



Federal Emergency Management Agency
Washington, D.C. 20472

**LETTER OF MAP REVISION
DETERMINATION DOCUMENT**

COMMUNITY AND REVISION INFORMATION		PROJECT DESCRIPTION	BASIS OF REQUEST
COMMUNITY	City of Key West Monroe County Florida	NO PROJECT	COASTAL ANALYSIS UPDATED TOPOGRAPHIC DATA
	COMMUNITY NO.: 120168		
IDENTIFIER	Waterfront Playhouse	APPROXIMATE LATITUDE AND LONGITUDE: 24.560, - 81.807 SOURCE: Precision Mapping Streets DATUM: NAD 83	
ANNOTATED MAPPING ENCLOSURE		ANNOTATED STUDY ENCLOSURES	
TYPE: FIRM* NO.: 12087C1516K DATE: February 18, 2005		NO REVISION TO THE FLOOD INSURANCE STUDY REPORT	

Enclosures reflect changes to flooding sources affected by this revision.

* FIRM - Flood Insurance Rate Map

FLOODING SOURCE AND REVISED REACH

Gulf of Mexico – Area centered at approximately 450 feet southwest of the intersection of Wall Street and Duval Street.

SUMMARY OF REVISIONS

Flooding Source	Effective Flooding	Revised Flooding	Increases	Decreases
Gulf of Mexico	Zone VE	Zone AE	NONE	YES
	BFEs*	BFEs	NONE	YES

* BFEs - Base Flood Elevations

DETERMINATION

This document provides the determination from the Department of Homeland Security's Federal Emergency Management Agency (FEMA) regarding a request for a Letter of Map Revision (LOMR) for the area described above. Using the information submitted, we have determined that a revision to the flood hazards depicted in the National Flood Insurance Program (NFIP) map is warranted. This document revises the effective NFIP map, as indicated in the attached documentation. Please use the enclosed annotated map panel revised by this LOMR for floodplain management purposes and for all flood insurance policies and renewals in your community.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Information eXchange toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMC Clearinghouse, 847 South Pickett Street, Alexandria, VA 22304-4605. Additional Information about the NFIP is available on our Web site at <http://www.fema.gov/national-flood-insurance-program>.

Patrick "Rick" F. Sacbibit, P.E., Branch Chief
Engineering Services Branch
Federal Insurance and Mitigation Administration



Federal Emergency Management Agency
Washington, D.C. 20472

**LETTER OF MAP REVISION
DETERMINATION DOCUMENT (CONTINUED)**

COMMUNITY INFORMATION

APPLICABLE NFIP REGULATIONS/COMMUNITY OBLIGATION

We have made this determination pursuant to Section 206 of the Flood Disaster Protection Act of 1973 (P.L. 93-234) and in accordance with the National Flood Insurance Act of 1968, as amended (Title XIII of the Housing and Urban Development Act of 1968, P.L. 90-448), 42 U.S.C. 4001-4128, and 44 CFR Part 65. Pursuant to Section 1361 of the National Flood Insurance Act of 1968, as amended, communities participating in the NFIP are required to adopt and enforce floodplain management regulations that meet or exceed NFIP criteria. These criteria, including adoption of the FIS report and FIRM, and the modifications made by this LOMR, are the minimum requirements for continued NFIP participation and do not supersede more stringent State/Commonwealth or local requirements to which the regulations apply.

COMMUNITY REMINDERS

We based this determination on the 1-percent-annual-chance stillwater elevations computed in the FIS for your community. A comprehensive restudy of your community's flood hazards could establish greater flood hazards in this area.

Your community must regulate all proposed floodplain development and ensure that permits required by Federal and/or State/Commonwealth law have been obtained. State/Commonwealth or community officials, based on knowledge of local conditions and in the interest of safety, may set higher standards for construction or may limit development in floodplain areas. If your State/Commonwealth or community has adopted more restrictive or comprehensive floodplain management criteria, those criteria take precedence over the minimum NFIP requirements.

We will not print and distribute this LOMR to primary users, such as local insurance agents or mortgage lenders; instead, the community will serve as a repository for the new data. We encourage you to disseminate the information in this LOMR by preparing a news release for publication in your community's newspaper that describes the revision and explains how your community will provide the data and help interpret the NFIP maps. In that way, interested persons, such as property owners, insurance agents, and mortgage lenders, can benefit from the information.

We have designated a Consultation Coordination Officer (CCO) to assist your community. The CCO will be the primary liaison between your community and FEMA. For information regarding your CCO, please contact:

Mr. Jesse Munoz
Director, Mitigation Division
Federal Emergency Management Agency, Region IV
Koger Center - Rutgers Building, 3003 Chamblee Tucker Road
Atlanta, GA 30341
(770) 220-5400

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Information eXchange toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMC Clearinghouse, 847 South Pickett Street, Alexandria, VA 22304-4605. Additional Information about the NFIP is available on our Web site at <http://www.fema.gov/national-flood-insurance-program>.

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Patrick "Rick" F. Sacbibit, P.E., Branch Chief
Engineering Services Branch
Federal Insurance and Mitigation Administration



Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP REVISION DETERMINATION DOCUMENT (CONTINUED)

STATUS OF THE COMMUNITY NFIP MAPS

We will not physically revise and republish the FIRM for your community to reflect the modifications made by this LOMR at this time. When changes to the previously cited FIRM panel warrant physical revision and republication in the future, we will incorporate the modifications made by this LOMR at that time.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Information eXchange toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMC Clearinghouse, 847 South Pickett Street, Alexandria, VA 22304-4605. Additional information about the NFIP is available on our Web site at <http://www.fema.gov/national-flood-insurance-program>.

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Patrick "Rick" F. Sacbbit, P.E., Branch Chief
Engineering Services Branch
Federal Insurance and Mitigation Administration



Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP REVISION DETERMINATION DOCUMENT (CONTINUED)

PUBLIC NOTIFICATION OF REVISION

A notice of changes will be published in the *Federal Register*. This information also will be published in your local newspaper on or about the dates listed below, and through FEMA's Flood Hazard Mapping Web site at https://www.floodmaps.fema.gov/fhm/bfe_status/bfe_main.asp.

LOCAL NEWSPAPER

Name: *Key West Citizen*

Dates: June 28, 2016 and July 5, 2016

Within 90 days of the second publication in the local newspaper, any interested party may request that we reconsider this determination. Any request for reconsideration must be based on scientific or technical data. Therefore, this letter will be effective only after the 90-day appeal period has elapsed and we have resolved any appeals that we receive during this appeal period. Until this LOMR is effective, the revised flood hazard determination presented in this LOMR may be changed.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Information eXchange toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMC Clearinghouse, 847 South Pickett Street, Alexandria, VA 22304-4605. Additional Information about the NFIP is available on our Web site at <http://www.fema.gov/national-flood-insurance-program>.

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Patrick "Rick" F. Sacbbit, P.E., Branch Chief
Engineering Services Branch
Federal Insurance and Mitigation Administration



Federal Emergency Management Agency

Washington, D.C. 20472

June 21, 2016

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

The Honorable Craig Cates
Mayor, City of Key West
P. O. Box 1409
Key West, FL 33041

IN REPLY REFER TO:

Case No.: 16-04-4522P
Community Name: City of Key West, FL
Community No.: 120168
Effective Date of
This Revision: **November 2, 2016**

Dear Mayor Cates:

The Flood Insurance Rate Map (FIRM) for your community has been revised by this Letter of Map Revision (LOMR). Please use the enclosed annotated map panel revised by this LOMR for floodplain management purposes and for all flood insurance policies and renewals issued in your community.

Additional documents are enclosed that provide information regarding this LOMR. Please see the List of Enclosures below to determine which documents are included. Other attachments specific to this request may be included as referenced in the Determination Document. If you have any questions regarding floodplain management regulations for your community or the National Flood Insurance Program (NFIP) in general, please contact the Consultation Coordination Officer for your community. If you have any technical questions regarding this LOMR, please contact the Director, Mitigation Division of the Department of Homeland Security's Federal Emergency Management Agency (FEMA) in Atlanta, Georgia, at (770) 220-5400, or the FEMA Map Information eXchange toll free at 1-877-336-2627 (1-877-FEMA MAP). Additional information about the NFIP is available on our Web site at <http://www.fema.gov/national-flood-insurance-program>.

Sincerely,

Patrick "Rick" F. Sacbibit, P.E., Branch Chief
Engineering Services Branch
Federal Insurance and Mitigation Administration

List of Enclosures:

Letter of Map Revision Determination Document
Annotated Flood Insurance Rate Map

cc: Mr. Scott G. Fraser, CFM
FEMA Coordinator
City of Key West

Ms. Mary Smith
Key West Players, Inc.

Dr. Paul C. Lin, PhD, P.E.
President
Paul Lin and Associates

Paul Lin & Associates

12386 S.W. 82 Avenue, Miami, FL 33156
tel: (305) 969-2177 / Paul_Lin@bellsouth.net

69600

April 6, 2016

Mr. Scott Fraser
FEMA Coordinator
CITY OF KEY WEST
3140 Flagler Avenue
Key West, FL 33040

**RE: FEMA'S FLOOD MAP REVISION FOR THE WATERFRONT PLAYHOUSE, MALLORY SQUARE,
KEY WEST, MONROE COUNTY, FLORIDA**

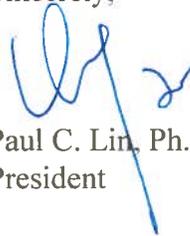
Dear Mr. Fraser:

Enclosed please find a FEMA Letter of Map Revision (LOMR) Application for the above referenced site at Mallory Square, Key West for your review and approval. Specifically, we propose to change a portion of the project area from VE flood zones to AE zones. The proposed revision is based on the findings, following FEMA's guidelines and methodology using the proposed site-specific topographic data. The results of the Wave Height Analysis and the supporting data are included in this LOMR application for your review. The existing and proposed flood zones at the project site are presented in Figures 2 and 4, respectively.

Please review and approve this LOMR application. Upon approval, please sign the attached signature sheets (total 2 copies) in the place as marked so we can submit the LOMR application to FEMA office for their review and approval. Please return the signed sheets to us using the enclosed pre-stamped envelope.

We again greatly appreciate your assistance in this matter. Please feel free to contact us if you have any questions.

Sincerely,



Paul C. Lin, Ph.D., P.E.
President

Enclosures

FEMA Letter of Map Revision (LOMR) Application

Waterfront Playhouse

**Mallory Square
Key West, Florida**

Prepared for:

Key West Players, Inc.

P. O. Box 724
Key West, FL 33041

and

The City of Key West

3140 Flagler Avenue
Key West, Florida 33040

Prepared by:

Paul Lin, Ph.D., P.E.

12386 S.W. 82 Avenue
Miami, Florida 33156

April 6, 2016

Table of Contents

LOMR Application MT-2 Form

Overview & Concurrence Form (Form 1)

Coastal Analysis Form (Form 4)

Appendix A: Project Description and Summary

Figure 1 – Location Map

Figure 2 – Existing FEMA Flood Zones

Figure 3 – Certified Topographic Workmap

Figure 4 – Annotated Flood Insurance Rate Map (Scale: 1"=500')

Appendix B: Revised WHAFIS Wave Height Analysis - Input/Output Files (3 Transects)

U.S. DEPARTMENT OF HOMELAND SECURITY
 FEDERAL EMERGENCY MANAGEMENT AGENCY
OVERVIEW & CONCURRENCE FORM

*O.M.B No. 1660-0016
 Expires February 28, 2014*

PAPERWORK BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 1 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing, reviewing, and submitting the form. You are not required to respond to this collection of information unless it displays a valid OMB control number. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Department of Homeland Security, Federal Emergency Management Agency, 1800 South Bell Street, Arlington, VA 20958-3005, Paperwork Reduction Project (1660-0016). Submission of the form is required to obtain or retain benefits under the National Flood Insurance Program. **Please do not send your completed survey to the above address.**

PRIVACY ACT STATEMENT

AUTHORITY: The National Flood Insurance Act of 1968, Public Law 90-448, as amended by the Flood Disaster Protection Act of 1973, Public Law 93-234.

PRINCIPAL PURPOSE(S): This information is being collected for the purpose of determining an applicant's eligibility to request changes to National Flood Insurance Program (NFIP) Flood Insurance Rate Maps (FIRM).

ROUTINE USE(S): The information on this form may be disclosed as generally permitted under 5 U.S.C § 552a(b) of the Privacy Act of 1974, as amended. This includes using this information as necessary and authorized by the routine uses published in DHS/FEMA/NFIP/LOMA-1 National Flood Insurance Program (NFIP); Letter of Map Amendment (LOMA) February 15, 2006, 71 FR 7990.

DISCLOSURE: The disclosure of information on this form is voluntary; however, failure to provide the information requested may delay or prevent FEMA from processing a determination regarding a requested change to a (NFIP) Flood Insurance Rate Maps (FIRM).

A. REQUESTED RESPONSE FROM DHS-FEMA

This request is for a (check one):

- CLOMR: A letter from DHS-FEMA commenting on whether a proposed project, if built as proposed, would justify a map revision, or proposed hydrology changes (See 44 CFR Ch. 1, Parts 60, 65 & 72).
- LOMR: A letter from DHS-FEMA officially revising the current NFIP map to show the changes to floodplains, regulatory floodway or flood elevations. (See 44 CFR Ch. 1, Parts 60, 65 & 72)

B. OVERVIEW

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

Community No.	Community Name	State	Map No.	Panel No.	Effective Date
Example: 480301 480287	City of Katy Harris County	TX TX	48473C 48201C	0005D 0220G	02/08/83 09/28/90
120168	City of Key West	FL	12087C	1516K	02/18/05

2. a. Flooding Source: Key West Harbor, Gulf of Mexico

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

3. Project Name/Identifier: Waterfront Playhouse

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

5. Basis for Request and Type of Revision:

- a. The basis for this revision request is (check all that apply)
- Physical Change Improved Methodology/Data Regulatory Floodway Revision Base Map Changes
 Coastal Analysis Hydraulic Analysis Hydrologic Analysis Corrections
 Weir-Dam Changes Levee Certification Alluvial Fan Analysis Natural Changes
 New Topographic Data Other (Attach Description)

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

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

Structures: Channelization Levee/Floodwall Bridge/Culvert
 Dam Fill Other (Attach Description)

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

C. REVIEW FEE

Has the review fee for the appropriate request category been included? Yes Fee amount: \$ _____
 No, Attach Explanation

Please see the DHS-FEMA Web site at http://www.fema.gov/plan/prevent/fhm/frm_fees.shtm for Fee Amounts and Exemptions.

D. SIGNATURE

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

Name: Ms. Mary Smith	Company: Key West Players, Inc.	
Mailing Address: P.O. Box 724 Key West, FL 33041	Daytime Telephone No.: 305-395-9537	Fax No.:
	E-Mail Address: bunniesmith@me.com	
Signature of Requester (required):		Date:

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

Community Official's Name and Title: Scott Fraser, FEMA Coordinator		Community Name: City of Key West, FL	
Mailing Address: 3140 Flagler Avenue Key West, FL 33040	Daytime Telephone No.: 305-809-3810	Fax No.: 305-809-3978	
	E-Mail Address: sfraser@cityofkeywest-fl.gov		
Community Official's Signature (required): <i>Scott H Fraser</i>		Date: <i>07 APR 2016</i>	

CERTIFICATION BY REGISTERED PROFESSIONAL ENGINEER AND/OR LAND SURVEYOR

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

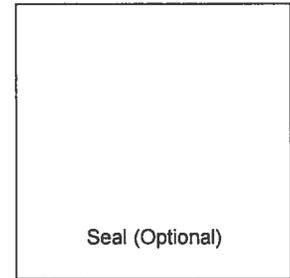
Certifier's Name: Paul Lin, P.E., Ph.D.	License No.: P.E. #42636	Expiration Date: 02/28/2017
Company Name: Paul Lin & Asso	Telephone No.: 305-969-2177	Fax No.:
Signature:	Date:	E-Mail Address: Paul_Lin@bellsouth.net

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

Form Name and (Number)

Required if ...

- | | |
|--|---|
| <input type="checkbox"/> Riverine Hydrology and Hydraulics Form (Form 2) | New or revised discharges or water-surface elevations |
| <input type="checkbox"/> Riverine Structures Form (Form 3) | Channel is modified, addition/revision of bridge/culverts, addition/revision of levee/floodwall, addition/revision of dam |
| <input checked="" type="checkbox"/> Coastal Analysis Form (Form 4) | New or revised coastal elevations |
| <input type="checkbox"/> Coastal Structures Form (Form 5) | Addition/revision of coastal structure |
| <input type="checkbox"/> Alluvial Fan Flooding Form (Form 6) | Flood control measures on alluvial fans |



DEPARTMENT OF HOMELAND SECURITY
FEDERAL EMERGENCY MANAGEMENT AGENCY
COASTAL ANALYSIS FORM

O.M.B No. 1660-0016
Expires February 28, 2014

PAPERWORK REDUCTION ACT

Public reporting burden for this form is estimated to average 1 hour per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing, reviewing, and submitting the form. You are not required to respond to this collection of information unless a valid OMB control number appears in the upper right corner of this form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, U.S. Department of Homeland Security, Federal Emergency Management Agency, 1800 South Bell Street, Arlington VA 20958-3005, Paperwork Reduction Project (1660-0016). Submission of the form is required to obtain or retain benefits under the National Flood Insurance Program. **Please do not send your completed survey to the above address.**

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ROUTINE USE(S): The information on this form may be disclosed as generally permitted under 5 U.S.C § 552a(b) of the Privacy Act of 1974, as amended. This includes using this information as necessary and authorized by the routine uses published in DHS/FEMA/NFIP/LOMA-1 National Flood Insurance Program (NFIP); Letter of Map Amendment (LOMA) February 15, 2006, 71 FR 7990.

DISCLOSURE: The disclosure of information on this form is voluntary; however, failure to provide the information requested may delay or prevent FEMA from processing a determination regarding a requested change to a NFIP Flood Insurance Rate Maps (FIRM).

Flooding Source: Key West Harbor, Gulf of Mexico

Note: Fill out one form for each flooding source studied.

A. COASTLINE TO BE REVISED

Describe limits of study area: A rectangular-shaped area that extends maximum 237' inland from coastline

B. EFFECTIVE FIS

The area being revised in the effective FIS was studied by detailed methods using (check all that apply):

- | | |
|--|---|
| <input type="checkbox"/> Storm surge modeling | <input type="checkbox"/> Wave setup computations |
| <input checked="" type="checkbox"/> Wave height computations | <input type="checkbox"/> Wave runup computations |
| <input type="checkbox"/> Wave overtopping computations | <input type="checkbox"/> Dune erosion computations |
| <input type="checkbox"/> Primary Frontal Dune Assessment | <input type="checkbox"/> N/A (area not studied by detailed methods) |

C. REVISED ANALYSIS

1. Number of transects in revised analysis: 3

2. Information used to prepare the revision (check all that apply):

- | | |
|---|--|
| <input type="checkbox"/> Wave setup analyses (complete Items 3, 4, and 5 below) | <input type="checkbox"/> Wave overtopping assessment (complete Items 4 and 5) |
| <input type="checkbox"/> Stillwater elevation determinations (complete Item 3) | <input checked="" type="checkbox"/> More detailed topographic information (complete Section E) |
| <input type="checkbox"/> Erosion considerations (complete Item 4) | <input type="checkbox"/> Shore protection structures (attach completed Coastal Structures Form - Form 5) |
| <input type="checkbox"/> Wave runup analysis (complete Items 4 and 5) | <input type="checkbox"/> Primary frontal dune assessment (complete Item 5) |
| <input checked="" type="checkbox"/> Wave height analysis (complete Items 4 and 5) | <input type="checkbox"/> Other, attach basis of revision request with explanation |

3. Stillwater Elevation Determination

a. How were stillwater elevations determined?

- Gage analysis (If revised gage analysis was used, provide copies of gage data and revised analysis.)
 Storm surge analysis
 Other (Describe): from FEMA Transect No. 1 in Monroe County FIS (2005)

b. Specify what datum was used in the calculations: NGVD 1929

If not the FIS datum, have the calculations been adjusted to the FIS datum? Yes No Conversion factor: _____

c. Was the storm surge analysis revised? Yes No

d. If a new storm surge model was used, attach a detailed description of the differences between the current and the revised analyses, and why the revised analysis should replace the current analysis.

C. REVISED ANALYSIS (continued)

e. If wave setup was computed, attach a description of methodology used.
Amount of wave setup added to stillwater elevation: _____ feet

4. Revised Analysis (i.e., erosion, wave height, wave runup, primary frontal dune, and wave overtopping)

If DHS-FEMA procedures were utilized to perform the revision, attach a detailed description of differences between the current and the revised analyses, and why the revised analysis should replace the current analysis.

If DHS-FEMA procedures were not utilized to perform the revision, provide full documentation on methodology and/or models used; including operational program, detailed differences between methodology and/or models utilized and DHS-FEMA's methodology and/or models. Also, attach an explanation of why new methodology and/or models should replace current methodology and/or models.

If revision reflects more detailed topographic information and fill has been/will be placed in a V Zone, and is not protected from erosion by a shore protection structure, provide a detailed description of how the fill has been treated in the revised analysis.

5. Wave Runup, Wave Height, And Wave Overtopping Analysis

Wave height analyses along a transect are greatly affected by starting wave conditions that propagate inland. Wave runup and overtopping analyses are typically considered when wave heights and/or wave runup are close to or greater than the crest of shore protection structures or natural land forms.

a. Was an analysis performed to determine starting wave height and period for input into WHAFIS?

If Yes, attach an explanation of the method utilized. If No, explain why these analyses were not performed.

Yes No

b. Was wave setup included in wave height analysis and removed for erosion and wave runup analyses?

Yes No

c. Was an overtopping analysis performed for any coastal shore protection structures or natural land forms that may be overtopped?

Yes No

If Yes, attach an explanation of the methodology utilized and describe in detail the results of the analysis.
If overtopping was not analyzed, attach an explanation for why these analyses were not performed.

D. RESULTS

- 1. Stillwater storm surge elevation: +8.4 feet NGVD Datum
- 2. Wave setup: n/a feet
- 3. Starting deep-water significant wave condition:
height: n/a period: 13 sec
- 4. Maximum wave height elevation: 13'@shore feet
- 5. Maximum wave runup elevation: n/a feet
- 6. Estimated amount of maximum overtopping: n/a cfs/feet
- 7. Has this revision changed the Limit of Moderate Wave Action (LiMWA)? Yes No N/A
- 8. The areas designated as coastal high hazard areas (V Zones) have:
 increased decreased both

Attach a description where they have increased and/or decreased.

- 9. As a result of the revised analyses, the V Zone location has shifted a maximum of 227 feet seaward and 0 feet landward of its existing position.
- 10. Does this revision reflect the location of the primary frontal dune?
 Yes No
- 11. The Base Flood Elevations have:
 increased decreased
 - a. What was the greatest increase? n/a feet
 - b. What was the greatest decrease? 3 feet
- 12. The special flood hazard area has:
 increased decreased both

Attach a description where it has increased or decreased.

E. MAPPING REQUIREMENTS

A certified topographic map must be submitted showing the following information (where applicable): effective, existing conditions, and proposed conditions 1%-annual-chance floodplain boundaries, revised shoreline due to either erosion or accretion, location and alignment of all transects, correct location and alignment of any structures, current community easements and boundaries, boundary of the requester's property, certification of a professional engineer registered in the subject State, location and description of reference marks, and the referenced vertical datum (NGVD, NAVD, etc.).

Note that the existing or proposed conditions floodplain boundaries to be shown on the revised FIRM must tie-in with the effective floodplain boundaries. Please attach a copy of the current FIRM annotated to show the revised 1%-annual-chance floodplain boundaries that tie-in with effective 1%-annual-chance floodplain boundaries along the entire extent of the area of revision.

Appendix-A

Project Description and Summary

Project Description and Summary

1. Site Characteristics: The project site (Key West Players, Inc.'s lease area) is located at Mallory Square, Key West and approximately 182 feet from the seaward edge of a pier structure along the Key West Harbor coastline (Figure 1). The irregular-shaped site measures maximum 82.4 feet and 138.4 feet in a shore-parallel and shore-perpendicular direction, as illustrated in Figure 2, respectively. The grade at the project area varied from +4.0 to +5.3 feet NGVD (National Geodetic Vertical Datum of 1929). The primary flooding source occurs from the Key West Harbor, which connects to the Gulf of Mexico, as delineated by FEMA's Transect No. 1 with a 100-year stillwater elevation of +8.4 feet NGVD as reported by the FEMA Monroe County Flood Insurance Study (FIS).

From the current FEMA's FIRM (No. 12087C1516K, Feb. 2005), the project area lies within the AE/VE flood zones ("Special Flood Hazard Area") with a base flood elevation ranging from 9 feet to 13 feet NGVD as shown in Figure 2. These flood zone designations were determined by FEMA based on interpretation of the results of their wave height analysis along Transect No. 1 as documented in the FIS (2005).

2. Purpose of Reanalysis: Observation of the existing site conditions as shown in Figure 3 (topographic workmap) reveals potential improvement of the current FIRM flood zones due to its relatively high upland topographic elevations. The purpose of this reanalysis is to establish a more accurate delineation of the flood zones within the project area based on the existing site-specific conditions.

3. Wave Height Reanalysis and Map Revision: A numerical reanalysis was performed using the established FEMA methodology with the site-specific topographic data. This analysis was based on the FEMA two-dimensional WHAFIS model (*Wave Height Analysis for Flood Insurance Studies*). The analysis was conducted following 3 new revised transect lines (Transect-A, -B and -C) extending from the Key West Harbor coastline through the project site in a shore perpendicular direction, as shown in Figure 3. Along those revised transects, the elevations and station distances obtained from the topographic survey are presented. The WHAFIS model was run following those

3 new shore-perpendicular transects starting at the coastline using the FIS reported 100-year stillwater elevation of +8.4 feet NGVD (FEMA Transect No.1) and site-specific topographic data.

4. WHAFIS Model Results:

The results of the revised WHAFIS model reanalysis demonstrate that with consideration of the site-specific topographic data, the revised AE/VE floodplain boundary along the new transects would shift a maximum of 227 feet seaward from its current location (Figures 3 and 4). Under the revised flood zones, the project will lie within a new AE9 flood zone. The revised WHAFIS model input and output files supporting this reanalysis are presented in Appendix-B.

References:

FEMA (2007), *Atlantic Ocean and Gulf of Mexico Coastal Guidelines Update, D.2.10 Coastal Structures*.

FEMA (2005), *Flood Insurance Study, Monroe County, Florida, and Incorporated Areas* (Flood Insurance Study Number 12087CV000A) Federal Emergency Management Agency, Mitigation Directorate, 500 C Street, Washington D.C.

FEMA (2003), *Guidelines and Specifications for Flood Hazard Mapping Partners; Appendix D - Guidance for Coastal Flooding Analyses and Mapping*, Federal Emergency Management Agency, Mitigation Directorate, 500 C Street, Washington D.C.

FEMA (2000), *Coastal Construction Manual* (FEMA 55) Federal Emergency Management Agency, Mitigation Directorate, 500 C Street, Washington D.C.

FEMA (1995), *Guidelines and Specifications for Wave Elevation Determination and V Zone Mapping*, Federal Emergency Management Agency, Mitigation Directorate, 500 C Street, Washington D.C.

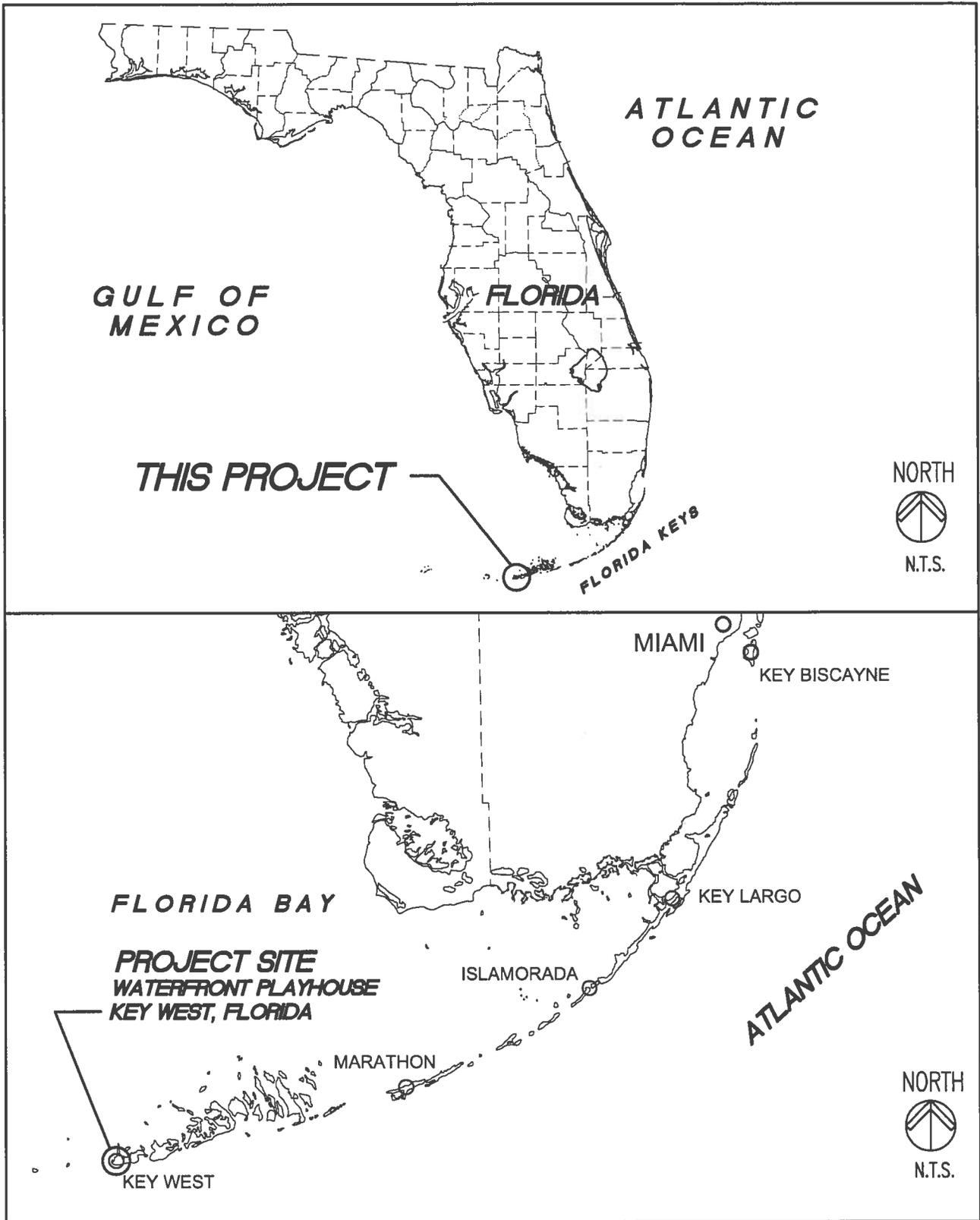


FIGURE 1
LOCATION MAP



FIGURE 2
EXISTING FEMA FLOOD ZONES

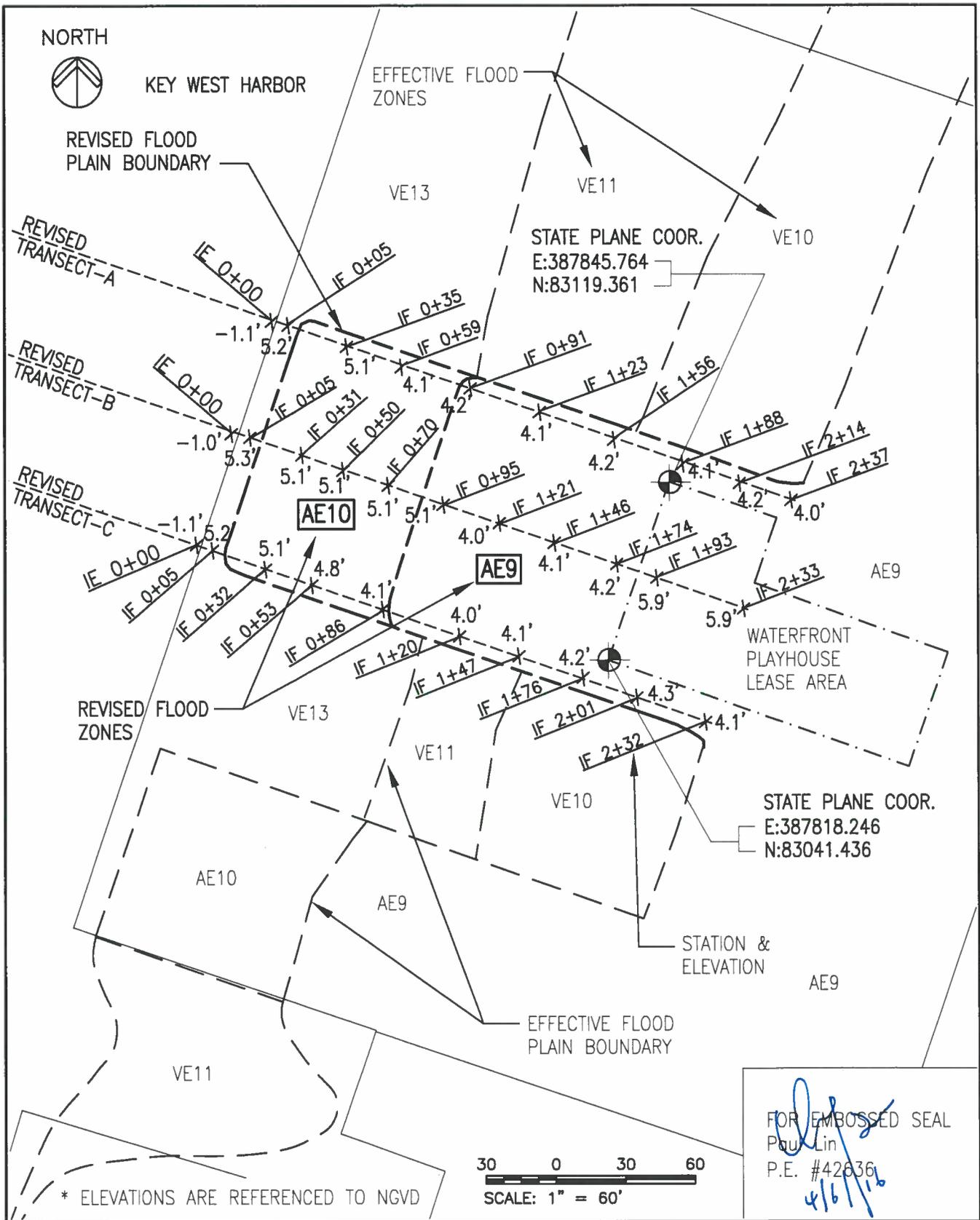


FIGURE 3
CERTIFIED TOPOGRAPHIC WORKMAP

Appendix-B

**Revised WHAFIS Wave Height Analysis
Input/Output Files for 3 Transects**

outputA
 WAVE HEIGHT COMPUTATIONS FOR FLOOD INSURANCE STUDIES (WHAFIS VERSION 4.0G, 08_2007)
 Executed on: Tue Mar 29 11:40:08 2016
 Input file: C:\(PLA Projects, 2016-03-01)\2015-Projects (#67100 - #70000)\69600 (Waterfront Playhouse, Key West, LOMR)\WHAFIS\inputA.in
 Output file: C:\(PLA Projects, 2016-03-01)\2015-Projects (#67100 - #70000)\69600 (Waterfront Playhouse, Key West, LOMR)\WHAFIS\outputA.out

#69600:Waterfront Playhouse (FEMA transect#1),REVISED TRANS.-A: 03/29/16
 THIS IS A 100-YEAR CASE

PART1 INPUT

IE	0.000	-1.100	24.000	0.000	8.400	0.000	13.000	0.000	1.260	0.000
IF	5.000	5.200	0.000	8.357	0.000	0.000	0.000	0.000	0.177	0.000
IF	35.000	5.100	0.000	8.102	0.000	0.000	0.000	0.000	-0.020	0.000
IF	59.000	4.100	0.000	7.898	0.000	0.000	0.000	0.000	-0.016	0.000
IF	91.000	4.200	0.000	7.626	0.000	0.000	0.000	0.000	0.000	0.000
IF	123.000	4.100	0.000	7.353	0.000	0.000	0.000	0.000	0.000	0.000
IF	156.000	4.200	0.000	7.072	0.000	0.000	0.000	0.000	0.000	0.000
IF	188.000	4.100	0.000	6.800	0.000	0.000	0.000	0.000	0.000	0.000
IF	214.000	4.200	0.000	6.800	0.000	0.000	0.000	0.000	-0.002	0.000
IF	237.000	4.000	0.000	6.800	0.000	0.000	0.000	0.000	-0.009	0.000
ET	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

IE	0.000	END ELEVATION	END ELEVATION	FETCH LENGTH	SURGE ELEV 10-YEAR	SURGE ELEV 100-YEAR	INITIAL WAVE HEIGHT	INITIAL W. PERIOD	BOTTOM SLOPE	AVERAGE A-ZONES
IF	5.000	5.200	5.100	0.000	8.357	8.102	0.000	13.000	1.260	0.000
IF	35.000	5.100	5.100	0.000	8.102	7.898	0.000	0.000	0.177	0.000
IF	59.000	4.100	4.100	0.000	7.898	7.626	0.000	0.000	-0.020	0.000
IF	91.000	4.200	4.100	0.000	7.626	7.353	0.000	0.000	-0.016	0.000
IF	123.000	4.100	4.200	0.000	7.353	7.072	0.000	0.000	0.000	0.000
IF	156.000	4.200	4.100	0.000	7.072	6.800	0.000	0.000	0.000	0.000
IF	188.000	4.100	4.200	0.000	6.800	6.800	0.000	0.000	-0.002	0.000
IF	214.000	4.000	4.000	0.000	6.800	6.800	0.000	0.000	-0.009	0.000
IF	237.000	4.000	4.000	0.000	6.800	6.800	0.000	0.000	0.000	0.000

outputA										
IF	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR	NEW SURGE 100-YEAR	0.000	0.000	0.000	0.000	AVERAGE A-ZONES
	123.000	4.100	0.000	7.353						0.000
										BOTTOM SLOPE
										0.000
IF	156.000	4.200	0.000	7.072						0.000
										BOTTOM SLOPE
										0.000
IF	188.000	4.100	0.000	6.800						0.000
										BOTTOM SLOPE
										0.000
IF	214.000	4.200	0.000	6.800						0.000
										BOTTOM SLOPE
										-0.002
IF	237.000	4.000	0.000	6.800						0.000
										BOTTOM SLOPE
										-0.009

-----END OF TRANSECT-----

NOTE:

SURGE ELEVATION INCLUDES CONTRIBUTIONS FROM ASTRONOMICAL AND STORM TIDES.

1

PART2: CONTROLLING WAVE HEIGHTS, SPECTRAL PEAK WAVE PERIOD, AND WAVE CREST ELEVATIONS

LOCATION	CONTROLLING WAVE HEIGHT	SPECTRAL PEAK WAVE PERIOD	WAVE CREST ELEVATION
IE	0.00	13.00	13.50
IF	5.00	13.00	10.07
IF	35.00	13.00	9.73
IF	59.00	13.00	9.63
IF	91.00	13.00	9.33
IF	123.00	13.00	9.04

IF	156.00	2.23	13.00	8.63
IF	188.00	2.10	13.00	8.27
IF	214.00	2.02	13.00	8.21
IF	237.00	2.07	13.00	8.25

TRANSMITTED WAVE HEIGHT AT LAST FETCH OR OBSTRUCTION = 2.07 WHICH EXCEEDS 0.5.

PART3 LOCATION OF AREAS ABOVE 100-YEAR SURGE
 NO AREAS ABOVE 100-YEAR SURGE IN THIS TRANSECT

PART4 LOCATION OF SURGE CHANGES

STATION	10-YEAR SURGE	100-YEAR SURGE
5.00	0.00	8.36
35.00	0.00	8.10
59.00	0.00	7.90
91.00	0.00	7.63
123.00	0.00	7.35
156.00	0.00	7.07
188.00	0.00	6.80

PART5 LOCATION OF V ZONES

STATION OF GUTTER	LOCATION OF ZONE
4.43	WINDWARD

PART6 NUMBERED A ZONES AND V ZONES

STATION OF GUTTER	ELEVATION	ZONE DESIGNATION	FHF
0.00	13.50		
		V23	EL=13 130

outputA

1.46	12.50	V23 EL=12	130
2.92	11.50	V23 EL=11	130
4.37	10.50	V23 EL=10	130
4.43	10.48	A18 EL=10	90
5.00	10.07	A18 EL=10	90
35.00	9.73	A18 EL=10	90
59.00	9.63	A18 EL=10	90
73.01	9.50	A18 EL=10	90
91.00	9.33	A18 EL= 9	90
123.00	9.04	A18 EL= 9	90
156.00	8.63	A18 EL= 9	90
167.57	8.50	A18 EL= 8	90
188.00	8.27	A18 EL= 8	90

237.00 outputA
 8.25

ZONE TERMINATED AT END OF TRANSECT

PART 7 POSTSCRIPT NOTES

outputB

WAVE HEIGHT COMPUTATIONS FOR FLOOD INSURANCE STUDIES (WHAFIS VERSION 4.0G, 08_2007)
 Executed on: Tue Mar 29 10:57:54 2016
 Input file: C:\(PLA Projects, 2016-03-01)\2015-Projects (#67100 - #70000)\69600 (Waterfront Playhouse, Key West, LOMR)\WHAFIS\inputB.in
 Output file: C:\(PLA Projects, 2016-03-01)\2015-Projects (#67100 - #70000)\69600 (Waterfront Playhouse, Key West, LOMR)\WHAFIS\outputB.out

#69600:Waterfront Playhouse (FEMA transect#1),REVISED TRANS.-B: 03/29/16
 THIS IS A 100-YEAR CASE

PART1 INPUT

STATION	END ELEVATION	END ELEVATION	FETCH LENGTH	SURGE ELEV 10-YEAR	SURGE ELEV 100-YEAR	SURGE ELEV 100-YEAR	WAVE HEIGHT	INITIAL W. PERIOD	INITIAL W. PERIOD	BOTTOM SLOPE	AVERAGE A-ZONES
IE	0.000	-1.000	24.000	0.000	8.400	0.000	13.000	0.000	0.000	0.000	1.260
IF	5.000	5.300	0.000	8.354	0.000	0.000	0.000	0.000	0.000	0.000	0.197
IF	31.000	5.100	0.000	8.115	0.000	0.000	0.000	0.000	0.000	0.000	-0.004
IF	50.000	5.100	0.000	7.940	0.000	0.000	0.000	0.000	0.000	0.000	0.000
IF	70.000	5.100	0.000	7.756	0.000	0.000	0.000	0.000	0.000	0.000	0.000
IF	95.000	5.100	0.000	7.526	0.000	0.000	0.000	0.000	0.000	0.000	-0.022
IF	121.000	4.000	0.000	7.287	0.000	0.000	0.000	0.000	0.000	0.000	-0.020
IF	146.000	4.100	0.000	7.057	0.000	0.000	0.000	0.000	0.000	0.000	0.004
IF	174.000	4.200	0.000	6.800	0.000	0.000	0.000	0.000	0.000	0.000	0.038
IF	193.000	5.900	0.000	6.800	0.000	0.000	0.000	0.000	0.000	0.000	0.029
IF	233.000	5.900	0.000	6.800	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

1

STATION	END ELEVATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR	NEW SURGE 100-YEAR	WAVE HEIGHT	INITIAL W. PERIOD	INITIAL W. PERIOD	BOTTOM SLOPE	AVERAGE A-ZONES
IE	0.000	-1.000	24.000	0.000	8.400	0.000	13.000	0.000	1.260	0.000
IF	5.000	5.300	0.000	8.354	0.000	0.000	0.000	0.000	0.197	0.000
IF	31.000	5.100	0.000	8.115	0.000	0.000	0.000	0.000	-0.004	0.000
IF	50.000	5.100	0.000	7.940	0.000	0.000	0.000	0.000	0.000	0.000
IF	70.000	5.100	0.000	7.756	0.000	0.000	0.000	0.000	0.000	0.000
IF	95.000	5.100	0.000	7.526	0.000	0.000	0.000	0.000	0.000	0.000
IF	121.000	4.000	0.000	7.287	0.000	0.000	0.000	0.000	0.000	0.000
IF	146.000	4.100	0.000	7.057	0.000	0.000	0.000	0.000	0.000	0.000
IF	174.000	4.200	0.000	6.800	0.000	0.000	0.000	0.000	0.000	0.000
IF	193.000	5.900	0.000	6.800	0.000	0.000	0.000	0.000	0.000	0.000
IF	233.000	5.900	0.000	6.800	0.000	0.000	0.000	0.000	0.000	0.000

outputB

IF	END STATION 95.000	END ELEVATION 5.100	NEW SURGE 10-YEAR 0.000	NEW SURGE 100-YEAR 7.526	0.000	0.000	0.000	0.000	BOTTOM SLOPE -0.022	AVERAGE A-ZONES 0.000
IF	END STATION 121.000	END ELEVATION 4.000	NEW SURGE 10-YEAR 0.000	NEW SURGE 100-YEAR 7.287	0.000	0.000	0.000	0.000	BOTTOM SLOPE -0.020	AVERAGE A-ZONES 0.000
IF	END STATION 146.000	END ELEVATION 4.100	NEW SURGE 10-YEAR 0.000	NEW SURGE 100-YEAR 7.057	0.000	0.000	0.000	0.000	BOTTOM SLOPE 0.004	AVERAGE A-ZONES 0.000
IF	END STATION 174.000	END ELEVATION 4.200	NEW SURGE 10-YEAR 0.000	NEW SURGE 100-YEAR 6.800	0.000	0.000	0.000	0.000	BOTTOM SLOPE 0.038	AVERAGE A-ZONES 0.000
IF	END STATION 193.000	END ELEVATION 5.900	NEW SURGE 10-YEAR 0.000	NEW SURGE 100-YEAR 6.800	0.000	0.000	0.000	0.000	BOTTOM SLOPE 0.029	AVERAGE A-ZONES 0.000
IF	END STATION 233.000	END ELEVATION 5.900	NEW SURGE 10-YEAR 0.000	NEW SURGE 100-YEAR 6.800	0.000	0.000	0.000	0.000	BOTTOM SLOPE 0.000	AVERAGE A-ZONES 0.000

-----END OF TRANSECT-----

NOTE:

SURGE ELEVATION INCLUDES CONTRIBUTIONS FROM ASTRONOMICAL AND STORM TIDES.

1

PART2: CONTROLLING WAVE HEIGHTS, SPECTRAL
PEAK WAVE PERIOD, AND WAVE CREST ELEVATIONS

LOCATION	CONTROLLING WAVE HEIGHT	SPECTRAL WAVE PERIOD	WAVE CREST ELEVATION
IE	0.00	7.21	13.00
IF	5.00	2.37	13.00
IF	31.00	2.34	13.00
			13.45
			10.01
			9.75

		outputB		
IF	50.00	2.20	13.00	9.48
IF	70.00	2.06	13.00	9.20
IF	95.00	1.88	13.00	8.84
IF	121.00	2.03	13.00	8.71
IF	146.00	2.01	13.00	8.46
IF	174.00	1.97	13.00	8.18
IF	193.00	0.70	13.00	7.29
IF	233.00	0.70	13.00	7.29

TRANSMITTED WAVE HEIGHT AT LAST FETCH OR OBSTRUCTION = 0.70 WHICH EXCEEDS 0.5.

PART3 LOCATION OF AREAS ABOVE 100-YEAR SURGE

NO AREAS ABOVE 100-YEAR SURGE IN THIS TRANSECT

PART4 LOCATION OF SURGE CHANGES

STATION	10-YEAR SURGE	100-YEAR SURGE
5.00	0.00	8.35
31.00	0.00	8.11
50.00	0.00	7.94
70.00	0.00	7.76
95.00	0.00	7.53
121.00	0.00	7.29
146.00	0.00	7.06
174.00	0.00	6.80

PART5 LOCATION OF V ZONES

STATION OF GUTTER	LOCATION OF ZONE
4.35	WINDWARD

outputB

PART6 NUMBERED A ZONES AND V ZONES

STATION OF GUTTER	ELEVATION	ZONE DESIGNATION	FHF
0.00	13.45		
1.38	12.50	V23 EL=13	130
2.83	11.50	V23 EL=12	130
4.29	10.50	V23 EL=11	130
4.35	10.48	V23 EL=10	130
5.00	10.01	A17 EL=10	85
31.00	9.75	A17 EL=10	85
48.78	9.50	A17 EL=10	85
50.00	9.48	A17 EL= 9	85
70.00	9.20	A17 EL= 9	85
95.00	8.84	A17 EL= 9	85
121.00	8.71	A17 EL= 9	85

142.28	outputB	A17	EL= 9	85
	8.50			
146.00		A17	EL= 8	85
	8.46			
174.00		A17	EL= 8	85
	8.18			
188.51		A17	EL= 8	85
	7.50			
233.00		A17	EL= 7	85
	7.29			

ZONE TERMINATED AT END OF TRANSECT

PART 7 POSTSCRIPT NOTES

outputC

WAVE HEIGHT COMPUTATIONS FOR FLOOD INSURANCE STUDIES (WHAFIS VERSION 4.0G, 08_2007)
 Executed on: Tue Mar 29 11:05:18 2016
 Input file: C:\(PLA Projects, 2016-03-01)\2015-Projects (#67100 - #70000)\69600 (Waterfront Playhouse, Key West, LOMR)\WHAFIS\inputC.in
 Output file: C:\(PLA Projects, 2016-03-01)\2015-Projects (#67100 - #70000)\69600 (Waterfront Playhouse, Key West, LOMR)\WHAFIS\outputC.out

#69600:Waterfront Playhouse (FEMA transect#1),REVISED TRANS.-C: 03/29/16
 THIS IS A 100-YEAR CASE

PART1 INPUT														
IE	0.000	-1.100	24.000	0.000	8.400	0.000	13.000	0.000	1.260	0.000	0.000	0.000	0.000	0.000
IF	5.000	5.200	0.000	8.355	0.000	0.000	0.000	0.000	0.194	0.000	0.000	0.000	0.000	0.000
IF	32.000	5.100	0.000	8.109	0.000	0.000	0.000	0.000	-0.008	0.000	0.000	0.000	0.000	0.000
IF	53.000	4.800	0.000	7.918	0.000	0.000	0.000	0.000	-0.019	0.000	0.000	0.000	0.000	0.000
IF	86.000	4.100	0.000	7.618	0.000	0.000	0.000	0.000	-0.012	0.000	0.000	0.000	0.000	0.000
IF	120.000	4.000	0.000	7.309	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
IF	147.000	4.100	0.000	7.064	0.000	0.000	0.000	0.000	0.004	0.000	0.000	0.000	0.000	0.000
IF	176.000	4.200	0.000	6.800	0.000	0.000	0.000	0.000	0.004	0.000	0.000	0.000	0.000	0.000
IF	201.000	4.300	0.000	6.800	0.000	0.000	0.000	0.000	-0.002	0.000	0.000	0.000	0.000	0.000
IF	232.000	4.100	0.000	6.800	0.000	0.000	0.000	0.000	-0.007	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

1

IE	0.000	END STATION ELEVATION	END ELEVATION	FETCH LENGTH	NEW SURGE 10-YEAR	SURGE ELEV 10-YEAR	SURGE ELEV 100-YEAR	INITIAL WAVE HEIGHT	INITIAL W. PERIOD	BOTTOM SLOPE	AVERAGE A-ZONES
IF	5.000	5.200	-1.100	24.000	0.000	8.400	0.000	0.000	13.000	1.260	0.000
IF	32.000	5.100	5.000	0.000	8.355	0.000	0.000	0.000	0.000	0.194	0.000
IF	53.000	4.800	5.100	0.000	8.109	0.000	0.000	0.000	0.000	-0.008	0.000
IF	86.000	4.100	4.800	0.000	7.918	0.000	0.000	0.000	0.000	-0.019	0.000
IF	120.000	4.000	4.100	0.000	7.618	0.000	0.000	0.000	0.000	-0.012	0.000
IF	147.000	4.100	4.000	0.000	7.309	0.000	0.000	0.000	0.000	0.000	0.000
IF	176.000	4.200	4.100	0.000	7.064	0.000	0.000	0.000	0.000	0.004	0.000
IF	201.000	4.300	4.200	0.000	6.800	0.000	0.000	0.000	0.000	0.004	0.000
IF	232.000	4.100	4.300	0.000	6.800	0.000	0.000	0.000	0.000	-0.002	0.000
IF	86.000	4.100	4.100	0.000	6.800	0.000	0.000	0.000	0.000	-0.007	0.000

		outputC								
IF	END STATION 120.000	END ELEVATION 4.000	NEW SURGE 10-YEAR 0.000	NEW SURGE 100-YEAR 7.309	0.000	0.000	0.000	0.000	BOTTOM SLOPE 0.000	AVERAGE A-ZONES 0.000
IF	END STATION 147.000	END ELEVATION 4.100	NEW SURGE 10-YEAR 0.000	NEW SURGE 100-YEAR 7.064	0.000	0.000	0.000	0.000	BOTTOM SLOPE 0.004	AVERAGE A-ZONES 0.000
IF	END STATION 176.000	END ELEVATION 4.200	NEW SURGE 10-YEAR 0.000	NEW SURGE 100-YEAR 6.800	0.000	0.000	0.000	0.000	BOTTOM SLOPE 0.004	AVERAGE A-ZONES 0.000
IF	END STATION 201.000	END ELEVATION 4.300	NEW SURGE 10-YEAR 0.000	NEW SURGE 100-YEAR 6.800	0.000	0.000	0.000	0.000	BOTTOM SLOPE -0.002	AVERAGE A-ZONES 0.000
IF	END STATION 232.000	END ELEVATION 4.100	NEW SURGE 10-YEAR 0.000	NEW SURGE 100-YEAR 6.800	0.000	0.000	0.000	0.000	BOTTOM SLOPE -0.007	AVERAGE A-ZONES 0.000

-----END OF TRANSECT-----

NOTE:

SURGE ELEVATION INCLUDES CONTRIBUTIONS FROM ASTRONOMICAL AND STORM TIDES.

1

PART2: CONTROLLING WAVE HEIGHTS, SPECTRAL
PEAK WAVE PERIOD, AND WAVE CREST ELEVATIONS

LOCATION	CONTROLLING WAVE HEIGHT	SPECTRAL WAVE PERIOD	PEAK WAVE PERIOD	WAVE CREST ELEVATION
IE	0.00	7.28	13.00	13.50
IF	5.00	2.45	13.00	10.07
IF	32.00	2.33	13.00	9.74
IF	53.00	2.36	13.00	9.57
IF	86.00	2.45	13.00	9.33
IF	120.00	2.43	13.00	9.01

	IF	147.00	outputC	2.30	13.00	8.67
	IF	176.00	2.02	13.00	8.21	
	IF	201.00	1.94	13.00	8.16	
	IF	232.00	1.99	13.00	8.20	

TRANSMITTED WAVE HEIGHT AT LAST FETCH OR OBSTRUCTION = 1.99 WHICH EXCEEDS 0.5.

PART3 LOCATION OF AREAS ABOVE 100-YEAR SURGE
 NO AREAS ABOVE 100-YEAR SURGE IN THIS TRANSECT

PART4 LOCATION OF SURGE CHANGES

STATION	10-YEAR SURGE	100-YEAR SURGE
5.00	0.00	8.35
32.00	0.00	8.11
53.00	0.00	7.92
86.00	0.00	7.62
120.00	0.00	7.31
147.00	0.00	7.06
176.00	0.00	6.80

PART5 LOCATION OF V ZONES

STATION OF GUTTER	LOCATION OF ZONE
4.43	WINDWARD

PART6 NUMBERED A ZONES AND V ZONES

STATION OF GUTTER	ELEVATION	ZONE DESIGNATION	FHF
0.00	13.50		
		V23	130

outputC

1.46	12.50			
2.91	11.50	V23	EL=12	130
4.37	10.50	V23	EL=11	130
4.43	10.48	V23	EL=10	130
5.00	10.07	A18	EL=10	90
32.00	9.74	A18	EL=10	90
53.00	9.57	A18	EL=10	90
63.00	9.50	A18	EL=10	90
86.00	9.33	A18	EL= 9	90
120.00	9.01	A18	EL= 9	90
147.00	8.67	A18	EL= 9	90
157.93	8.50	A18	EL= 9	90
176.00	8.21	A18	EL= 8	90
		A18	EL= 8	90

232.00 outputC
 8.20

ZONE TERMINATED AT END OF TRANSECT

PART 7 POSTSCRIPT NOTES