
Treatment and Use

1 The visitor center at Flamingo is historically
2 significant as one of several prototype projects that
3 set the standard for the National Park Service
4 Mission 66 program. A key part of the modernist
5 design of the building was its location directly on
6 the Florida coast; however, this location exposes
7 the building to threats from hurricanes as well as
8 more gradual deterioration in the saline
9 environment.

10 Requirements for Treatment 11 and Use

12 Laws, Regulations, and Functional 13 Requirements

14 Key laws, regulations, and functional requirements
15 that apply to the recommended work include the
16 following:

- 17 ▪ National Park Service Cultural Resources
18 Management Guideline (Director's Order 28),
19 which requires planning for the protection of
20 cultural resources on park property.
- 21 ▪ Section 106 of the National Historic
22 Preservation Act (NHPA), which mandates
23 that federal agencies, including the National
24 Park Service, take into account the effects of
25 their actions on properties listed or eligible for
26 listing in the National Register of Historic
27 Places and give the Advisory Council on
28 Historic Preservation a reasonable
29 opportunity to comment.

30 Treatment of the building and site are also to be
31 guided by the following:

- 32 ▪ *Secretary of Interior's Standards for the*
33 *Treatment of Historic Projects*
- 34 ▪ Americans with Disabilities Act (ADA)
- 35 ▪ International Building Code (IBC), 2009
- 36 ▪ International Existing Building Code (IEBC),
37 2009
- 38 ▪ Florida Building Code, 2007

39 Chapter 16 of the Florida Building Code
40 contains special provisions related to design of
41 structures in high-velocity hurricane zones.
42 Key provisions relevant to the buildings at
43 Flamingo include the use of a design wind
44 speed of 146 miles per hour (65 m/s) in Miami-
45 Dade County (paragraph 1620.2); design for a
46 30 psf (1436 Pa) live loading on flat or low
47 slope roof surfaces, to accommodate heavy
48 rainfall events (paragraph 1616.1); and
49 requirements that exterior surfaces, including
50 glazing, be able to sustain repeated cyclical
51 loading and impacts from wind-borne debris,
52 or that glazed openings be protected by
53 shutters or panels that meet the same
54 requirement (section 1626).

55 In response to these laws and regulations, threats
56 to life, safety, and welfare should be addressed in
57 the repair of the buildings. However, as these are
58 historic structures, alternatives to full legislative
59 and code compliance should be considered where
60 compliance would compromise the integrity of the
61 historic building. Because these buildings are
62 currently accessed by the general public as well as

1 staff and concessionaires of the NPS, it is
2 important to note that potential safety hazards or
3 code violations do exist. Examples of these
4 conditions include railing heights that are lower
5 than mandated by code; the existing of broken
6 glass in window units; and other similar
7 conditions. Repair of these conditions is included
8 in the specific recommendations presented below.

9 **Current Planning Efforts**

10 The National Park Service is currently developing
11 a new general management plan for Everglades
12 National Park. In conjunction with development
13 of the park's new General Management Plan, a
14 Master Plan for the Flamingo Mission 66
15 Developed Area was completed in 2010. In
16 addition, the Flamingo Commercial Services Plan
17 was completed in 2008. Information gathered
18 through preparation of these plans will be used to
19 inform master planning for the Flamingo Mission
20 66 Developed Area.

21

22 **Alternatives for Treatment** 23 **and Use**

24 The U.S. National Park Service has developed
25 definitions for the four major treatments that may
26 be applied to historic structures: preservation,
27 rehabilitation, restoration, and reconstruction.
28 The four definitions are as follows:

29 **Preservation** is defined as the act or process of
30 applying measures necessary to sustain the
31 existing form, integrity, and materials of an
32 historic property. Work, including preliminary
33 measures to protect and stabilize the property,
34 generally focuses upon the ongoing
35 maintenance and repair of historic materials
36 and features rather than extensive replacement
37 and new construction. New exterior additions
38 are not within the scope of this treatment;
39 however, the limited and sensitive upgrading of
40 mechanical, electrical, and plumbing systems
41 and other code-required work to make
42 properties functional is appropriate within a
43 preservation project.

44 **Rehabilitation** is defined as the act or process
45 of making possible a compatible use for a
46 property through repair, alterations, and
47 additions while preserving those portions or
48 features which convey its historical, cultural, or
49 architectural values.

50 **Restoration** is defined as the act or process of
51 accurately depicting the form, features, and
52 character of a property as it appeared at a
53 particular period of time by means of the
54 removal of features from other periods in its
55 history and reconstruction of missing features
56 from the restoration period. The limited and
57 sensitive upgrading of mechanical, electrical,
58 and plumbing systems and other code-required
59 work to make properties functional is
60 appropriate within a restoration project.

61 **Reconstruction** is defined as the act or process
62 of depicting, by means of new construction, the
63 form, features, and detailing of a non-surviving
64 site, landscape, building, structure, or object
65 for the purpose of replicating its appearance at

1 a specific period of time and in its historic
2 location.¹⁴³

3 *Preservation*, which involves sustaining the
4 buildings in their existing form, is to some extent
5 in progress as a result of ongoing repair and
6 cyclical maintenance implemented by the Park.
7 Major repair efforts have been implemented since
8 construction of the buildings, primarily in
9 response to hurricane damage, and in many cases
10 repairs have retained historic features and
11 materials. However, as a treatment alternative
12 preservation would not accommodate future space
13 requirements and modifications to allow the
14 facilities to effectively meet future park and visitor
15 needs.

16 *Restoration* would return the buildings to their
17 appearance during the period of significance. A
18 restoration target date would need to be selected
19 within the period of significance. Although
20 documentation such as construction drawings and
21 photographs provides detailed information about
22 the original appearance of the buildings that does
23 not necessarily exist for later years in the service
24 life of each structure, selecting a target restoration
25 date of original construction for each building
26 would create a situation that never existed
27 historically, with each building reflecting a
28 different specific time period. Selection of a
29 restoration target date at the beginning of the
30 period of significance for the entire developed
31 area would not incorporate the buildings that were
32 constructed later. To maintain historical
33 consistency within the buildings of the Flamingo
34 Developed Area, a target date toward the end of
35 the period of significance would need to be
36 established because some of the buildings (e.g.,
37 administrative housing units 439 and 440) were
38 not constructed until the late 1960s; this date
39 would accommodate alterations that occurred
40 during the period of significance. Some recent
41 projects undertaken by the Park have tended
42 toward restoration in that they have removed
43 intrusive features, such as the elevator previously
44 installed at the visitor center breezeway. However,
45 as a treatment alternative, restoration would also

46 not accommodate future space requirements and
47 modifications to allow the facilities to effectively
48 meet future park and visitor needs.

49 *Rehabilitation* of the buildings would include all of
50 the repairs necessary to stabilize and preserve the
51 buildings in their existing state, coupled with
52 modifications to accommodate space
53 requirements and improvements to heating,
54 ventilating, air conditioning, electrical, and
55 plumbing systems, as well as to meet code and
56 disabled access requirements. As part of the
57 rehabilitation of the visitor center, service station,
58 boat shelter, and housing buildings, the
59 significance of these buildings as part of the
60 Mission 66 development at Flamingo would be
61 recognized and the features of the buildings that
62 define the Mission 66 character would be
63 recognized and preserved. Of the four treatment
64 alternatives, the treatment *Rehabilitation* is
65 considered the most appropriate for the visitor
66 center, service station, boat shelter, and housing
67 buildings, given both their historic significance
68 and need for continued use or compatible reuse.

69 As a prototypical example of the facilities
70 developed by NPS in the Mission 66 era, the
71 period of significance for the Flamingo Developed
72 Area is focused on the era of initial planning,
73 design, construction, and site development from
74 1954 to 1967. Repairs undertaken during this
75 period, primarily in 1961–1962 to address damage
76 that occurred from Hurricane Donna, fall within
77 the period of significance for the site. Thus,
78 rehabilitation could incorporate many of the
79 modifications to the buildings that occurred over
80 time, while permitting further modifications to
81 restore missing or altered historic features and to
82 incorporate the improvements noted above.

83 As identified in the Flamingo Master Plan (see
84 Requirements for Treatment and Use), the
85 continued use of these buildings is to some extent
86 anticipated to be similar to the original functions.
87 The visitor center will remain in this function,
88 although the specific use of interior spaces may
89 change in response to master planning guidelines,
90 and the boat shelter and housing units will retain
91 their original functions. At this writing, tentative

143. *The Secretary of the Interior's Standards for the Treatment of Historic Properties.*

1 plans for the service station are for reuse as a
2 service station.

3 Where changes in use are anticipated (e.g., the
4 service station and selected locations in the visitor
5 center), a use that requires significant alterations
6 to the historic exterior or primary interior spaces
7 and features should not be considered. Where
8 installation of new systems to provide accessibility
9 for the disabled; improve and more eco-friendly
10 mechanical, electrical, and plumbing systems; and
11 modifications to meet code requirements (e.g.,
12 handrails) should be designed taking into
13 consideration the goal of retaining original historic
14 materials and features wherever possible. Where
15 incorporation of new amenities would require
16 significant alterations to the building that could
17 diminish its integrity as an historic resource,
18 consideration should be given to limiting these
19 modifications.

20 Many of the distinctive materials, features, and
21 spaces of the key buildings at Flamingo are
22 essentially intact, and in spite of alterations, the
23 buildings retain their historic integrity. Repair of
24 original materials and character-defining features
25 as part of the overall rehabilitation is practical and
26 appropriate. Retaining original features will also
27 assist in interpretation of the Mission 66 era;
28 which can be achieved without preservation of the
29 buildings in their current state or restoration of the
30 buildings to an earlier appearance.

31

32 **Ultimate Treatment and Use**

33 **Guidelines for Treatment**

34 Guidelines and requirements for treatment have
35 been defined based on the preservation objectives
36 and requirements for treatment and use outlined
37 above for the Flamingo Mission 66 Developed
38 Area. All treatment guidelines and
39 recommendations were developed in accordance
40 with the *Secretary of Interior’s Standards for*
41 *Rehabilitation*.

42 The Secretary of the Interior’s Standards for
43 Rehabilitation are as follows:

- 44 1. A property shall be used for its historic
45 purpose or be placed in a new use that
46 requires minimal change to the defining
47 characteristics of the building and its site
48 and environment.
- 49 2. The historic character of a property shall
50 be retained and preserved. The removal of
51 historic materials or alteration of features
52 and spaces that characterize a property
53 shall be avoided.
- 54 3. Each property shall be recognized as a
55 physical record of its time, place, and use.
56 Changes that create a false sense of
57 historical development, such as adding
58 conjectural features or architectural
59 elements from other buildings, shall not be
60 undertaken.
- 61 4. Most properties change over time; those
62 changes that have acquired historic
63 significance in their own right shall be
64 retained and preserved.
- 65 5. Distinctive features, finishes, and
66 construction techniques or examples of
67 craftsmanship that characterize a property
68 shall be preserved.
- 69 6. Deteriorated historic features shall be
70 repaired rather than replaced. Where the
71 severity of deterioration requires
72 replacement of a distinctive feature, the
73 new feature shall match the old in design,
74 color, texture, and other visual qualities
75 and, where possible, materials.

1 Replacement of missing features shall be
2 substantiated by documentary, physical, or
3 pictorial evidence.

4 7. Chemical or physical treatments, such as
5 sandblasting, that cause damage to historic
6 materials shall not be used. The surface
7 cleaning of structures, if appropriate, shall
8 be undertaken using the gentlest means
9 possible.

10 8. Significant archeological resources
11 affected by a project shall be protected and
12 preserved. If such resources must be
13 disturbed, mitigation measures shall be
14 undertaken.

15 9. New additions, exterior alterations, or
16 related new construction shall not destroy
17 historic materials that characterize the
18 property. The new work shall be
19 differentiated from the old and shall be
20 compatible with the massing, size, scale,
21 and architectural features to protect the
22 historic integrity of the property and its
23 environment.

24 10. New additions and adjacent or related new
25 construction shall be undertaken in such a
26 manner that if removed in the future, the
27 essential form and integrity of the historic
28 property and its environment would be
29 unimpaired.¹⁴⁴

30 The basic guidelines for work on the subject
31 buildings and historic site are as follows:

- 32 ▪ Undertake all work in compliance with the
33 *Secretary of the Interior's Standards for*
34 *Rehabilitation.*
- 35 ▪ Retain the character of the historic site by
36 protecting the individual buildings and
37 significant site features.
- 38 ▪ Ensure that proposed new elements or
39 construction are compatible with historic
40 character of the site.
- 41 ▪ Protect adjacent natural resources during
42 construction activities.

43 ▪ Document through detailed as-built drawings,
44 photographs, and written narrative all changes
45 and treatments to the historic site and
46 buildings. Maintain records of treatments and
47 preserve documentation according to
48 professional archival standards. Maintain a
49 copy of records in NPS archives.

50 ▪ Retain features and materials at both the
51 exterior and interior of the buildings that date
52 from the period of significance to the greatest
53 extent possible.

54 ▪ Incorporate sustainable design principles in all
55 future projects that respect the preservation
56 principles listed above.

57 **Prioritization of Treatment**

58 Based on the condition assessment performed as
59 part of the Historic Structures Report, the
60 following general prioritization is indicated for
61 anticipated work on the subject buildings and site
62 features. Depending on the sequence and phasing
63 of work, several of these categories of work (e.g.,
64 exterior envelope weatherproofing and
65 modifications for reuse) may be performed
66 simultaneously. It is important that proper
67 sequencing of repairs and rehabilitation efforts be
68 undertaken to ensure the most cost-effective use
69 of funds, to avoid implementation of ineffective
70 systems or measures that cause damage to historic
71 fabric, and to prevent implementation of solutions
72 that are detrimental to long term preservation
73 goals.

- 74 1. **Structural Stabilization.** Implement
75 structural stabilization repairs as needed to
76 address structural deficiencies and unstable
77 conditions, such as replacement of broken
78 glass and repair of spalling concrete.
- 79 2. **Exterior Envelope Weatherproofing.**
80 Perform exterior repairs to prevent water
81 infiltration and deterioration of building
82 envelope materials, and to address conditions
83 that may lead to continued deterioration and
84 loss of historic fabric. These types of repairs
85 include repairs to roofing and flashings,

144 Ibid.

1 masonry and stucco repairs, and window and
2 door repairs.

3 **3. Modifications for Reuse.** Perform repairs
4 and modifications to the building interior and
5 systems to permit continued or renewed use as
6 visitor center, office, museum, restaurant, or
7 housing functions and to repurpose currently
8 vacant spaces such as the visitor center ground
9 floor lounge and service station. These types
10 of repairs and modifications include work
11 required to meet code, for disabled access, for
12 egress, for structural capacity upgrades, to
13 rehabilitate interior finishes, and to provide
14 new mechanical, electrical, and plumbing
15 systems to permit building occupancy and
16 reuse. In addition, measures to address
17 mitigation of hazardous materials (if present)
18 should be implemented.

19 **4. Cyclical Inspection and Maintenance.** In
20 addition to the specific repairs recommended,
21 cyclical maintenance tasks such as inspection,
22 painting of exterior wood and metal elements,
23 recoating of concrete and stucco finishes,
24 pointing of mortar joints in stonework,
25 replacement of joints sealants, tree care, and
26 other ongoing maintenance tasks must be
27 continually implemented to avoid damage to
28 the historic site and building fabric and to
29 reduce the need for large-scale repair projects
30 in future.

31 All work performed on the subject buildings and
32 site features should be documented through notes,
33 photographs, and measured drawings and/or
34 sketches, or with as-built annotations to
35 construction documents at project completion.
36 These records should be permanently archived at
37 NPS archives as a record of the buildings prior to
38 adaptive reuse or expansion, for future reference,
39 and to provide information for future maintenance
40 of the buildings. In addition, these records will
41 allow future observers to identify which materials
42 are historic.

43

44 **Recommendations**

45 The single greatest threat as well as the greatest
46 ongoing protection and maintenance challenge to
47 the buildings and site features at the Flamingo
48 Mission 66 Developed Area is the occurrence of
49 hurricanes. The original design of the Flamingo
50 Visitor Center and other buildings in the 1950s
51 reflected the awareness of the designers that
52 hurricanes were likely affect the site. This is
53 indicated in the overall design of the buildings as
54 two-story structures with the most important
55 interior spaces located on the upper floor. In
56 addition, the detailing was developed with
57 hurricane effects in mind; for example, the roof
58 structural notes (sheet 12 of 15 of NPS drawing
59 160-3020D) notes that “roof deck material . . .
60 securely fastened to SJ [steel joist] in accord with
61 manufacturer’s recommendations for hurricane
62 conditions.” However, current code provisions
63 relative to hurricane resistance and protection—as
64 well as safety, access, and other code-related
65 issues—are certainly more stringent than codes
66 and standards in use in the 1950s.

67 As noted above under Requirements for
68 Treatment and Use, provisions of Chapter 16 of
69 the 2007 Florida Building Code address the design
70 of structures in high-velocity hurricane zones.
71 These provisions include the use of a design wind
72 speed of 146 miles per hour (65 m/s) in Miami-
73 Dade County (paragraph 1620.2); design for a 30
74 psf (1436 Pa) live loading on flat or low slope roof
75 surfaces, to accommodate heavy rainfall events
76 (paragraph 1616.1); and requirements that exterior
77 surfaces, including glazing, be able to sustain
78 repeated cyclical loading and impacts from wind-
79 borne debris, or that glazed openings be protected
80 by shutters or panels that meet the same
81 requirement (section 1626).

82 The design wind speed has the potential to create
83 significant loads on the building structures; in
84 particular, the downward and upward loads on the
85 roof construction may exceed the designed
86 capacity of the tectum roof decking of the visitor
87 center or the wood roof decking of the service
88 station. The structural performance of the
89 buildings should be reviewed and consideration

1 should be given to structural strengthening as
2 required to meet current wind loading and live
3 loading standards, if practical.

4 The most obvious difference in current codes
5 relates to glazing. In the original design, the glazed
6 surfaces of all of the buildings in this study were
7 unprotected. Exterior hurricane shutters have
8 been added to the three housing buildings and to
9 the office wing of the visitor center; these shutters
10 potentially meet current code requirements,
11 although documentation was not available for
12 review. The compliance with current codes for
13 these shutters should be confirmed. The
14 remaining visitor center windows and the service
15 station windows are unprotected. In particular, the
16 large east wall window group at the visitor center
17 lobby is unprotected; however, tracks exist for
18 interior hurricane shutters at the glazed interior
19 storefronts leading to the office wing and museum
20 from the lobby. Consideration should be given to
21 installing similar protective tracks at the screened
22 doors leading to the first and second floor of the
23 lobby from the loggia of the visitor center and at
24 original windows in the concessionaire portion of
25 the visitor center and at the Service Station.

26 Current park efforts involve providing accordion-
27 type hurricane shutters on as many window
28 openings as possible on buildings throughout the
29 site. For very large windows such as the east-facing
30 glazed wall in the visitor center lobby, it may be
31 difficult to obtain shutters sized for this opening,
32 although custom shutters can be fabricated. Given
33 the size and difficulty of access to these particular
34 windows, the use of rolling shutters may be more
35 appropriate for this opening; further analysis and
36 design is required to confirm the most efficient
37 and cost-effective protection system for these
38 windows. Although rolling shutters (as well as the
39 accordion shutters already in place on several
40 buildings at the park) are somewhat intrusive to
41 the appearance of the exterior facades of the
42 historic buildings, they may be considered a
43 reversible treatment in that they can be removed in
44 the future if window reglazing or other
45 modifications preclude the need for protective
46 shutters.

47 For the visitor center east window assembly,
48 consideration could also be given to analyzing the
49 existing window framing, strengthening of
50 modifying if needed, and replacing all glass with
51 laminated glazing, to meet current hurricane
52 loading requirements without the use of exterior
53 shutters. Laminated glass for this purpose may be
54 too heavy or too thick for the original frames to
55 accommodate, particularly at the awning
56 (operable) vents, as this glass is typically a
57 minimum 9/16 inch in thickness. The framing may
58 need to be replaced with new framing to
59 accommodate hurricane-resistant laminated
60 glazing; in this case, the new framing should be
61 sympathetic to the historic design (see further
62 discussion below). This approach could also be
63 considered for other window openings in the
64 buildings in lieu of hurricane shutters. When new
65 window units are installed, for example at the
66 former restaurant area where the existing windows
67 do not match the original design, consideration
68 should be given to integrating hurricane shutters
69 with the new window framing or providing
70 window units that meet current codes for
71 hurricane protection. In addition, the new window
72 units should match the appearance of the historic
73 windows.

74 Site features are also affected by hurricane events,
75 particularly plant material that may suffer wind
76 damage or stress from inundation by salt water.
77 Paving materials and site furnishings may also be
78 damaged by salt water inundation. It will also be
79 important that vegetated shorelines be monitored
80 for erosion after storm events.

81 **Site**

82 Based on field investigations and consideration of
83 the landscape conditions documented as part of
84 this study, the following issues of concern were
85 identified and recommendations developed.
86 Please refer to Figure 565 and Figure 566 for
87 delineation of areas discussed below.

88



FIGURE 565. Landscape treatment units overview.

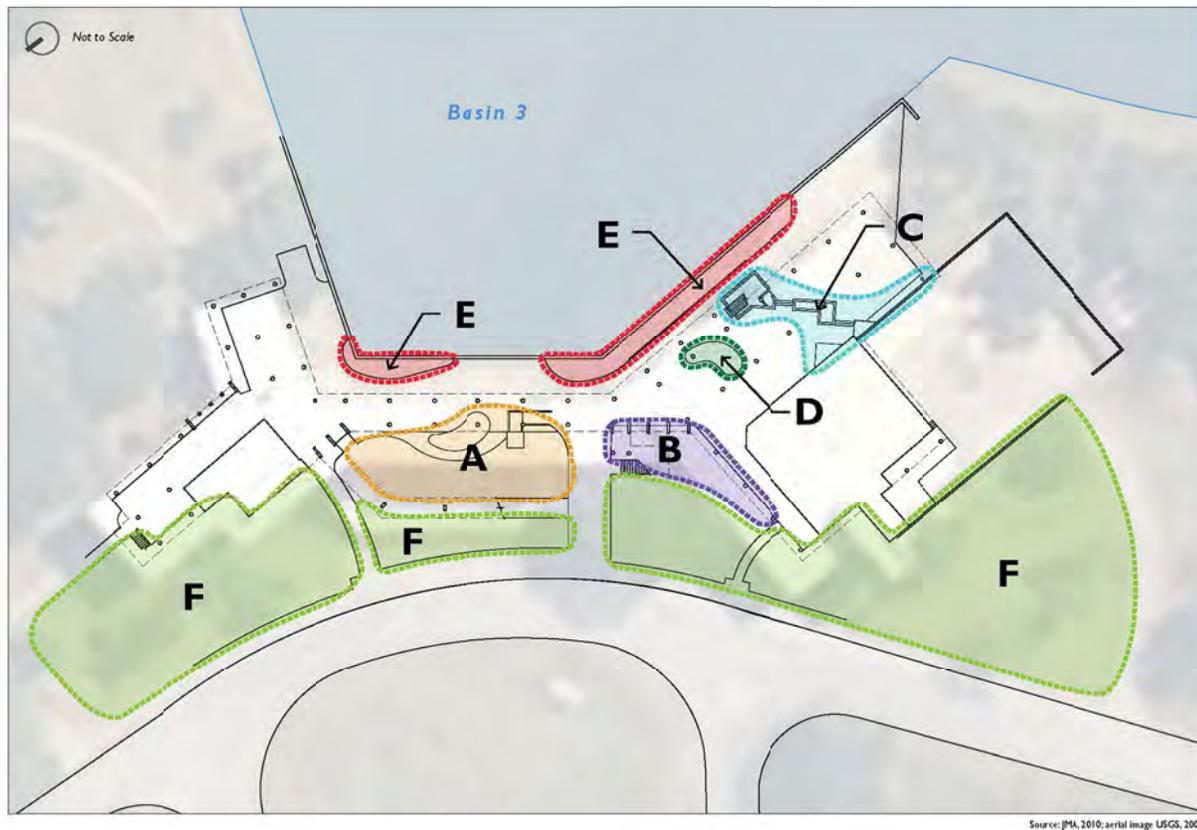


FIGURE 566. Visitor center plaza sub-units.

1 **Spatial Organization.**

- 2 ▪ Preserve the existing overall spatial
3 organization by maintaining the symmetrical
4 arrangement of the visitor center and site
5 features around the central axis described in
6 Physical Description and Condition
7 Assessment.

8 **Views and Vistas.**

- 9 ▪ Thin Paurotis palms to restore transparency of
10 view through breezeway (Area A).
- 11 ▪ Clear out volunteer vegetation (Areas A
12 and F).

13 **Topography.**

- 14 ▪ Retain and maintain grading patterns that date
15 to the period of significance (entire area)

16 **Vegetation.**

- 17 ▪ Restore missing mahogany and gumbo-limbo
18 specimens in the parking lot with as shown in
19 1958 planting plan.
- 20 ▪ Restore pattern of coconut palms along
21 entrance drive (both sides of the Parade Lawn)
22 using the Maypan variety of coconut palm
23 (*Cocos nucifera* “F1 Maypan”). This hybrid
24 was developed in Jamaica to be resistant to
25 lethal yellowing disease. Other palm species
26 can also be used as long as they are similar to
27 the coconut palm in height and habit.
- 28 ▪ Maintain the Parade Lawn in mown Bermuda
29 turf as originally designed. Bermuda can be
30 replaced with another grass or herbaceous
31 species if it can be maintained in this hot and
32 sunny location as a low groundcover, not over
33 six inches in height.
- 34 ▪ Maintain the West Lawn in trees and open turf
35 with the exception of the thicket of native
36 vegetation at the southern corner of the visitor
37 center building.
- 38 ▪ Restore pattern of trees as shown in original
39 planting plan for the West Lawn, substituting

40 the Maypan palm variety for the coconut
41 palm. Replant sabal palmettos.

- 42 ▪ Maintain the East Lawn in open turf planted
43 with trees.
- 44 ▪ Replant trees in East Lawn based on the
45 original planting plan, substituting the Maypan
46 palm variety for coconut palm.
- 47 ▪ In Area A, thin Paurotis palms within curving
48 planter to restore transparency of view;
49 remove strangler figs; remove vegetative
50 overgrowth from curved walk; retain low
51 vegetation (less than thirty inches: crinum,
52 etc.) and accent rocks; replace grouping of
53 three palms as it appears on 1958 planting
54 plan, using palm with similar habit and form to
55 coconut palm, preferably the Maypan variety.
- 56 ▪ In Area B, remove all gumbo limbo and large
57 mahogany trees from within planting beds;
58 retain sea grape adjacent to stairs; retain other
59 palms that do not intrude on building
60 envelope and remove dead fronds; retain
61 asparagus fern and crinum and supplement
62 with other low (less than 30 inches)
63 perennial/evergreen plantings (refer to list,
64 below); retain accent rocks in place; and
65 remove volunteer saplings as necessary to
66 prevent regrowth of large trees.
- 67 ▪ Repair planter walls in Area C. Prior to
68 commencing repair, remove all affected
69 vegetation and store healthy palms and other
70 plants (such as crinum, rubber plant, and
71 Hawaiian ti) and in pots or ball and burlap for
72 reuse in that area or elsewhere. Replace the
73 soil with an amended planting mix and
74 develop new planting plan using low or
75 understory plants that will survive with low
76 light and poor soil conditions (refer to list,
77 below).
- 78 ▪ In Area D, palm stumps, amend the soil, retain
79 accent stones for reuse in the same bed, and
80 develop new planting plan using low or
81 understory plants that will survive with low
82 light and poor soil conditions (refer list,
83 below). Reset accent stones in the same

1 location and same depth as they currently
 2 exist.

3 ■ In Area E, remove Bermuda grass and restore
 4 original planting scheme. If original plants are
 5 not available or appropriate, use plants with
 6 similar texture and color scheme. Consider
 7 relocating Guy Bradley memorial to its original
 8 location adjacent to the stairway in Area B.

9 ■ Maintain Area F in open turf planted with
 10 trees; consider replanting trees from original
 11 planting plan, substituting the Maypan palm
 12 variety for coconut palm.

13 ■ In Area F, restore beds of yucca, prickly pear ,
 14 and other shrubs as indicated in original
 15 design drawings. If species are not available or
 16 appropriate, choose species that are similar in
 17 texture and habit.

18 ■ Recommended plant list:

19 It should be of the highest priority to use
 20 plants that have a strong, sculptural form, such
 21 as Spanish dagger, elephant ears, palms,
 22 euphorbia, philodendron, and prickly pear, as
 23 recommended in the original plant list for the
 24 site. Provide contrast by combining them with
 25 smaller, finer textured plants, such as saltwort,
 26 Chinese box orange, ligustrum, and
 27 pittosporum, also from the original design.
 28 While many of these are not native to the area,
 29 it may be difficult to find native species that
 30 have the desired effect while at the same time
 31 tolerating deep shade and being available in
 32 the nursery trade. Therefore, it may be
 33 necessary to combine native plants with some
 34 exotics, particularly in areas within the
 35 breezeway. Preference should be given to the
 36 use of native species. If exotics are used,
 37 selection should be made in consultation with
 38 park natural resources staff to ensure that
 39 selected spec is are not invasive.

40 Further investigation should be made into the
 41 potential use of native plants that have been
 42 observed in the area in deep shade, including:

43 Shrubs: marlberry (*Ardisia escallonioides*), wild
 44 coffee (*Psychotria nervosa*) limber caper
 45 (*Capparis flexuosa*), Jamaica caper (*Capparis*
 46 *cynophallophore*), West Indian cockscomb
 47 (*Celosia nitida*), plumbago (*Plumbago*
 48 *scandens*), and Cinnamon bark (*Canella*
 49 *winterana*).

50 Perennials/herbs/grasses/ferns: Cape Sable
 51 thoroughwort (*Chromolaena frustrate*), six
 52 angle fold leaf (*Dicliptera sexangularis*), wild
 53 bamboo (*Lasiacis divaricata*), golden
 54 polypody (*Phlebodium aureum*), and
 55 rougeplant (*Rivina humilis*).¹⁴⁵

56 In addition to the plants listed above, also
 57 consider non-natives such as crinum lily
 58 (*Crinum* sp.), plumbago (*Plumbago* sp.), and
 59 cast iron plant (*Aspidistra elatior*).

60 **Circulation.**

61 ■ Maintain the existing paving width and
 62 alignment of the central entrance boulevard.

63 ■ Maintain the configuration and width of
 64 paved areas at the parking lots.

65 ■ Where repair and localized replacement of the
 66 paving is required, match the original paving
 67 mix and aggregate material.

68 ■ At the periphery of the visitor center site,
 69 maintain the alignment, material, width, and
 70 access points of the main road.

71 ■ Maintain any remaining original wheelstops in
 72 the parking lots and replace missing or
 73 deteriorated wheelstops in kind (following
 74 1958 photographic documentation).

75 ■ Continue a mowing/weeding regime to keep
 76 the edges of the pavement and sidewalks
 77 distinct and free of overgrowth.

78 ■ Conduct further research regarding original
 79 striping patterns and color (if present). If

145. E-mail communication from Jimi Sadle of NPS
 EVER to Melissa Memory of EVER, February 10,
 2010.

1 striping is currently necessary, consider
2 following original patterns.

3 ▪ Investigate original material of sidewalks in
4 parking lots for consideration in future repair
5 or replacement as necessary.

6 ▪ If the sidewalk from the visitor center to the
7 edge of basin 2 needs to be replaced, replace
8 with surface treatment that distinguishes it
9 from original plaza materials, since it was a
10 later addition.

11 ▪ With removal of the exterior elevator in 2010,
12 the sidewalk in that area can be realigned to
13 extend from the curb cut to the tower. In this
14 case, the old sidewalk should be removed and
15 the new sidewalk provided with a different
16 surface treatment to distinguish from original
17 paving material.

18 ▪ Restore the original configuration of the
19 sidewalk section between the two sidewalks
20 flanking the breezeway ramp.

21 ▪ Repave service yard and drive to match
22 original.

23 **Site Structures.**

24 Additional assessment of the concrete elements of
25 the bulkhead is recommended. The assessment
26 should include inspection openings to reveal
27 existing and as-built conditions, and to determine
28 the viability and economic feasibility of repair or
29 replacement options for the bulkhead.

30 From a preservation perspective, repair of the
31 existing basin wall is preferred. If replacement of
32 the basin wall is required, replacement in kind
33 would be appropriate in terms of maintaining the
34 historic appearance. However, further
35 investigation is required to determine whether
36 repair or replacement in kind is feasible. If
37 replacement in kind is not possible, other options
38 that could be considered include construction of a
39 new wall directly adjacent to old wall (so that caps
40 are vertically aligned), or construction of a new
41 wall below the old wall so that it is not visible from

42 above. Further study is required to develop and
43 evaluate these options.

44 The remnant tank support should be repaired as
45 necessary and retained in place.

46 **Small-scale Features.**

47 ▪ Relocate the Guy Bradley Memorial out of
48 Florida Bay viewshed to its 1978 location.

49 ▪ If replacing light poles and lanterns, consider
50 reproducing original design. If not feasible
51 select a contemporary design that will
52 complement existing buildings and
53 furnishings.

54 ▪ Avoid placing signage in the Florida Bay
55 viewshed as framed by the visitor center
56 pavilions or keep signage low and unobtrusive.
57 For example, locate plant identification signs
58 at the ground level (as at the Ernest Coe
59 Visitor Center).

60 ▪ Consider moving green feeder pillars from in
61 front of the visitor center to a less prominent
62 location. If not feasible, consider pit
63 installation.

64 ▪ Consider moving fireplug out of the viewshed
65 to a less-prominent location on either side.

66 ▪ Retain the flagpole in its current location.

67 ▪ Consider developing a site furnishings plan for
68 the Flamingo developed area. This would
69 include a consistent style for benches, trash
70 receptacles, picnic tables, lighting, and signage
71 frames.

72 ▪ Relocate existing trash receptacles next to
73 building in visible locations out of the Florida
74 Bay viewshed.

1 **Visitor Center**

2 **Exterior/Structure.**

3 **Safety Measures.** As a safety measure, the
4 south stair of the concessionaire component
5 should be secured to prevent access from the
6 bottom or top. Although visitors are prevented
7 from accessing the building interior, the exterior
8 of the stair is readily accessible to any persons on
9 site. The interior entrance to the stair, as well as
10 boarded-up locations of missing windows, present
11 a hazard to Park personnel and should be secured
12 until repairs are implemented. Closure should
13 remain in place on both the interior and exterior
14 of the stair until the park determines that it is safe
15 and appropriate to provide access to this entrance.

16 Broken glazing and inadequately secured window
17 units also present a hazard and should be secured
18 until permanent repairs are implemented.

19 Concrete spalls at overhead locations present a
20 hazard to pedestrians walking beneath. Observed
21 spalls were removed and localized concrete repairs
22 implemented by Park Facilities staff in 2010.

23 **Concrete Repair.** As noted, localized concrete
24 repairs were performed by Park Facilities staff in
25 2010. In addition, the exterior of the visitor center
26 was repainted in the historic color scheme
27 following the exterior finishes analysis conducted
28 for this study (refer to Appendix C). (Also refer to
29 enhanced repair recommendations prepared as
30 part of this study for the 2010 concrete repair
31 program.)

32 In future, concrete deterioration and distress
33 should continue to be repaired using concrete
34 repair techniques and procedures that include the
35 following steps:

- 36 ■ Cleaning with a biocide and/or detergent
37 should be performed at affected areas to
38 remove organic growth. Cleaning mock-ups
39 should be performed to evaluate cleaning
40 systems to be used overall and to determine
41 concrete appearance for matching of concrete
42 repair materials.

43 ■ Develop concrete repair mixes to match the
44 color, finish and texture of original concrete
45 for repair of the deteriorated concrete. The
46 following mixes to match original concrete
47 will be required: base concrete for slabs,
48 columns and beams, parge coat for walls and
49 structural framing, parge coat for screen wall,
50 architectural toppings for breezeway and plaza
51 paving, and stucco wall panels. The concrete
52 shall meet the following minimum
53 requirements:

- 54 ○ The 28-day design compressive strength
55 should be 4,000 psi.
- 56 ○ Proprietary concrete mixes should be
57 mixed in accordance with the
58 manufacturer's recommendations.
- 59 ○ Form and pour techniques should be used
60 when possible, and 3/8 inch diameter
61 aggregate should be added in amounts that
62 are in accordance with the manufacturer's
63 recommendations.

64 ■ Develop repair and application techniques for
65 trial application.

66 ■ Perform trial repairs and mock-ups of all
67 concrete mix designs and repair techniques.
68 Assume multiple samples of mixes off
69 building, followed by five small-scale trials of
70 each repair mix on building, followed by
71 mock-ups as needed to achieve match for
72 surface finishing.

73 ■ Remove deteriorated concrete, delaminated
74 mortar parge coating, and unsound or poorly-
75 executed previous repairs.

76 ■ Repair of concrete spalls:

- 77 ○ Make a 3/4 inch saw cut around the entire
78 perimeter of the affected area.
- 79 ○ Use chipping hammers of nominal 15-lb
80 class or less to remove concrete to a depth
81 of at least 3/4 inch below the exposed
82 reinforcing steel.
- 83 ○ Sandblast and air blast the exposed
84 concrete surfaces and exposed reinforcing
85 steel within the area of the patch.
- 86 ○ Carefully inspect the exposed steel
87 reinforcing bars for loss of section due to
88

1 corrosion and repair or replace as
2 necessary.

- 3 ○ Immediately coat all exposed steel
4 reinforcing with two coats of a corrosion
5 inhibiting coating.
- 6 ○ Install formwork to match original profile
7 of surface.

9 ■ Place and consolidate repair concrete
10 customized to match the original concrete.

11 ■ Wet cure concrete with the formwork and
12 plastic.

13 ■ Repair areas of delaminated mortar parging
14 and surface coating by performing surface
15 preparation techniques listed above and then
16 applying new bonded mortar parge coat that
17 matches the original existing parge coating for
18 color, finish, and texture.

19
20 ■ The stucco panels should be repaired by saw
21 cutting the distressed areas and providing a
22 rectangular repair area. Prior to installing a
23 compatible cementitious repair material,
24 stainless steel pins should be installed to
25 provide mechanical connection for the repair.

26
27 Based on the observed conditions, it is
28 recommended that a surface treatment be applied
29 to provide further protection against moisture
30 penetration. Surface treatments may include a
31 clear penetrating sealer (silane) if needed, and
32 film-forming coating application to match the
33 original surface treatment. (Refer to enhanced
34 repair recommendations for exterior coatings
35 prepared as part of this study for the 2010
36 repainting program.)

37 Clear penetrating sealers and film forming
38 coatings are applied to protect concrete against the
39 ingress of water and aggressive chemicals.
40 Penetrating sealers based on silanes and siloxanes
41 penetrate into the pores in the concrete and react
42 chemically with the surfaces of pores and fine
43 cracks in the concrete to make them water
44 repellent, or hydrophobic, while allowing
45 moisture that does enter the concrete to escape.
46 These products will make the surfaces of a fine,

47 hairline crack hydrophobic, but they do not fill or
48 bridge cracks. Once applied, most clear,
49 penetrating sealers cannot be readily removed,
50 thus careful consideration and field testing is
51 required to determine whether the treatment is
52 effective and appropriate prior to use. Applying
53 some penetrating sealers may affect the bond of
54 repairs (such as crack or patch repairs involving
55 certain cementitious materials); therefore, trial
56 repairs should be evaluated prior to full-scale
57 application of a sealer.

58 Pigmented film-forming coatings are used to
59 improve, maintain, or change the appearance of
60 the wall or facade of buildings. Although they
61 cover the surface, some defects (such as
62 “bugholes”) may become more apparent after
63 coating, therefore proper repair and surface
64 preparation are required prior to coating
65 application. Pigmented coatings are not
66 appropriate for historic structures that were not
67 coated originally or during the period of
68 significance (such as the boat shelter), but are
69 appropriate for those that were historically coated
70 (such as the visitor center).

71 Film-forming coatings alter the vapor permeability
72 of the substrate and also affect the texture,
73 reflectance, and overall appearance of the surface.
74 The breathability of these coatings depends on the
75 type and amount of binder and on the thickness of
76 the coating. Coatings selected for use on concrete
77 should be as breathable as possible, but other
78 issues such as mold and mildew resistance should
79 also be considered in coating selection.

80 Pigmented, film-forming coatings include both
81 elastomeric and non-elastomeric materials.
82 Elastomeric coatings such as acrylics and silicones
83 can bridge cracks and accommodate a certain
84 amount of crack movement, thereby keeping
85 water from entering cracks in the concrete. Where
86 silicones are used, subsequent recoating typically
87 requires the use of another silicone coating as well
88 as silicone sealants to ensure compatibility. Before
89 a film-forming coating is applied to a concrete
90 substrate, the joints and other architectural details
91 of the structure should be inspected and repaired
92 to eliminate existing pathways that would allow
93 water to gain access to the concrete behind the

1 new coating. Pigmented, film-forming non-
2 elastomeric coatings marketed for exterior
3 facades, such as some acrylics, will not effectively
4 bridge moving cracks. In addition to breathability
5 and ability to bridge cracks and accommodate
6 movement, other factors that must be considered
7 in coating selection include bond to the substrate
8 and prior coatings (if present), resistance to
9 environmental conditions such as salt spray and
10 ultraviolet exposure, resistance to the normal
11 alkalinity of concrete, and other performance
12 attributes. Different coating systems will provide
13 widely varying service life expectations.

14 Where existing coatings need to be removed prior
15 to recoating, removal from sound concrete can
16 often be accomplished with scraping and pressure
17 washing, although chemical strippers are often
18 more efficient and are necessary if the removal
19 involves existing, older coatings that contain lead
20 or other substances that require containment.

21 Mock-ups of application of new coatings should
22 be prepared and evaluated prior to complete
23 coating application. Equipment to be used for full-
24 scale application should also be used for preparing
25 the substrate and applying the coating system in
26 the mock up areas. Mock-ups assist in evaluating
27 the aesthetic effect of the coating application and
28 also permit evaluation of the new coating system
29 to determine the effectiveness of surface
30 preparation and compatibility with any existing
31 coatings. This can be accomplished by testing the
32 tensile bond strength, coating application
33 thickness, and water sensitivity of the new system
34 in the mock-up area.

35 Pigmented coatings require periodic recoating and
36 removal. Maintenance schedules should take into
37 account the manufacturer's estimated service life
38 for the system and recoating guidelines. The
39 compatibility of the new coating with joint sealants
40 and other existing coatings present on the
41 structure must also be considered when
42 developing a maintenance schedule.

43 It should also be noted that existing moisture and
44 chloride levels in the structure will likely continue
45 to facilitate corrosion distress, even after efforts
46 have been made to protect the structure from new

47 moisture infiltration. In fact, due to the current
48 condition of the structure, some level of continued
49 corrosion-related distress should be anticipated
50 even if aggressive preventative maintenance efforts
51 are employed. However, with appropriate repairs
52 and ongoing maintenance, the amount of
53 continued distress can be minimized to a level that
54 routine maintenance efforts can effectively
55 address.

56 **Second Floor Breezeway Cracks.** The second
57 level walkway surface appears to be in fair to good
58 condition with minimal surface cracking. Previous
59 repairs to breezeway cracks have consisted of
60 routing out short lengths of the crack and
61 installing a metal channel to facilitate drainage.
62 Establishing new joints to accommodate
63 movement in the slab may not be practical or
64 necessary at this time. Therefore, existing cracks in
65 the breezeway between the columns and above the
66 precast girders can be treated to accommodate
67 existing movement as follows. The previously
68 installed metal channels should be removed,
69 cracks should be routed, and the cracks filled with
70 an elastomeric (polyurethane) sealant, which will
71 reduce future water migration through the
72 breezeway joints onto the support structure below
73 and to accommodate future movement that may
74 occur.

75 The existing metal bearing plates should be
76 repaired to facilitate thermal movements of the
77 double-Ts. Installation of the bearing pads should
78 include the repair of the edge failures observed in
79 the precast girders below the bearing pads.

80 **Miscellaneous Breezeway Repairs.** The steel
81 joists at the roof level of the breezeway appeared
82 to be in good condition based on WJE's limited
83 visual assessment. To limit further distress, the
84 inspection holes will require immediate repair to
85 prevent moisture and chloride ingress to the roof
86 structure.

87 Two steel clip angles below the expansion joint at
88 the south end of the breezeway were observed to
89 be heavily corroded. Although not shown on the
90 original drawing, physical evidence indicates that
91 these clips are original to the structure. It is

1 recommended that the clips are replaced with a
2 less corrosive stainless steel, such as stainless steel
3 grade 316.

4 Install new sealant at vertical expansion joints. At
5 locations where cementitious patches have been
6 installed at expansion joints, remove all concrete
7 within the joint and all unsound or mismatched
8 concrete adjacent to the joint (saw cut all edges
9 where concrete is removed). Install new concrete
10 adjacent to joint to provide a continuous edge
11 flush with the inside face of the joint. Install
12 elastomeric (silicone) sealant and backer rod in
13 joints.

14 **Roofing.** The existing roof membrane generally
15 has service life remaining; however, single-ply
16 roofing systems are difficult to maintain and
17 susceptible to impact damage from airborne debris
18 during storms, falling debris from nearby trees,
19 and abuse by local animals. NPS staff has
20 confirmed that damage has occurred to the roof
21 from storm debris as well as debris from trees. In
22 addition, they report that vultures and to a lesser
23 degree the osprey nesting atop the radio antenna
24 cause damage to the roofing membrane.

25 To address current conditions, the following
26 repairs are recommended:

- 27 ▪ Missing sections of flashing or counterflashing
28 should be replaced
- 29 ▪ Missing soffit panels should be replaced.
30 (Repairs were implemented by Park Facilities
31 staff in 2010.)
- 32 ▪ The existing mechanical equipment and
33 conduit penetrations should be properly
34 covered, re-flashed, and re-sealed to maintain
35 a watertight system and address current water
36 leakage.
- 37 ▪ Areas where the membrane is wrinkled should
38 be repaired, particularly where the wrinkles
39 cross seams in the membrane.
- 40 ▪ Consideration should be given to applying a
41 sacrificial layer of membrane beneath the
42 antenna to better protect the membrane from

43 puncture and chemical attack associated with
44 the osprey nesting atop the antenna.

- 45 ▪ Locations where the fasteners are telegraphing
46 and tenting the membrane should be
47 monitored for adverse changes in the area of
48 tenting and fastener penetrations; changes in
49 the area of tenting or membrane penetrations
50 should be repaired as soon as they are
51 discovered. It should be noted that tenting of
52 the membrane at fastener locations is an
53 indication that the insulation beneath the
54 membrane has become either wet, crushed, or
55 both. This condition typically results in a loss
56 of adhesion of the membrane to the substrate,
57 thus affecting the uplift resistance of the
58 membrane.
- 59 ▪ Assuming the membrane is still maintainable,
60 consideration should be given to recoating the
61 membrane in approximately five years.

62 Although the membrane can theoretically be
63 maintained for the near future, replacement of the
64 membrane should be planned within the next five
65 to ten years. The decision to replace will largely be
66 driven by the ability of the NPS staff to effectively
67 and economically maintain the existing roof
68 system. At the end of the service life of the existing
69 membrane, the existing roofing materials should
70 be removed down to the existing structure
71 (decking), and a new fully adhered roof membrane
72 installed, meeting contemporary requirements for
73 wind uplift and incorporating appropriate
74 flashings. Considerations for replacement roof
75 systems include cold-applied modified bituminous
76 systems with granular-surfaced cap sheets, which
77 can be coated to provide a light-colored surface,
78 or more robust single-ply thermoplastic
79 membrane (60 to 80 mil thick).

80 **Windows and Doors.** The existing original
81 ganged awning aluminum window units should be
82 retained and restored. Given the location of the
83 building and the nature of the existing mechanical
84 systems and utility infrastructure, it is necessary to
85 maintain the windows as operable units for
86 ventilation in mild weather or to serve as a back-up
87 ventilation system when air conditioning systems
88 malfunction.

Treatment and Use

1 The following repair and maintenance measures
2 are recommended:

- 3 ▪ Operational components such as levers and
4 hinges should be cleaned, oiled, and adjusted
5 for smooth operation and replaced where
6 missing or damaged beyond repair.
- 7 ▪ Weatherstripping should be added to the
8 perimeter of operable sash to improve the air
9 and water infiltration resistance of the system.
- 10 ▪ Aluminum insect screening should be
11 maintained at all operable lights and should be
12 replaced where damaged or worn.
- 13 ▪ Window perimeters should be sealed with
14 elastomeric sealant.

15 Given the current and projected use of the
16 building, and the building location and
17 orientation, thermal improvements such as
18 insulating glazing or supplemental glazing (storm
19 windows) are unlikely to provide significant
20 benefit and are not recommended at this time.
21 However, where glass is replaced, consideration
22 should be given to installing fully tempered or
23 laminated glass to improve impact resistance and
24 lessen the potential hazards associated with
25 cracked or broken glass.

26 The non-original dark bronze colored window
27 units at the concessionaire portion of the building
28 should be replaced with new replica window units
29 matching the original window sightlines and
30 configuration. Since mill-finish aluminum is no
31 longer commonly used for window units, if it is
32 not available then clear coated aluminum should
33 be considered to match the original appearance as
34 closely as possible.

35 Consideration should be given to restoring the
36 original clerestory windows of the second floor
37 lobby. The original clerestory windows were
38 operable jalousie units, which could be replicated;
39 however, if the park prefers that these units not be
40 operable then consideration could be given to
41 fixed units matching the original sightlines.
42 Installation of new windows at the clerestory

43 location will require coordination with the
44 adjacent roofing details.

45 If the original exterior entrance doors cannot be
46 repaired, then they should be replaced with new
47 aluminum framed doors matching the original
48 profiles. Hollow metal doors and frames should
49 also be replaced and painted to match the original
50 color scheme. New door hardware should be
51 stainless steel or aluminum to improve corrosion
52 resistance.

53 Consideration could be given to replacement of
54 the large window wall at the information area in
55 the museum and office portion of the building to
56 match the original window wall design. The
57 window wall was altered circa 1961 following
58 Hurricane Donna. The existing window system
59 could be considered a design change implemented
60 within the period of significance, noting that it is
61 not the original design. Retaining the current
62 window system would be consistent with other
63 features of the circa 1961 (e.g., without screening
64 at the breezeway). However, restoration of the
65 windows as shown in the as-built construction
66 documents, or as closely as possible to the original
67 appearance while accommodating current codes,
68 may be desirable to represent the original design
69 intent. We understand that the park currently
70 plans to repair the window wall or, if repair is not
71 feasible, to replace it in kind. (Refer to discussion
72 of hurricane protection for windows, above.)

73 Consideration could be given to reconstructing
74 the insect screening that originally enclosed the
75 second floor breezeway. The screening was
76 removed circa 1961 following Hurricane Donna.
77 We understand that the park does not intend to
78 replace the screening, as it reportedly does not
79 effectively serve as a barrier to insects.

80 **Railings.** The existing original guardrails along
81 the second level of the breezeway do not meet the
82 current Florida Building Code height
83 requirements. The existing guardrails are
84 approximately 36 inches high in lieu of 42 inches
85 as required by the current code. Also, although
86 solid panels or screening have been added at some
87 locations, the railings overall do not meet current

1 code requirements mandating a maximum 4 inch
2 open space between any railing component.

3 The existing railings appeared to be in good
4 condition and therefore replacement of these rails
5 at this time is not required (although modifications
6 are likely required to meet code). The ultimate
7 treatment of the railings is somewhat dependent
8 on the approach to possible restoration of the
9 insect screening enclosure of the second floor of
10 the breezeway. If the screening enclosure is
11 restored, the original railing height and open two-
12 rail configuration may be acceptable to code
13 authorities, since the screening would provide
14 additional fall protection. If the insect screening is
15 not restored, the railings will likely require
16 alterations to meet code requirements in terms of
17 height and spacing. Several options can be
18 considered if the screening is not restored, one of
19 which is retrofit of the original railings with clear
20 glass infill to maintain open sightlines while
21 meeting the four-inch gap requirement. Cyclical
22 maintenance of the glass (primarily cleaning)
23 would be needed. If the 42 inch height
24 requirement needs to be met, an additional top rail
25 could be added above the original top rail,
26 although this option is not desirable in that it
27 would involve modification to the original railing.
28 An alternate approach that may be preferable in
29 terms of maintenance and would not interfere
30 with the original railing would be the addition of
31 an interior rail (not readily visible from the
32 exterior) that meets code requirements and is
33 physically separate from the original railing.

34 **Interior.**

35 The interior spaces of the museum and office
36 component of the visitor center retain most of
37 their original interior finish materials. In the
38 second floor lobby, which originally was open to
39 the second level breezeway, wood paneling,
40 plaster, textured concrete flooring, keystone
41 planter walls, aluminum and glass storefront and
42 door systems, aluminum guardrails, and cement
43 tile wall cladding and base are all original
44 character-defining materials. In the office spaces,
45 the original architectural drawings indicate plaster
46 wall and ceiling finishes with asphalt tile flooring;
47 the flooring was apparently changed to terrazzo

48 during construction. Wood trim and wood
49 interior doors in these spaces are also original. The
50 museum space retains its original plaster walls and
51 ceiling and asphalt tile flooring finishes.

52 The interior spaces of the north enclosure require
53 repairs to remediate existing distress and damage:

- 54 ▪ Concrete floors require crack repairs and
55 cleaning to remove stains. The concrete lobby
56 stairs require localized patching to address
57 spalls.
- 58 ▪ Plaster wall and especially ceiling surfaces
59 require patching to address the effects of
60 previous water infiltration. Minor water
61 staining of plaster should be primed and
62 painted after the source of the leakage is
63 addressed. More significant distress requires
64 plaster patching, by cutting out and squaring
65 off areas of damaged plaster, replacing
66 damaged lath, applying a new three-coat
67 plaster to match the original surface finish, and
68 repainting.
- 69 ▪ Some areas of wood paneling have
70 experienced moisture damage. Minor damage
71 can be addressed by removing paint coatings,
72 filling minor gaps with putty, and repainting.
73 More significant deterioration and wood
74 decay will require the replacement of
75 individual boards to match the original wood
76 type, unit size, and profiles. The wood
77 paneling is currently painted; further research
78 is required to determine the original finish. If
79 the original finish and color scheme are
80 identified, then the paneling should be
81 finished to match the original appearance.
- 82 ▪ The cement tile cladding of the lobby staircase
83 requires cleaning and re-grouting of open
84 joints between units.
- 85 ▪ Exposed aluminum elements, such as the
86 lobby stair railing and the interior storefronts
87 and glazed doors, should be cleaned to remove
88 accumulated chloride deposits. Consideration
89 could be given to applying a clear sealer.
90 Cleaning of the aluminum surfaces should be
91 repeated as part of cyclical maintenance.

- 1 ■ The interior spaces of the south enclosure of
 2 the visitor center (former gift shop and
 3 restaurant areas) sustained hurricane damage
 4 in 2005 and have deteriorated further due to
 5 the disuse of these spaces in the five years
 6 since the hurricanes. Many of the existing
 7 interior finish materials are not original
 8 finishes; rather, the existing finish materials
 9 were installed as part of previous renovations
 10 and reconfigurations of the commercial
 11 spaces. Due to the poor condition of many of
 12 the finishes and the lack of historic integrity of
 13 the spaces, the interior spaces of the south
 14 enclosure may be renovated as needed to meet
 15 new program uses. At the ground floor, the
 16 existing floor, wall, and ceiling finishes can be
 17 removed and replaced with appropriate new
 18 finishes, taking into consideration the original
 19 interior finishes specified on the original
 20 architectural drawings for the building. The
 21 second floor retains more of its original
 22 interior finishes. In particular, the tile flooring
 23 at the main entrance to the second floor, the
 24 wood paneled wall finishes, and interior
 25 keystone planter date to original construction.
 26 These finish materials should be preserved,
 27 while other areas and materials can be
 28 removed and replaced with appropriate new
 29 finishes.
- 30 ■ Some areas of wood paneling have
 31 experienced moisture damage. Minor damage
 32 can be addressed by removing paint coatings,
 33 filling minor gaps with putty, and repainting.
 34 More significant deterioration and wood
 35 decay will require the replacement of
 36 individual boards to match the original wood
 37 type, unit size, and profiles. The wood
 38 paneling is currently painted; further research
 39 is required to determine the original finish. If
 40 the original finish and color scheme are
 41 identified, then the paneling should be
 42 finished to match the original appearance.
- 43 ■ Where the existing tile is intact, the original
 44 tile flooring should be cleaned and preserved.
 45 Debonded but intact tiles can be salvaged and
 46 reinstalled. The transition between the area(s)
 47 of intact original tile and new flooring requires

- 48 study as part of the renovation design of the
 49 dining room and bar spaces.
- 50 ■ The Keystone planter at the dining room
 51 entrance should be stripped of paint and
 52 cleaned.
- 53 ■ The use of a sloped ceiling in the dining room,
 54 following the slope of the shed roof of the
 55 building, is an important original interior
 56 design feature and should be retained as part
 57 of the installation of a new ceiling finish.

58

1 Service Station

2 Exterior/Structure.

- 3 ■ Insect infestation, particularly yellowjackets
4 nesting in the service bay, should be addressed
5 prior to implementation of repairs
- 6 ■ Cracked stucco should be repaired by saw
7 cutting the distressed areas and providing a
8 rectangular repair area. Prior to installing a
9 compatible cementitious repair material,
10 stainless steel pins should be installed to
11 provide mechanical connection for the repair.
12
- 13 ■ Stucco surfaces should be repainted. A finishes
14 analysis should be performed prior to
15 repainting to confirm the original color
16 scheme. Information provided by the recent
17 finishes analysis for the visitor center can be
18 referenced as part of this analysis. (Refer to
19 Appendix C.)
- 20 ■ Spalled concrete surfaces should be repaired.
21 Refer to the visitor center recommendations
22 for more detail.
- 23 ■ Steel pipe columns at service area and at
24 gasoline pump islands should be prepared and
25 painted with a rust-inhibitive coating system.
- 26 ■ The Keystone veneer should be repaired by
27 installing a new unit of matching stone to
28 replace the missing unit.
- 29 ■ The Keystone veneer should be cleaned,
30 primarily to remove organic growth. A biocide
31 (either a proprietary cleaning product or
32 household bleach-detergent mixture) should
33 be used as part of the cleaning process to
34 inhibit recurrence of organic growth. Cleaners
35 containing strong acids should not be used at
36 any time for cleaning the building facades.
37 Very low pressure water (less than 100 psi)
38 should be used for pre-wetting and rinsing.
- 39 ■ The building exterior can be further restored
40 by re-creating the original pattern of glazing
41 and screening. The west elevation (west wall
42 of the service bay) originally included fixed
43 wooden louvers at the northernmost bay, of
44 the same design as the existing louvers at the
45 service bay clerestory. The office walls original

46 included jalousie window units above the
47 existing fixed glazing, instead of the existing
48 vertical wood siding. The aluminum framing
49 for these window openings still exists behind
50 the wood siding. New replica sash could be
51 installed into the original framing, matching
52 the sightlines of the original units.

- 53 ■ The roof was not visible during the field work
54 for this project; the roof membrane should be
55 inspected when access is available and
56 repaired as needed.

57 **Interior.** The small interior spaces of the service
58 station retain their original simple materials:
59 plaster walls and ceiling and concrete flooring in
60 the office; ceramic tile flooring and wainscot and
61 plaster walls and ceiling in the restrooms. To make
62 the building suitable for reuse, the following
63 repairs are recommended to return the interior
64 finishes to a good state of repair:

- 65 ■ The interiors should be cleaned to address
66 insect and plant infestations.
- 67 ■ Concrete floors require crack repairs and
68 cleaning to remove stains.
- 69 ■ All plaster surfaces require repainting. Some
70 plaster wall and ceiling surfaces require
71 patching to address the effects of previous
72 water infiltration. Areas of minor water
73 staining of plaster should be primed with a
74 stain blocking primer/sealer and painted, after
75 the source of the leakage is addressed. More
76 significant distress requires plaster patching,
77 by cutting out and squaring off areas of
78 damaged plaster, replacing damaged lath,
79 applying a new three-coat plaster to match the
80 original surface finish, and repainting.
- 81 ■ Ceramic tile surfaces are generally intact and
82 require only cleaning and re-grouting of open
83 joints.
- 84 ■ The wood veneer interior closet door in the
85 office is damaged and should be replaced to
86 match the original door style.

1 **Boat Shelter**

2 Repair existing concrete distress using concrete
3 repair techniques and procedures that include the
4 following steps:

- 5 ■ Develop concrete repair mixes to match the
6 color, finish and texture of original concrete
7 for repair of the deteriorated concrete. The
8 concrete shall meet the following minimum
9 requirements:
 - 10 ○ The 28-day design compressive strength
11 should be 4,000 psi.
 - 12 ○ Proprietary concrete mixes should be
13 mixed in accordance with the
14 manufacturer’s recommendations.
 - 15 ○ Form and pour techniques should be used
16 when possible and 3/8 inch diameter
17 aggregate should be added in amounts that
18 are in accordance with the manufacturer’s
19 recommendations.
- 20
- 21 ■ Develop repair and application techniques for
22 trial application.
- 23 ■ Perform trial repairs and mock-ups of all
24 concrete mix designs and repair techniques.
25 Assume multiple samples of mixes off
26 building, followed by five small-scale trials of
27 each repair mix on building, followed by
28 mock-ups as needed to achieve match for
29 surface finishing.
- 30 ■ Remove deteriorated concrete, delaminated
31 mortar parge coating, and previous repairs.
- 32 ■ Repair of deteriorated concrete:
 - 33 ○ Make a 3/4 inch saw cut around the entire
34 perimeter of the affected area.
 - 35 ○ Use chipping hammers of nominal 15-lb
36 class or less to remove concrete to a depth
37 of at least 3/4 inch below the exposed
38 reinforcing steel.
 - 39 ○ Sandblast and air blast the exposed
40 concrete surfaces and exposed reinforcing
41 steel within the area of the patch.
 - 42 ○ Carefully inspect the exposed steel
43 reinforcing bars for loss of section due to
44 corrosion and repair or replace as
45 necessary.

- 46 ○ Immediately coat all exposed steel
47 reinforcing with two coats of a corrosion
48 inhibiting coating.
- 49 ○ Install formwork to match original profile
50 of surface.
- 51
- 52 ■ Place and consolidate repair concrete
53 customized to match the original concrete.
- 54 ■ Wet cure concrete with the formwork and
55 plastic.

56 Application of a clear, penetrating sealer can be
57 considered for the boat shelter, as discussed above
58 under recommendations for the visitor center.

59

1 Administrative Housing Units

2 Building 416

3 Exterior.

- 4 ▪ The concrete stairs should be repaired at
5 locations of corroding reinforcement bar and
6 concrete spalling. Refer to the
7 recommendations provided above for exterior
8 concrete repairs on the visitor center. Note
9 that only formed concrete repairs (not trowel
10 applied patch repairs) should be used.
- 11 ▪ Clean debris from gutters. Verify overall roof
12 drainage paths.
- 13 ▪ Inspect and repair steel deck ties on underside
14 of wood porches; replace deteriorated wood
15 as a cyclical maintenance task.
- 16 ▪ The galvanized steel stairs extending from
17 wood porches show signs of surface
18 corrosion. Consideration should be given to
19 priming and painting the stairs.

20
21 **Interior.** Only one unit interior was accessible for
22 survey. The following interior repairs are
23 recommended at the unit reviewed and as
24 appropriate at the interior of other units:

- 25 ▪ Repair the exposed concrete ceiling at
26 locations of previous water infiltration
27 (primarily related to the bathroom skylight.
28 Remove existing paint coatings; prepare,
29 prime, and repaint the concrete surface.
- 30 ▪ Clean exposed steel finish elements such as
31 the skylight framing and exhaust fans to
32 remove surface corrosion. Prime and paint
33 with a rust-inhibitive coating system.
- 34 ▪ Repaint plaster and exposed concrete
35 masonry wall surfaces as required as part of
36 cyclical maintenance.
- 37 ▪ Repair original exterior concrete louvers, now
38 enclosed in ground level storage rooms. (Refer
39 to recommended concrete repair protocol
40 described above.)

42 Buildings 439 and 440

43 Exterior.

- 44 ▪ Inspect wood stairs and replace rotted wood
45 elements as a cyclical maintenance task
- 46 ▪ Repair or replace cracked wood columns and
47 beams on elevated porches. When wood
48 columns are replaced, adjust to center on
49 concrete footings at elevated porches.
- 50 ▪ Clean deck ties on underside of elevated
51 porches and brackets at the rear porch rafter
52 and beam connections to remove surface
53 corrosion. Prime and paint with rust-inhibitive
54 coating system.
- 55 ▪ Inspect wood soffits and repair or replace
56 rotted wood members.
- 57 ▪ Repair concrete spalling at through-wall air
58 conditioner support on south elevation
- 59 ▪ Treat organic growth adjacent to through-wall
60 air conditioner on south elevation of building
61 440

62 **Interior.** The interiors of buildings 439 and 440,
63 where accessible, were in good condition and
64 require only normal maintenance work at the
65 present time.

66

1 **Recommendations for Further**
2 **Research**

- 3 ▪ Further investigation and updated condition
4 assessment of bulkhead wall.
- 5 ▪ Further research and trial samples to
6 determine and replicate original surface
7 treatment techniques for concrete paving.
- 8 ▪ Further research to identify original
9 construction documents for the boat shelter.

10

Sources of Information

Published Sources

- Allaback, Sarah, Ph.D. *Mission 66 Visitor Centers: The History of a Building Type*. Washington, D.C.: U.S. Department of the Interior, National Park Service, Cultural Resources Stewardship and Partnerships, Park Historic Structures and Cultural Landscapes Program, 2000.
- Appleman, Roy E. *A History of the National Park Service Mission 66 Program*. Washington, D.C.: Department of the Interior, National Park Service, 1958.
- Carr, Ethan. *Mission 66: Modernism and the National Park Dilemma*. Amherst: University of Massachusetts, 2007.
- Douglas, Marjory Stoneman. *Florida: The Long Frontier*. New York: Harper & Row, 1967.
- Gannon, Michael. *Florida: A Short History*. Gainesville: University Press of Florida, 1993.
- George, Jean Craighead and Betty Fraser. *Everglades Wildguide*. Washington, D.C.: National Park Service, 1972.
- Good, Albert H. *Park and Recreation Structures, Part III*. National Park Service, 1938. Reprinted, New York: Princeton Architecture Press, 1999.
- Green, Richard and Ken Campbell. *USGS 1:100,000 Scale Homestead Quadrangle*. Tallahassee: Florida Geological Survey, 1996.
- Griffin, John W.; Jerald T. Milanich and James J. Miller, eds. *Archeology of the Everglades*. Gainesville: University Press of Florida, 2002.
- Lawson, Charles F. *Trip Report on Archeological Resting for the Construction of a Bermed Dredge Spoil Containment Field at Flamingo, Everglades National Park, Florida*. Tallahassee: National Park Service Southeast Archeological Center, 2006.
- Lodge, Thomas E. *The Everglades Handbook: Understanding the Ecosystem*. Boca Raton: CRC Press, 2005.
- McIver, Stuart B. *Death in the Everglades: The Murder of Guy Bradley, America's First Martyr to Environmentalism*. Gainesville: University Press of Florida, 2003.
- Meinecke, E. P. *Camp Planning and Camp Reconstruction*. California Region, U.S. Forest Service, circa 1934.
- Nash, Eric P., and Randall C. Robinson Jr. *MiMo: Miami Modern Revealed*. San Francisco: Chronicle Books, LLC, 2004.
- National Park Service. *Everglades National Park Statement for Management*. Homestead, Florida: National Park Service, 1977, revised October 1982.
- . *Flamingo Commercial Services Plan/Environmental Assessment: Finding of No Significant Impact*. Homestead, Florida: Everglades National Park, 2008.

Sources of Information

- . National Register Bulletin No. 15. "How to Apply the National Register Criteria for Evaluation," Washington, DC: Government Printing Office, 1997.
- National Research Council. *Progress toward Restoring the Everglades: The First Biennial Review – 2006*. Washington, D.C.: National Academies Press, 2007.
- Nelson, Gil. *The Trees of Florida: A Reference and Field Guide*. Sarasota: Pineapple Press, Inc., 1994.
- Nelson, Lee H., FAIA. *Preservation Brief 17: Architectural Character: Identifying the Visual Aspects of Historic Buildings as an Aid to Preserving Their Character*" Washington, D.C.: National Park Service, 1988.
- Nolan, Charles. "Missions in the Calusa," *The Mississippi Quarterly*, Winter 1993. Starkville: College of Arts and Sciences, Mississippi State University.
- Robinson, T. Ralph. "Henry Perrine, Pioneer Horticulturist of Florida," *Proceedings*. Florida State Horticultural Society, 1937.
- Scott, Thomas M. *Text to Accompany the Geologic Map of Florida*. Tallahassee: Florida Geological Survey, 2001.
- Slaton, Deborah, *Preservation Brief 43: The Preparation and Use of Historic Structure Reports*. Washington, D.C.: National Park Service, 2005.
- Tebeau, Charlton W. *A History of Florida*. Coral Gables: University of Miami Press, 1971.
- . *Man in the Everglades: 2000 Years of Human History in the Everglades National Park*. Miami: Everglades Natural History Association, University of Miami Press, 1968.
- . *They Lived in the Park*. Miami: Everglades Natural History Association, University of Miami Press, 1963.
- Treib, Marc. "Axioms for a Modern Landscape Architecture," *Modern Landscape Architecture: A Critical Review*, Marc Treib, ed. Cambridge, Massachusetts: The MIT Press, 1993.
- Wiss, Janney, Elstner Associates, Inc., and John Milner Associates, Inc. *Flamingo Mission 66 Developed Area Cultural Landscape Inventory*. Atlanta, Georgia: National Park Service, Southeast Regional Office, 2011.

Archival Drawings

- NPS drawing 160-2117, "Flamingo Area," National Park Service, Planning & Construction Division, Regional Office, September 9, 1952.
- NPS drawing 160-2129H, "Developed Area, Flamingo," National Park Service, Division of Design & Construction, Eastern Office, October 24, 1958.
- NPS drawing 160-3020D, "Visitors Center, NPS Section, Flamingo," Harry L. Keck, Jr., Architect, October 9, 1956.
- NPS drawing 160-3034A, "On-the-Job Quarters, Flamingo," National Park Service, Division of Design and Construction, Eastern Office, August 10, 1956.

- NPS drawing 160-3037, "Location Plan, Flamingo," National Park Service, Division of Design and Construction, Eastern Office, August 10, 1956.
- NPS drawing 160-3112A, "Planting Plans, Flamingo," National Park Service, Division of Design and Construction, Eastern Office, February 26, 1958.
- NPS drawing 160-3116, "Information Counter, Flamingo Visitor Center," November 20, 1957.
- NPS drawing 160-3120, "Incinerator, Flamingo," National Park Service, Division of Design and Construction, Eastern Office, April 4, 1958. Later used for pesticide storage, building 426.
- NPS drawing 160-3130A, "Equipment Storage & Shop Buildings, Flamingo," National Park Service, Division of Design and Construction, Eastern Office, December 2, 1958.
- NPS drawing 160-3205, "Rehabilitation, Miscellaneous Structures," National Park Service, Division of Design and Construction, Eastern Office, October 7, 1960. Rehabilitation of damage caused by Hurricane Donna at boat shop (building 422), maintenance office/equipment storage (building 421), fish cleaning shelter (building 419), camping loop A / picnic area comfort stations, and camptender's residence.
- NPS drawing 160-3300, "Flamingo Developed Area, Part of the Master Plan," National Park Service, Division of Design and Construction, Eastern Office, March 15, 1963.
- NPS drawing 160-3300A, "Flamingo Developed Area, Developed Area Plan," National Park Service, Division of Design and Construction, Philadelphia Planning & Service Center, August 10, 1967, revised March 27, 1968.
- NPS drawing 160-7006, "Additions to Existing Motel Accommodations at Flamingo," Severud Knight Boerema Architects, August 16, 1968. New exterior stairwells and wood-framed sun shades for lodge buildings.
- NPS drawing 160-8051C, "Visitors Center, Concessionaire Section, Flamingo," Harry L. Keck, Jr., Architect, July 9, 1956.
- NPS drawing 160-8052A, "Alterations to Marine Service Building, Flamingo," Gordon Severud, Architect, October 6, 1960.
- NPS drawing 160-8053E, "Service Station, Flamingo," Harry L. Keck, Jr., Architect, May 28, 1956.
- NPS drawing 160-8055B, "Power House, Flamingo," W. C. Gorman, Engineer, n.d. [1956]. Depicts building 467.
- NPS drawing 160-8056A, "Overnight Accommodations," Severud Savage & Associates, Architects, August 2, 1957. Depicts the first five buildings of the lodge.
- NPS drawing 160-8061A, "Swimming Pool and Filter Room, Flamingo Lodge," Gordon Severud, Architect, July 14, 1959.
- NPS drawing 160-8067A, "Warehouse, Flamingo Utility Area," Severud & Knight AIA, Architects, December 10, 1962. Depicts building 469.

Sources of Information

NPS drawing 160-8068C, "Low Cost Overnight Accommodations, Flamingo," Severud & Knight AIA, Architects, June 16, 1964. Depicts the duplex building group.

NPS drawing 160-8070A, "Additions to Overnight Accommodations, Flamingo," Severud & Knight AIA, Architects, September 16, 1964. Depicts the sixth and seventh buildings of the lodge.

NPS drawing 160-8077A, "Employee Housing, Flamingo," Severud & Knight, Architects, December 3, 1965. Depicts housing buildings 486, 487, 488, 489, and 490.

NPS drawing 160-41006A, "Incinerator, Flamingo," National Park Service, Eastern Service Center, Environmental Planning & Design, November 10, 1970. Renovation of building 426.

NPS drawing 160-41020A, "Fire Damage Repair, Flamingo," Setliff & Regnvall Architects, May 1980, as constructed drawings, January 6, 1981. Depicts housing buildings 487, 489, and 490.

NPS drawing 160-41030A, "Single-Ply Membrane Roof Replacement, Flamingo and Pine Island," Grieves Worrall Wright & O'Hatnick Incorporated, March 19, 1993, as-constructed drawings, July 1995. Includes Flamingo visitor center.

NPS drawing 160-41068, "Flamingo House Trailer Replacement," HDR Engineering, June 2008.

NPS drawing 160-41071, "Demolish Flamingo Lodge & Motels," HDR Engineering, March 31, 2008.

NPS drawing 160-60025, "Gutters and Downspouts, Flamingo, Buildings 415, 416, 418, 439, 440," Everglades National Park, Maintenance Office, June 19, 1972. Note that building 415 is the visitor center.

NPS drawing 160-60095, "Modular Homes, Flamingo," National Park Service, September 1986. Depicts housing buildings 443 and 444.

NPS drawing 160-60201, "Flamingo Visitor Center Site Improvements for Wheelchair Lift," National Park Service, March 2000.

NPS drawing 160-60202, "Flamingo Visitor Center Restrooms," National Park Service, September 14, 1998.

NPS drawing 160-60261, "Recreation Center, Flamingo," Engineering and Maintenance Office, July 13, 1972.

NPS drawing 160-60262, "Park Service Residential Area," National Park Service, May 2, 1973.

NPS drawing 160-60264, "Site Plan, Flamingo Park Employee Housing," National Park Service, September 22, 1995.

NPS drawing 160-60901, "Employee Housing for TW Services, Flamingo," July 24, 1988. Depict housing buildings 412 and 413.

NPS drawings 160-60981A and 160-60982A. No title block, marked May 22, 1979, and May 25, 1979. Depict housing buildings 441 and 442.

NPS drawing 160-60984. No title block, marked May 31, 1979. Depicts new rear stairs for building 416.

NPS drawing 160-60987A. Reynolds Metals Co., August 31, 1983. Shop drawings for new stair railings for buildings 439 and 440.

NPS drawing 160-80002, "Flamingo, Electrical Renovations," Lee Wan and Associates, Inc., June 10, 1981. Includes work at concessionaire component of visitor center.

Sources of Information