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## 1.0 INTRODUCTION

### 1.1 Background

Environmental Resource Solutions, Inc. (ERS) recently conducted a screening of the baseline environmental conditions of Jacksonville International Airport (JIA) utilizing existing studies, maps, and permits. JIA comprises approximately 8,000 acres and is located in Sections 17, 20 - 29, 33 - 38, and 40; Township 1 North; Ranges 26 and 27 East; Duval County, Florida (Exhibit 1).

The purpose of the assessment was to identify the approximate limits of any jurisdictional wetlands/surface waters regulated by St. Johns River Water Management District (SJRWMD) and U.S. Army Corps of Engineers (COE). In addition, the occurrence of any faunal species listed as endangered, threatened, or of special concern and their critical habitat, by the U.S. Fish and Wildlife Service (FWS) and/or the Florida Fish and Wildlife Conservation Commission (FWC) was identified.

Documentation consulted in preparation of this screening report includes:

- Section 18 of the Application for Development Approval submitted during the Development of Regional Impact (DRI) process for JIA (1989)
- Wildlife surveys and baseline environmental conditions reported during the State and Federal permitting process (2000-2001)
- SJRWMD Conceptual Environmental Resource Permit (ERP) No. 4-031-17756-3 (2001)
- COE Individual Permit No. 200005079 (IP-BAL) (2001)
- JIA Mitigation Management Area Plan (2003)
- Annual JIA Assessment Report (2007)

### 1.2 Soils

According to the U.S. Department of Agriculture-Natural Resource Conservation Service (USDA-NRCS) *Soil Survey of City of Jacksonville, Duval County, Florida* (1998), the following soil types are associated with the site (Table 1 and Exhibit 2):

Table 1: On-site soils and descriptions

Soil Type	Hydric Component Percentage	Drainage	Landform
Albany fine sand (2)	2%	Somewhat poor	Rises and knolls
Arents nearly level (7)	0%	Poor	Flatwoods
Mascotte fine sand (38)	3%	Poor	Flatwoods
Maurepas muck, frequently flooded (40)	100%	Very poor	Flood plains
Mascotte-Pelham complex (44)	1%	Poor	Flatwoods
Pelham fine sand (51)	40%	Poor	Flats
Sapelo fine sand (63)	4%	Poor	Flatwoods
Surrency loamy fine sand, depressionnal (66)	100%	Very poor	Depressions
Surrency loamy fine sand, frequently flooded (67)	100%	Very poor	Flood plains
Urban land (69)	4%	Variable	Flats, rises, and knolls
Yonges fine sandy loam (78)	90%	Poor	Flats
Yulee clay, frequently flooded (79)	100%	Very poor	Flood plains
Stockade fine sandy loam, depressionnal (81)	100%	Very poor	Depressions
Pelham fine sand, depressionnal (82)	100%	Very poor	Depressions
Yulee clay, depressionnal (86)	100%	Very poor	Depressions
Water (99)	100%	N/A	N/A

## 2.0 METHODOLOGIES

### 2.1 On-site Habitats and Land Use/Cover

On-site land use, land cover, and State- or Federally-regulated habitats were identified and classified according to the *Florida Land Use, Cover and Forms Classification System* (FLUCFCS, Florida Department of Transportation, 1999). Each vegetative community is described in the following section. The approximate limits of each land cover type on the site are depicted on Exhibit 3. Additionally, on-site wetlands were identified and classified using definitions and guidelines contained in the *Wetlands Delineation Manual* (COE, 1987) and *The Florida Wetlands Delineation Manual* (Gilbert, et al., 1995). The attributes of the three parameters of vegetative composition, hydrologic regime, and soil classification determine the presence and type of wetland system.

In addition to the previously listed documentation, the following map and image source(s) aided in the assessment process:

- Digital orthophoto quads at 1 m<sup>2</sup> pixel resolution [source data: SJRWMD, 1984, 2000, 2004]
- Digital true color aerial photographs at 0.56 m<sup>2</sup> pixel resolution (source data: Aerials Express, 2007)
- *Soil Survey of City of Jacksonville, Duval County, Florida* maps (source: USDA-NRCS, 1998)
- Digital National Wetlands Inventory maps (source data: FWS, 1996)
- Existing SJRWMD Formal Jurisdictional Declaratory Statement (JDS) for the southeastern portion of airport

## 2.2 Listed Species

A GIS database search, map review, and literature search were conducted for the study area and surrounding areas. Official lists of state listed species [FWC, November, 2007; Florida Natural Areas Inventory (FNAI) wildlife and vegetation database, September, 2007] and federally listed species (FWS, July, 2000) were obtained. The Florida Administrative Codes for native fauna (68A-27.003- 68A-27.005, F.A.C.) were also researched. The latest GIS data documenting the occurrences of State- and Federally-listed species were reviewed. Additionally, previous documentation such as wildlife and vegetation surveys conducted for previous permitting and DRI efforts were reviewed to provide information regarding historic on-site occurrences of these species.

## 3.0 RESULTS

### 3.1 Wetlands Land Use/Cover

The majority of the on-site wetlands associated with the JIA property were approximated through aerial interpretation and limited ground-truthing as a part of the past permitting efforts. The exception is a portion of the property in the southeast, bounded by Airport Road to the north and Pecan Park Road to the west, which was subject to a Formal JDS issued by SJRWMD. Permits from SJRWMD and COE mandate that the remaining approximated wetlands are to be delineated and verified prior to development that would impact wetlands.

Based on a consolidation of previous studies on the property, six wetland or surface water land use types comprise the project area: Streams and Waterways (FLUCFCS Code 510), Stream and Lake Swamps (615), Mixed Wetland Hardwoods (617), Hydric Pine Flatwoods (625), Wetland Forested Mixed (630), and Freshwater Marshes (641). These communities are described below, and their approximate locations on the site are illustrated on Exhibit 3.

#### Streams and Waterways (510)

This community includes all on-site canals, creeks, ditches, and other linear water bodies. The majority of the vegetation within these communities, if present, includes species that proliferate well in deep water conditions. These species include water lily (*Nymphaea odorata*), pickerel weed (*Pontederia cordata*), arrowhead (*Sagittaria latifolia*), golden canna (*Canna flaccida*), lizard tail (*Scleranthus annuus*), and others.

#### Stream and Lake Swamps (615)

This community type is associated with the bottomlands of river, creek, and lake flood plains. The JIA property exhibits this community in association with Pickett Branch in the southeast. Species common within this habitat type include swamp tupelo (*Nyssa sylvatica* var. *biflora*), cypress (*Taxodium* spp.), laurel oak (*Quercus laurifolia*), red maple (*Acer rubrum*), swamp bay (*Persea palustris*), and pop ash (*Fraxinus caroliniana*). The understory of this community is generally sparse, and is populated by immature canopy species, buttonbush (*Cephalanthus occidentalis*), blue flag iris (*Iris virginica shrevei*), and royal fern (*Osmunda regalis*).

### **Mixed Wetland Hardwoods (617)**

This community is similar to the Stream and Lake Swamps classification, differing mostly in hydrologic regime. The mixed wetland hardwood areas has a larger diversity of wetland hardwood species. In addition to the canopy species found in the Stream and Lake Swamps community, the Mixed Wetland Hardwoods communities also contain loblolly bay (*Gordonia lasianthus*), sweet bay (*Magnolia virginiana*), ironwood (*Carpinus caroliniana*), sugarberry (*Celtis laevigata*), and others. Subcanopy and groundcover species include wax myrtle (*Myrica cerifera*), cinnamon fern (*Osmunda cinnamomea*), Virginia chain fern (*Woodwardia virginica*), fetterbush (*Lyonia lucida*), and others.

### **Hydric Pine Flatwoods (625)**

The Hydric Pine Flatwoods communities occur throughout the study area, generally in conjunction with the Wetland Forested Mixed communities and as isolated pockets. Many of these areas present as pine plantations. The canopy of this community consists of predominantly slash pine. Immature slash pine, as well as myrtle-leaf holly (*Ilex myrtifolia*), swamp bay, and wax myrtle comprise the subcanopy. The groundcover comprises herbaceous vegetation such as cinnamon fern, Virginia chain fern, and sphagnum moss (*Sphagnum* spp.).

### **Wetland Forested Mixed (630)**

The majority of the on-site wetlands are described as Wetland Forested Mixed. The canopy is composed of a mixture of conifers and hardwoods including slash pine, pond pine (*Pinus serotina*), cypress, black gum, red maple, sweetgum (*Liquidambar styraciflua*), elm (*Ulmus* spp.), and swamp bay. Subcanopy species consist of immature canopy species as well as wax myrtle, bitter gallberry (*Ilex glabra*), and others. Ground cover is dominated by fetterbush, maidencane (*Panicum hemitomon*), St. Johns wort (*Hypericum* spp.), chain fern (*Woodwardia* spp.), cinnamon fern, and royal fern.

### **Freshwater Marshes (641)**

The Freshwater Marsh communities are dominated by various sedges (*Carex* spp.), umbrella sedges (*Cyperus* spp.), maidencane, rushes (*Juncus* spp.), and beakrushes (*Rhynchospora* spp.). No canopy or subcanopy layers exist in these communities.

## Upland Communities

The remainder of the vegetative community types on the property are classified as uplands, which are generally not regulated by the State and Federal agencies. The most prevalent of these upland communities is Coniferous Plantation (441), as most of the uplands associated with the airport property are used to generate revenue from ongoing silvicultural operations. Relatively minor upland community inclusions scattered throughout the property are listed as follows: Industrial (150), Open Land (190), Pastureland (210), Shrub and Brushland (320), Pine Flatwoods (411), Hardwood Hammock (425), Hardwood-Conifer Mixed (434), Mixed Hardwoods (438). The upland community types are not illustrated on Exhibit 3, in order to provide a clearer depiction of the wetland and surface water areas that are subject to regulation.

### 3.2 Listed Species

A list of all wildlife species designated as Endangered, Threatened, or of Special Concern likely to occur in Duval County is attached as Table 2.

All documented occurrences of listed wildlife species on or in the vicinity (within a 3-mile distance) of the airport property are depicted on Exhibit 1 and described in the following paragraphs.

The most prevalent listed species documented on the site is the gopher tortoise (*Gopherus polyphemus*), which appears to be concentrated in three locations throughout the site according to previous wildlife studies. These locations include: (1) south of Terrel Road between Lem Turner Boulevard and Pecan Park Road; (2) in the southwestern property corner west of Lem Turner Boulevard; and (3) in the northeastern airport operations area and Mitigation Management Area. Two inactive gopher tortoise burrows were also identified in the eastern portion of the property, east of Pecan Park Road.

Based on the reviewed studies and published information on land use and soil drainage, it is unlikely that a significant occurrence of critical gopher tortoise habitat is associated with this property. Many of the identified burrows locations indicate that the tortoises are utilizing trail roads and other disturbed areas.

At the time when previous studies were completed, gopher tortoises were listed by the State of Florida as a Species of Special Concern. Recently, this species has received increased protection from the State and is now listed as Threatened, with increasingly stringent permitting requirements including mandatory relocation. Listed commensal species known to use gopher tortoise burrows include the gopher frog, Florida mouse, Florida pine snake, and eastern indigo snake.

Additional listed wildlife species documented on the site include:

- Black-Crowned Night Heron (Rookery) – This rookery is centrally located on the property. It was identified in a 1989 study, but was not mentioned in any follow-up wildlife studies on the property nor is it listed in any published wildlife occurrence records.
- American Alligator – This species has been identified in inundated portions of the property, particularly to the north.
- Sherman's Fox Squirrel – This species was identified in a 1989 study in the northeastern portion of the property. It was not mentioned in any subsequent wetland studies nor is it listed in any published wildlife occurrence records on or in the vicinity of the property.
- Wood Stork – This species was identified in the southeastern portion of the site in the 1989 study, and has been observed subsequently. Additionally, an active Rookery was identified from 1986 through 1989 within 18 miles of the airport property. This rookery, however, was deemed inactive in a follow-up survey in 1999.
- Southeastern American Kestrel – This species was observed during the 1989 study in the extreme northeastern portion of the property. No documented follow-up sightings have occurred, nor has any occurrence been documented in published records on the site or in the project vicinity.
- Wading Birds – Various wading birds, including listed egrets and herons, have been observed on the property utilizing open and inundated areas for forage.

No other state or federally listed fauna, nor their sign (e.g., scat, tracks, nests, etc.) have been documented on the site.

One documented occurrence of a listed vegetative species was identified in 2000 and is depicted on Exhibit 1.

#### 4.0 DISCUSSION

The 8,000-acre± JIA site contains six wetland/surface water land cover types as classified by the *Florida Land Use, Cover and Forms Classification System* (FLUCFCS, Florida Department of Transportation, 1999): Streams and Waterways (FLUCFCS Code 510), Stream and Lake Swamps (615), Mixed Wetland Hardwoods (617), Hydric Pine Flatwoods (625), Wetland Forested Mixed (630), and Freshwater Marshes (641). Upland on-site communities include Coniferous Plantation (441), Industrial (150), Open Land (190), Pastureland (210), Shrub and Brushland (320), Pine Flatwoods (411), Hardwood Hammock (425), Hardwood-Conifer Mixed (434), and Mixed Hardwoods (438).

State- and Federally-listed wildlife species within the site boundaries include gopher tortoise, a black-crowned night heron rookery, American alligator, Sherman's fox squirrel, wood stork, and southeastern American kestrel.

No recent occurrences for the black-crowned night heron, Sherman's fox squirrel, wood stork, or the southeastern American kestrel are documented on or near the site.

Several permitting options are available for impacting gopher tortoise occupied habitat, including capture/relocation, on-site habitat preservation, and monetary contribution to a wildlife mitigation bank.

Most of the non-listed species observed were avifauna. This is probably due to the variety of available foraging habitats.

## 5.0 REFERENCES

Florida Department of Transportation (FDOT). 1999. Florida Land Use, Cover and Forms Classification System. FDOT, Tallahassee, Florida.

Florida Game and Fresh Water Fish Commission (FWC). November, 2007. Florida's Endangered Species, Threatened Species and Species of Special Concern – Official Lists. FL Nongame Wildlife Program, Tallahassee, Florida. 18pp.

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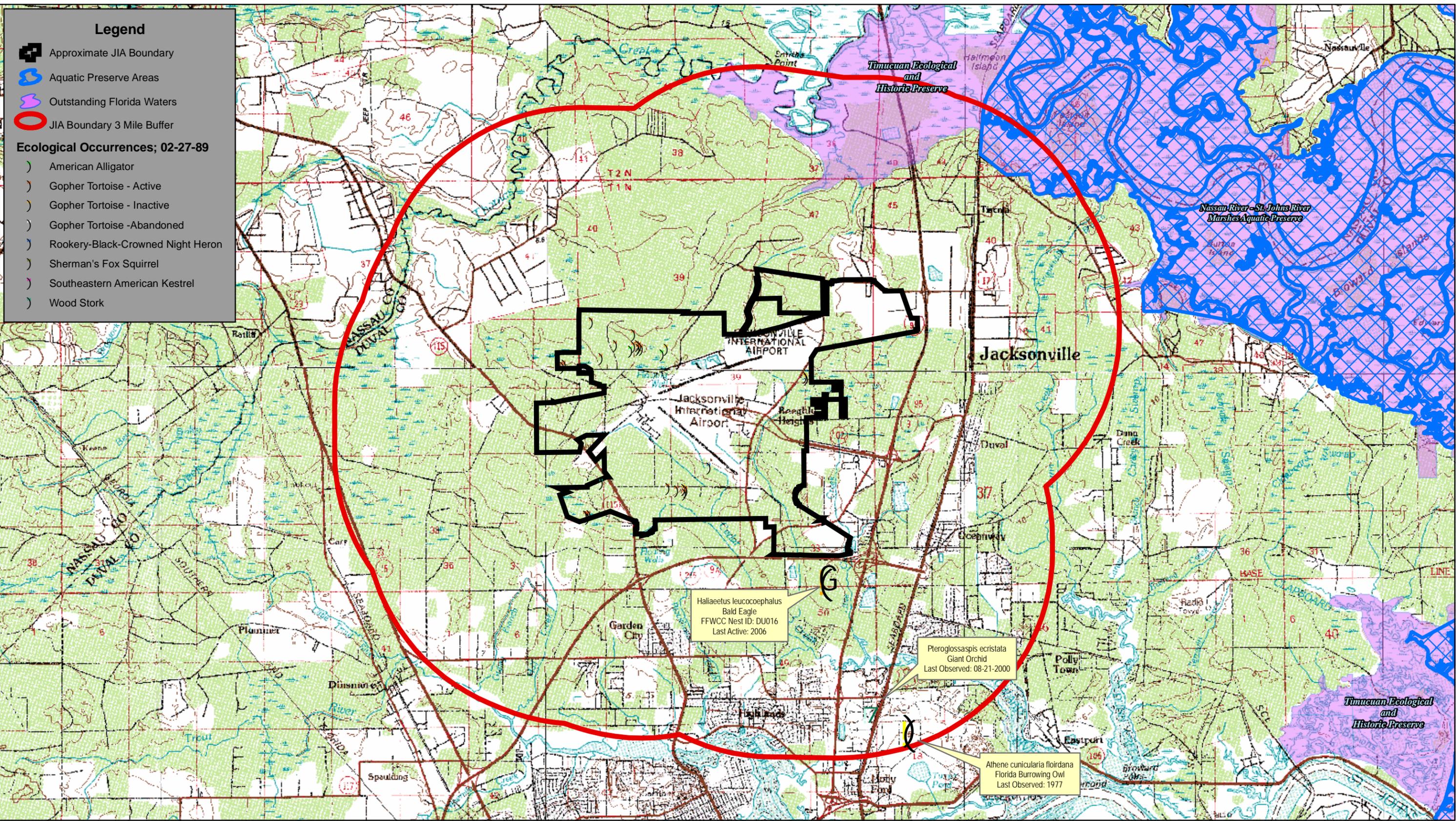
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U.S. Army Corps of Engineers, Waterways Experiment Station. January, 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1. USACE/WES, Vicksburg, Mississippi.

U.S. Department of Agriculture-Natural Resources Conservation Service (USDA-NRCS). 1998. Soil Survey of City of Jacksonville, Duval County, Florida.

U.S. Fish and Wildlife Service (FWS). March 2007. Endangered Species. Available: <http://www.fws.gov/endangered.wildlife/html#species>. USFWS – Jacksonville Field Office, Jacksonville, Florida.

## 6.0 EXHIBITS



**Legend**

- Approximate JIA Boundary
- Aquatic Preserve Areas
- Outstanding Florida Waters
- JIA Boundary 3 Mile Buffer

**Ecological Occurrences; 02-27-89**

- American Alligator
- Gopher Tortoise - Active
- Gopher Tortoise - Inactive
- Gopher Tortoise - Abandoned
- Rookery-Black-Crowned Night Heron
- Sherman's Fox Squirrel
- Southeastern American Kestrel
- Wood Stork



Section: 17, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 33, 34, 35, 36, 37, 38 & 40  
 Township: 1 N  
 Range: 26 & 27 E

Lat: 30° 29' 25.32" N  
 Long: 81° 41' 35.70" W

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**JIA Master Plan  
 Ecological Occurrences  
 &  
 Location Map**

Project No.:	07184
Exhibit No.:	1
Date:	12-13-07
Rev. Date:	



Source: FDEP, FNAI (2006), FWCC (2006)

By: ML

**Legend**

-  JIA Boundary
-  (2) Albany fine sand, 0 to 5% slopes
-  (7) Arents, nearly level
-  (38) Mascotte fine sand, 0 to 2% slopes
-  (40) Maurepas muck, 0 to 1% slopes, frequently flooded
-  (44) Mascotte-Pelham complex, 0 to 2% slopes
-  (51) Pelham fine sand, 0 to 2% slopes
-  (63) Sapelo fine sand, 0 to 2% slopes
-  (66) Surrency loamy fine sand, depressional, 0 to 2% slopes
-  (67) Surrency loamy fine sand, 0 to 2% slopes, frequently flooded
-  (69) Urban Land
-  (78) Yonges fine sandy loam, 0 to 2% slopes
-  (79) Yulee clay, 0 to 2% slopes, frequently flooded
-  (81) Stockade fine sandy loam, depressional, 0 to 2% slopes
-  (82) Pelham fine sand, depressional, 0 to 2% slopes
-  (86) Yulee clay, depressional, 0 to 2% slopes
-  (99) Water



0 3,000'



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**JIA Master Plan  
Soils Map**

Source: Aerials Express (2007), USDA-NRCS (2006)

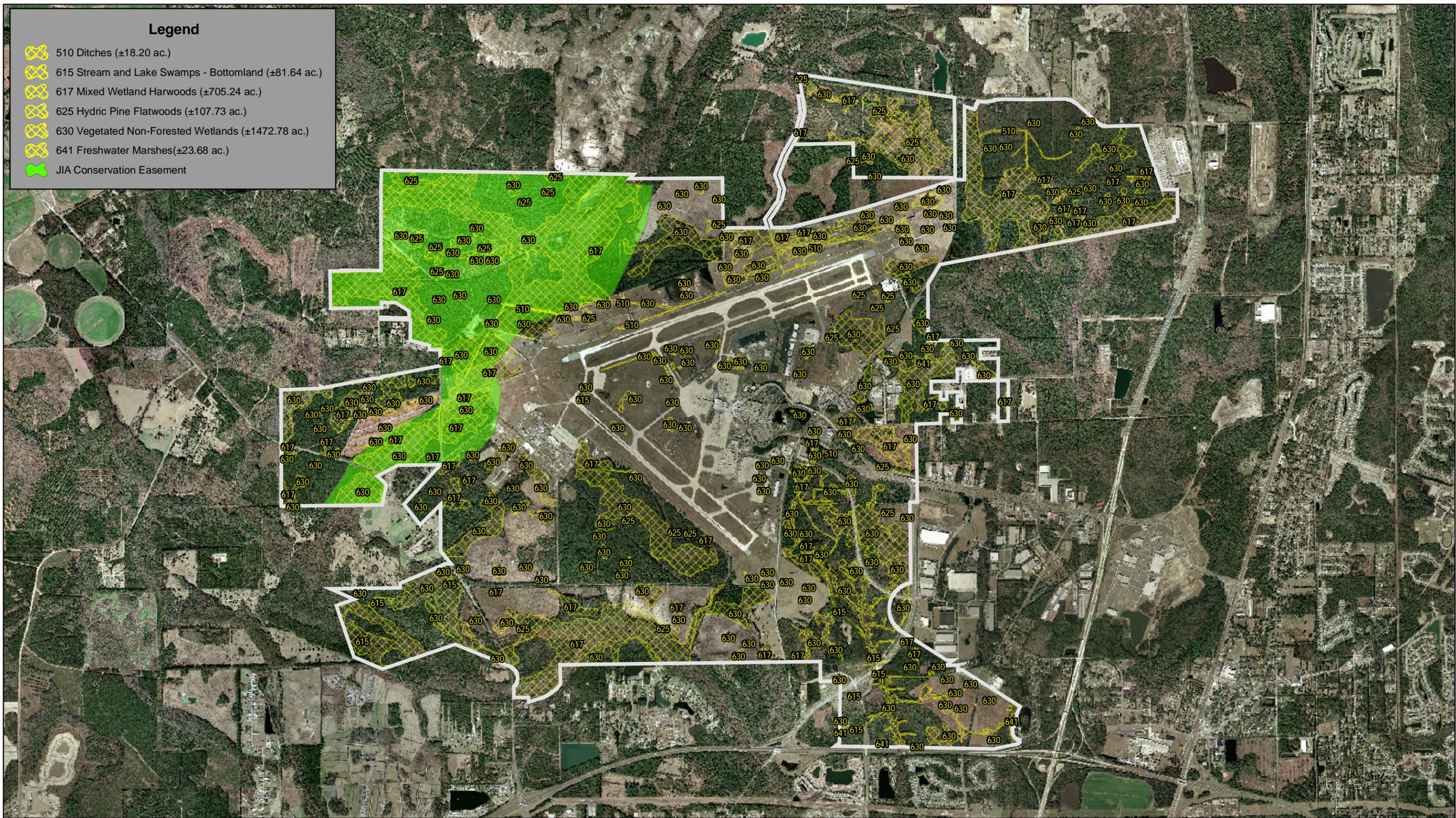
By: ML

Project No.:	07184
Exhibit No.:	2
Date:	12-12-07
Rev. Date:	



**Legend**

-  510 Ditches (±18.20 ac.)
-  615 Stream and Lake Swamps - Bottomland (±81.64 ac.)
-  617 Mixed Wetland Harwoods (±705.24 ac.)
-  625 Hydric Pine Flatwoods (±107.73 ac.)
-  630 Vegetated Non-Forested Wetlands (±1472.78 ac.)
-  641 Freshwater Marshes (±23.68 ac.)
-  JIA Conservation Easement



0 3,000'



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JIA Master Plan  
Wetlands Map

Project No.:	07184
Exhibit No.:	3
Date:	12-13-07
Rev. Date:	



Source: Aerials Express (2007)

By: ML

# Jacksonville International Airport 2008 Master Plan Update

Airfield & Landside Demand/Capacity  
and Facility Requirements Analysis

*September 4, 2008*





# Meeting Agenda

- Preliminary Results of the Airfield Demand/Capacity and Facility Requirements Analysis
  - Annual Service Volume
  - Existing and Future Markets
  - Existing and Future Fleet Mix
  - Runway Length Requirements
- Review of Preliminary Airfield Alternatives
- Preliminary Results of the Landside Demand/Capacity and Facility Requirements Analysis
  - Landside Demand/Capacity Analysis

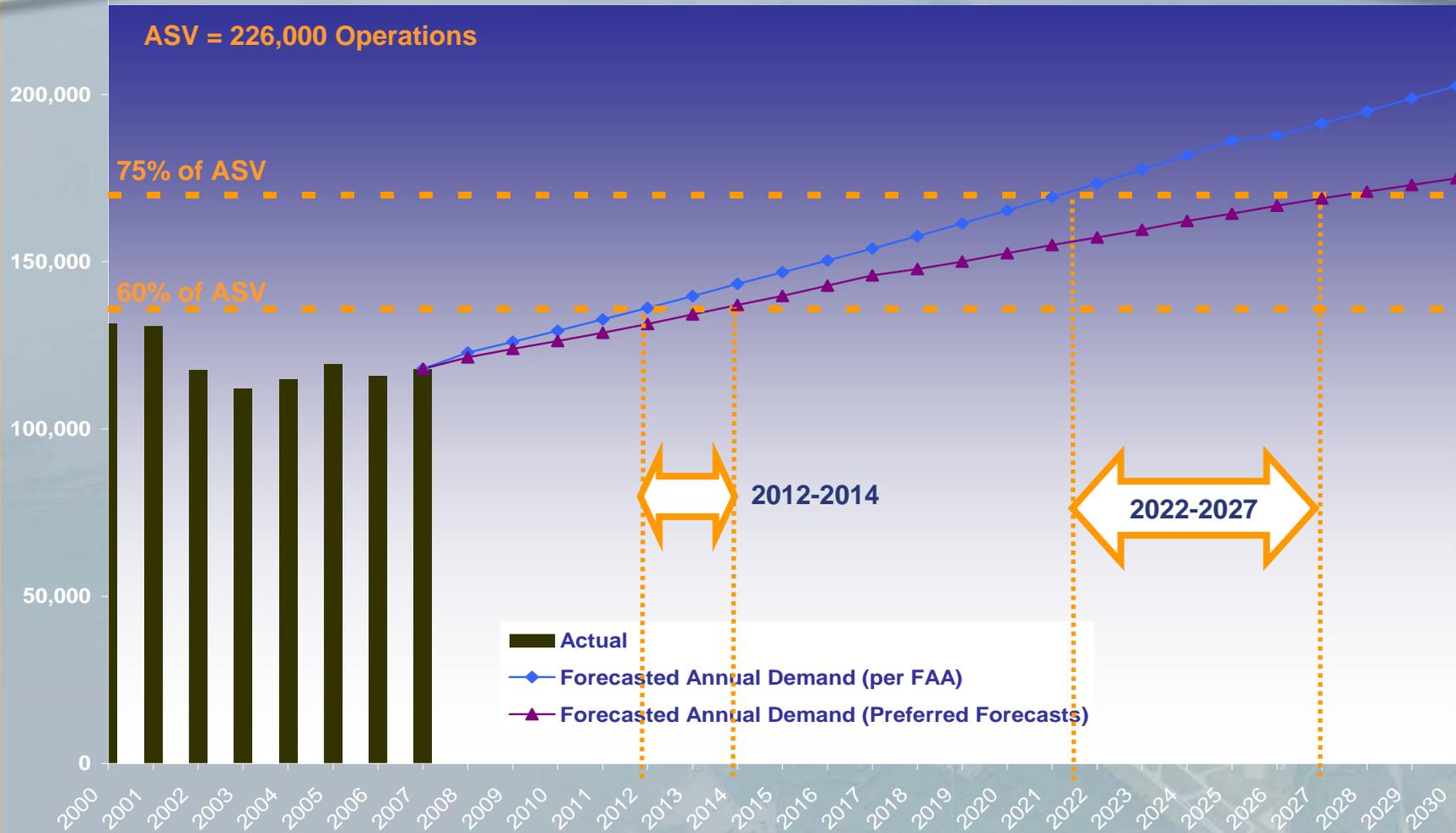


# Airfield Demand/Capacity and Facility Requirements Analysis





# Annual Service Volume (ASV) vs. Projected Demand



Notes: 1) The FAA, in the National Plan for Integrated Airport System (NPIAS) Order 5090.3C, recommends airports to initiate planning/design for new runways when existing facilities reach 60 to 75 percent of their capacity.

2) Even though it is shown as constant, the Airport's ASV is expected to decrease overtime.





RICONDO  
& ASSOCIATES

# Existing Markets



## LEGEND

- |                      |                    |
|----------------------|--------------------|
| AirTran Airways      | JetBlue            |
| American Airlines    | Northwest Airlines |
| Continental Airlines | Southwest Airlines |
| Delta Airlines       | United Airlines    |
| ExpressJet           | U.S. Airways       |
| Frontier Airlines    |                    |



# 500 nm

# 1,000 nm

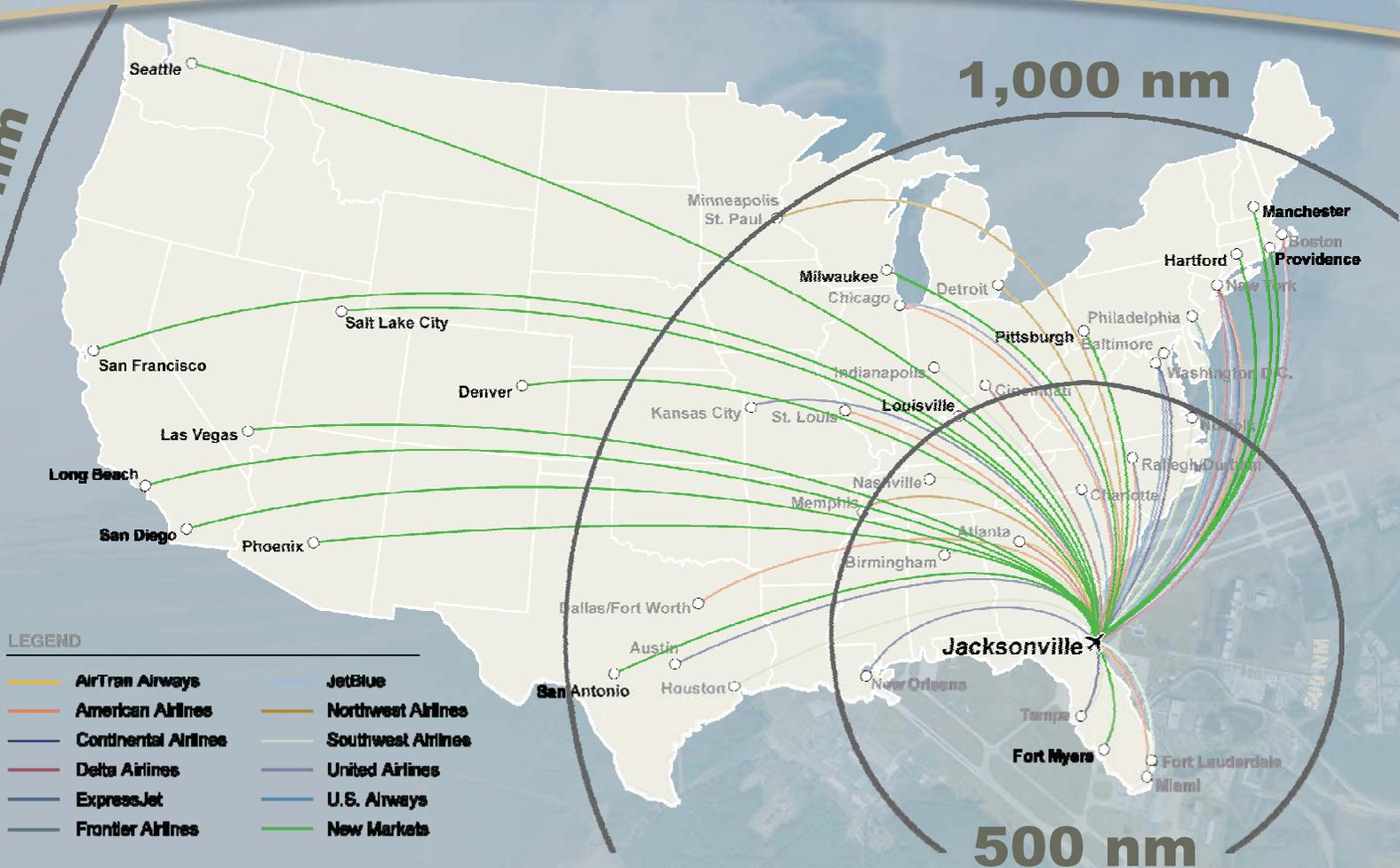




# Potential Markets\* (Continental U.S. Only)

2,200 nm

1,000 nm



500 nm



\*Source: Sabre Airline Solutions, Air Service Assessment Study: Update, February 2007



## Potential Markets

- Other potential markets include:
  - Canada (e.g. Toronto, Montreal) - 1,000 nm
  - Mexico (e.g. Cancun, Mexico City) – 1,150 nm
  - Europe (charter flights to England and/or Germany) – up to 4,000 nm





## *Existing Aircraft Fleet*

- **Turboprop Aircraft:**
  - Beech 1900
  - ATR-72
- **Regional Jets and Narrowbody:**
  - ERJ-135 and -145
  - CRJ-200 and -700
  - Boeing 717
  - McDonnell Douglas MD88 and DC9-30
  - Boeing 737 Series (including -300, -400, -500, -700)
  - Airbus A320 Series (including A319, A320, and A321)
- **Widebody:**
  - Boeing 757-200
  - Boeing 767-300





## *Projected Aircraft Fleet*

- Turboprop Aircraft
  - Q8-300
  - Q8-400
- Regional Jets and Narrowbody :
  - CRJ-700, -900, and -1000 NexGen (including ER, and LR series)
  - E-170 and E-190 (including ER, LR, and AR series)
  - C110 and C130 (including ER series)
  - Boeing 737 Next Generation (including B737-600, -700, -800, and -900 series)
  - Airbus A320 Series (including A319, A320, and A321)
- Widebody:
  - Boeing 767-400ER
  - Boeing 787-3



## *Future Aircraft Fleet Mix Assumptions*

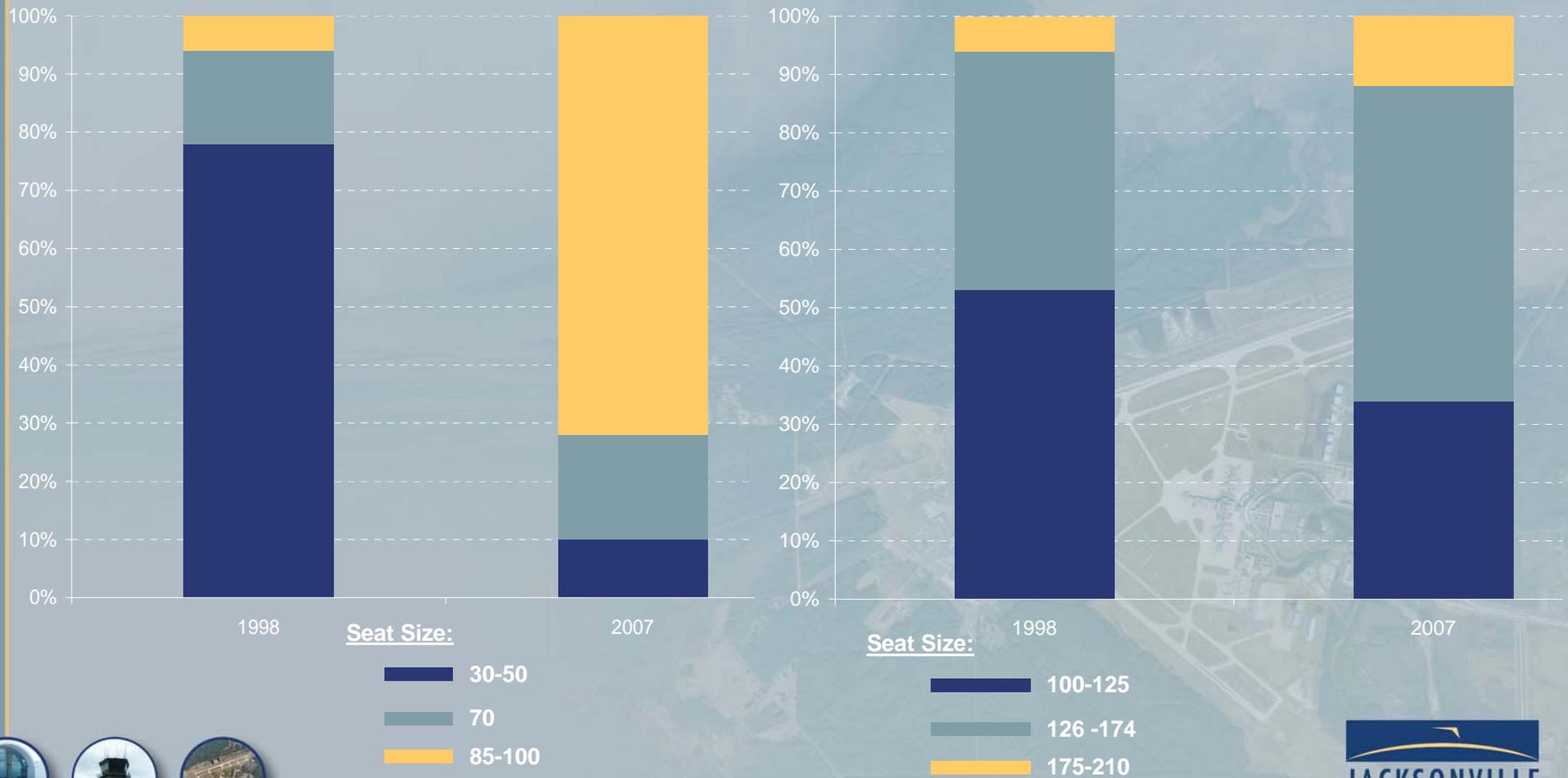
- 50-seat regional jets will be gradually withdrawn from service.
- New regional jets and narrowbody aircraft will be introduced including the CRJ-1000, C110, and C130 aircraft.
- The Boeing 737-200, 300, 400, and -500 series will be withdrawn from service and replaced by the 737 Next Generation (NG) Series.
- The Boeing 787-3 will replace the Boeing 757, B767-200, and B767-300 series.
- A new generation of narrowbody aircraft will be developed to replace today's Airbus A320 and Boeing 737NG.



# Trends in Aircraft Fleet Sizes

- Regional Jets are getting bigger.

- The backlog of larger single-aisle types is growing.



Source: Global Market Forecast, 2007-2026, Airbus, S.A.S.



# Trends in Aircraft Orders (Boeing Orders Only)



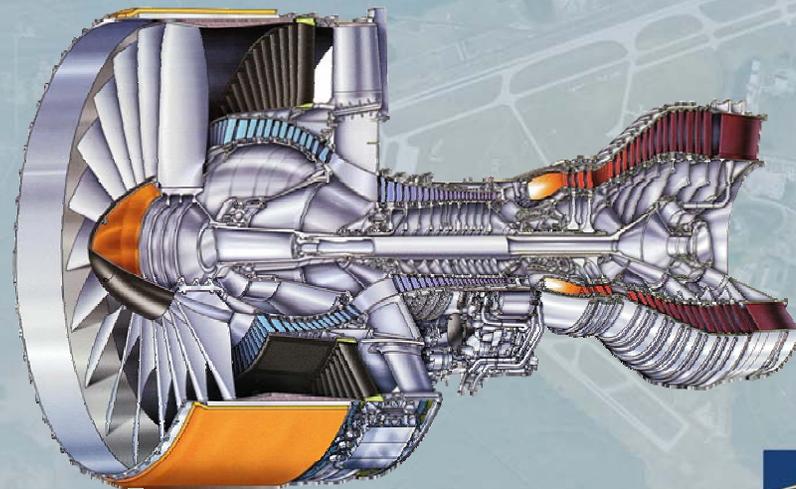
*Note: Does not include the Boeing 747 series and freighter deliveries.*

*Source: Boeing' website, accessed July 2008, Orders from July 1998 to July 2008.*



## *Future Aircraft Fleet*

- Fuel efficiency will come from:
  - The engines
    - End of conventional bleed-air-based heating, anti-icing and pneumatic systems
    - Introduction of next generation engines
  - Aerodynamic improvements (e.g. new wing design)
  - The use of lighter weight composite materials
  - The use of Biofuels





## *Future Aircraft Fleet*

- The long-term trend is toward higher engine bypass ratios and powerful engines. In comparison:
  - The CF6-80C2B1 engines, which equip 747-400, produces 57,000 pounds of thrust.
  - The GE90-115 engines, which equip 777-200LR and 777-200ER, produces 115,000 pounds of thrust.
- Technological improvements including higher engine bypass ratios, higher wing lift, and reduced weight, will reduce or level off takeoff runway length requirements.





# Future Aircraft Fleet (Seats and Range) Narrowbody & Regional Jet Aircraft



Note: Range data assumes 100% passenger payload, an average per passenger weight of 225 pounds to include baggage and cargo, and typical seating configuration.

Source: Airplane Characteristics for Airport Planning, The Boeing Company, Bombardier Inc., Embraer, S.A., and Airbus, S.A.S.





# Future Aircraft Fleet (Seats and Range) Widebody Aircraft



*Note: Range data assumes 100% passenger payload, an average per passenger weight of 225 pounds to include baggage and cargo, and typical seating configuration.*

*Source: Airplane Characteristics for Airport Planning, The Boeing Company & Airbus, S.A.S.*





# Takeoff Runway Length Requirements

(1,000 NM range, 92 Deg. F.)



Notes: Calculations assume 100% passenger payload. Values in blue assume an average per passenger weight of 225 pounds to include baggage and cargo. Values in green account for additional cargo (80% of the remaining payload capacity or maximum structural payload, whichever comes first.)



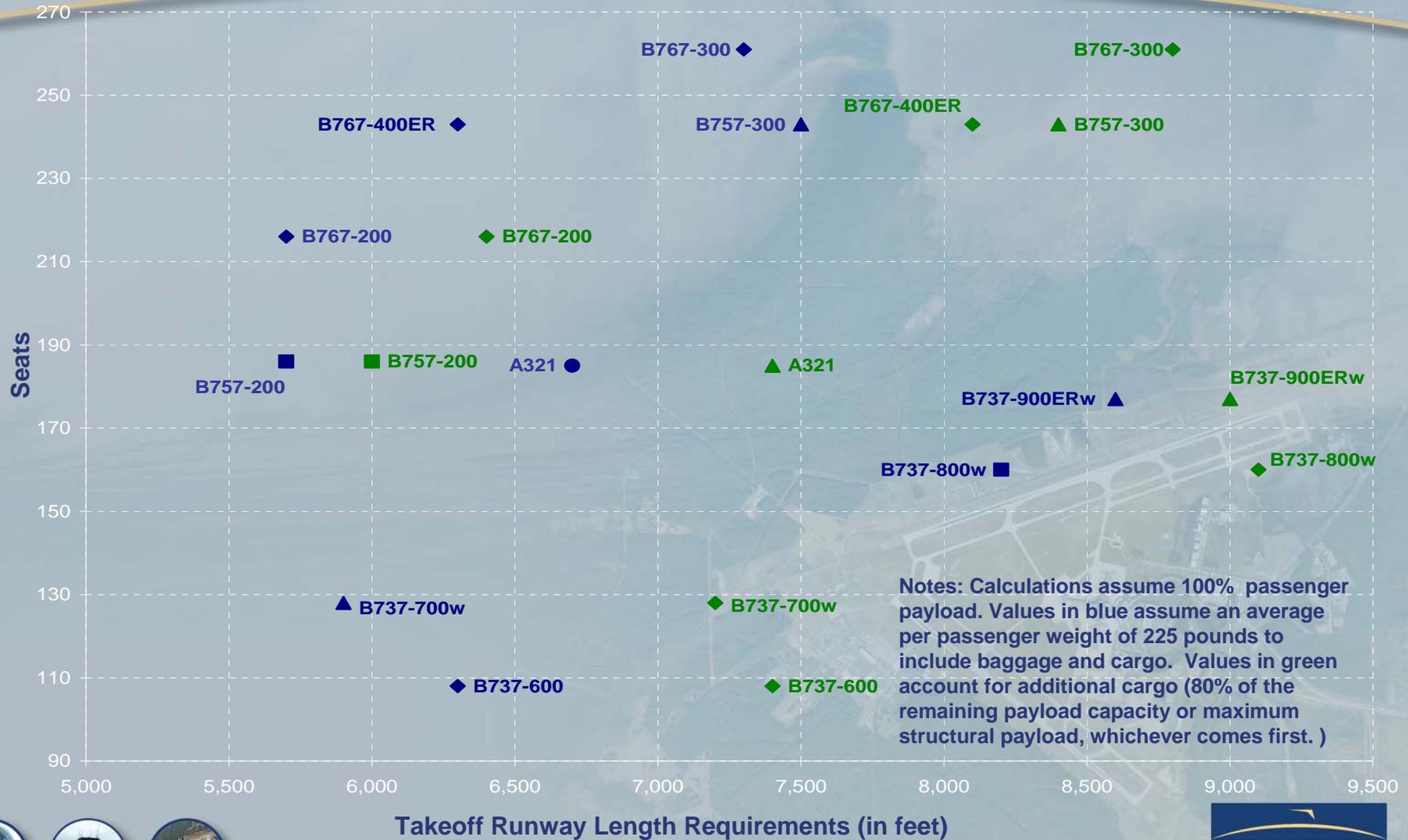
Source: Airplane Characteristics for Airport Planning, The Boeing Company & Airbus, S.A.S.





# Takeoff Runway Length Requirements

(2,000 – 2,200 NM range, 92 Deg. F.)



Notes: Calculations assume 100% passenger payload. Values in blue assume an average per passenger weight of 225 pounds to include baggage and cargo. Values in green account for additional cargo (80% of the remaining payload capacity or maximum structural payload, whichever comes first.)



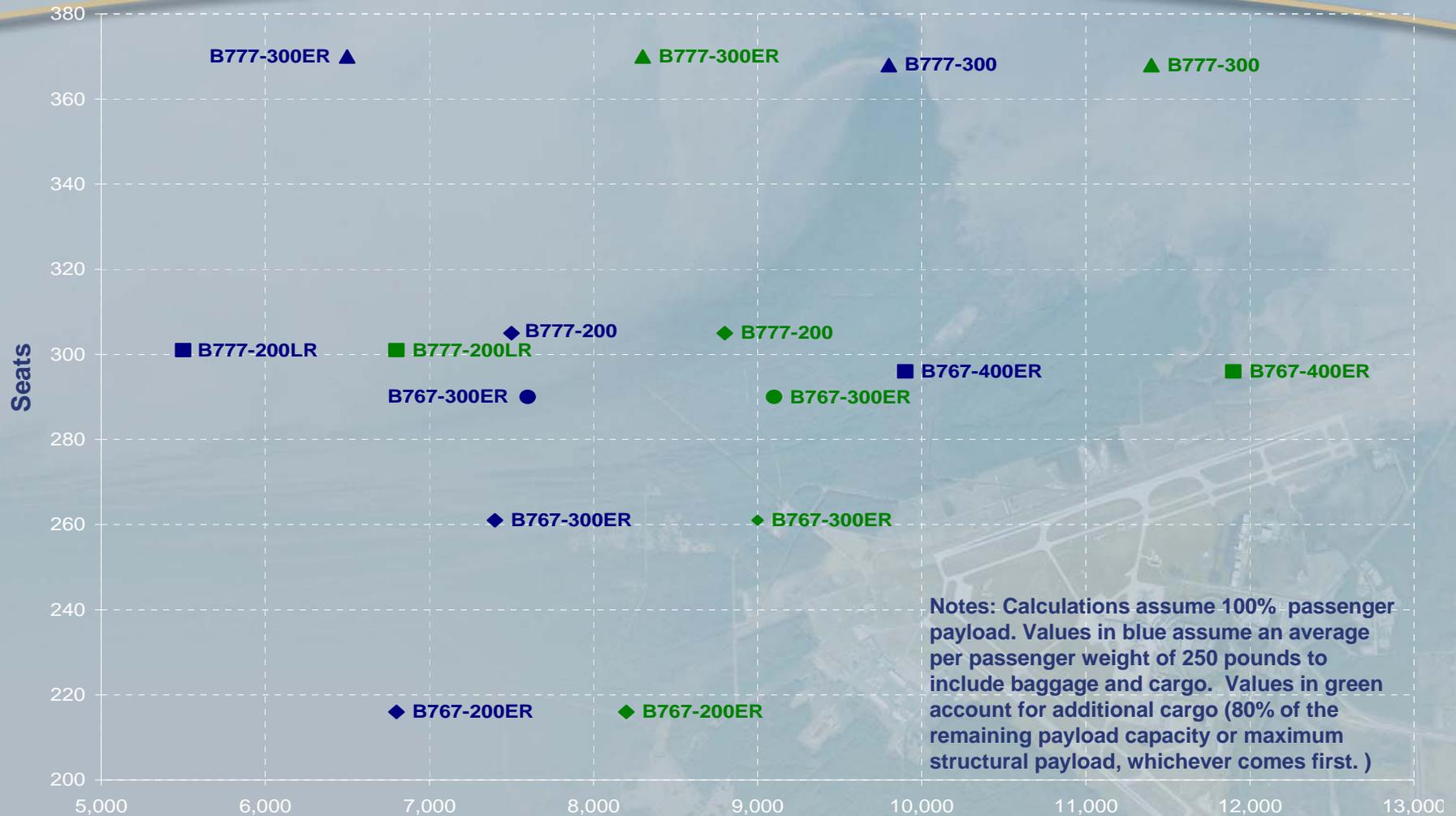
Source: Airplane Characteristics for Airport Planning, The Boeing Company & Airbus, S.A.S.





# Takeoff Runway Length Requirements

(4,000 NM range, 92 Deg. F.)



Notes: Calculations assume 100% passenger payload. Values in blue assume an average per passenger weight of 250 pounds to include baggage and cargo. Values in green account for additional cargo (80% of the remaining payload capacity or maximum structural payload, whichever comes first.)

Takeoff Runway Length Requirements (in feet)

Note: Values in parentheses indicate engine thrust.

Source: Airplane Characteristics for Airport Planning, The Boeing Company & Airbus, S.A.S.





# New Generation Aircraft (Large Regional Jet Aircraft) Takeoff Runway Length Requirements



Source: Aircraft Manufacturers' websites, accessed June 2008.





# Summary of Runway Length Requirements

<u>Aircraft Type</u>	<u>Destination/Range</u>	<u>Percentage of Operations at PAL 3 (10 MAP)</u>		<u>Departure Runway Length Required</u>	
		<u>Individual</u>	<u>Cumulative</u>	<u>Minimum</u>	<u>Maximum</u>
<b>Domestic Operations</b>					
737 & A320 Family	West Coast / 2,000 nm	5%	5%	8,200	9,100
767	West Coast / 2,000 nm	1%	6%	7,300	8,800
767	East Coast / 1,000 nm	1%	7%	6,200	7,300
737	East Coast / 1,000 nm	27%	34%	6,700	7,100
757	East Coast / 1,000 nm	4%	39%	5,700	6,800
320/321	East Coast / 1,000 nm	15%	54%	N/A	6,500
Regional Jets	East Coast / 1,000 nm	46%	100%	Less than 7,000'	Less than 7,500'
<b>International Operations</b>					
B777-200	Europe / 4,000 nm	N/A	N/A	7,500	8,800
B777-300	Europe / 4,000 nm	N/A	N/A	9,800	11,400
B777-200LR	Europe / 4,000 nm	N/A	N/A	5,500	6,800
B777-300ER	Europe / 4,000 nm	N/A	N/A	6,500	8,300
B767-400ER	Europe / 4,000 nm	N/A	N/A	9,900	11,900
B767-200ER	Europe / 4,000 nm	N/A	N/A	6,800	8,200
B767-300ER	Europe / 4,000 nm	N/A	N/A	7,600	9,100

**Notes:**

- Minimum departure runway length values assumes full passenger payload and an average per passenger weight of 225 pounds to include baggage and cargo.
- Maximum departure runway length values assume full passenger payload and an average per passenger weight of 225 pounds to include baggage and cargo plus 80% remaining payload capacity or maximum structural payload, whichever comes first.

Source: Airplane Characteristics for Airport Planning, The Boeing Company & Airbus, S.A.S.





## *Summary of Runway Length Requirements*

- Over 90 percent of the domestic market aircraft fleet mix to be accommodated at JAX would be able to utilize a 7,300-foot runway for departure at PAL 2.
- To serve the west coast, narrowbody aircraft operating from JAX will require up to 9,100 feet for takeoff.
- The few narrowbody aircraft that would require more than 9,000 feet to serve the west coast at full structural payload could still operate from existing Runway 7-25
- Existing Runway 7-25, which provides 10,000 feet of departure runway length, can accommodate the majority of widebody aircraft that could potentially serve the European market from JAX.





## Summary of Runway Length Requirements

- To maximize the operational efficiency and flexibility of the airfield, and to minimize the need for Air Traffic to segregate aircraft by providing the ability for the vast majority of aircraft to depart from any given runway, the new parallel runway at JAX should be at least 7,000 feet in length.
- A 9,000-foot long runway meets the long-term needs of the Airport. Because technological improvements may reduce or level off takeoff runway length requirements, provision for a new runway that extends beyond 9,000 feet is not deemed necessary.
- Based on the analysis and comments presented above, the recommended runway length is 9,000 feet.
- Since the Runway 7-25 alignment provides more than 95 percent wind coverage for any aircraft forecasted to use the airport on a regular basis, the extension of Runway 13-31 beyond 9,000' is not deemed necessary.





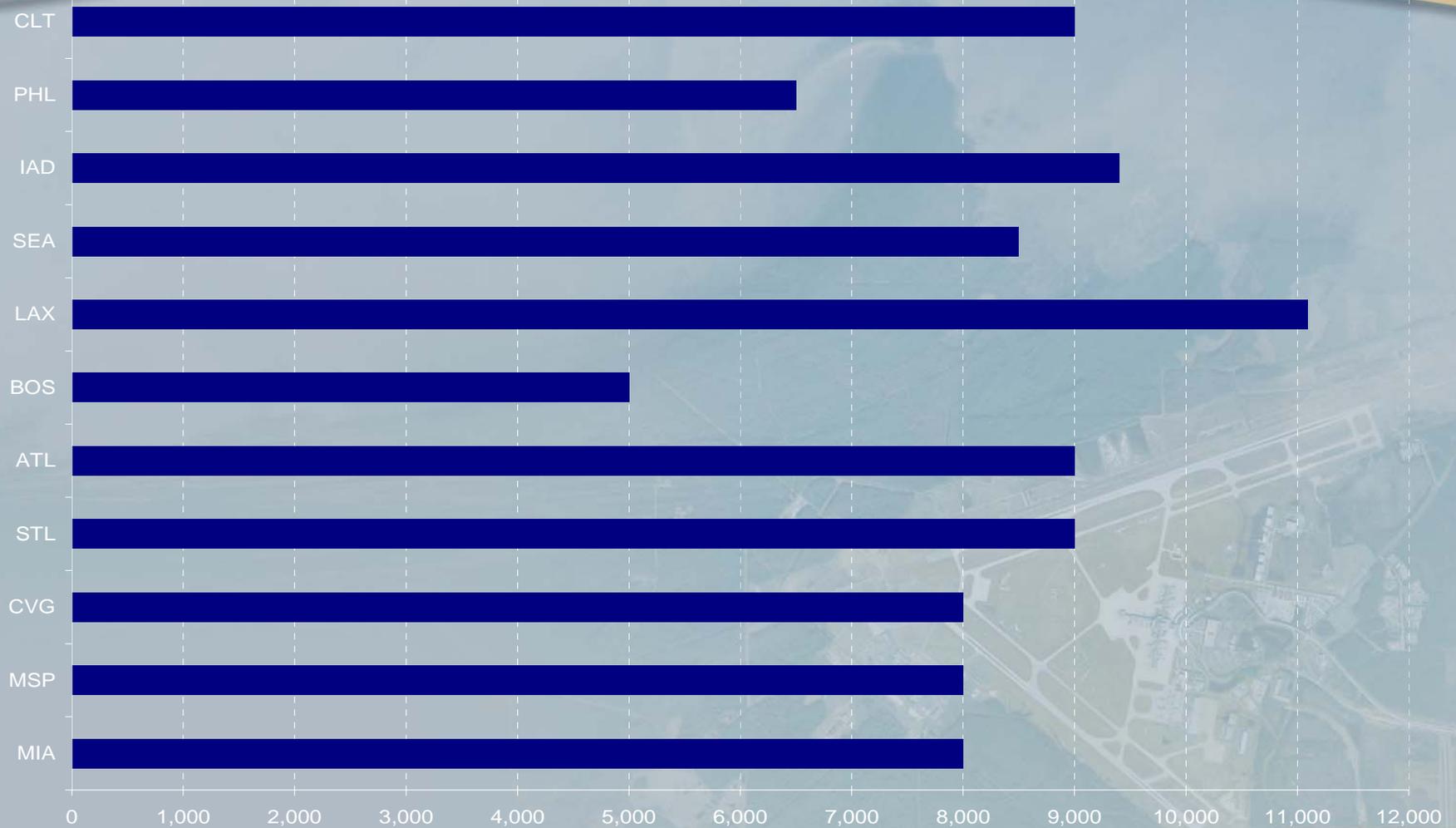
## *Recently Constructed or Currently Under Construction Runways Statistics*

- MIA – Runway 8L-26R - 8,000 feet (opened August 2003)
- MSP – Runway 17-35 – 8,000 feet (opened October 2005)
- CVG – Runway 18R-36L – 8,000 feet (opened December 2005)
- STL – Runway 11-29 – 9,000 feet (opened April 2006)
- ATL – Runway 8-26 – 9,000 feet (opened May 2006)
- BOS – Runway 14-32 - 5,000 feet (opened November 2006)
- LAX – Runway 25L-7R – 11,095 feet (opened April 2007)
- SEA – Runway 16R-34L – 8,500 feet (opening November 2008)
- IAD – Runway 1L-19R – 9,400 feet (opening November 2008)
- PHL – Runway 17-35 Extension to 6,500 feet (opening March 2009)
- CLT – Runway 18-36 – 9,000 feet (opening January 2010)





## Recently Constructed or Currently Under Construction Runways Statistics

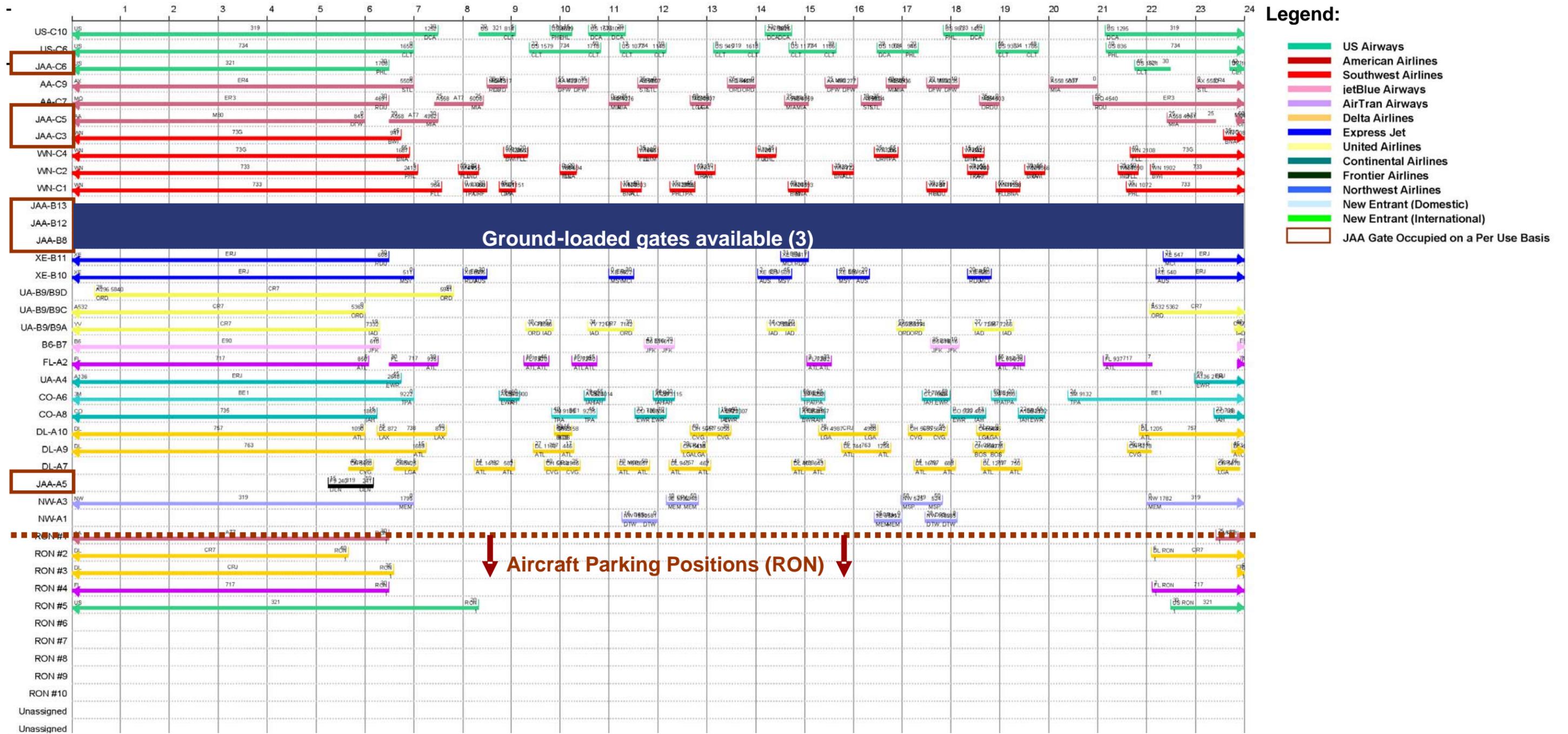


Source: Airports' websites, accessed June 2008.



**Exhibit B-1**

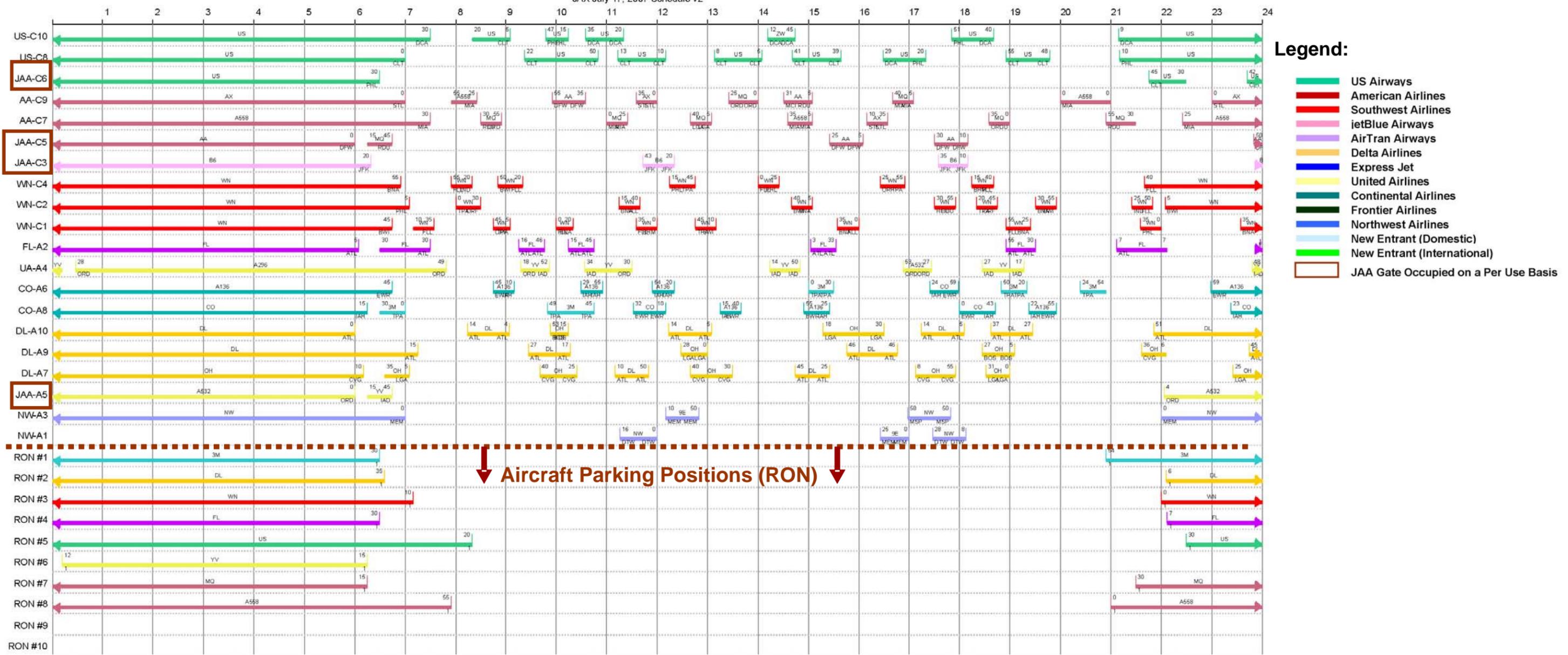
**Baseline Ramp Chart (including Concourse B)**



Source: Ricondo & Associates, Inc., February 2008  
 Prepared by: Ricondo & Associates, Inc.

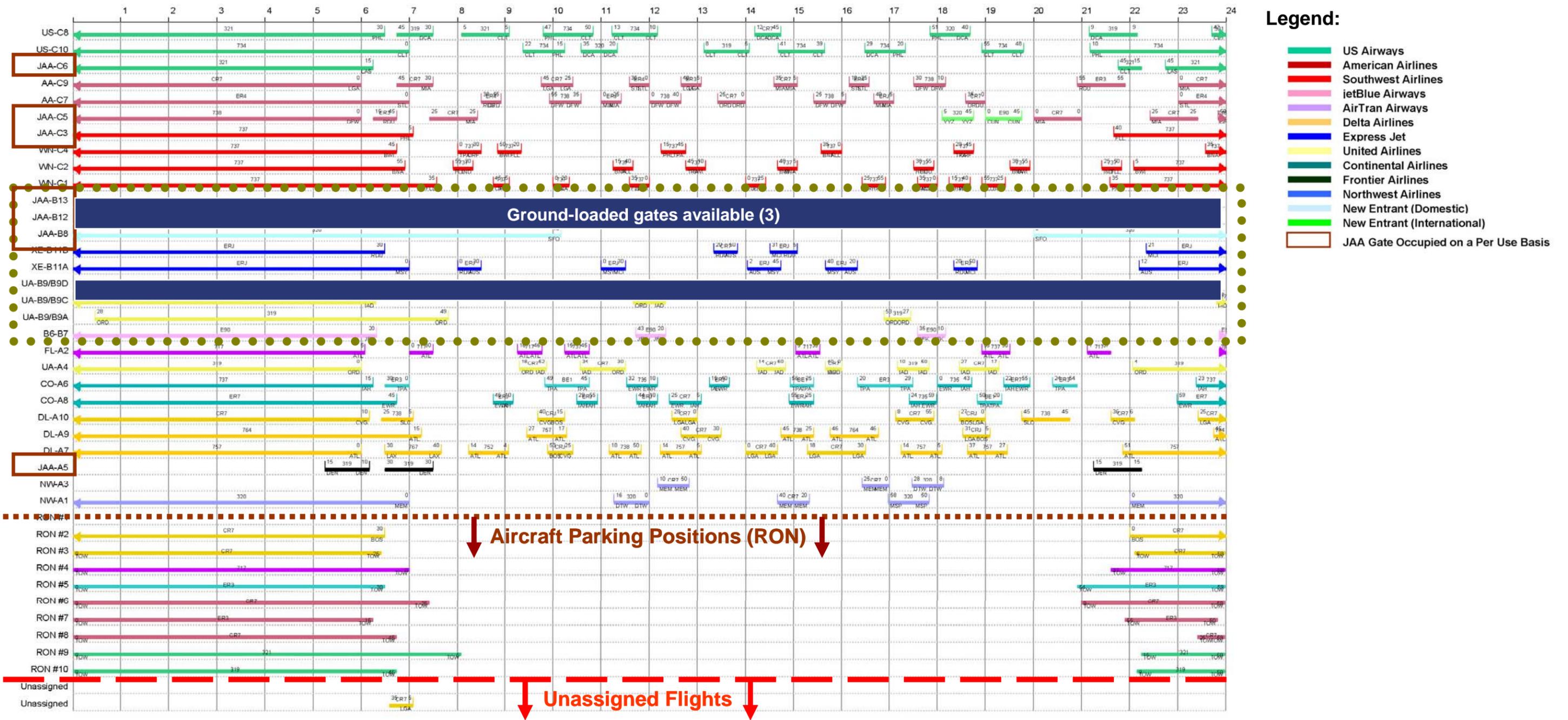
**Exhibit B-2**

Baseline Ramp Chart (assuming the demolition of Concourse B)



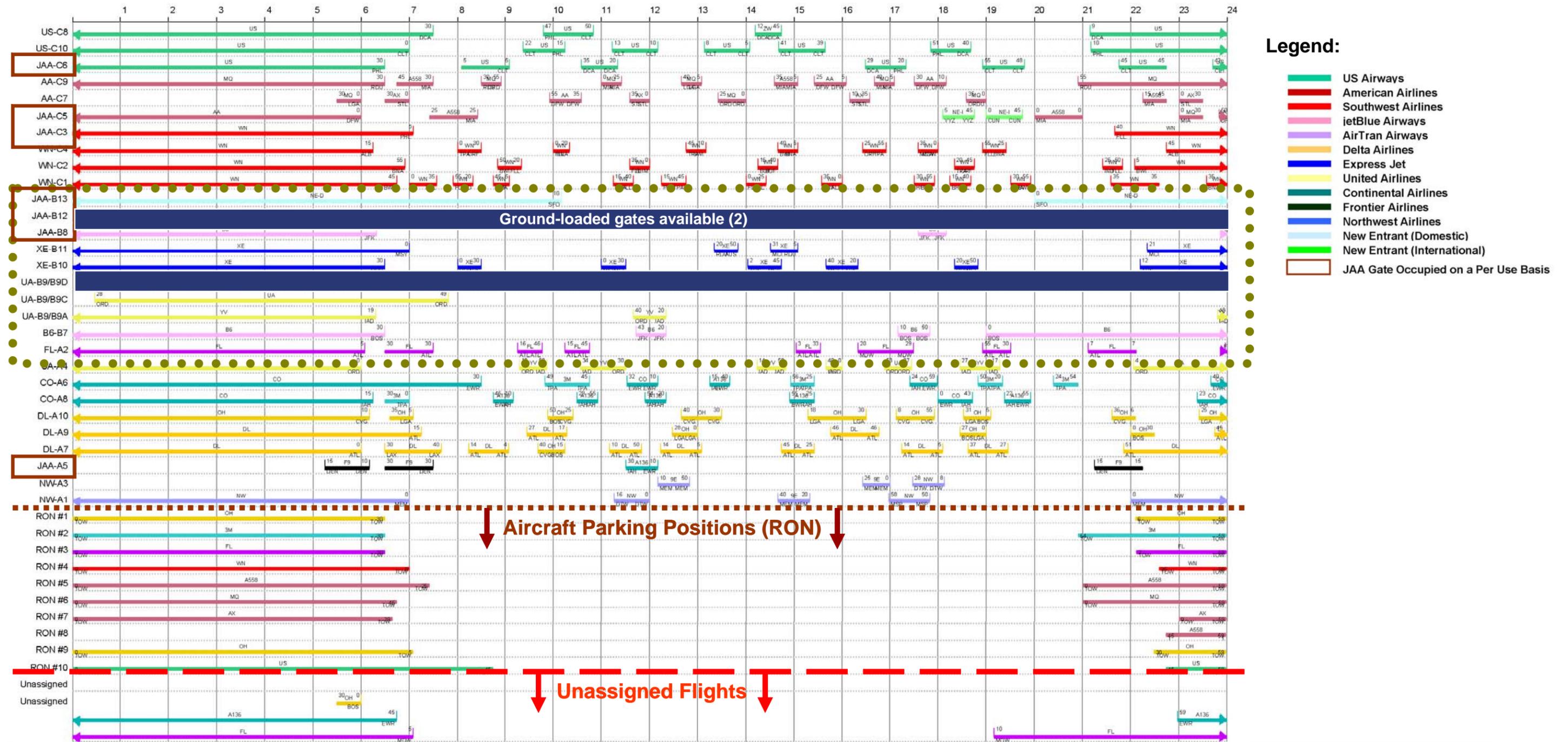
**Exhibit B-3**

**PAL 2 Ramp Chart (Scenario 1)**



**Exhibit B-4**

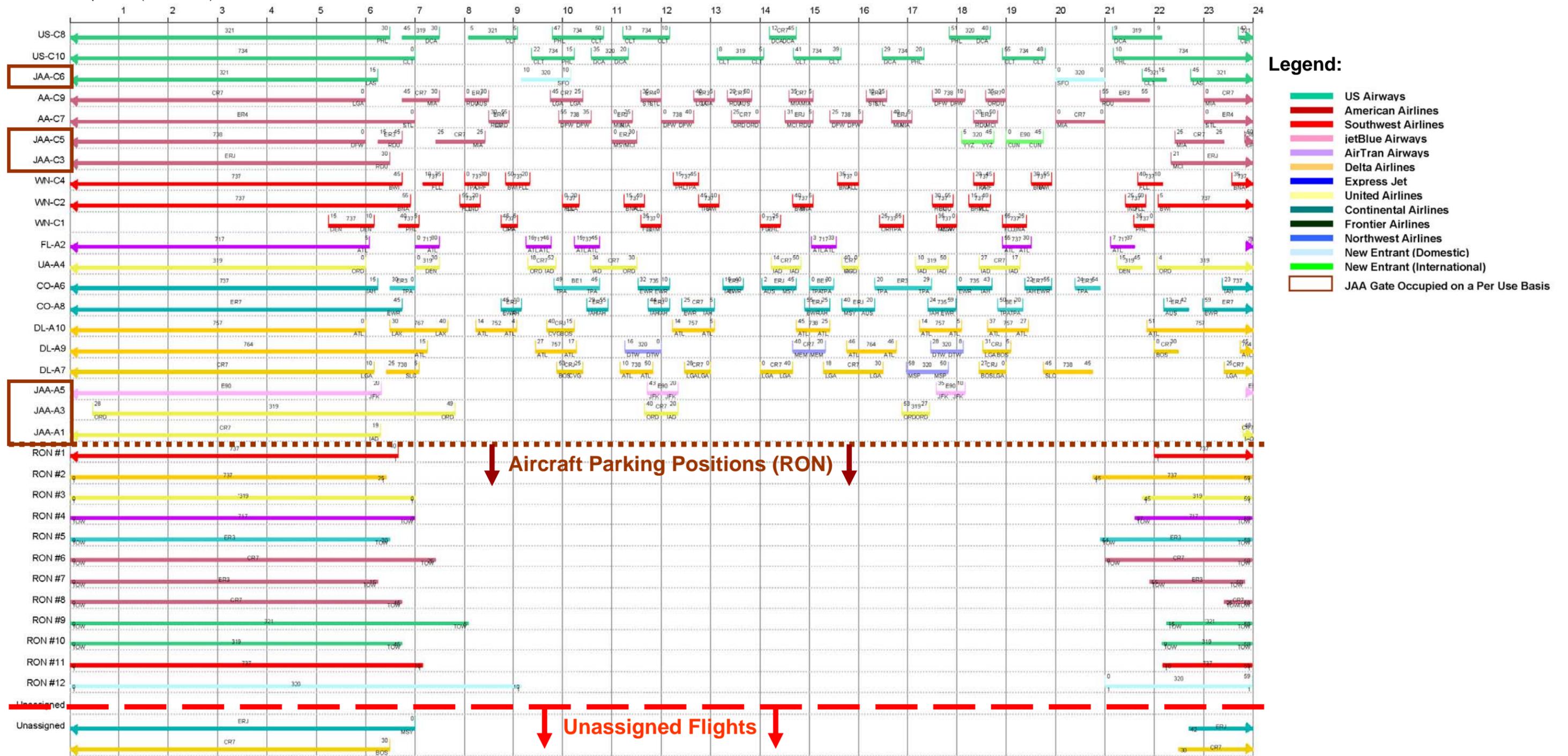
**PAL 2 Ramp Chart (Scenario 2)**



Source: Ricondo & Associates, Inc., February 2008  
 Prepared by: Ricondo & Associates, Inc.

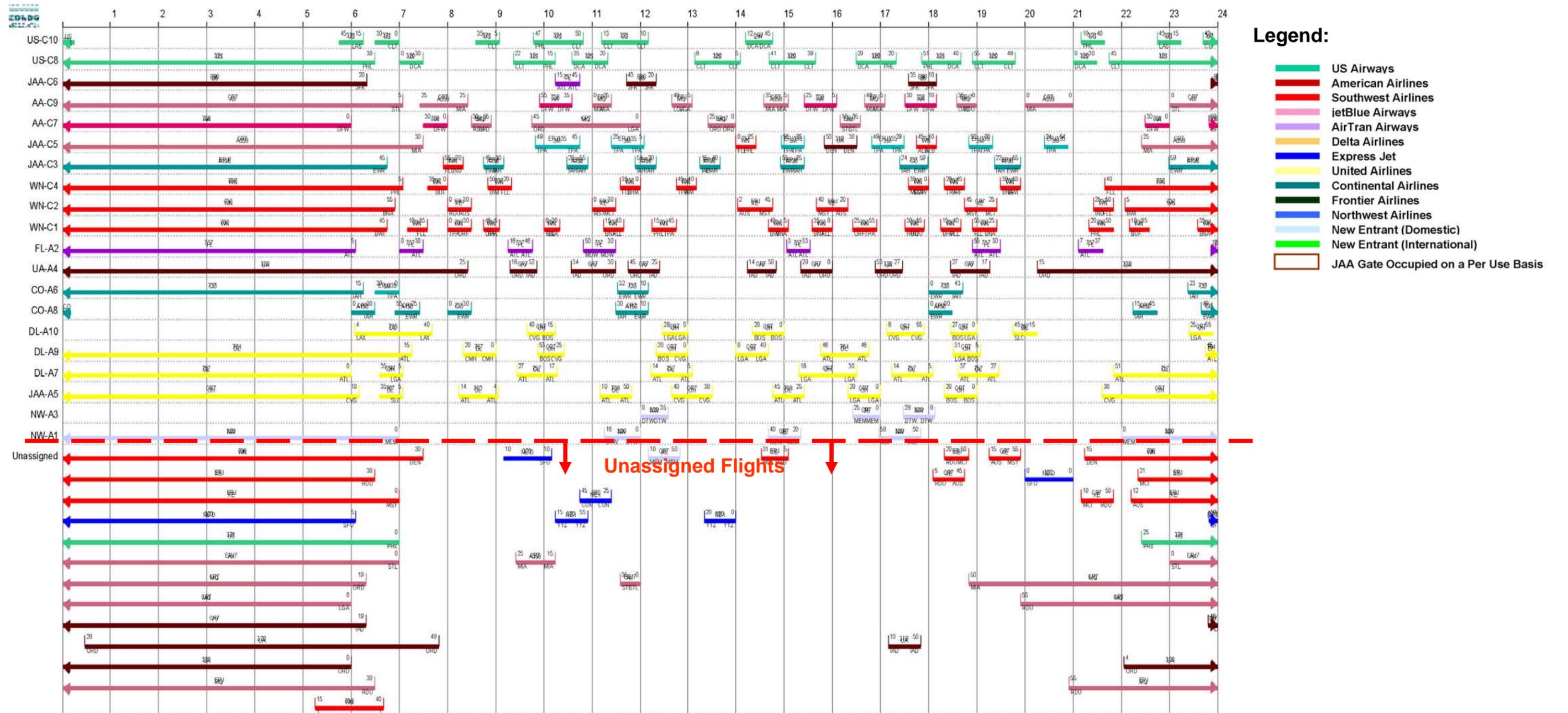
**Exhibit B-5**

**PAL 2 Ramp Chart (Scenario 3)**



**Exhibit B-6**

**PAL 3 Ramp Chart**



Source: Ricondo & Associates, Inc., February 2008

Prepared by: Ricondo & Associates, Inc.

**APPENDIX I -**

**JIA CONCEPTUAL ENVIRONMENTAL RESOURCE PERMIT  
AND TECHNICAL STAFF REPORT**

**ISSUED BY**

**ST. JOHNS RIVER WATER MANAGEMENT DISTRICT**

**4/10/2001**



**POST OFFICE BOX 1429**      **PALATKA, FLORIDA 32178-1429**  
 TELEPHONE 904-448-500      SUNCOM 904-860-4500  
 TDD 904-448-4460      TDD SUNCOM 860-4450

FAX (Executive) 329-4125      (Legal) 329-4485      (Permitting) 329-4315      (Administration/Finance) 329-4508

**SERVICE CENTERS**

818 E. South Street Orlando, Florida 32801 407-887-4300 TDD 407-887-5980	7775 Baymeadows Way Suite 102 Jacksonville, Florida 32256 904-730-8270 TDD 904-448-7900	<b>PERMITTING:</b> 305 East Drive Melbourne, Florida 32904 407-984-4940 TDD 407-722-5368	<b>OPERATIONS:</b> 2133 N. Wickham Road Melbourne, Florida 32935-8109 407-752-3100 TDD 407-752-3102
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April 10, 2001

Jacksonville Port Authority  
John Clark  
PO Box 3005  
Jacksonville, FL 32208

**SUBJECT: Permit Number 4-031-17756-3**  
Jacksonville International Airport - Conceptual System

Dear Sir/Madam:

Enclosed is your permit as authorized by the Governing Board of the St. Johns River Water Management District on April 10, 2001.

This permit is a legal document and should be kept with your other important documents. The attached MSSW/Stormwater As-Built Certification Form should be filled in and returned to the Palatka office within thirty days after the work is completed. By so doing, you will enable us to schedule a prompt inspection of the permitted activity.

In addition to the MSSW/Stormwater As-Built Certification Form, your permit also contains conditions which require submittal of additional information. All information submitted as compliance to permit conditions must be submitted to the Palatka office address.

Permit issuance does not relieve you from the responsibility of obtaining permits from any federal, state and/or local agencies asserting concurrent jurisdiction for this work.

In the event you sell your property, the permit can be transferred to the new owner, if we are notified by you within thirty days of the sale. Please assist us in this matter so as to maintain a valid permit for the new property owner.

Thank you for your cooperation and if this office can be of any further assistance to you, please do not hesitate to contact us.

Sincerely,  
  
Gloria Lewis, Director  
Permit Data Services Division

Enclosures: Permit with EN Form(s), if applicable

cc: District Permit File  
**Consultant:** ERM-Southeast, Inc.  
4110 Southpoint Boulevard Suite 226  
Jacksonville, FL 32216

William Kerr, CHAIRMAN  
MELBOURNE BEACH  
Dan Roach  
FERNANDINA BEACH

Ometrias D. Long, VICE CHAIRMAN  
APOPKA  
William M. Segal  
MAITLAND

Jeff K. Jennings, SECRETARY  
MAITLAND  
Otis Mason  
ST. AUGUSTINE

Duane Ottenstroer, TREASURER  
SWITZERLAND  
Clay Albright  
EAST LAKE WEIR

Reid Hughes  
DAYTONA BEACH

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

Post Office Box 1429  
Palatka, Florida 32178-1429

PERMIT NO. 4-031-17756-3

DATE ISSUED: April 10, 2001

PROJECT NAME: Jacksonville International Airport - Conceptual System

**A PERMIT AUTHORIZING:**

Conceptual approval of a surface water management system to serve expansion and commercial development at the Jacksonville International Airport (JIA).

**LOCATION:**

Section(s): 7, 8, 17, 18, 19, 20, 21, 22, 23, Township(s): 1N Range(s): 26E  
19, 21, 22, 23, 24, 25, 26, 27, 30, 1N 27E  
Duval County

**ISSUED TO:**

Jacksonville Port Authority  
PO Box 3005  
Jacksonville, FL 32208

Permittee agrees to hold and save the St. Johns River Water Management District and its successors harmless from any and all damages, claims, or liabilities which may arise from permit issuance. Said application, including all plans and specifications attached thereto, is by reference made a part hereof.

This permit does not convey to permittee any property rights nor any rights of privileges other than those specified therein, nor relieve the permittee from complying with any law, regulation or requirement affecting the rights of other bodies or agencies. All structures and works installed by permittee hereunder shall remain the property of the permittee.

This permit may be revoked, modified or transferred at any time pursuant to the appropriate provisions of Chapter 373, Florida Statutes:

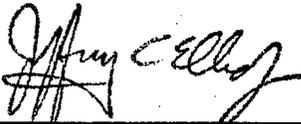
**PERMIT IS CONDITIONED UPON:**

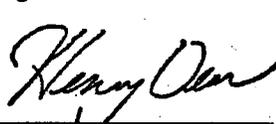
See conditions on attached "Exhibit A", dated April 10, 2001

**AUTHORIZED BY:** St. Johns River Water Management District

Department of Water Resources

Governing Board

By: 

By: 

(Director)  
Jeff Elledge

(Assistant Secretary)  
Henry Dean

**"EXHIBIT A"**  
**CONDITIONS FOR ISSUANCE OF PERMIT NUMBER 4-031-17756-3**  
**JACKSONVILLE PORT AUTHORITY**  
**DATED APRIL 10, 2001**

1. All activities shall be implemented as set forth in the plans, specifications and performance criteria as approved by this permit. Any deviation from the permitted activity and the conditions for undertaking that activity shall constitute a violation of this permit.
2. Should any other regulatory agency require changes to the permitted system, the permittee shall provide written notification to the District of the changes prior implementation so that a determination can be made whether a permit modification is required.
3. This permit does not eliminate the necessity to obtain any required federal, state, local and special district authorizations prior to the start of any activity approved by this permit. This permit does not convey to the permittee or create in the permittee any property right, or any interest in real property, nor does it authorize any entrance upon or activities on property which is not owned or controlled by the permittee, or convey any rights or privileges other than those specified in the permit and chapter 40C-4 or chapter 40C-40, F.A.C.
4. The permittee shall hold and save the District harmless from any and all damages, claims, or liabilities which may arise by reason of the activities authorized by the permit or any use of the permitted system.
5. Any delineation of the extent of a wetland or other surface water submitted as part of the permit application, including plans or other supporting documentation, shall not be considered specifically approved unless a specific condition of this permit or a formal determination under section 373.421(2), F.S., provides otherwise.
6. The permittee shall notify the District in writing within 30 days of any sale, conveyance, or other transfer of ownership or control of the permitted system or the real property at which the permitted system is located. All transfers of ownership or transfers of a permit are subject to the requirements of section 40C-1.612, F.A.C. The permittee transferring the permit shall remain liable for any corrective actions that may be required as a result of any permit violations prior to such sale, conveyance or other transfer.
7. Upon reasonable notice to the permittee, District authorized staff with proper identification shall have permission to enter, inspect, sample and test the system to insure conformity with the plans and specifications approved by the permit.

8. If historical or archaeological artifacts are discovered at any time on the project site, the permittee shall immediately notify the District.
9. The permittee shall immediately notify the District in writing of any previously submitted information that is later discovered to be inaccurate.
10. This Conceptual Approval permit is valid from twenty years from the date of issuance, provided that construction of the initial phase of the system is permitted and construction undertaken within two years of the issuance of this conceptual approval permit, and provided that all phases of the system are designed and built in accordance with the terms of the conceptual approval permit and that all required permits for subsequent phases are obtained.
11. This permit approves the 25-Year Present and Future Conditions Floodplain Maps of the conceptual surface water management system as per plans received by the District on January 22, 2001.
12. This permit approves the discharge control structures of the conceptual surface water management system as per plans received by the District on January 22, 2001.
13. This permit approves the conceptual floodwater storage plan of the surface water management system as per calculations received by the District on June 9, 2000.
14. This permit approves the typical 10-acre Commercial Site conceptual stormwater treatment system as per plans and criteria received by the District on February 22, 2001.
15. The permittee must submit revised 25- and 100-year floodwater elevation calculations for each construction permit application which uses the approved plan of this conceptual permit. The revised floodwater elevation calculations shall include all existing development, all phases with approved District construction permits and the work proposed by the construction permit application. The permittee shall implement as part of the construction permit application such 25- and 100-year flow control works so that the 25- and 100-year peak discharge rates from the revised 25- and 100-year floodwater elevation calculations shall not exceed the 25- and 100-year predevelopment peak discharge rates approved under this conceptual permit. The requirements of this condition may be waived subject to written District Staff approval for such minor works by the permittee which will not result in changes in 25- and 100-year peak discharge rates at the airport boundaries.

16. Compensating floodplain storage shall be required for any encroachment into the Future 25-Year Floodplain as shown on the permit drawings.
17. The permittee shall obtain written staff approval of the airport water quality monitoring plan prior to issuance of any construction permit which uses the approved conceptual plan of this permit, or the permittee shall submit as part of any construction permit application, a water quality monitoring plan for approval as part of the construction permit for the activities proposed in the construction permit application.
18. The permittee must submit site specific plans and calculations as part of any District construction permit applications to demonstrate that the conceptual stormwater treatment system will function under the specific site conditions of the site for which the construction permit application has been submitted.
19. Pursuant to section 3.5.2, Applicant's Handbook Management and Storage of Surface Waters (February 8, 1999), this permit does not authorize any construction, operation, or alteration of the proposed system.
20. As part of any construction permit application for each phase of this project, the permittee must provide:
  - (a) an assessment of any new or continuing use by listed species of wetlands for nesting, denning, or critically important feeding habitat which will be impacted by the construction or reasonably use of the system proposed in that phase;
  - (b) an assessment of any new or continuing use by aquatic or wetland dependent listed species of uplands for nesting or denning which will be impacted by the construction or reasonably expected use of the system proposed in that phase; and
  - (c) an assessment of secondary impacts of adjacent upland development upon any wetlands that are used as nesting, denning, or critically important feeding habitat for listed species

These assessments may necessitate the completion of a wildlife survey.

If the assessments in (a), (b) or (c) demonstrate that listed species are using the site in the manner described in (a), (b) or (c), the permittee must provide an analysis demonstrating that (i) the mitigation plan approved in this conceptual permit will still provide greater long term ecological value than the area of wetlands and surface waters to be adversely affected under the construction permit application; and (ii) the mitigation plan will offset direct and secondary adverse impacts to the wetland functions provided to these

species. If this demonstration cannot be made by the permittee, the project phase must meet the criteria in sections 12.2.1-12.2.1.1, A.H. and the mitigation plan must be supplemented to achieve the required offset.

21. During the review for any construction permits, all on-site wetlands outside the limits of formal wetland determination permit 16-031-0092 must be delineated and surveyed. This will include any wetlands within the vicinity of any proposed wetland creation and/or restoration.
22. In areas proposed for wetland creation, the applicant must demonstrate that no impacts to wetlands will occur.
23. During the review for construction permits the applicant must submit detailed management plans for the mitigation area.
24. This permit approves, in concept, the development plan and mitigation plans dated February 22, 2001 and March 29, 2001.

INDIVIDUAL ENVIRONMENTAL RESOURCE PERMIT  
TECHNICAL STAFF REPORT  
April 11, 2001  
APPLICATION #: 4-031-17756-3

**Applicant:** Jacksonville Port Authority  
Attn: John Clark  
PO Box 3005  
Jacksonville, FL  
32208

**Consultant:** ERM-Southeast, Inc.  
Attn: Warren Snyder P. E.  
4110 Southpoint Boulevard Suite 226  
Jacksonville, FL  
32216  
(904) 296-0434

**Project Name:** Jacksonville International Airport - Conceptual System  
**Acres Owned:** 7915.000  
**Project Acreage:** 7915.000  
**County:** Duval  
**Section(s):** 7, 8, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42  
**Township(s):** 1N  
**Range(s):** 26E  
19, 21, 22, 23, 24, 25, 26, 27, 30, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43  
1N 27E

**Authority:** 40C-4.041(2)(b)2, 40C-4.041(2)(b)8

**Existing Land Use:** Airport with mixed forested, coniferous, freshwater marsh and wet prairie wetlands and pine flatwood uplands

**Planning Unit:** Nassau River Unit  
North Mainstem Unit

**Receiving Water Body:** Cedar Creek **Class:** III Fresh.

**Final O&M Entity:** Jacksonville Port Authority

**ERP Conservation Easements/Restrictions:** Yes

**LOCATION AND BRIEF DESCRIPTION OF SYSTEM:**

This application is for conceptual approval of a surface water management system for future expansion and commercial development within the property limits of the Jacksonville International Airport. JIA is located near the I-95/I-295 interchange on the northside of the City of Jacksonville.

**STAFF COMMENTS:**

## Overview

The expansion and future development was approved in the 1989 Development of Regional Impact and subsequent Substantial Deviation to the DRI which was approved by the City of Jacksonville under Ordinance 2000-286. The applicant has indicated future expansion at the airport includes extension of existing runway 13-31, possible construction of a new parallel runway denoted as 7R-25L, development of terminal and airport infrastructure to support the future expected increase in air traffic at the airport, and the future development of commercial areas for industries which may benefit by being located within the JIA site. The development plan proposed under this application represents no less than a twenty-year planning horizon at the airport and is dependent on the future air traffic growth and future demand for commercial space at the airport.

The applicant proposes a master stormwater planning strategy to address and streamline future permitting efforts for projects at the airport. Major elements of the stormwater strategy include floodwater storage for the 25- and 100-year design storm event, water quality management for development located near the airport terminal and runways, monitoring of water quality around the airport site, wetland impacts, proposed mitigation plan, and long term maintenance and operation for the components of the system necessary to implement the conceptual surface water management plan. The following sections describe the planning strategy and staff recommendations to implement the strategy.

## Flood Control

The JIA site is 7,915 acres in size. The existing floodwater resources of the area include wetland sloughs, creeks with their associated floodplains, and existing ditches constructed to serve the existing airport site. The applicant has elected to utilize these existing wetlands and floodplain resources for floodwater storage for the 25- and 100-year storm events. The applicant proposes to achieve additional onsite floodwater storage by increasing flood elevations along these features in areas of the airport site with little or no existing airport development. The applicant conceptually proposes culverts within the airport property as control structures to increase onsite floodwater elevations along Cedar Creek, Picket Branch, and an unnamed tributary to Seaton Creek. These three outfalls and their basins are the watersheds where the future development is proposed. The applicant has submitted a pre- and post-development floodwater study for both the 25- and 100-year, 24-hour storm events demonstrating the culvert sizes and floodwater containment elevations required for post-development peak floodwater discharges to be less than pre-development peak floodwater discharges. The applicant has also provided a delineation of the pre- and post-development 25-year and 100-year floodplains intended for floodwater storage. Given the 20+ year planning horizon for the airport and the uncertainty for all the development phases envisioned by the applicant, the applicant was unable to specify at this time when these control structures should be constructed. To address offsite flooding concerns with long term phasing, Other Condition 5 is recommended for updating and resubmission, of the 25- and 100-year floodwater study on every construction application which intends to utilize the floodwater storage resources of the conceptual plan. The requirements of Other Condition 5 are not intended to apply for development phases which elect to meet the District pre/post criteria and provide compensating floodplain storage for 25-year floodplain encroachments. Also, Other Condition 5 includes a provision for waiving the study requirements for minor works. Other Condition 6 is also recommended for

compensating floodplain storage for projects which encroach in the future 25-year floodplain as shown on the permit drawings.

### Water Quality Treatment

The Federal Aviation Administration (FAA) has expressed safety concerns that wet stormwater ponds may attract birds and/or wildlife near airports. To satisfy FAA safety concerns, the applicant proposes an alternate stormwater treatment system which will allow the development of the airport commercial areas without open water areas using a combination (or treatment train) of swales and baffle boxes. The applicant also has committed to a monitoring plan to ensure the treatment system as proposed meets the treatment requirements of chapter 40C-42, F.A.C. for the area the treatment system serves. The following proposed elements of the treatment system apply to each commercial lot. Roof runoff will be treated by a baffle box then discharged to a final sediment removal facility located near an outfall wetland. Pavement runoff from the commercial lot will be collected by an on-lot swale which will percolate 40% of the runoff from the 3-year, one hour storm event, then be conveyed to a separate baffle box for treatment of the pavement runoff, then discharged to an outfall swale. The outfall swale serving the lot baffle boxes conveys the pavement runoff into the final sediment removal facility. The final sediment removal facility will be sized at a minimum of 50% of the treatment volume for the presumptive best management practices specified in chapter 40C-42.026, F.A.C. Sufficient area will be reserved at each final sediment removal facility which will allow implementation of a facility which complies with the District's criteria if monitoring of the treatment train indicates the system is not attaining its intended level of treatment. Roads accessing the commercial sites will be served by swales meeting the District's swale treatment criteria. The applicant believes each commercial site will be located near an outfall wetland such that this single site model is representative of future commercial development at the airport site. The applicant has submitted calculations demonstrating the proposed treatment train provides treatment equivalent to wet detention treatment. Other condition 8 is recommended to require submittal of calculations demonstrating the treatment concept will function for the specific site conditions of each construction permit application. If soil site conditions and the groundwater table make the proposed treatment train impracticable to implement, then the applicant will implement a treatment facility which will utilize the Specific Design and Performance Criteria of chapter 40C-42.026, F.A.C., and be constructed within FAA guidelines for wet ponds at airports.

### Water Quality Monitoring

The applicant is preparing a water quality monitoring plan to document and verify that the long term development at the airport will not result in adverse water quality impacts. The plan includes long term monitoring stations along existing major conveyance ways at the airport to verify the water quality of surface runoff from the combinations of existing and proposed land uses from the airport site, and intensive monitoring of parts of the conceptual stormwater treatment plan to verify the conceptual treatment system meets state water quality standards. The applicant expects to end monitoring of the treatment system when sufficient data has been collected to affirmatively demonstrate that the conceptual treatment system meets its treatment requirements. Other Condition 7 is recommended for either staff approval of the monitoring plan prior to approval of construction permits which utilize any of the concepts approved under this conceptual permit application or submittal of a monitoring plan as part of future phase construction

permit applications. This condition is not intended to apply for projects which do not utilize any of the alternative stormwater treatment concepts of this application and provide 25-year compensating floodplain storage for encroachments into the floodplain areas delineated for floodwater storage.

#### Long Term Maintenance and Operation

The applicant will be the long term maintenance entity for the proposed system, except for pavements and buildings on commercial lots, and will be responsible for all water quality treatment on the project site. The applicant has committed to retaining consultants and additional staff to implement the design concepts of the surface water management system. This includes consultants to implement the water quality monitoring plan, maintain the flood control model to ensure that onsite and offsite adverse floodwater impacts from the 25- and 100-year storms do not result from the proposed long term development at the airport, provide staff to ensure that all commercial and airport development implements the conceptual water quality treatment plan, and to provide sufficient maintenance personnel to ensure proper function of the high maintenance elements of the water quality treatment system.

#### Vegetative Communities (Uplands)

The majority of the site is composed of pine flatwoods or pine plantation uplands. The dominant species within these communities includes slash pine, longleaf pine, gallberry, saw palmetto, and bracken fern. Scattered mesic fractions also occur within the pine dominated communities. These areas are dominated by oak, red maple, sweetgum, bay, and wax myrtle. The other on-site upland communities include mixed hardwoods, hardwood/conifer mixed, hardwood hammock, shrub and brushland, pasture, and open land. Three of these communities, mixed hardwoods, hardwood/conifer mixed, and hardwood hammock, are vegetated with similar species although in varying percentages. The mixed hardwoods support few conifers and do not have any one hardwood species that exceeds 66% coverage, the hardwood/conifer mixed generally has equal parts of hardwoods and conifers, and the hardwood hammock is typically dominated by one or two hardwood species, typically oak and has very few pines. Shrub and brush land is typically the result of pine harvesting without replanting. These areas are vegetated with gallberry, saw palmetto, wax myrtle, bracken fern, greenbriar, and blackberry. Pasture and open lands are similarly vegetated with bahia, bermuda, and St. Augustine grasses along with clover and other legumes. The difference between the two is that the pasture is maintained by grazing cattle and the open land is maintained by mowing.

#### Vegetative Communities (Wetlands/Surface Waters)

The project also includes approximately 613.12 acres of wetlands and 57.90 acres of surface waters. The wetlands are represented by eight communities that include bay swamp, gum swamp, bottomland, mixed hardwoods, wetland forested mixed, wetland coniferous forest, freshwater marsh, and wet prairie. The wetlands in the southeast portion of the project were reviewed and approved under formal wetland determination permit no. 16-031-0090. The wetlands in the remaining project area were approximated using aerial photography, National Wetland Inventory maps, and the Duval County soil survey.

The bay swamps are dominated by swamp bay, sweet bay, loblolly bay, fetterbush, wax myrtle, fetterbush, royal fern, cinnamon fern, and chain ferns. The gum swamps are dominated by tupelo and scattered cypress. Other species present include buttonbush, Virginia willow, fetterbush, and royal fern. Although the bottomland and mixed hardwoods have similar vegetative compositions, they do differ in hydrologic regime. Bottomland is typically associated with a stream, creek, or other water course and its associated floodplain. Mixed hardwoods are often isolated and irregularly shaped. Typical vegetation within these systems includes tupelo, laurel oak, water oak, red maple, ashes, sweetgum, bays, willows, wax myrtle, buttonbush, royal fern, and chain ferns. The wetland forested mixed community is vegetated with a mixture of hardwood and coniferous species that include laurel oak, water oak, tupelo, sweet bay, swamp bay, cypress, slash pine, and pond pine. The freshwater marshes and wet prairies generally lack a canopy and subcanopy. The freshwater marshes have areas that are typically inundated for long durations. The marshes are vegetated with pickerel weed, arrowhead, fragrant water lily, sand cordgrass, and various panic grasses. The wet prairies have shorter periods of inundation and are typically saturated. These areas are vegetated with soft rushes, beak rushes, sedges, and panic grasses.

#### Wetland/Surface Water Impacts

The applicant has requested conceptual approval to dredge/fill approximately 151.04 acres of wetlands and 16.12 acres of surface waters. The impacts include approximately 80.82 acres for general widespread airport development, 27.71 acres for roadways and roadway improvement, and 58.63 acres for commercial development in the southeast (Woodwings East/West). Under this application, the applicant is not proposing any impacts associated with new runways, extension of existing runways, or a skeet range. The direct impacts associated with the development of the Woodwings are located within the formal wetland determination area and are therefore fairly accurate. The wetland impact areas outside the Woodwings area are approximate. These areas will be delineated on the ground and surveyed during review of the construction permit applications.

#### Mitigation

To compensate for the proposed impacts the applicant has proposed an onsite mitigation plan that includes 147.24 acres of wetland creation/restoration and 1133.85 acres of wetland and upland preservation. Although all adverse secondary impacts have not been addressed, the applicant has proposed several measures to address these impacts. The measures include preserving upland buffers where available, bridge or install large culverts at road crossings and installation of deer reflectors at the road crossings. The remaining adverse impacts will be mitigated for within the 1133.85 acre mitigation area. The applicant has conceptually provided reasonable assurance the project will not result in adverse cumulative impacts to the functions provided by wetlands and surface waters within the drainage basin 4. The impacts and the mitigation are proposed within the same drainage basin. The proposed mitigation is conceptual and specific mitigation details will be finalized during review of the first construction permit.

The adverse impacts associated with this project including the adverse secondary impacts, have been approximated. To address these impacts, the applicant has proposed a mitigation plan that conceptually compensates for those impacts. All of the impacts will be accurately determined during the review of the construction permit

applications. It also appears that, if during the construction permit review process it is determined that adverse impacts remain, the applicant has other on-site mitigation opportunities to compensate for those adverse impacts. The project also meets the requirements of section 12.2.8, A.H.

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**Wetland Summary Table Jacksonville International Airport - Conceptual**

<b>Total Wetlands On-site</b>	<b>613.12 acres</b>
<b>Total Surface Waters On-site</b>	<b>57.90</b>
<b>Impacts that Require Mitigation</b>	<b>167.16 acres</b>
<b>Impacts that Require No Mitigation</b>	<b>0.00 acres</b>
<b>Mitigation</b>	
<b>Wetland Creation/Restoration:</b>	<b>147.24 acres</b>
<b>Wetland/Upland Preservation:</b>	<b>1133.85 acres</b>

---

**Interested Parties:** No  
**Objectors:** No

**Recommendation:** Approval

**Conditions for Application Number 4-031-17756-3:**

**ERP General Conditions by Rule (October 03, 1995):**

1, 12, 13, 14, 15, 16, 17, 18, 19

**ERP/MSSW/Stormwater Special Conditions (November 09, 1995):**

3

**Other Conditions:**

1. This permit approves the 25-Year Present and Future Conditions Floodplain Maps of the conceptual surface water management system as per plans received by the District on January 22, 2001.
2. This permit approves the discharge control structures of the conceptual surface water management system as per plans received by the District on January 22, 2001.
3. This permit approves the conceptual floodwater storage plan of the surface water management system as per calculations received by the District on June 9, 2000.
4. This permit approves the typical 10-acre Commercial Site conceptual stormwater treatment system as per plans and criteria received by the District on February 22, 2001.
5. The permittee must submit revised 25- and 100-year floodwater elevation calculations for each construction permit application which which uses the approved plan of this conceptual permit. The revised floodwater elevation calculations shall include all

existing development, all phases with approved District construction permits and the work proposed by the construction permit application. The permittee shall implement as part of the construction permit application such 25- and 100-year flow control works so that the 25- and 100-year peak discharge rates from the revised 25- and 100-year floodwater elevation calculations shall not exceed the 25- and 100-year predevelopment peak discharge rates approved under this conceptual permit. The requirements of this condition may be waived subject to written District Staff approval for such minor works by the permittee which will not result in changes in 25- and 100-year peak discharge rates at the airport boundaries.

6. Compensating floodplain storage shall be required for any encroachment into the Future 25-Year Floodplain as shown on the permit drawings.
7. The permittee shall obtain written staff approval of the airport water quality monitoring plan prior to issuance of any construction permit which uses the approved conceptual plan of this permit, or the permittee shall submit as part of any construction permit application, a water quality monitoring plan for approval as part of the construction permit for the activities proposed in the construction permit application.
8. The permittee must submit site specific plans and calculations as part of any District construction permit applications to demonstrate that the conceptual stormwater treatment system will function under the specific site conditions of the site for which the construction permit application has been submitted.
9. Pursuant to section 3.5.2, Applicant's Handbook Management and Storage of Surface Waters (February 8, 1999), this permit does not authorize any construction, operation, or alteration of the proposed system.
10. As part of any construction permit application for each phase of this project, the permittee must provide:
  - (a) an assessment of any new or continuing use by listed species of wetlands for nesting, denning, or critically important feeding habitat which will be impacted by the construction or reasonably use of the system proposed in that phase;
  - (b) an assessment of any new or continuing use by aquatic or wetland dependent listed species of uplands for nesting or denning which will be impacted by the construction or reasonably expected use of the system proposed in that phase; and
  - (c) an assessment of secondary impacts of adjacent upland development upon any wetlands that are used as nesting, denning, or critically important feeding habitat for listed species

These assessments may necessitate the completion of a wildlife survey.

If the assessments in (a), (b) or (c) demonstrate that listed species are using the site in the manner described in (a), (b) or (c), the permittee must provide an analysis demonstrating that (i) the mitigation plan approved in this conceptual permit will still provide greater long term ecological value than the area of wetlands and surface waters to be adversely affected under the construction permit application; and (ii) the mitigation plan will offset direct and secondary adverse impacts to the wetland

functions provided to these species. If this demonstration cannot be made by the permittee, the project phase must meet the criteria in sections 12.2.1-12.2.1.1, A.H. and the mitigation plan must be supplemented to achieve the required offset.

11. During the review for any construction permits, all on-site wetlands outside the limits of formal wetland determination permit 16-031-0092 must be delineated and surveyed. This will include any wetlands within the vicinity of any proposed wetland creation and/or restoration.
12. In areas proposed for wetland creation, the applicant must demonstrate that no impacts to wetlands will occur.
13. During the review for construction permits the applicant must submit detailed management plans for the mitigation area.
14. This permit approves, in concept, the development plan and mitigation plans dated February 22, 2001 and March 29, 2001.

**Reviewers:** Walter Esser, III  
William Wilson

**APPENDIX II -**

**JIA INDIVIDUAL PERMIT No. 200005079 (IP-BAL)**

**ISSUED BY**

**U.S. ARMY CORPS OF ENGINEERS**

**11/18/2003**

**DEPARTMENT OF THE ARMY PERMIT**  
(DUPLICATE)

**Permittee:** JACKSONVILLE AVIATION AUTHORITY

**Permit Number:** 200005079(IP-BAL)

U.S. Army Engineer District, Jacksonville

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

You are authorized to perform work in accordance with the terms and conditions specified below.

**Project Location:** The proposal is located adjacent to waters of the United States, including wetlands associated with Cedar Creek and Seaton Creek near the Jacksonville International Airport (JIA). More specifically, the proposed work is located north of Interstate 295 and west of Interstate 95, in Sections 7, 8, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, and 43, Township 1 North, Range 26 East and 27 East, Jacksonville, Duval County, Florida. Latitude 30°29'N, Longitude 81°39'W

**Project Description:** To discharge fill material into 87.40 acres of waters of the United States, including wetlands for the expansion of the airport facilities and accompanying infrastructure. The project includes the construction of an Air Cargo Alternate Access Road, General Aviation Development, Phase A, (includes CSX Corporate Hanger), General Aviation Development, Phase B, Car Rental Facility, Woodwings East, Woodwings West, Northeastern Development, Southwestern Development, and associated roadways and infrastructure. All work is to be completed in accordance with the attached plans numbered 200005079(IP-BAL) in 12 sheets dated 29 October 2003.

Permit Conditions:

General Conditions:

1. The time limit for completing the work authorized ends on 18 November 2013. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.
2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.
3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.
4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.
5. If a conditioned water certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.
6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

**SPECIAL CONDITIONS:**

1. All reports and submittals that are a requirement of this authorization shall be sent to the U.S. Army Corps of Engineers, Regulatory Division, Enforcement Section, P.O. Box 4970, Jacksonville, Florida 32232-0019 and **shall reference the permit number 200005079 (IP-BAL)**.

2. Within 60 days of the date of this permit, the permittee shall submit an attorneys' opinion of title that the permittee has the requisite ownership rights to the JIA Mitigation Management Area (northwest corner of the JIA property), shown on drawing page 2 and 3 of 12, to ensure that the mitigation easement deeds will be primary to any other interests over the property. The opinion of title shall be submitted to the address in Special Condition 1 above and shall reference the permit number 200005079 (IP-BAL).

3. The permittee acknowledges that the mitigation easement will be a formal recorded encumbrance on the land. Prior to the issuance of a certificate of occupancy or prior to the use of the infrastructure for its intended use for each portion of the overall project the permittee will record the mitigation easement for that project. The easement shall include provisions for the perpetual maintenance of any boundary markers and/or structures, posting of boundary notices, maintenance of onsite structures, planting of the 104 acre creation area, conversion of silviculture areas to a naturally-managed and diversely sized/aged canopy, prescribed burning, wetland enhancement and restoration activities (through trail road removal and uneven-stand management activities) remedial measures in support of the mitigation area (includes the removal of nuisance and/or exotic vegetative species) required by this permit and/or authorized by the U.S. Army Corps of Engineers. The permittee will prepare each proposed mitigation easement, including a description, and scaled drawings, of the area(s) in question and furnish the same to the Jacksonville District Office of Counsel, C/O the Regulatory Division, Enforcement Section for legal review and approval. Within 30 days of the Corps approval of the proposed easement, the permittee will record the easement in the public records of Duval County, Florida, and a certified copy of the recorded document, with the plat will be forwarded to the Regulatory Division of Jacksonville District Office at the address in Special Condition 1 above within 30 days of recordation.

4. The permittee acknowledges that the compensatory mitigation plan will provide 154.11 credits to be used to mitigate for direct and secondary impacts to waters of the United States once the below mentioned mitigation activities are completed and determined successful. There are four main components in the release schedule: placement of 1,320 acres under a mitigation agreement, enhancement of 849.24 acres of wetlands, restoration of 1.6 acres of wetlands and creation of 104 acres of wetlands. Recording the mitigation easement and completing the restoration and creation work will be done in phases and credits released accordingly. The mitigation credits will be made available based on completion of the following schedule of mitigative steps:

Activity	Mitigation credits released
Opinion of Title letter submitted and approved on the 1,320 acre JIA Mitigation Management Area	29.515
1,320 acre management area placed under mitigation easements	29.515
Removal of 1.6 acres of trail roads	1.44
Complete plantings in the 2.52-acre herbaceous creation area	0.63
1 year of monitoring indicating successful establishment in the creation area	0.63
2 years of monitoring indicating successful establishment in the creation area	0.63
3 years of monitoring indicating successful establishment in the creation area	0.63
Complete plantings in the 101.48-acre forested creation area	22.77
1 year of monitoring indicating successful establishment in the creation area	13.67
2 years of monitoring indicating successful establishment in the creation area	13.67
3 years of monitoring indicating successful establishment in the creation area	13.67
4 years of monitoring indicating successful establishment in the creation area	13.67
Achievement of final success after 5 years of monitoring which indicates successful establishment in the creation area	13.67
<b>Total</b>	<b>154.11</b>

Please note, one-half of the mitigation easement credits will be released once the Corps approves the attorneys' opinion of title letter. The remaining available mitigation easement credits will be released in phases at the equivalent of 0.02235 credits per acre placed in a mitigation easement. The removal of 1.6 acres of trail roads will result in 1.44 credits, which is equivalent to 0.9 credits per acre of trail road removed. The wetland creation areas will be released in phases as the areas are created and determined successful.

5. The permittee shall submit a "working" ledger and project status report for review and approval each October. The information should reference permit number 200005079 (IP-BAL) and be sent to the address referenced in Special Condition 1 above. The ledger shall include the number of credits released and debited with corresponding back-up information, if needed. The project status report will consist of a summary of the number of acres recorded in the mitigation easement, restoration and creation work that has been started during the past year and as-built drawings. The summary should describe the work and expected results (acres of restored, enhanced and created wetlands).

6. The permittee acknowledges that there is a potential for additional mitigation credits as a result of the mitigation efforts. The credits will be used to offset future wetland impacts within the boundaries of the Jacksonville International Airport as depicted on page 1 of the attached drawings.

7. The permittee shall commence the mitigation work for the herbaceous wetland creation, which is depicted on permit drawing 11 dated 29 October 2003. The wetland creation will consist of 2.52 acres of herbaceous wetlands, per the following:

a. The wetland creation area will be excavated to an elevation suitable to support the installation and proliferation of 12,197 bare-root herbs. The herbaceous vegetation will be randomly planted, not in rows and installed on equivalent 3' centers. The plantings may include, based on availability: soft rush (*Juncus effusus*), sand cord grass (*Spartina bakeri*), beakrush (*Rynchospora* spp.), lance-leaf arrowhead (*Sagittaria lancifolia*), golden canna (*Canna flaccida*), and/or additional species.

b. The proposed mitigation area will be monitored for a period of 3 years after planting to ensure proliferation of installed species, and control of invasion by nuisance/exotic

species. Herbaceous coverage and composition will be evaluated through random sampling of approximately 1% of the overall area. To accomplish the annual sampling, 11- 5' X 5' sample areas will be randomly established with corner stakes during a baseline monitoring event.

c. Monitoring reports will be prepared and submitted to the address in Special Condition 1 above detailing percent coverage and composition of desirable species, as well as the status of nuisance/exotics as necessary, on an annual basis in the fall. Credits will be available for release upon planting of the area, as well as when success criteria are met during annual monitoring, according to the credit-release schedule. The success criteria will be as follows: 10% coverage of desirable wetland herbaceous species and <5% exotic/nuisance species coverage at year 1; and 40% desirable coverage and <5% nuisance/exotic species at year 2. The herbaceous wetland creation area will be considered successful when 80% coverage of desirable species and less than 5% coverage of nuisance/exotic species is established within the 3-year monitoring period.

8. The permittee shall commence the mitigation work for the wetland creation, which is depicted on permit drawing 2 dated 29 October 2003. The wetland creation will consist of 101.48 acres of coniferous hardwood wetlands, per the following:

a. The wetland creation area will be randomly planted, not in rows, to mimic the historic natural conditions of the existing, adjacent wetlands. The trees will be 3-gallon size and will be installed on equivalent 10-foot centers to allow a density of approximately 436 trees per acre. The transitional area or side slopes of the wetland creation areas will be planted with wetland species including (*Acer rubrum*), sweetgum (*Liquidambar styraciflua*), sweetbay (*Magnolia Virginiana*), wax myrtle (*Myrica cerifera*) and fetterbush (*Lyonia lucida*). The floor or the main portion of the creation area will be planted, based on availability, with inundation-tolerant cypress (*Taxodium distichum*), blackgum (*Nyssa sylvatica var. biflora*), buttonbush (*Cephalanthus occidentalis*), and Virginia willow (*Itea virginica*).

b. The transitional species will be evenly distributed and planted on the creation area side slopes and will include, based on availability, a total of 10,900 trees (25%) as follows: 3,924 red maple (9%), 3,488 sweet bay (8%) and 3,488 sweetgum (8%). The remaining 32,700 trees (75%) will be out of the inundation-tolerant variety and will be planted in clusters on the floor of

the wetland creation areas. These trees will include, based on availability, 16,132 blackgum (37%) and 16,568 cypress (38%). In addition to the trees, 43,600 1-gallon shrubs will be installed on 10-foot centers within the creation mitigation areas (436 shrubs/acre). As with the trees, 10,900 (25%) of the shrubs will consist of transitional species planted on the creation area slopes. These will include 5,450 wax myrtle (12.4%) and 5,450 fetterbush (12.5%). The remaining 32,700 (75%) shrubs will be installed at the bottom of the mitigation areas and will include 16,350 buttonbush (37.5%) and 16,350 Virginia willow (37.5%). Desirable herbaceous wetland species are expected to proliferate in the wetland creation areas, as the top soil material to be transferred from the impacted wetlands will contain a suitable seed source for these species.

9. The field sampling will be conducted between the months of August to October of each year for 5 years after the initial planting to determine the success of the created wetland. The field sampling shall be conducted as follows:

a. A pedestrian survey will be conducted on 100% of the creation area. The field sampling reports will include the following information:

(1) a count of live stems of survived planted vegetation by species within the enhancement area,

(2) assessment of growth (height) of planted tree species within the enhancement area,

(3) relative health of plantings observed within the enhancement area, indicating any problems such as fungal infection, insect damage, etc.

(4) percentage (aerial coverage) of exotic, undesirable or nuisance species present within each transect,

(5) wildlife utilization (qualitative) observed during a survey of each transect,

(6) recruitment of hydrophytic vegetation observed in each belt transect,

(7) a recordation of additional plant species observed in each of the belt transects that were not present in the previous sample, and

(8) an observation of hydric soil indicators within the upper 6 inches of the substrate, including measurements of any organic detritus accumulation on the soil surface.

b. These reports shall be submitted within 60 days of the completion of the monitoring event. The report shall include the quantitative or qualitative data, narrative description, and one page summary. The one page summary shall highlight any potential problems. Some examples of potential problems are concerns with the hydrological conditions, a decline in wetland species (less than 80% obligate wetland and/or facultative species in each area), an increase in nuisance, undesirable, or invasive species (more than 10% in any transect, poor average growth of woody tree plantings), and any other potential problems that may cause the creation area to fail.

c. Credits will be available for release upon planting of the area, as well as when success criteria are met during annual monitoring, according to the credit-release schedule. The success criteria will be as follows: >80% survivorship of installed tree species, <5% nuisance/exotic species, and a demonstrated mean growth rate of 1 foot per year. The mitigation will be considered successful if at the end of the 5-year monitoring period, the created wetlands have achieved the following results:

(1) Sustained a minimum 80% obligate wetland and/or facultative wetland species as defined by the "1988 List of Vascular Plants occurring in the Southeast Region."

(2) Does not contain more than 10% nuisance, undesirable, or invasive species. Updated lists of invasive species in the state of Florida can be found at the following Internet site: [www.fleppc.org](http://www.fleppc.org). Additionally, at a minimum the following will be considered nuisance species: *Sapium sebiferum* (Chinese tallow), *Salix* sp. (Willows) and *Typha* sp. (Cattails), and *Pinus elliottii* (slash pine) are considered an undesirable species.

(3) Plantings have achieved an 80% survivability rate.

(4) Woody tree plantings have achieved a mean growth rate of approximately 1 foot per year (Denton 1990 reports average growth rate for Cypress in mitigation sites as 1.7 feet per year).

10. If the mitigation efforts within the creation and restoration areas fail to indicate a reasonable degree of success at any time after the initial planting or the removal of the trail road has occurred, the permittee shall submit a contingency plan that details corrective actions to be taken within 30 days of notification by the Corps. The restoration success criteria are the same as the forested creation criteria. The Corps reserves the right to fully evaluate, amend, and approve the contingency plan. Within 30 days of Corps approval, the permittee will execute the contingency plan in full.

11. The permittee shall provide as-built drawings of the authorized work, and a completed As-Built Certification Form. The drawings and Certification Form are to be submitted within 60 days of completion of the authorized work, or at the expiration of the construction authorization of the permit, whichever comes first. The drawings and As-Built Certification Form must be signed and sealed by a professional engineer registered in the State of Florida. The submitted As-Built Certification Form and drawing shall include the following:

- a. The Department of the Army permit number on each sheet.
- b. A plan view of the overall footprint of the project showing all "earth disturbance", including wetland impacts.
- c. Clear indication of any deviations, which have been described on the As-Built Certification Form. In the event that the completed work deviates from the approved permit drawings and special conditions, the permittee shall describe, on the Certification Form, the deviations between the work authorized by the permit and the work as constructed. Please note that the depiction and description of the deviations on the drawings and Certification Form does not necessarily mean that the Corps will approve of them.

12. The Corps permit does not authorize you to take an endangered species, in particular the eastern indigo snake. In order to legally take a listed species, you must have separate authorization in the Biological Opinion (BO) under the Endangered Species Act (ESA), section 7, with "incidental take" provisions with which you must comply. The enclosed BO from FWS contains mandatory terms and conditions to implement the reasonable and prudent measures that are associated with "incidental take" that is also specified in the BO. Your authorization under this Corps permit is conditional upon your compliance with all of the mandatory terms and conditions

associated with incidental take of the attached BO, which terms and conditions are incorporated by reference in this permit. Failure to comply with the terms and conditions associated with incidental take of the BO, where a take of the listed species occurs, would constitute an unauthorized take, and it would also constitute noncompliance with your Corps permit. However, the FWS is the appropriate authority to determine compliance with the terms and conditions of its BO, and with the ESA. For further clarification on this point, you should contact the FWS. Should the FWS determine that the conditions of the BO have been violated, normally the FWS will enforce the violation of the ESA, or refer the matter to the Department of Justice.

Further Information:

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

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

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

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

2. Limits of this authorization:

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

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

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

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

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

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

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

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

d. Design or construction deficiencies associated with the permitted work.

e. Damage claims associated with any future modification, suspension, or revocation of this permit.

4. Reliance on Applicant's Data: The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.

5. Reevaluation of Permit Decision: This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:

a. You fail to comply with the terms and conditions of this permit.

b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (see 4 above).

c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

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

209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

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

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

[Signature]  
(PERMITTEE)

11/25/03  
(DATE)

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

[Signature]  
(DISTRICT ENGINEER)  
Robert M. Carpenter  
Colonel, U.S. Army

1 December 2003  
(DATE)

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

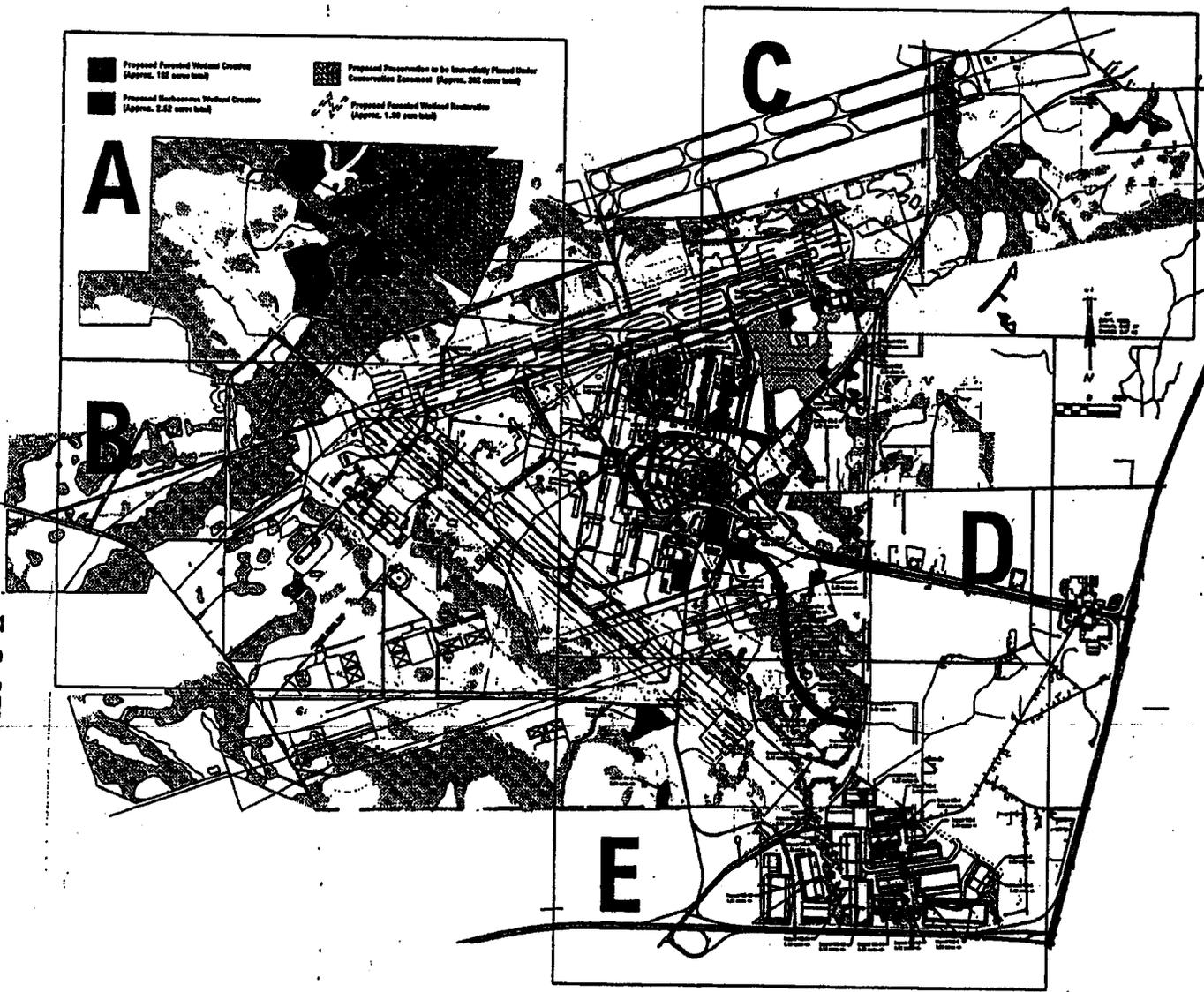
\_\_\_\_\_  
(TRANSFEREE)

\_\_\_\_\_  
(DATE)

\_\_\_\_\_  
(NAME-PRINTED)

\_\_\_\_\_  
(ADDRESS)

\_\_\_\_\_  
(CITY, STATE, AND ZIP CODE)



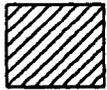
U.S. ARMY CORPS OF ENGINEERS  
 PERMIT 200005079 (IP-BAL)  
 DATE... 29 October 2003  
 DRAWING PAGE 1 OF 12



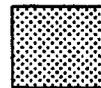
Environmental  
 Resource  
 Solutions Inc.  
 1587 The Greens Way  
 Suite 200  
 Jacksonville Beach, FL 32250

JIA  
 Impact/Mitigation Key Map

Source:	Project:
	Date:
File: 00267 COE IM R8	By: JEM



**Proposed Forested Wetland Creation**  
(Approx. 102 acres total)



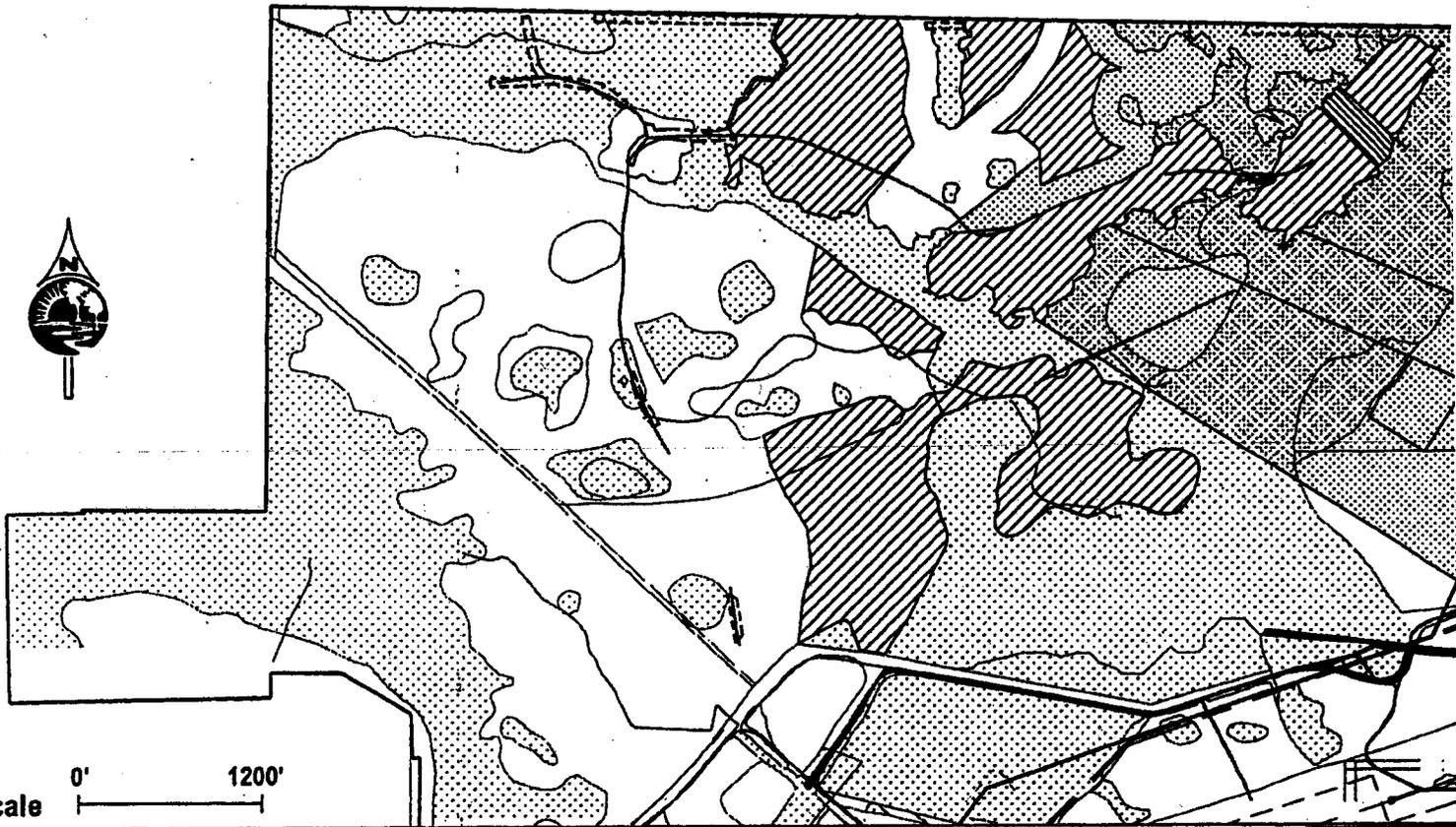
**Proposed Preservation to be Immed  
Conservation Easement (Approx. 20**



**Proposed Herbaceous Wetland Creation**  
(Approx. 2.52 acres total)



**Proposed Forested Wetland Restor**  
(Approx. 1.60 acre total)



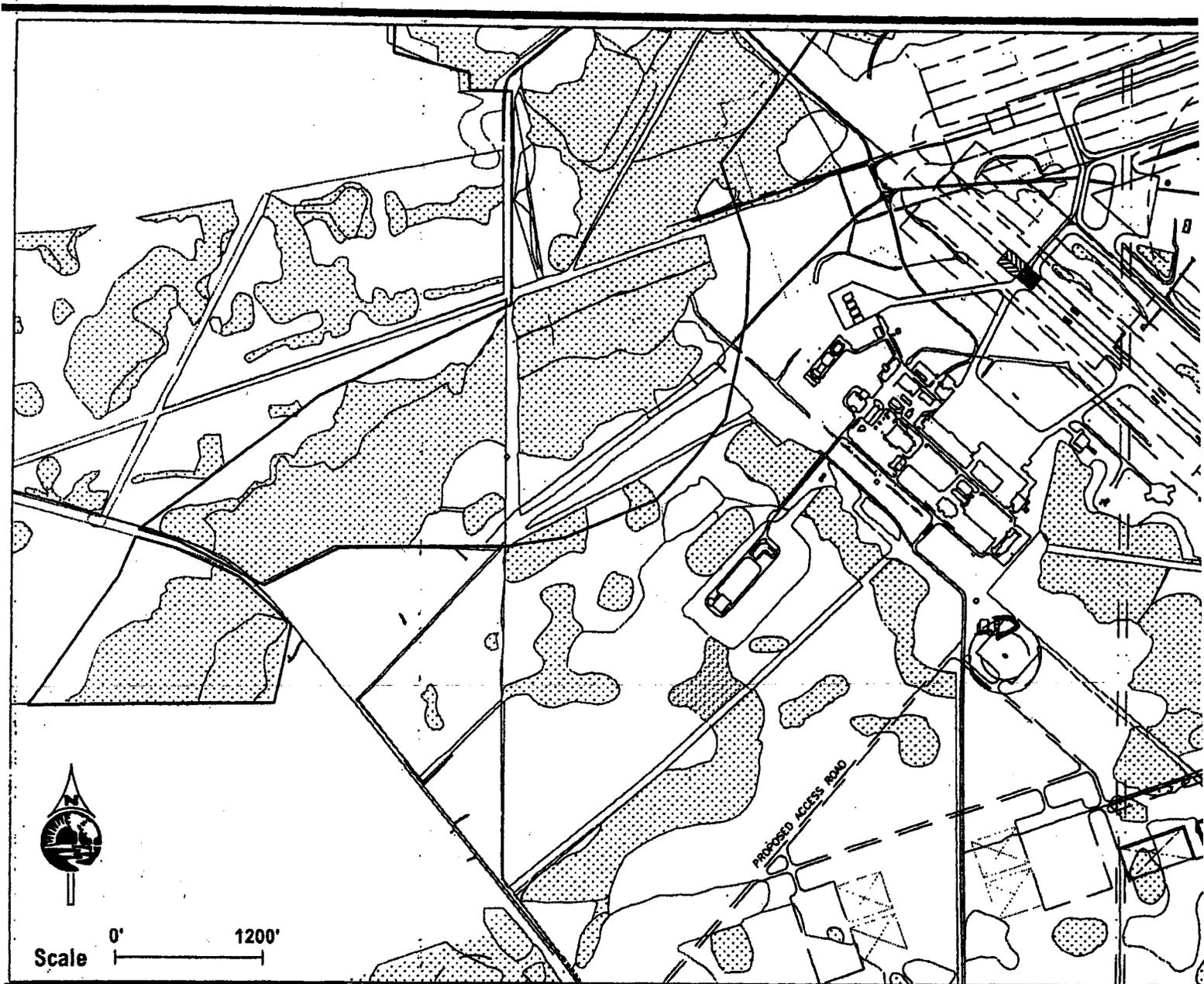
**Environmental  
Resource  
Solutions Inc.**  
1507 The Greens Way  
Suite 200  
Jacksonville Beach, FL 32250

**JIA  
Impact/Mitigation Map A**

Source:

File: 00267 COE IM R8

**U.S. ARM.  
PERMIT :  
DATE... 23  
DRAWING**



Scale 0' 1200'



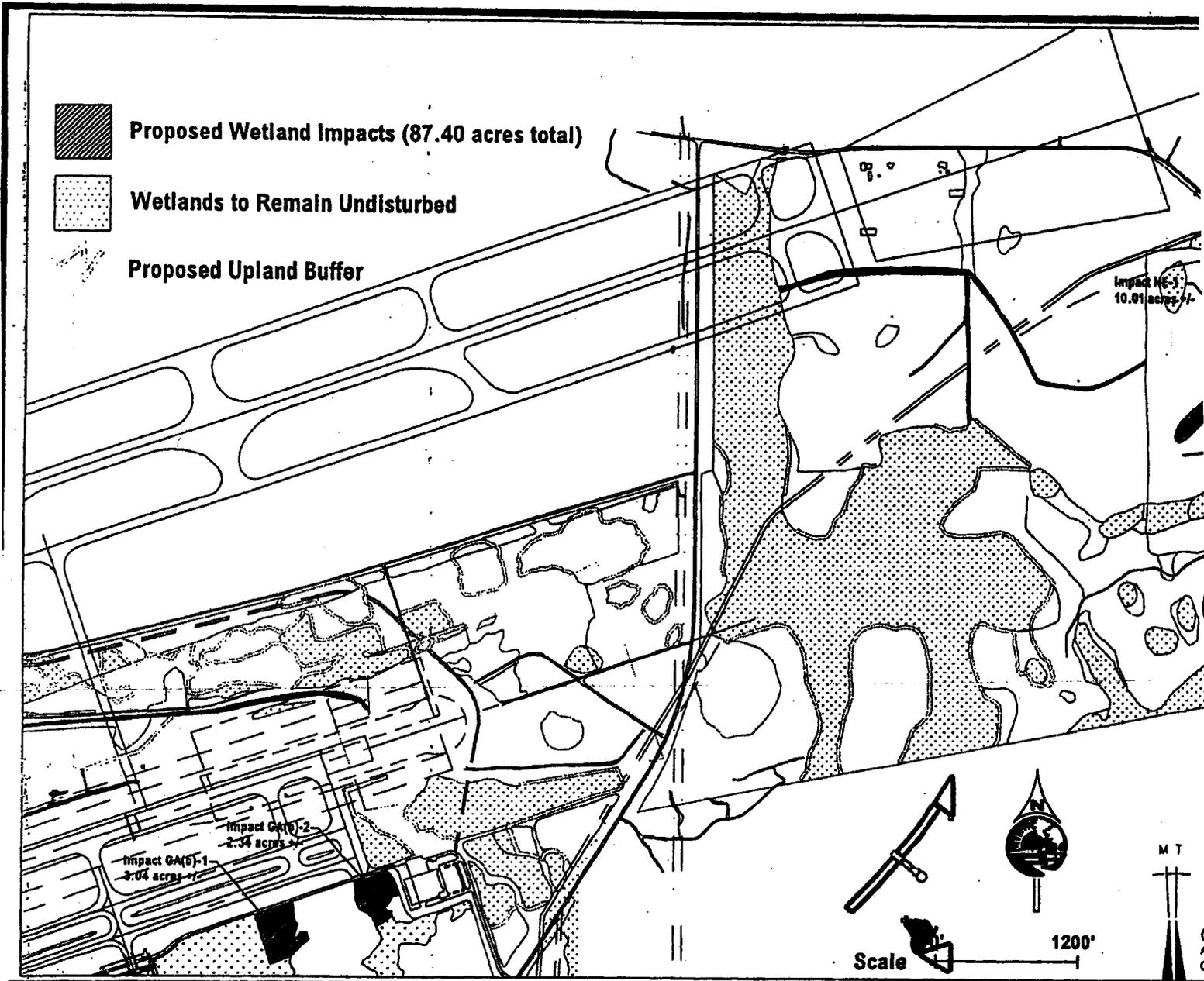
Environmental  
Resource  
Solutions Inc.  
1687 The Greens Way  
Suite 200  
Jacksonville Beach, FL 32250

**JIA  
Impact/Mitigation Map B**

Source:

File: 00267 COE IM R

**U.S ARMY  
PERMIT 2  
DATE... 29  
DRAWING**



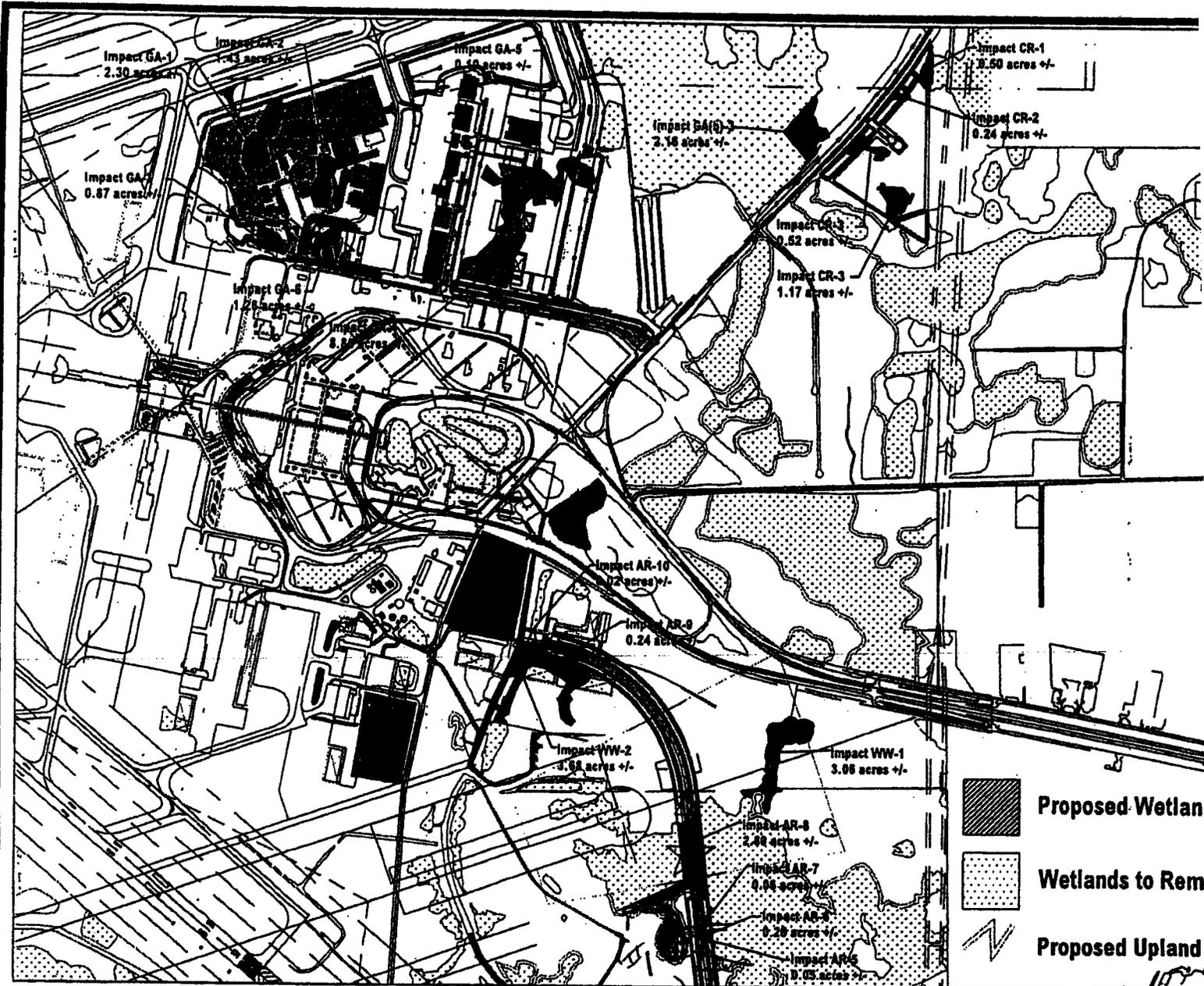
**Environmental Resource Solutions Inc.**  
 1507 The Greens Way,  
 Suite 800  
 Jacksonville Beach, FL 32250

**JIA  
 Impact/Mitigation Map C**

Source:

File: 00267 COE IM R8

**U.S. AR  
 PERMIT  
 DATE...  
 DRAWN**



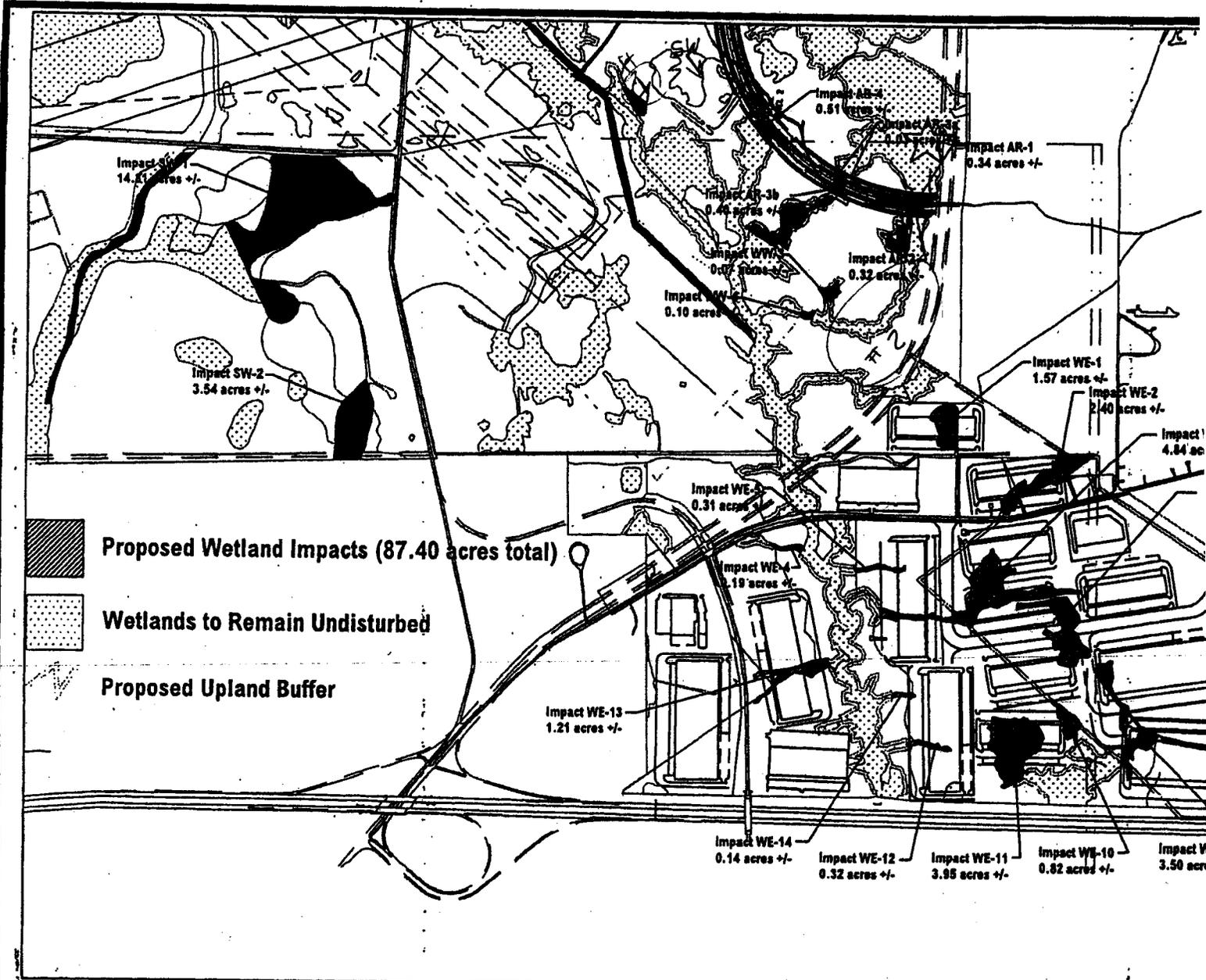
**Environmental Resource Solutions Inc.**  
 1587 The Greens Way  
 Suite 200  
 Jacksonville Beach, FL 32250

**JIA**  
**Impact/Mitigation Map D**

Source:

File: 00267 COE IM R

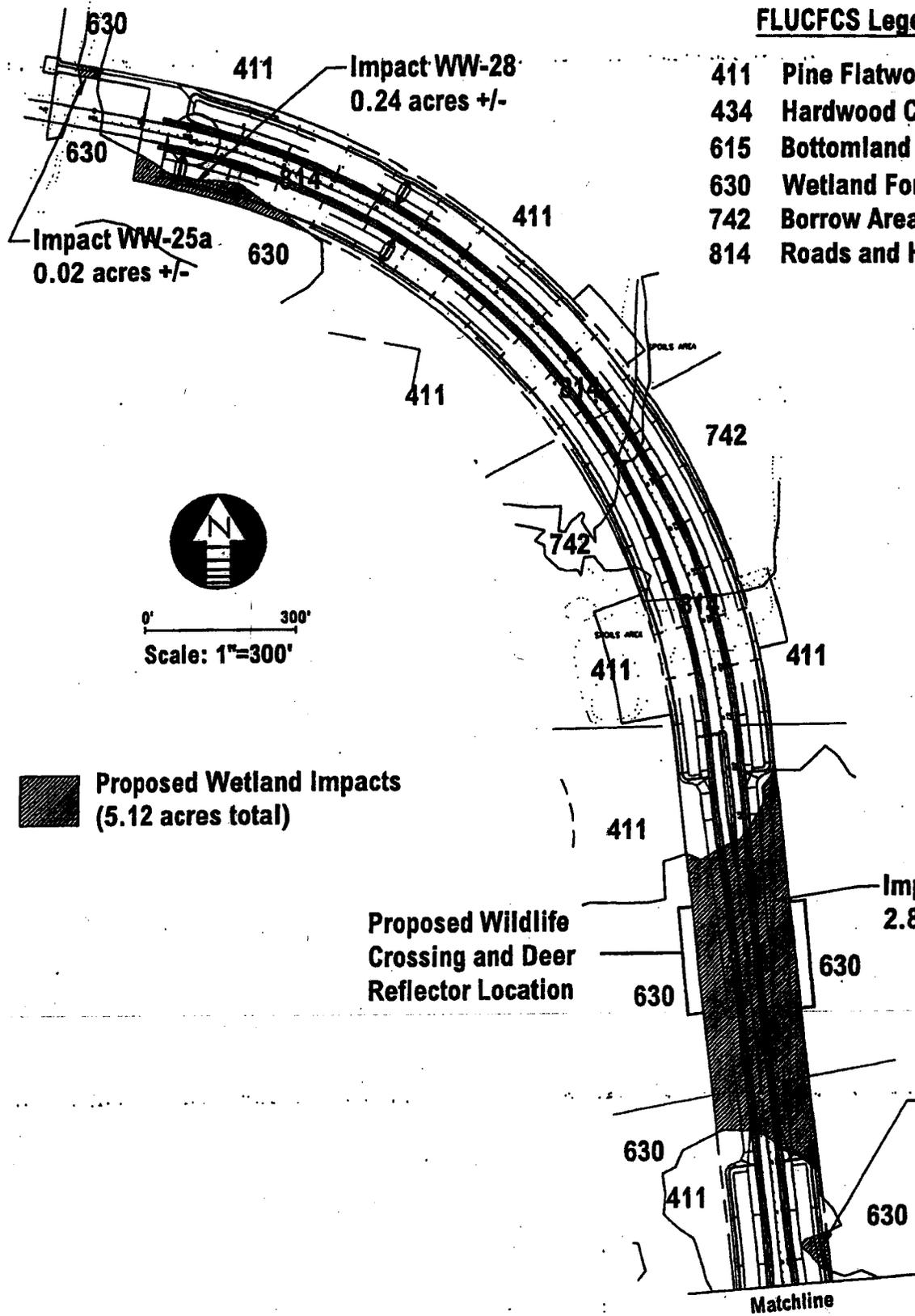
**U.S. AR**  
**PERMIT**  
**DATE... 2**  
**DRAWING**



**Environmental  
 Resource  
 Solutions Inc.**  
 1587 The Greens Way  
 Suite 200  
 Jacksonville Beach, FL 32250

**JIA  
 Impact/Mitigation Map E**

Source:	U.S. AR PERMIT
File: 00267 COE IM R	DATE...
	DRAWING



**FLUCFCS Legend**

- 411 Pine Flatwoods
- 434 Hardwood Conifer Mixed
- 615 Bottomland
- 630 Wetland Forested Mixed
- 742 Borrow Areas
- 814 Roads and Highways



0' 300'  
Scale: 1"=300'

**Proposed Wetland Impacts**  
(5.12 acres total)

**Proposed Wildlife Crossing and Deer Reflector Location**



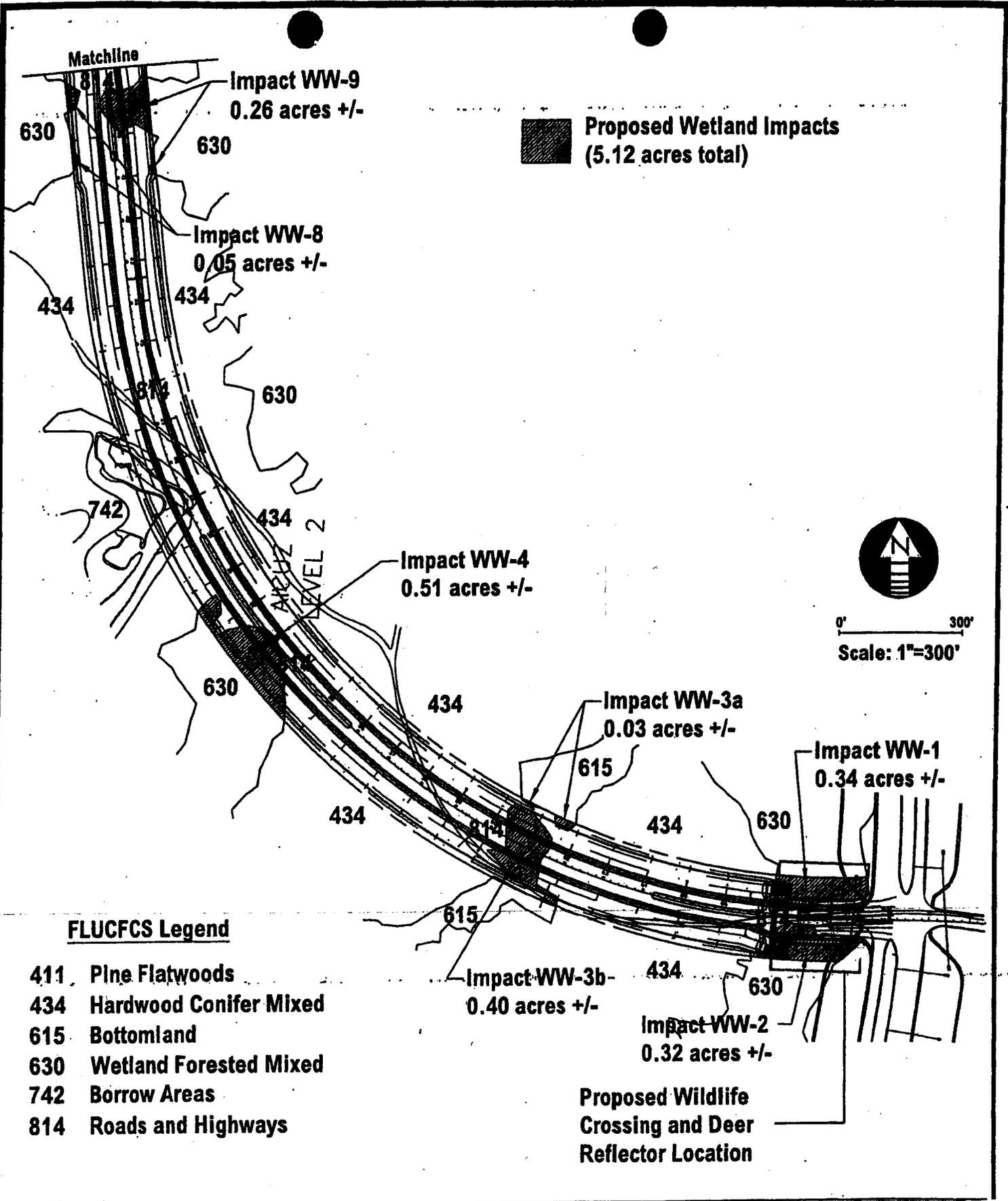
**Environmental Resource Solutions Inc.**  
1607 The Greens Way,  
Suite 200  
Jacksonville Beach, FL 32260

**JIA Air Cargo Alternate Access Road Site Plan/Proposed Conditions FLUCFC**

Source: Praxair, Hallock, Inc.

File: 002674aCOE.dwg

**U.S ARMY CORPS OF ENGINEERS**  
**PERMIT 200005079 (IP-BAL)**  
**DATE... 29 October 2003**  
**DRAWING PAGE 7 OF 12**



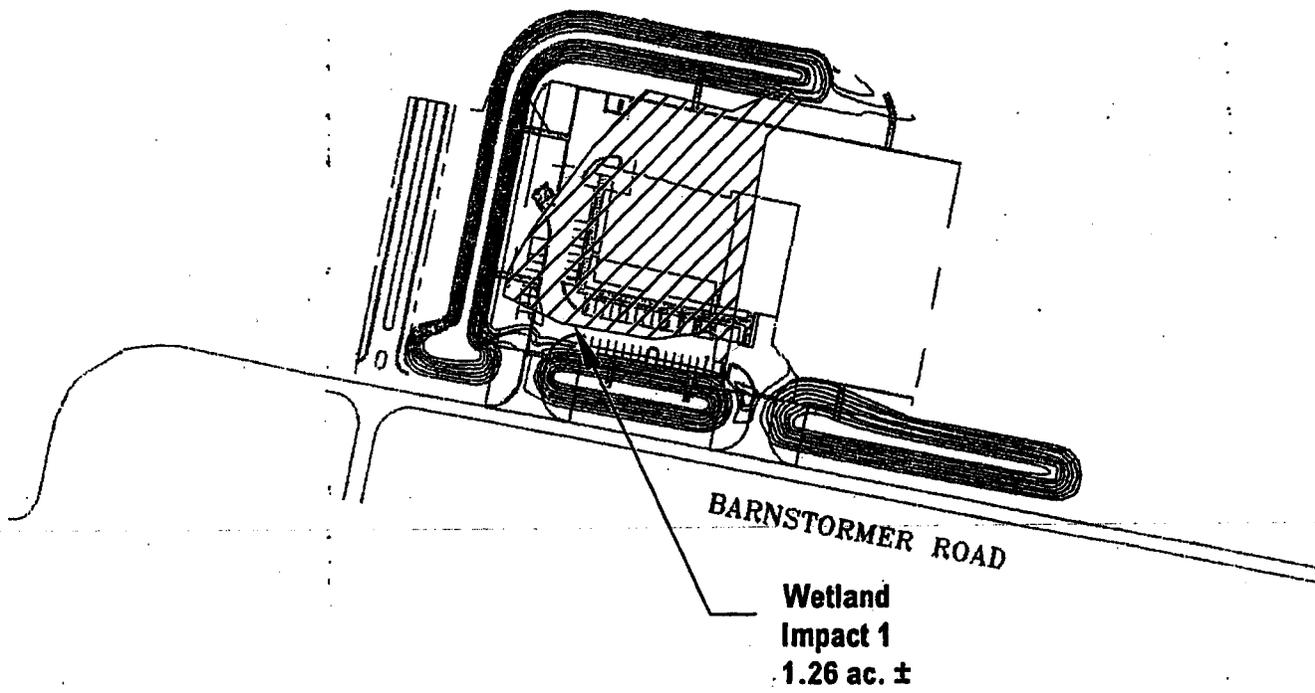
Environmental Resource Solutions Inc.  
1697 The Greens Way, Suite 200  
Jacksonville Beach, FL 32280

**JIA Air Cargo Alternate Access Road Site Plan/Proposed Conditions FLUCFCS**

Source: Prosser, Kolbeck, Inc. File: 002674bCOE.dwg

**U.S. ARMY CORPS OF ENGINEERS**  
**PERMIT 200005079 (IP-BAL)**  
 DATE... 29 October 2003  
 DRAWING PAGE 8 OF 12





Environmental  
Resource  
Solutions Inc.  
1697 The Green Way  
Suite 200  
Jacksonville Beach, FL 32250

**CSX Development  
Wetland Impact Map**

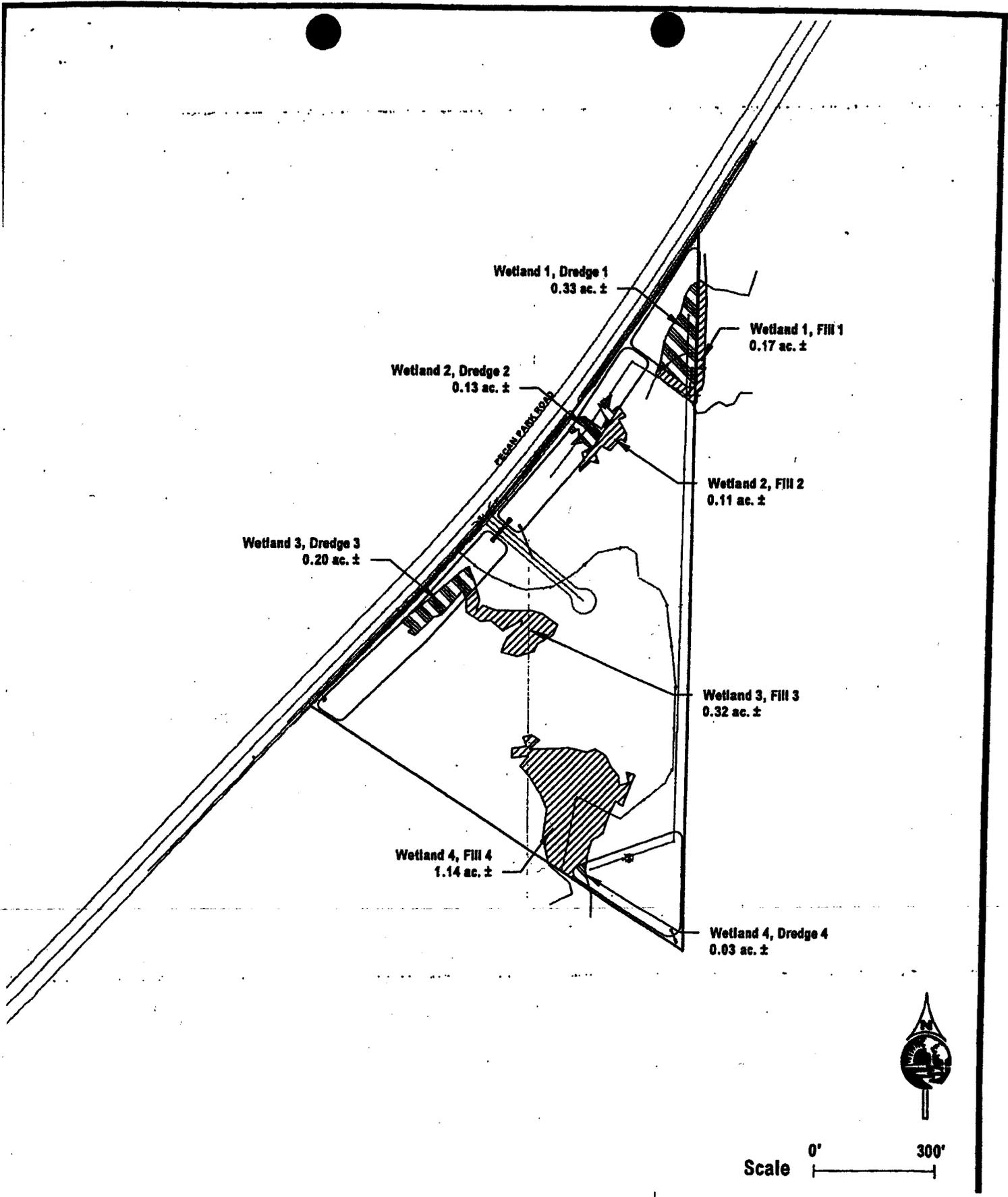
Source:

File: 02311 csxImpact

Proj

Date

By: J



**Environmental  
Resource  
Solutions Inc.**  
1597 The Greens Way  
Suite 200  
Jacksonville Beach, FL 32250

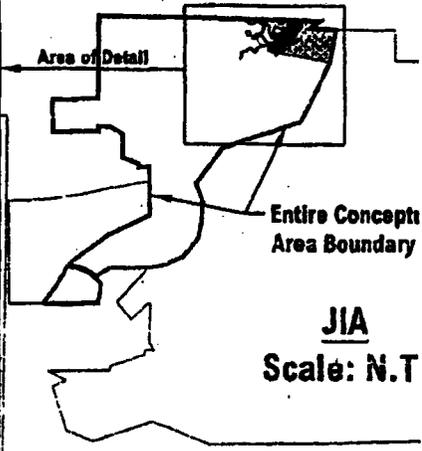
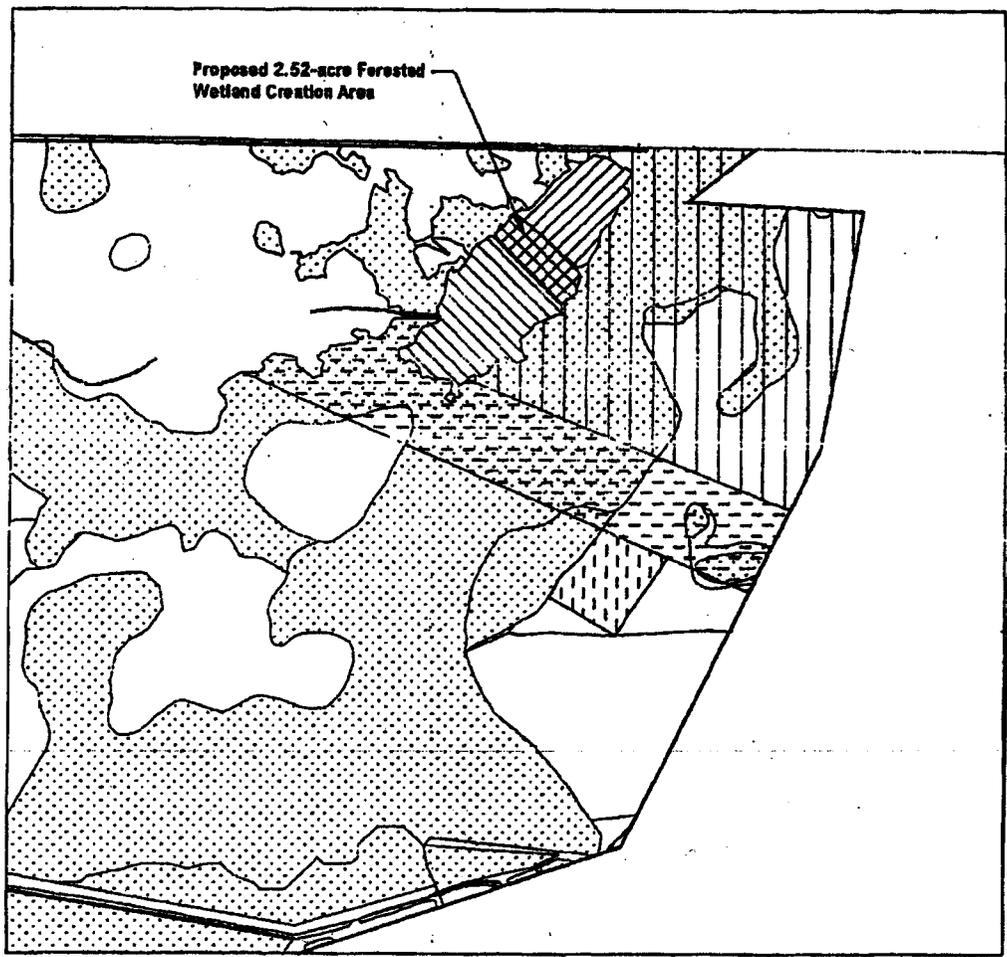
**JIA Car Rental Facility  
Impact Map**

Source:

File: 02311 Car Imp

**U.S ARMY CORPS OF ENGINEERS**  
**PERMIT 200005079 (IP-BAL)**  
**DATE... 29 October 2003**  
**DRAWING PAGE 11 OF 12**

Oct 31 03 10:40a ERS, INC 904-285-1929 p. 4



JIA  
Scale: N.T

-  2.52-acre Herbaceous Wetland Cr Proposed for CSX Corporate Hangar
-  59.33-acre Preservation Area Prev Under Permit No. 4-031-17756-4
-  5.14-acre Forested Wetland Crea Previously Permitted Under Permit
-  9.06-acre Excess Forested Wetland Previously Permitted Under Permit
-  32.10-acre Wetland/Upland Preser Permitted Under Permit No. 4-031-
-  5.00-acre Additional Upland Preser Permitted Under Permit No. 4-031-
-  Approximate Extent of Mitigation A



**Environmental Resource Solutions Inc.**  
 2640 The Greenway, Suite 3  
 Jacksonville Beach, FL 32250

## CSX Corporate Hangar Mitigation Plan Exhibit

Source: \_\_\_\_\_

File: 02311CSXMITPI

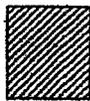
U. S. ARMY  
PERMIT  
DATE... 2  
DRAWING



Proposed Forested Wetland Creation  
(Approx. 102 acres total)



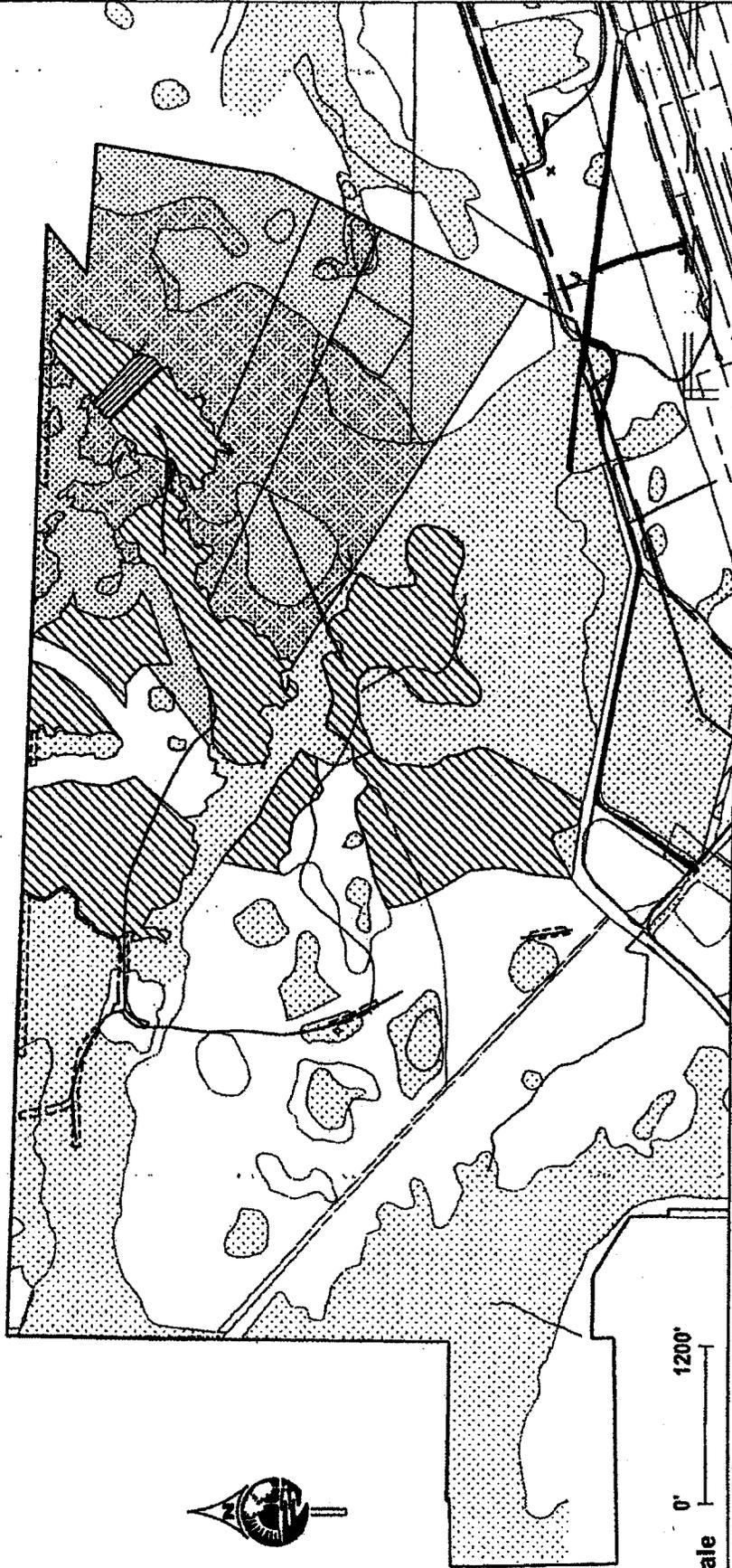
Proposed Herbaceous Wetland Creation  
(Approx. 2.52 acres total)



Proposed Preservation to be Immediately Placed Under  
Conservation Easement (Approx. 202 acres total)



Proposed Forested Wetland Restoration  
(Approx. 1.60 acre total)



Scale 0' 1200'



Environmental  
Resource  
Solutions Inc.  
3414 N. Greenway  
Jacksonville Beach, FL 32250

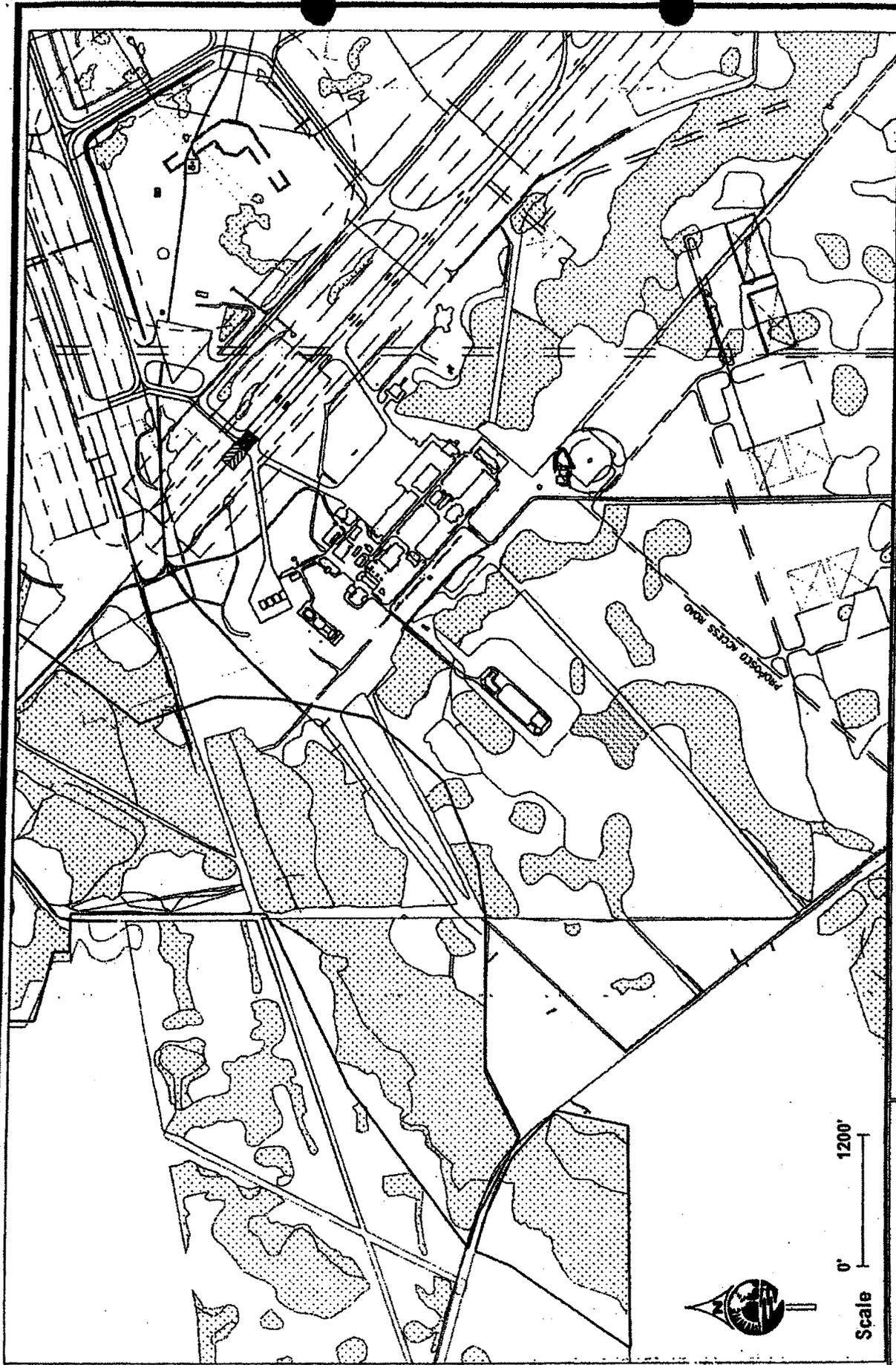
# JIA Impact/Mitigation Map A

Source:

U. S. ARMY CORPS OF ENGINEERS  
PERMIT 200005079 (IP-BAL)

DATE: 29 October 2003

File: 00267 COE IM R8; DRAWING PAGE 2 OF 12



U.S. ARMY CORPS OF ENGINEERS  
 PERMIT 200005079 (IP-BAL)  
 DATE... 29 October 2003  
 DRAWING PAGE 3 OF 12

Source:  
 File: 00267 COE IM R/

**JIA**  
**Impact/Mitigation Map B**

Environmental  
 Resource  
 Solutions Inc.  
 1000 1st Avenue SW  
 Huntsville, AL 35894

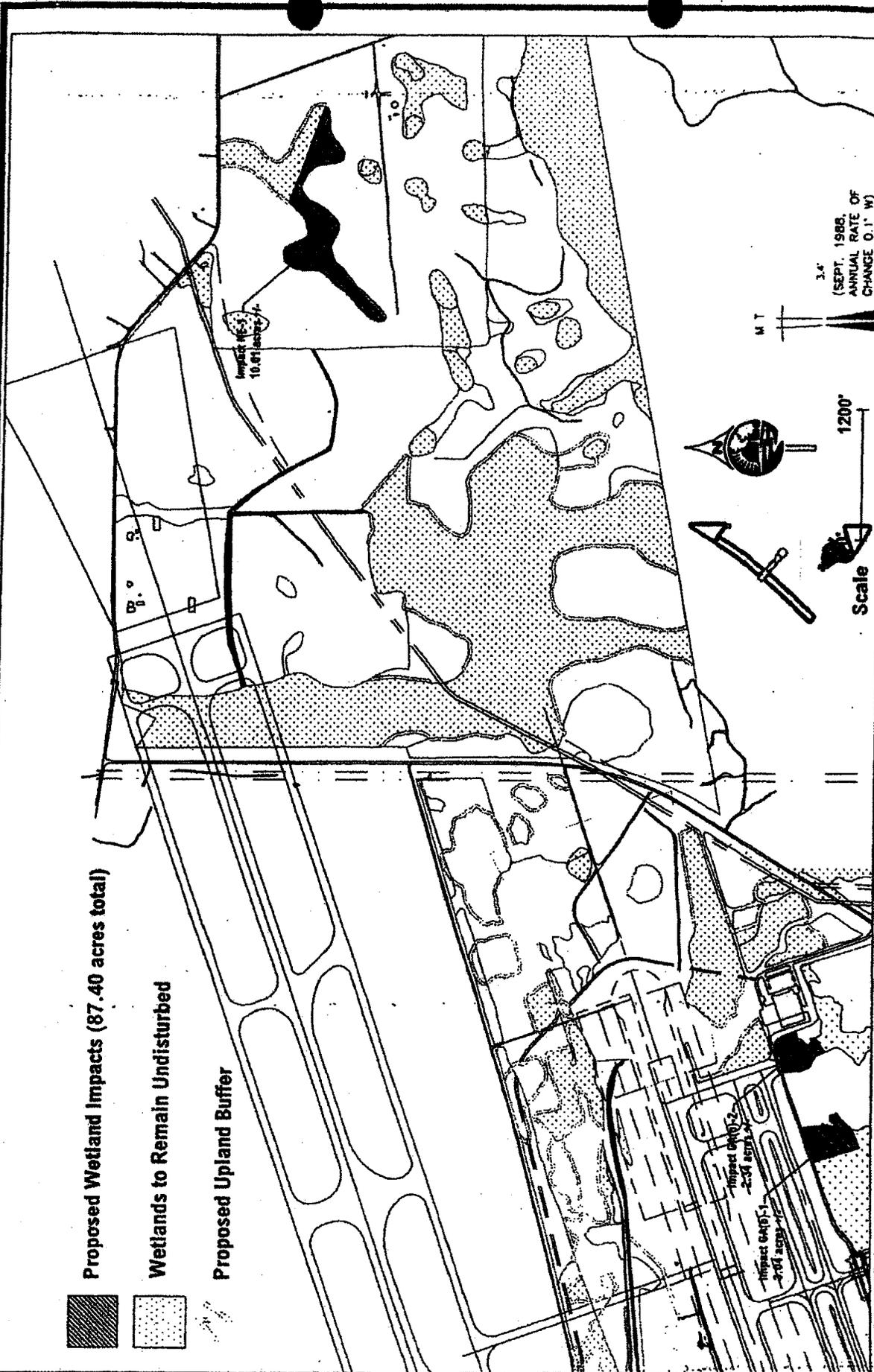


Scale 0' 1200'

Proposed Wetland Impacts (87.40 acres total)

Wetlands to Remain Undisturbed

Proposed Upland Buffer



3.4'  
(SEPT. 1988,  
ANNUAL RATE OF  
CHANGE 0.1" W)

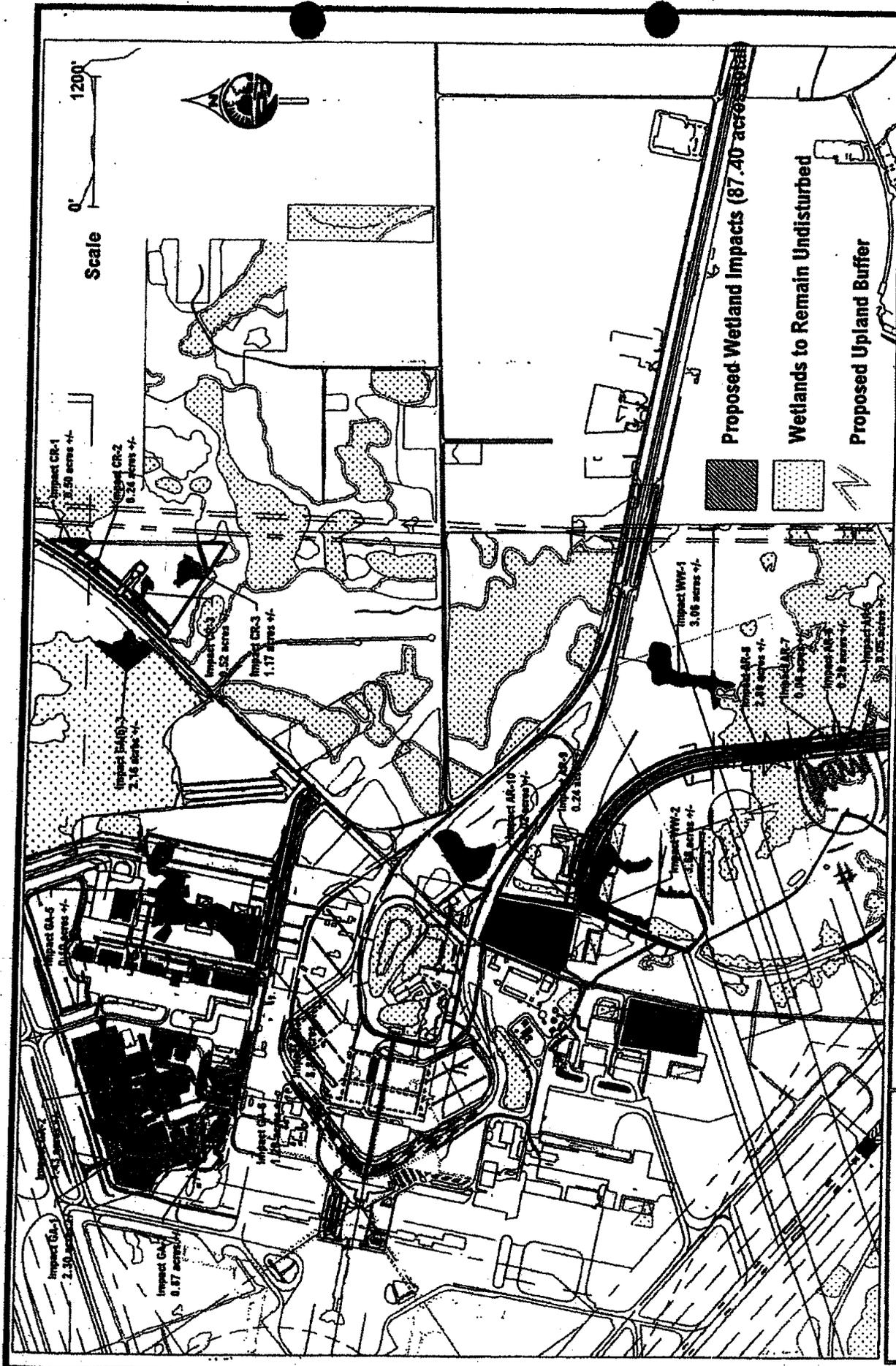


**Environmental  
Resource  
Solutions Inc.**  
1587 The Greens Way  
Suite 200  
Jacksonville, FL 32216

**JIA  
Impact/Mitigation Map C**

Source:  
File: 00267 COE IM R8

**U. S ARMY CORPS OF ENGINEERS  
PERMIT 200005079 (IP-BAL)  
DATE... 29 October 2003  
DRAWING PAGE 4 OF 12**

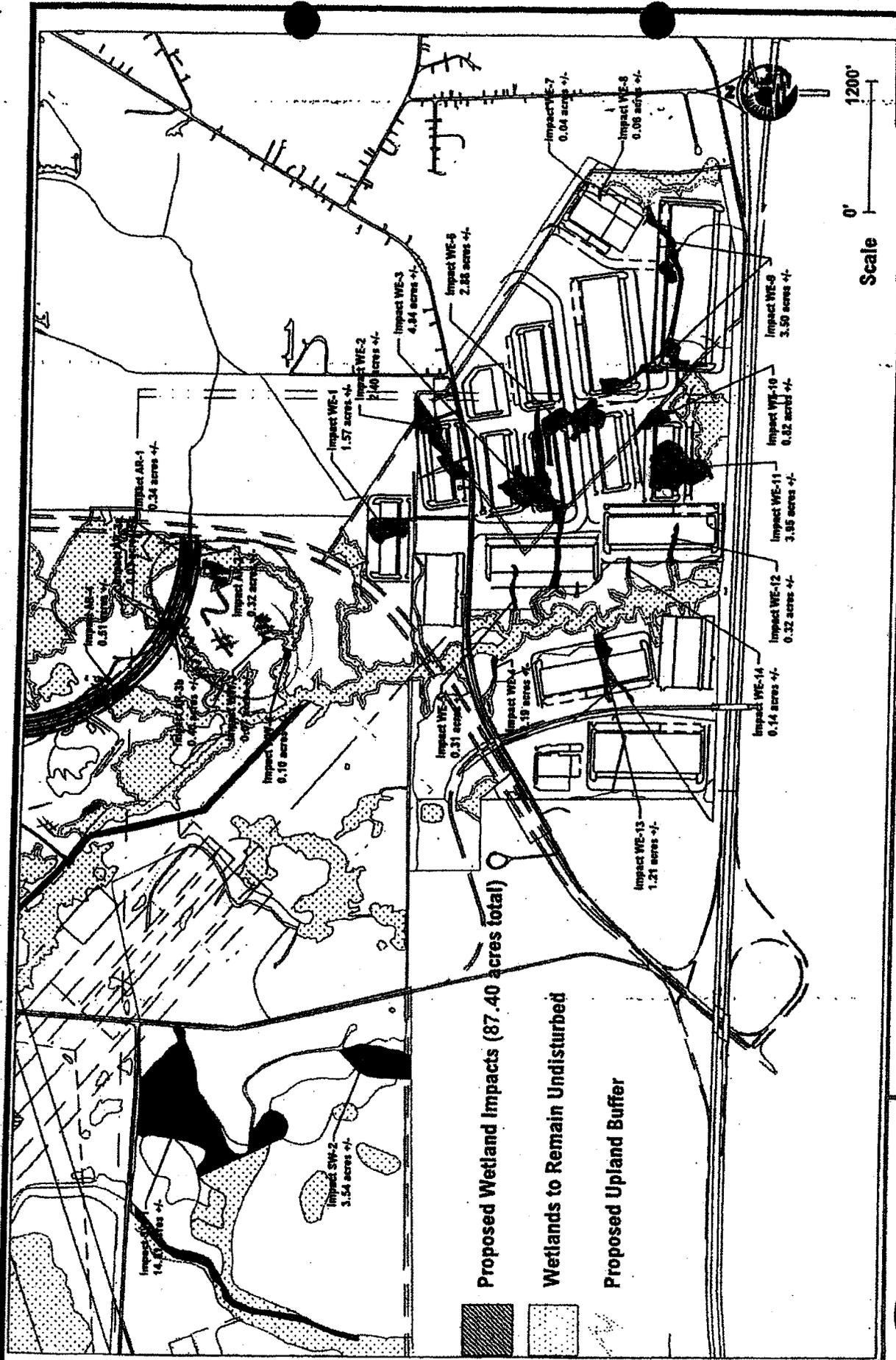


Source: U.S. ARMY CORPS OF ENGINEERS  
 PERMIT 200005079 (IP-BAL)  
 DATE: 29 October 2003  
 File: 00267 COE IM R  
 DRAWING PAGE 5 OF 12

**JIA**  
**Impact/Mitigation Map D**



**Environmental  
 Resource  
 Solutions Inc.**  
 Suite 100  
 Asheville, NC 28806



U.S. ARMY CORPS OF ENGINEERS  
 PERMIT 200005079 (IP-BAL)  
 DATE: 29 October 2003  
 DRAWING PAGE 6 OF 12

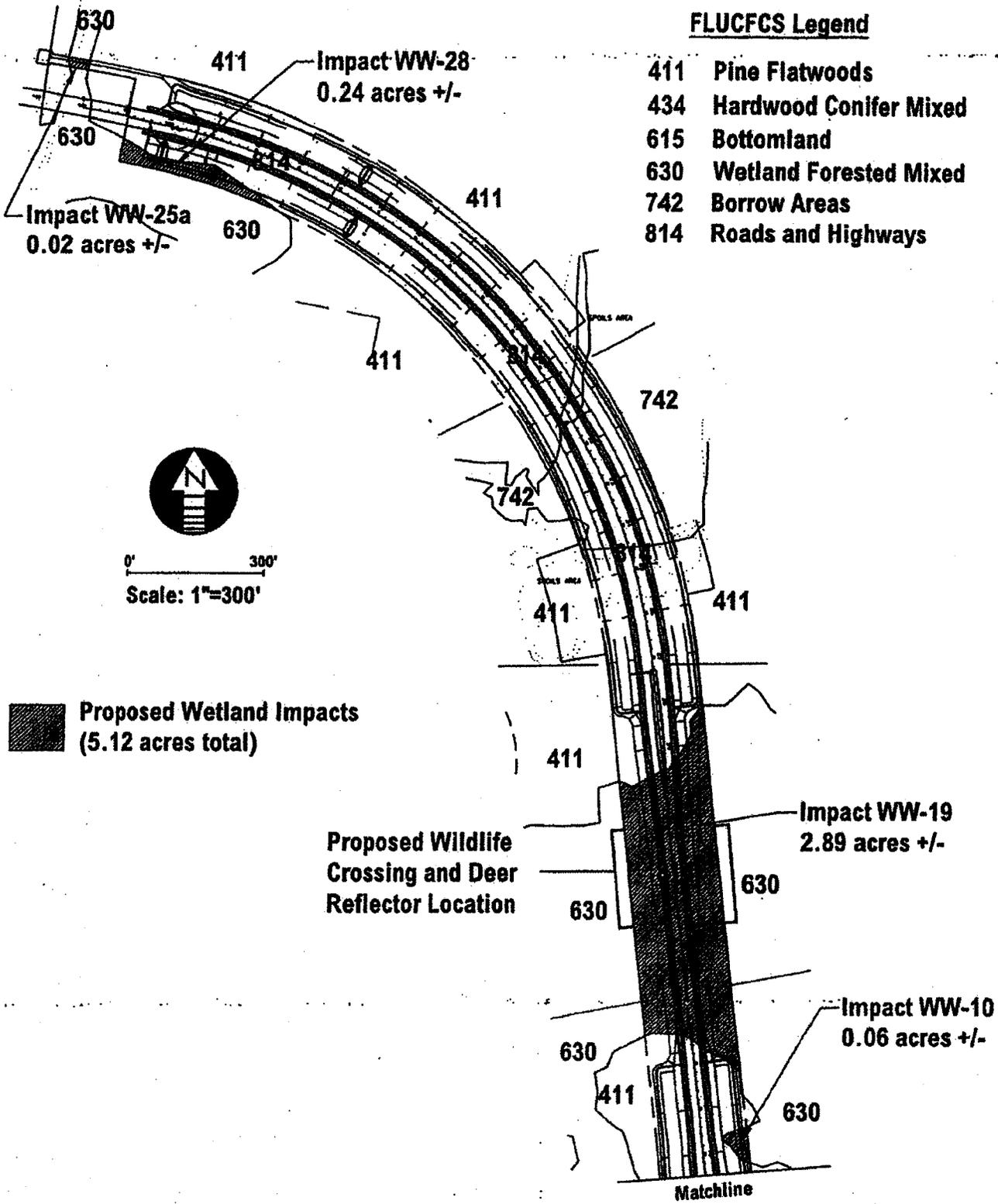
Source:  
 File: 00267 COE IM R3

**JJA**  
**Impact/Mitigation Map E**

Environmental  
 Resource  
 Solutions Inc.  
 5407 The Greenway  
 Suite 200  
 Jacksonville Beach, FL 32250

**FLUCFCS Legend**

- 411 Pine Flatwoods
- 434 Hardwood Conifer Mixed
- 615 Bottomland
- 630 Wetland Forested Mixed
- 742 Borrow Areas
- 814 Roads and Highways

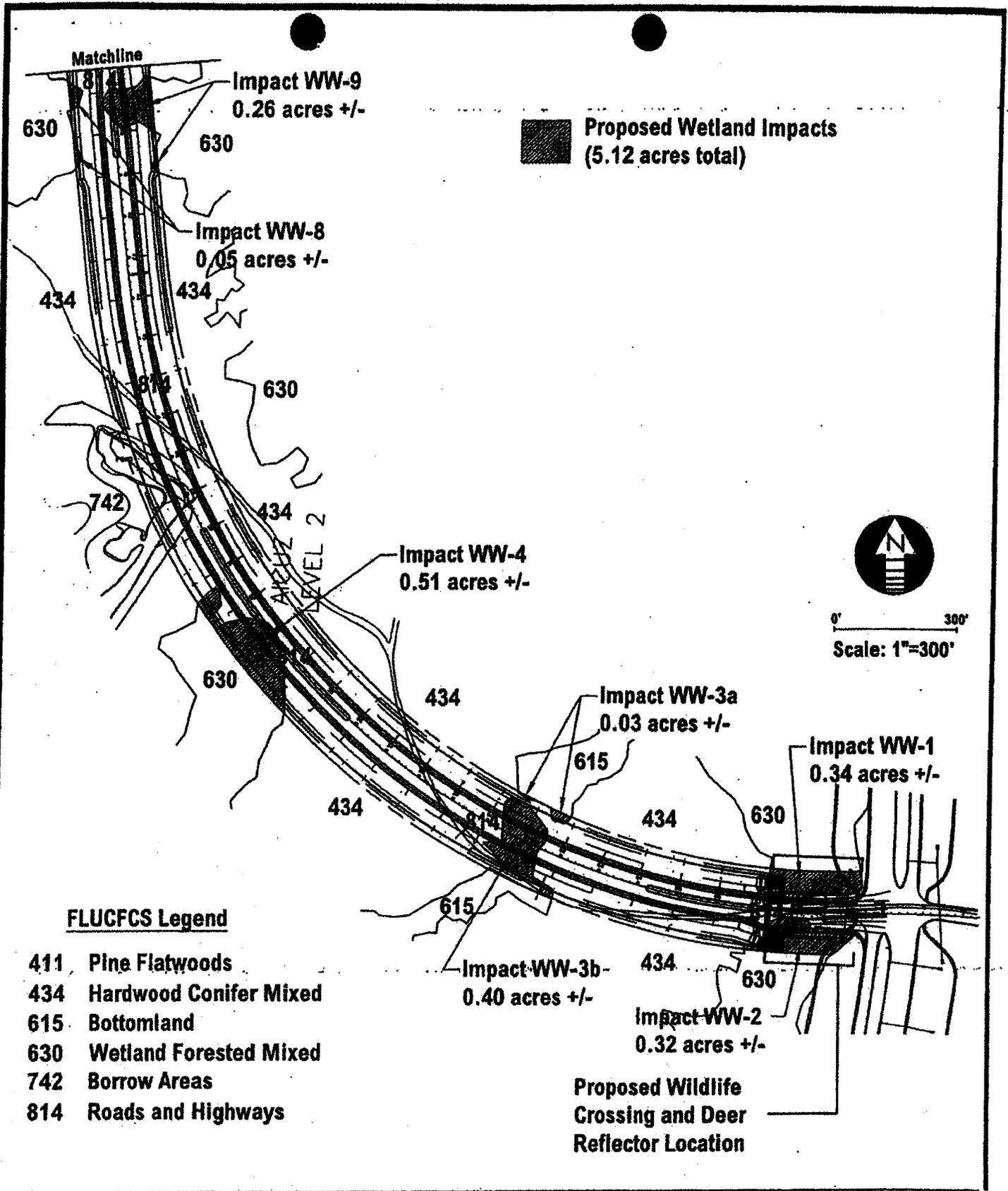


**Environmental Resource Solutions Inc.**  
1607 The Greens Way,  
Suite 800  
Jacksonville Beach, FL 32250

**JIA Air Cargo Alternate Access Road  
Site Plan/Proposed Conditions FLUCFC**

Source: Pratt, Huff, Inc. File: 002674aCOE.dwg

**U.S ARMY CORPS OF ENGINEERS**  
PERMIT 200005079 (IP-BAL)  
DATE... 29 October 2003  
DRAWING PAGE 7 OF 12



**FLUCFCS Legend**

- 411 Pine Flatwoods
- 434 Hardwood Conifer Mixed
- 615 Bottomland
- 630 Wetland Forested Mixed
- 742 Borrow Areas
- 814 Roads and Highways

**Proposed Wildlife  
Crossing and Deer  
Reflector Location**

Environmental  
Resource  
Solutions Inc.  
1807 The Greens Way,  
Suite 200  
Jacksonville Beach, FL 32250

**JIA Air Cargo Alternate Access Road  
Site Plan/Proposed Conditions FLUCFC**

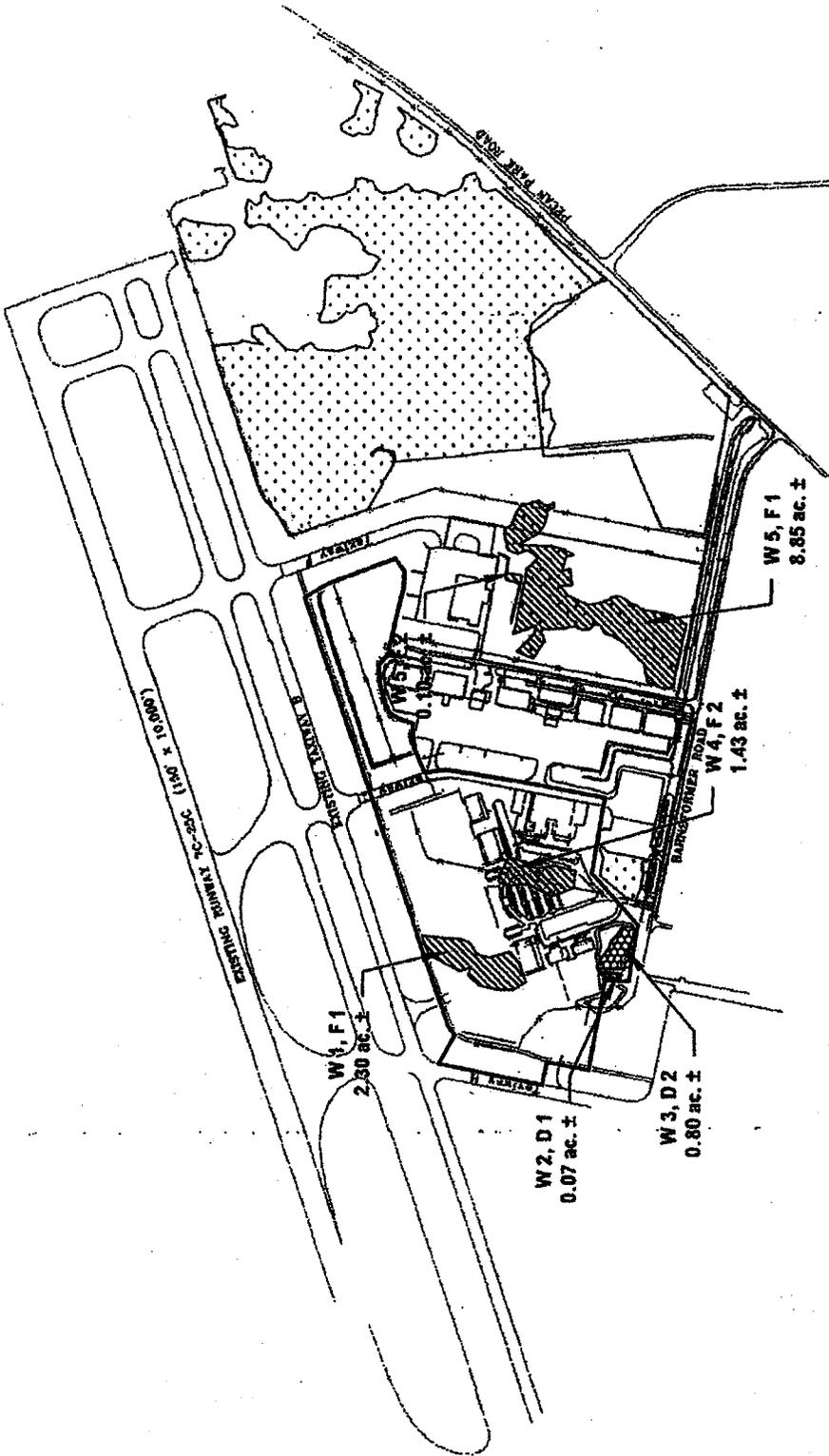
Source: Proton, collect, inc. File: 002674bCOE.dwg

**U.S. ARMY CORPS OF ENGINEERS  
PERMIT 200005079 (IP-BAL)**  
DATE... 29 October 2003  
DRAWING PAGE 8 OF 12

U.S. ARMY CORPS OF ENGINEERS  
 PERMIT 200005079 (IP-BAL)  
 DATE... 29 October 2003  
 DRAWING PAGE 9 OF 12



Scale: 1"=1000'



Legend	
	Wetland Fill Impact 3.73 ac. ±
	Wetland Dredge Impact 0.87 ac. ±

Source:	Project No.: 02311
File: 02311 Impact R4	Date: 4-22-03 Rev: 9-24-03
	By: JEM Exhibit No: 4

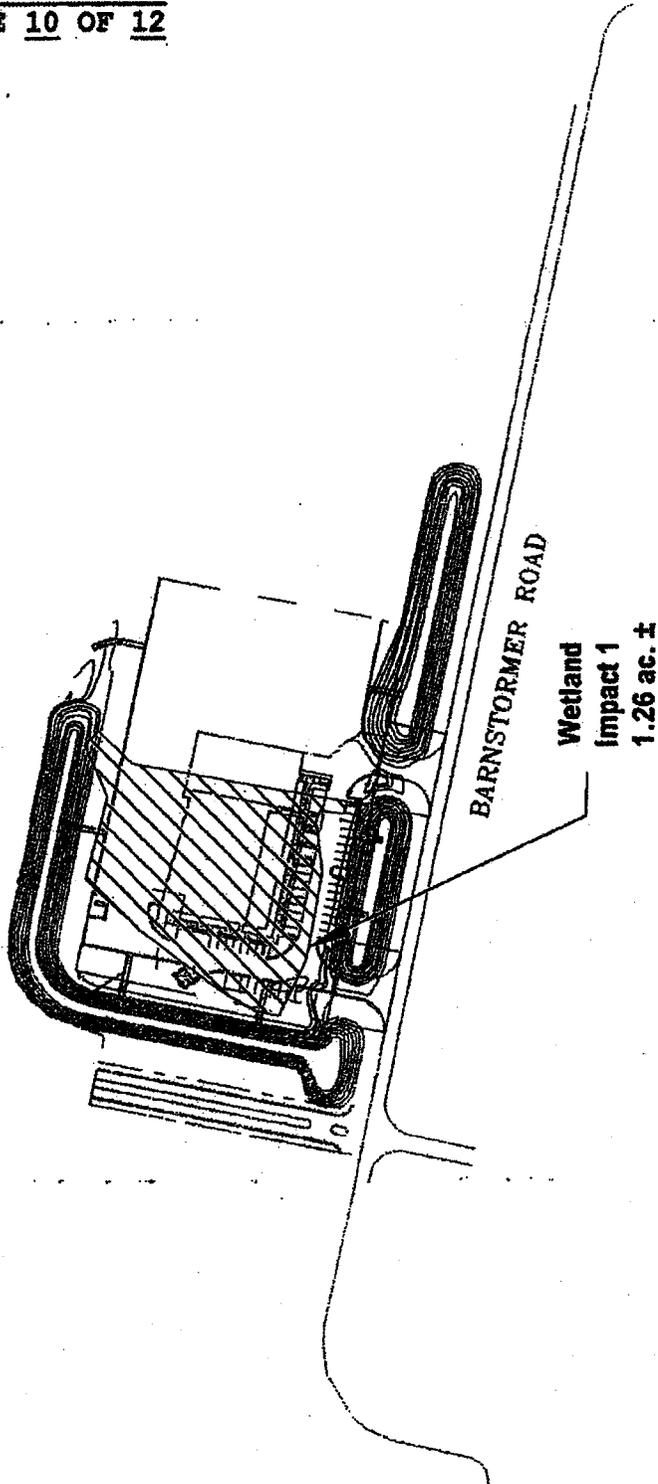
## JIA GA Development Wetland Impact Map

Environmental  
 Resource  
 Solutions Inc.  
 1587 The Greenway  
 Suite 200  
 Jacksonville Beach, FL 32209

U.S. ARMY CORPS OF ENGINEERS  
PERMIT 200005079 (IP-BAL)  
DATE... 29 October 2003  
DRAWING PAGE 10 OF 12



Scale: 1"=200'



Source:

Project No.: 02311;

Date: 5-6-03 Rev:

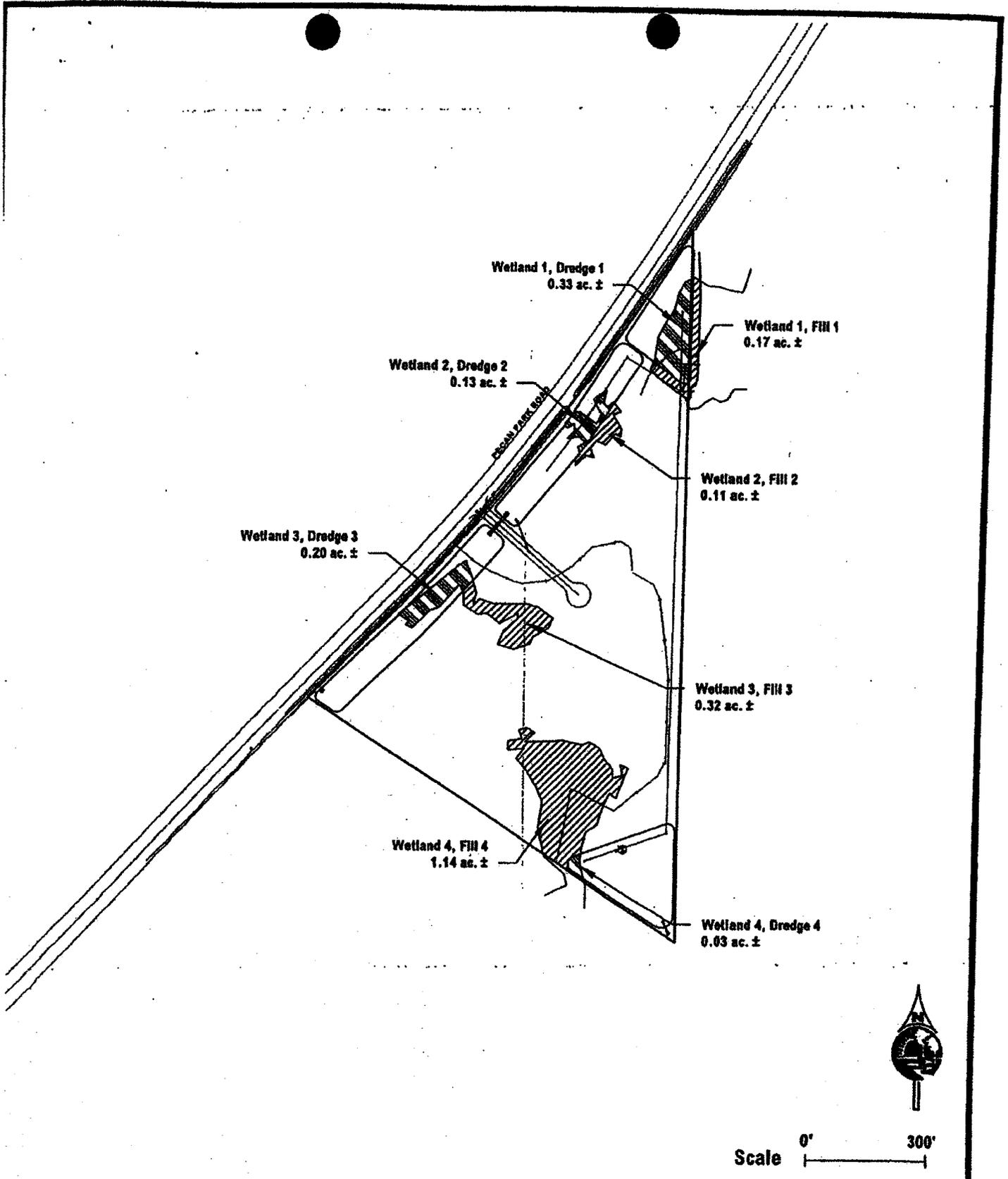
By: JK Exhibit No: 4

File: 02311 csa/Impact

### CSX Development Wetland Impact Map

Environmental  
Resource  
Solutions Inc.  
1047 The Green Way  
Suwannee Beach, FL 32250





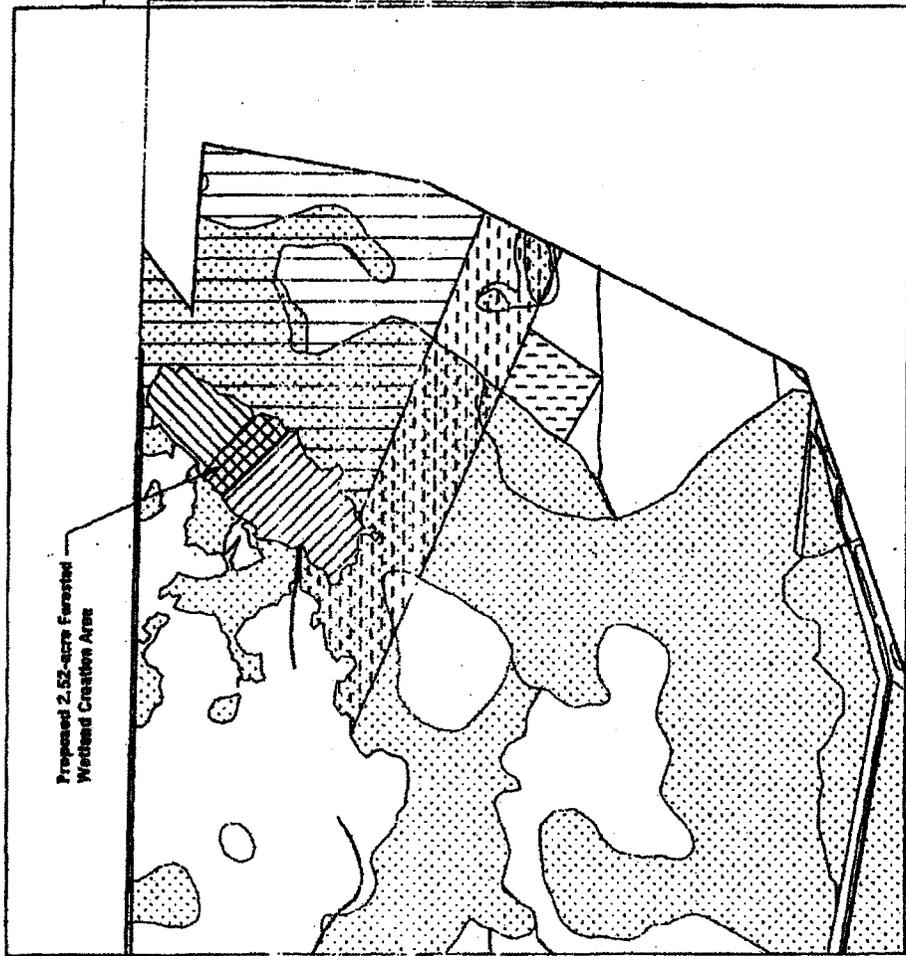
**Environmental  
Resource  
Solutions Inc.**  
1587 The Greens Way  
Suite 200  
Jacksonville Beach, FL 32250

**JIA Car Rental Facility  
Impact Map**

Source:

File: 02314 Car Imp

**U.S ARMY CORPS OF ENGINEERS**  
**PERMIT 200005079 (IP-BAL)**  
**DATE 29 October 2003**  
**DRAWING PAGE 11 OF 12**



Entire Conceptual Mitigation Area Boundary

JIA

Scale: N.T.S.



- 2.52-acre Herbaceous Wetland Creation Area Proposed for CSX Corporate Hangar Project
- 59.33-acre Preservation Area Previously Permitted Under Permit No. 4-031-17758-4
- 5.14-acre Forested Wetland Creation Area Previously Permitted Under Permit No. 4-031-17758-4
- 9.06-acre Excess Forested Wetland Creation Area Previously Permitted Under Permit No. 4-031-17758-4
- 32.10-acre Wetland/Upland Preservation Area Previously Permitted Under Permit No. 4-031-17758-6
- 5.00-acre Additional Upland Preservation Area Previously Permitted Under Permit No. 4-031-17758-6
- Approximate Extent of Mitigation Area Wetlands



Scale: 1"=1000'

Source:

## CSX Corporate Hangar Mitigation Plan Exhibit



U.S. ARMY CORPS OF ENGINEERS  
 PERMIT 200005079 (IP-BAL)  
 DATE: 29 October 2003  
 DRAWING PAGE 12 OF 12

File: 02311CSXMHPI

















