prepared and is a planning tool for use by public agencies, land use planners, engineers, landowners, and various other entities.

## Purpose

The purpose of an MPU is to add any new relevant information to the Master Plan, assess progress toward fulfillment of the Master Plan during the 5-year period, to identify obstacles, and recommend changes to the Master Plan resulting from growth and development. This document presents the results of field investigation, data collection, hydrologic/hydraulic analyses, facility planning, and cost estimate analyses that were completed during the development of the MPU.

There are nine (9) hydrographic planning areas or watersheds to facilitate the implementation of the flood control plan, as shown in **Figure ES-A**:

1. Blue Diamond
2. Coyote Springs
3. Goodsprings
4. Indian Springs
5. Jean
6. Laughlin
7. Mt. Charleston
8. Nelson
9. Searchlight

Nine (9) detention/debris basins and approximately 41.8 miles of conveyance facilities are included in the 2024 MPU. Five (5) detention/debris basins and approximately 14.9 miles of these facilities already exist. Four (4) detention/debris basins and approximately 26.9 miles represent proposed conveyance facilities that remain to be constructed.

## Watershed Analysis

A review of the previous MPU hydrologic analyses was performed and updates were made to incorporate current, available data. Modifications made to the flood control plan during development of this MPU are based on the following:

- Growth and development within the Clark County Outlying Areas
- Updated soils, land use, and cost data (values for existing and proposed facilities)
- Updated subbasin delineations, hydrologic models, and analysis methodology
- Revisions to facility sizes and alignments due to changes in flow rates
- Addition of new facilities deemed necessary to better mitigate flood hazards
- Environmental consideration for areas with known environmentally sensitive issues

## Master Plan Progress since 2019 MPU

No CCRFCD facilities have been constructed in the Clark County Outlying Areas since the 2019 MPU was adopted. There are several projects in various stages of design that have been incorporated into this Master Plan.

## Added Proposed Facilities since 2019 MPU

**Table ES-1** summarizes revised facilities in this 2024 MPU. Refer to the report section for information on the proposed facility. Flood control facilities in each watershed are shown on **Figure ES-1** through **Figure ES-9**.

**Table ES-1. 2024 MPU Revisions**

| Figure | Watershed | 2024 MPU Revision |
|---|---|---|
| ES-1 | Blue Diamond | Minor facility sizing updates due to hydrology |
| ES-2 | Coyote Springs | Facility type updates |
| ES-3 | Goodsprings | Facility updates based on Pacific Avenue Chanel design; added spillway for Goodsprings Detention Basin; renamed southern facilities to Goodsprings Detention Basin and Outfall. |
| ES-4 | Indian Springs | Minor facility sizing updates due to hydrology, splitting facilities for addition of street crossing (ISEA 1005 -1021) |
| ES-5 | Jean | Minor facility sizing updates due to hydrology |
| ES-6, 6A | Laughlin | Facility updates based on projects in design: SR 163, Phase 2 Sediment Mitigation; Bridge Canyon Detention Basin & Outfall; Thomas Edison Detention Basin; and a solar development (LUBC0000, LUBC 0001-0006, LUHS 0236-0417, LUSO 0005 – 0321) |
| ES-7 | Mt. Charleston | Addition of conveyance facilities along SR 157 (MTCH 0005 & 0500) |
| ES-8 | Nelson | Minor hydrology changes |
| ES-9 | Searchlight | Facility updates incorporating the 2021 Master Plan Amendment (SRWE 0000-0005) |

## Cost Estimates

Estimated values for existing facilities and planning costs for proposed regional facilities were determined using the CCRFCD Cost Estimation Tool (2023 LVV MPU Cost Tool) that was developed as part of the 2023 Las Vegas Valley MPU.

The total estimated value of existing flood control facilities in the Clark County Outlying Areas is approximately $133.9 million. The total estimated cost of proposed facilities in the Clark County Outlying Areas is approximately $293.9 million. The total estimated value of existing facilities is summarized in **Table ES-2** and the total estimated costs of proposed facilities is summarized in **Table ES-3**.

### Table ES-2. Estimated Value of Existing Facilities

| Value of Existing Facilities | |
|---|---|
| **Watershed** | **Total Value ($ x 1,000)** |
| BLUE DIAMOND | $895 |
| COYOTE SPRINGS | $47,142 |
| GOODSPRINGS | $183 |
| INDIAN SPRINGS | $4,996 |
| JEAN | $56 |
| LAUGHLIN | $75,519 |
| MT. CHARLESTON | $111 |
| NELSON | $0 |
| SEARCHLIGHT | $4,962 |
| **Total:** | **$133,865** |

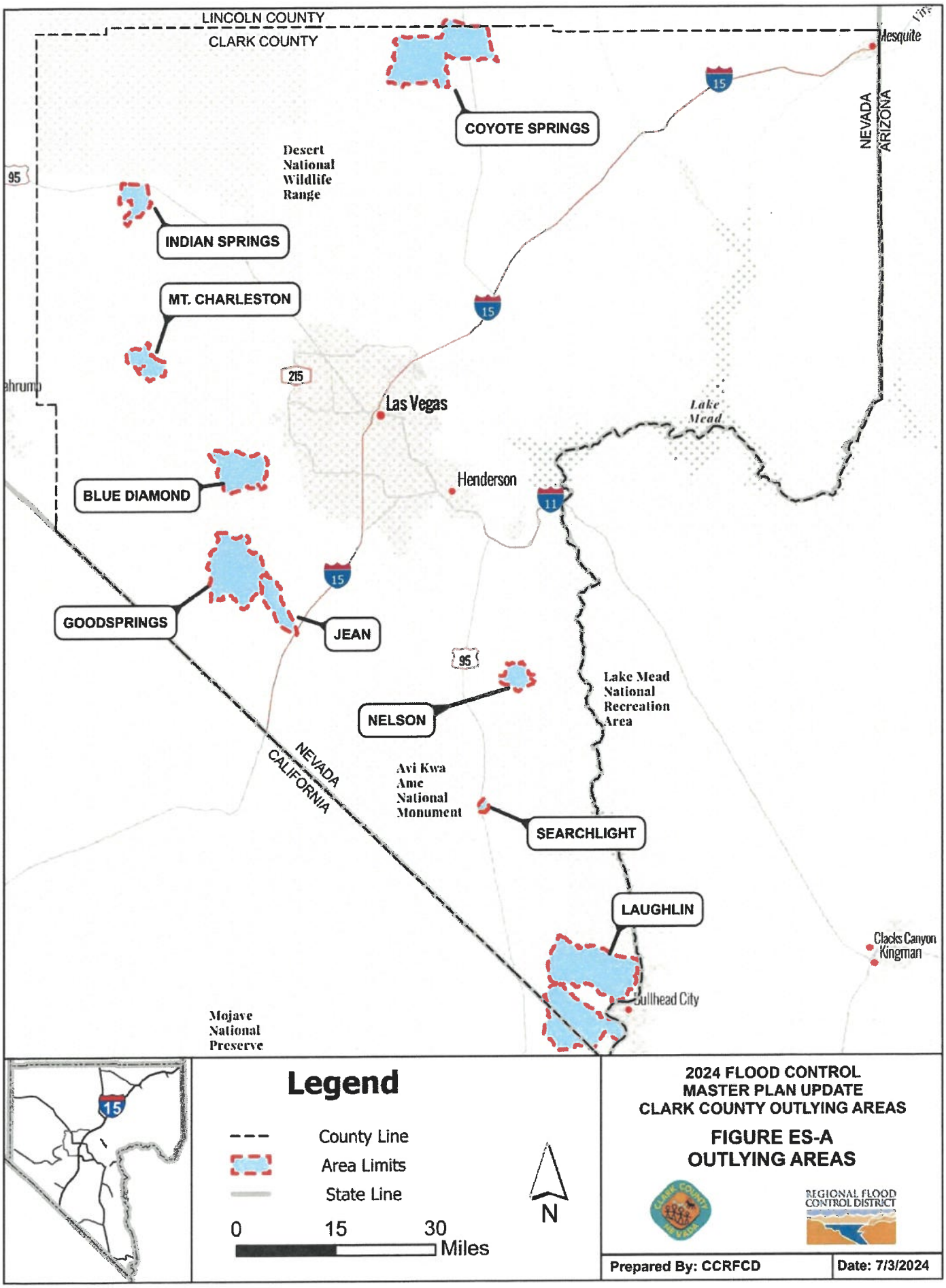
### Table ES-3. Estimated Cost of Proposed Facilities

| Cost of Proposed Facilities | | | | |
|---|---|---|---|---|
| **Watershed** | **Design and Administration Cost ($ x 1,000)** | **Right-of-Way Cost ($ x 1,000)** | **Construction Cost ($ x 1,000)** | **Total Cost ($ x 1,000)** |
| BLUE DIAMOND | $294 | $235 | $1,469 | $1,998 |
| COYOTE SPRINGS | $10,370 | $8,296 | $51,851 | $70,517 |
| GOODSPRINGS | $1,629 | $1,303 | $8,146 | $11,078 |
| INDIAN SPRINGS | $1,169 | $935 | $5,846 | $7,951 |
| JEAN | $275 | $220 | $1,377 | $1,873 |
| LAUGHLIN | $26,197 | $20,958 | $130,986 | $178,141 |
| MT. CHARLESTON | $1,554 | $1,243 | $7,769 | $10,565 |
| NELSON | $265 | $212 | $1,323 | $1,799 |
| SEARCHLIGHT | $1,465 | $1,172 | $7,325 | $9,962 |
| **Total:** | **$43,218** | **$34,575** | **$216,091** | **$293,884** |

In the 2019 MPU, the total estimated value of existing facilities was approximately $77.0 million. The total estimated value of existing facilities in the 2024 MPU has increased to approximately $133.9 million primarily due to increased cost as reflected in the updated 2023 LVV MPU Cost Tool.

In the 2019 MPU, the total estimated cost of proposed facilities was approximately $163.8 million. The total estimated cost of proposed facilities in the 2024 MPU has increased to approximately $293.9 million due to revisions to the regional facilities in the flood control plan and due to increased cost as reflected in the updated 2023 LVV MPU Cost Tool.

The 2024 MPU serves as a planning tool for the implementation of the flood control system in the Clark County Outlying Areas and for the design of master plan facilities. The flood control system identified and described in this MPU may be subject to further amendments and revisions in the future as more detailed analyses are completed for facilities in the design phase.


LINCOLN COUNTY
CLARK COUNTY
COYOTE SPRINGS
Desert National Wildlife Range
INDIAN SPRINGS
MT. CHARLESTON
BLUE DIAMOND
GOODSPRINGS
JEAN
NELSON
SEARCHLIGHT
LAUGHLIN
Las Vegas
Henderson
Lake Mead
Lake Mead National Recreation Area
Avi Kwa Ame National Monument
Mojave National Preserve
NEVADA
ARIZONA
NEVADA
CALIFORNIA
Mesquite
Bullhead City
Clacks Canyon
Kingman
95
15
215
11
Legend
County Line
Area Limits
State Line
0
15
30
Miles
N
2024 FLOOD CONTROL MASTER PLAN UPDATE
CLARK COUNTY OUTLYING AREAS
FIGURE ES-A
OUTLYING AREAS
REGIONAL FLOOD CONTROL DISTRICT
Prepared By: CCRFCD
Date: 7/3/2024


| IDMile | Facility Description | Status | Length | Flow (cfs) | HEC-HMS Node | HEC-HMS Model | Tributary Area (sq.mi.) | Slope (%) |
|---|---|---|---|---|---|---|---|---|
| BDMD | BLUE DIAMOND | | | | | | | |
| 0100 | RIPRAP LEVEE 8.5' D | P | 1,600 | 9,528 | PT1 | BD_SDN5 | 26.61 | 2.00 |
| 0120 | BRIDGE 70'W 7'D @ CASTALIA | P | 50 | 5,682^ | PT2^ | BD_SDN5 | 24.79 | 0.50 |
| 0121 | BRIDGE 95'W 7'D @ CASTALIA | E | 50 | 3,631^ | PT2^ | BD_SDN5 | 24.79 | 0.50 |

^ For parallel facilities, the existing facility flow equals its normal depth capacity, and the proposed parallel facility flow equals the remaining flow (i.e. HEC-HMS Node flow = existing facility normal depth capacity + proposed parallel facility flow).

REGIONAL FLOOD CONTROL DISTRICT

CLARK COUNTY NEVADA

**2024 FLOOD CONTROL MASTER PLAN UPDATE**
**CLARK COUNTY**
**OUTLYING AREAS**

**FIGURE ES-1**
**BLUE DIAMOND**
**FLOOD CONTROL FACILITIES**

- Existing Bridge
- Proposed Bridge
- Proposed Levee
- Flood Zone A


N

0 250 500 Feet

1 inch=500 feet

Prepared By: CCRFCD | Date: 7/3/2024


REGIONAL FLOOD CONTROL DISTRICT

CLARK COUNTY NEVADA

**2024 FLOOD CONTROL MASTER PLAN UPDATE CLARK COUNTY OUTLYING AREAS**

**FIGURE ES-2 COYOTE SPRINGS FLOOD CONTROL FACILITIES**

- Natural Wash
- Existing Unlined Channel
- Existing Lined Channel
- Existing Spillway/Levee
- Existing Storm Drain
- Restored Desert Dry Wash
- Category B Lined Channel
- Category B Spillway/Levee
- Category B Storm Drain
- Existing Basin
- Category B Basin
- 1DMile Separator
- Flood Zone A


N

0 1,000 2,000 Feet

1 inch=2,000 feet

Prepared By: CCRFCD | Date: 7/3/2024

| IDMile | Facility Description | Status | Length | Flow (cfs) | HEC-HMS Node | HEC-HMS Model | Tributary Area (sq.mi.) | Slope (%) |
|---|---|---|---|---|---|---|---|---|
| **PW04** | **PAHRANAGAT WASH - F4 TRIBUTARY** | | | | | | | |
| 0000 | CONC CHNL 30'W 7.5'D 3:1 SS | P0 | 2,200 | 4,603 | CP-A19 | F4-SDN3 | 5.39 | 0.50 |
| 0042 | CONC CHNL 30'W 7.5'D 3:1 SS | P0 | 800 | 4,426 | CP-A18 | F4-SDN3 | 5.15 | 0.50 |
| 0057 | CONC CHNL 20'W 6.5'D 3:1 SS | P0 | 1,700 | 3,190 | CP-A16 | F4-SDN3 | 3.20 | 1.20 |
| 0089 | 8: 10' X 6' RCBC | P0 | 200 | 3,190 | CP-A16 | F4-SDN3 | 3.20 | 0.50 |
| 0093 | CONC CHNL 20'W 6.5' 3:1 SS | P0 | 1,800 | 3,190 | CP-A16 | F4-SDN3 | 3.20 | 1.10 |
| 0127 | 9: 12' X 5' RCBC | P0 | 120 | 2,957 | CP-A15 | F4-SDN3 | 3.00 | 0.50 |
| 0129 | CONC CHNL 20'W 6.5'D 3:1 SS | P0 | 2,800 | 2,957 | CP-A15 | F4-SDN3 | 3.00 | 1.10 |
| 0182 | GRASS CHNL 100'W 3.5'D 3:1 SS | P0 | 1,400 | 1,565 | CP-A11 | F4-SDN3 | 1.72 | 1.10 |
| 0209 | GRASS CHNL 80'W 2.5'D 3:1 SS | E | 3,800 | 684 | CP-A10 | F4-SDN3 | 0.63 | 2.50 |
| 0281 | 24' X 11' RCAC @ COYOTE SPRINGS | E | 113 | 493 | CP-A9 | F4-SDN3 | 0.44 | 2.20 |
| 0283 | GOLF COURSE CHNL 40'W 2'D 3:1 SS | E | 2,800 | 236^ | DCS150^ | CS_SDN5 | 35.72 | 2.50 |
| 0336 | 12' X 5' RCBC | P0 | 150 | 236^ | DCS150^ | CS_SDN5 | 35.72 | 0.50 |
| **PW05** | **PAHRANAGAT WASH - F5 TRIBUTARY** | | | | | | | |
| 0000 | GRASS CHNL 40'W 2'D 3:1 SS | E | 2,700 | 723 | CP-A6 | F4-SDN3 | 0.71 | 2.50 |
| 0051 | 6: 10' X 7' RCBC @ BEAR TRAIL | E | 110 | 694 | CP-A5 | F4-SDN3 | 0.65 | 0.50 |
| 0053 | GRASS CHNL 40'W 2'D 3:1 SS | E | 2,200 | 676 | CP-A4 | F4-SDN3 | 0.61 | 2.50 |
| 0095 | 24' X 11' RCAC @ COYOTE SPRINGS | E | 123 | 578 | CP-A2* | F4-SDN5 | 30.29 | 2.00 |
| 0097 | GRASS CHNL 40'W 3'D 3:1 SS | E | 2,200 | 578 | CP-A2* | F4-SDN5 | 30.29 | 2.50 |
| 0139 | 2: 14' X 5' RCBC | P0 | 150 | 578 | CP-A2 | F4-SDN5 | 30.29 | 0.50 |
| 0142 | GRASS CHNL 40'W 2'D 3:1 SS | E | 2,000 | 578 | CP-A2 | F4-SDN5 | 30.29 | 2.50 |
| 0180 | 2: 12' X 4' RCBC @ US 93 | E | 200 | 578 | CP-A1 | F4-SDN5 | 30.29 | 2.00 |
| 0183 | UNLINED CHNL W/ GABION DROP STRUCTURES 40'W 4'D 3:1 SS | E | 1,230 | 552^ | DCS150^ | CS_SDN5 | 35.72 | 0.50 |
| 0213 | 84" RCP OUTLET | E | 525 | 552^ | DCS150^ | CS_SDN5 | 35.72 | 0.49 |
| **PW07** | **PAHRANAGAT WASH - F7 TRIBUTARY** | | | | | | | |
| 0000 | RESTORED DESERT DRY WASH | P0 | 8,020 | 1,078 | CP-B7 | F7-SDN3A | 6.90 | 1.20 |
| 0170 | 24' X 11' RCAC @ PRIVATE DRIVE | P0 | 200 | 830 | CP-B4 | F7-SDN3A | 6.55 | 0.50 |
| 0174 | RESTORED DESERT DRY WASH | P0 | 3,700 | 830 | CP-B4 | F7-SDN3A | 6.55 | 2.10 |
| 0244 | RESTORED DESERT DRY WASH | P0 | 1,900 | 787 | CP-B3 | F7-SDN3A | 6.39 | 2.90 |
| 0280 | 24' X 11' RCAC @ COYOTE SPRINGS | P0 | 123 | 787 | CP-B3 | F7-SDN3A | 6.39 | 2.00 |
| 0283 | RESTORED DESERT DRY WASH | P0 | 1,400 | 787 | CP-B3 | F7-SDN3A | 6.39 | 2.80 |
| 0309 | PRESERVED NATURAL WASH | E | 1,200 | 766 | CP-B2 | F7-SDN3A | 6.30 | 2.40 |
| 0332 | 2: 8' X 6' RCBC @ US 93 | E | 200 | 762 | CP-B1 | F7-SDN3A | 6.28 | 0.50 |
| 0336 | RIPRAP CHNL 35'W 3.5'D 3:1 SS | E | 1,800 | 714 | DCS230 | CS_SDN5 | 35.72 | 3.75 |
| 0348 | 90" RCP OUTLET | E | 525 | 714 | DCS230 | CS_SDN5 | 35.72 | 0.70 |
| **PW11** | **PAHRANAGAT WASH - F11 TRIBUTARY** | | | | | | | |
| 0000 | RESTORED DESERT DRY WASH | P0 | 4,200 | 1,187 | CP-D6 | F7-SDN4 | 11.91 | 1.60 |
| 0080 | 3: 12' X 5' RCBC @ PRIVATE DRIVE | P0 | 160 | 958 | CP-D5 | F7-SDN4 | 11.62 | 0.50 |
| 0083 | RESTORED DESERT DRY WASH | P0 | 5,640 | 754 | CP-D3 | F7-SDN4 | 11.00 | 1.40 |
| 0191 | 3: 10' X 5' RCBC @ PRIVATE DRIVE | P0 | 200 | 754 | CP-D3 | F7-SDN4 | 11.00 | 0.50 |
| 0194 | RESTORED DESERT DRY WASH | P0 | 4,965 | 452 | CP-D2 | F7-SDN4 | 10.48 | 2.70 |
| 0285 | 2: 8' X 5' RCBC @ US 93 | P0 | 200 | 435 | CP-D1 | F7-SDN4 | 10.45 | 0.50 |
| 0289 | RIPRAP CHNL 12'W 4'D 3:1 SS | P0 | 1,300 | 383 | DB3 | CS_SDN5 | 21.79 | 2.75 |
| 0296 | 2: 60" RCP OUTLET | P0 | 500 | 383 | DB3 | CS_SDN5 | 21.79 | 1.00 |
| 0314 | 92,320 CFS PMF SPILLWAY | P0 | 0 | 92,320 | CP320 | CS_SDN5 | 21.79 | 0 |
| 0315 | 1,707 AC-FT COYOTE SPRINGS NORTH DETENTION BASIN | P0 | 0 | 6,220 | CP320 | CS_SDN5 | 21.79 | 0 |

*The HEC-HMS node shown identifies the controlling concentration point for the associated facility and is located upstream of this facility due to decreasing peak flow with increasing tributary area caused by storm distribution transitions, depth area reduction factors, or attenuation of flow from routing.

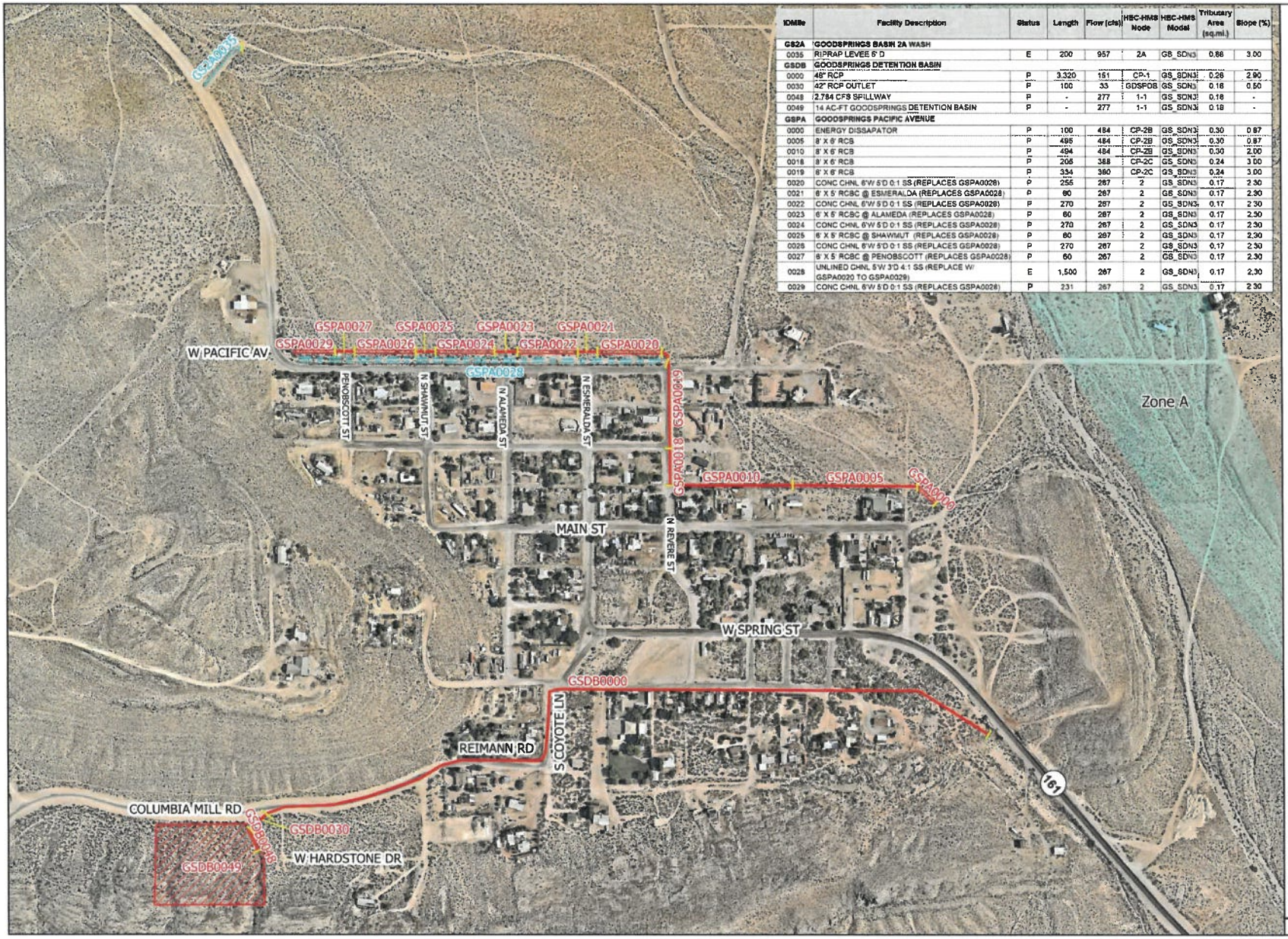
^ For parallel facilities, the existing facility flow equals its normal depth capacity, and the proposed parallel facility flow equals the remaining flow (i.e. HEC-HMS Node flow = existing facility normal depth capacity + proposed parallel facility flow).

REGIONAL FLOOD CONTROL DISTRICT

**2024 FLOOD CONTROL MASTER PLAN UPDATE**
**CLARK COUNTY OUTLYING AREAS**

**FIGURE ES-2.1**
**COYOTE SPRINGS FLOOD CONTROL FACILITIES**


Prepared By: CCRFCD | Date: 7/3/2024




| IDMile | Facility Description | Status | Length | Flow (cfs) | HEC-HMS Node | HEC-HMS Model | Tributary Area (sq.mi.) | Slope (%) |
|---|---|---|---|---|---|---|---|---|
| GS2A | GOODSPRINGS BASIN 2A WASH | | | | | | | |
| 0035 | RIPRAP LEVEE 6' D | E | 200 | 957 | 2A | GS_SDN3 | 0.88 | 3.00 |
| GSDB | GOODSPRINGS DETENTION BASIN | | | | | | | |
| 0000 | 48" RCP | P | 3,320 | 151 | CP-1 | GS_SDN3 | 0.26 | 2.90 |
| 0030 | 42" RCP OUTLET | P | 100 | 33 | GDSPOB | GS_SDN3 | 0.18 | 0.50 |
| 0048 | 2,784 CFS SPILLWAY | P | - | 277 | 1-1 | GS_SDN3 | 0.18 | - |
| 0049 | 14 AC-FT GOODSPRINGS DETENTION BASIN | P | - | 277 | 1-1 | GS_SDN3 | 0.18 | - |
| GSPA | GOODSPRINGS PACIFIC AVENUE | | | | | | | |
| 0000 | ENERGY DISSAPATOR | P | 100 | 484 | CP-2B | GS_SDN3 | 0.30 | 0.87 |
| 0005 | 8' X 6' RCB | P | 495 | 484 | CP-2B | GS_SDN3 | 0.30 | 0.87 |
| 0010 | 8' X 6' RCB | P | 494 | 484 | CP-2B | GS_SDN3 | 0.30 | 2.00 |
| 0018 | 8' X 6' RCB | P | 205 | 388 | CP-2C | GS_SDN3 | 0.24 | 3.00 |
| 0019 | 8' X 6' RCB | P | 334 | 380 | CP-2C | GS_SDN3 | 0.24 | 3.00 |
| 0020 | CONC CHNL 6'W 5'D 0:1 SS (REPLACES GSPA0026) | P | 256 | 267 | 2 | GS_SDN3 | 0.17 | 2.30 |
| 0021 | 8' X 5' RCBC @ ESMERALDA (REPLACES GSPA0028) | P | 60 | 267 | 2 | GS_SDN3 | 0.17 | 2.30 |
| 0022 | CONC CHNL 6'W 5'D 0:1 SS (REPLACES GSPA0028) | P | 270 | 267 | 2 | GS_SDN3 | 0.17 | 2.30 |
| 0023 | 8' X 5' RCBC @ ALAMEDA (REPLACES GSPA0028) | P | 60 | 267 | 2 | GS_SDN3 | 0.17 | 2.30 |
| 0024 | CONC CHNL 6'W 5'D 0:1 SS (REPLACES GSPA0028) | P | 270 | 267 | 2 | GS_SDN3 | 0.17 | 2.30 |
| 0025 | 8' X 5' RCBC @ SHAWNUT (REPLACES GSPA0028) | P | 60 | 267 | 2 | GS_SDN3 | 0.17 | 2.30 |
| 0026 | CONC CHNL 6'W 5'D 0:1 SS (REPLACES GSPA0028) | P | 270 | 267 | 2 | GS_SDN3 | 0.17 | 2.30 |
| 0027 | 8' X 5' RCBC @ PENOBSCOTT (REPLACES GSPA0028) | P | 60 | 267 | 2 | GS_SDN3 | 0.17 | 2.30 |
| 0028 | UNLINED CHNL 5'W 3'D 4:1 SS (REPLACE W/ GSPA0020 TO GSPA0029) | E | 1,500 | 267 | 2 | GS_SDN3 | 0.17 | 2.30 |
| 0029 | CONC CHNL 6'W 5'D 0:1 SS (REPLACES GSPA0028) | P | 231 | 267 | 2 | GS_SDN3 | 0.17 | 2.30 |

REGIONAL FLOOD CONTROL DISTRICT

**2024 FLOOD CONTROL MASTER PLAN UPDATE**
**CLARK COUNTY OUTLYING AREAS**

**FIGURE ES-3**
**GOODSPRINGS FLOOD CONTROL FACILITIES**

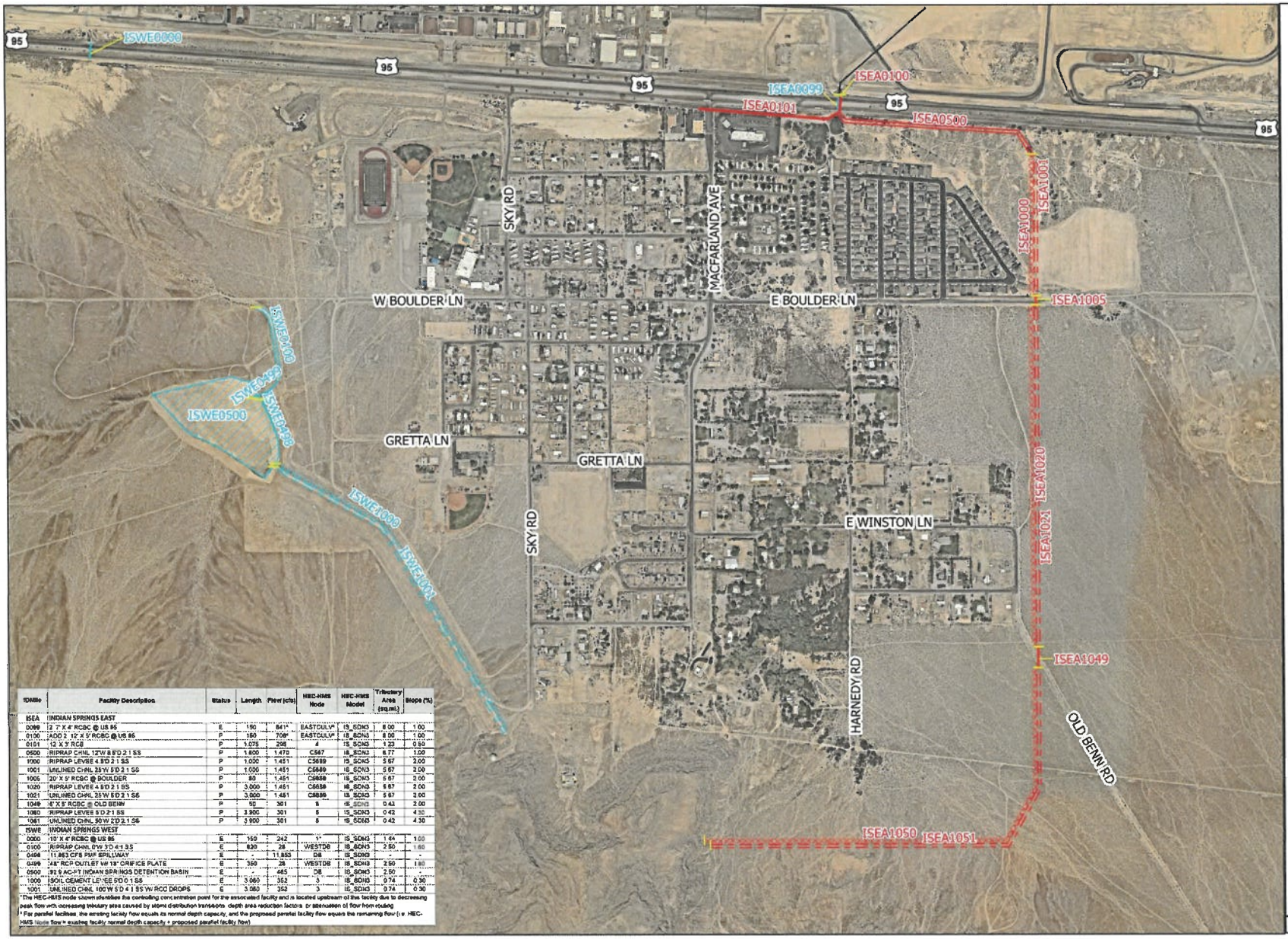
- Existing Unlined Channel
- Existing Levee
- Proposed Lined Channel
- Proposed Storm Drain
- Proposed Basin
- IDMile Separator
- Flood Zone A


N

0 200 400 Feet

1 inch=400 feet

Prepared By: CCRFCD | Date: 7/3/2024




| IDMile | Facility Description | Status | Length | Flow (cfs) | HEC-HMS Node | HEC-HMS Model | Tributary Area (sq.mi.) | Slope (%) |
|---|---|---|---|---|---|---|---|---|
| ISEA | INDIAN SPRINGS EAST | | | | | | | |
| 0099 | 2 7' X 4' RCBC @ US 95 | E | 150 | 641* | EASTCULV* | IS_SDN3 | 8.00 | 1.00 |
| 0100 | ADD 2 12' X 5' RCBC @ US 95 | P | 150 | 709* | EASTCULV* | IS_SDN3 | 8.00 | 1.00 |
| 0101 | 12 X 5' RCB | P | 1,075 | 296 | 4 | IS_SDN3 | 1.23 | 0.50 |
| 0500 | RIPRAP CHNL 12'W B 5'D 2:1 SS | P | 1,600 | 1,479 | C567 | IS_SDN3 | 4.77 | 1.00 |
| 1000 | RIPRAP LEVEE 4 B'D 2:1 SS | P | 1,000 | 1,451 | C5689 | IS_SDN3 | 5.67 | 2.00 |
| 1001 | UNLINED CHNL 25'W 5'D 2:1 SS | P | 1,000 | 1,451 | C5689 | IS_SDN3 | 5.67 | 2.00 |
| 1005 | 20' X 5' RCBC @ BOULDER | P | 80 | 1,451 | C5689 | IS_SDN3 | 5.67 | 2.00 |
| 1020 | RIPRAP LEVEE 4 B'D 2:1 SS | P | 3,000 | 1,451 | C5689 | IS_SDN3 | 5.67 | 2.00 |
| 1021 | UNLINED CHNL 25'W 5'D 2:1 SS | P | 3,000 | 1,451 | C5689 | IS_SDN3 | 5.67 | 2.00 |
| 1049 | 6' X 5' RCBC @ OLD BENN | P | 50 | 301 | 5 | IS_SDN3 | 0.42 | 2.00 |
| 1050 | RIPRAP LEVEE 5'D 2:1 SS | P | 3,800 | 301 | 5 | IS_SDN3 | 0.42 | 4.50 |
| 1051 | UNLINED CHNL 50'W 2'D 2:1 SS | P | 3,900 | 301 | 5 | IS_SDN3 | 0.42 | 4.50 |
| ISWE | INDIAN SPRINGS WEST | | | | | | | |
| 0099 | 10' X 4' RCBC @ US 95 | E | 150 | 242 | 1* | IS_SDN3 | 1.44 | 1.00 |
| 0100 | RIPRAP CHNL D'W 3':1 SS | E | 820 | 28 | WESTDB | IS_SDN3 | 2.50 | 1.80 |
| 0498 | 11,863 CFS PMF SPILLWAY | E | - | 11,853 | DB | IS_SDN3 | - | - |
| 0499 | 48" RCP OUTLET W/ 18" ORIFICE PLATE | E | 350 | 28 | WESTDB | IS_SDN3 | 2.50 | 1.80 |
| 0500 | 92.9 AC-FT INDIAN SPRINGS DETENTION BASIN | E | - | 485 | DB | IS_SDN3 | 2.50 | - |
| 1000 | 190L CEMENT LEVEE B'D 0:1 SS | E | 3,080 | 352 | 3 | IS_SDN3 | 0.74 | 0.30 |
| 1001 | UNLINED CHNL 100'W 5'D 4:1 SS W/ RCC DROPS | E | 3,080 | 352 | 3 | IS_SDN3 | 0.74 | 0.30 |

*The HEC-HMS node shown identifies the controlling concentration point for the associated facility and is located upstream of the facility due to decreasing peak flow with increasing tributary area caused by storm distribution transients, depth area reduction factors, or attenuation of flow from routing.
For parallel facilities, the existing facility flow equals its normal depth capacity, and the proposed parallel facility flow equals the remaining flow (i.e. HEC-HMS node flow = existing facility normal depth capacity + proposed parallel facility flow).

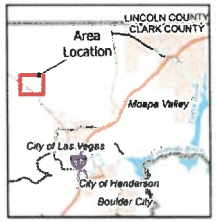
REGIONAL FLOOD CONTROL DISTRICT

CLARK COUNTY NEVADA

# 2024 FLOOD CONTROL MASTER PLAN UPDATE CLARK COUNTY OUTLYING AREAS

## FIGURE ES-4 INDIAN SPRINGS FLOOD CONTROL FACILITIES

- Existing Unlined Channel
- Existing Lined Channel
- Existing Storm Drain
- Existing Levee
- Proposed Unlined Channel
- Proposed Lined Channel
- Proposed Levee
- Proposed Storm Drain
- Existing Basin
- Existing Local Drainage Facility
- IDMile Separator

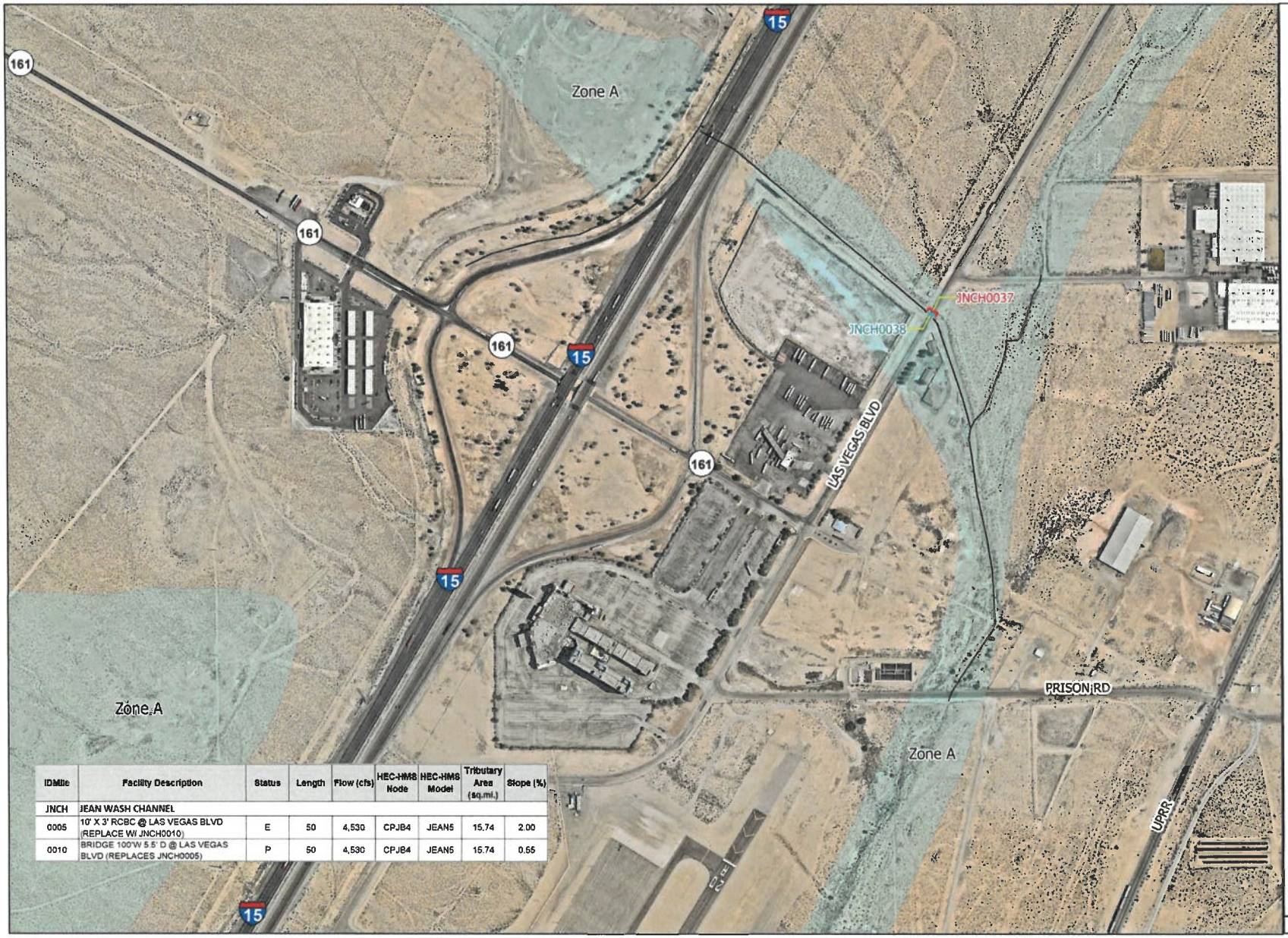



N

0 400 800 Feet

1 inch=800 feet

Prepared By: CCRFCD | Date: 7/3/2024




| ID/Mile | Facility Description | Status | Length | Flow (cfs) | HEC-HMS Node | HEC-HMS Model | Tributary Area (sq.mi.) | Slope (%) |
|---|---|---|---|---|---|---|---|---|
| JNCH | JEAN WASH CHANNEL | | | | | | | |
| 0005 | 10' X 3' RCBC @ LAS VEGAS BLVD (REPLACE W/ JNCH0010) | E | 50 | 4,530 | CPJB4 | JEAN5 | 15.74 | 2.00 |
| 0010 | BRIDGE 100'W 5.5' D @ LAS VEGAS BLVD (REPLACES JNCH0005) | P | 50 | 4,530 | CPJB4 | JEAN5 | 15.74 | 0.55 |

REGIONAL FLOOD CONTROL DISTRICT

CLARK COUNTY NEVADA

**2024 FLOOD CONTROL MASTER PLAN UPDATE**
**CLARK COUNTY OUTLYING AREAS**

**FIGURE ES-5**
**JEAN**
**FLOOD CONTROL FACILITIES**

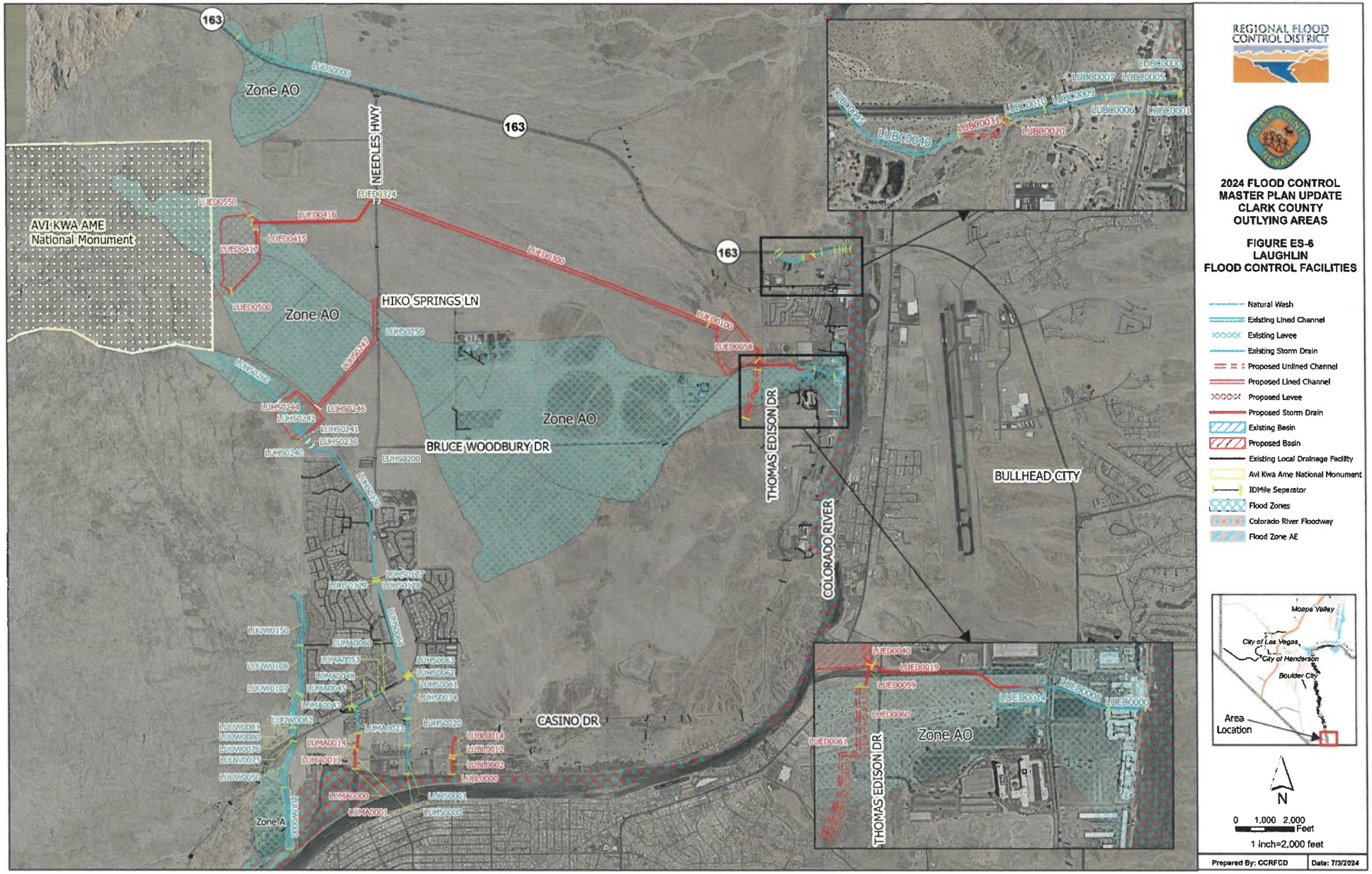
- Proposed Bridge
- Existing Storm Drain
- Existing Local Drainage Facility
- Flood Zone A


N

0 250 500 Feet

1 inch=500 feet

Prepared By: CCRFCD | Date: 7/3/2024


163
Zone AO
NEEDLES HWY
AVI KWA AME
National Monument
HIKO SPRINGS LN
BRUCE WOODBURY DR
CASINO DR
THOMAS EDISON DR
COLORADO RIVER
BULLHEAD CITY
Zone A
REGIONAL FLOOD CONTROL DISTRICT
CLARK COUNTY NEVADA
2024 FLOOD CONTROL MASTER PLAN UPDATE
CLARK COUNTY OUTLYING AREAS
FIGURE ES-6
LAUGHLIN
FLOOD CONTROL FACILITIES
Natural Wash
Existing Lined Channel
Existing Levee
Existing Storm Drain
Proposed Unlined Channel
Proposed Lined Channel
Proposed Levee
Proposed Storm Drain
Existing Basin
Proposed Basin
Existing Local Drainage Facility
Avi Kwa Ame National Monument
IDMile Separator
Flood Zones
Colorado River Floodway
Flood Zone AE
Moapa Valley
City of Las Vegas
City of Henderson
Boulder City
Area Location
N
0 1,000 2,000 Feet
1 inch=2,000 feet
Prepared By: CCRFCD
Date: 7/3/2024

| IDMile | Facility Description | Status | Length | Flow | HEC-HMS Node | HEC-HMS Model | Tributary Area (sq.mi.) | Channel Slope (%) |
|---|---|---|---|---|---|---|---|---|
| **LUBC** | **LAUGHLIN - BRIDGE CANYON** | | | | | | | |
| 0000 | ENERGY DISSIPATOR | E | 30 | 567 | BC-1 | HIKO3 | 1.13 | |
| 0001 | 8' X 5' RCB | E | 145 | 567 | BC-1 | HIKO3 | 1.13 | 2.70 |
| 0005 | 8' X 5' RCB | E | 110 | 567 | BC-1 | HIKO3 | 1.13 | 0.50 |
| 0008 | 8' X 5' RCB | E | 85 | 567 | BC-1 | HIKO3 | 1.13 | 0.87 |
| 0007 | 84" RCP | E | 160 | 567 | BC-1 | HIKO3 | 1.13 | 10.10 |
| 0009 | 84" RCP | E | 460 | 567 | BC-1 | HIKO3 | 1.13 | 2.20 |
| 0010 | 78" RCP | E | 280 | 567 | BC-1 | HIKO3 | 1.13 | 2.20 |
| 0020 | ENERGY DISSIPATOR | P | 50 | 567 | BC-1 | HIKO3 | 1.13 | |
| 0031 | EARTH CHNL 60-85'W 4'D 3:1 SS | P | 380 | 567 | BC-1 | HIKO3 | 1.13 | 0.50 |
| 0040 | BANK STABILIZED CHNL 75'-97' W 6'D 3:1 SS (LEFT BANK) 1:1 SS (RIGHT BANK) | E | 915 | 567 | BC-1 | HIKO3 | 1.13 | 2.70 |
| 0045 | 12' X 7' RCBC @ SR 163 | E | 100 | 567 | BC-1 | HIKO3 | 1.13 | 0.50 |
| **LUBL** | **LAUGHLIN - BAY LAGOON** | | | | | | | |
| 0000 | ENERGY DISSIPATOR | P | 100 | 479 | L1 | HIKO3 | 0.18 | |
| 0002 | 72" RCP | P | 550 | 479 | L1 | HIKO3 | 0.18 | 2.00 |
| 0012 | 72" RCP @ CASINO | P | 100 | 479 | L1 | HIKO3 | 0.18 | 2.00 |
| 0014 | 72" RCP | P | 840 | 479 | L1 | HIKO3 | 0.18 | 2.00 |
| **LUDS** | **LAUGHLIN - DRIPPING SPRINGS** | | | | | | | |
| 0000 | RIPRAP LEVEE 5'D | E | 7,000 | 5,371 | COD1 | HIKO3 | 4.81 | 5.71 |
| **LUED** | **LAUGHLIN - EDISON DRIVE** | | | | | | | |
| 0000 | 90" RCP | E | 400 | 470 | EDDETB | HIKO5 | 14.72 | 0.90 |
| 0008 | 102" RCP | E | 700 | 470 | EDDETB | HIKO5 | 14.72 | 0.20 |
| 0014 | 5 AC-FT CASINO DEBRIS BASIN | E | | 470 | EDDETB | HIKO5 | 14.72 | |
| 0019 | 8' X 6' RCB | P | 1800 | 470 | EDDETB | HIKO5 | 14.72 | 0.50 |
| 0040 | 8' X 6' RCB OUTLET W/ 8' X 4' ORIFICE PLATE | P | 100 | 470 | EDDETB | HIKO5 | 14.72 | 0.50 |
| 0057 | 40,370 CFS PMF SPILLWAY | P | | 40,370 | CBC-2 | HIKO3B | 6.33 | |
| 0058 | 574 AC-FT EDISON DETENTION BASIN | P | | 4,037 | CBC-2 | HIKO3B | 6.33 | |
| 0059 | 15' X 6' RCBC @ BRUCE WOODBURY | P | 100 | 824[A] | BC-2[A] | HIKO3 | 6.07 | 1.00 |
| 0060 | RIPRAP LEVEE 7'D | P | 1,900 | 824[A] | BC-2[A] | HIKO3 | 6.07 | 1.00 |
| 0061 | UNLINED CHNL 50'W 4.5'D 3:1 SS | P | 1,900 | 824[A] | BC-2[A] | HIKO3 | 6.07 | 1.00 |
| 0100 | ENERGY DISSIPATOR | P | 330 | 4,037 | CBC-2 | HIKO3B | 6.33 | |
| 0300 | CONC CHNL 20'W 9'D 2:1SS | P | 12,077 | 4,037 | CBC-2 | HIKO3B | 6.33 | 0.50 |
| 0324 | 4: 8' X 5' RCBC @ NEEDLES | E | 100 | 119 | BCDET | HIKO4 | 8.39 | 0.50 |
| 0415 | 53,460 CFS PMF SPILLWAY | P | | 53,460 | BCDET | HIKO4 | 8.39 | |
| 0416 | 48" RCP | P | 4,500 | 119 | BCDET | HIKO4 | 8.39 | 3.65 |
| 0417 | 1,300 AC-FT BRIDGE CANYON DETENTION BASIN | P | | 7,190 | COB3 | HIKO3 | 7.96 | |
| 0500 | GROUTED RIPRAP BERM 4'W 4'H 4:1 SS | P | 670 | 7,190 | COB3 | HIKO3 | 7.96 | 3.64 |
| 0550 | GROUTED RIPRAP BERM 4'W 4'H 4:1 SS | P | 538 | 7,190 | COB3 | HIKO3 | 7.96 | 3.64 |

| IDMile | Facility Description | Status | Length | Flow | HEC-HMS Node | HEC-HMS Model | Tributary Area (sq.mi.) | Channel Slope (%) |
|---|---|---|---|---|---|---|---|---|
| **LUHS** | **LAUGHLIN - HIKO SPRINGS** | | | | | | | |
| 0000 | ENERGY DISSIPATOR | E | 44 | 1,794 | CK11 | HIKO3B | 1.01 | |
| 0001 | 2: 10' X 8' RCB | E | 1,000 | 1,794 | CK11 | HIKO3B | 1.01 | 0.50 |
| 0020 | 102" RCP | E | 713 | 1,794 | CK11 | HIKO3B | 1.01 | 3.34 |
| 0034 | 96" RCP | E | 1,700 | 1,675 | CK9 | HIKO3B | 0.95 | 3.53 |
| 0061 | TRANSITION STRUCTURE @ NEEDLES | E | 35 | 1,332 | CK3 | HIKO3B | 0.77 | |
| 0062 | INLET STRUCTURE @ NEEDLES | E | 35 | 1,332 | CK3 | HIKO3B | 0.77 | |
| 0063 | 4: 8' X 4' RCBC @ NEEDLES | E | 100 | 1,332 | CK3 | HIKO3B | 0.77 | 2.00 |
| 0064 | 96" RCP | E | 3,200 | 1,332 | CK3 | HIKO3B | 0.77 | 3.73 |
| 0127 | TRANSITION STRUCTURE @ EL MIRAGE | E | 35 | 856 | CK1 | HIKO5 | 20.51 | |
| 0128 | INLET STRUCTURE @ EL MIRAGE | E | 35 | 856 | CK1 | HIKO5 | 20.51 | |
| 0129 | 4: 12' X 6' RCBC @ EL MIRAGE | E | 100 | 856 | CK1 | HIKO5 | 20.51 | 2.00 |
| 0130 | 84" RCP | E | 5,500 | 856 | CK1 | HIKO5 | 20.51 | 2.05 |
| 0200 | 6: 10' X 5' RCBC @ NEEDLES | E | 100 | 312 | U4-2 | HIKO3 | 0.13 | 0.50 |
| 0236 | CONC CHNL 30'W 4'D 0:1 SS | E | 132 | 833 | DET B | HIKO5 | 20.04 | 0.50 |
| 0240 | 32,144 CFS PMF SPILLWAY | E | | 32,144 | BC | HIKO5 | 20.04 | |
| 0241 | 8' X 6' RCB OUTLET W/ 82" ORIFICE PLATE | E | 500 | 833 | DET B | HIKO5 | 20.04 | 2.50 |
| 0242 | 1,568 AC-FT HIKO SPRINGS WASH DETENTION BASIN | E | | 9,534 | BC | HIKO5 | 20.04 | |
| 0244 | ADD 308 AC-FT TO HIKO SPRINGS WASH DETENTION BASIN | P | | 9,534 | BC | HIKO5 | 20.04 | |
| 0246 | ENERGY DISSIPATOR | P | 100 | 703 | U4 | HIKO3 | 0.76 | |
| 0247 | CONC CHNL 12'W 6.5'D 2:1 SS | P | 4,800 | 703 | U4 | HIKO3 | 0.76 | 0.83 |
| 0250 | 3: 10' X 6' RCBC @ NEEDLES | E | 100 | 312 | U4-2 | HIKO3 | 0.13 | 0.50 |
| 0260 | NATURAL WASH | E | 2,700 | 9,481 | ADDBC | HIKO5 | 19.28 | 4.40 |
| **LUMA** | **LAUGHLIN - MARINA** | | | | | | | |
| 0000 | ENERGY DISSIPATOR | P | 100 | 789 | CY2 | HIKO3 | 0.34 | |
| 0001 | 10' X 6' RCB | P | 716 | 789 | CY2 | HIKO3 | 0.34 | 2.00 |
| 0013 | 10' X 6' RCB @ CASINO | P | 100 | 789 | CY2 | HIKO3 | 0.34 | 2.00 |
| 0014 | 10' X 6' RCB | P | 434 | 789 | CY2 | HIKO3 | 0.34 | 2.00 |
| 0023 | 10' X 8' RCB | E | 1,086 | 638 | CY1 | HIKO3 | 0.28 | 2.00 |
| 0043 | 61' x 10' INLET STRUCTURE @ NEEDLES | E | 61 | 230 | Y1 | HIKO3 | 0.10 | 1.96 |
| 0045 | 60" RCP | E | 45 | 638 | CY1 | HIKO3 | 0.28 | 1.32 |
| 0048 | 54" RCP | E | 268 | 638 | CY1 | HIKO3 | 0.28 | 2.89 |
| 0053 | 48" RCP | E | 422 | 425 | CK7 | HIKO3 | 0.18 | 2.66 |
| 0060 | 42" RCP | E | 407 | 425 | CK7 | HIKO3 | 0.18 | 4.22 |
| **LUUW** | **LAUGHLIN - UNNAMED WASH** | | | | | | | |
| 0000 | SOIL CEMENT CHNL 50'W 10'D 6:1 SS | E | 2,600 | 4,195 | U6 | HIKO3 | 4.01 | 0.10 |
| 0050 | SOIL CEMENT CHNL 40'W 12'D 3:1 SS | E | 1,300 | 4,195 | U6 | HIKO3 | 4.01 | 0.10 |
| 0075 | 5: 12' X 10' RCBC @ NEEDLES | E | 100 | 4,195 | U6 | HIKO3 | 4.01 | 0.04 |
| 0076 | SOIL CEMENT CHNL 89'W 12'D 1:1 SS | E | 140 | 4,195 | U6 | HIKO3 | 4.01 | 6.00 |
| 0080 | 6,600 CFS SPILLWAY | E | | 6,600 | U6 | HIKO3 | 4.01 | |
| 0081 | 18" CMP OUTLET | E | 200 | 4,195 | U6 | HIKO3 | 4.01 | 2.00 |
| 0082 | 251 AC-FT UNNAMED WASH BEBRIS BASIN | E | | 4,195 | U6 | HIKO3 | 4.01 | |
| 0096 | SOIL CEMENT CHNL 190'W 8'D 1:1 SS | E | 500 | 4,195 | U6 | HIKO3 | 4.01 | 5.50 |
| 0107 | BAFFLED APRON ENERGY DISSIPATOR | E | 102 | 4,195 | U6 | HIKO3 | 4.01 | 66.10 |
| 0108 | SOIL CEMENT CHNL 100'W 8'D 1:1 SS | E | 1,650 | 4,195 | U6 | HIKO3 | 4.01 | 2.00 |
| 0150 | SOIL CEMENT CHNL 50'W 8.5'D 1:1 SS | E | 2,000 | 4,195 | U6 | HIKO3 | 4.01 | 2.70 |

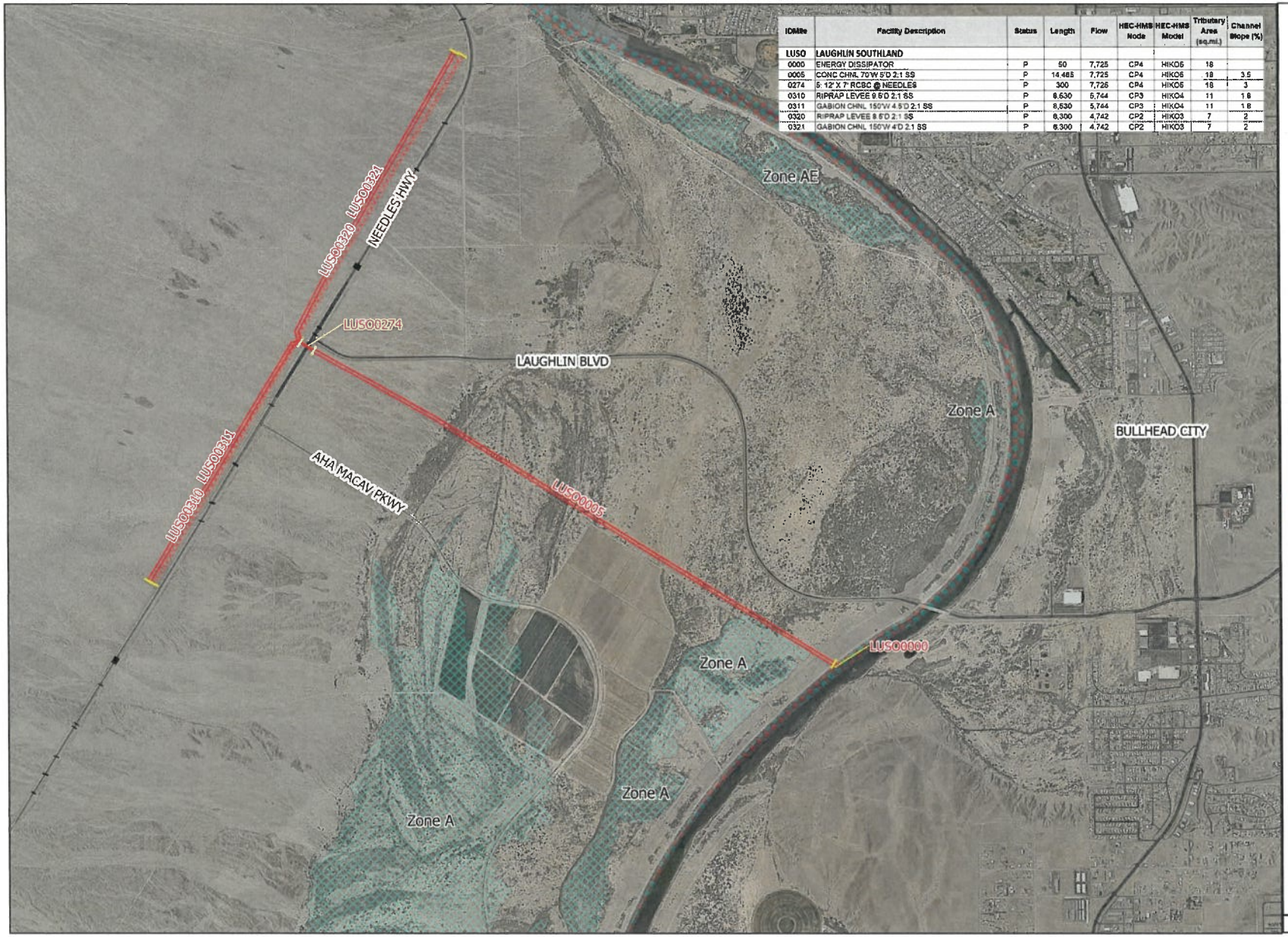
[A] For parallel facilities, the existing facility flow equals its normal depth capacity, and the proposed parallel facility flow equals the remaining flow (i.e. HEC-HMS1 Node flow = existing facility normal depth capacity + proposed parallel facility flow)

REGIONAL FLOOD CONTROL DISTRICT

**2024 FLOOD CONTROL MASTER PLAN UPDATE**
**CLARK COUNTY OUTLYING AREAS**

**FIGURE ES-6.1**
**LAUGHLIN**
**FLOOD CONTROL FACILITIES**


Prepared By: CCRFCD | Date: 7/3/2024




| IDMile | Facility Description | Status | Length | Flow | HEC-HMS Node | HEC-HMS Model | Tributary Area (sq.mi.) | Channel Slope (%) |
|---|---|---|---|---|---|---|---|---|
| LUSO | LAUGHLIN SOUTHLAND | | | | | | | |
| 0000 | ENERGY DISSIPATOR | P | 50 | 7,725 | CP4 | HIKO5 | 18 | |
| 0005 | CONC CHNL 70'W 5'D 2:1 SS | P | 14,485 | 7,725 | CP4 | HIKO5 | 18 | 3.5 |
| 0274 | 5- 12' X 7' RCBC @ NEEDLES | P | 300 | 7,725 | CP4 | HIKO5 | 18 | 3 |
| 0310 | RIPRAP LEVEE 9.5'D 2:1 SS | P | 8,630 | 5,744 | CP3 | HIKO4 | 11 | 1.8 |
| 0311 | GABION CHNL 150'W 4.5'D 2:1 SS | P | 8,630 | 5,744 | CP3 | HIKO4 | 11 | 1.8 |
| 0320 | RIPRAP LEVEE 8.5'D 2:1 SS | P | 8,300 | 4,742 | CP2 | HIKO3 | 7 | 2 |
| 0321 | GABION CHNL 150'W 4'D 2:1 SS | P | 8,300 | 4,742 | CP2 | HIKO3 | 7 | 2 |

REGIONAL FLOOD CONTROL DISTRICT

CLARK COUNTY NEVADA

**2024 FLOOD CONTROL MASTER PLAN UPDATE**
**CLARK COUNTY OUTLYING AREAS**

**FIGURE ES-6A**
**LAUGHLIN SOUTHLAND FLOOD CONTROL FACILITIES**

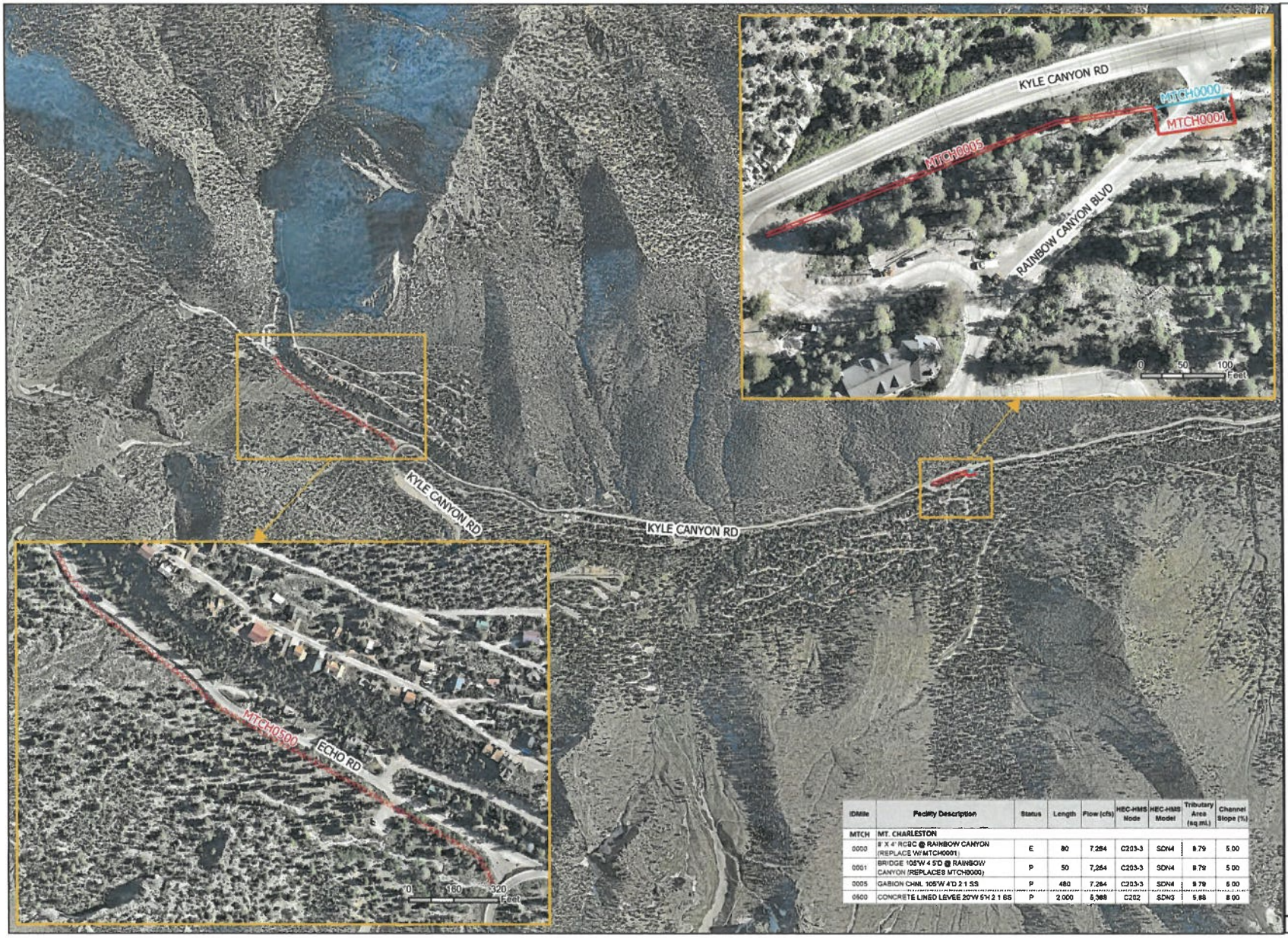
- Proposed Lined Channel
- Proposed Levee
- Proposed Storm Drain
- Existing Local Drainage Facility
- IDMile Separator
- Flood Zone
- Coloardo River Floodway


N

0 1,000 2,000 Feet

1 Inch=2,000 feet

Prepared By: CCRFCD | Date: 7/3/2024




| ID/Mile | Facility Description | Status | Length | Flow (cfs) | HEC-HMS Node | HEC-HMS Model | Tributary Area (sq.mi.) | Channel Slope (%) |
|---|---|---|---|---|---|---|---|---|
| MTCH | MT. CHARLESTON | | | | | | | |
| 0000 | 8' X 4' RCBC @ RAINBOW CANYON (REPLACE W/ MTCH0001) | E | 80 | 7,264 | C203-3 | SDN4 | 9.79 | 5.00 |
| 0001 | BRIDGE 105'W 4 5'D @ RAINBOW CANYON (REPLACES MTCH0000) | P | 50 | 7,264 | C203-3 | SDN4 | 9.79 | 5.00 |
| 0005 | GABION CHNL 105'W 4'D 2:1 SS | P | 480 | 7,264 | C203-3 | SDN4 | 9.79 | 5.00 |
| 0500 | CONCRETE LINED LEVEE 20'W 5'H 2:1 SS | P | 2,000 | 5,368 | C202 | SDN3 | 5.86 | 8.00 |

REGIONAL FLOOD CONTROL DISTRICT

CLARK COUNTY NEVADA

**2024 FLOOD CONTROL MASTER PLAN UPDATE CLARK COUNTY OUTLYING AREAS**

**FIGURE ES-7 MT. CHARLESTON FLOOD CONTROL FACILITIES**

- Proposed Bridge
- Existing Storm Drain
- Proposed Lined Channel
- Proposed Levee


N

0 650 1,300 Feet

1 inch=1,300 feet

Prepared By: CCRFCD | Date: 7/3/2024


| IDMile | Facility Description | Status | Length | Flow (cfs) | HEC-HMS Node | HEC-HMS Model | Tributary Area (sq.mi.) | Channel Slope (%) |
|---|---|---|---|---|---|---|---|---|
| NLSN | NELSON | | | | | | | |
| 0000 | ENERGY DISSIPATOR | P | 50 | 1,446 | 2 | SDN3 | 1.29 | |
| 0001 | 2: 12' X 5' RCBC @ SR 165 | P | 35 | 1,446 | 2 | SDN3 | 1.28 | 4.00 |
| 0017 | GABION CHNL 25'W 4.5'D 3:1 SS W/ 10 DROP STRUCTURES | P | 1,787 | 1,446 | 2 | SDN3 | 1.29 | 4.00 |

REGIONAL FLOOD CONTROL DISTRICT

CLARK COUNTY NEVADA

**2024 FLOOD CONTROL MASTER PLAN UPDATE**
**CLARK COUNTY OUTLYING AREAS**

**FIGURE ES-8**
**NELSON**
**FLOOD CONTROL FACILITIES**

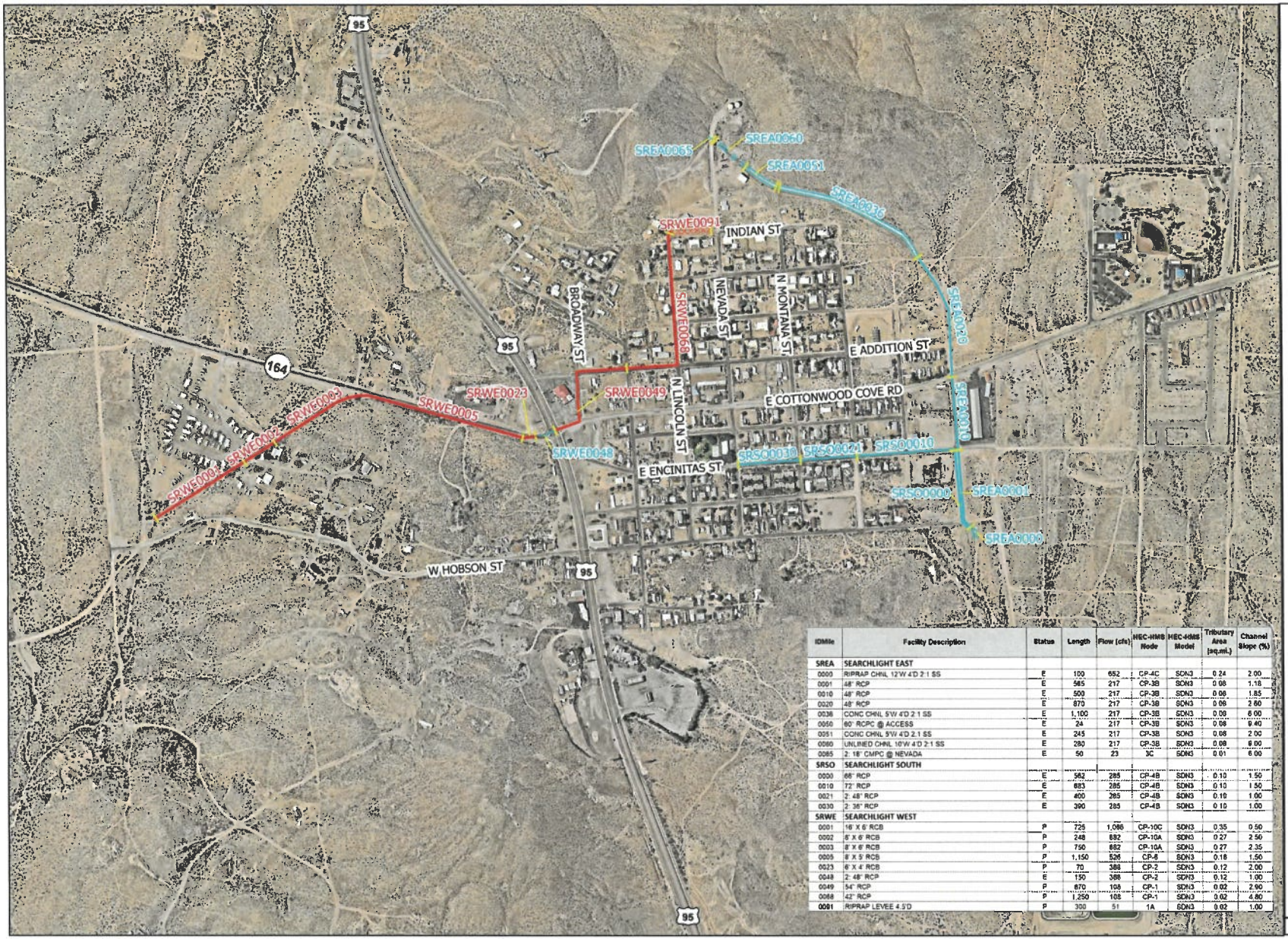
Proposed Lined Channel
Proposed Storm Drain
IDMile Separator


N

0 175 350 Feet

1 inch=350 feet

Prepared By: CCRFCD | Date: 7/3/2024




| IDMile | Facility Description | Status | Length | Flow (cfs) | HEC-HMS Node | HEC-HMS Model | Tributary Area (sq.mi.) | Channel Slope (%) |
|---|---|---|---|---|---|---|---|---|
| SREA | SEARCHLIGHT EAST | | | | | | | |
| 0000 | RIPRAP CHNL 12'W 4'D 2:1 SS | E | 100 | 652 | CP-4C | SDN3 | 0.24 | 2.00 |
| 0001 | 48" RCP | E | 585 | 217 | CP-3B | SDN3 | 0.08 | 1.18 |
| 0010 | 48" RCP | E | 500 | 217 | CP-3B | SDN3 | 0.08 | 1.85 |
| 0020 | 48" RCP | E | 870 | 217 | CP-3B | SDN3 | 0.08 | 2.60 |
| 0030 | CONC CHNL 5'W 4'D 2:1 SS | E | 1,100 | 217 | CP-3B | SDN3 | 0.08 | 6.00 |
| 0050 | 60" RCPC @ ACCESS | E | 24 | 217 | CP-3B | SDN3 | 0.08 | 9.40 |
| 0051 | CONC CHNL 5'W 4'D 2:1 SS | E | 245 | 217 | CP-3B | SDN3 | 0.08 | 2.00 |
| 0060 | UNLINED CHNL 10'W 4'D 2:1 SS | E | 280 | 217 | CP-3B | SDN3 | 0.08 | 6.00 |
| 0065 | 2: 18" CMPC @ NEVADA | E | 50 | 23 | 3C | SDN3 | 0.01 | 6.00 |
| SRSO | SEARCHLIGHT SOUTH | | | | | | | |
| 0000 | 66" RCP | E | 562 | 285 | CP-4B | SDN3 | 0.10 | 1.50 |
| 0010 | 72" RCP | E | 883 | 285 | CP-4B | SDN3 | 0.10 | 1.50 |
| 0021 | 2: 48" RCP | E | 400 | 285 | CP-4B | SDN3 | 0.10 | 1.00 |
| 0030 | 2: 36" RCP | E | 390 | 285 | CP-4B | SDN3 | 0.10 | 1.00 |
| SRWE | SEARCHLIGHT WEST | | | | | | | |
| 0001 | 16' X 6' RCB | P | 725 | 1,086 | CP-10C | SDN3 | 0.35 | 0.50 |
| 0002 | 8' X 6' RCB | P | 248 | 882 | CP-10A | SDN3 | 0.27 | 2.50 |
| 0003 | 8' X 6' RCB | P | 750 | 882 | CP-10A | SDN3 | 0.27 | 2.35 |
| 0005 | 6' X 5' RCB | P | 1,150 | 526 | CP-6 | SDN3 | 0.18 | 1.50 |
| 0023 | 6' X 4' RCB | P | 70 | 388 | CP-2 | SDN3 | 0.12 | 2.00 |
| 0048 | 2: 48" RCP | E | 150 | 386 | CP-2 | SDN3 | 0.12 | 1.00 |
| 0049 | 54" RCP | P | 870 | 108 | CP-1 | SDN3 | 0.02 | 2.90 |
| 0068 | 42" RCP | P | 1,250 | 108 | CP-1 | SDN3 | 0.02 | 4.80 |
| 0091 | RIPRAP LEVEE 4.5'D | P | 300 | 51 | 1A | SDN3 | 0.02 | 1.00 |

REGIONAL FLOOD CONTROL DISTRICT

CLARK COUNTY NEVADA

**2024 FLOOD CONTROL MASTER PLAN UPDATE**
**CLARK COUNTY OUTLYING AREAS**

**FIGURE ES-9**
**SEARCHLIGHT FLOOD CONTROL FACILITIES**

- Existing Unlined Channel
- Existing Lined Channel
- Existing Storm Drain
- Proposed Levee
- Proposed Storm Drain
- IDMile Separator


N

0 350 700 Feet

1 Inch=700 feet

Prepared By: CCRFCD | Date: 7/3/2024