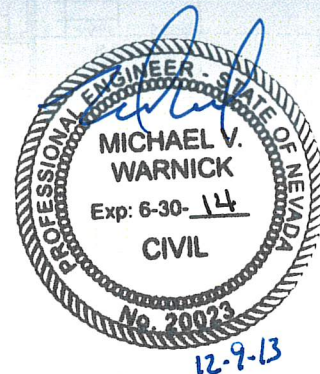




December 2013

**Response to Comments on the
Conditional Letter of Map Revision
and Letter of Map Revision**

**Las Vegas Wash - Sloan Channel to Bonanza Road
and Flamingo Wash - Below I-515**

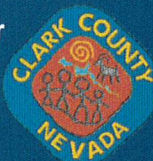


CLOMR Case Number: 13-09-2947R

LOMR Case Number: 13-09-3209P

WBC080613204111LAS

Prepared for



Prepared by

CH2MHILL®
Stanley Consultants INC.



The purpose of this document is to address comments received from FEMA dated November 6, 2013 and November 20, 2013, regarding the above-referenced project. The comments address both the Las Vegas Wash and the Flamingo Wash CLOMR and the Flamingo Wash LOMR.

Letter dated November 6, 2013

Comment: "1. The mixed flow regime was used to generate the WSELs of the base (1-percent-annual-chance) flood in the submitted pre and post project HEC-RAS model along Flamingo Wash and the post project HEC-RAS model along Las Vegas Wash. Floodplain boundary delineations may be based on supercritical flow depths only along concrete-lined engineered channels. Please revise the model to reflect the subcritical flow regime or explain why this is not necessary."

Response: The hydraulic models have been revised. The pre and post project HEC-RAS models along the Flamingo Wash and the post project HEC-RAS model along the Las Vegas Wash have used a mixed flow regime to determine the results within the concrete-lined engineered channels. The portion of the project along the Flamingo Wash and the Las Vegas Wash that is not concrete-lined has used a subcritical regime to determine the boundary delineations for this portion of the project. A comparison table of the results and the models have been provided in Appendices B and C.

Comment: "2. Our review revealed that the floodway run found in the submitted proposed conditions HEC-RAS hydraulic model was not based on an encroachment analysis. Please revise the submitted proposed conditions HEC-RAS hydraulic model to include an analysis of the regulatory floodway that is based on the encroached base (1-percent-annual-chance) flood. Please be sure that the surcharges do not exceed the 1-foot maximum allowed and there are no negative surcharges. In addition, please ensure that the floodway topwidths found in the HEC-RAS hydraulic model match the approximate floodway topwidths shown on the topographic work map entitled "Figure 6.1-Post-Project Conditions Work Map Las Vegas Wash and Figure 5.1-Pre-Project Conditions Work Map Las Vegas Wash", prepared by C2HMHILL, dated 2013."

Response: The hydraulic model has been updated to include an encroachment analysis. The floodway model utilized the same method established in the 2008 Restudy. The initial run was carried out using method 4 encroachment with 0.8 feet. A second profile was generated using these results and then applying method 1. The results of this profile were determined to be the final floodway. The proposed improvements to the Las Vegas Wash eliminate the lateral weirs that allowed flow to breakout of the wash right-of-way. There are a few cross sections that show negative surcharges, further encroachment of the floodway resulted larger negative surcharges. The topographic work maps have been updated to match the calculated topwidths of the encroachment analysis for the Las Vegas Wash.

Comment: "3. The submitted maps entitled, "Figure 6.1-Post-Project Conditions Work Map Las Vegas Wash, Figure 5.1-Pre-Project Conditions Work Map Las Vegas Wash, Figure 6.2-Post-Project Conditions Work Map Flamingo Wash and Figure 5.2-Pre-Project Conditions Work Map Flamingo Wash prepared by C2HMHILL, dated 2013, do not provide essential information required to complete our detailed review of this request. Please provide the following information, which was omitted from the submitted topographic work map.

- (a) Locations, alignment, and label for all pre and post project Cross Sections in digital format. The previously submitted Auto CAD files as well as paper copies are missing some of the cross section lines as well as locations and labels.
- (b) Please extend all cross sections across entire floodplain
- (c) Digital data for the topographic contour information
- (d) Please provide GIS data for the above-referenced topographic work map. Please ensure the digital data is spatially referenced as well as includes what projection (coordinate system, example: UTM/State Plane) was used so that it may be used for accurate mapping purposes or explain why this is not necessary."

Response: Each Cross Section has been labeled and shown on the work maps. Some cross sections do not extend across the entire floodplain in the pre-project conditions for the Las Vegas Wash, these sections were analyzed and the breakout flow boundaries were established in the 2008 Restudy Mapping, see Appendix D. Lateral weirs were utilized to establish breakout flows in the floodplain model. This breakout flow will be eliminated with the channel improvements and was not further analyzed in the Pre-Project condition, therefore sections were not extended across the entire existing floodplain in these areas. Updated digital and GIS data has been included on the Data CD, see Appendix E.

Comment: "4. This CLOMR request will be processed by FEMA only after FEMA receives documentation from the requestor that demonstrates compliance with the Endangered Species Act (ESA). The requestor must demonstrate ESA compliance by submitting to FEMA either an Incidental Take Permit, Incidental Take Statement, "not likely to adversely affect" determination from the National Marine Fisheries Service or the US Fish and Wildlife Service (collectively known as "the Services"), or an official letter from the Services concurring that the project has "No Effect" on listed species or critical habitat.

If the project is likely to cause jeopardy or adverse modification to species, then FEMA may deny the Conditional LOMC request. Please see the enclosed guidance for additional information about the ESA and compliance requirements and for responses to frequently asked questions."

Response: The project is not likely to cause jeopardy or adverse modification to species and is in compliance with the Endangered Species Act. A letter has been included, see Appendix D, documenting the 12 species listed as threatened and endangered that are known to occur in Clark County, Nevada and the rationale used to determine compliance. Furthermore, biological resources were also analyzed in the Section 8 Project Specific Environmental Assessment report as part of the *Supplemental Programmatic Environmental Impact Statement, Clark County Regional Flood Control District 2002 Master Plan Update, Final September 2004*. A biological survey of the project area did not find any threatened, endangered, or sensitive species. Restrictions on construction activities include providing a biological monitor for the project and a no work buffer zone around active nests of birds. Additionally, a Permit has been issued for the project pursuant to Section 404 of the Clean Water Act, Department of the Army Permit SPK-2012-01327-SG, see Appendix D.

Letter dated November 20, 2013

Comment: "1. The mixed flow regime was used to generate the WSELs of the base (1-percent-annual-chance) flood in the submitted pre project HEC-RAS model along Flamingo Wash. Floodplain

boundary delineations may be based on supercritical flow depths only along concrete-lined engineered channels. Please revise the model to reflect the subcritical flow regime or explain why this is not necessary."

Response: The hydraulic models have been revised. The pre and post project HEC-RAS models along the Flamingo Wash use a mixed flow regime to determine the results within the concrete-lined engineered channel, until the hydraulic jump downstream of Nellis Boulevard. The portion of the project along the Flamingo Wash, downstream of Nellis Boulevard, including the part that is not concrete-lined, uses a subcritical regime to determine the boundary delineations for this portion of the project. A comparison table of the results and the models have been provided in Appendix C.

Comment: "2. The submitted maps entitled, "Figure 5.2-Pre-Project Conditions Work Map Flamingo Wash", prepared by C2HMHILL, dated 2013, do not provide essential information required to complete our detailed review of this request. Please provide the following information, which was omitted from the submitted topographic work map.

- (a) Locations, alignment, and label for all pre and post project Cross Sections in digital format. The previously submitted Auto CAD files as well as paper copies are missing some of the cross section lines as well as locations and labels.
- (b) Please extend all cross sections across entire floodplain
- (c) Please revise the stream centerline to be within the floodplain between Cross Sections 380 and 390
- (d) Digital data for the topographic contour information
- (e) Please provide GIS data for the above-referenced topographic work map. Please ensure the digital data is spatially referenced as well as includes what projection (coordinate system, example: UTM/State Plane) was used so that it may be used for accurate mapping purposes or explain why this is not necessary.

Response: Each Cross Section has been labeled and shown on the work maps. Sections have been extended across the floodplain. The stream centerline was adjusted. Updated digital and GIS data has been included on the Data CD, see Appendix E.

Comment: "3. The downstream reach lengths shown in the submitted hydraulic analysis at Cross Sections 191, 311, and 341 do not match the approximate downstream reach lengths shown on the above-referenced topographic work map. Please make the appropriate changes, or explain why this is not necessary."

Response: Reach lengths have been adjusted according to as-built information and proposed cross sections in the hydraulic models and verified in the hydraulic analysis.

Comment: "4. The base floodplain topwidths shown in the pre project conditions HEC-RAS hydraulic analysis at cross sections 100, 80, and 50 do not match the approximate base floodplain topwidths shown on the above-referenced topographic work map. Please provide an explanation for these discrepancies, or make the appropriate changes."

Response: Topwidths have been adjusted on the work map and verified in the hydraulic analysis.



NATIONAL FLOOD INSURANCE PROGRAM

FEMA PRODUCTION AND TECHNICAL SERVICES CONTRACTOR

November 6, 2013

Mr. Michael Warnick, P.E.
Project Manager
CH2MHILL
2485 Village Drive, Suite 350
Henderson, NV 89074

IN REPLY REFER TO:
Case No.: 13-09-2947R
Communities: City of Las Vegas and
Clark County, NV
Community Nos.: 325276 320003

316-AD

Dear Mr. Warnick:

This responds to your request dated August 6, 2013, that the Department of Homeland Security's Federal Emergency Management Agency (FEMA) issue a conditional revision to the Flood Insurance Rate Map (FIRM) for Clark County, NV and Incorporated Areas. Pertinent information about the request is listed below.

Identifier:	Las Vegas Wash – Sloane Channel to Bananza
Flooding Source:	Las Vegas Wash and Flamingo Wash
FIRM Panel(s) Affected:	32003C2187F, 32003C2195F, and 32003C2190F

The data required to complete our review, which must be submitted within 90 days of the date of this letter, are listed on the enclosed summary.

If we do not receive the required data within 90 days, we will suspend our processing of your request. Any data submitted after 90 days will be treated as an original submittal and will be subject to all submittal/payment procedures, including the flat review and processing fee for requests of this type established by the current fee schedule. A copy of the notice summarizing the current fee schedule, which was published in the *Federal Register*, is available on the FEMA website at http://www.fema.gov/plan/prevent/fhm/firm_fees.shtm for your information.

FEMA receives a very large volume of requests and cannot maintain inactive requests for an indefinite period of time. Therefore, we are unable to grant extensions for the submission of required data/fees for revision requests. If a requester is informed by letter that additional data are required to complete our review of a request, the data/fee **must** be submitted within 90 days of the date of the letter. Any fees already paid will be forfeited for any request for which the requested data are not received within 90 days.

LOMC Clearinghouse, 847 South Pickett Street, Alexandria, VA 22304 PH: 1-877-FEMA MAP

BakerAECOM, under contract with the FEDERAL EMERGENCY MANAGEMENT AGENCY, is a
Production and Technical Services Contractor for the National Flood Insurance Program

If you have general questions about your request, FEMA policy, or the National Flood Insurance Program, please call the FEMA Map Information eXchange (FMIX), toll free, at 1-877-FEMA MAP (1-877-336-2627). If you have specific questions concerning your request, please contact your case reviewer, Mrs. Sloane Weidmann, by e-mail at sweidmann@mbakercorp.com or by telephone at (720) 514-1116, or the Revisions Coordinator for your request, Mr. Joseph Kuechenmeister, P.E., CFM, at jkuechenmeister@mbakercorp.com or at (720) 479-3181.

Sincerely,



Syed Qayum, CFM
LOMR Technical Manager
BakerAECOM

Enclosure

cc: Ms. Mona Stammetti, P.E.
Design Engineering
Clark County

Mr. Kevin Eubanks, P.E., CFM
Assistant General Manager
Clark County Regional Flood Control District



NATIONAL FLOOD INSURANCE PROGRAM

FEMA PRODUCTION AND TECHNICAL SERVICES CONTRACTOR

Summary of Additional Data Required to Support a Conditional Letter of Map Revision (CLOMR)

Case No.: 13-09-2947R

Requester: Mr. Michael Warnick, P.E.

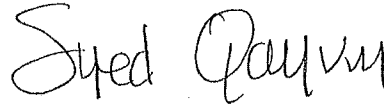
Communities: City of Las Vegas and Clark County, NV Community No.: 325276 and 320003

The issues listed below must be addressed before we can continue the review of your request.

1. The mixed flow regime was used to generate the WSELs of the base (1-percent-annual-chance) flood in the submitted pre and post project HEC-RAS model along Flamingo Wash and the post project HEC-RAS model along Las Vegas Wash. Floodplain boundary delineations may be based on supercritical flow depths only along concrete-lined engineered channels. Please revise the model to reflect the subcritical flow regime or explain why this is not necessary.
2. Our review revealed that the floodway run found in the submitted proposed conditions HEC-RAS hydraulic model was not based on an encroachment analysis. Please revise the submitted proposed conditions HEC-RAS hydraulic model to include an analysis of the regulatory floodway that is based on the encroached base (1-percent-annual-chance) flood. Please be sure that the surcharges do not exceed the 1-foot maximum allowed and there are no negative surcharges. In addition, please ensure that the floodway topwidths found in the HEC-RAS hydraulic model match the approximate floodway topwidths shown on the topographic work map entitled "Figure 6.1-Post-Project Conditions Work Map Las Vegas Wash and Figure 5.1-Pre-Project Conditions Work Map Las Vegas Wash", prepared by C2HMHILL, dated 2013.
3. The submitted maps entitled, "Figure 6.1-Post-Project Conditions Work Map Las Vegas Wash, Figure 5.1-Pre-Project Conditions Work Map Las Vegas Wash, Figure 6.2-Post-Project Conditions Work Map Flamingo Wash and Figure 5.2-Pre-Project Conditions Work Map Flamingo Wash prepared by C2HMHILL, dated 2013, do not provide essential information required to complete our detailed review of this request. Please provide the following information, which was omitted from the submitted topographic work map.
 - (a) Locations, alignment, and label for all pre and post project Cross Sections in digital format. The previously submitted Auto CAD files as well as paper copies are missing some of the cross section lines as well as locations and labels.
 - (b) Please extend all cross sections across entire floodplain
 - (c) Digital data for the topographic contour information
 - (d) Please provide GIS data for the above-referenced topographic work map. Please ensure the digital data is spatially referenced as well as includes what projection (coordinate system, example: UTM/State Plane) was used so that it may be used for accurate mapping purposes or explain why this is not necessary.

If you have general questions about your request, FEMA policy, or the National Flood Insurance Program, please call the FEMA Map Information eXchange (FMIX), toll free, at 1-877-FEMA MAP (1-877-336-2627). If you have specific questions concerning your request, please contact your case reviewer, Mrs. Sloane Weidmann, by e-mail at sweidmann@mbakercorp.com or by telephone at (720) 514-1116, or the Revisions Coordinator for your request, Mr. Joseph Kuechenmeister, P.E., CFM, at jkuechenmeister@mbakercorp.com or at (720) 479-3181.

Sincerely,



Syed Qayum, CFM
LOMR Technical Manager
BakerAECOM

Enclosure

cc: Ms. Mona Stammetti, P.E.
Design Engineering
Clark County

Mr. Kevin Eubanks, P.E., CFM
Assistant General Manager
Clark County Regional Flood Control District



NATIONAL FLOOD INSURANCE PROGRAM

FEMA PRODUCTION AND TECHNICAL SERVICES CONTRACTOR

Summary of Additional Data Required to Support a Conditional Letter of Map Revision (CLOMR)

Case No.: 13-09-3209P

Requester: Mr. Michael Warnick, P.E.

Communities: City of Las Vegas and
Clark County, NV

Community No.: 325276 and 320003

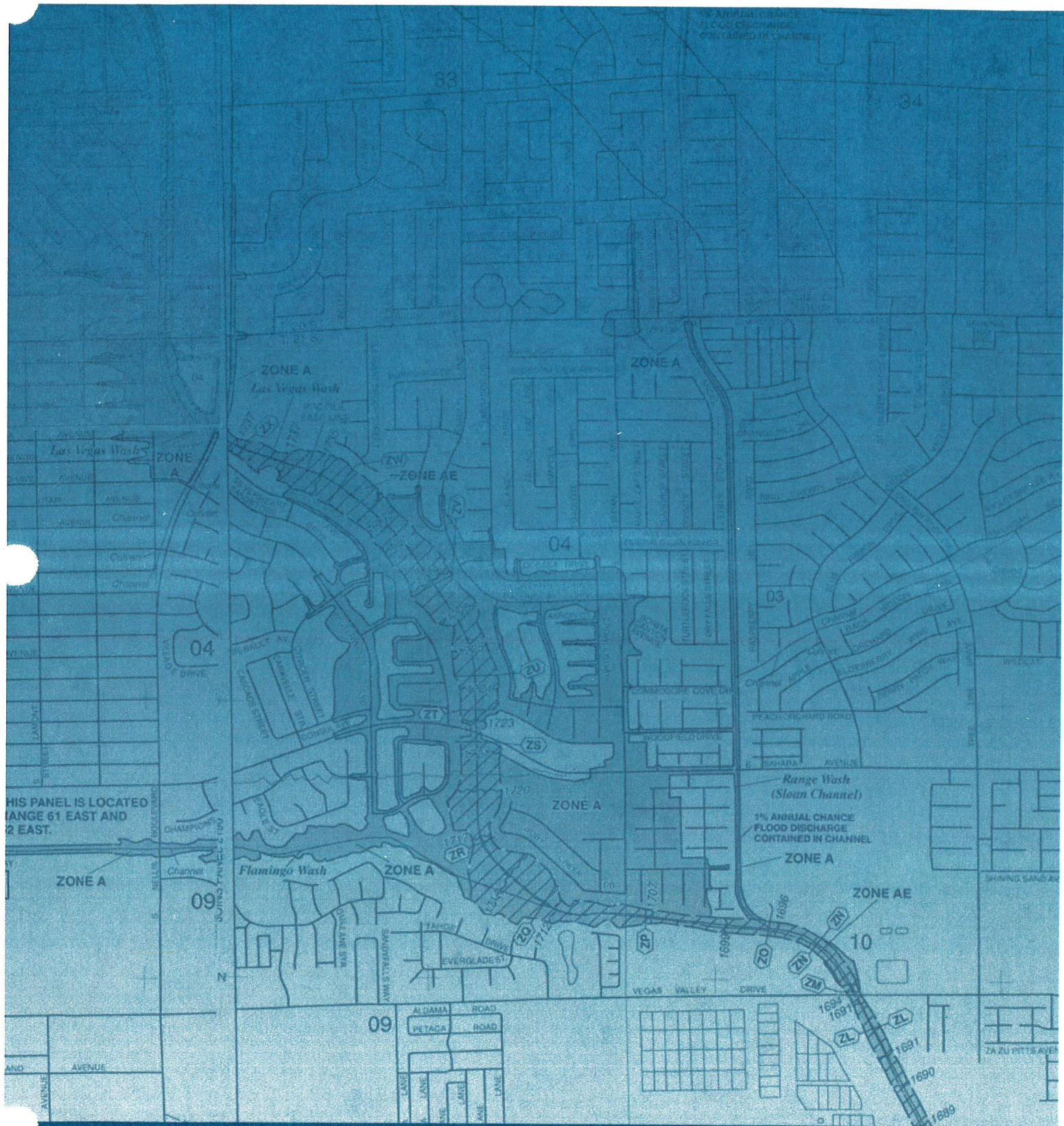
The issues listed below must be addressed before we can continue the review of your request.

1. The mixed flow regime was used to generate the WSELs of the base (1-percent-annual-chance) flood in the submitted pre project HEC-RAS model along Flamingo Wash. Floodplain boundary delineations may be based on supercritical flow depths only along concrete-lined engineered channels. Please revise the model to reflect the subcritical flow regime or explain why this is not necessary.
2. The submitted maps entitled, "Figure 5.2-Pre-Project Conditions Work Map Flamingo Wash", prepared by C2HMHILL, dated 2013, do not provide essential information required to complete our detailed review of this request. Please provide the following information, which was omitted from the submitted topographic work map.
 - (a) Locations, alignment, and label for all pre and post project Cross Sections in digital format. The previously submitted Auto CAD files as well as paper copies are missing some of the cross section lines as well as locations and labels.
 - (b) Please extend all cross sections across entire floodplain
 - (c) Please revise the stream centerline to be within the floodplain between Cross Sections 380 and 390
 - (d) Digital data for the topographic contour information
 - (e) Please provide GIS data for the above-referenced topographic work map. Please ensure the digital data is spatially referenced as well as includes what projection (coordinate system, example: UTM/State Plane) was used so that it may be used for accurate mapping purposes or explain why this is not necessary.
3. The downstream reach lengths shown in the submitted hydraulic analysis at Cross Sections 191, 311, and 341 do not match the approximate downstream reach lengths shown on the above-referenced topographic work map. Please make the appropriate changes, or explain why this is not necessary.
4. The base floodplain topwidths shown in the pre project conditions HEC-RAS hydraulic analysis at cross sections 100, 80, and 50 do not match the approximate base floodplain topwidths shown on the above-referenced topographic work map. Please provide an explanation for these discrepancies, or make the appropriate changes.

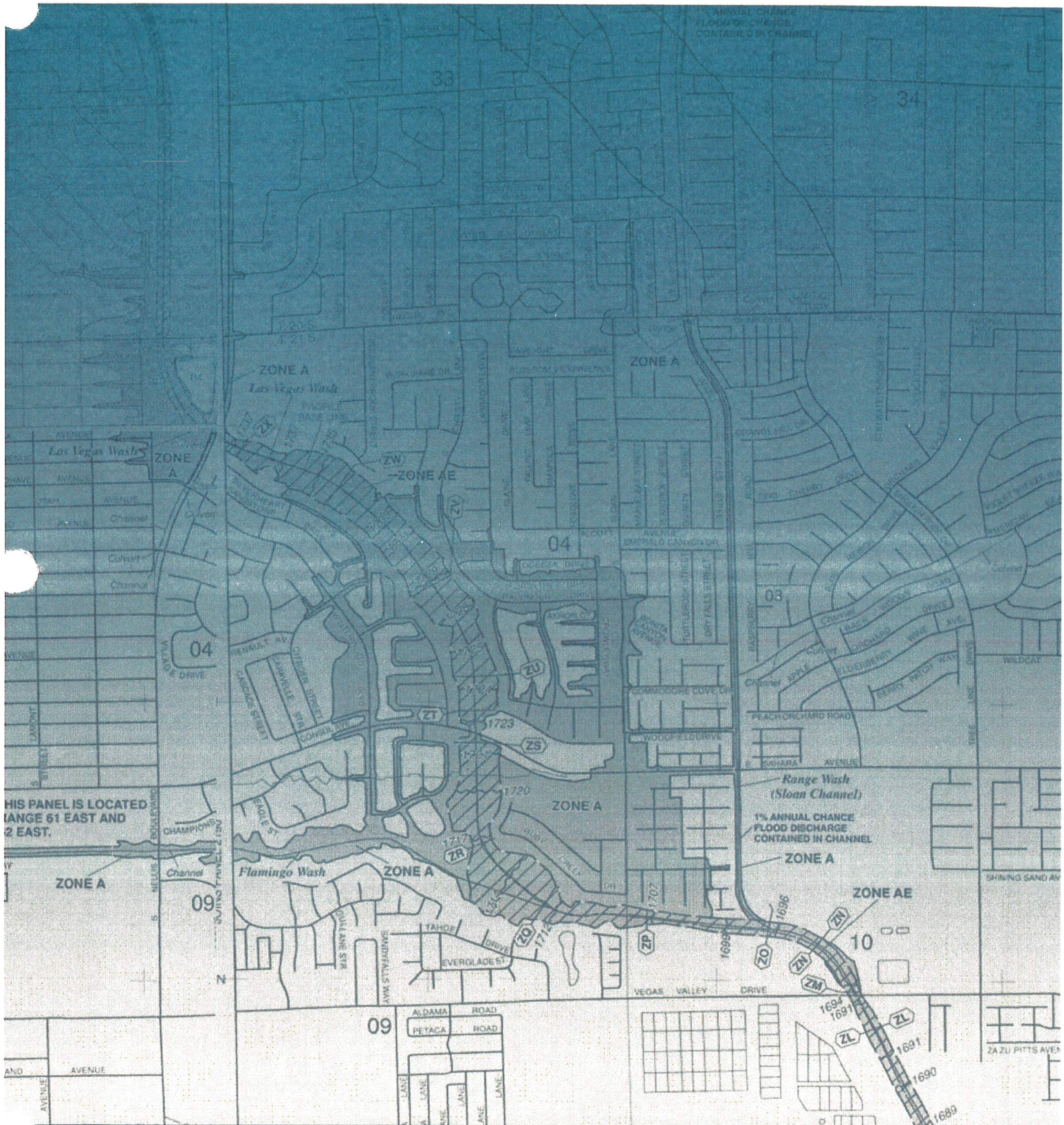
Please send the required data and/or fee directly to us at the address shown at the bottom of this page. For identification purposes, please include the case number referenced above on all correspondence.

LOMC Clearinghouse, 847 South Pickett Street, Alexandria, VA 22304 PH: 1-877-FEMA MAP

BakerAECOM, under contract with the FEDERAL EMERGENCY MANAGEMENT AGENCY, is a
Production and Technical Services Contractor for the National Flood Insurance Program



APPENDIX A FIGURES



Appendix A.1
**Figure 5.1 – Pre-Project Conditions Work Map
 Las Vegas Wash**



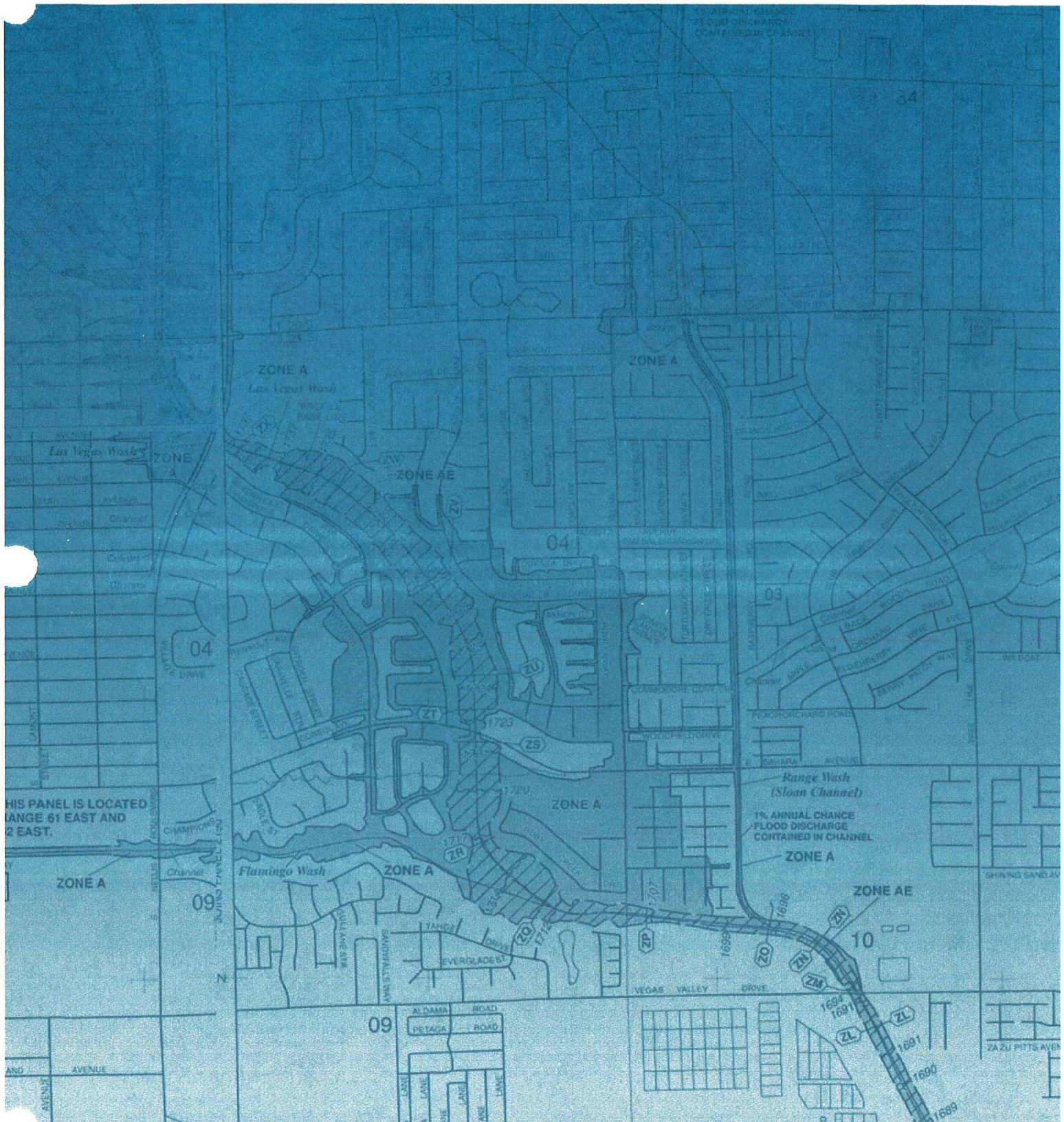
Appendix A.3

Figure 6.1 – Post Project Conditions Work Map

Las Vegas Wash



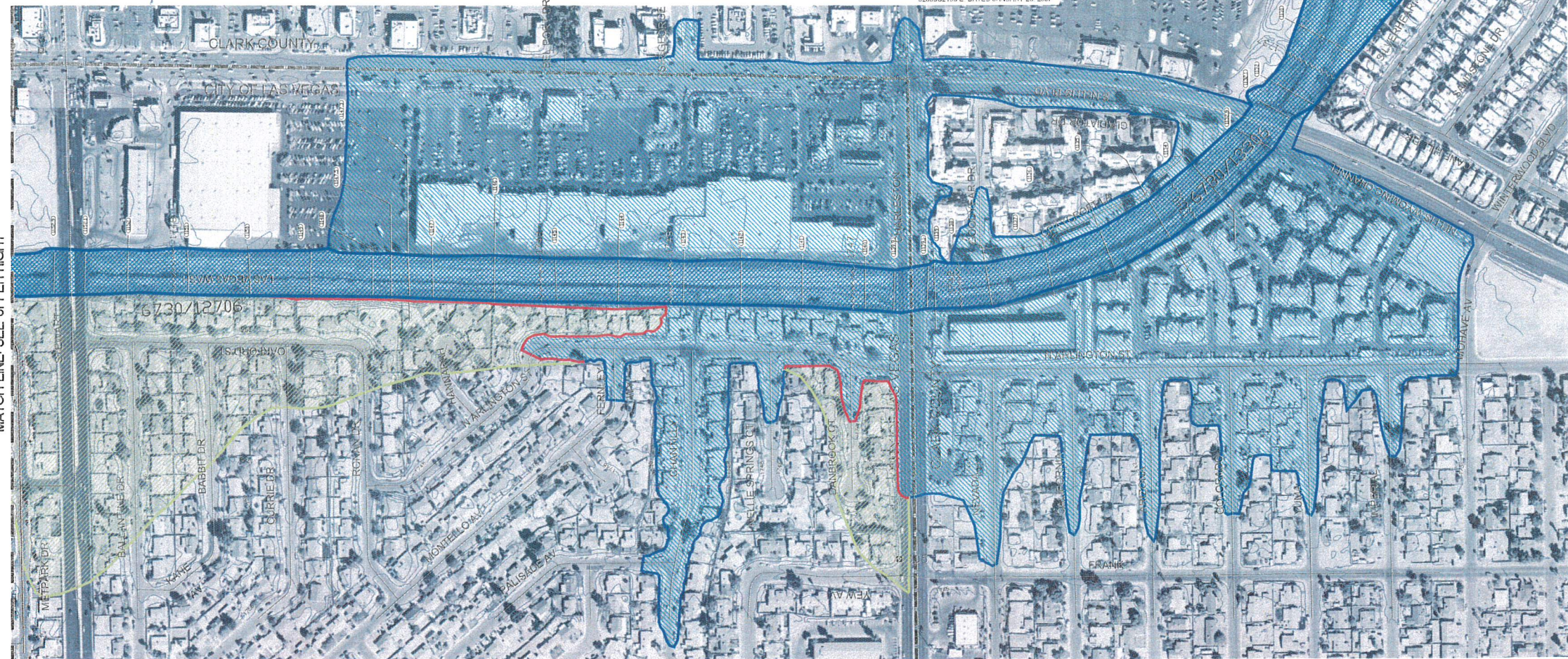
Appendix A.4
Figure 6.2 – Post Project Conditions Work Map
Flamingo Wash





Post-Project Conditions HEC-RAS Output (Mixed Flow Regime)

MATCH LINE: SEE UPPER RIGHT



ELEVATION REFERENCE MARKERS (ERM)			
REFERENCE NUMBER	ELEVATION REFERENCE MARKER ID	ELEVATION (FT. NAVD 88)	LOCATION DESCRIPTION
306	6C02 33W4	1750.92	FOUND 2" BRASS CAP REFERENCE MONUMENT IN TOP OF CURB, NORTHEAST CORNER OF NELLIS BLVD. AND STEWART AVE. NEAR THE PC OF NELLIS BLVD.

NOTES

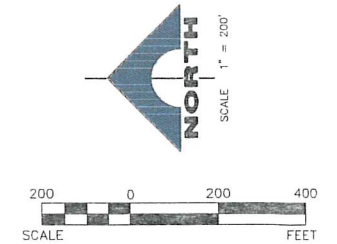
FLOODING SOURCE: LAS VEGAS WASH.
CLARK COUNTY, NEVADA

TOPOGRAPHIC MAPPING
COUNTOUT INTERVAL = 1 FOOT
FLIGHT DATE: MARCH 2007
BY AIRBORNE1

FIRM PANEL(S) AFFECTED:
32003C2187 E DATED SEPTEMBER 27, 2007
32003C2190 E DATED NOVEMBER 20, 2007
32003C2195 E DATED JANUARY 25, 2007

MATCH LINE: SHEET XS4

- | LEGEND | |
|--|--|
|  306 | ELEVATION REFERENCE MARKER |
|  1870 | TOPO CONTOUR |
|  | REVISED 100-YR FLOODPLAIN BOUNDARY, ZONE A |
|  | REVISED 100-YR FLOODWAY BOUNDARY, ZONE AE |
|  | SHADED ZONE X (OUTSIDE OF STUDY LIMIT) |
|  2058 | BASE FLOOD ELEVATION |
|  1270 | HEC-RAS CROSS SECTION |
| 6730/9112 | EFFECTIVE REVISED 100-YEAR FLOW (CFS, FLOODWAY ONLY) |
|  | LIMIT OF STUDY |



G. C. WALLACE COMPANIES
ENGINEERS | PLANNERS | SURVEYORS
1555 S. RAINBOW BOULEVARD • LAS VEGAS NV 89146
T: 702.804.2000 • F: 702.804.2259 • GCWALLACE.COM

CLARK COUNTY
REGIONAL FLOOD CONTROL DISTRICT
LAS VEGAS WASH
FLOOD HAZARD MAPPING RESTUDY
CROSS SECTION EXHIBIT

DRAWING
KS3
OF SHTS

[illegible]

Journal of Management Education 36(1) 1-12

MATCH LINE: SHEET XS3

ELEVATION REFERENCE MARKERS (ERM)			
REFERENCE NUMBER	ELEVATION REFERENCE MARKER ID	ELEVATION (FT, NAVD 88)	LOCATION DESCRIPTION
321	BC12 45SE6	1729.27	FOUND RIVET AND SQUARE ALUMINUM PLATE IN TOP OF CURB, NORTH SIDE OF SAHARA AT THE OVERPASS FOR THE WINTERWOOD GOLF COURSE, ON THE EAST SIDE OF THE BRIDGE
322	BC12 45A	1721.67	FOUND RIVET AND SQUARE ALUMINUM PLATE IN TOP OF CURB, NORTHEAST CORNER OF SAHARA AVE. AND WINTERWOOD BLVD. NEAR THE PC OF SAHARA



LEGEND

- 321 ELEVATION REFERENCE MARKER
- 1870 TOPO CONTOUR
- REVISED 100-YR FLOODPLAIN BOUNDARY, ZONE A
- REVISED 100-YR FLOODWAY BOUNDARY, ZONE AE
- SHADED ZONE X (OUTSIDE OF STUDY LIMIT)
- 2058 BASE FLOOD ELEVATION
- 1270 HEC-RAS CROSS SECTION
- 6730/9112 EFFECTIVE REVISED 100-YEAR FLOW (CFS, FLOODWAY ONLY)
- LIMIT OF STUDY

NOTES

FLOODING SOURCE: LAS VEGAS WASH
CLARK COUNTY, NEVADA

TOPOGRAPHIC MAPPING
CONTOUR INTERVAL = 1 FOOT
FLIGHT DATE: MARCH 2007
BY: AIRBORNE

FIRM PANEL(S) AFFECTED:
32003C2195 E, DATED JANUARY 25, 2007

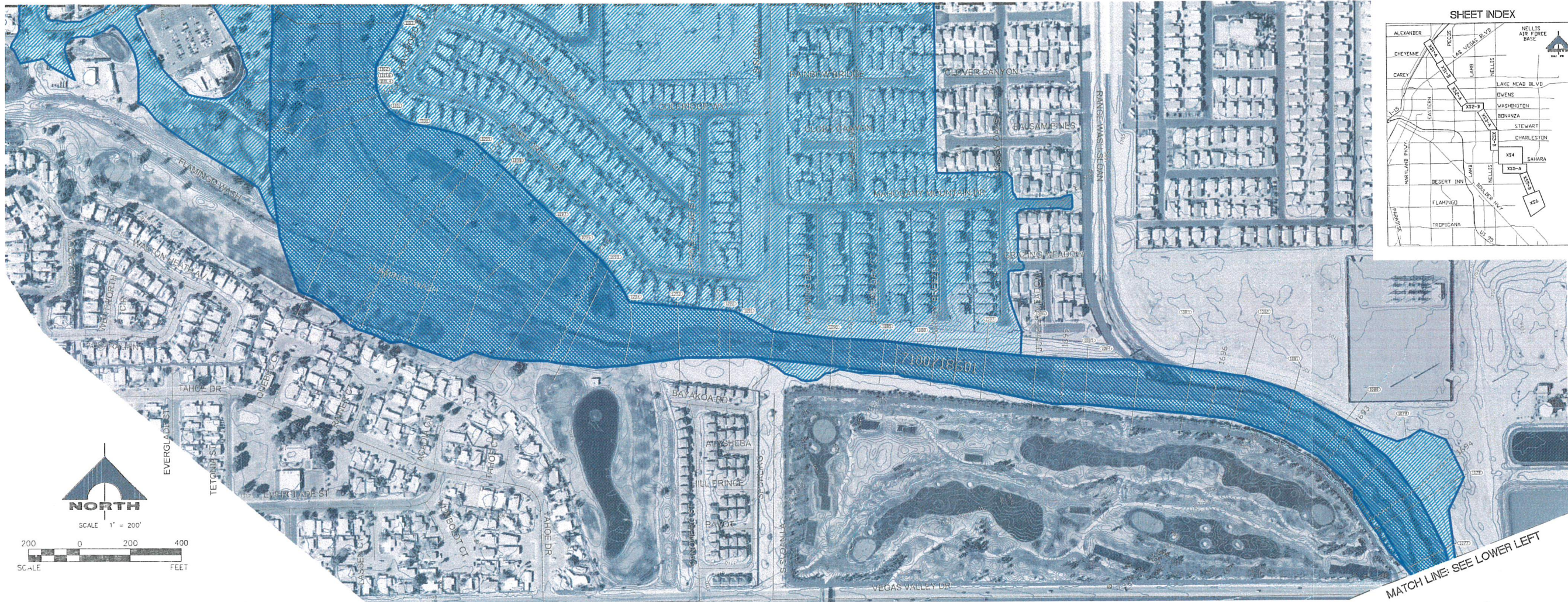
MATCH LINE: SHEET XS5

G. C. WALLACE COMPANIES
ENGINEERS | PLANNERS | SURVEYORS
1855 S. RAINBOW BOULEVARD, LAS VEGAS, NV 89146
P: 702.894.2300 • F: 702.894.2399 • GCWALLACE.COM

CLARK COUNTY
REGIONAL FLOOD CONTROL DISTRICT
LAS VEGAS WASH
FLOOD HAZARD MAPPING RE-STUDY
CROSS SECTION EXHIBIT

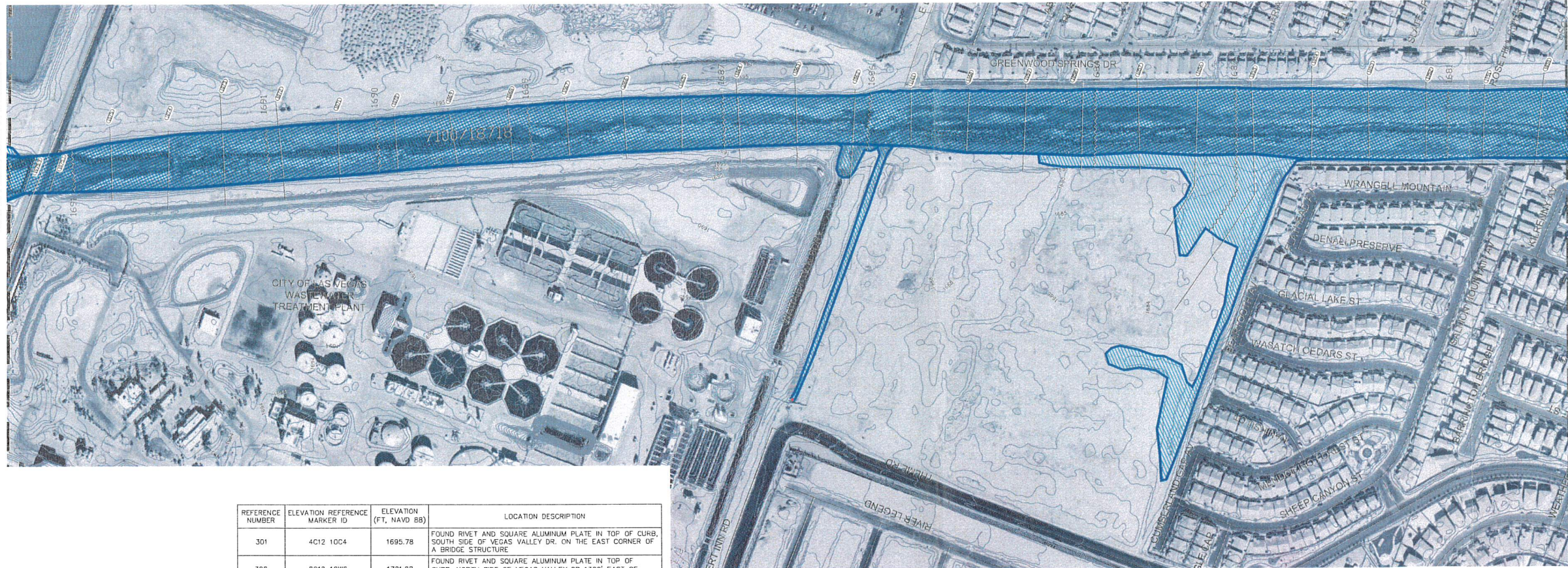
DRAWING
XS4

OF SHTS



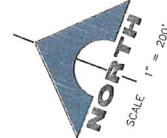
MATCH LINE: SEE LOWER LEFT

MATCH LINE: SEE UPPER RIGHT



LEGEND

- 301 ELEVATION REFERENCE MARKER
- 1870 TOPO CONTOUR
- REVISED 100-YR FLOODPLAIN BOUNDARY, ZONE A
- REVISED 100-YR FLOODWAY BOUNDARY, ZONE AE
- SHADED ZONE X (OUTSIDE OF STUDY LIMIT)
- 2058 BASE FLOOD ELEVATION
- 6730/9112 HEC-RAS CROSS SECTION
- 6730/9112 EFFECTIVE/REVISED 100-YEAR FLOW (CFS, FLOODWAY ONLY)
- LIMIT OF STUDY



SCALE 1" = 200'
200 0 200 400
FEET

NOTES

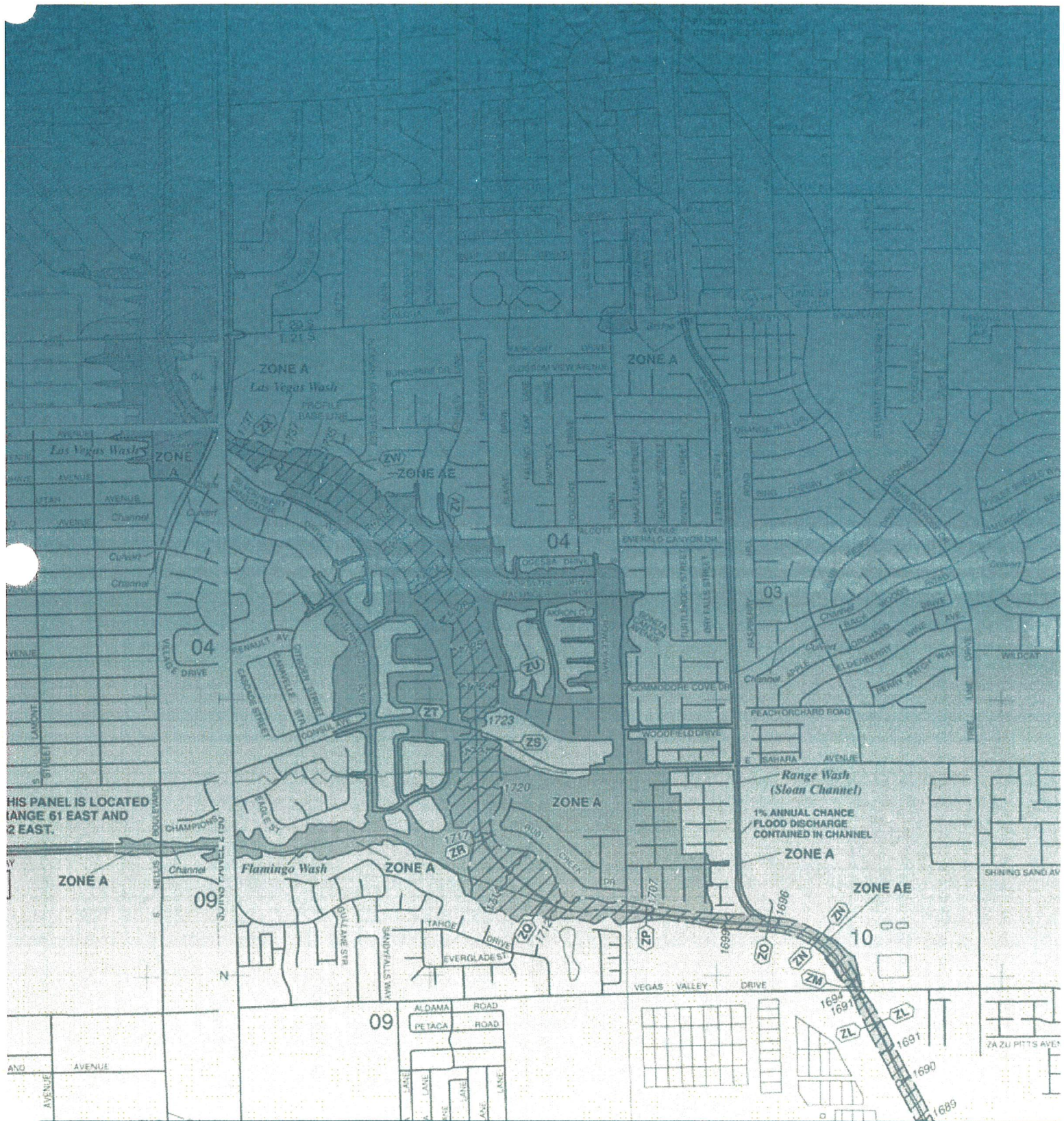
FLOODING SOURCE: LAS VEGAS WASH
CLARK COUNTY, NEVADA
TOPOGRAPHIC MAPPING
COUNTOUT INTERVAL = 1 FOOT
FLIGHT DATE: MARCH 2007
BY AIRBORNE
FIRM PANEL(S) AFFECTED:
32003C2155 E DATED JANUARY 25, 2007
32003C2985 E DATED FEBRUARY 16, 2006

REFERENCE NUMBER	ELEVATION REFERENCE MARKER ID	ELEVATION (FT, NAVD 88)	LOCATION DESCRIPTION
301	4C12 10C4	1695.78	FOUND RIVET AND SQUARE ALUMINUM PLATE IN TOP OF CURB, SOUTH SIDE OF VEGAS VALLEY DR. ON THE EAST CORNER OF A BRIDGE STRUCTURE
302	8C12 10W6	1701.28	FOUND RIVET AND SQUARE ALUMINUM PLATE IN TOP OF CURB, NORTH SIDE OF VEGAS VALLEY DR 1300' EAST OF SLOAN LN. ALIGNMENT

G.C. WALLACE COMPANIES
ENGINEERS | PLANNERS | SURVEYORS
1535 S. RAINBOW BOULEVARD • LAS VEGAS, NV 89146
T: 702.894.2300 • F: 702.894.2299 • GCWALLACE.COM

CLARK COUNTY
REGIONAL FLOOD CONTROL DISTRICT
LAS VEGAS WASH
FLOOD HAZARD MAPPING REESTUDY
CROSS SECTION EXHIBIT

DRAWING
XS5
OF
SHTS





July 16, 2013

Mike Warnick P.E.
CH2M Hill
2485 Village View Drive, Suite 350
Henderson, NV 89074

RE: Endangered Species Act Compliance

Dear Mr. Warnick

Per your request, I am writing to inform you that the proposed Las Vegas Wash Sloan Channel to Bonanza Avenue flood control project is in compliance with the Endangered Species Act (ESA).

12 species listed as threatened and endangered (T&E) under the ESA are known to occur in Clark County, Nevada. The following explanation provides species identification and rationale used to determine if the project is in compliance with the ESA and associated Multiple Species Habitat Conservation Plan (MSHCP) or if compliance with the ESA is not necessary (species don't occur in the project area).

Threatened

Desert tortoise- covered by the Multiple Species Habitat Conservation Program (MSHCP) and incidental take Permit TE 034927-0.

Lahontan cutthroat trout- not covered by the MSHCP and incidental take Permit TE 034927-0. However, no known occurrences of this species occur within the project vicinity and no modeled habitat in the project area and there would be no effect to this species from the proposed action.

Endangered

Southwestern willow flycatcher- covered by the MSHCP and incidental take Permit TE 034927-0.

Yuma clapper rail - not covered by the MSHCP and incidental take Permit TE 034927-0. However, no known occurrences of this species occur within the project vicinity and no modeled habitat in the project area and there would be no effect to this species from the proposed action.

Pahrump poolfish- not covered by the MSHCP and incidental take Permit TE 034927-0. However, no known occurrences of this species occur within the project vicinity and no modeled habitat in the project area and there would be no effect to this species from the proposed action.

Humpback chub - not covered by the MSHCP and incidental take Permit TE 034927-0. However, no known occurrences of this species occur within the project vicinity and no modeled habitat in the project area and there would be no effect to this species from the proposed action.

Bonytail chub - not covered by the MSHCP and incidental take Permit TE 034927-0. However, no known occurrences of this species occur within the project vicinity and no modeled habitat in the project area and there would be no effect to this species from the proposed action.



Virgin River chub - not covered by the MSHCP and incidental take Permit TE 034927-0. However, no known occurrences of this species occur within the project vicinity and no modeled habitat in the project area and there would be no effect to this species from the proposed action.

Moapa dace- not covered by the MSHCP and incidental take Permit TE 034927-0. However, no known occurrences of this species occur within the project vicinity and no modeled habitat in the project area and there would be no effect to this species from the proposed action.

Woundfin- not covered by the MSHCP and incidental take Permit TE 034927-0. However, no known occurrences of this species occur within the project vicinity and no modeled habitat in the project area and there would be no effect to this species from the proposed action.

Colorado pikeminnow- not covered by the MSHCP and incidental take Permit TE 034927-0. However, no known occurrences of this species occur within the project vicinity and no modeled habitat in the project area and there would be no effect to this species from the proposed action.

Razorback sucker- not covered by the MSHCP and incidental take Permit TE 034927-0. However, no known occurrences of this species occur within the project vicinity and no modeled habitat in the project area and there would be no effect to this species from the proposed action.

Biological resources including endangered species were analyzed in the Section 8 Project Specific Environmental Assessment report dated July 14, 2013. If you have any questions, please don't hesitate to contact Sean Milne or myself at (702) 952-2072.

Sincerely,

A handwritten signature in cursive script, appearing to read "Ken MacDonald".

Ken MacDonald, Partner – NewFields



DEPARTMENT OF THE INTERIOR
U.S. FISH AND WILDLIFE SERVICE

1-201
(1/97)

FEDERAL FISH AND WILDLIFE PERMIT

1. PERMITTEE

CLARK COUNTY MSHCP PERMITTEES
(SEE BOX C.1. BELOW)

2. AUTHORITY-STATUTES

16 USC 1539(A)
16 USC 703-712

REGULATIONS (Attached)

50 CFR 17.22
50 CFR 17.32
50 CFR 13
50 CFR 21.27

3. NUMBER

TE034927-0

4. RENEWABLE

☒ YES
☐ NO

5. MAY COPY

☒ YES
☐ NO

6. EFFECTIVE

1/9/01

7. EXPIRES

1/8/31

8. NAME AND TITLE OF PRINCIPAL OFFICER (If #1 is a business)

CYNTHIA J TRUELOVE
PLAN ADMINISTRATOR

9. TYPE OF PERMIT

THREATENED AND ENDANGERED SPECIES

10. LOCATION WHERE AUTHORIZED ACTIVITY MAY BE CONDUCTED

Non-Federal lands in Clark County, Nevada, for cities and Clark County; Nevada Department of Transportation activities in Clark, Nye, Lincoln, Mineral and Esmeralda counties, Nevada, south of the 38th parallel and below 5000 feet elevation.

11. CONDITIONS AND AUTHORIZATIONS:

A. GENERAL CONDITIONS SET OUT IN SUBPART D OF 50 CFR 13, AND SPECIFIC CONDITIONS CONTAINED IN FEDERAL REGULATIONS CITED IN BLOCK #2 ABOVE, ARE HEREBY MADE A PART OF THIS PERMIT. ALL ACTIVITIES AUTHORIZED HEREIN MUST BE CARRIED OUT IN ACCORD WITH AND FOR THE PURPOSES DESCRIBED IN THE APPLICATION SUBMITTED. CONTINUED VALIDITY, OR RENEWAL, OF THIS PERMIT IS SUBJECT TO COMPLETE AND TIMELY COMPLIANCE WITH ALL APPLICABLE CONDITIONS, INCLUDING THE FILING OF ALL REQUIRED INFORMATION AND REPORTS.

B. THE VALIDITY OF THIS PERMIT IS ALSO CONDITIONED UPON STRICT OBSERVANCE OF ALL APPLICABLE FOREIGN, STATE, LOCAL OR OTHER FEDERAL LAW.

C. VALID FOR USE BY PERMITTEE NAMED ABOVE.

- C.1.
- | | |
|--|--|
| a. Clark County
500 S. Grand Central Parkway
Las Vegas, NV 89155
(702) 455-4181 | b. City of Las Vegas
400 East Stewart
Las Vegas, NV 89101
(702) 229-6501 |
| c. City of North Las Vegas
2200 Civic Center Drive
North Las Vegas, NV 89030
(702) 649-5811 | d. City of Henderson
240 Water Street
Henderson, NV 89015
(702) 565-2488 |
| e. City of Boulder City
900 Arizona Street
Boulder City, NV 89024
(702) 293-9282 | f. City of Mesquite
11 E. Mesquite Blvd & Yucca
Mesquite, NV 89024
(702) 346-5295 |
| g. Nevada Department of Transportation
1263 South Stewart Street
Carson City, NV 89712
(702) 689-5440 | |

D. FURTHER CONDITIONS OF AUTHORIZATION ARE CONTAINED IN THE ATTACHED SPECIAL TERMS AND CONDITIONS.

☒ ADDITIONAL CONDITIONS AND AUTHORIZATIONS ALSO APPLY

12. REPORTING REQUIREMENTS

SUED BY

Michael J. Spear

TITLE

MANAGER, CALIF/NEVADA OPERATIONS OFFICE

DATE

11/22/00

U.S. FISH AND WILDLIFE SERVICE, SACRAMENTO, CALIFORNIA
SPECIAL TERMS AND CONDITIONS FOR TE034927-0

- D. All sections of Title 50 Code of Federal Regulations, parts 13, 17.22, and 17.32 are conditions of this permit (Attachments 1).
- E. This permit is not effective until all of the parties have signed the Implementing Agreement.
- F. The authorization granted by this permit is subject to compliance with, and implementation of the Clark County Multiple Species Habitat Conservation Plan (MSHCP), and executed Implementing Agreement, both of which are hereby incorporated into the permit.
- G. The Permittees (Clark County, the cities of Las Vegas, North Las Vegas, Henderson, Boulder city, and Mesquite, and the Nevada Department of Transportation), and agents designated by the Permittees are authorized to take 78 species on the attached list of "Covered Species Subject to Incidental Take" to the extent that take of these species would otherwise be prohibited under section 9 of the Endangered Species Act of 1973, as amended (Act), and its implementing regulations, or pursuant to a rule promulgated under section 4(d) of the Act. For each Covered Species Subject to Incidental Take which is not listed as threatened or endangered under the Act, the section 10(a) permit will become effective with respect to such species concurrent with the listing of the species to the extent that their take is prohibited by the Act. Take must be incidental to otherwise lawful activities as described in the MSHCP, and as conditioned herein. The amount and nature of the take (e.g., harassment, or harm due to habitat loss) is described in the MSHCP for each species and clarified in permit conditions J and K for certain species.
- H. The Permittees shall carry out the minimization, mitigation, and monitoring measures specified in section 2.8 of the MSHCP, and as otherwise stated under the IA. Unless specifically modified by the MSHCP, the minimization, mitigation, and monitoring stated in sections 3C and 3D of the Clark County Desert Conservation Plan (DCP) (Permit PRT 801045) are incorporated by reference and shall remain in effect as written unless later modified through the MSHCP, its adaptive management program, or the Implementation Plan and Budget process.
- I. The Permittees shall ensure that a science-based Adaptive Management Process (AMP) is developed and implemented as specified in the MSHCP and IA. A Memorandum of Agreement will be developed within 9 months of the issuance of the permit among the signatories to the IA conducting conservation actions funded under the MSHCP, and Clark County, to ensure that any management or conservation action that may potentially affect the Covered Species are reviewed by AMP for their effectiveness in the conservation of the species and their habitats.

PERMIT CONDITIONS FOR TE034927-0, cont'd.

- J. The Permittees, in cooperation with the AMP contractor and the Service, shall participate with the land management agencies in development and/or revision of conservation management plans that identify the management and monitoring actions needed for the following areas or Covered Species:
1. Low Elevation Uplands: a) Piute Eldorado Desert Wildlife Management Area (DWMA), b) Coyote Springs Valley DWMA, c) Mormon Mesa DWMA, d) Gold Butte DWMA, and e) catclaw habitats;
 2. Desert Riparian Habitats: a) Muddy River riparian habitat, b) Virgin River riparian habitat, and c) Meadow Valley Wash riparian habitat;
 3. Low Elevation Springs: a) amphibian and aquatic snail species and b) bats;
 4. Low Elevation Plant Species.

The prioritization and schedule for completion of the management plans will be developed within 6 months of permit issuance.

- K. The following conditions apply to covered avian species listed in section 2.1.6 of the MSHCP:

1. Take, with the exception of Peregrine falcon (*Falco peregrinus anatum*) and phainopela (*Phainopepla nitens*); under this permit is conditioned upon the acquisition of private lands in desert riparian habitats along the Muddy and Virgin rivers, and Meadow Valley Wash. The total number and location of acres to be acquired within each watershed will be identified in the conservation management plan (I.2 above) through the AMP and agreed to by the Permittees, the land management agencies, and the Service.
2. No lethal take is authorized. Take of active nests is not permitted at any time.
3. This section 10(a) permit also constitutes a Special Purpose Permit under 50 CFR 21.27 for the take of those Covered Species Subject to Incidental Take which are listed as threatened or endangered under the Act, and which are also protected under the MBTA. Such Special Purpose Permit shall be valid for a period of 3 years from the effective date, provided the section 10(a) permit remains in effect for such period. Such Special Purpose Permit shall be renewed, provided that the Permittees and MSHCP Participants continue to fulfill their obligations under the MSHCP and IA. Each such renewal shall be valid for the maximum period of time allowed by 50 CFR 21.27 or its successor at the time of renewal.

PERMIT CONDITIONS FOR TE034927-0, cont'd.

L. Special restrictions apply to wetland species:

Incidental take of Covered Species due to mortality or habitat loss within U.S. Army Corps of Engineer's (Corps) jurisdictional wetlands is not authorized by this incidental take permit. Incidental take authorization for projects that affect such jurisdictional wetlands shall be authorized through future Section 7 consultations between the Service and the Corps under the Act, pursuant to section 404 of the Clean Water Act. Incidental take of wetland associated or dependent species outside of jurisdictional wetlands will be in accordance with the MSHCP and the IA.

M. Tortoise Translocation Program and other Handling Programs. The Permittees shall continue the desert tortoise translocation developed and implemented under the DCP, and described in section 2.8.3.8 of the MSHCP, for so long as desert tortoise translocation is in effect. On an annual basis, the Permittees must request, in writing, authorization for handling and moving tortoises under this program. Individuals who handle desert tortoises in association with the translocation program or other programs permitted under the MSHCP (as described in section 2.8 of the MSHCP) must be authorized in writing by the Service or be under the direct on-site supervision of authorized personnel. The Permittees will be responsible for quarterly inspection of the fence around the translocation site. In addition, during the tortoise active season (March 1 to October 31), fence inspection will be conducted within 72 hours of a major precipitation event (any rain event that would cause water to flow across the landscape causing soil erosion) and within 10 days during the desert tortoise inactive season (November 1 to February 28). All breaches shall be corrected within 72 hours during the active season and within 10 days during the inactive season.

N. Highway and Road Fencing. The Permittees will continue to retrofit, repair, and construct desert tortoise proof fencing along highways and roads within Clark County in accordance with section 2.8.3.7 of the MSHCP. Each biennial budget shall include the location, number of miles, and dollars allocated to fencing during the next biennium. The Permittees shall be responsible for quarterly inspection and repairs of the highway and road fences in accordance with the provisions identified in item L above when breaches are found.

O. Coyote Springs Valley. Pursuant to this permit only those conditions carried forward from the DCP for the take of desert tortoise will apply to the properties identified in the DCP and MSHCP as Aerojet, which is located in the Coyote Springs Valley.

P. Boulder City Conservation Easement. The Permittees shall ensure that any future development or use of the 85,000-acre conservation easement be consistent with the goals outlined in the DCP which are to protect and manage the desert tortoise and its habitat. Furthermore, the Permittees shall take measures necessary to ensure maintenance in

PERMIT CONDITIONS FOR TE034927-0, cont'd.

perpetuity, of connectivity for desert tortoise and other Covered Species, within the Boulder City Conservation Easement, including an adequate North-South corridor for the desert tortoise, as determined through the AMP.

Q. Monitoring and enforcement:

The Permittees must ensure that Service personnel are given appropriate access (as defined under 50-CFR 13.21(e)(2)) to monitor the Covered Species Subject to Incidental Take within the MSHCP planning area in perpetuity.

1. The Permittees must ensure that the Service's Southern Nevada Field Office (1510 North Decatur Boulevard, Las Vegas, Nevada, 89108, telephone 702-647-5230) or the Nevada Fish and Wildlife Office (1340 Financial Boulevard, Suite 234, Reno, Nevada 89502, telephone 775-861-6300) is contacted immediately regarding any violations of the MSHCP or this permit.
2. Upon finding dead, injured, or sick Covered Species associated with activities authorized under the Incidental Take Permit, the Permittees or designated agents must notify the Fish and Wildlife Service's Division of Law Enforcement at (702) 388-6380 within 5 working days.

R. All reporting for this permit shall be in compliance with sections 2.12.1 and 2.12.2 of the MSHCP. In addition, copies of all reports shall be submitted to the Field Supervisor, Nevada Fish and Wildlife Office, 1340 Financial Boulevard, Suite 234, Reno, Nevada 89502, and to the Assistant Regional Director, Ecological Services, U.S. Fish and Wildlife Service, 911 Northeast 11th Avenue, Portland, Oregon 97232.

S. A copy of this permit must be on file with each of the Permittees. Please refer to the permit number in all correspondence and reports concerning permit activities. Any questions you may have about this permit should be directed to the Field Supervisor, Nevada Fish and Wildlife Office, at 775-861-6300.

PERMIT CONDITIONS FOR TE034927-0, cont'd.

Fish and Wildlife Service Permit TE034927-0

Covered Species Subject to Incidental Take

Reptiles and Amphibians

1. Desert tortoise, *Gopherus agassizii*
2. Glossy snake, *Arizona elegans*
3. Banded gecko, *Coleonyx variegatus*
4. Sidewinder, *Crotalus cerastes*
5. Speckled rattlesnake, *Crotalus mitchelli*
6. Mojave green rattlesnake, *Crotalus scutulatus scutulatus*
7. Great Basin collared lizard, *Crotaphytus insularis bicinctores*
8. Desert iguana, *Dipsosaurus dorsalis*
9. Western red-tailed skink, *Eumeces gilberti rubicaudatus*
10. Large-spotted leopard lizard, *Gambelia wislizenii wislizenii*
11. California (common) king snake, *Lampropeltis getula californiae*
12. Western leaf-nosed snake, *Phyllorhynchus decurtatus*
13. Western long-nosed snake, *Rhinocheilus lecontei lecontei*
14. Sonoran lyre snake, *Trimorphodon biscutatus lambda*
15. Relict-leopard-frog, *Rana onca*

Birds

16. Southwestern willow flycatcher, *Empidonax traillii extimus*
17. American peregrine falcon, *Falco peregrinus anatum*
18. Yellow-billed cuckoo, *Coccyzus americanus*
19. Blue grosbeak, *Guiraca caerulea*
20. Phainopepla, *Phainopepla nitens*
21. Summer tanager, *Piranga rubra*
22. Vermillion flycatcher, *Pyrocephalus rubinus*
23. Arizona Bell's vireo, *Vireo bellii arizonae*

Mammals

24. Silver-haired bat, *Lasiorycteris noctivagans*
25. Long-eared myotis, *Myotis evotis*
26. Long-legged myotis, *Myotis volans*
27. Palmer's chipmunk, *Tamias palmeri*

PERMIT CONDITIONS FOR TE034927-0, cont'd.

Insects

28. Spring Mountains acastus checkerspot, *Chlosyne acastus robusta*
29. Dark blue butterfly, *Euphilotes enoptes purpurea*
30. Morland's checkerspot butterfly, *Euphydryas anicia morandi*
31. Spring Mountains comma skipper, *Hesperia comma mojavenis*
32. Spring Mountains icarioides blue, *Icaricia icarioides austinorum*
33. Mt. Charleston blue butterfly, *Icaricia shasta charlestonensis*
34. Nevada admiral, *Limenitis weidemeyerii nevadae*
35. Carole's silverspot butterfly, *Speyeria zerene carolae*

Crustaceans

36. Spring Mountains springsnail, *Pyrgulopsis deaconi*
37. Southeast Nevada springsnail, *Pyrgulopsis turbatrix*

Plants

38. Blue Diamond cholla, *Opuntia whipplei* var. *multigeniculata*
39. Rough angelica, *Angelica scabrida*
40. Sticky ringstem, *Anulocaulis leisolenus*
41. Charleston-pussytoes, *Antennaria soliceps*
42. Las Vegas bearpoppy, *Arctomecon californica*
43. White bearpoppy, *Arctomecon merriamii*
44. Rosy King sandwort, *Arenaria kingii* ssp. *rosea*
45. Clokey milkvetch, *Astragalus aequalis*
46. Threecorner milkvetch, *Astragalus geyeri* var. *triquetrus*
47. Clokey eggvetch, *Astragalus oophorus* var. *clokeyanus*
48. Spring Mountain milkvetch, *Astragalus remotus*
49. Alkali mariposa lily, *Calochortus striatus*
50. Clokey paintbrush, *Castilleja martinii* var. *clokeyi*
51. Clokey thistle, *Cirsium clokeyi*
52. Jaeger whitlowgrass, *Draba jaegeri*
53. Charleston draba, *Draba paucifructa*
54. Inch high flebane, *Erigeron uncialis* ssp. *conjugans*
55. Forked buckwheat, *Eriogonum bifurcatum*
56. Sticky buckwheat, *Eriogonum viscidulum*
57. Clokey greasebush, *Glossopetalon clokeyi*
58. Smooth pungent greasebush, *Glossopetalon pungens* var. *glabra*
59. Pungent dwarf greasebush, *Glossopetalon pungens* var. *pungens*
60. Red Rock Canyon aster, *Ionactis caelestis*
61. Hidden ivesia, *Ivesia cryptocaulis*

PERMIT CONDITIONS FOR TE034927-0, cont'd.

62. Jaeger ivesia, *Ivesia jaegeri*
63. Hitchcock bladderpod, *Lesquerella hitchcockii*
64. Charleston pinewood lousewort, *Pedicularis semibarbata* var. *charlestonensis*
65. White-margined beardtongue, *Penstemon albomarginatus*
66. Charleston beardtongue, *Penstemon leiophyllus* var. *keckii*
67. Jaeger beartongue, *Penstemon thompsoneae* var. *jaegeri*
68. Parish's phacelia, *Phacelia parishii*
69. Clokey mountain sage, *Salvia dorrii* var. *clokeyi*
70. Clokey catchfly, *Silene clokeyi*
71. Charleston tansy, *Sphaeromeria compacta*
72. Charleston kittentails, *Synthyris ranunculina*
73. Charleston grounddaisy, *Townsendia jonesii* var. *tumulosa*
74. Limestone violet, *Viola purpurea* var. *charlestonensis*
75. *Anacolia menziesii*
76. *Claopodium whippleanum*
77. *Dicranowisia crispula*
78. *Syntrichia princeps*

July 15, 2013

Ms. Mona Stammetti, P.E.
Clark County Public Works
500 South Grand Central Parkway
Las Vegas, Nevada 89155

**RE: LAS VEGAS WASH SLOAN CHANNEL TO BONANZA ROAD SECTION 8
FACILITY SPECIFIC ENVIRONMENTAL ASSESSMENT**

Dear Ms. Stammetti:

INTRODUCTION

This document provides an analysis of the potential environmental impacts related to the construction of the proposed Las Vegas Wash Sloan Channel to Bonanza Road Improvements. The proposed project is located in Las Vegas, Nevada (Figure 1). Master Plan Update (MPU) identification numbers for the proposed project include:

LVMD1149	LVMD1119	LVMD1053	LVMD1032	LVMD0949	LVMD0912	FLWA0001
LVMD1148	LVMD1071	LVMD1054	LVMD1033	LVMD0924	LVMD0908	
LVMD1176	LVMD1070	LVMD1046	LVMD0973	LVMD0925	LVMD0882	
LVMD1120	LVMD1068	LVMD1047	LVMD0974	LVMD0915	LVMD0883	
LVMD1121	LVMD1069	LVMD1048	LVMD0950	LVMD0916	FLWA0000	

This facility specific environmental analysis was conducted pursuant to Chapter 8 of the *Supplemental Programmatic Environmental Impact Statement, Clark County Regional Flood Control District 2002 Master Plan Update, Final September 2004* (BLM 2004), hereafter referred to as the SEIS, which outlines the process necessary to determine the appropriate level of National Environmental Policy Act (NEPA) documentation for a particular facility.

PROJECT LOCATION

The project is located in Section 32 of Township 20 South, Range 62 East, Clark County, Nevada, and Sections 4, 9, and 10 of Township 21 South, Range 62 East, Clark County, Nevada. The northern end of the project is located at Bonanza Road. The southern end of the project is located 1,100 feet east of Sloan Lane (Figure 1).

PROJECT DESCRIPTION

The proposed improvements include approximately 20,665 feet (3.9 miles) of flood control upgrades within the existing public right-of-way (ROW). The existing ROW varies from 140 feet to almost 870 feet (at the confluence with the Flamingo Wash) in width and is designated as Flood Channel, Public, or Clark County Parks and Community Service lands. The existing ROW is confined on both sides by existing residential and commercial development. Typical daily

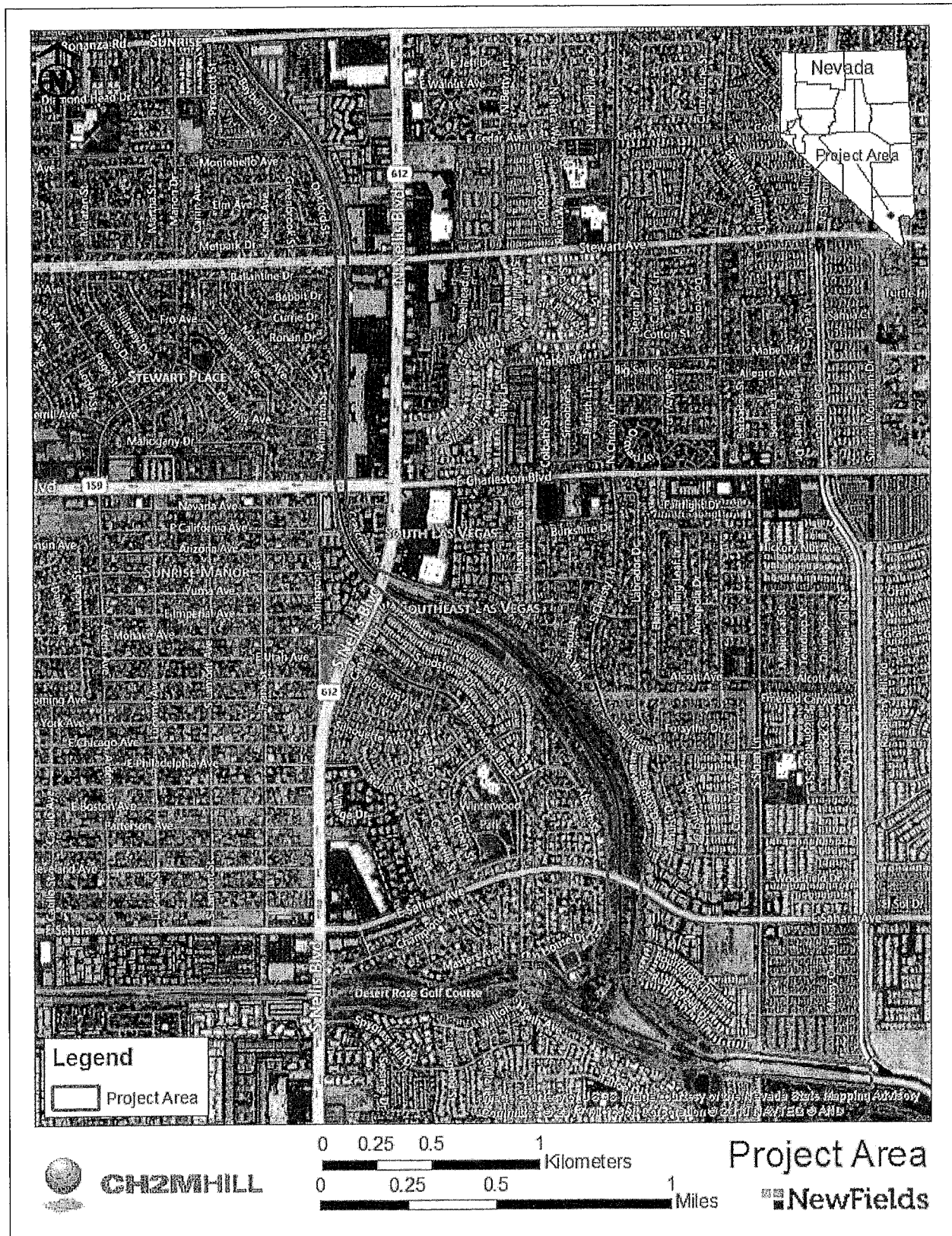


Figure 1. Las Vegas Wash Sloan Channel to Bonanza Road Improvements Project Area

flows in the Las Vegas Wash within the project area are 9 cubic feet per second (cfs) and 10 cfs in the Flamingo Wash. The proposed improvements would include reinforced concrete lining, confluence structures, transition structures, bridge construction, roadway reconstruction, golf course reconstruction including a low flow channel, storm drain inlets, accommodation for existing large diameter sewer, trail, and overhead utility facilities.

There are five major bridge roadway crossings of the Las Vegas Wash within the Proposed Project. They are:

- Bonanza Road
- Stewart Avenue
- Charleston Boulevard
- Nellis Boulevard
- Sahara Avenue

The existing bridge structures are at varying stages of design life and have dissimilar conveyance capacities. Major tributary facilities to the Las Vegas Wash within the Proposed Project area include a trapezoidal concrete channel at Cedar Avenue and at Nellis Boulevard, a Reinforced Concrete Box (RCB) at Colorado Avenue, the Flamingo Wash, and the Sloan Channel.

The proposed area from Bonanza Road to the center of Charleston Boulevard is within the jurisdiction of the City of Las Vegas. The remainder of the project area is within unincorporated Clark County (Sunrise Manor).

The upstream portion of the project, between Bonanza Road and Nellis Boulevard, is approximately 6,900 feet long. This reach consists of an existing partially improved channel section within an approximately 150 foot wide ROW that includes sections of rip rap or concrete slope lining and articulated concrete block on the invert. There is an existing 66 inch sanitary sewer facility along the west side of the ROW that will be accommodated with the proposed channel improvements. The capacity of the Charleston Bridge would be increased by lowering the existing channel invert and protecting the existing 51 inch sanitary sewer that is attached to the underside of the bridge structure. The Bonanza Road, Stewart Avenue and Nellis Boulevard bridge structures will be protected with channel lining under the structures.

The middle portion of the project on the Las Vegas Wash, located between Nellis Boulevard and the confluence with the Flamingo Wash, is approximately 7,800 feet long. The improvements on the Flamingo Wash, between Nellis Boulevard and the confluence, are approximately 3,800 feet long. This reach of the Proposed Project is located within the existing Desert Rose Golf Course. The Golf Course reach consists of an approximately 450 foot to 575 foot wide grass-lined channel section with a varying cross-section to accommodate the golf course layout. The golf course will be regraded and reconfigured to convey the 100-year design storm event flow within the ROW. The channel capacity of the Sahara Bridge will be increased by removing the existing bridge and constructing a larger bridge. The existing Flamingo Wash concrete channel will be extended approximately 500 feet downstream of the Nellis Boulevard Bridge and the channel invert lowered up to 12 feet to lower the water surface and create a stilling basin for a hydraulic jump to occur before the grass-lined channel through the golf course. There are three existing golf cart bridges within the golf course that will be relocated or replaced. An upstream existing concrete low-flow valley gutter along the Las Vegas Wash and Reinforced Concrete Pipe (RCP)

along both the Flamingo Wash convey the constant nuisance flows. These will be replaced with a concrete low-flow channel along the Flamingo and Las Vegas Washes.

The downstream portion of the Proposed Project, between the confluence with the Flamingo Wash and the Sloan Channel confluence, is approximately 1,600 feet long. This reach consists of a partially improved channel section within an approximately 300 foot wide ROW that includes reinforced concrete slope lining on the north side of the channel. The south wall and the invert of the existing section are both earthen. There is a sheet pile weir located in the channel at the Sloan Lane alignment to protect the sewer siphons located under the Wash. The existing reinforced concrete trapezoidal channel section begins approximately 350 feet upstream of the Sloan Channel Confluence, and the proposed channel improvements will tie into this section.

SECTION 8 SCREENING

The preliminary project-specific analysis process shown in Figure 2 specifies that preliminary screening analyses be conducted for a series of potentially impacted resources. If no potential impacts are documented, the SEIS and associated Decision Record directs that a letter or memorandum documenting the review process should be prepared and submitted to the appropriate agencies. The project can then proceed without further analysis. This level of documentation conforms to the Bureau of Land Management Categorical Exclusion level of NEPA documentation.

NewFields conducted such screenings utilizing existing documents and other resources such as the SEIS and the Clark County Regional Flood Control District (CCRFCD) Flood Zone Advanced web site.

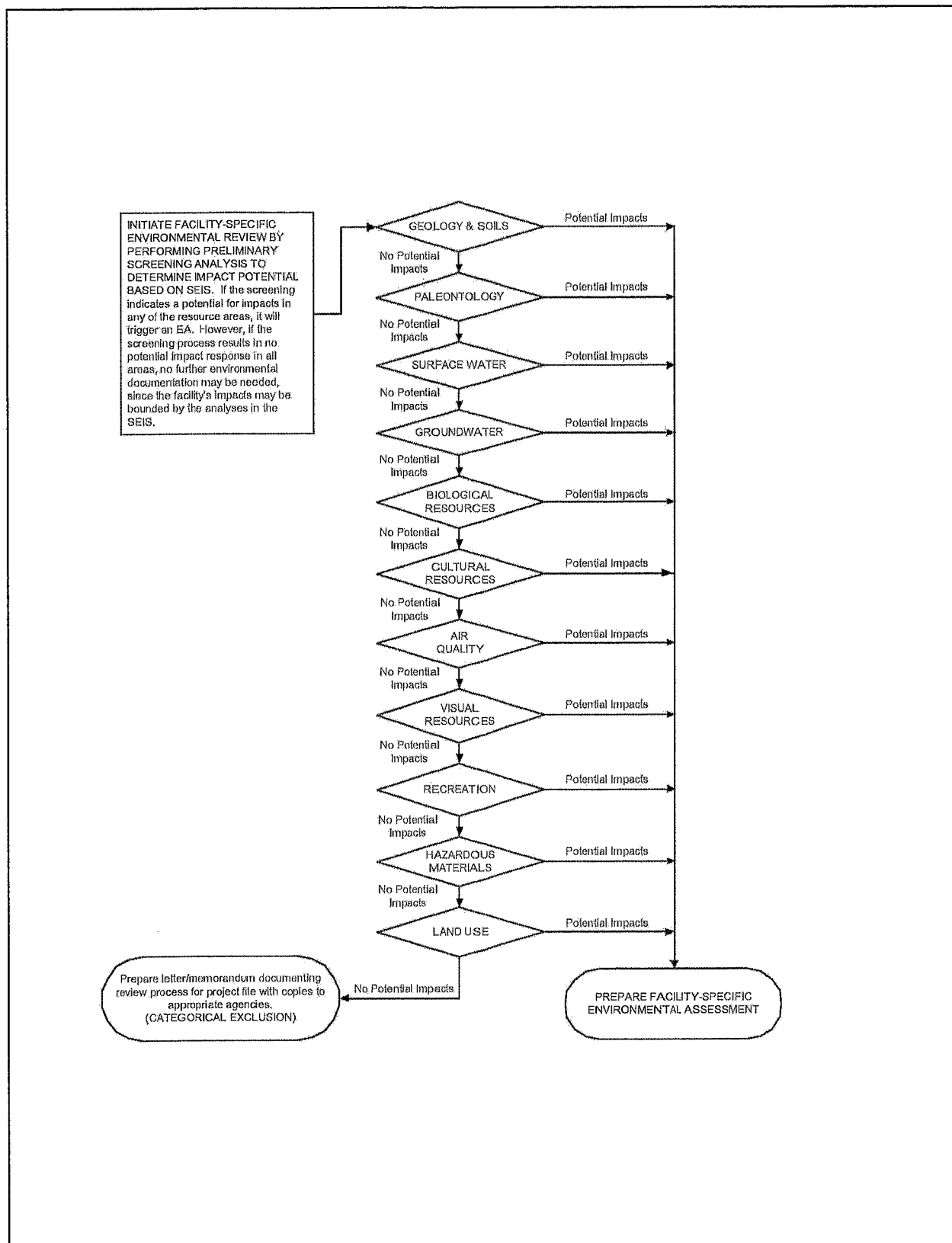
Field inspection, the SEIS, aerial photographs, and the CCRFCD web site indicate the project area consists mainly of the Desert Rose Golf Course and previously developed commercial and residential neighborhoods adjacent to the existing flood channels.

The project is designed to improve surface water flows in the area, so there would be a beneficial impact to this resource. Screening for compliance with Section 404 of the Clean Water Act was conducted. A United States Army Corps of Engineers (Corps) permit application package is being assembled and will be submitted to the Corps. Clark County will seek a permit from the Corps to perform work within waters that fall under the jurisdiction of the Corps.

The proposed project would not change the existing land use and recreational opportunities found in the neighborhood, so there would be no threat to these resources. The visual character of the area would not be changed by the proposed project as the commercial character would remain the same and channel segments supporting wetlands vegetation would be added to the Desert Rose Golf Course within that portion of the project. Potential spills of hazardous materials during construction would be minimized through Best Management Practices such that potential impacts would be reduced to insignificant levels.

The project area is located in Hydrographic Basin 212 (Las Vegas Valley) where emissions of concern include PM10, CO emissions, ozone precursors (nitrogen oxides [NOx], and volatile organic compounds [VOC]). The Clark County Department of Air Quality and Environmental Management (CCDAQM), regulates and permits construction activities that generate air pollutants and fugitive dust within Clark County. In fulfilling this responsibility, the CCDAQM often requires implementation of mitigation measures, such as application of water combined

with other dust suppressants. The construction contractor will be required to comply with all mitigation measures stipulated in the construction permits.



Source: BLM 2004, Figure 8.1-1

Figure 2. Preliminary Project-specific Analysis Screening Process

Other resources were considered at the programmatic level in the SEIS. That document indicates there would be either short-term, minor, or no impacts to socioeconomics, transportation, noise, and environmental justice. Therefore, no facility-specific evaluations to these resources are necessary. Other resources evaluated but eliminated from further consideration for this facility include cultural resources because the project area is fully developed and subject to flood and scour which eliminated any sites or site integrity, and hazardous materials for the same reasons as the cultural and no evidence was observed during field investigations. The results of this screening are summarized in Table 1.

Table 1. Recommended Mitigation Measures for the Las Vegas Wash Sloan to Bonanza Project.

Resource	Potential Impact	Mitigation
Geology and Soils	A geotechnical evaluation has been performed for the project area. Based on review of the CCRFCD SEIS, no faults cross the proposed alignment. Also, review of the Clark County Soils Guidelines Map (1998) indicates that soils in the project area are within a moderate to low special geotechnical consideration area.	A geotechnical evaluation of the project area has been performed. Potential impacts will be mitigated to insignificant through engineering design and construction practices.
Paleontology	The SEIS (BLM 2004), indicates that the proposed project is in an area of low paleontological potential. Additionally, field inspections, aerial photographs, and the CCRFCD web site indicate the project area consists of previously developed urban and industrial neighborhoods. Houses, buildings, transportation infrastructure, introduced plant landscaping, and graded/filled soils make up the current environment (see Figure 1). The area is unlikely to contain any paleontological resources.	None required.
Surface Water	The project is designed to improve surface water flows in the area, so there would be a beneficial impact to this resource. No adverse impacts to surface water are expected to occur, since the proposed project: (1) will not divert water from downstream habitat that depends upon that water, and (2) would occur in previously disturbed areas. Screening for compliance with Section 404 of the Clean Water Act was conducted by NewFields in December of 2012 and April of 2013. The proposed project includes work within Waters of the U.S. and the applicant will seek a Corps permit.	Mitigation measures should be implemented in compliance with those prescribed in the Corps issued permit.
Groundwater	The SEIS (BLM 2004), indicates that the proposed project is in an area of shallow groundwater (i.e., less than about 30 feet). Construction activities may affect, and be affected by, the shallow groundwater system (BLM 2004). It is unlikely that the proposed project would impact deeper groundwater aquifers, since seepage rates from shallow groundwater into these aquifers would be very low due to existing fine-grained geologic formations (BLM 2004).	A geotechnical evaluation of the project area has been performed. Potential impacts will be mitigated to insignificant through engineering design and construction practices.
Biological Resources	The SEIS (BLM 2004), indicates that some sensitive wildlife may occur in the project area. However, biologists surveyed the project area and found no threatened, endangered, or sensitive species. Construction activities will be short-term, temporary, and will occur only during daylight hours. Additionally, since the project occurs in a disturbed urban environment, neither construction nor operation of the facility will result in the temporary disturbance or permanent removal of previously undisturbed habitat. Therefore, no potential threats or impacts to these resources are expected to occur.	Construction activities that require removal of vegetation will take place outside of the bird breeding season (March through July). If construction activities are to occur during the bird breeding season, a biological monitor familiar with avian breeding habits of the region will inspect breeding habitat for active nests. If an active nest is discovered, a 100 foot radius no work buffer zone will be established until the young fledge from the nest.
Cultural Resources	The SEIS (BLM 2004,) and the level of project area disturbance, indicate there are no potential threats or impacts to cultural resources. Field surveys resulted in no observations of cultural resources.	None required.

Table 1. Recommended Mitigation Measures for the Las Vegas Wash Sloan to Bonanza Project.

Resource	Potential Impact	Mitigation
Transportation	The programmatic analysis in the SEIS (BLM 2004) indicate that there would be either short-term, minor, or no impacts to this resource, and that screening evaluations are not necessary at the project-specific level.	Consult with local transportation planning authorities as required and develop alternative traffic flow patterns or construction schedules if necessary, to minimize the potential for congestion and delays during construction.
Air Quality	The project area is located in Hydrographic Basin 212 (Las Vegas Valley) where emissions of concern include particulate matter of 10 microns in diameter or smaller (PM ₁₀), carbon monoxide (CO) emissions, ozone precursors (nitrogen oxides [NO _x], and volatile organic compounds [VOC]). The CCDAQM, regulates and permits construction activities that generate air pollutants and fugitive dust within Clark County. In fulfilling this responsibility, the CCDAQM often requires implementation of mitigation measures, such as application of water combined with other dust suppressants.	The construction contractor will be required to comply with all mitigation measures stipulated in the construction permits.
Visual Resources	The visual character of the area would not be changed by the proposed project as the character of the area would remain the same.	None required.
Noise	The programmatic analysis in the SEIS (BLM 2004) indicates that there would be either short-term, minor, or no impacts to this resource, and that screening evaluations are not necessary at the project-specific level.	Implement standard Best Management Practices (BMPs) during construction as necessary and in accordance with applicable permits, which may include: (1) construction during daylight hours only (7 am to 6 pm), (2) no construction before 11 am on Saturdays, (3) no construction on Sundays, and (4) construction equipment that is equipped with manufacturer's standard noise control devices.
Hazardous Materials	The project site is within an existing golf course and fully developed urban area subject to flood and scour and no evidence of hazardous materials were observed onsite. Therefore, no further consideration for this project specific facility is necessary.	Standard hazardous waste and material management BMPs should be implemented during construction as required by applicable state and federal regulations, to minimize the generation of hazardous waste and ensure its proper disposal.
Land Use & Recreation	The proposed project would not change the existing land use and recreational opportunities found in the neighborhood, so there would be no threat to these resources. The proposed project is not within a wilderness study area.	None required.
Socioeconomics	The programmatic analysis in the SEIS (BLM 2004) indicates that there would be either short-term, minor, or no impacts to this resource, and that screening evaluations are not necessary at the project-specific level.	None required.
Environmental Justice	The programmatic analysis in the SEIS (BLM 2004) indicates that there would be either short-term, minor, or no impacts to this resource, and that screening evaluations are not necessary at the project-specific level.	None required.

CONCLUSIONS

In conclusion, this letter report serves as documentation that the improvements proposed for the Las Vegas Wash Sloan Channel to Bonanza Road would have no significant adverse impacts to any resources providing that appropriate permitting procedures, Best Management Practices, and engineering designs are incorporated into the construction procedures. Per the SEIS (BLM 2004), preparation of an Environmental Assessment is not necessary and this letter report serves as documentation that the proposed project does not require further NEPA documentation.

Sincerely,

NEWFIELDS



Sean Milne
Environmental Scientist

cc: Tim Sutko, CCRFCD

REFERENCES

BLM (Bureau of Land Management) 2004. *Supplemental Programmatic Environmental Impact Statement, Clark County Regional Flood Control District 2002 Master Plan Update, Final September 2004*. SWCA, Inc. Environmental Consultants, Las Vegas, Nevada.

CCRFCD (Clark County Regional Flood Control District) 2007. *Environmental Impact Study Reporting System*. Available online at: <http://gustfront.ccrfcd.org/FileLibrary2/FileLibrary.aspx>



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
1325 J STREET
SACRAMENTO CA 95814-2922

DEPARTMENT OF THE ARMY PERMIT

Permittee: Clark County Department of Public Works
Attn: Ms. Mona Stammetti
500 South Grand Parkway
Las Vegas, Nevada 89155-4000

Permit Number: SPK-2012-01327-SG

Issuing Office: U.S. Army Engineer District, Sacramento
Corps of Engineers
1325 "J" Street
Sacramento, California 95814-2922

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below. A notice of appeal options is enclosed.

Project Description:

The proposed project includes improvements to approximately 20,665 feet (3.9 miles) of flood control upgrades within the existing public right-of-way (ROW). The existing ROW varies from 140 feet to almost 870 feet (at the confluence with the Flamingo Wash) in width and is designated as Flood Channel, Public, or Clark County Parks and Community Service lands. The existing ROW is confined on both sides by existing residential and commercial development. Typical daily flows in the Las Vegas Wash within the project area are 9 cubic feet per second (cfs) and 10 cfs in the Flamingo Wash. The proposed improvements would include reinforced concrete lining, confluence structures, transition structures, bridge construction, and roadway reconstruction, golf course reconstruction including a low flow channel, storm drain inlets, and accommodation for existing large diameter sewer, trail, and overhead utility facilities.

There are five major bridge roadway crossings of the Las Vegas Wash within the Proposed Project. They are:

- Bonanza Road
- Stewart Avenue
- Charleston Boulevard
- Nellis Boulevard
- Sahara Avenue

The existing bridge structures are at varying stages of design life and have dissimilar conveyance capacities. Major tributary facilities to the Las Vegas Wash within the Proposed Project area include a trapezoidal concrete channel at Cedar Avenue and at Nellis Boulevard, a Reinforced Concrete Box (RCB) at Colorado Avenue, the Flamingo Wash, and the Sloan Channel.

The proposed area from Bonanza Road to the center of Charleston Boulevard is within the jurisdiction of the City of Las Vegas. The remainder of the project area is within unincorporated Clark County (Sunrise Manor).

The upstream portion of the project, between Bonanza Road and Nellis Boulevard, is approximately 6,900 feet long. This reach consists of an existing partially improved channel section within an approximately 150 foot wide ROW that includes sections of rip rap or concrete slope lining and articulated concrete block on the invert. There is an existing 66 inch sanitary sewer facility along the west side of the ROW that will be accommodated with the proposed channel improvements. The capacity of the Charleston Bridge would be increased by lowering the existing channel invert and protecting the existing 51 inch sanitary sewer that is attached to the underside of the bridge structure. The Bonanza Road, Stewart Avenue and Nellis Boulevard bridge structures will be protected with channel lining under the structures.

The middle portion of the project on the Las Vegas Wash, located between Nellis Boulevard and the confluence with the Flamingo Wash, is approximately 7,800 feet long. The improvements on the Flamingo Wash, between Nellis Boulevard and the confluence, are approximately 3,800 feet long. This reach of the Proposed Project is located within the existing Desert Rose Golf Course. The Golf Course reach consists of an approximately 450 foot to 575 foot wide grass-lined channel section with a varying cross-section to accommodate the golf course layout. The golf course will be re-graded and reconfigured to convey the 100-year design storm event flow within the ROW. The channel capacity of the Sahara Bridge will be increased by removing the existing bridge and constructing a larger bridge. The existing Flamingo Wash concrete channel will be extended approximately 500 feet downstream of the Nellis Boulevard Bridge and the channel invert lowered up to 12 feet to lower the water surface and create a stilling basin for a hydraulic jump to occur before the grass-lined channel through the golf course. There are three existing golf cart bridges within the golf course that will be relocated or replaced. An upstream existing concrete low-flow valley gutter along the Las Vegas Wash and Reinforced Concrete Pipe (RCP) along both the Flamingo Wash convey the constant nuisance flows. These will be replaced with a concrete low-flow channel along the Flamingo and Las Vegas Washes.

The downstream portion of the Proposed Project, between the confluence with the Flamingo Wash and the Sloan Channel confluence, is approximately 1,600 feet long. This reach consists of a partially improved channel section within an approximately 300 foot wide ROW that includes reinforced concrete slope lining on the north side of the channel. The south wall and the invert of the existing section are both earthen. There is a sheet pile weir located in the channel at the Sloan Lane alignment to protect the sewer siphons located under the Wash. The existing reinforced concrete trapezoidal channel section begins approximately 350 feet

upstream of the Sloan Channel Confluence, and the proposed channel improvements will tie into this section.

All work is to be completed in accordance with the attached plans.

Project Location: The project is located on Las Vegas and Flamingo Washes, Section 32 of Township 20 South, Range 62 East, Clark County, Nevada, and Sections 4, 9, and 10 of Township 21 South, Range 62 East, Latitude 36.1457977064516°, Longitude -115.055611796763°, in Las Vegas, Clark County, Nevada. The northern end of the project is located at Bonanza Road. The southern end of the project is located 1,100 feet east of Sloan Lane, Clark County, Nevada.

Permit Conditions:

General Conditions:

1. The time limit for completing the work authorized ends on **January 1, 2019**. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.
2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.
3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.
4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.
5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.
6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

Special Conditions:

1. You shall fully implement the approved Mitigation Plan for the Las Vegas Wash; Sloan Channel to Bonanza Road, dated July 2013, prepared by Newfields. Monitoring reports for the mitigation shall be submitted by November 1 of each year following the construction of mitigation. The mitigation area shall be monitored for at least five (5) consecutive growing seasons after construction, and/or until the Corps determines in writing that the success criteria are met.
2. To mitigate for the loss of 1.89 acres of waters of the United States, you shall construct 3.78 acres of riparian and wetland habitat within the Desert Rose Golf Course as shown in the "Las Vegas Wash; Sloan Channel to Bonanza Avenue Mitigation Plan" prepared by Newfields.
3. You and your authorized contractor shall allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that work is being or has been accomplished in accordance with the terms and conditions of this verification.
4. You shall have a biologist, who is familiar with the mitigation/restoration project, monitor all mitigation activities. The purpose for this monitoring is to ensure that no unauthorized activities occur outside the project boundary and the restoration is completed as illustrated on the attached maps.
5. You shall notify this office of the start and completion dates for each phase of the authorized work within 10 calendar days prior to initiation of construction activities within waters of the U.S. and 30 calendar days following completion of construction activities.
6. Within 10 days prior to initiation of construction activities within waters of the United States, you shall submit to the Corps pre-construction site photographs of the project site, which have been taken no more than 30 days prior to initiation of construction activities. Within 30 days following construction activities, you shall submit post-construction site photographs of the project site, showing the work conducted, to this office. The camera positions and view angles of post-construction photographs shall be identified on a map, aerial photo, or project drawing. Construction locations shall include all major project features and waters of the United States, including mitigation areas.
7. All terms and conditions of the November 8, 2013 Section 401 Water Quality Certification are expressly incorporated as a condition of this permit.
8. You must sign the enclosed Compliance Certification and return it to this office within 30 days after completion of the authorized work.

9. You shall use only clean and nontoxic fill material for this project. The fill material shall be free from items such as trash, debris, automotive parts, asphalt, construction materials, concrete with exposed reinforcement bars, and soils contaminated with any toxic substance, in toxic amounts in accordance with Section 307 of the Clean Water Act. In addition, you shall allow all newly poured concrete to cure for a minimum of 3 days prior to coming into contact with open water.
10. Prior to initiation any construction activities within waters of the U.S., you shall employ construction best management practices (BMPs) onsite to prevent degradation to on-site and off-site waters of the U.S. Methods shall include the use of appropriate measures to intercept and capture sediment prior to entering waters of the U.S., as well as erosion control measures along the perimeter of all work areas to prevent the displacement of fill material. All BMPs shall be in place prior to initiation of any construction activities and shall remain until construction activities are completed. You shall maintain erosion control methods until all on-site soils are stabilized. You shall submit a description of and photo-documentation of your BMPs to our office within 5 days of commencement of construction. Photos may be submitted electronically to patricia.l.mcqueary@usace.army.mil.
11. Within 90 days following completion of the authorized work or at the expiration of the construction window of this permit, whichever occurs first, you shall submit as-built drawings and a description of the work conducted on the project site to this office for review. The drawings shall be signed and sealed by a registered professional engineer and include the following:
 - a. The Department of the Army Permit number.
 - b. A plan view drawing of the location of the authorized work footprint (as shown on the permit drawings) with an overlay of the work as constructed in the same scale as the attached permit drawings. The drawing should show all "earth disturbance," aquatic resource impacts, structures, and the boundaries of any on-site and/or off-site mitigation or avoidance areas. The drawings shall contain, at a minimum, 1-foot topographic contours of the entire site.
 - c. Ground photographs of the completed work. The cameral positions and view-angles of the ground photographs shall be identified on a project drawing.
 - d. A description and list of all deviations between the work as authorized by this permit and the work as constructed. Clearly indicate on the as-built drawings the location of any deviations that have been listed.

12. If you discover any previously unknown historic, cultural or archeological remains and artifacts while accomplishing the activity authorized by this permit, you must immediately notify the district engineer of what you have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The district engineer would initiate the Federal, Tribal and state coordination required to determine if the items or remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

Further Information:

1. Congressional Authorities: You have been authorized to undertake the activity described above pursuant to:

☐ Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).

☒ Section 404 of the Clean Water Act (33 U.S.C. 1344).

☐ Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).

2. Limits of this authorization.

a. This permit does not obviate the need to obtain other Federal, state, or local authorizations required by law.

b. This permit does not grant any property rights or exclusive privileges.

c. This permit does not authorize any injury to the property or rights of others.

d. This permit does not authorize interference with any existing or proposed Federal projects.

3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following:

a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.

b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.

c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.

- d. Design or construction deficiencies associated with the permitted work.
 - e. Damage claims associated with any future modification, suspension, or revocation of this permit.
4. Reliance on Applicant's Data. The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.

5. Reevaluation of Permit Decision. This office may reevaluate its decision on this permit at any time the circumstances warrant.

Circumstances that could require a reevaluation include, but are not limited to, the following:

- a. You fail to comply with the terms and conditions of this permit.
- b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (see 4 above).
- c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions. General Condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

Name _____
Title _____
Permittee

Date

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below

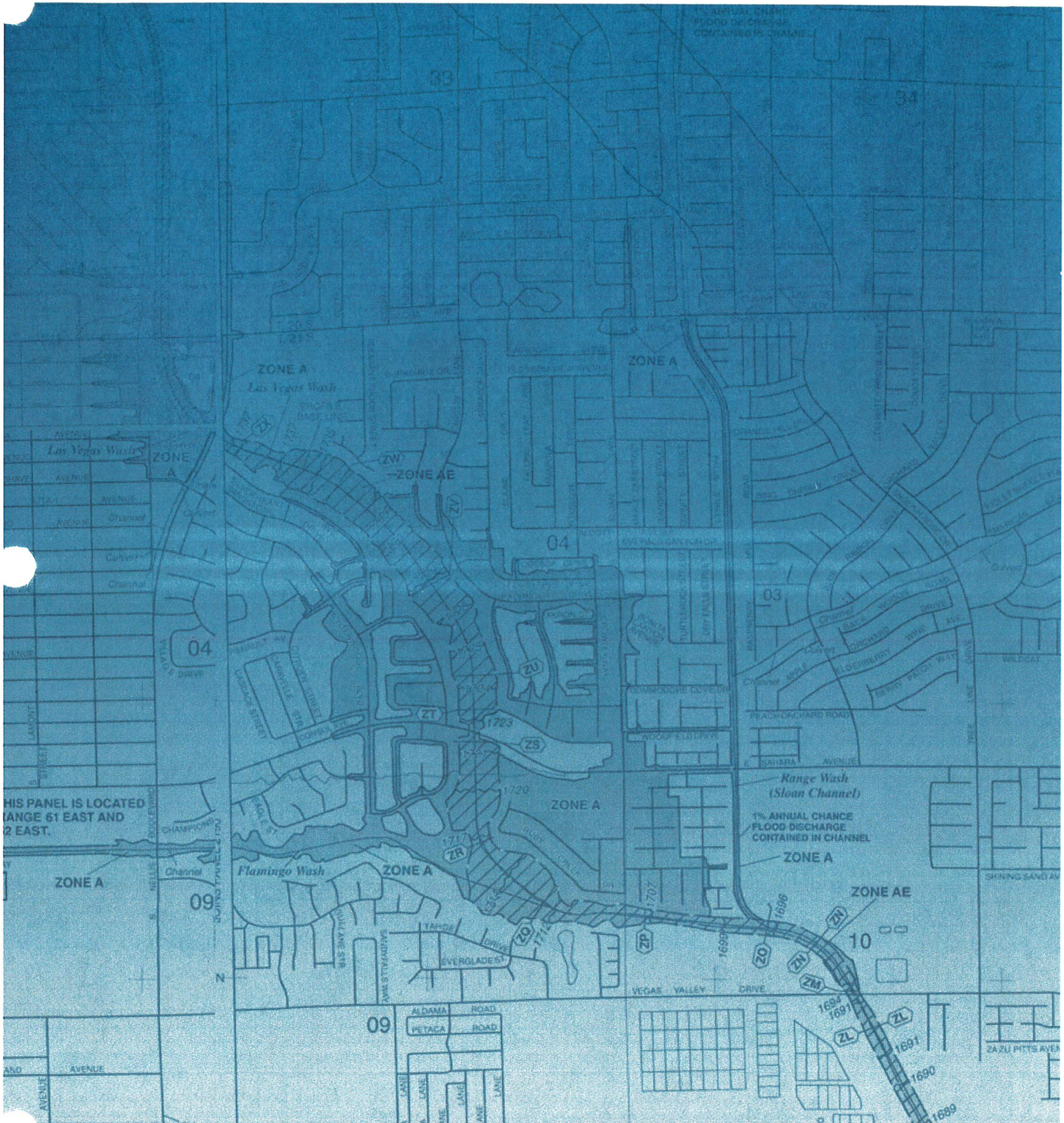
(For the District Engineer)

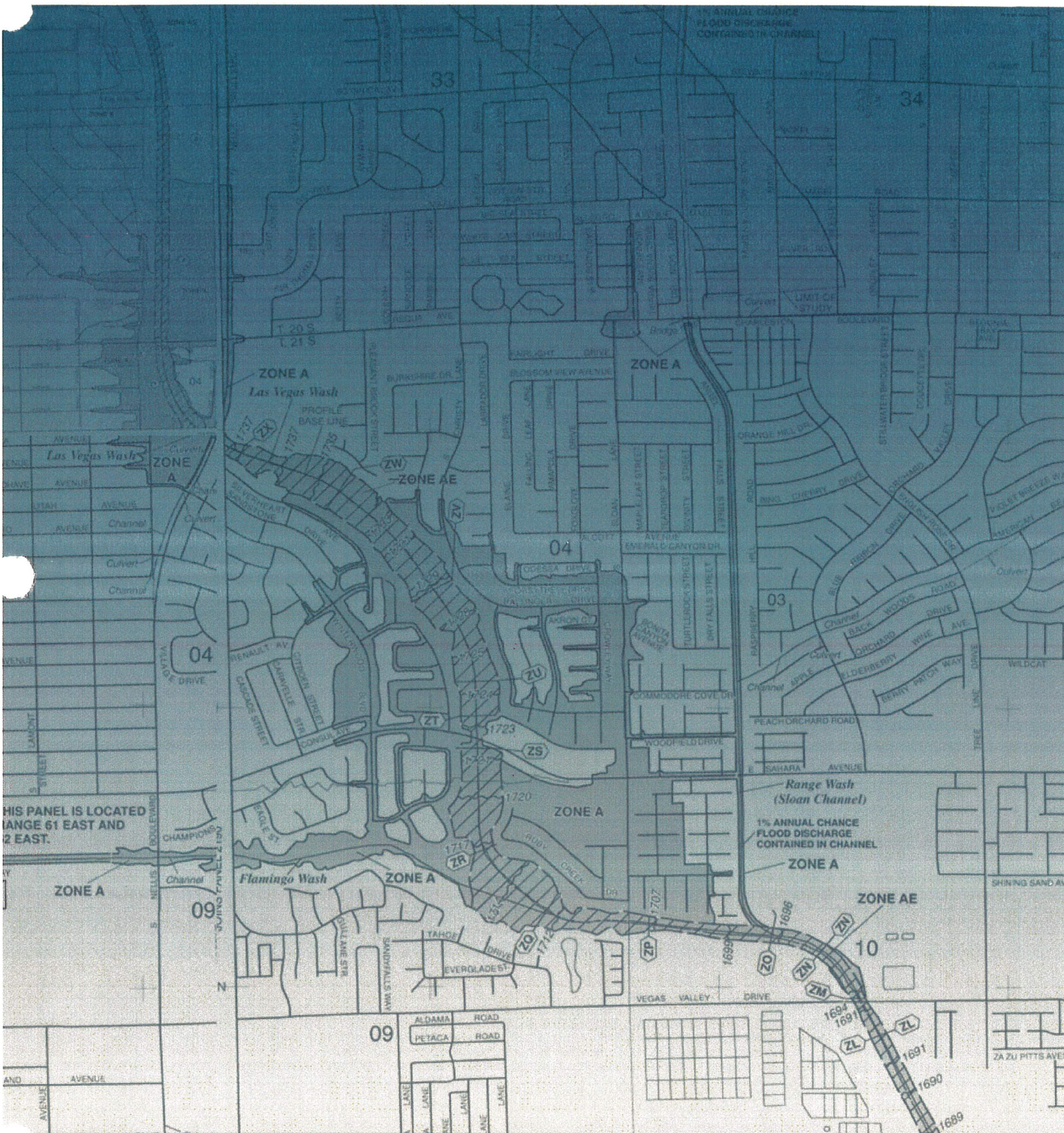
Date

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

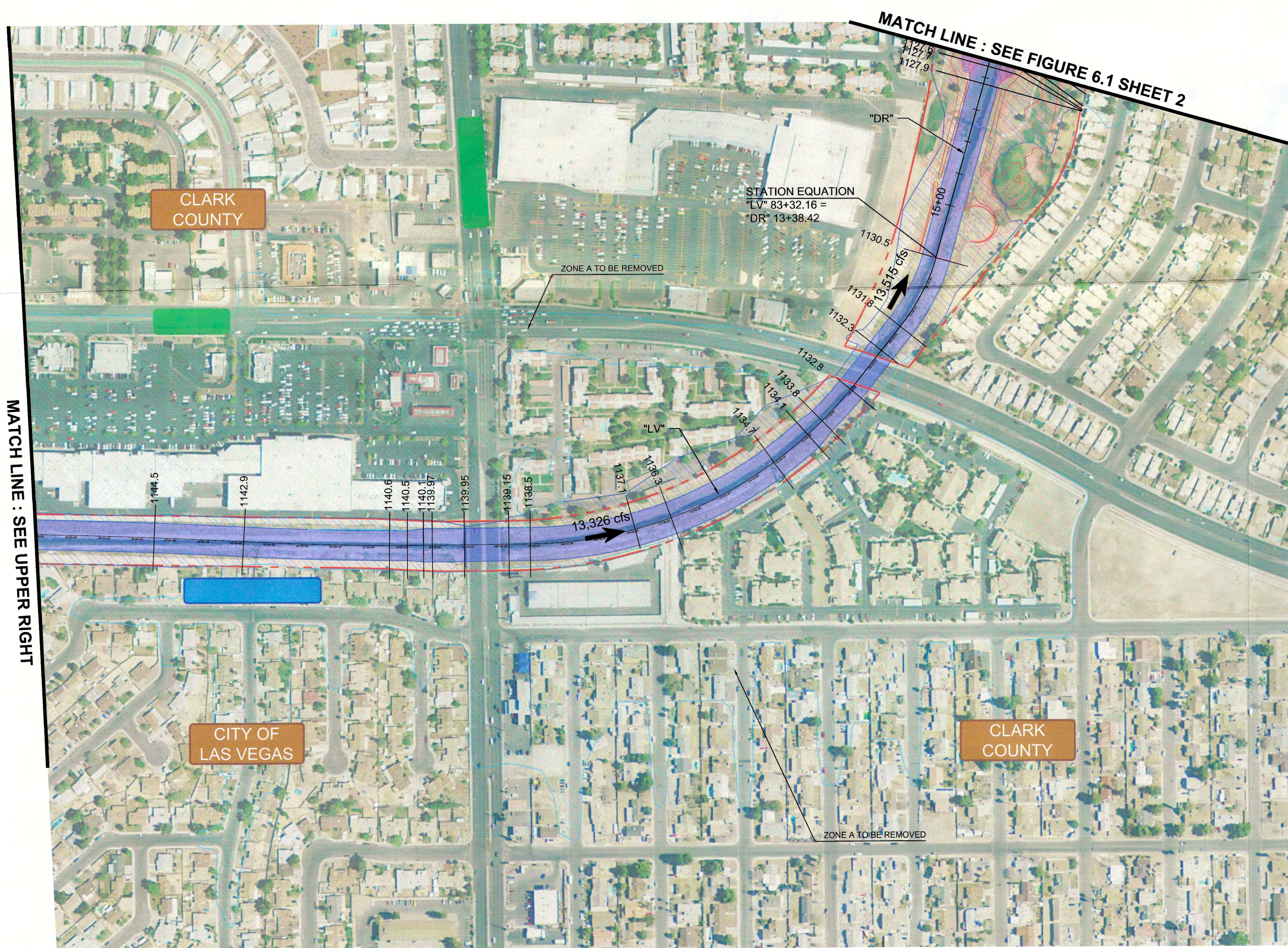
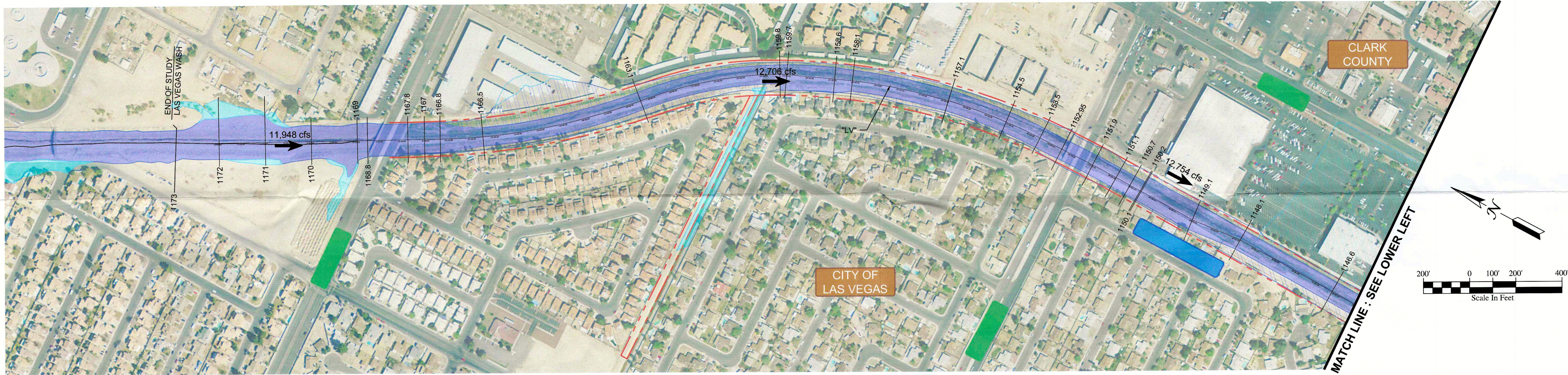
Name _____
Title _____
Transferee

Date





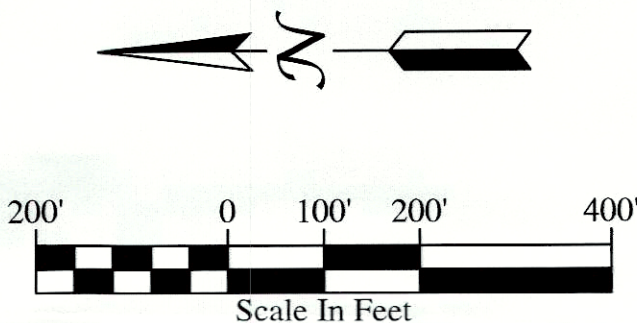
Appendix E.1 Electronic Hydraulic Model Files, Exhibits, & Reference Material



NOTES:

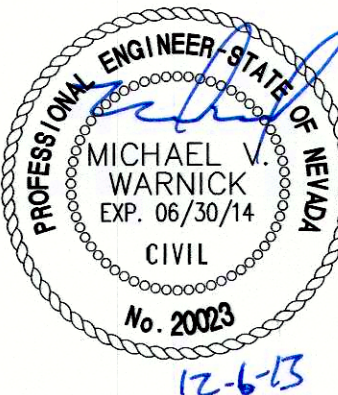
FLOODING SOURCE:
LAS VEGAS WASH

FIRM PANEL(S) AFFECTED:
32003C2187F
32003C2190F
32003C2195F



LEGEND

- 100 YEAR POST-PROJECT FLOODPLAIN BOUNDARY, ZONE A
- 100 YEAR POST-PROJECT FLOODWAY BOUNDARY, ZONE AE
- PUBLIC RIGHT-OF-WAY



BASIS OF BEARINGS:

THE BASIS OF BEARINGS FOR THIS PROJECT IS GRID NORTH AS DEFINED BY THE NEVADA COORDINATE SYSTEM OF 1983 (NCS83) EAST ZONE 2701.

THE MEASURED BEARING BETWEEN POINT NUMBERS 1 AND 2, BEING THE WEST LINE OF THE SOUTHWEST QUARTER OF SECTION 3, TOWNSHIP 21 SOUTH, RANGE 62 EAST, AS SHOWN ON RECORD OF SURVEY FILE 180, PAGE 51, CLARK COUNTY RECORDS, CLARK COUNTY, NEVADA IS NORTH 00°37'59" WEST.

NOTES:

- STATE PLANE NAD 83 POSITIONS CAN BE DERIVED AS FOLLOWS BASE ON EPOCH 2002 POSITIONS. LVVWD CORS STATIONS NVCA, NVTP, AND NVBM WERE ALL UTILIZED FOR THIS SURVEY.
- FOR NAD 83 STATE PLANE COORDINATE VALUES (EPOCH 2002.0):
SUBTRACT 760021.661 FROM THE NORTHING THEN MULTIPLY BY .999842655 (PROJECT COMBINED FACTOR) AND ADD 26760021.661
SUBTRACT 810017.508 FROM THE EASTING THEN MULTIPLY BY .999842655 (PROJECT COMBINED FACTOR) AND ADD 810017.508

BENCHMARK:

CLARK COUNTY BENCHMARK # 6C0232SSE6, BEING A RIVET AND SQUARE ALUMINUM PLATE IN THE TOP OF CURB, NORTHEAST CORNER OF CHARLESTON BOULEVARD, AND YEW AVENUE, NEAR THE PC OF CHARLESTON BOULEVARD.

ELEVATION = 531.416 METER = 1743.487 FEET (NAVD88)

FIGURE 6.1 - POST-PROJECT CONDITIONS WORK MAP LAS VEGAS WASH SHEET 1 OF 3

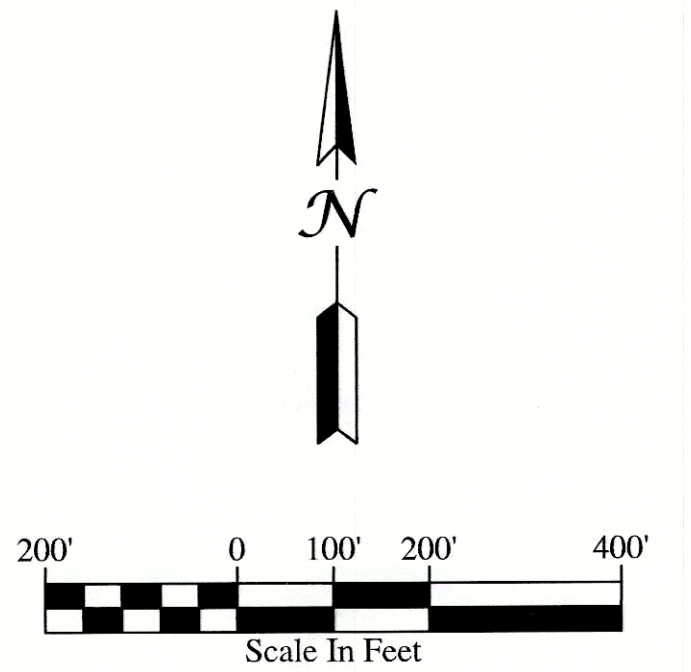
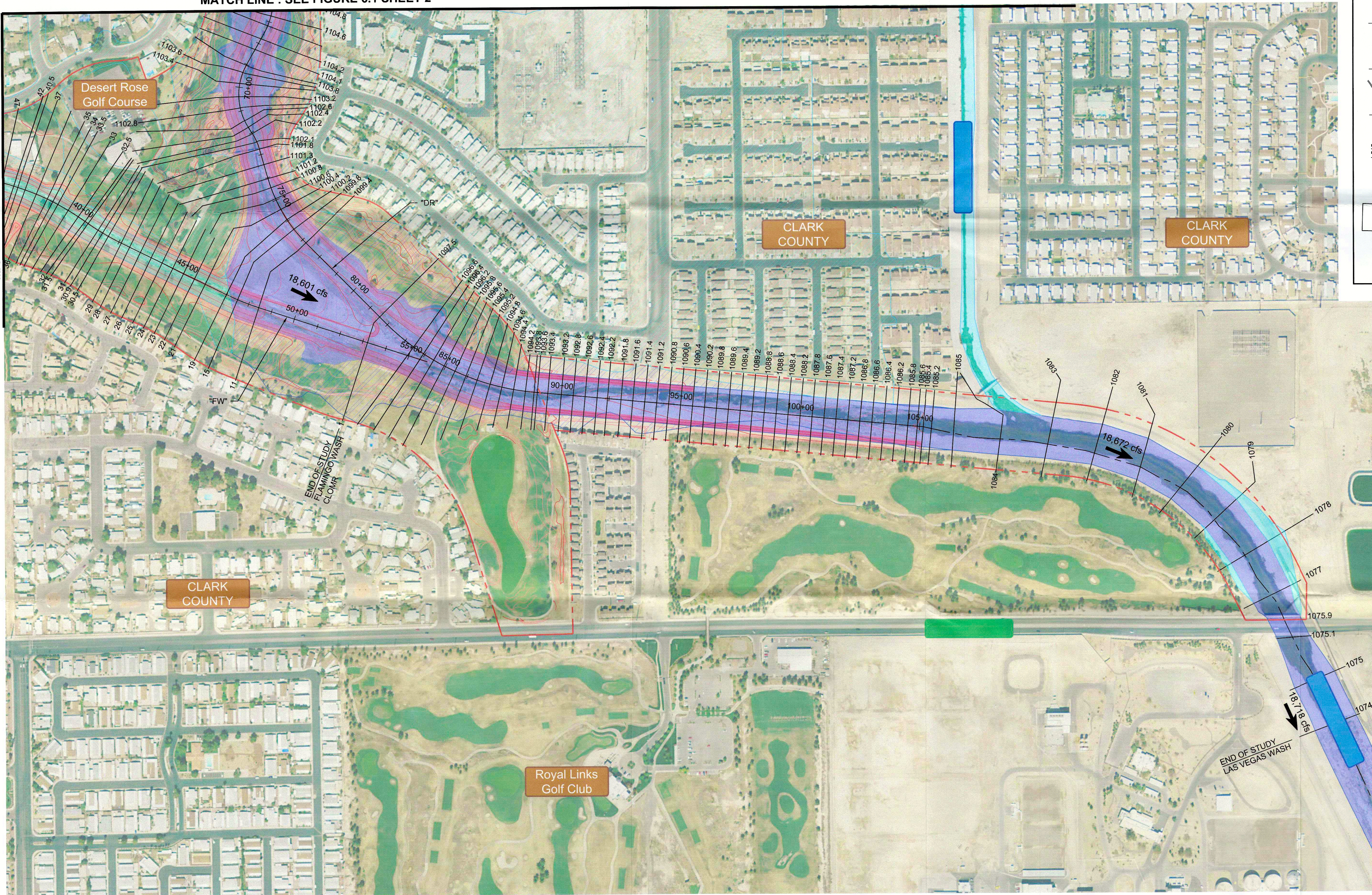
Las Vegas Wash

CH2MHILL.



MATCH LINE : SEE FIGURE 6.1 SHEET 2

MATCH LINE : SEE FIGURE 6.2 SHEET 1



NOTES:

FLOODING SOURCE:
LAS VEGAS WASH

FIRM PANEL(S) AFFECTED:
32003C2187F
32003C2190F
32003C2195F

LEGEND

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- PUBLIC RIGHT-OF-WAY

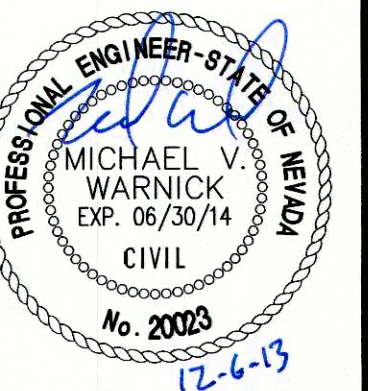


FIGURE 6.1 - POST-PROJECT
CONDITIONS WORK MAP LAS VEGAS WASH
SHEET 3 OF 3



CH2MHILL.



BASIS OF BEARINGS:

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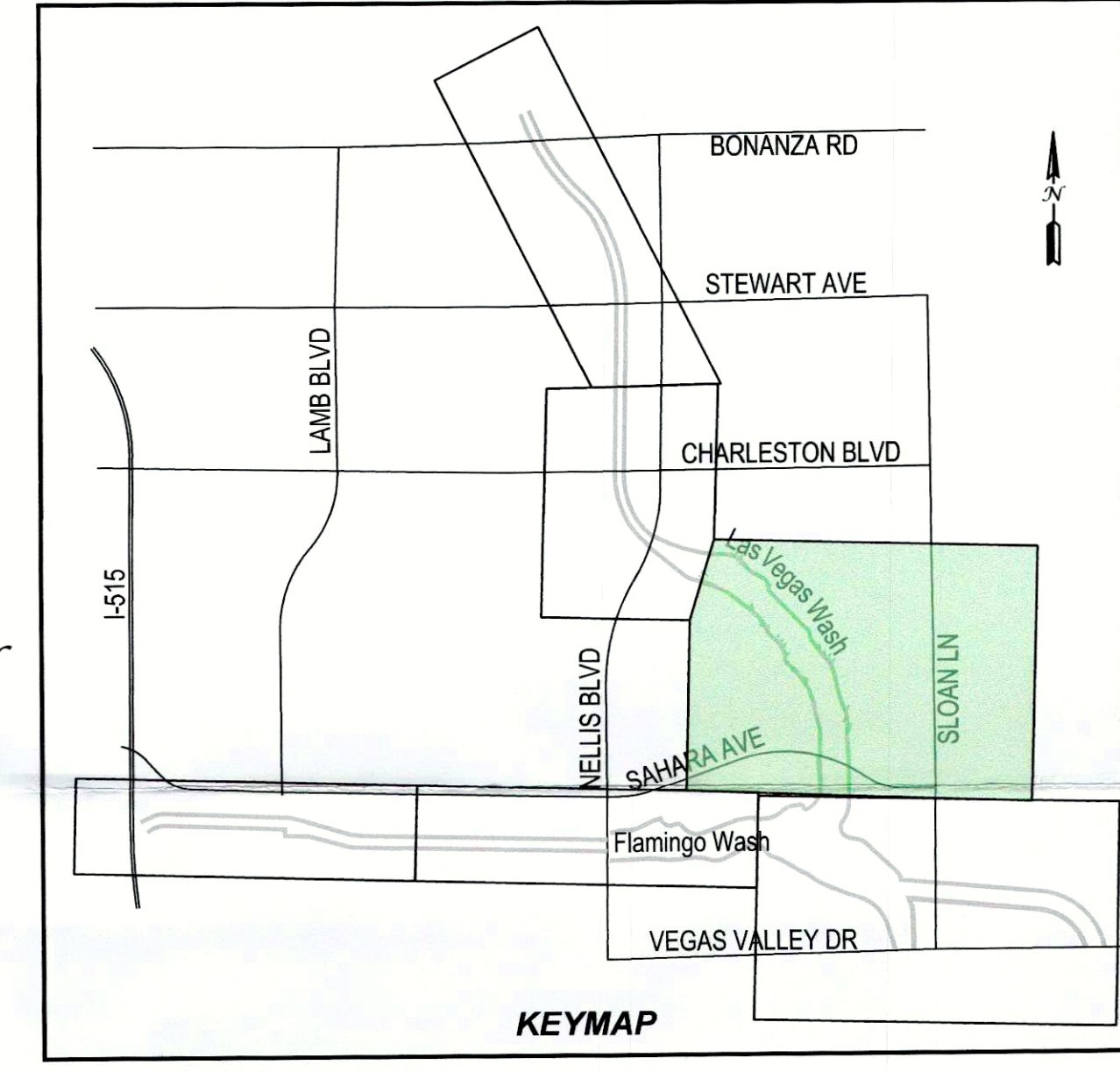
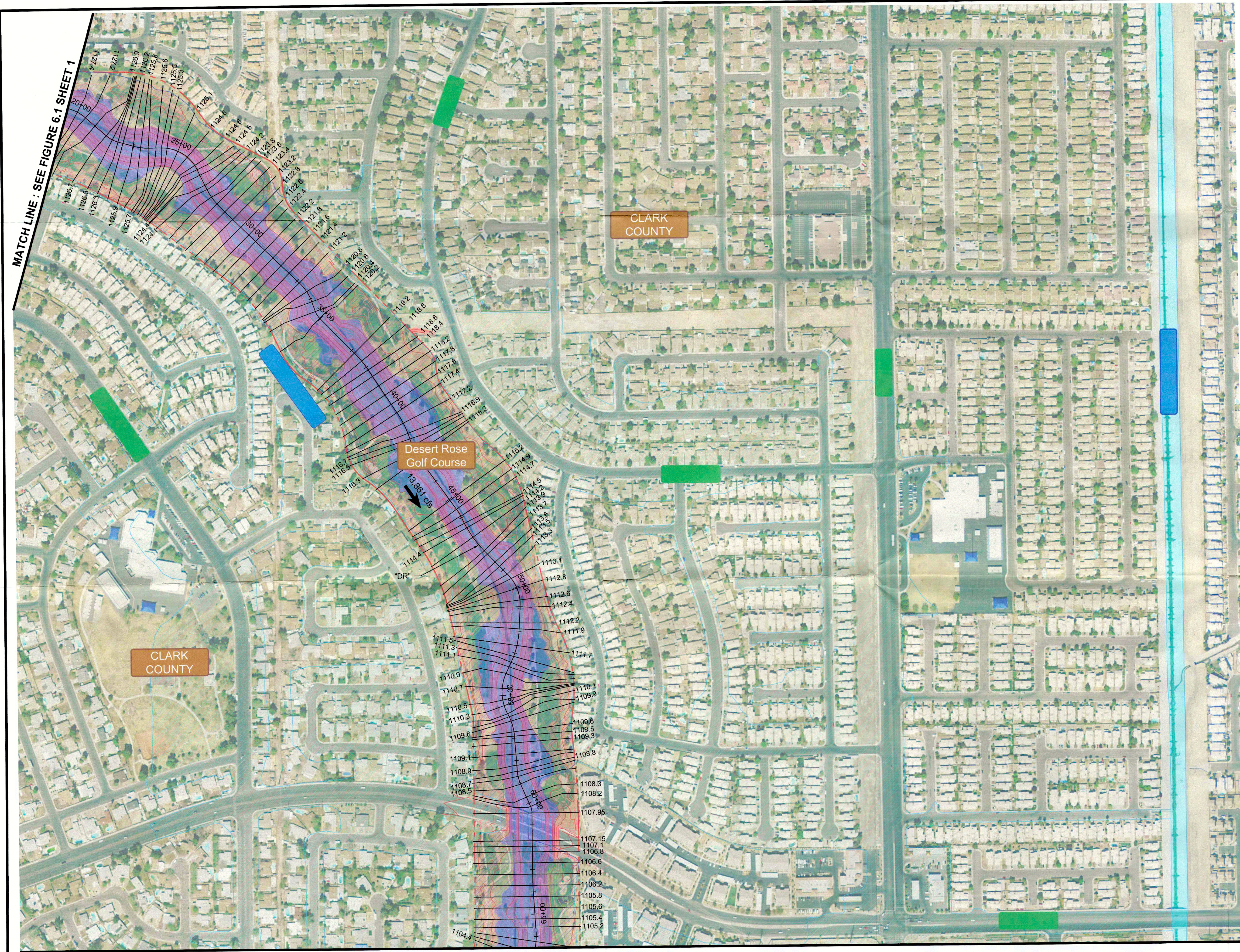
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ELEVATION = 531.416 METER = 1743.487 FEET (NAVD88)



LEGEND

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- 100 YEAR POST-PROJECT FLOODWAY BOUNDARY, ZONE AE
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NOTES:

FLOODING SOURCE:
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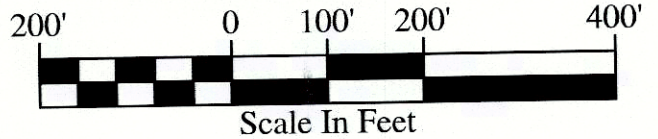
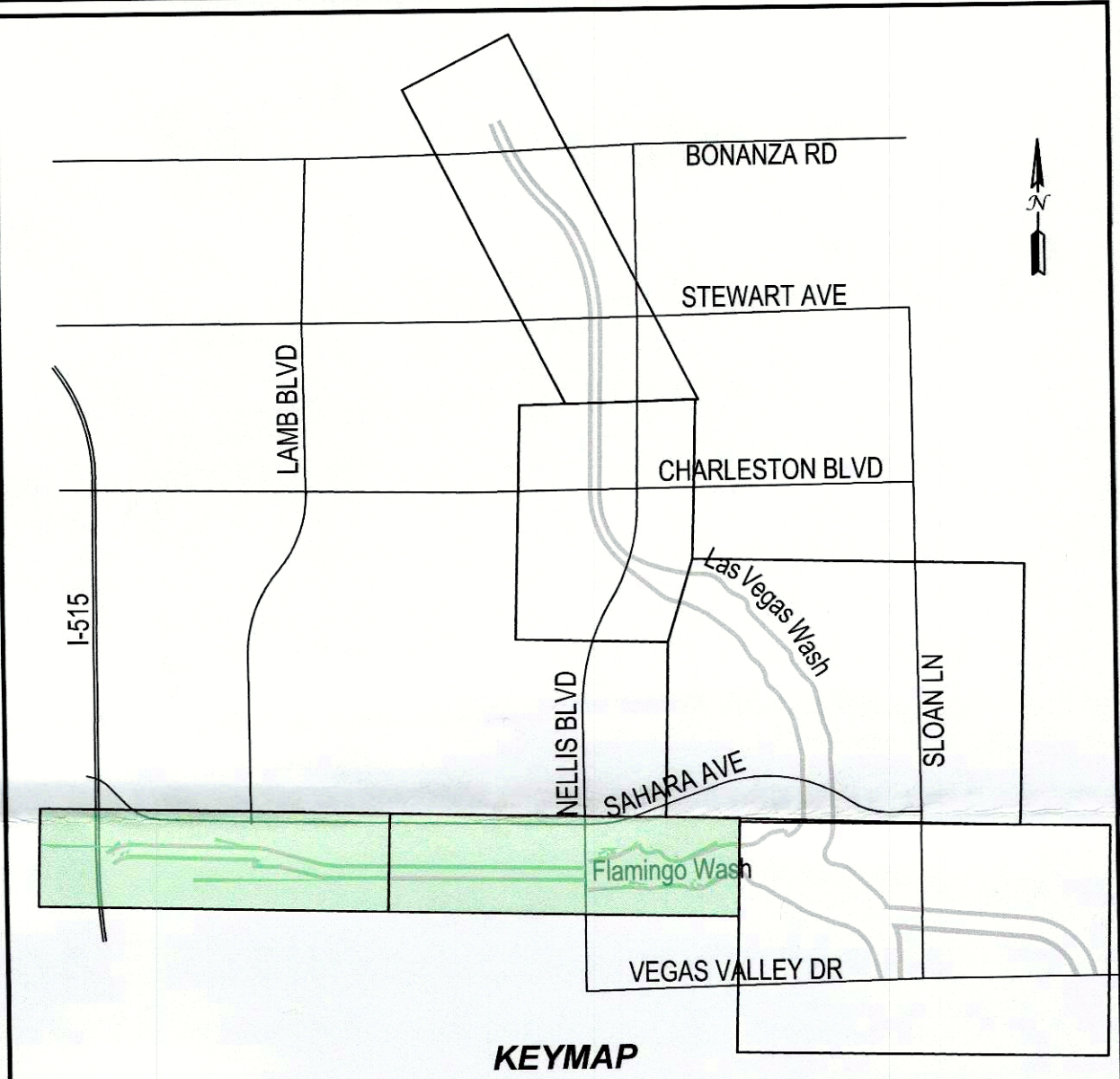
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CLARK COUNTY BENCHMARK # 6C0232SSE6, BEING A RIVET AND SQUARE ALUMINUM PLATE IN THE TOP OF CURB, NORTHEAST CORNER OF CHARLESTON BOULEVARD, AND YEW AVENUE, NEAR THE PC OF CHARLESTON BOULEVARD.

ELEVATION = 531.416 METER = 1743.487 FEET (NAVD88)



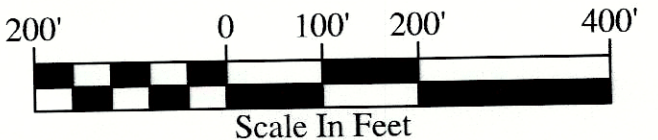
FIGURE 6.1 - POST-PROJECT CONDITIONS WORK MAP LAS VEGAS WASH
SHEET 2 OF 3



NOTES:

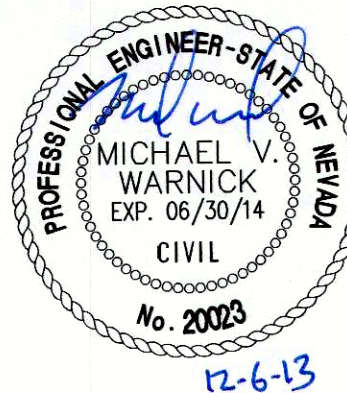
FLOODING SOURCE:
FLAMINGO WASH

FIRM PANEL(S) AFFECTED:
32003C2190
32003C2195F



LEGEND

- 100 YEAR POST-PROJECT FLOODPLAIN BOUNDARY, ZONE A
- 100 YEAR POST-PROJECT FLOODWAY BOUNDARY, ZONE AE
- PUBLIC RIGHT-OF-WAY



NOTES:

1. STATE PLANE NAD 83 POSITIONS CAN BE DERIVED AS FOLLOWS BASE ON EPOCH 2002 POSITIONS. LVWVD CORS STATIONS NVCA, NVTP, AND NVBM WERE ALL UTILIZED FOR THIS SURVEY.
2. FOR NAD 83 STATE PLANE COORDINATE VALUES (EPOCH 2002.0):
SUBTRACT 760021.661 FROM THE NORTHING THEN MULTIPLY BY .999842655 (PROJECT COMBINED FACTOR) AND ADD 26760021.661
SUBTRACT 810017.508 FROM THE EASTING THEN MULTIPLY BY .999842655 (PROJECT COMBINED FACTOR) AND ADD 810017.508

BENCHMARK:

CLARK COUNTY BENCHMARK # 6C0232SSE6, BEING A RIVET AND SQUARE ALUMINUM PLATE IN THE TOP OF CURB, NORTHEAST CORNER OF CHARLESTON BOULEVARD, AND YEW AVENUE, NEAR THE PC OF CHARLESTON BOULEVARD.

ELEVATION = 531.416 METER = 1743.487 FEET (NAVD88)

BASIS OF BEARINGS:

THE BASIS OF BEARINGS FOR THIS PROJECT IS GRID NORTH AS DEFINED BY THE NEVADA COORDINATE SYSTEM OF 1983 (NCS83) EAST ZONE 2701.

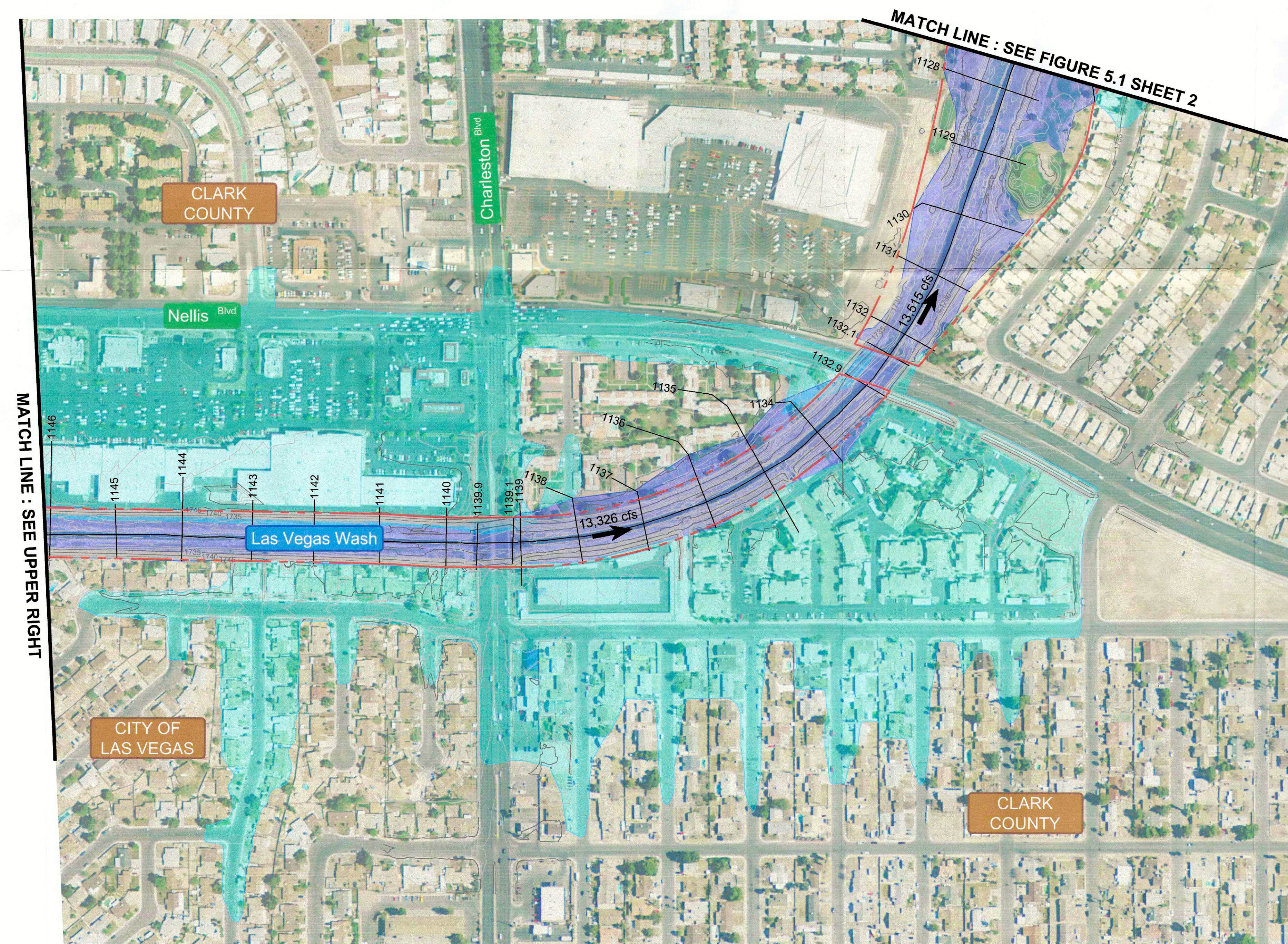
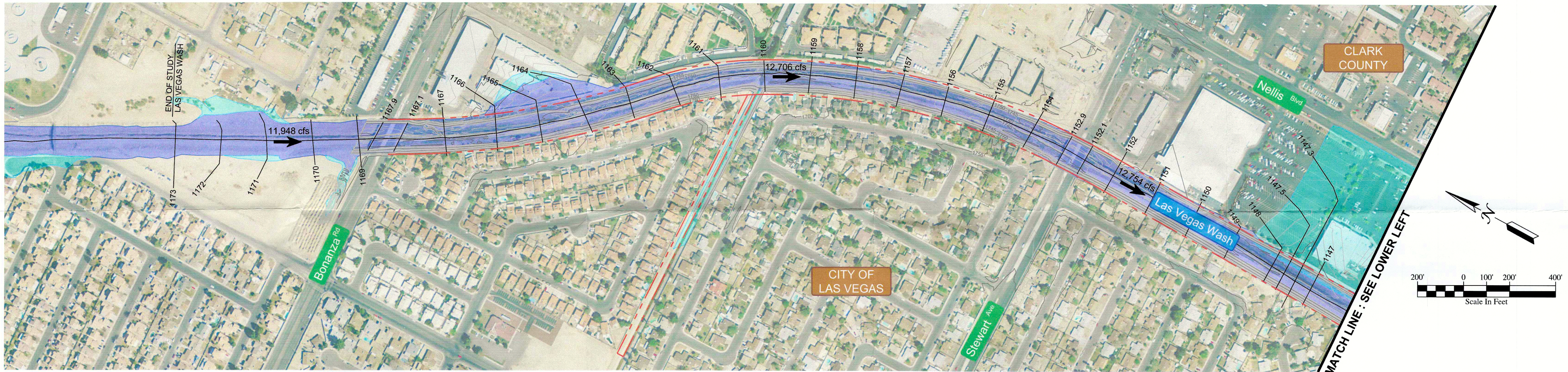
THE MEASURED BEARING BETWEEN POINT NUMBERS 1 AND 2, BEING THE WEST LINE OF THE SOUTHWEST QUARTER OF SECTION 3, TOWNSHIP 21 SOUTH, RANGE 62 EAST, AS SHOWN ON RECORD OF SURVEY FILE 180, PAGE 51, CLARK COUNTY RECORDS, CLARK COUNTY, NEVADA IS NORTH 00°37'59" WEST.

FIGURE 6.2 - POST-PROJECT CONDITIONS WORK MAP FLAMINGO WASH SHEET 1 OF 1



CH2MHILL.

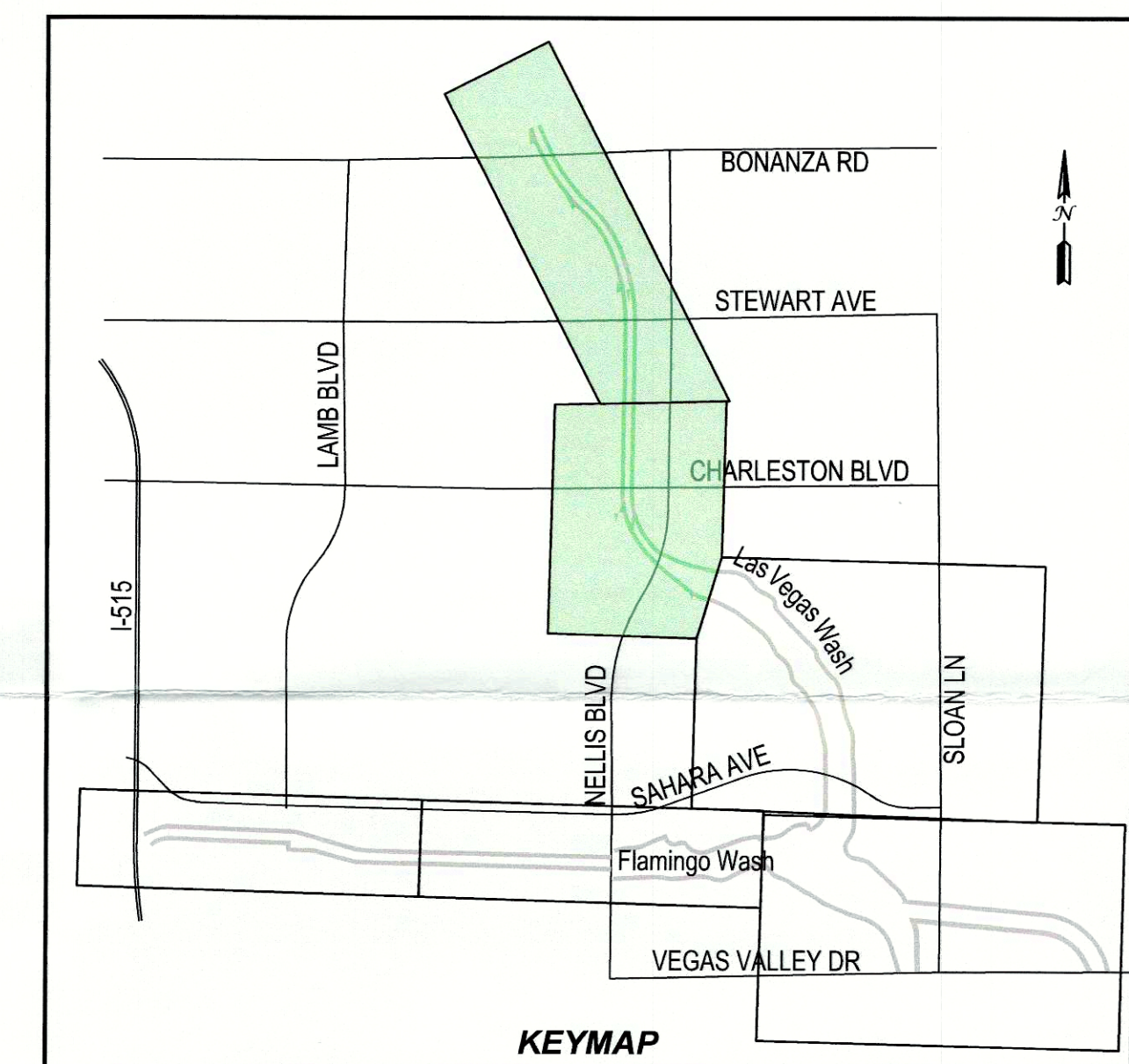
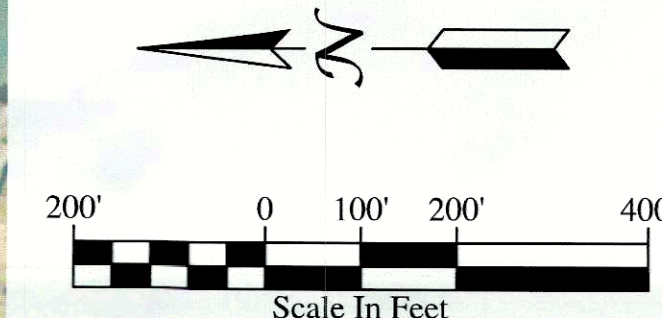




NOTES:

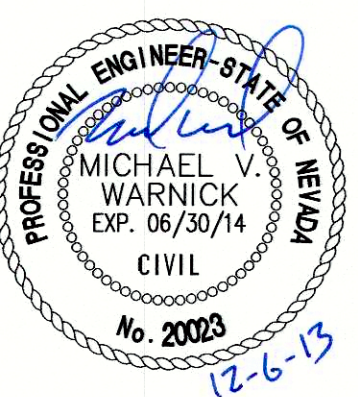
FLOODING SOURCE:
LAS VEGAS WASH

FIRM PANEL(S) AFFECTED:
32003C2187F
32003C2190F
32003C2195F



LEGEND

- 100 YEAR PRE-PROJECT FLOODPLAIN BOUNDARY, ZONE A
- 100 YEAR PRE-PROJECT FLOODWAY BOUNDARY, ZONE AE
- PUBLIC RIGHT-OF-WAY



BASIS OF BEARINGS:

THE BASIS OF BEARINGS FOR THIS PROJECT IS GRID NORTH AS DEFINED BY THE NEVADA COORDINATE SYSTEM OF 1983 (NCS83) EAST ZONE 2701.

THE MEASURED BEARING BETWEEN POINT NUMBERS 1 AND 2, BEING THE WEST LINE OF THE SOUTHWEST QUARTER OF SECTION 3, TOWNSHIP 21 SOUTH, RANGE 62 EAST, AS SHOWN ON RECORD OF SURVEY FILE 180, PAGE 51, CLARK COUNTY RECORDS, CLARK COUNTY, NEVADA IS NORTH 00°37'59" WEST.

NOTES:

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BENCHMARK:

CLARK COUNTY BENCHMARK # 6C0232SSE6, BEING A RIVET AND SQUARE ALUMINUM PLATE IN THE TOP OF CURB, NORTHEAST CORNER OF CHARLESTON BOULEVARD, AND YEW AVENUE, NEAR THE PC OF CHARLESTON BOULEVARD.

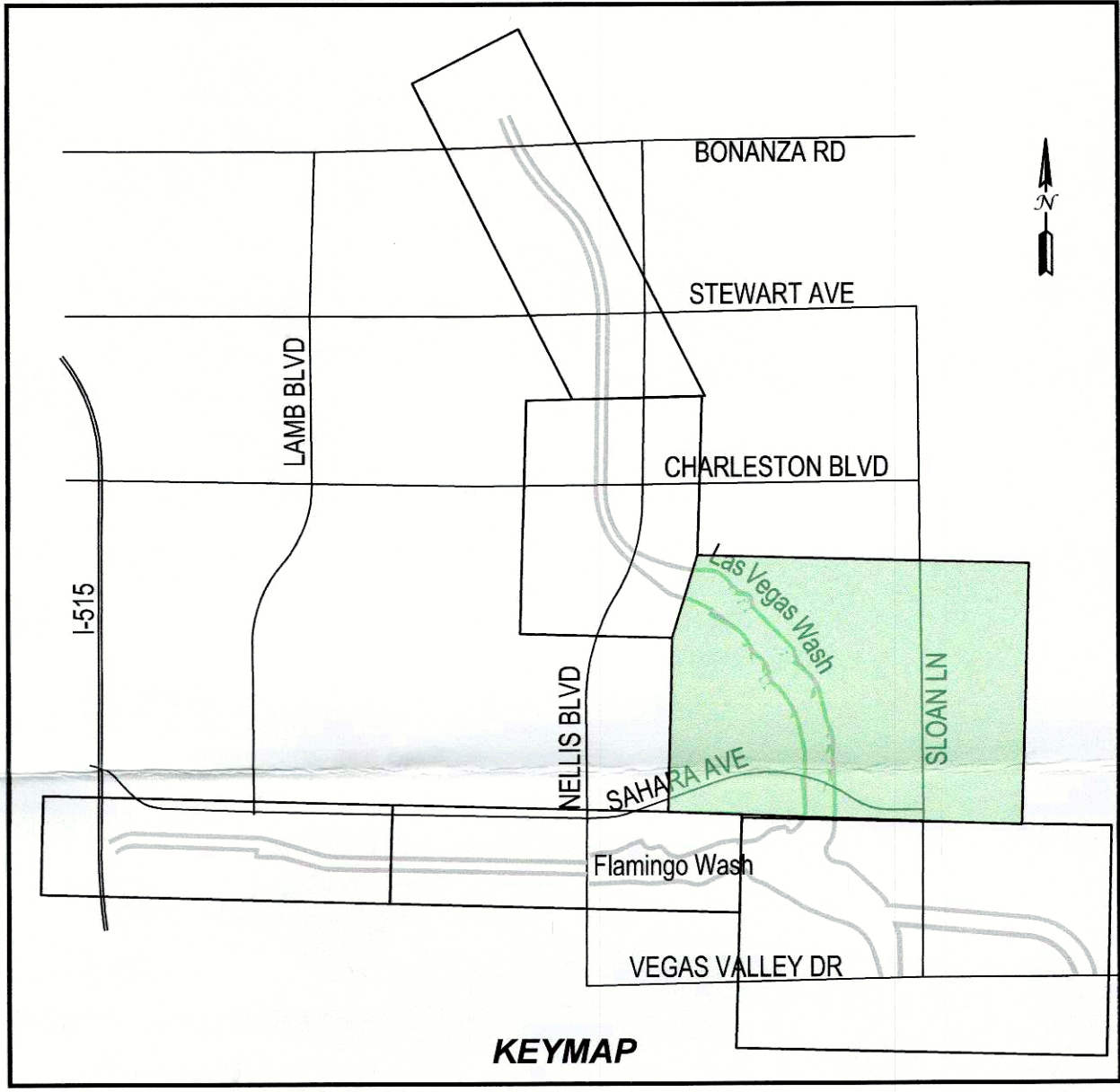
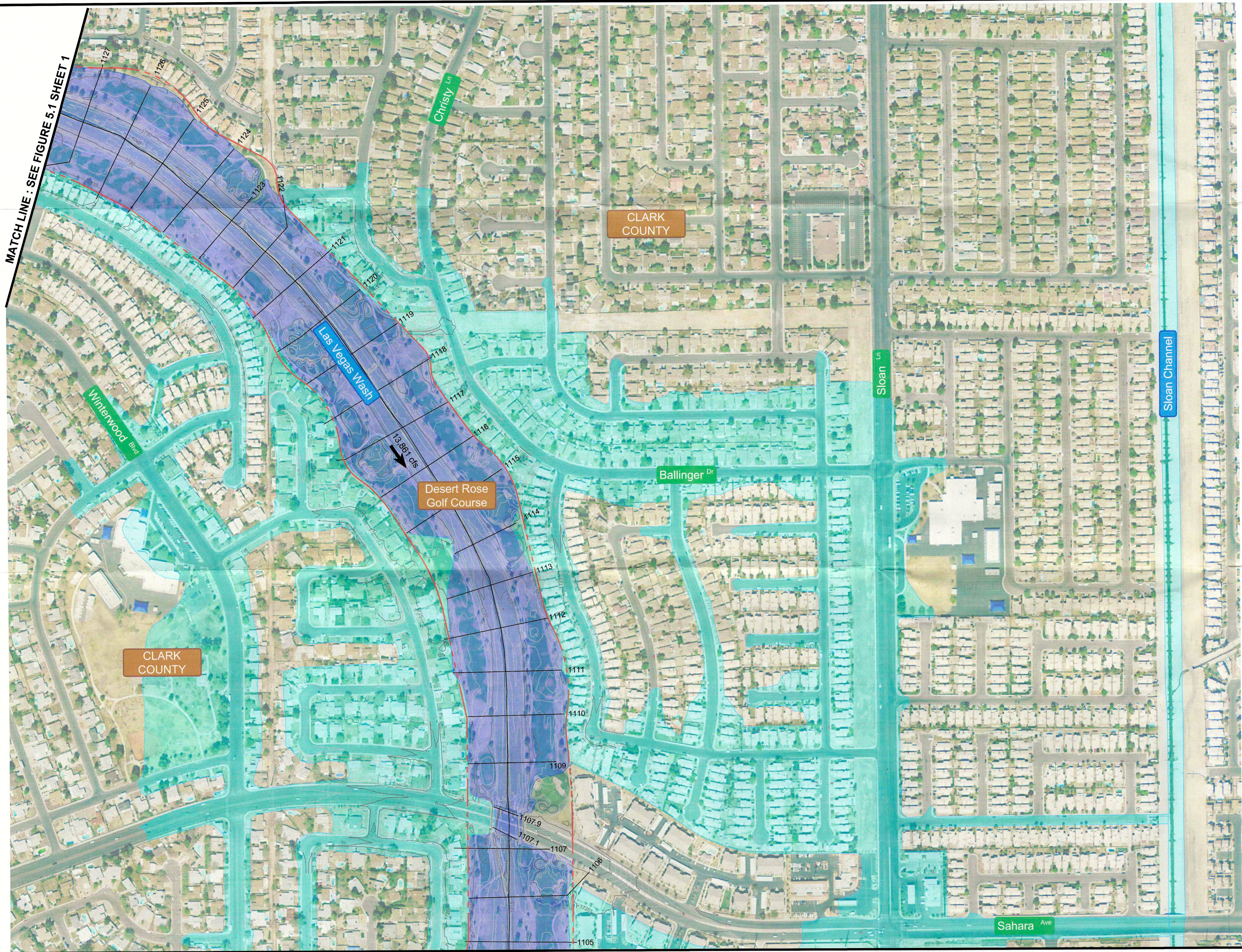
ELEVATION = 531.416 METER = 1743.487 FEET (NAVD88)

FIGURE 5.1 - PRE-PROJECT CONDITIONS WORK MAP LAS VEGAS WASH SHEET 1 OF 3

Las Vegas Wash

CH2MHILL®





LEGEND

- 100 YEAR PRE-PROJECT FLOODPLAIN BOUNDARY, ZONE A
- 100 YEAR PRE-PROJECT FLOODWAY BOUNDARY, ZONE AE
- PUBLIC RIGHT-OF-WAY

NOTES:

- FLOODING SOURCE: LAS VEGAS WASH
- FIRM PANEL(S) AFFECTED: 32003C2187F, 32003C2190F, 32003C2195F

BASIS OF BEARINGS:

THE BASIS OF BEARINGS FOR THIS PROJECT IS GRID NORTH AS DEFINED BY THE NEVADA COORDINATE SYSTEM OF 1983 (NCS83) EAST ZONE 2701.

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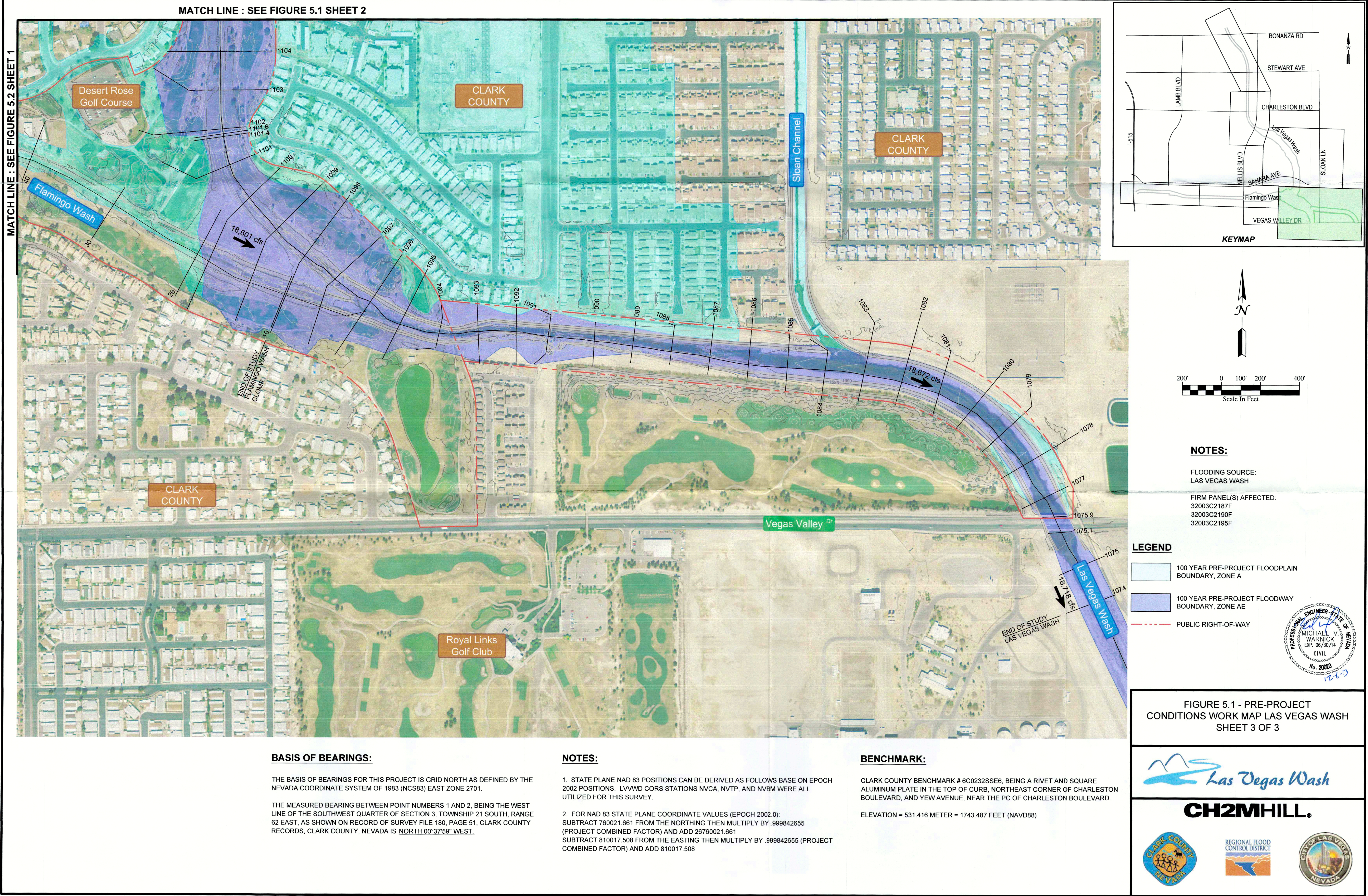


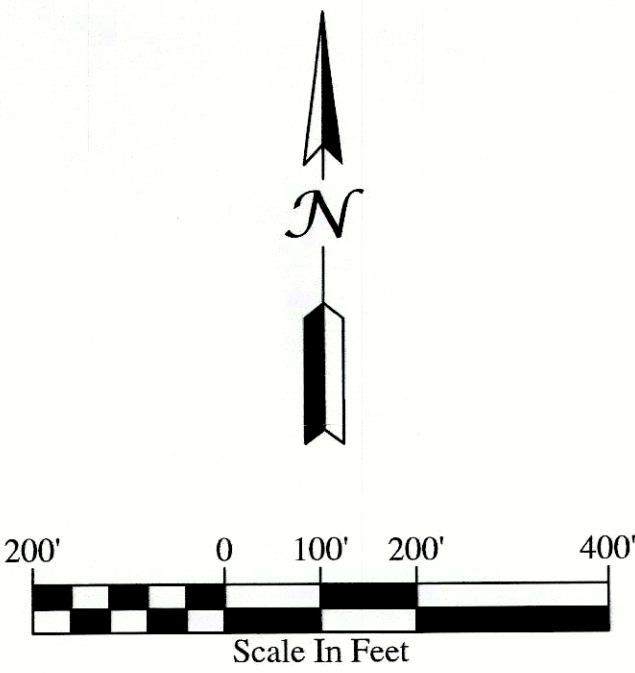
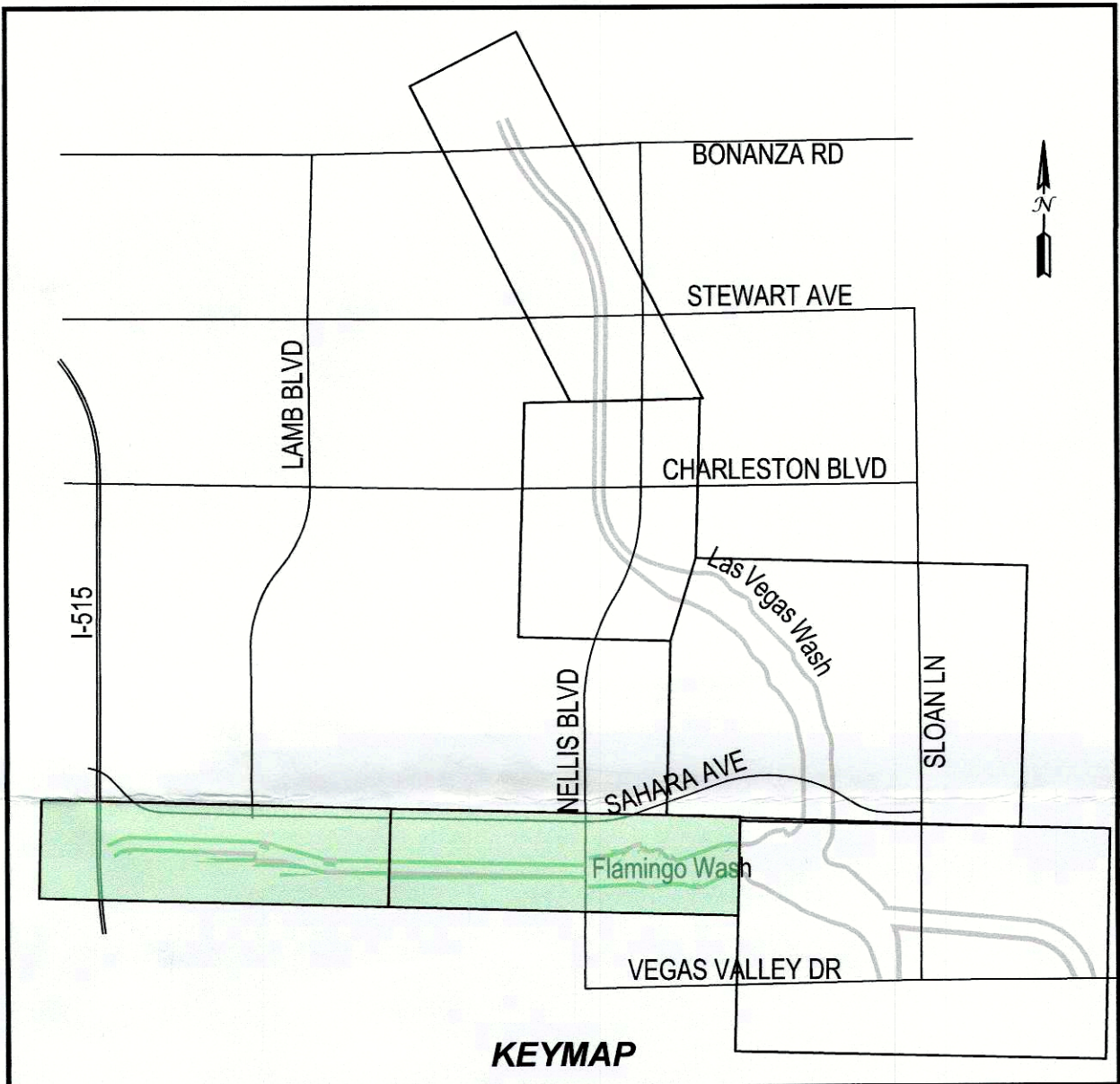
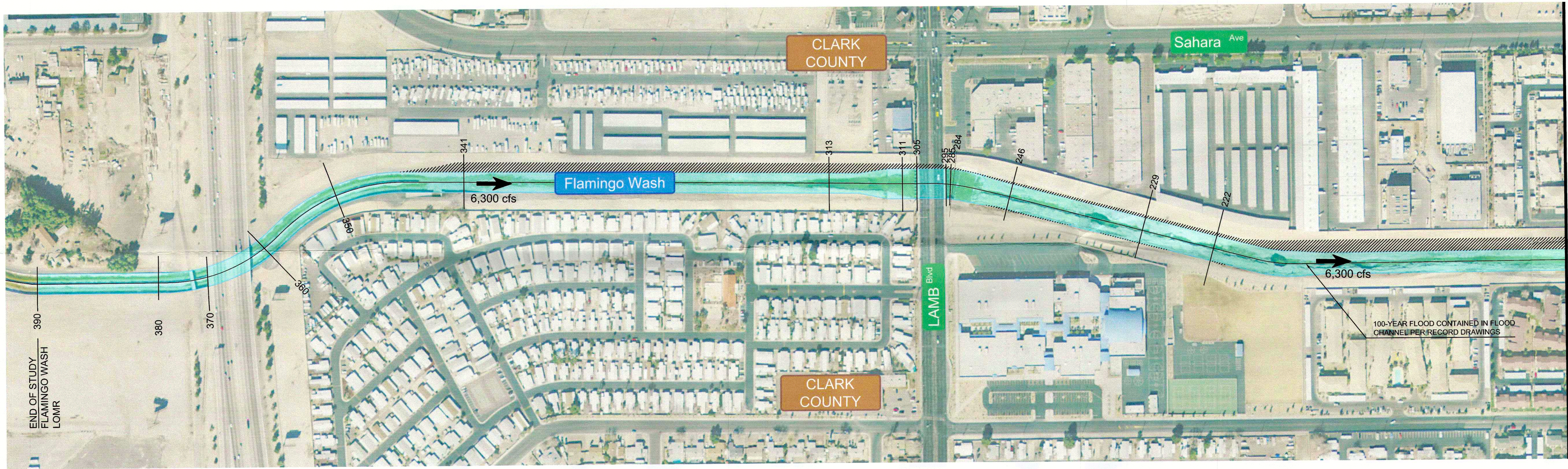
FIGURE 5.1 - PRE-PROJECT CONDITIONS WORK MAP LAS VEGAS WASH SHEET 2 OF 3



CH2MHILL.







NOTES:

FLOODING SOURCE:
FLAMINGO WASH

FIRM PANEL(S) AFFECTED:
32003C2190
32003C2195F

LEGEND

- 100 YEAR PRE-PROJECT FLOODPLAIN BOUNDARY, ZONE A
- 100 YEAR PRE-PROJECT FLOODWAY BOUNDARY, ZONE AE
- PUBLIC RIGHT-OF-WAY

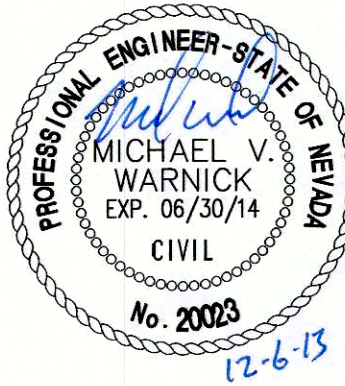
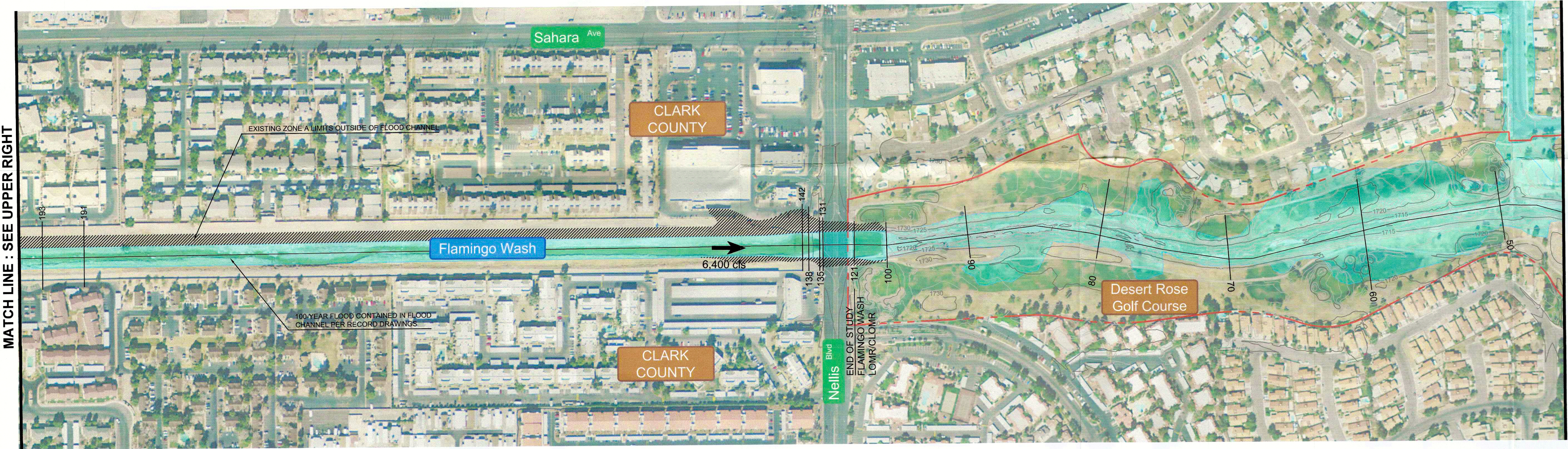


FIGURE 5.2 - PRE-PROJECT
CONDITIONS WORK MAP FLAMINGO WASH
SHEET 1 OF 1



CH2MHILL.



MATCH LINE : SEE FIGURE 5.1 SHEET 3

NOTES:

1. STATE PLANE NAD 83 POSITIONS CAN BE DERIVED AS FOLLOWS BASE ON EPOCH 2002 POSITIONS. LVWVD CORS STATIONS NVCA, NVTP, AND NVBM WERE ALL UTILIZED FOR THIS SURVEY.
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MATCH LINE : SEE UPPER RIGHT