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Declass Review, NIMA/DoD

G-MB 691/63
28 October 1963

MEMORANDUM FOR: Chief, International Division, ORR

ATTENTION: [redacted] I/LA 25X1D

FROM: Chief, CIA/PID (NPIC)

SUBJECT: Analysis of damage to Cuban Transportation System and Economy by Hurricane Flora.

REFERENCE: Requirement Nos. C-RR3-80,721 (Project No. C 1510-63) and C-RR3-80,726 (Project No. C 1511-63).

25X1D

1. In response to Requirement Nos. C-RR3-80,721 (C 1510-63) and C-RR3-80,726 (C 1511-63), a study was made from aerial photography dated [redacted] to determine the location, type and extent of damage to highways, railroads, bridges and selected ports in Cuba. In addition, a total of 63 pre-selected sugar centrals in eastern Cuba were analysed to note extent of wind and/or water damage to each central and their immediate surroundings. In addition, the Rente Power Plant in Santiago de Cuba, the Moa Bay and Nicaro Nickel Plants, the Hermanos Diaz Petroleum Refinery at Santiago de Cuba, and the Camaguey Railroad Repair Shops were re-examined to ascertain if there was any damage to these facilities which was not previously reported in NPIC/R-1523/63.

2. The results of this study were placed on overlays, keyed to AMS Series E502, Sheets NF 17-8, NF 17-12, NF 17-16, NF 18-5, NF 18-9, NF 18-10, NF 18-13, NF 18-14, and NF 18-15, using symbols for damage to the transportation system and annotations to delineate damage to the sugar centrals and ports. Each of the sugar centrals was assigned a number on the overlays which corresponds with accompanying listing (Enclosure 1 to this memorandum).

3. A total of 18 annotated ozalid overlays (CIA/PID/GMB/P-4821/63 thru P-4829/63, copies 1 and 2) are herewith forwarded for your retention.

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4. The photo analysis on this project was performed by the Industrial and Geo-Military Branches of CIA/PID (NPIC). Any questions concerning this project should be directed to Mr. [redacted] CIA/PID/GMB (NPIC), or Mr. [redacted] CIA/PID/IB (NPIC), who may be contacted on ext. 2549 and 2905 respectively.

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[redacted]

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ENCLOSURES:

- 1 Key to Sugar Centrals.
- 18 Annotated ozalid overlays (CIA/PID/GMB/P-4821/63 thru P-4829/63, copies 1 and 2).

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GROUP 1
Excluded from automatic
downgrading and
declassification

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ENCLOSURE 1

	<u>New Name</u>	<u>Old Name</u>	<u>Location</u>
1.	Brasil	Jaronu	21-51N 77-58W
2.	Ciro Redondo	Moron	22-01N 78-43W
3.	Guatemala	Preston	20-47N 75-39W
4.	Venezuela	Stewart	21-44N 78-48W
5.	Antonio Guiteras	Delicias	21-11N 76-34W
6.	Areglia Libre	Manati	21-11N 76-55W
7.	Bolivia	Cunagua	22-05N 78-20W
8.	Enrique Varona Gonzalez	Adelaida	22-10N 78-50W
9.	Ignacio Agramote	Agramonte	21-31N 78-14W
10.	Orlando Gonzalez	Algodones	21-52N 78-59W
11.	Ecuador	Baragua	21-42N 78-39W
12.	Carlos Manuel de Cespedes	Cespedes	21-35N 78-17W
13.	Colombia	Elia	21-01N 77-25W
14.	Republica Dominicana	Estrella	21-36N 78-18W
15.	Argentina	Florida	21-33N 78-15W
16.	Amancio Rodriguez	Francisco	20-49N 77-35W
17.	Uruguay	Jatibonico	21-58N 79-11W

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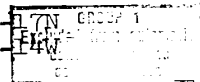
- 2 -

18. Sierra de Cubitas	Lugareno	21-33N 77-29W
19. Haiti	Macareno	20-43N 77-52W
20. Alfredo Alvarez Mola	Najasa	21-13N 77-33W
21. Patria o Muerte	Patria	22-06N 78-38W
22. Maximo Gomez	Punta Alegre	22-24N 78-46W
23. Candido Gonzalez	Santa Marta	20-48N 78-01W
24. Noel Fernandez	Senado	21-34N 77-37W
25. Siboney	Siboney	21-16N 77-39W
26. Panama	Vertientes	21-19N 78-12W
27. Primero de Enero	Violeta	21-57N 78-27W
28. Salvador Rosales	Algodonal	20-09N 75-44W
29. Loynaz Hechevarria	Alto Cedro	20-34N 75-57W
30. America Libre	America	20-18N 76-14W
31. Lopez Pena	Baguanos	20-45N 76-02W
32. Los Reinaldos	Baltony	20-11N 75-29W
33. Paquito Rosales	Borjita	20-12N 75-47W
34. Nicaragua	Boston	20-54N 75-43W
35. Cristino Narango	Cacocum	20-45N 76-23W

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36.	Luis E. Carracedo	Cape Cruz	19-54N 77-19W
37.	Jesus Menendez	Chaparra	21-09N 76-28W
38.	Francisco Castro Ceruto	Dos Amigos	20-14N 77-18W
39.	Costa Rica	Ermita	20-11N 75-24W
40.	Argeo Martinez	Esperanza	20-12N 75-10W
41.	Bartolome Maso	Estrada Palma	20-10N 76-57W
42.	Juan Manuel Marquez	Isabel "B"	20-08N 77-27W
43.	Honduras	Isabel "G"	20-13N 75-08W
44.	Peru	Jobabo	20-54N 77-17W
45.	Paraguay	Los Canos	20-03N 75-08W
46.	Arquimedes Colina	Mabay	20-21N 76-47W
47.	Antonio Maceo	Maceo	20-45N 76-30W
48.	Julio A. Mella	Miranda	20-23N 75-55W
49.	Roberto Ramirez	Niquero	20-03N 77-35W
50.	Dos Rios	Palma	20-14N 76-01W
51.	Jose Nemesio Figueredo	Rio Cauto	20-33N 76-55W
52.	Hector Infante	Romelie	20-10N 75-05W
53.	La Demajagua	Salvador	20-17N 77-14W

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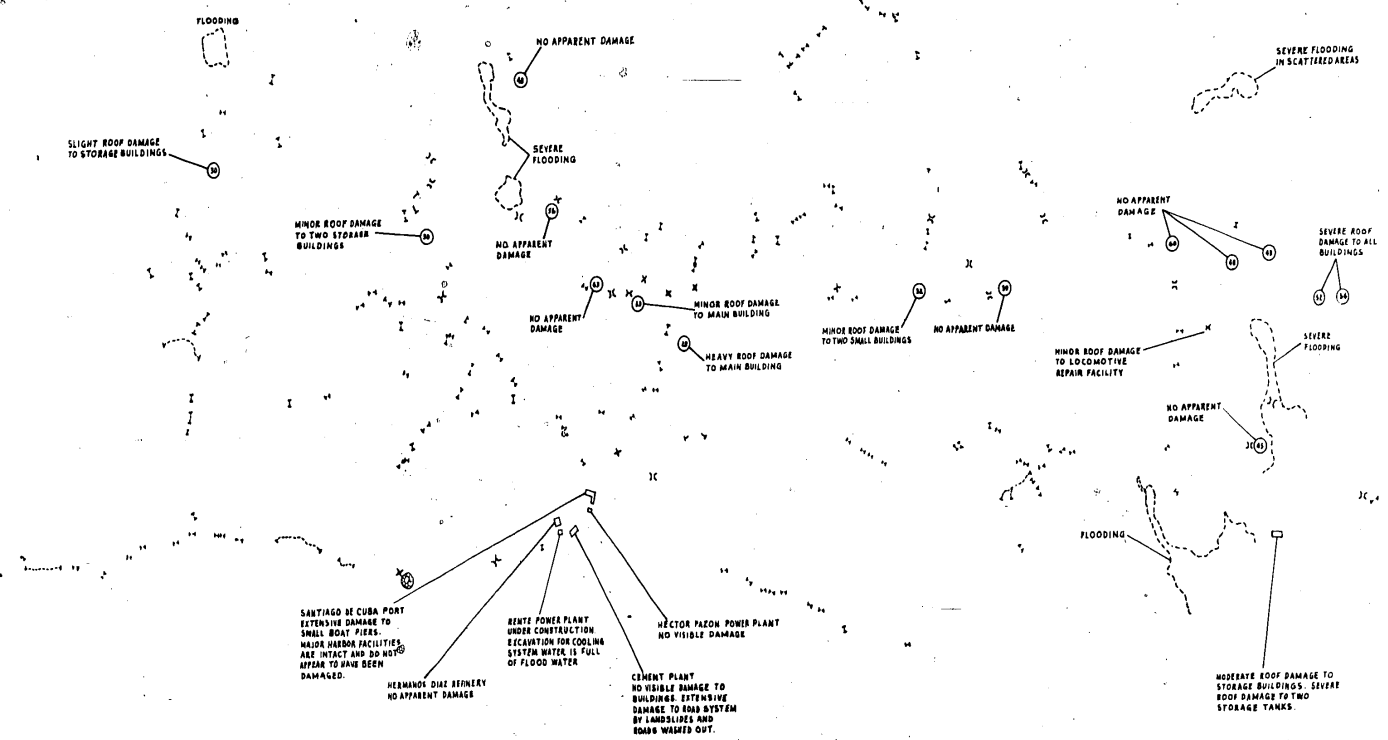
54. Manuel S. Tames	San Antonio	20-09N 75-03W
55. Urbano Noris	San German	20-36N 76-08W
56. Chile	Santa Ana	20-16N 75-53W
57. Rafael Freyre	Santa Lucia	21-03N 76-02W
58. ° Enidio Diaz Machando	Santa Regina	20-19N 77-19W
59. Ranulfo Leyva	Sofia	20-19N 76-58W
60. El Salvador	Soledad "G"	20-13N 75-13W
61. Fernando de Dios	Tacajo	20-50N 75-56W
62. Frank Pais	Tanamo	20-40N 75-16W
63. Rafael Reyes	Union	20-12N 75-50W

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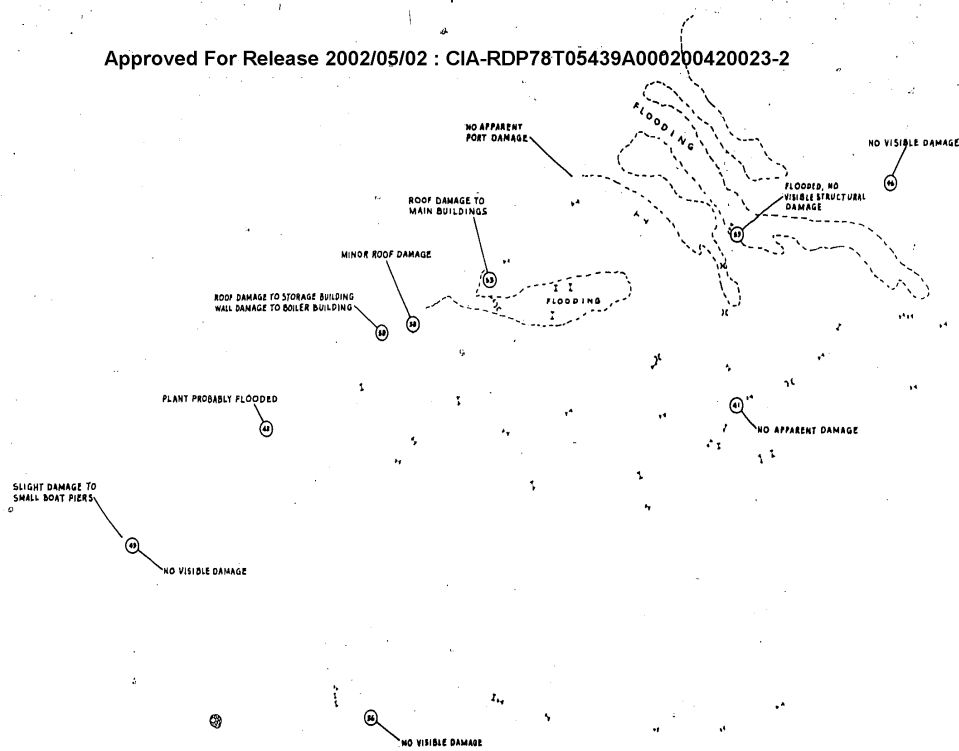
H - ROAD OR RAILROAD WASHOUT
 C - ROAD OR RAILROAD BRIDGE WASHOUT
 X - BRIDGE STRUCTURAL DAMAGE
 I - INTERMITTENT WASHOUT

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PHOTOGRAPHIC REFERENCE MAP REFERENCE

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— ROAD OR RAILROAD WASHOUT
— ROAD OR RAILROAD BRIDGE WASHOUT
— BRIDGE STRUCTURAL DAMAGE
— INTERMITTENT WASHOUT

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PHOTOGRAPHIC REFERENCE
MAP REFERENCE
SERIES: E 302

① NO APPARENT DAMAGE TO CENTRAL, ROADS AND RAILROADS

ROAD WASHED OUT

ROAD INUNDATED

② NO APPARENT DAMAGE TO CENTRAL

③ SEVERE ROOF DAMAGE TO MAIN BUILDINGS OF CENTRAL

TOTAL ROOF DESTRUCTION OF TWO STORAGE TANKS

MINOR ROOF DAMAGE TO THREE STORAGE TANKS
MINOR ROOF DAMAGE TO STORAGE WAREHOUSES

MINOR ROOF DAMAGE TO TWO STORAGE BUILDINGS AND TWO SMALLER BUILDINGS

MODERATE ROOF DAMAGE TO THREE STORAGE BUILDINGS

RAILROAD DAMAGED BY LANDSLIDE (VERY SEVERE)

NOTE: ALL COASTAL LOWLANDS
AND RIVER VALLEYS HAVE BEEN OR
STILL ARE HEAVILY INUNDATED

I-I ROAD OR RAILROAD WASHOUT
J J ROAD OR RAILROAD BRIDGE WASHOUT
K-K BRIDGE STRUCTURAL DAMAGE
L-L INTERMITTENT WASHOUT

MINOR ROOF DAMAGE
AREA INUNDATED
SURROUNDING FIELD INUNDATED
SOME LOW AREAS WASHED OUT

SUPERFICIAL ROOF DAMAGE TO WAREHOUSE
MINOR DAMAGE TO PIER FACILITIES
TWO MAJOR BRIDGES OUT

MINOR ROOF DAMAGE

SUPERFICIAL ROOF DAMAGE
TO STORAGE BUILDINGS
DAMAGE TO ONE (LONG) PIER

NO DAMAGE TO PORT

HEAVY ROOF DAMAGE.
ADJACENT AREA AND
CANE FIELDS ARE
PARTIALLY INUNDATED

NO APPARENT DAMAGE
TO PORT

PORT IS OPERATIONAL
SOME ROOF DAMAGE TO SEVERAL
CENTRAL AND PORT STORAGE
BUILDINGS

NO APPARENT DAMAGE TO NICKEL PLANT.
SOME ROOF DAMAGE TO STORAGE AND
SUPPORT BUILDINGS. NO APPARENT
DAMAGE TO PORT

SURROUNDING CANE FIELDS HEAVILY INUNDATED
WATER NOW PARTIALLY RECESSED
AREA WAS INUNDATED. WATER NOW RECESSED
NO DAMAGE TO RAIL OR ROAD IN AREA
SUPERFICIAL ROOF DAMAGE

EXTENSIVE FLOODING
ROADS INUNDATED

2 KM OF ROAD INUNDATED
MINOR DAMAGE TO ROADS

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NO APPARENT DAMAGE
TO PORT FACILITIES

NO APPARENT DAMAGE
TO PORT FACILITIES

NO APPARENT DAMAGE
TO CENTRAL

NO APPARENT DAMAGE
TO CENTRAL

NO APPARENT DAMAGE
TO CENTRAL, ROADS
OR RAILROADS

NO APPARENT DAMAGE
TO CENTRAL, ROADS
OR RAILROADS

ROAD INUNDATED

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PHOTOGRAPHIC REFERENCE MAP REFERENCE

ROAD WASHED OUT 100 FT

⑩ NO APPARENT DAMAGE TO CENTRAL

⑩ NO APPARENT DAMAGE TO CENTRAL

ROAD WASHED OUT

④ NO APPARENT DAMAGE TO CENTRAL ROADS AND RAILROADS

⑩ MINOR ROOF DAMAGE TO MAIN BUILDING OF SUGAR CENTRAL. NO APPARENT DAMAGE TO ROADS AND RAILROADS.

⑩ NO APPARENT DAMAGE TO CENTRALS, ROADS, OR RAILROADS

⑩ NO APPARENT DAMAGE TO CENTRAL, ROADS AND RAILROADS

⑩ THREE STORAGE BUILDINGS WITH ROOFS 1/2 DESTROYED. NO APPARENT ROAD OR RAILROAD DAMAGE

• MINOR WIND DAMAGE TO ONE BUILDING

⑩ NO APPARENT DAMAGE TO CENTRAL

SLIGHT EROSION TO GRADE. GRADE COMPLETELY WASHED THROUGH IN 3 PLACES. NO APPARENT DAMAGE TO TRACKS.

GRADE AND SURFACE SLUMPING DUE TO MOISTURE CONTENT.

⑩ MODERATE ROOF DAMAGE TO CENTRAL TO MAIN AND SUPPORT BUILDINGS

⑩ ROAD HEAVILY ERODED WITH SEVERE DAMAGE TO GRADE AND WEARING SURFACE. THREE CONCRETE DECKED BRIDGES APPEAR TO BE IN GOOD CONDITION. ONE CONCRETE DECKED BRIDGE IS HEAVILY DAMAGED.

ROAD INUNDATED

CONCRETE DECK BRIDGE 1/3 DESTROYED WITH SOUTH WEST APPROACH GRADE WASHED OUT

FLOODING

ROAD INUNDATED

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PHOTOGRAPHIC REFERENCE 25X1D

MAP REFERENCE SURDS E 502 SHEET NF. 17-12

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MINOR FLOODING AREA



FLOODING
NO APPARENT DAMAGE TO
CENTRAL ROADS AND
RAILROADS. MINOR
FLOODING IN SOME
STREAM BASINS

SIX PIERS DAMAGED.
FOURTEEN SMALLER
PIERS DESTROYED.
NO APPARENT DAMAGE
TO BUILDINGS.

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PHOTOGRAPHIC REFERENCE
25X10

MAP REFERENCE
SERIES E 501
SHEET 18 771A

