



Leonard Jackson Associates Consulting Engineers

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August 27, 1999

Puerto Rico Planning Board
Centro Guberna Mental Minillas
Torre Norte, Piso 10
Santurce, Puerto Rico 00908

Re: F.E.M.A. Flood Insurance Study
Rio Grande De Loiza
Plaza Pinero Site
Canovanas, Puerto Rico
LJA # 99023

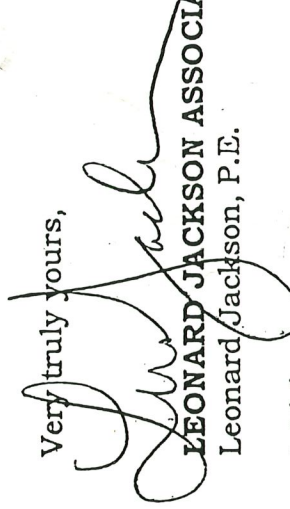
Gentlemen:

Please note that a request for a Conditional Letter of Map Revision (CLOMR) has been made to the Federal Emergency Management Agency (FEMA) to modify the Floodway of the Rio Grande De Loiza in Canovanas, Puerto Rico.

This map revision will be contingent upon lowering the overbank of the Rio Grande De Loiza on the Plaza Pinero site.

This work will have the effect of slightly lowering the 100-year flood elevations on this river.

Very truly yours,



LEONARD JACKSON ASSOCIATES
Leonard Jackson, P.E.

LJ:leb

P:\Word-Files\99\99023\PR Planning Board Let 8-27-99.doc

**FEDERAL EMERGENCY MANAGEMENT AGENCY
REVISION REQUESTER AND COMMUNITY OFFICIAL**

 O.M.B No. 3067-0148
Expires April 30, 2001

Public reporting burden for this form is estimated to average 2.13 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing and reviewing the form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Federal Emergency Management Agency, 500 C Street, S.W., Washington DC 20472; and to the Office of Management and Budget, Paperwork Reduction Project (3067-0148), Washington, DC 20503.

You are not required to respond to this collection of information unless a valid OMB Control Number is displayed in the upper right corner of this form.

1. REQUESTED RESPONSE FROM FEMA

This request is for a:

- ☒ CLOMR A letter from 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 FEMA officially revising the current NFIP map to show the changes to floodplains, floodway or flood elevations. LOMRs typically decrease flood hazards. (See 44 CFR Ch. 1 Parts 60 & 65.)
- ☐ Other Describe:

2. OVERVIEW

1. The basis for this revision request is (are): (check all that apply)

☒ Physical Change ☐ Improved Methodology/Data ☒ Floodway Revision

☐ Other Describe:

Note: A photograph is not required, but is very helpful during review.

2. Flooding Source: Rio Grande de Loiza

3. Project Name/Identifier: Plaza Pinero

4. FEMA zone designations affected: A11

(example: A, AH, AO, A1-A30, A99, AE, V, V1-V30, VE, B, C, D, X)

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

Community No.	Community Name	State	Map No.	Panel No.	Effective Date
720000	Canovanas	PR	720000	0059	7/2/81

6. The area of revision encompasses the following types of flooding and structures. Check all that apply.

Types of Flooding		Structures	
☒ Riverine	Shallow Flooding (e.g. Zones AO and AH)	☐ Channelization	Other (describe)*
☐ Coastal		☐ Levee/Floodwall	
☐ Alluvial fan		☐ Bridge/Culvert	
☐ Lakes		☐ Dam	
☐ Other (describe)		☐ Fill	
		☒	

*Excavation in overbank to increase conveyance.

PLEASE REFER TO THE INSTRUCTIONS FOR THE APPROPRIATE MAILING ADDRESS

4. ENCROACHMENT INFORMATION

Page 2 of 7

1. Does the State have jurisdiction over the floodway or its adoption by communities participating in the NFIP?
☒ Yes ☐ No Attached

If Yes, attach a copy of a letter notifying the appropriate State agency of the floodway revision and documentation of the approval of the revised floodway by the appropriate State agency.

2. Does the development in the floodway cause the 1% annual chance (base) elevation to increase at any location by more than 0.000 feet? ☐ Yes ☒ No ☐ N/A

3. Does the cumulative effect of all development that has occurred since the effective SFHA was originally identified cause the base flood elevation to increase at any location by more than one foot (or other increase limit if community or state has adopted more stringent criteria - even if a floodway has not been delineated by FEMA)? ☐ Yes ☒ No

If the answer to either items is Yes, please attach documentation that all requirements of Section 65.12 of the NFIP regulations have been met, regarding evaluation of alternatives, notice to individual legal property owners, concurrence of CEO, and certification that no insurable structures are impacted.

5. MAINTENANCE RESPONSIBILITY

The community is willing to assume responsibility for ☐ performing ☐ overseeing compliance with the maintenance and operation plans of the

(Name)

flood control structure. If not performed promptly by an owner other than the community, the community will provide the necessary services without cost to the Federal government.

Operation and maintenance plans are attached. ☐ Yes ☐ No ☒ N/A

6. REVIEW FEE

The review fee for the appropriate request category has been included. ☒ Yes ☐ No Fee amount: \$3100*

OR

This request is based on a federally sponsored flood-control project where 50 percent or more of the project's cost is federally sponsored, or the request is based on detailed hydrologic and hydraulic studies conducted by Federal, State, or local agencies to replace approximate studies conducted by FEMA and shown on the effective FIRM; thus the project is fee exempt.
☐ Yes

Please see Instructions for Fee Amounts

7. SIGNATURE

Note: I understand that my signature indicates that all information submitted in support of this request is correct

Note: Signature indicates that the community understands, from the revision requester, the impacts of the revision on flooding conditions in the community.

Letter from Community sent under sep. cover

Signature of Revision Requester

Signature of Community Official

Leonard Jackson, Principal
Printed Name and Title of Revision Requester

Printed Name and Title of Community Official

Leonard Jackson Associates
Company Name

Community Name

Telephone No.: (914) 354-4882

Telephone No.: _____

Date: 8/17/99

Date: _____

CERTIFICATION BY REGISTERED PROFESSIONAL
ENGINEER AND/OR LAND SURVEYOR
This certification is in accordance with 44 CFR Ch. 1, Sect 65.2

Check which forms have been included with this request

Leonard Jackson, Principal
Printed Name and Title of Revision Requester

Signature

Leonard Jackson, Principal
Printed Name and Title of Revision Requester

Registr. No. 42167-1 Expires (Date) 9/30/01 State NY

Type of License/Expertise: PE

Form Name and (Number)

- ☒ Hydrologic (3) ☐ Required if
☒ Hydraulic (4) new or revised discharges
☒ Mapping (5) new or revised water-surface elevations
☐ Channelization (6) floodplain/floodway changes
☐ Bridge/Culvert (7) channel is modified
☐ Levee/Floodwall (8) addition/revision of bridge/culvert
☐ Coastal (9) addition/revision of levee/floodwall
☐ Coastal Structures (10) new or revised coastal elevations
☐ Dam (11) addition/revision of coastal structure
☐ Alluvial Fan (12) addition/revision of dam structures proposed on alluvial fan

FEDERAL EMERGENCY MANAGEMENT AGENCY
HYDROLOGIC ANALYSIS

O.M.B No. 3067-0148
Expires April 30, 2001

PUBLIC BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 3.67 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing and reviewing the form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Federal Emergency Management Agency, 500 C Street, S.W., Washington DC 20472; and to the Office of Management and Budget, Paperwork Reduction Project (3067-0148), Washington, DC 20503.

You are not required to respond to this collection of information unless a valid OMB Control Number is displayed in the upper right corner of this form.

Note: Fill out one form for each flooding source studied

Community Name: Canovanas, Commonwealth of Puerto Rico

Flooding Source: Rio Grande de Loiza

Project Name/Identifier: Plaza Pinero

1. REASON FOR NEW HYDROLOGIC ANALYSIS

☐ No existing analysis ☐ Improved data

☐ Changed physical condition of watershed

☐ Alternative methodology ☐ Proposed Conditions (CLOMR)

☒ Other Extrapolated additional data from effective analysis

For the reason stated above, please attach a detailed explanation. If a computer program/model was used in revising the hydrologic analysis, please provide a diskette with the input files for the same flood recurrence intervals contained in the FIS for that stream; and at least for the 1% annual chance (base) flood where no detailed study exists.

Explanation provided: ☒ Yes ☐ No Diskettes provided: ☐ Yes ☐ No

2. METHODOLOGY FOR NEW ANALYSIS

Indicate Method.

- ☐ Statistical Analysis of Gage Records
☐ Regional Regression Equations
☐ Precipitation/Runoff Model
☒ Other

Required Data

- Form 3 - Attachment A
Form 3 - Attachment C
Form 3 - Attachment D
Back-up computations and supporting data

Data Included
☐ Yes ☒ No
☐ Yes ☒ No
☐ Yes ☒ No
☒ Yes ☐ No

3. APPROVAL OF ANALYSIS

The hydrologic analysis has already been approved by a local, state, or Federal Agency. ☐ Yes ☐ No ☒ Not Required

If Yes, attach evidence of approval. ☐ Approval attached. ☐ If No, attach explanation. ☐ Explanation attached.

4. COMPARISON OF BASE FLOOD DISCHARGES

Location:

Drainage Area (SqMi) FIS(cfs) Revised (cfs)

Downstream of site & upstream of confluence of Rio Canovanas 680 sq km Not Available in Reach 6300 cms
with Rio Grande de Loiza

Note: When revised discharges are not significantly different than the FIS discharges, FEMA may require a confidence limits analysis (see attachment B) at a later date to complete the review.

If only a portion of a detailed study area was revised please attach an explanation describing the transition from the proposed discharges to the effective discharges. ☒ Explanation Included ☐ Explanation Not Required

5. HISTORICAL FLOODING INFORMATION

Historical data are available for the flooding source please provide: Location, peak discharges/water-surface elevations and dates, and source of information. ☐ Data Attached ☒ Data Not Available

PLEASE REFER TO THE INSTRUCTIONS FOR THE APPROPRIATE MAILING ADDRESS

FEDERAL EMERGENCY MANAGEMENT AGENCY
RIVERINE HYDRAULIC ANALYSIS

O.M.B No. 3067-0148
Expires April 30, 2001

PUBLIC BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 2.25 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing and reviewing the form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Federal Emergency Management Agency, 500 C Street, S.W., Washington DC 20472; and to the Office of Management and Budget, Paperwork Reduction Project (3067-0148), Washington, DC 20503.

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Note: Fill out one form for each flooding source studied

Community Name: Canovanas, Commonwealth of Puerto Rico

Flooding Source: Rio Grande de Loiza

Project Name/Identifier: Plaza Pinero

1. REACH TO BE REVISED

Describe the limits of the revision OR submit a copy of the FIRM with the revision area clearly highlighted.
Copy of FIRM(s) attached depicting area of the revision (highlighted, or circled)? ☒ Yes

Downstream Limit: 8250

Upstream Limit: 9125

2. MODELS SUBMITTED

Requirements: for areas which have detailed flooding:

Full input and output listings along with files on diskette for each of the models listed below (items 1-4) and a summary of the source of input parameters used in the models must be provided. The summary must include a description of any changes made from model to model (e.g., Duplicate Effective model to Corrected Effective model). At a minimum, the Duplicate Effective (item 1) and the Revised or Post-Project Conditions (item 4) models must be submitted. See instructions for directions on when other models may be required.

for areas which do not have detailed flooding:

Only the 100-year (Base) flood profile is required. A hydraulic model is not required for areas which do not have detailed flooding; however, BFEs may not be added to the revised FIRM. If a hydraulic model is developed for the area, items 3 and 4 described below must be submitted.

All hydraulic models are not developed, hydraulic analyses (including all calculations) for existing or pre-project conditions and revised or post-project conditions must be submitted.

1. Duplicate Effective Model ☐ Natural ☐ Floodway File Name _____ File Name _____

Copies of the hydraulic analysis used in the effective FIS, referred to as the effective models (10-, 50-, 100-, and 500-year multi-profile runs and the floodway run) must be obtained and then reproduced on the requester's equipment to produce the Duplicate Effective model. This is required to assure that the effective models input data has been transferred correctly to the requester's equipment and to assure that the revised data will be integrated into the effective data to provide a continuous FIS model upstream and downstream of the revised reach.

2. Corrected Effective Model ☐ Natural ☐ Floodway File Name _____ File Name _____

The Corrected Effective model is the model that corrects any errors that occur in the Duplicate Effective model, adds any additional cross sections to the Duplicate Effective model, or incorporates more detailed topographic information than that used in the currently effective model. The Corrected Effective model must not reflect any man-made physical changes since the date of the effective model. An error could be a technical error in the modeling procedures, or any construction in the floodplain that occurred prior to the date of the effective model but was not incorporated into the effective model.

3. Existing or Pre-Project Conditions Model ☒ Natural File Name exist ☒ Floodway File Name exist

The Duplicate Effective model or Corrective Effective model is modified to produce the Existing or Pre-Project Conditions model to reflect any modifications that have occurred within the floodplain since the date of the Effective model but prior to the construction of the project for which the revision is being requested. If no modification has occurred since the date of the effective model, then this model would be identical to the Corrected Effective model or Duplicate Effective model.

4. Revised or Post-Project Conditions Model ☒ Natural File Name dev ☒ Floodway File Name dev

The Existing or Pre-Project Conditions model (or Duplicate Effective model or Corrected Effective model, as appropriate) is revised to reflect revised or post-project conditions. This model must incorporate any physical changes to the floodplain since the effective model was produced as well as the effects of the project. When the request is for the proposed project this model must reflect proposed conditions.

Other - Please attach a sheet describing all other models submitted along with the file names. ☐ Natural ☐ Floodway

PLEASE REFER TO THE INSTRUCTIONS FOR THE APPROPRIATE MAILING ADDRESS

3. STARTING WATER-SURFACE ELEVATIONS

Explain how they were determined.

Explanation Attached?

☒ Yes ☐ No

NOTE: If the effective study is an approximate study, the slope/area method is recommended. For detailed analysis studies, using a known water-surface elevation is recommended.

4. RESULTS (from the model used to revise the 100-year water surface elevations)

If the results indicate any of the following, attach an explanation - to this form, or to the hydraulic model printout- as to the reasonableness of the situation.

- ☐ Supercritical depth ☐ Critical Depth ☐ Drawdowns ☐ Negative Floodway Surcharges
☐ Floodway Surcharges Greater Than Maximum Allowed by Community/State
☒ Water surface elevations higher than the end points of cross sections.
☐ Floodway discharge is different than the Natural 100-year (base) flood discharge.
☐ Project causes 100-year floodplain or floodway elevations to increase (state if increases are located off the requester's property)

Explanation attached with Form ☐ Explanation provided on attached printout ☒

If Hydraulic model used is HEC-2, has it been checked with FEMA'S CHECK-2 computer program? ☒ Yes ☐ No
(see instructions for information on how to obtain CHECK-2)

5. REVISED FIRM/FBFM AND FLOOD PROFILES**1. Profile Transition**

- a. 100-Year Water-Surface Elevations - indicate the difference in water surface elevations where the project 100-year elevations tie into the existing 100-year water surface elevations at each end of the project.

Downstream End 8250 within 0.0 meters
Cross-Section #

Upstream End 9125 within -0.07 meters
Cross-Section #

- b. Floodway Elevations - indicate the difference in water surface elevations where the project floodway elevations tie into the existing floodway water surface elevations at each end of the project.

Downstream End 8250 within 0.0 meters
Cross-Section #

Upstream End 8915 within -0.03 meters
Cross-Section #

- c. Floodway widths - indicate the difference in floodway widths where the project floodway widths tie into the existing floodway width at each end of the project.

Downstream End 8250 within 0 meters
Cross-Section #

Upstream End 9125 within 0 meters
Cross-Section #

2. Profile Checklist (check box if information has been provided on profile)

The following information (unless in parentheses) must be included at the same scale as the existing profiles for this project:

- ☒ Stream Name ☒ Community Name ☒ Corporate Limits labeled ☒ Study limits labeled
☒ Confluences labeled ☒ Channel Stationing ☒ Streambed profiled ☒ Cross Sections labeled
☒ Horizontal/Vertical Scales indicated ☒ 100-year elevs profiled*
☒ Road Crossings ☒ Labeled ☒ Low Chord Elevations ☒ Top of Road Elevations

*All recurrence intervals in the effective study must also be profiled.

Floodway Data Table

Attach a Floodway Data Table for each cross section listed in the published Floodway Data table in the FIS report.

Floodway Data Table Attached ☐ Yes ☒ Not Required *

*All effective data is located upstream of this reach of the River.

**FEDERAL EMERGENCY MANAGEMENT AGENCY
RIVERINE / COASTAL MAPPING**

O.M.B No. 3067-0148
Expires April 30, 2001

PUBLIC BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 1.5 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing and reviewing the form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Federal Emergency Management Agency, 500 C Street, S.W., Washington DC 20472; and to the Office of Management and Budget, Paperwork Reduction Project (3067-0148), Washington, DC 20503.

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Note: Fill out one form for each flooding source studied

Community Name: Canovanas, Commonwealth of Puerto Rico

Flooding Source: Rio Grande de Loiza

Project Name/Identifier: Plaza Pinero

This is a ☒ Manual ☐ Digital submission. Digital map submissions may be used to update digital FIRM's (DFIRM's). For updating DFIRM's, these submissions must be coordinated with FEMA Headquarters as far in advance as possible.

1. MAPPING CHANGES

1. A topographic workmap must be submitted showing the following information (check N/A when not applicable):

- | | | | |
|---|---|--|---|
| a. Revised approximate 100-year floodplain boundaries (Zone A) | ☐ Yes | ☐ No | ☒ N/A |
| b. Revised detailed 100- and 500-year floodplain boundaries. | ☒ Yes | ☐ No | ☐ N/A |
| c. Revised floodway boundaries | ☒ Yes | ☐ No | ☐ N/A |
| d. Location and alignment of all cross sections with stationing control indicated. | ☒ Yes | ☐ No | ☐ N/A |
| e. Stream alignments, road alignments and dam alignments. | ☒ Yes | ☐ No | ☐ N/A |
| f. Current community boundaries. | ☒ Yes | ☒ No | ☐ N/A |
| g. Effective 100- year floodplain and floodway boundaries from FIRM/FBFM reduced or enlarged to the scale of the topographic workmap..... | ☒ Yes | ☐ No | ☐ N/A |
| h. Tie-ins between the effective and revised 100-, 500-year and floodway boundaries | ☒ Yes | ☐ No | ☐ N/A |
| i. The requester's property boundaries and community easements..... | ☒ Yes | ☐ No | ☐ N/A |
| j. The signed certification of a registered professional engineer..... | ☒ Yes | ☐ No | ☐ N/A |
| k. Location and description of reference marks | ☒ Yes | ☐ No | ☐ N/A |
| l. Vertical datum (example: NGVD, NAVD) | ☒ Yes | ☐ No | ☐ N/A |
| m. Coastal zone designations tie into adjacent areas not being revised..... | ☒ Yes | ☐ No | ☐ N/A |
| n. Location and alignment of all coastal transects used to revise the coastal analyze | ☐ Yes | ☐ No | ☒ N/A |
| o. V-zone has been delineated to extend landward to the heel of the primary frontal dune | ☐ Yes | ☐ No | ☒ N/A |

If any items are marked No or N/A please attach an explanation. 1. Study Reach not coastal or approximate.
2. Study reach not crossing community boundary.

2. What is the source and date of the updated topographic information (example: orthophoto maps, July 1985; filed survey, May 1979, beach profile, June 1987 etc.)? June 1999

3. What is the scale and contour interval of the following workmaps?

Effective FIS	Scale <u>Not Available</u>	Contour Interval <u>Not Available</u>
Revision Request	Scale <u>1:3000</u>	Contour Interval <u>None</u>

NOTE: Revised topographic information must be of equal or greater detail than effective.

4. Attach an annotated FIRM/FBFM at the scale of the effective FIRM/FBFM showing the revised 100- and 500-year floodplain and the floodway boundaries and how they tie into those shown on the effective FIRM/FBFM downstream and upstream of the revisions or adjacent to the area of revision for coastal studies. FIRM/FBFM attached? ☒ Yes ☐ No

PLEASE REFER TO THE INSTRUCTIONS FOR THE APPROPRIATE MAILING ADDRESS

2. EARTH FILL PLACEMENT

1. The fill is: ☐ Existing ☐ Proposed

2. Has fill been/will be placed in the regulatory floodway?
If Yes, please attach completed Riverine Hydraulic Analysis Form (Form 4). ☐ Yes ☐ No

3. Has fill been/will be placed in floodway fringe (area between the floodway and 100-year floodplain boundaries)? ☐ Yes ☐ No

If Yes, then complete A, B, C, and D below.

a. Are fill slopes for granular materials steeper than one vertical on one-and-one-half horizontal? ☐ Yes ☐ No

If Yes, justify steeper slopes

b. Is adequate erosion protection provided for fill slopes exposed to moving flood waters? (Slopes exposed to flows with velocities of up to 5 feet per second (fps) during the 100-year flood must, at a minimum, be protected by a cover of grass, vines, weeds, or similar vegetation; slopes exposed to flows with velocities greater than 5 fps during the 100-year flood must, at a minimum, be protected by stone or rock riprap.) ☐ Yes ☐ No

If No, describe erosion protection provided

c. Has all fill placed in revised 100-year floodplain been compacted to 95 percent of the maximum density obtainable with the Standard Proctor Test Method or acceptable equivalent method? ☐ Yes ☐ No

d. Can structures conceivably be constructed on the fill at any time in the future? ☐ Yes ☐ No

If Yes, attach certification of fill compaction (item 3c. above) by the community's NFIP permit official, a registered professional engineer, or an accredited soils engineer in accordance with Subparagraph 65.5(a)(6) of the NFIP regulations.

Fill certification attached ☐ Yes ☐ No

4. Has fill been/will be placed in a V zone? ☐ Yes ☐ No

If Yes, is the fill protected from erosion by a flood control structure such as a revetment or seawall?

☐ Yes ☐ No

If Yes, attach the Coastal Structures Form (Form 10).

Note: This form is not applicable, no fill proposed. Application for CLOMR involves excavation in the floodway.