MICHAEL J. SMITH AIRPORT
BEAUFORT, NORTH CAROLINA

FINAL REPORT

ENVIRONMENTAL ASSESSMENT
FOR THE EXTENSION OF RUNWAY 26

PREPARED FOR:
BEAUFORT-MOREHEAD CITY AIRPORT AUTHORITY

PREPARED BY:
DELTA AIRPORT CONSULTANTS, INC.

NOVEMBER 1999

TABLE OF CONTENTS

TABLE OF CONTENTS

CHAPTER **PAGE NO.**

LIST OF TABLES

EXHIBITS

APPENDIX

I. PURPOSE AND NEED

A. Description of Project

Michael J. Smith Field is a general aviation, facility located in the east-southeast portion of North Carolina. The airport is owned and operated by the Beaufort-Morehead City Airport Authority and provides service to Beaufort and Morehead City, as well as the outlying regions of Carteret County and the southernmost portions of Pamlico and Craven Counties. The Beaufort-Morehead City Airport Authority proposes to extend Runway 8-26 consistent with the extension depicted on the current Airport Layout Plan. The proposed project will not extend Runway 8-26 to its ultimate length of 5,500 feet. However, Runway 26 will be extended 751 feet in the direction as depicted on the ALP to a length of 5,000 feet.

Long-term 5,500'

Short term 5,000'

B. Project Background

Over the past two decades, the Beaufort-Morehead City region has made significant advances in economic diversification. There has been a shift from agriculture and related products to service oriented industries such as finance, insurance, real estate and several tourist related industries. Subsequent high growth in the supporting construction industry has also taken place.

Tourism and recreation are major factors in the local service industry economy. The area's extensive shoreline resources make it a primary vacation draw during the warm weather months. Local lodging and food service industries continue to benefit in the autumn months with the renowned sport fishing tournaments.

As the Town, County, and the region continue to grow, Michael J. Smith Field has experienced increased activity. Carteret County is one of the fastest growing counties in the State. Basic demographics have demonstrated a natural tendency for retirees and young families to migrate toward the coastal communities such as Carteret County. Although general aviation as a whole is currently experiencing very modest growth, the one segment which is experiencing growth is the multi-turbine and business jet fleet. Restaurant franchises, corporate based department stores, and several small businesses operate these type of aircraft throughout the region in day to day business operations.

The primary runway (RW 08/26) at the airport has a length of 4,249 feet. This length does not provide the balanced field length needed by today's corporate aircraft users to fly normal payloads and stage normal length trips. Under wet conditions and during high temperatures, the problem is compounded. A longer runway is needed for the corporate users of the airport and to provide increased levels of safety for all users.

C. Forecast of Activity

Aviation activity anticipated for Michael J. Smith Field projects 98 based aircraft in the year 2002 and 113 based aircraft in the year 2012. Operations are projected to range from 70,460 in the year 2002 to 81,250 in the year 2012. These forecasts were taken from the Airport Master Plan Update completed in 1994, see Table 1-1. The airport currently has 86 based aircraft and an estimated 52,500 operations per year.

The national trend underway in the general aviation fleet is toward a heavier, more sophisticated aircraft fleet. The based aircraft fleet at Michael J. Smith Field is expected to follow this trend. For example, within the last several months airport officials learned of a company's intent to base two (2) Citation series jets at the airport. Therefore, it is anticipated that during the planning period total operations will increase the percentage of operations performed by piston aircraft will decrease while the percentage of operations by multi-engine

turbine, business jet, and rotor aircraft will increase. In other words, larger aircraft will have a higher percentage of operation over the long term period.

TABLE 1-1
MICHAEL J. SMITH FIELD
FORECAST SUMMARY

FORECAST ELEMENT		YEAR 1992	1997	2002	2012
TOTAL OPERATIONS		48,900	61,115	70,460	81,250
OPERATIONAL MIX	Local	20,538	25,668	29,593	34,125
	Itinerant	28,362	354,478	40,867	47,125
OPERATIONS BY AIRCRAFT TYPE					
Single Engine		44,010	53,170	58,130	64,594
Multi-Piston		2,934	4,228	6,341	8,125
Multi-Turbine		1,222	1,833	2,818	4,064
Business Jet		489	1,222	1,762	2,438
Rotorcraft		245	612	1,409	2,030
TOTAL BASED AIRCRAFT		**68**	**85**	**98**	**113**
INSTRUMENT APPROACHES		**72**	**252**	**576**	**755**

Source: Delta Airport Consultants, Inc. Analysis

D. Time Frame for the Project

When this Environmental Assessment is approved by the State, the Beaufort-Morehead City Airport Authority will submit a preapplication for funding to the State as soon as possible. Therefore, it is estimated that the project will be under construction within twelve (12) months of State approval and completed within 24 months.

E. Requested State Action

The Beaufort-Morehead City Airport Authority is requesting State approval to extend the Runway 26 approach end of Runway 08/26. The requested action will involve the design and construction of a 751' x 100' wide runway extension. The construction of the project will include grading, drainage, paving, lighting, land acquisition, seeding and mulching.

II. ALTERNATIVES

A. ALTERNATIVES CONSIDERED

not relocate as recommended by us

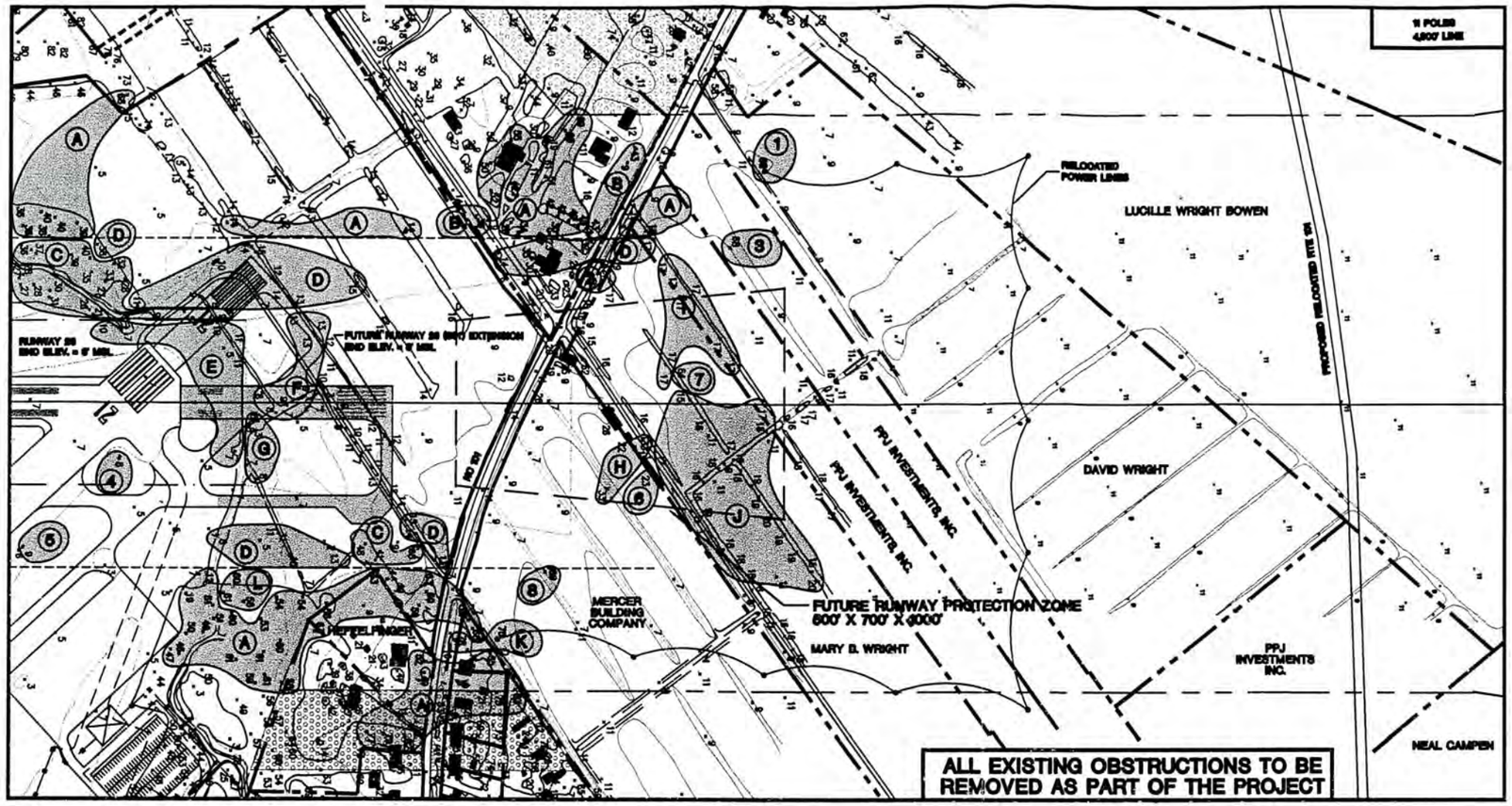
Four (4) alternatives to consider for this project are as follows:

1. No Build Alternative
2. Extend Runway 26 - 751 feet, 34:1 Non-precision Approach
3. Extend Runway 26 - 1251 feet, 34:1 Non-precision Approach
4. Extend Runway 26 - 1251 feet, 50:1 Precision Approach

a. The no build alternative. The first alternative, or no build alternative, includes keeping the length of Runway 8-26 at 4,249 feet.

b. Extend Runway 26 - 751 feet. The second alternative is characterized by a runway extension of 651 feet at the approach end of Runway 26 (see Exhibit 2-1) and extending Runway 8 by 100 feet. An extension as described above is consistent with the approved Airport Layout Plan. The physical construction can be accommodated on current airport property with the exception of the transmission line relocation east of New Bern Road.

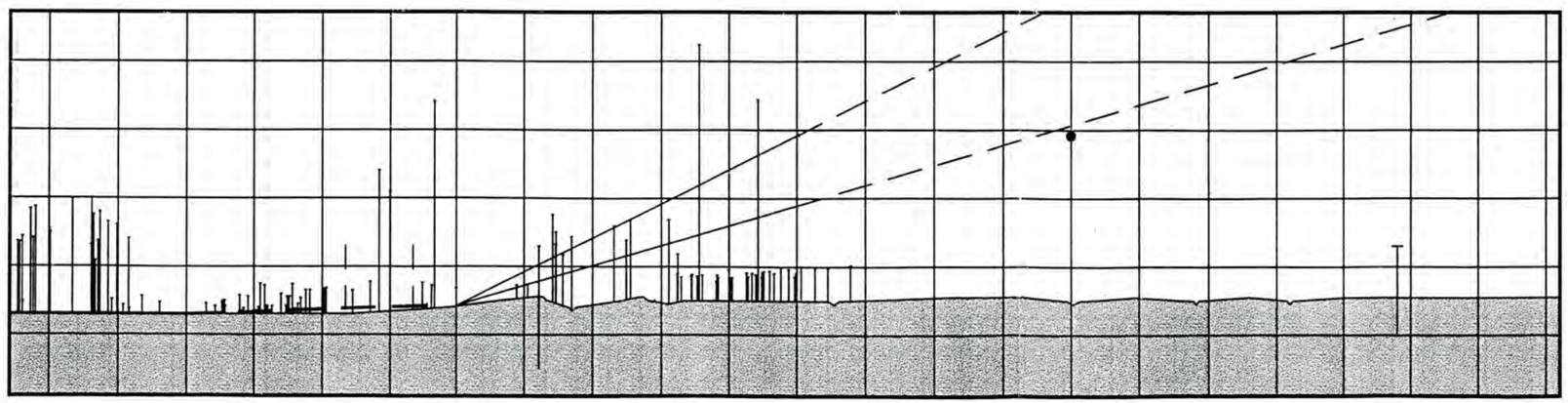
The project would necessitate relocating the transmission lines which are currently adjacent to New Bern Road (Route 101). This relocation would be to a distance of approximately 2,000 feet from the proposed runway edge of pavement and would include 11 support structures and 4,300 feet of line. The cost for this relocation, in 1998 dollars, has been estimated at $405,000. This relocation would be required in order to meet the 34:1 approach standards for an extension of 751 feet.



RUNWAY PROTECTION ZONE

PLAN VIEW RUNWAY 26

SCALE: 1" = 200' HORIZ.



NOTES:

1. (1) LETTER DENOTES OBSTRUCTION GROUP.
2. ALL ELEVATIONS ARE IN ACCORDANCE WITH NATIONAL MAP ACCURACY STANDARDS. SPOT ELEVATIONS AND GROUND CONTOURS ARE DERIVED FROM AERIAL PHOTOGRAMMETRY AND ARE APPROXIMATE. GROUND SURVEYS ARE RECOMMENDED TO VERIFY ACCURACY.
3. ALL ELEVATIONS ARE IN FEET ABOVE MEAN SEA LEVEL.

   GROUND CONTOURS AND OBSTRUCTION ELEVATIONS ARE BASED UPON AERIAL PHOTOGRAPHY PREPARED BY:

   POTOMAC AERIAL SURVEYS INC.
   1319 BUCHEIMER ROAD
   FREDERICK, MARYLAND 21701
   AUGUST 1992
4. 15 FEET ADDED TO PUBLIC ROAD ELEVATIONS TO DETERMINE EXISTING AND FUTURE CLEARANCE TO APPROACH SURFACES.
5. ALL OBSTRUCTIONS TO FUTURE RUNWAY 26 PRIMARY SURFACE TO BE REMOVED.

LEGEND

- x11 — NON-PENETRATING OBJECTS
- x11 — PENETRATING OBJECTS
- VERTICAL ROAD CLEARANCE
- EXIST. AIRPORT PROPERTY LINE
- FUTURE PROPERTY ACQUISITION
- EXISTING PRIMARY SURFACE
- FUTURE PRIMARY SURFACE
- FUTURE AVIGATION EASEMENT

1"=200'
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ALTERNATIVE CONCEPT #2
MICHAEL J. SMITH FIELD AIRPORT
BEAUFORT, NC

EXHIBIT

2-1

The project would require easements for the transmission line relocation on six (6) parcels of property and five (5) separate owners.

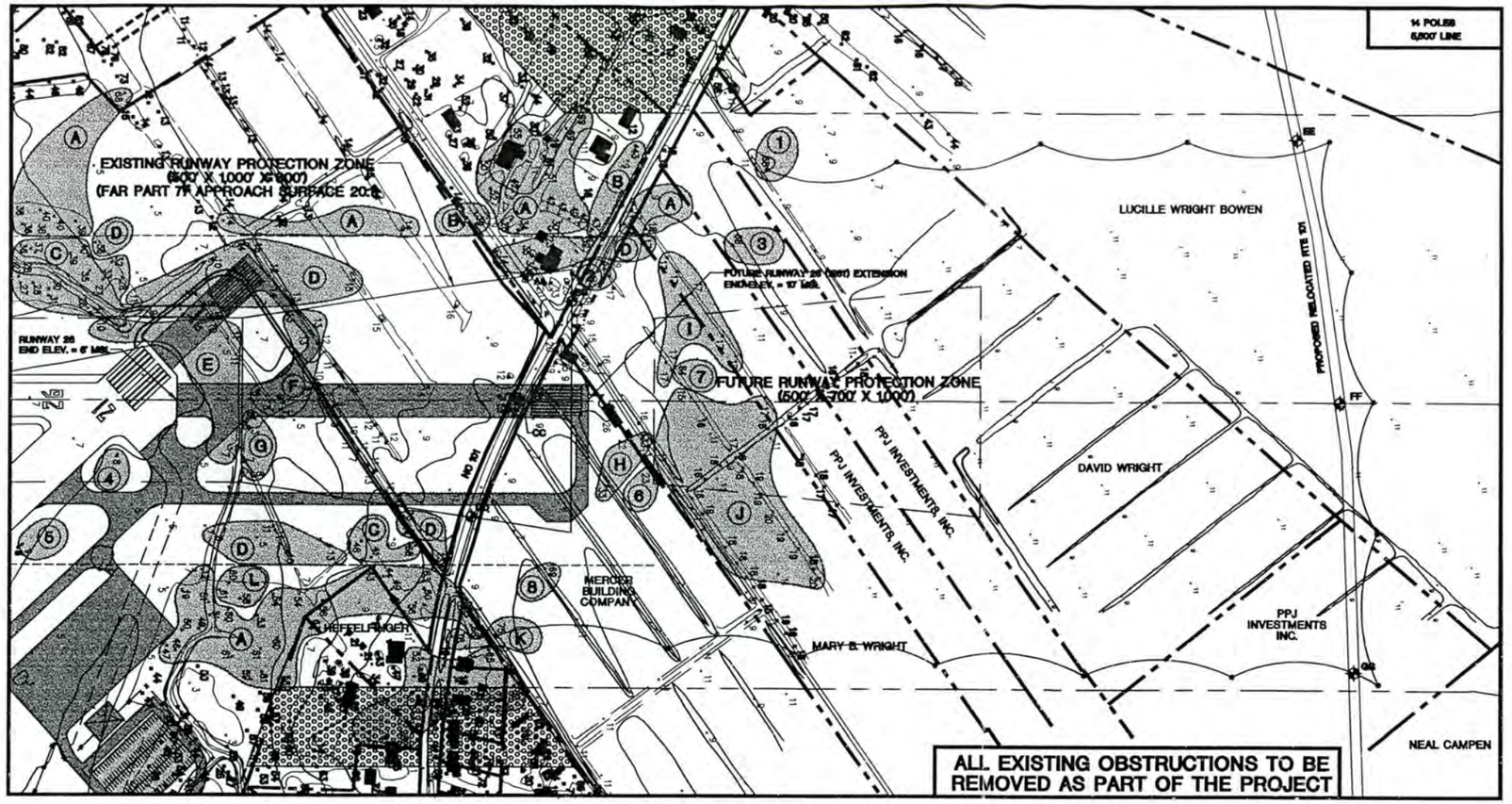
The project would further require the acquisition of parcels in fee simple for the proposed 500' x 700' x 1000' Runway Protection Zone (RPZ). These include four (4) additional parcels.

The project would not require the relocation of New Bern Road, NC Route 101. The road will remain in the Runway Protection Zone. The existing elevation of the road at the extended runway centerline (elevation 11) will leave the road two (2) feet above the 34:1 approach surface with out the standard 15 feet clearance prescribed by FAR Part 77. With a 15 foot clearance for vehicles on the road, the 34:1 approach surface is penetrated by 17 feet. In the worse case, with the extension, the Runway 26 threshold will be displaced 578 feet. The project would include removal of all obstructions to the 34:1 approach surface.

exception to safety rules for road

c. Extend Runway 26 - 1,251 feet, Non-precision Approach. The third alternative is characterized by a runway extension of 1,251 feet at the approach end of Runway 26 (see Exhibit 2-2).

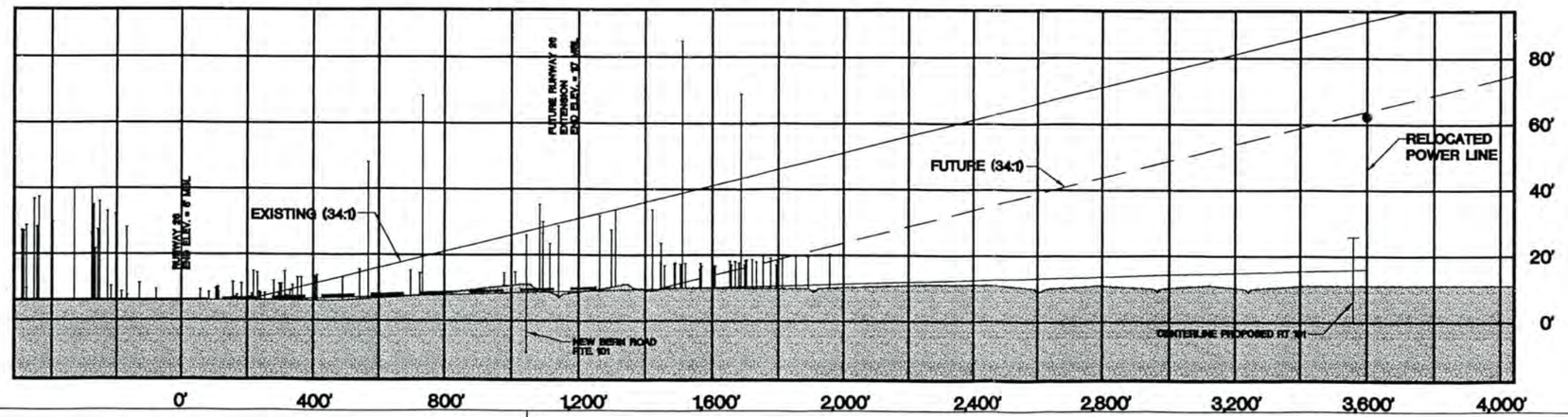
The project would also include relocating the transmission lines which are currently adjacent to New Bern Road (Route 101). This relocation, however, would be to a distance of approximately 2,350 feet from the proposed runway edge of pavement and would include 14 support structures and 5,500 feet of line. The cost for this relocation, in 1998 dollars, has been estimated at $475,000. This relocation would be required in order to meet the 34:1 approach requirements for the 1,251 foot extension.



RUNWAY PROTECTION ZONE

PLAN VIEW RUNWAY 26

SCALE: 1" = 200' HORIZ.



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LEGEND

- x(11) — NON-PENETRATING OBJECTS
- x(11) — PENETRATING OBJECTS
- VERTICAL ROAD CLEARANCE
- EXIST. AIRPORT PROPERTY LINE
- FUTURE PROPERTY ACQUISITION
- EXISTING PRIMARY SURFACE
- FUTURE PRIMARY SURFACE
- FUTURE AVIATION EASEMENT

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ALTERNATIVE CONCEPT #3
MICHAEL J. SMITH FIELD
BEAUFORT, NC

EXHIBIT

2-2

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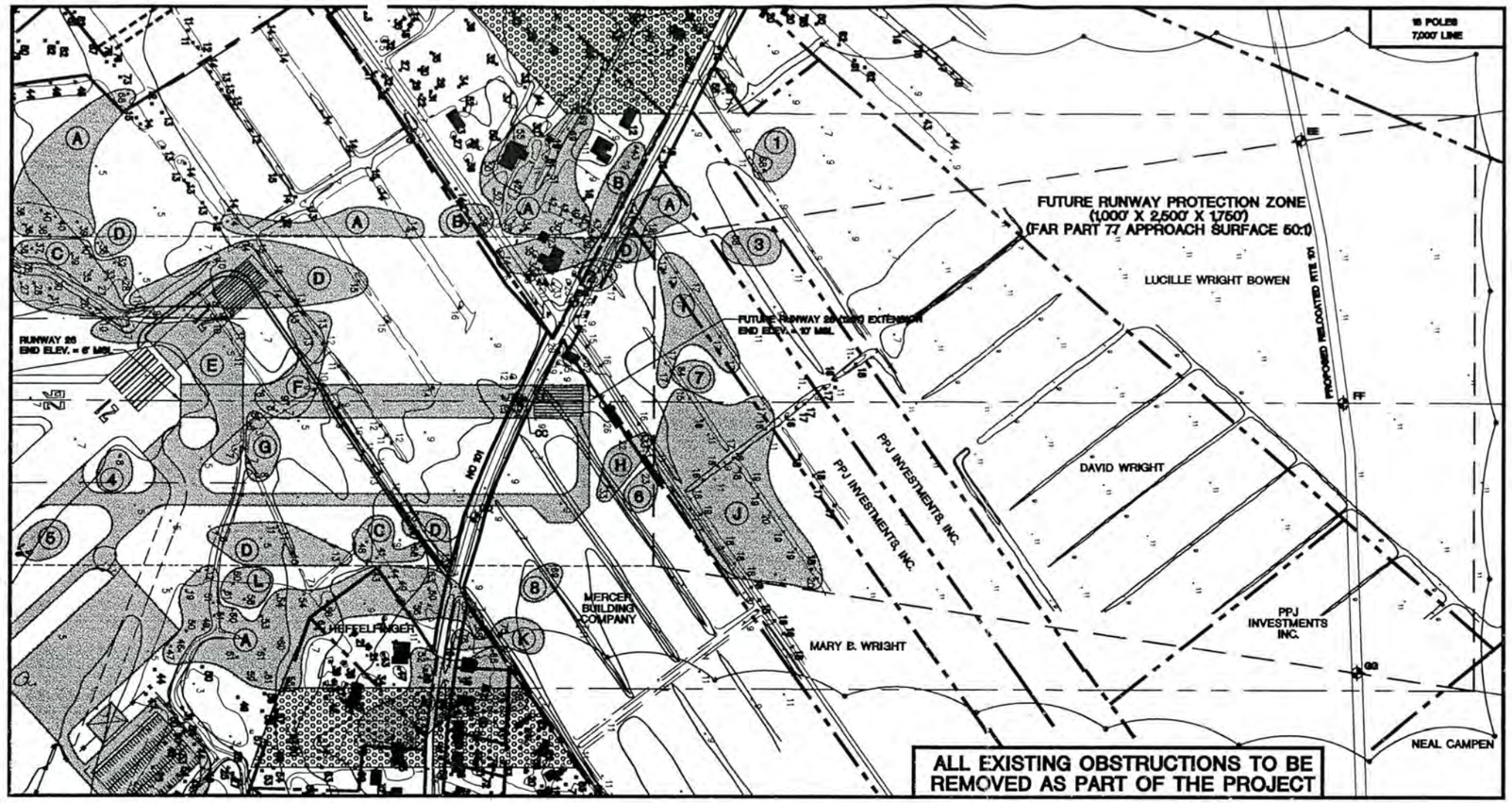
The project would require easements for a transmission line relocation on eight (8) parcels owned by five (5) separate individuals. The project would further require the acquisition of parcels in fee simple for both the actual construction and the proposed 500' x 700' x 1000' Runway Protection Zone (RPZ). These parcels include all or portions of six (6) parcels of four (4) owners.

The project would include acquisition of land in fee simple for the relocation of Route 101. The project would include removal of all obstructions to the 34:1 approach surface.

d. Extend Runway 26 - 1,251 feet, Precision Approach. The fourth alternative is characterized by a runway extension of 1,251 feet at the approach end of Runway 26 (see Exhibit 2-3).

Again, the project would include relocating the transmission lines which are currently adjacent to New Bern Road (Route 101). This relocation would be a distance of approximately 2,770 feet from the proposed runway edge of pavement and would include 18 support structures and 7,000 feet of line. The cost for this relocation, in 1998 dollars, has been estimated at $525,000. This relocation would be required in order to meet the 50:1 approach requirements for the 1,251 foot extension.

The project would require easements for transmission line relocation on eight (8) parcels of property owned by five (5) separate parties. The project would further require the acquisition of parcels in fee simple for both the actual construction and the proposed 1000' x 1750' x 2500' Runway Protection Zone (RPZ). These parcels include all or portions of eight (8) parcels owned by five (5) different parties.



RUNWAY PROTECTION ZONE

PLAN VIEW RUNWAY 26

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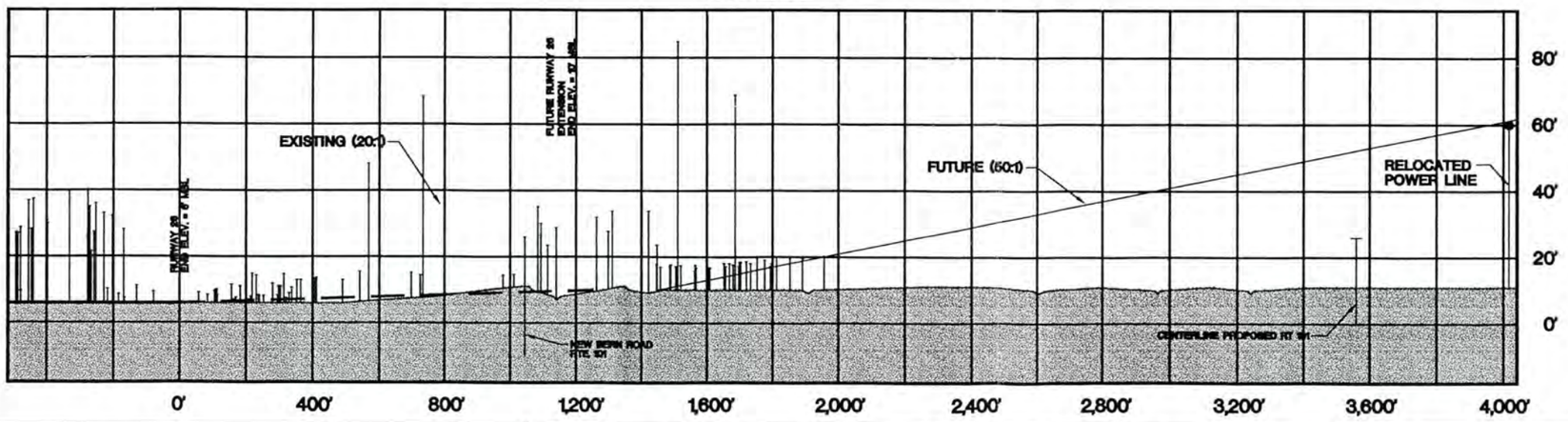

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- FUTURE PROPERTY ACQUISITION
- EXISTING PRIMARY SURFACE
- FUTURE PRIMARY SURFACE
- FUTURE AVIGATION EASEMENT

200 0 200 400
SCALE FEET

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ALT3

ALTERNATIVE CONCEPT #4
MICHAEL J. SMITH FIELD
BEAUFORT, NC

EXHIBIT

2-3

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The project would include acquisition of land in fee simple for the relocation of Route 101. The project would include removal of all obstructions to the 50:1 approach surface.

B. SPONSOR'S PROPOSED ACTION

At this time, the Beaufort-Morehead City Airport Authority has endorsed Alternative 2, the extension of Runway 26 by a distance of 751 feet, as their preferred alternative. It should be reiterated, however, that any extension to the Runway 26 approach end will require the relocation of the transmission lines currently adjacent to New Bern Road. In accordance with the development depicted on the current ALP, the Beaufort-Morehead City Airport Authority has also endorsed the transmission line relocation required for Alternative 4. A cost analysis of multiple transmission line relocations required for future extensions of Runway 26, as opposed to a one time relocation to the standards required for ultimate development clearly shows the significant cost savings of a one-time relocation to the future standard. In addition, Alternative 3 and 4 cannot be constructed until NC Route 101 is relocated. The Authority must wait until the North Carolina Department of Transportation relocates the highway as part of its overall transportation improvement program.

C. ALTERNATIVES CONSIDERED AND ELIMINATED FROM STUDY

Other alternatives considered, but eliminated, included extending Runway 21 by 1,000' x 100', recommissioning 1,000 feet of Runway 32 to obtain a usable runway length of 5,000'. Other runway extensions of Runway Ends 3, 8, and 14 were rejected because of their impact into coastal waterways. The extension of Runway 21 was rejected because it is similar in nature to the Runway 26 alternatives and would substantially increase overflights in the Town of Beaufort. Similarly, recommissioning 1,000 feet of Runway 32 would introduce additional overflights and extend the runway protection zone into established residential areas. Previous coordination with the military has established Runway 8/26 as the primary runway due to airspace conflicts with Cherry Point.

All other alternatives blocked by concerns so 8/26 only available & it has limits

D. SUMMARY OF POTENTIAL SIGNIFICANT IMPACT

For the alternatives under consideration, the potential significant impacts include the relocation of the transmission lines and the ultimate relocation of NC Route 101 for Alternatives 3 and 4, causing some temporary disruption to local traffic patterns. Impacts to other specific impact categories do not appear to result in significant concerns.

E. REQUIRED PERMITS AND LICENSES

For the level of ground disturbance anticipated for each of the build alternatives, an NPDES permit for water quality would be required to be obtained as part of an overall Erosion and Sediment Control (E&SC) Plan. An E&SC Plan must be approved by Carteret County to obtain the earth disturbance and grading permits necessary for construction. The road relocation proposed under the build alternatives for #3 and #4 would require extensive coordination with the Town of Beaufort and NC DOT. Each build alternative would require an approved Stormwater Management (SWM) Plan prior to construction in which financial bonding for the construction and maintenance of SWM facilities is a requirement. No construction or development activity can take place without extensive coordination, review and permitting by the Carteret County and the Town of Beaufort.

III. AFFECTED ENVIRONMENT

A. AIRPORT LOCATION

Michael J. Smith Field is located in Carteret County in the Southeast Coastal Plain of the North Carolina Coast. The Airport, located within the town of Beaufort, encompasses some 403 acres in fee simple. The area surrounding the Airport is primarily agricultural, recreational (intra-coastal waterway) and rural residential with the greatest areas of concentration to the southeast of the Airport. In addition, there are a number of industrial and research sites to the southwest. The immediate airport vicinity is served by U.S. Highway 70 and State Road 101. Highway 70 connects Beaufort-Morehead City with New Bern and Kinston to the northwest and accesses U.S. 17 south to Wilmington. Highway 70 continues northwest intersecting Interstate 95 which traverses the East Coast from Florida to Maine and Interstate 40 toward Raleigh.

Beaufort is the county seat of Carteret County and is located approximately 30 miles southeast of New Bern, North Carolina via U.S. Highway 70 and approximately 70 miles north of Wilmington, North Carolina via U.S. Highway 17.

The topography of the area immediately surrounding the Airport is relatively flat. The Airport has a published elevation of 11' MSL. Surrounding coastal terrain is also relatively flat with no significant terrain variations.

The average annual temperature is 64 degrees with coldest temperatures averaging 46 degrees in January and warmest temperatures averaging 80 degrees in July. The average annual rainfall is 46.45 inches with the wettest month, July, averaging 8.31 inches and the driest month, April, averaging 1.65 inches. Reiative humidity averages about 75 percent. The first frost typically occurs annually in late November.

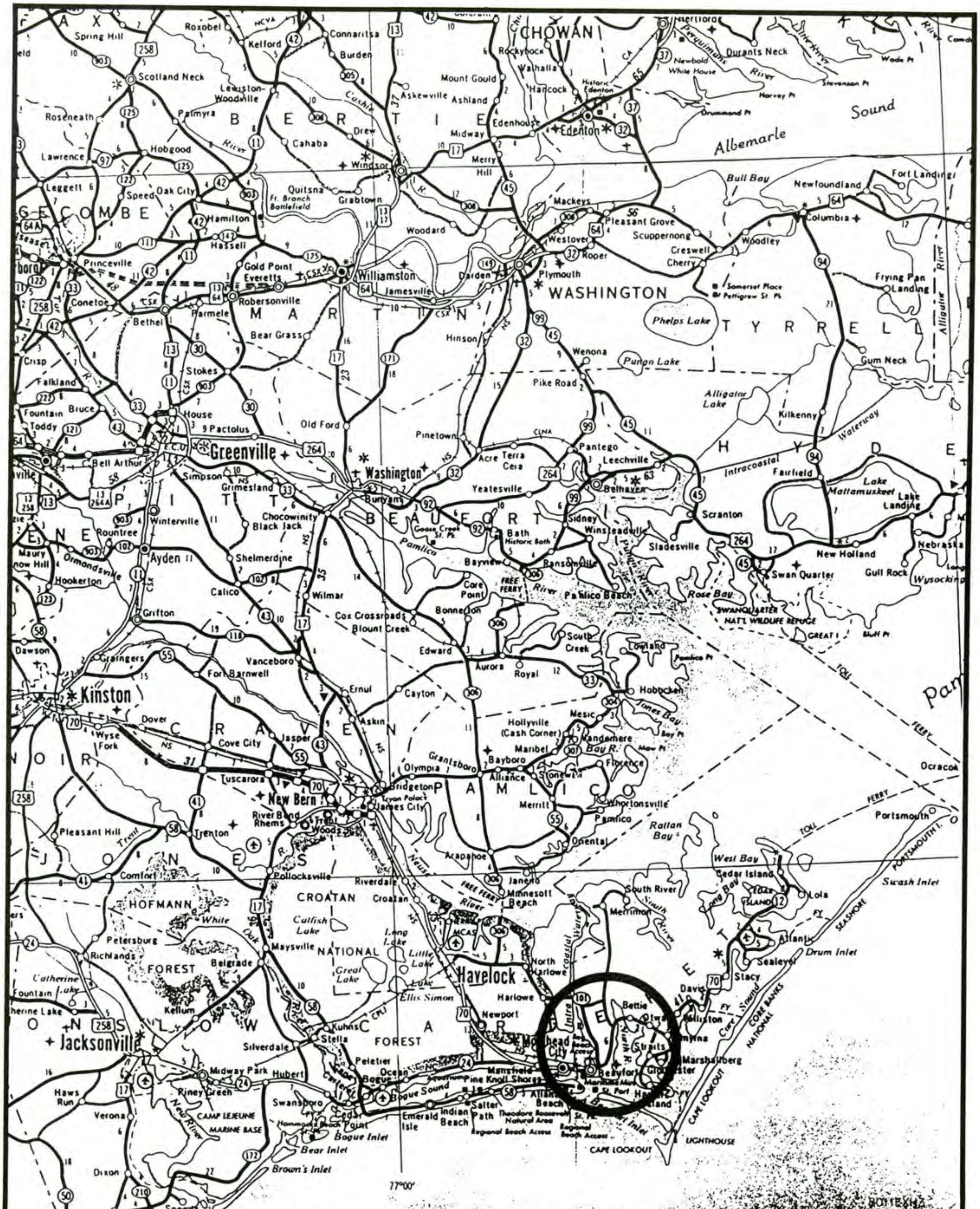
Exhibit III-1, locates the Airport relative to the State of North Carolina and the eastern seaboard. Exhibit III-2 identifies the immediate vicinity around the airport.

B. EXISTING AND PLANNED LAND USES.

The Town of Beaufort has managed to maintain a blend of the old and the new. While growth has occurred, historically significant areas and individual properties have been protected. During the 1990-1995 period, new development has slowed from that which was experienced during the late 1980's. The town's focal point continues to be the Beaufort waterfront and central business district, Exhibit 3-3 shows the existing land uses around the airport.

Also, in the Town of Beaufort's 1996 Land Use Plan and in its current (1999) Strategic Approach for Growth, the airport is specifically addressed as an area of special consideration. The Town of Beaufort adopted the following policies concerning operation, development, and expansion of the Michael J. Smith Airport:

1. Any expansion plans for the airport must be consistent with the town's Zoning Ordinance and Land Use Plan.
2. Beaufort does not object to increased air traffic which will not result in increased noise impact(s) on properties located within airport flight patterns.
3. The Town of Beaufort supports any runway extensions or other airport expansions which will not cause any changes to N.C. 101 which will result in increased traffic in the vicinity of the Beaufort Middle School. The town's preference for the extension of Runway 8-26 is to have the runway extended to the northeast.

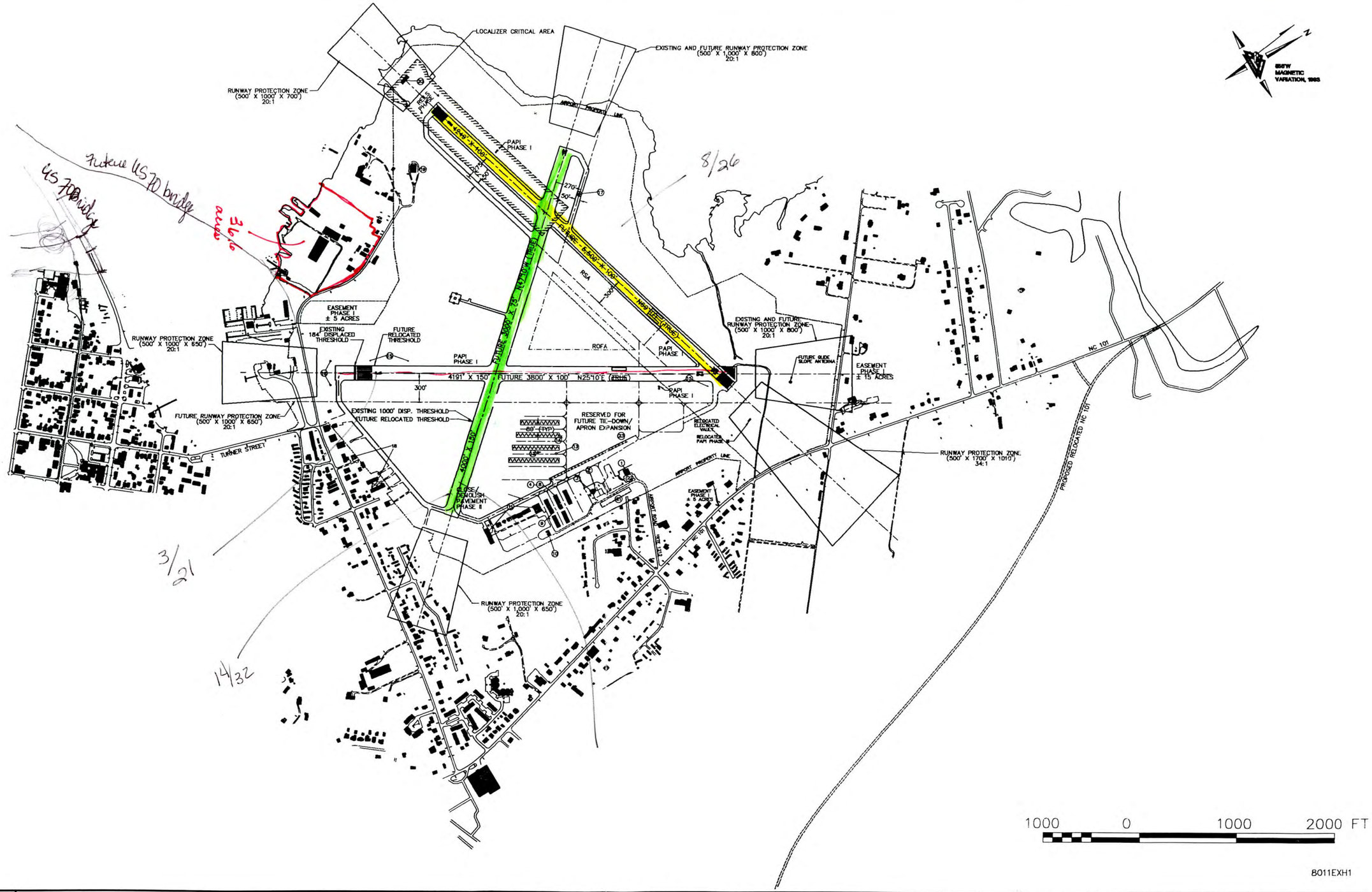


MICHAEL J. SMITH AIRPORT

LOCATION MAP

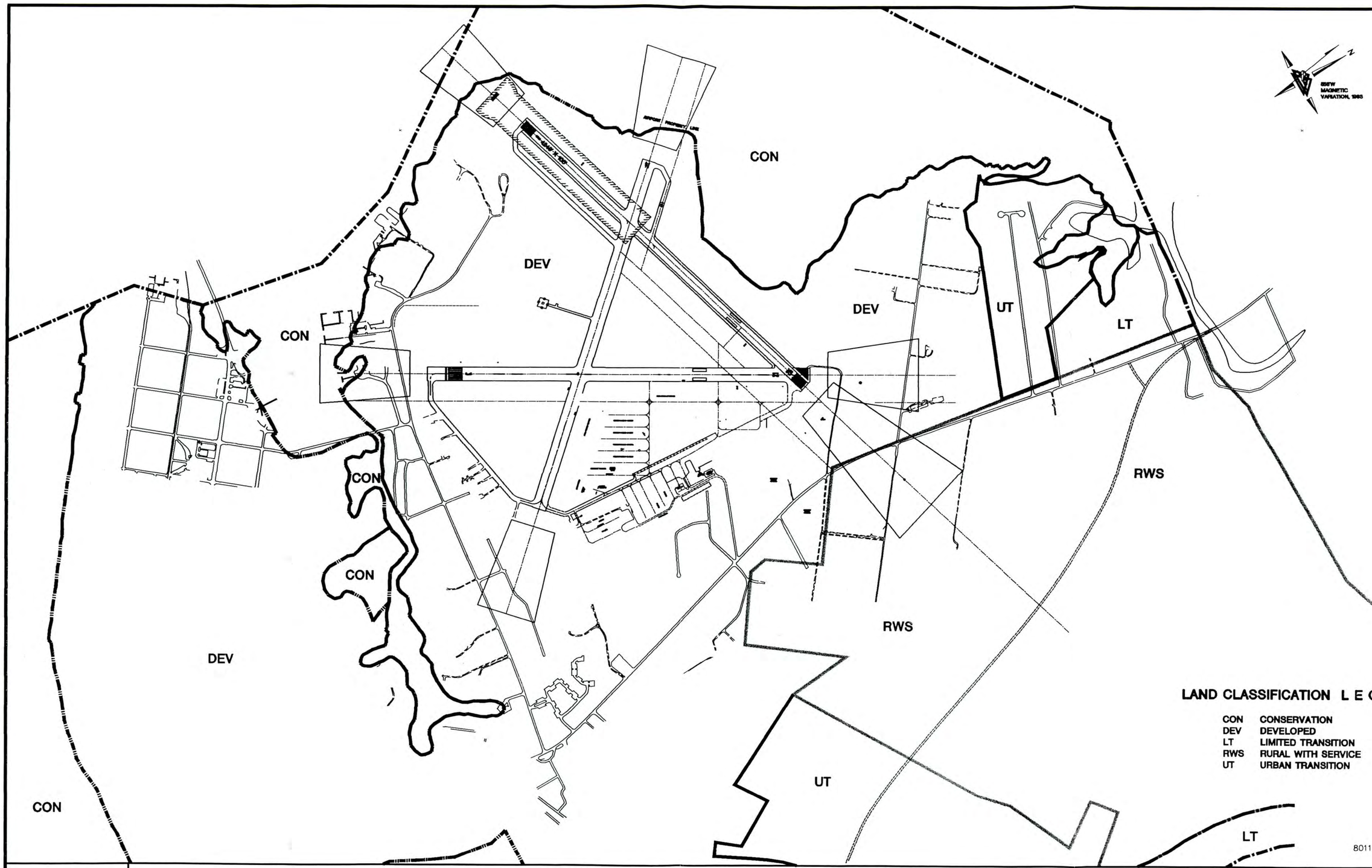
EXHIBIT

3-1



MICHAEL J. SMITH AIRPORT
VICINITY MAP

EXHIBIT 3-2



MICHAEL J. SMITH AIRPORT
EXISTING LAND USE

EXHIBIT
3-3

4. Beaufort requests notification of, and the right to review and comment on, all plans being prepared or amended for the airport.

5. Specifically, the following airport development projects are supported:

FY 1996	Install visual approach aids on Runways 8-26 and 3-21, construct hangar area access taxiway.
FY 1998	Conduct environmental assessment for extension of Runway 8-26 to 5,500 feet.
FY 1999	Relocate and expand airfield electrical vault. Although unofficial, the Strategic Approach for Growth is consistent with the Town's past policies about the airport.

C. PUBLIC FACILITIES

Michael J. Smith Airfield is supplied by a number of public utilities. Electric service is provided to the Airport by Carolina Power and Light Company. Water and sewer service is supplied by the Town of Beaufort. Telephone service is provided by Carolina Telephone. The FBO is responsible for its own refuse disposal, and uses the city Recycling Center for its daily refuse disposal. The County Landfill is located some 20 miles west of the airport, beyond Newport.

There are no on-field fire fighting vehicles available at Michael J. Smith Field. Primary fire protection is provided by the Beaufort Fire Department, located approximately 1 ½ miles south of the airport. Once contacted by the FBO, their response time is less than five (5) minutes. Included in their equipment are:

3 - Class A pumper trucks
1,000 gallon water capacity

1 - Tanker truck
1,500 gallon water capacity
500 gallons per minute foam capacity

1 - Utility van with rescue equipment

In addition to the Beaufort Fire Department, the Beaufort Rescue Squad is automatically dispatched. Located one (1) mile from the airport, their response time is also less than five (5) minutes. The Rescue Squad has three (3) ambulances and one (1) crash truck.

If necessary, back-up fire protection is available from the Morehead City Fire Department and the Atlantic Beach Fire Department. Both have response times of less than 10 minutes.

D. POPULATION AND ECONOMIC GROWTH CHARACTERISTICS

Table 3-1 provides the estimated population for the Town of Beaufort and other Carteret County municipalities and townships through 2005. Beaufort's population will comprise a slightly smaller percentage of the county's total population by 2005. In 1990, Beaufort contained approximately 7.2% of the county population. This percentage is expected to decrease slightly to 6.6% by 2005. However, Beaufort will continue to be the second largest town within Carteret County, ranking behind Morehead City.

Most of the land area within the town has been developed. The town's population cannot grow appreciably without annexation. The extension of town utilities into the extraterritorial jurisdiction area will both encourage and support annexation actions. Based on an average household size of 2.4, approximately 930 people resided within the town's extraterritorial area in 1995. This should increase to over 1,500 by 2005. Approximately one-third to one-half of this population is located in areas which could easily be annexed. Thus, annexation could result in an additional 15 to 20% growth of the 1995 population by 2005.

During the period 1990 to 1995, commercial and industrial development primarily occurred in the extraterritorial jurisdiction. Growth within the incorporated area was limited because of a lack of vacant land and availability of areas zoned for commercial and industrial development. This pattern of development is expected to continue during the planning period, 1995 to 2000. Any major commercial development within the corporate limits will have to occur through the redevelopment of areas presently developed. Within the 15 year period from 1990-2005, the County's population is projected to increase by 32%.

TABLE 3-1
MICHAEL J. SMITH
SUMMARY OF YEAR-ROUND POPULATION GROWTH 1990-2005

Township	Municipality or Area	Year Round Population			
		1990	1994	2000	2005
1) Atlantic	Total Township	805	803	799	796
2) Beaufort	Beaufort	3,808	3,997	4,351	4,600
	Unincorporated Areas	4,205	4,644	5,467	6,045
	Total Township	8,013	8,641	9,818	10,645
3) Cedar Island	Total Township	385	407	448	477
4) Davis	Total Township	535	553	587	611
5) Harkers Island	Total Township	2,237	2,375	2,634	2,816
6) Harlowe	Total Township	1,190	1,289	1,474	1,604
7) Marshallberg	Total Township	646	674	726	763
8) Merrimon	Total Township	542	591	683	747
9) Morehead City	Atlantic Beach	1,938	2,267	2,846	3,252
	Indian Beach	153	177	222	254
	Morehead City	6,046	6,384	7,017	7,462
	Pine Knoll Shores	1,360	1,543	1,886	2,127
	Unincorporated Areas	10,985	11,485	12,420	13,078
	Total Township	20,482	21,856	24,390	26,173
10) Newport	Newport	2,516	2,778	3,269	3,614
	Unincorporated Areas	4,817	5,337	6,312	6,997
	Total Township	7,333	8,115	9,580	10,611
11) Sea Level	Total Township	773	872	1,056	1,186
12) Smyrna	Total Township	782	843	958	1,039
13) Stacy	Total Township	401	434	497	541
14) Straits	Total Township	1,948	2,129	2,468	2,706
15) White Oak	Cape Carteret	1,008	1,179	1,499	1,724
	Emerald Isle	2,434	2,798	3,480	3,959
	Cedar Point	628	688	800	879
	Unicorporated Areas	2,413	2,379	2,316	2,271
	Total Township	6,483	7,044	8,095	8,834
Total Municipalities		19,891	21,811	25,369	27,870
Total Unincorporated Areas		32,662	34,813	38,840	41,673
Total County		52,553	56,624	64,209	69,543

Sources: Town of Beaufort, 1996 Land Use Plan

Within the extraterritorial area, development is expected to focus on the U.S. 70 corridor and around the Michael J. Smith Airport. During the past two (2) years, the U.S. 70 corridor has experienced a number of rezoning actions to reclassify parcels from residential to commercial categories. Pressure may be expected to continue through the planning period for commercial rezonings.

E. CONTEMPLATED FUTURE ACTIONS

The airport's development program is centered upon a runway extension to Runway 8-26. Associated development is related to t-hangar development and maintaining the existing airfield in good physical condition. The airport's ultimate development is keyed to the relocation of N.C. Route 101. Because of the uncertainty and lack of funding, the relocation of Route 101 impedes the Airport Authority's long range development plan. Further, the Airport Authority does not have the financial resources to relocate NC Route 101 by itself. The Authority needs the NC Department of Transportation to initiate and complete this project.

F. OTHER PLANNED (OFF-AIRPORT) DEVELOPMENT

No major changes in the existing patterns of land use are expected to occur throughout the planning period. The town's planning and zoning program should continue to protect existing land uses and to minimize the development of conflicting land uses. Close attention should be paid to commercial development along the Cedar Street-U.S. 70 corridor. This commercial development should be coordinated with traffic planning to reduce congestion. Also, care must be taken to avoid conflicts with adjacent residential development. Ultimately, relocation of the Beaufort Channel bridge and the associated re-routing U.S. 70 will alleviate much of this problem. However, this relocation is not expected during the short term planning period. In addition, the re-routing at U.S. 70 will have significant impacts upon improving traffic flow and introducing development opportunities along the re-routing.

A long-range concern expressed by the Town Planning Department will continue to be the issue of sea level rise. During the next 30-year period, approximately 20 to 30 percent of the

land area within the town's jurisdiction could be inundated by rising sea water. The main area of Beaufort located south of Town Creek and Turner Creek would become an island, being isolated from the mainland. Also, the existing waterfront areas along Taylor's Creek would be lost. The town should begin planning for possible sea level rise. Local ordinances should be reviewed for determination of changes which may need to be made to protect developments from rising sea level and to accommodate the movement of structures to higher ground.

IV. ENVIRONMENTAL CONSEQUENCES

According to FAA Order 5050.4A, "a brief examination of each of the impact areas shall be done and documented to determine if any potential impact may be significant." Therefore, in the Environmental Consequences section of this assessment, 20 categories will be considered to determine any potential impact that the construction of a Runway 26 extension might have on the surrounding environment. Each special environmental impact category will compare the recommended airport development to the FAA's Threshold of Significance (TOS) to determine environmental significance and whether any further analysis may be needed.

A. NOISE

Noise is perhaps the most apparent environmental impact associated with any airport. The impact is a direct result of the volume and types of aircraft at the facility. A detailed noise analysis was performed for the airport using the FAA's Integrated Noise Model (INM), Version 5.2a. Noise contours were prepared for the years 1997 (Basecase) and 2012 (Future) which are presented in Exhibits 4-1 and 4-2. Table 4-1 compares land use compatibility with yearly day-night average sound levels. The noise analysis considers the following factors in developing noise exposure contours:

- Aircraft and engine type
- Mix of differing aircraft types
- Flight tracks and operational policies
- Volume of daily operations by runway
- Runway elevation and runway length

When inputting the data for the noise exposure contours, a series of assumptions and forecasts were made. These assumptions and forecasts were taken from the airport's master plan that was completed in 1994. Also, for the future case, it was assumed that Runway 8/26 would be extended 751 feet to a length of 5,000 feet. A total of 61,115 aircraft operations were used for the year 1997, increasing to 81,250 for the year 2012. The input data can be found in Appendix "B".

The basecase runway use splits were, 60 percent for Runway 21, 20 percent for Runway 3, 8 percent for Runways 8 and 14, and 2 percent for Runways 14 and 32 for the basecase. The future runway splits were, 60 percent for Runway 26, 20 percent for Runway 8, 8 percent for Runways 3 and 21, and 2 percent for Runways 14 and 32. The increase in use of Runway 8/26 is attributed to lengthening the runway, thus permitting more landings and take-offs. Five (5) different aircraft categories were used in the analysis. They include:

- GASEPT (Composite of single engine piston aircraft)
- BEC 58P (Beechcraft Baron 58P represents the light multi-engine turboprop aircraft)
- DHC6 (deHavilland Twin Otter represents multi-engine turboprop aircraft)
- CIS 3 (Cessna Citation III represents the small business jet aircraft)
- CL600 (Challenger 600 represents medium sized business jet aircraft)

The 65 DNL contours developed from aircraft operations for the year 1997 encompass 51 acres, of which all are within current airport property. The buildings shown inside the contour are abandoned farm buildings or sheds. The 65 DNL contour developed from the projected operations for the year 2012 encompasses 77 acres; all of which is on airport property or proposed airport property.

TABLE 4-1
LAND USE COMPATIBILITY WITH YEARLY DAY-NIGHT AVERAGE SOUND LEVELS

Land Use	Below 65	65-70	70-75	75-80	80-85	85
RESIDENTIAL						
Residential, other than Mobile Homes and Transient Lodgings	Y	N(1)	N(1)	N	N	N
Mobile Home Parks	Y	N	N	N	N	N
Transient Lodgings	Y	N(1)	N(1)	N(1)	N	N
PUBLIC USE						
Schools, Hospitals, and Nursing Homes	Y	25	30	N	N	N
Churches, Auditoriums, and Concert Halls	Y	25	30	N	N	N
Government Services	Y	Y	35	30	N	N
Transportation	Y	Y	Y(2)	Y(3)	Y(4)	Y(4)
Parking	Y	Y	Y(2)	Y(3)	Y(4)	N
COMMERCIAL USE						
Offices, Business and Professional	Y	Y	25	30	N	N
Wholesale and Retail - Building Materials, Hardware, and Farm Equipment	Y	Y	Y(2)	Y(3)	Y(4)	N
Retail Trade - General	Y	Y	25	30	N	N
Utilities	Y	Y	Y(2)	Y(3)	Y(4)	N
Communications	Y	Y	25	30	N	N
MANUFACTURING AND PRODUCTION						
Manufacturing - General	Y	Y	Y(2)	Y(3)	Y(4)	N
Photographic and Optical	Y	Y	25	30	N	N
Agriculture (except Livestock) and Forestry	Y	Y(6)	Y(7)	Y(8)	Y(8)	Y(8)
Livestock Farming and Breeding	Y	Y(6)	Y(7)	N	N	N
Mining and Fishing, Resources, Production, and Extraction	Y	Y	Y	N	N	N
RECREATIONAL						
Outdoor Sports Arenas and Spectator Sports	Y	Y(5)	Y(5)	N	N	N
Outdoor Music Shells, Amphitheaters	Y	N	N	N	N	N
Nature Exhibits and Zoos	Y	Y	N	N	N	N
Amusement Parks, Resorts, and Camps	Y	Y	Y	N	N	N
Golf Courses, Riding Stables, Water Recreation	Y	Y	25	30	N	N

Source: *Federal Aviation Regulations (FAR) Part 150*

TABLE 4-1
(Continued)
LAND USE COMPATIBILITY WITH YEARLY DAY-NIGHT AVERAGE SOUND LEVELS

Numbers in parentheses refer to notes.

*The designations contained in this table do not constitute a Federal determination that any use of land covered by the program is acceptable or unacceptable under Federal, State, or local law. The responsibility for determining the acceptable and permissible land uses and the relationship between specific properties and specific noise contours rests with the local authorities. FAA determinations under Part 150 are not intended to substitute federally determined land uses for those determined to be appropriate by local authorities in response to locally determined needs and values in achieving noise compatible land uses.

KEY TO TABLE

Y (Yes)	Land Use and related structures compatible without restrictions.
N(N0)	Land Use and related structures are not compatible and should be prohibited.
NLR	Noise Level Reduction (outdoor to indoor) to be achieved through incorporation of noise attenuation into the design and construction of the structure.
25, 30, or 35	Land Use and related structures generally compatible; measures to achieve NLR or 25, 30, or 35 dB must be incorporated into design and construction of structure.

NOTES FOR TABLE

(1) Where the community determines that residential or school uses must be allowed, measures to achieve outdoor to indoor Noise Level Reduction (NLR) of at least 25 dB and 30 dB should be incorporated into building codes and be considered in individual approvals. Normal residential construction can be expected to provide a NLR of 20 dB, thus, the reduction requirements are often stated as 5, 10, or 15 dB over standard construction and normally assume mechanical ventilation and closed windows year round. However, the use of NLR criteria will not eliminate outdoor noise problems.

(2) Measures to achieve NLR of 25 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.

(3) Measures to achieve NLR of 30 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.

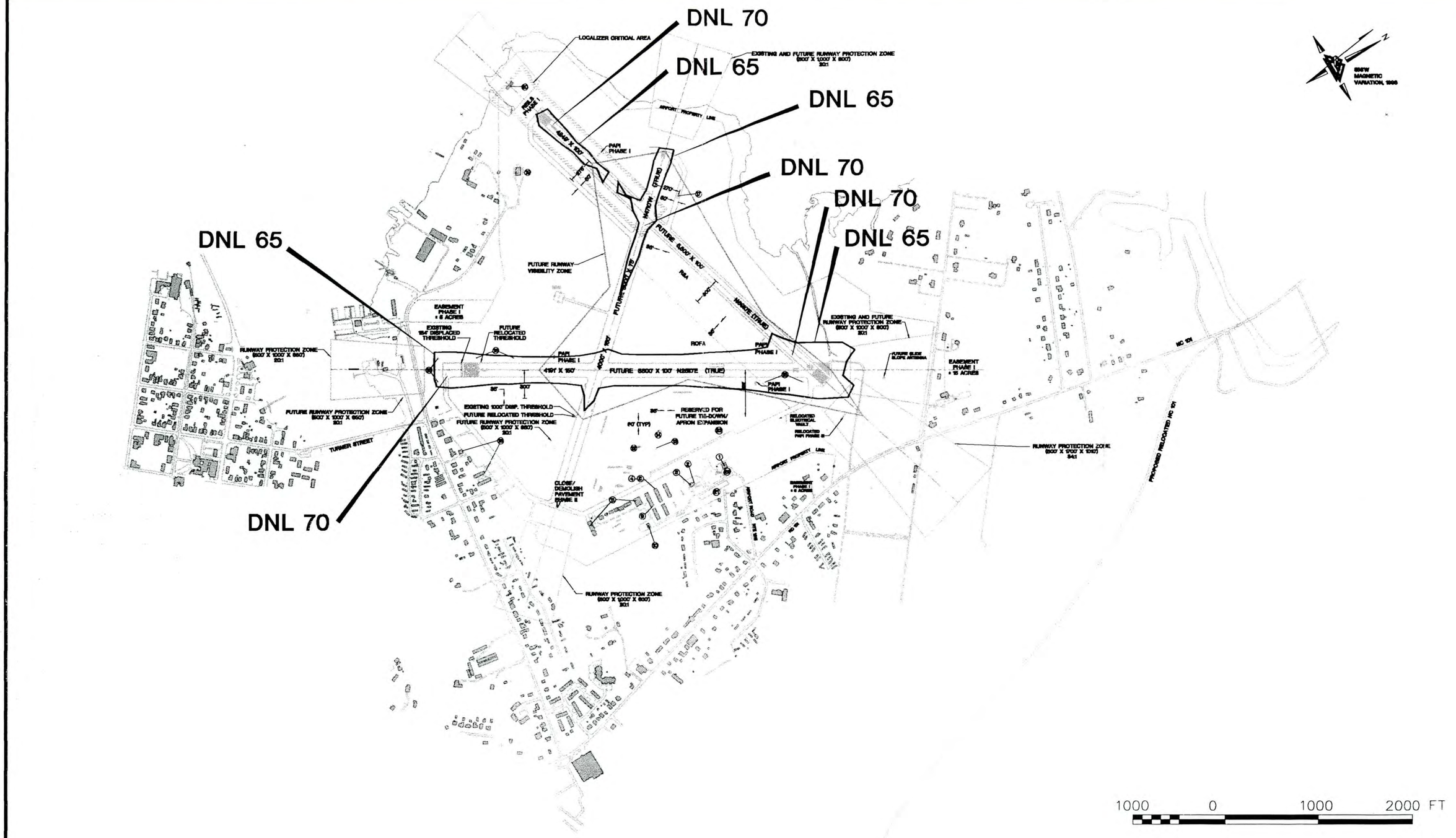
(4) Measures to achieve NLR of 35 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.

(5) Land use compatible provided special sound reinforcement systems are installed.

(6) Residential buildings require an NLR of 25.

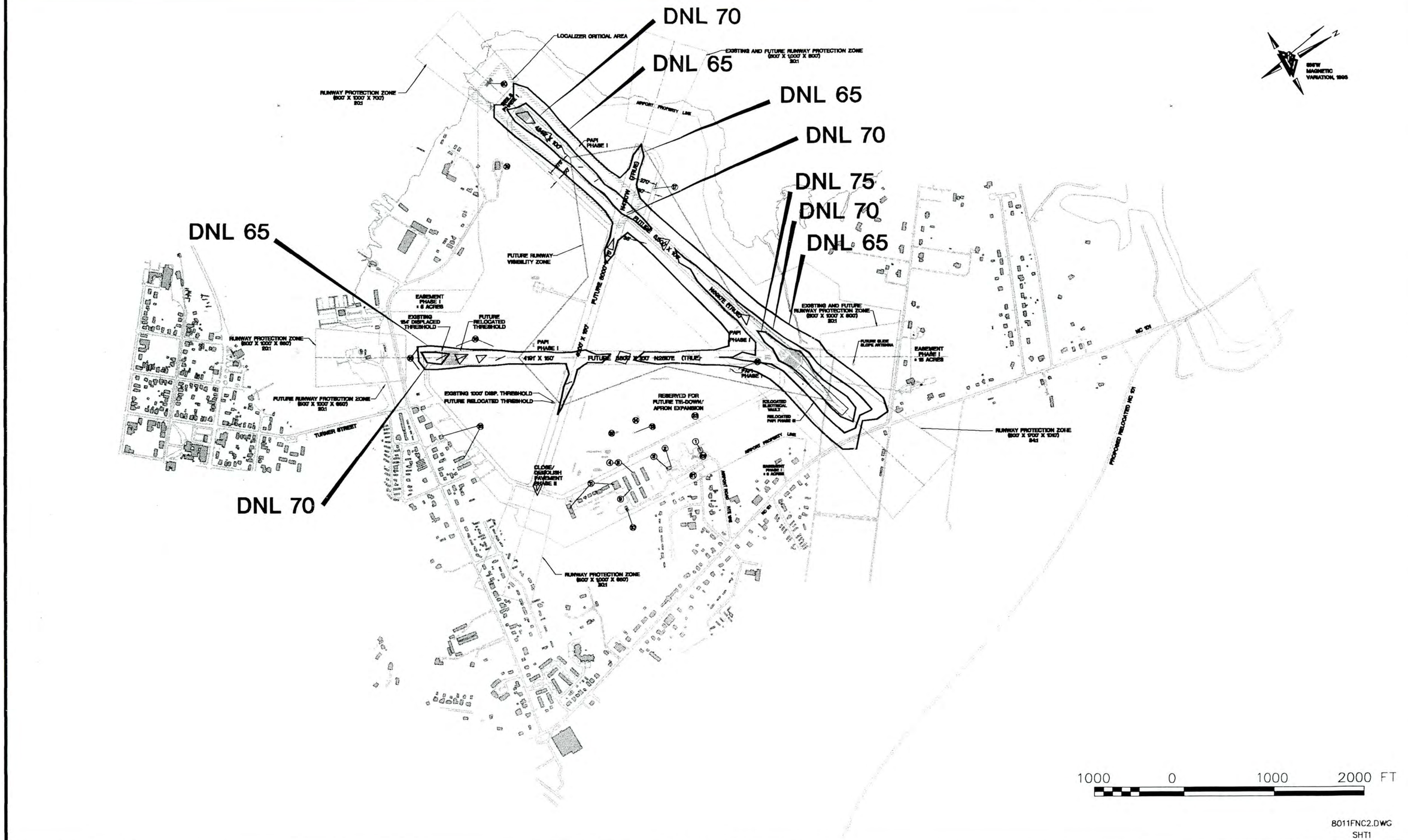
(7) Residential buildings require an NLR of 30.

(8) Residential buildings not permitted.



MICHAEL J. SMITH AIRPORT
EXISTING NOISE CONTOURS

EXHIBIT 4-1



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MICHAEL J. SMITH AIRPORT
FUTURE NOISE CONTOURS

EXHIBIT 4-2

There is an increase in the future contour, 77 acres (Future) affected as opposed to 51 acres (Basecase), which is attributable to increased jet activity at the airport and more operations. Because the total number of operations are moderate, a change in the fleet mix to account for the increased jet operations demonstrates the effect on the contour at a moderate activity airport.

Although there is an increase in the amount of acres affected by noise, the runway extension to Runway 8-26 allows more traffic to be diverted from Runway 3-21, which had traffic patterns that went over residential areas. With the runway extension, future flight patterns will be located over the ocean and areas that are used for agricultural purposes. No mitigation measures are required to minimize any impacts since no residential or other noise sensitive activities are affected. The threshold of significance for noise is not exceeded.

B. COMPATIBLE LAND USE

The construction of the Runway 26 extension is compatible with the current land uses in the area which are zoned primarily development. However, no business property or residential home will need to be acquired in and around the airport. As mentioned in the noise discussion, the 65 DNL contour will remain on existing or proposed airport property. Therefore, the threshold of significance will not be crossed. The County is formulating a revised land use plan as part of an updated comprehensive plan. Until this element is completed, there is no "official" land use plan. However, the County's zoning map was also examined and used in conjunction with the draft land use plan as the basis for land use compatibility. Past local policy has supported the extension of Runway 8-26 and the alternatives, as presented, is consistent with that policy.

C. SOCIAL IMPACTS

According to the *Airport Environmental Handbook*, social effects to be considered in an EA are "those associated with relocation or other community disruption which may be caused by

the proposal." Of special concern would be the availability of relocation housing, severe economic hardship on the community caused by business relocation, significant changes in employment resulting from a project, or substantial community disruption. Also, on February 11, 1994, President Clinton signed Executive Order No. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*. The three (3) general purposes of this order include:

1. Focusing attention by federal agencies on human health and environmental conditions in minority and low-income communities with a goal of achieving environmental justice.

2. Fostering nondiscrimination in federal programs that substantially affect human health or the environment.

3. Giving minority and low-income communities greater opportunities for public participation in, and access to, public information on matters relating to human health and the environment.

The actual construction to Runway 26 requires minor land acquisition (16± acres for the runway protection zone) and no relocation of residential properties or businesses. The preferred alternative will not alter transportation patterns, disrupt established communities or planned development, or create an appreciable change in employment. Therefore, the threshold of significance will not be crossed.

D. INDUCED SOCIO-ECONOMIC IMPACTS

In general, an airport can help to stimulate the industrial and business activity of its surrounding area. It is a fact that small, medium, and large businesses do use airports in many ways. In a recent, March 1999, economic impact study, the airport was found to

produce $14.5 million dollars of economic impact to the region's economy. A runway extension would increase that benefit to $17.3 million dollars annually, see Appendix "C."

Appendix "D" provides the most current public information on the relocation of NC Route 101. As mentioned earlier, until it is progressed and funded by the NC DOT, the Airport Authority can not implement or construct alternatives 3 or 4. Consequently, the focus of this Environmental Assessment has examined Alternate 2 in more detail.

E. AIR QUALITY

1. Definition of Air Pollutants

The U.S. Environmental Protection Agency (U.S. EPA) defines ambient air in CFR 40, Part 50, as *"that portion of the atmosphere, external to buildings, to which the general public has access."* In compliance with the 1970 Clean Air Act (CAA) and the 1977 and 1990 Amendments (CAAA), the U.S. EPA had promulgated ambient air quality standards and regulations. The National Ambient Air Quality Standards (NAAQS) were enacted for the protection of the public health and welfare, allowing for an adequate margin of safety. To date, the U.S. EPA has issued NAAQS for six (6) criteria pollutants: carbon monoxide (CO), sulfur dioxide (SO_2), particles with an aerodynamic diameter less than or equal to a nominal 10 micrometers (PM_{10}) ozone (O_3), nitrogen dioxide (NO_2) and lead (Pb).

There are two (2) types of standards: primary and secondary. Primary standards are designed to protect sensitive segments of the population from adverse health effects, with an adequate margin of safety, which may result from exposure to criteria pollutants. Secondary standards are designed to protect human health and welfare and, therefore, in some cases, are more stringent than the primary standards. Human welfare is considered to include the natural environment (vegetation) and the manmade

environment (physical structures). Areas that are below the standards are in "attainment," while those that equal or exceed the standards are in "non-attainment."

Under the CAA and the CAAA, state and local air pollution agencies have the authority to adopt and enforce ambient air quality standards (AAQS) more stringent than the NAAQS. The State of North Carolina has adopted the NAAQS, which are presented in Table 4-1.

2. Regulatory Responsibilities

Although the U.S. EPA has the ultimate responsibility for protecting ambient air quality, each state and local government has the primary responsibility for air pollution prevention and control. Areas that do not meet NAAQs are called non-attainment areas. The CAA requires that each state submit a State Implementation Plan (SIP), which describes how the state will attain and maintain air quality standards in non-attainment areas. The SIP must be approved by the U.S. EPA for each criteria pollutant. The agency responsible for implementing the SIP in North Carolina is the Department of the Environment and Natural Resources. In order for projects to comply with the CAA and the CAAA, they must conform with attainment plans documented in the SIP.

3. Existing Air Quality

Carteret County is classified by the U.S. EPA as an attainment area for all six (6) of the NAAQS criteria pollutants. In addition to overseeing implementation of the State's air pollution control regulations, the Department of Environment and Natural Resources also collects data from state-operated air monitoring stations.

TABLE 4-2
NATIONAL AND STATE OF NORTH CAROLINA
AMBIENT AIR QUALITY STANDARDS (AAQS)

POLLUTANT	PRIMARY STANDARD	SECONDARY STANDARD
Carbon Monoxide		
1-hour Maximum[a]	35 ppm	35 ppm
8-hour Maximum[a]	9 ppm	9 ppm
Sulfur Dioxide		
Annual Arithmetic mean	0.03 ppm	-
24-hour Maximum[a]	0.14 ppm	-
3-hour Maximum[a]	-	0.5 ppm
Particulate Matter PM_{10}		
Annual Arithmetic mean	50 $\mu g/m^3$	50 $\mu g/m^3$
24-hour Maximum[c]	150 $\mu g/m^3$	150 $\mu g/m^3$
Ozone		
1-hour Maximum[b]	0.12 ppm	0.12 ppm
Nitrogen Dioxide		
Annual Arithmetic mean	0.05 ppm	0.05 ppm
Maximum Arithmetic Mean over a Calendar Quarter	1.5 $\mu g/m^3$	1.5 $\mu g/m^3$

Notes: [a] Maximum concentration not to be exceeded more than once per year.
[b] Expected number of exceedance days shall not be more than one per year (three-year average) as determined by Appendix H of 40 CFR, Part 50.
[c] Expected number of exceedance days shall not be more than one per year (three-year average) as determined by Appendix H of 40 CFR, Part 50.

Source: *Code of Federal Regulations Title 40, Part 50, July 1991.*

4. Airport Air Quality Effects

The 1982 Airport Act requires:

"Airport Improvement Program (AIP) applications for projects involving airport location, runway location, or a major runway extension shall not be approved unless the Governor of the state in which the project is located certifies that there is 'reasonable assurance' that the project will be located, designed, constructed, and operated in compliance with applicable air and water quality standards."

Conformity determinations for federal actions related to transportation projects must meet the procedures and criteria of 40 CFR Part 51, as presented in the November 30, 1993, Federal Register. Because Carteret County is in an attainment area, there are presently no de minimus emission rates established for attainment areas and no additional air quality analysis is required. Since the areas is in attainment, the threshold of significance will not be crossed.

F. WATER QUALITY

Along with air quality, the quality of water is one of the most sensitive areas of environmental concern and can be affected in many ways as a result of a construction project. Therefore, mitigation measures during the site preparation phase of the extension of the runway will include an approved erosion and sediment control plan in accordance with the State of North Carolina guidelines and best management practices.

Adherence to best management practices (BMP's) during construction and operation, and compliance with guidelines set forth in Erosion and Sedimentation Laws/Regulations and Storm Water Management Laws/Regulations, will minimize any potential impacts to water quality.

The quality of the surface water will not be affected by the construction of the runway extension since no significant change in ground contour is required. Other than erosion control, provisions driving construction, there will be no impediment to stream flow or surface water runoff. No water or sewer services are involved or impacted. There will be no contamination of any public water supply system or waste disposal system. Therefore, for water quality, the threshold of significance will not be crossed.

G. DOT, SECTION 4(F) LANDS

This section is used to identify any publicly owned land including public parks and recreational areas, wildlife or waterfowl refuge, or land of a historic site, that would need to be acquired in order to complete the planned project. There are no DOT Section 4(f) lands contiguous to or in the vicinity of the Michael J. Smith Airport that will be affected by the construction of the runway. The project does not require the acquisition of any lands designated for public park and recreation areas. Therefore, there is no impact to DOT, Section 4(f) lands. The threshold of significance will not be crossed, see Exhibit 4-3.

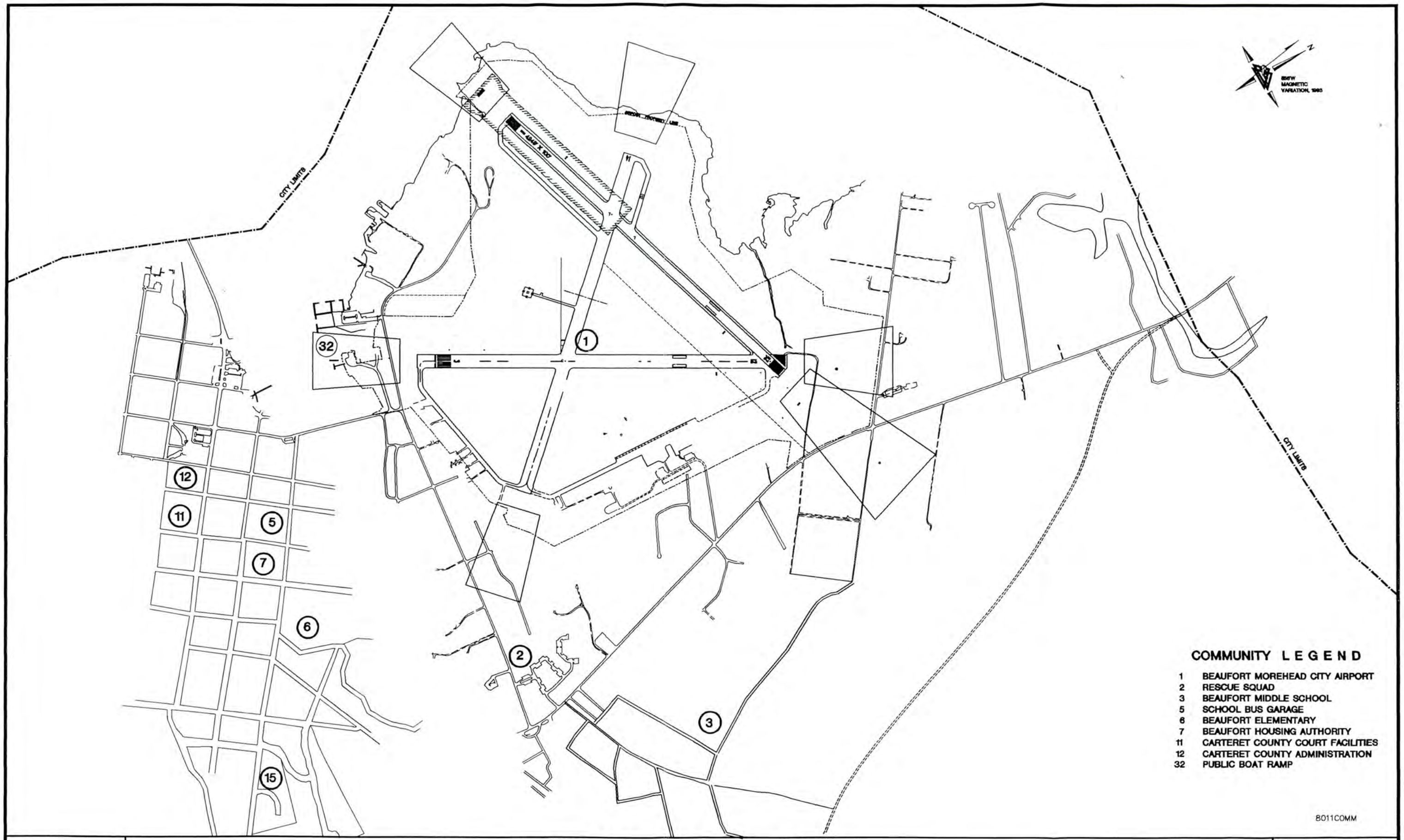
H. HISTORIC, ARCHITECTURAL, ARCHEOLOGICAL AND CULTURAL RESOURCES

Two (2) basic laws apply to this category of impact, both of which must be examined.

- The first law is the National Historic Preservation Act of 1966
- The second law is the Archeological and Historic Preservation Act of 1974

Through written correspondence with the State Department of Historic Resources, no historical artifacts within the proposed impact boundaries were found. A cultural resources survey for the project was conducted and the results are included in Appendix "E".

Based on the current information received through correspondence and the cultural resources survey, the threshold of significance relating to historic structures or archaeological resources will not be crossed.



MICHAEL J. SMITH AIRPORT
COMMUNITY FACILITIES

EXHIBIT
4-3

I. BIOTIC COMMUNITIES

Adherence to best management practices (BMP's) during construction will minimize or preclude impacts to the surrounding environment adjacent to the site. Coordination with the North Carolina Department of Environment and Natural Resources, through the State Clearinghouse, no rare or endangered species are known to be present in the vicinity of the airport. Therefore, since none of the plants identified on the proposed site are listed as endangered or threatened, the threshold of significance will not be crossed, see Appendix G.

J. ENDANGERED AND THREATENED SPECIES

The construction of Runway 26 extension should have no impact on Endangered and Threatened Species (ETS) in the area, or their habitat, based on reviewing local municipal reports. State clearinghouse coordination also confirmed this conclusion, see Appendix G.

K. WETLANDS

As a subconsultant for Delta Airport Consultants, Inc., Newkirk Environmental Inc. was employed to complete a wetlands delineation and assessment of lands proposed to be used for the extension of an existing runway at Michael J. Smith Field. Michael J. Smith Field is located adjacent to Highway 101 in the City of Beaufort, North Carolina. The specific project area reviewed by Newkirk Environmental, Inc. is located at the eastern end of Runway 8-26 between the existing paved runway and Highway 101. See Appendix "F" for the entire wetlands report.

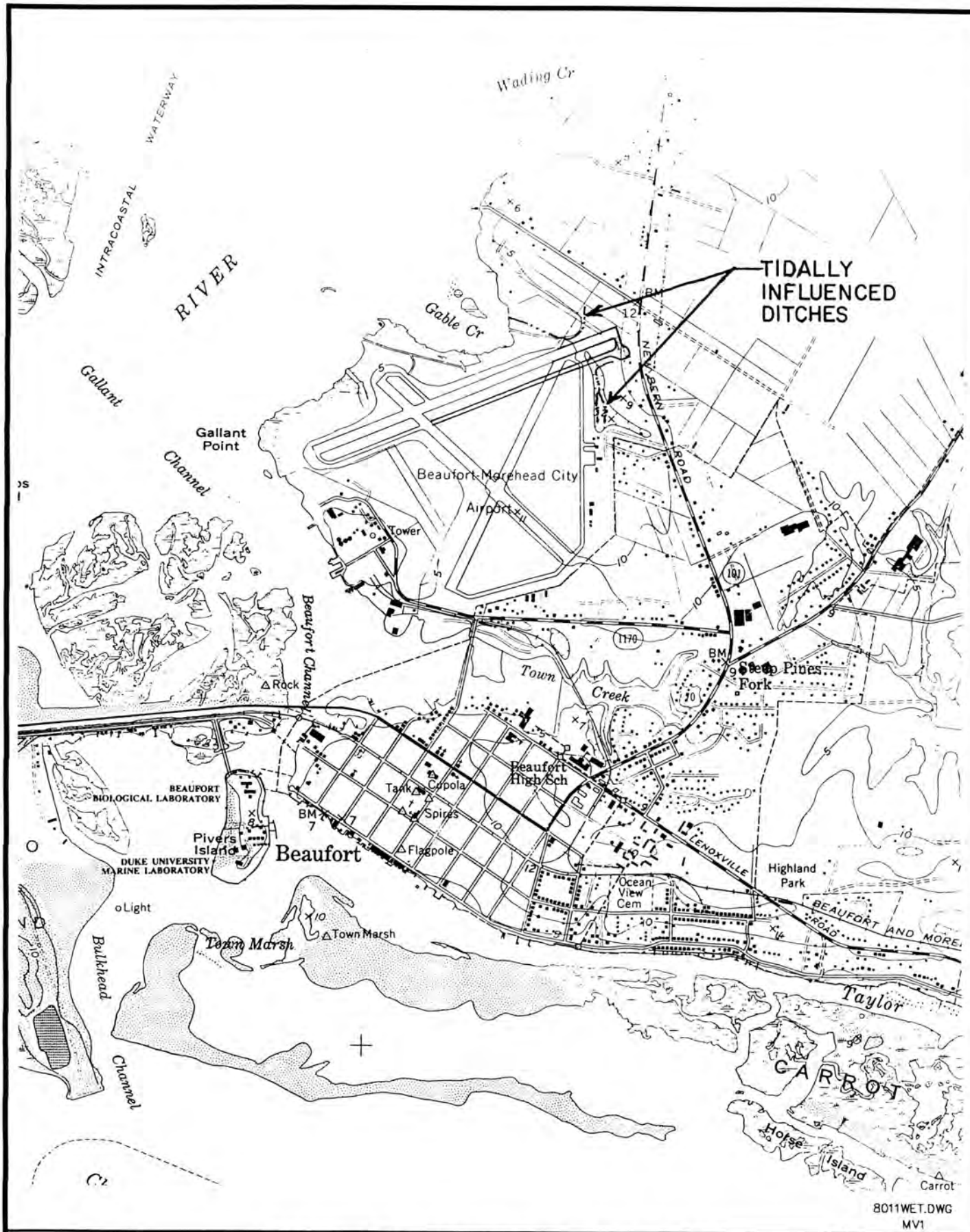
The area reviewed by Newkirk Environmental, Inc. consists of an open field maintained by routine mowing. Several former agricultural ditches and other active ditches bisect the

surveyed area. Surrounding areas across Highway 101 are currently utilized as agricultural lands for the production of row crops.

The project site appears to have been formerly used as agricultural land. Soils in the site are classified as, and match the description for, Augusta loamy fine sand and Araphahoe fine sandy loam. Both of these soils are listed as being somewhat poorly drained soils associated with low terraces adjacent to streams and sounds. Additionally, both soils have some problems associated with ponding and slow permeability, however, ditching and grading of the land is effective in reducing these impacts.

Wetlands identified in the site by Newkirk Environmental, Inc. are limited to salt water wetlands found in the lower reaches of some of the ditches, approximately 500 feet, that bisect the site, see Exhibit 4-4. Many of the ditches are not jurisdictional, however, those ditches that are subject to tidal inundation and influence and that are vegetated by salt marsh vegetation are jurisdictional. Pine and black striped flagging was tied to existing vegetation where the limits of jurisdiction stop. Beyond the flagged point, it is the opinion of Newkirk Environmental, Inc. that the ditches are upland cut and therefore are not jurisdictional.

It should be noted that, although Newkirk Environmental, Inc. is confident in its assessment, the U.S. Army Corps of Engineers and the North Carolina Division of Coastal Management are the only agencies that can make final decisions regarding wetland delineations, therefore, all preliminary determinations are subject to change until written verification is obtained. Until verification is received from the appropriate agencies, no legal reliance may be made in the preliminary determination. Newkirk Environmental, Inc. strongly recommends that a comprehensive delineation and field survey be completed and written verification be obtained prior to, beginning any site work or making any legal reliance on this determination. The Airport Authority will comply with an permitting requirements for this project.



MICHAEL J. SMITH AIRPORT
WETLANDS

EXHIBIT
4-4

Final verification of the identified wetlands may be obtained by completing a land survey of the wetlands, illustrating their location on a plat and submitting the appropriate information to the state and federal agencies for verification. In some circumstances, a member of the state and federal agencies may request a field review of the delineation. If a field review is not requested, verification will be made based upon aerial photography and available mapping. The verification process normally takes three (3) to four (4) weeks upon submittal to the agencies.

Newkirk Environmental, Inc. contacted the North Carolina Division of Coastal Management regarding procedures and potential for obtaining permits to impact the identified wetlands. Mr. Doug Huggett with the NCDCM indicated that permits were available to impact salt water wetlands and that they are issued on a case by case basis. Decisions regarding the permits are made based upon the size, location, and quality of the wetland proposed to be impacted.

Based upon discussions with the NCDCM and the proposed use of the land, it is the opinion of Newkirk Environmental, Inc. that obtaining a permit to impact these wetlands is worth pursuing. Mitigation of some form will likely be required.

Based upon Newkirk Environmental, Inc.'s review and survey of the site, very few wetlands are located within the project area. The identified wetlands consist of salt water wetlands confirmed to incised ditches. Because the wetlands are part of ditches and not major marsh bodies, it is Newkirk Environmental, Inc.'s opinion that portions of these wetlands may be filled, subject to the appropriate state and federal permits. If any activity is to occur in the project area, it is strongly recommended that the location of the wetlands be verified to see whether a wetlands permit is needed.

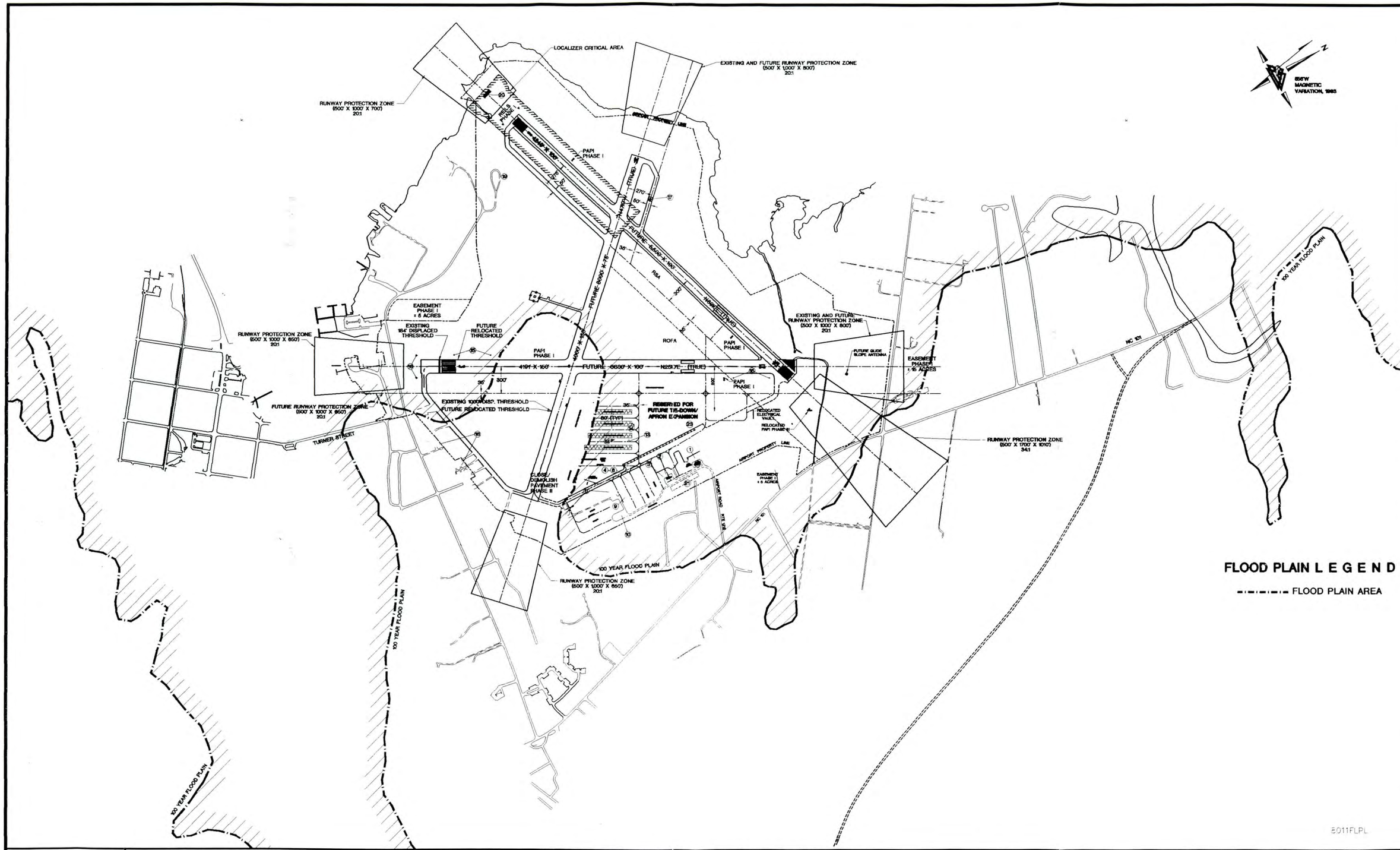
L. FLOODPLAINS

The Flood Insurance Rate Maps (FIRM) covering the proposed property and airport environs were examined to locate any flood prone areas. Because the proposed action and reasonable alternatives are located within the limits of a base floodplain, i.e., 100-year flood area, the action may indirectly support secondary development within a base floodplain or otherwise impact a base floodplain, see exhibit 4-5. Because coastal flood plains are so large and influenced not only by rainfall but wind and tides as well, a flood plain analysis and it's impact caused by the runway will not be a significant concern.

M. COASTAL ZONE MANAGEMENT PROGRAM

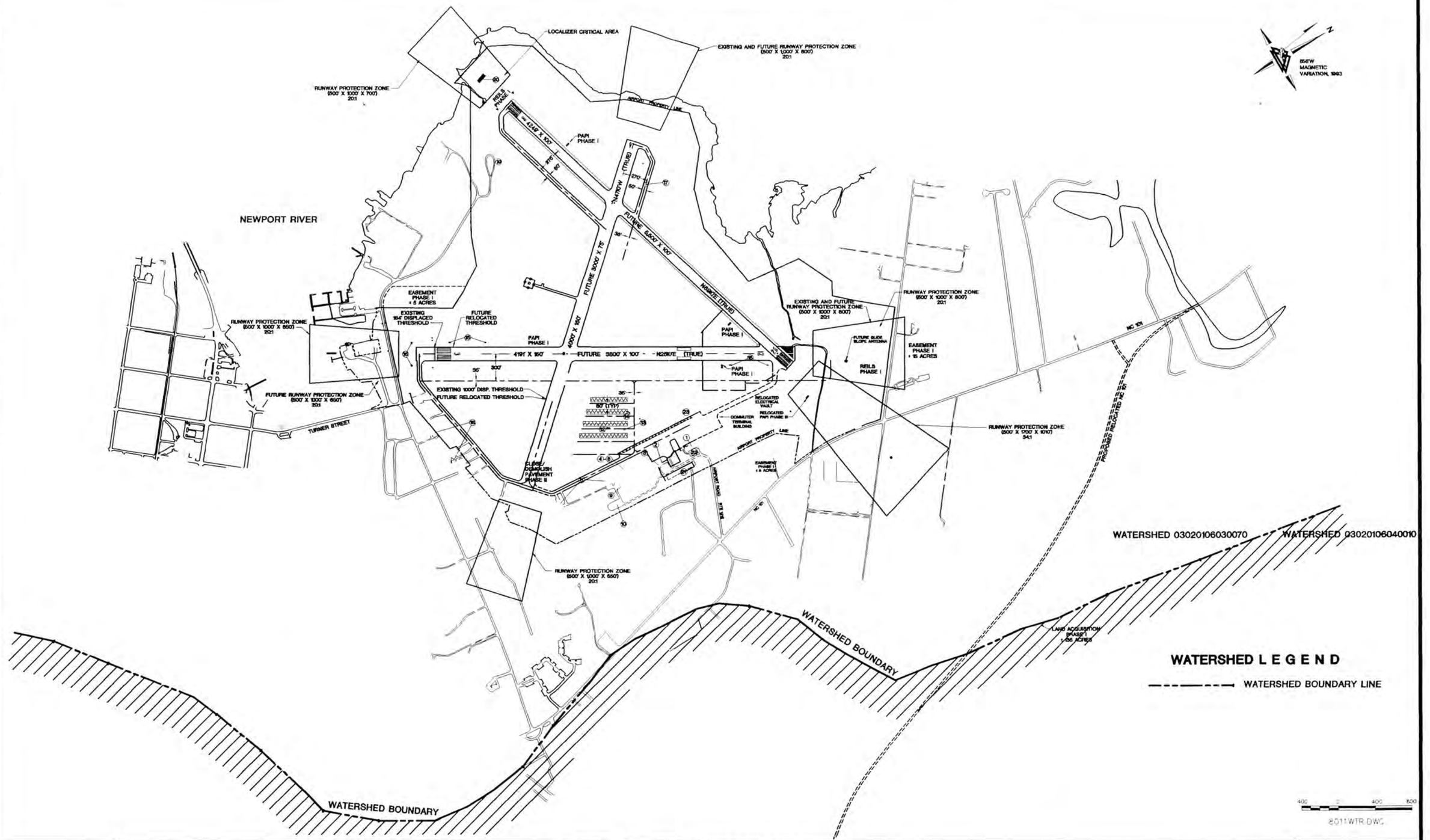
Federal consistency is the Coastal Zone Management Act (CZMA) requirement that federal actions that are reasonably likely to affect any land or water use or natural resource of the coastal zone be consistent with the enforceable policies of a coastal state's federally approved coastal management program ("CMP"). Federal actions include; (1) direct federal actions -- activities and development projects performed by a federal agency, or a contractor for the benefit of a federal agency; and (2) indirect federal actions -- activities not performed by a federal agency, but requiring federal permits or licenses or other forms of federal approval, and federal financial assistance to states and territories and local governments.

The Michael J. Smith Airport is located on the Newport River, see Exhibit 4-6, along the North Carolina coast. There are no significant impact or adverse affect on any coastal zone management program activities.



MICHAEL J. SMITH AIRPORT
100 YEAR FLOOD PLAIN AREA

EXHIBIT
4-5



MICHAEL J. SMITH AIRPORT
WATERSHED BOUNDARY

EXHIBIT
4-6

N. COASTAL BARRIERS

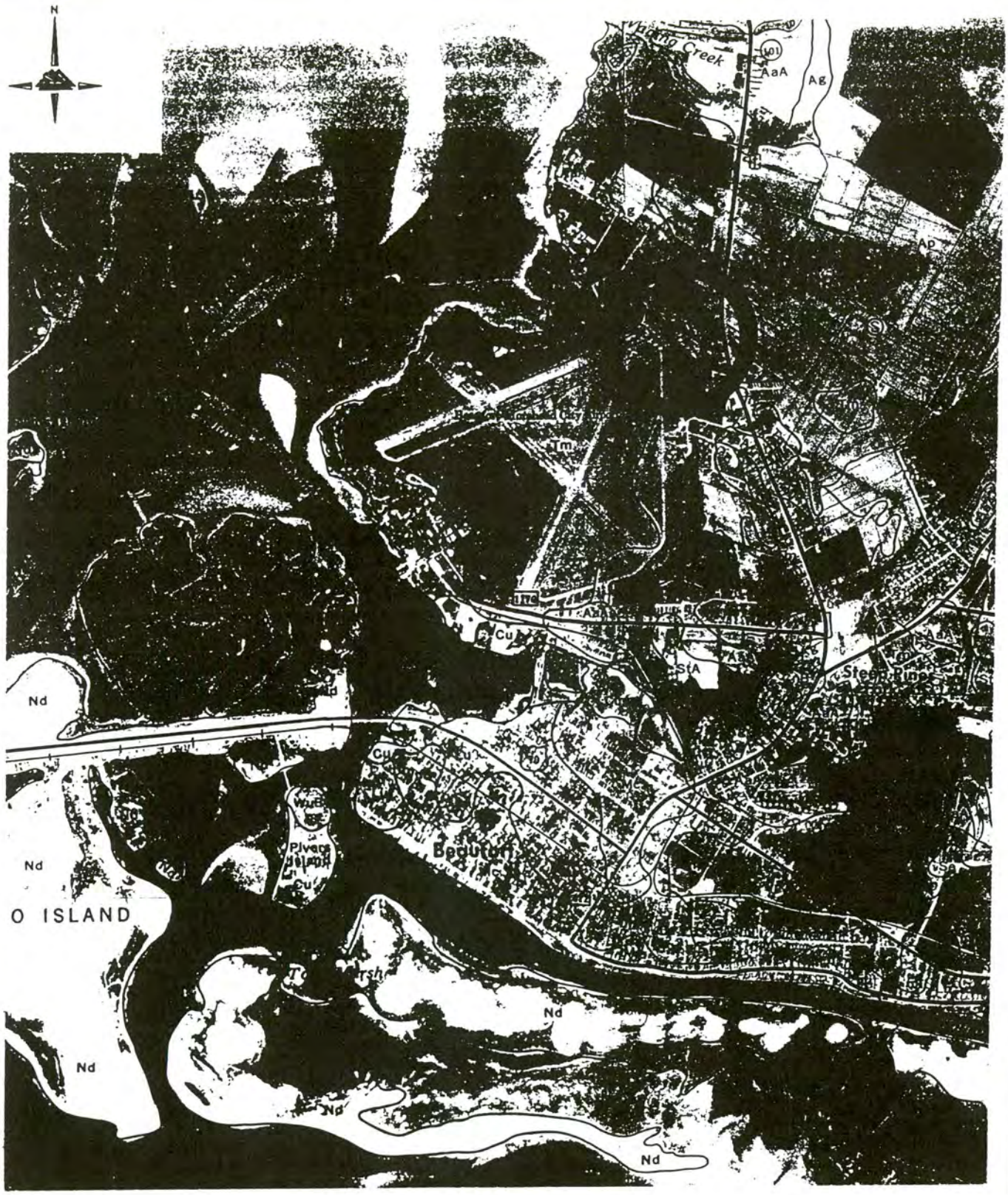
Coastal barriers typically refer to the barrier islands located along the Atlantic and Gulf Coasts. The location of the airport will not sustain any impact to the coastal barriers, nor cross the threshold of significance.

O. WILD AND SCENIC RIVERS

The Newport River, whose drainage basin includes the Airport project site, is not included on the list of state or federal list scenic rivers. The development of the runway extension should have no impact on the Newport River. Construction of the project would not involve tributary alternations or direct discharges of any kind to the river's waters. Implementation of an approved erosion and sedimentation control plan, with strict controls on stormwater runoff to tributary streams, will minimize the impact to these areas. Therefore, the threshold of significance will not be crossed.

P. FARMLAND

According to Order 5050.4A, "The Farmland Protection Policy Act (FPPA) authorizes the Department of Agriculture (USDA) to develop criteria for identifying the effects of Federal programs on the conversion of farmland to non-agricultural uses." Since the site for the runway extension already sits on airport property which is not presently farmed, no farmland will be converted to non-agricultural uses. Since this project does not require the acquisition of any farmland or taking of prime agricultural soils, the threshold of significance will not be crossed, see Figure 4-7.



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MICHAEL J. SMITH AIRPORT
SOILS MAP

EXHIBIT
4-7

Q. ENERGY SUPPLY AND NATURAL RESOURCES

There are several different categories that are addressed as "energy consumption." They include fuel used for ground vehicles and aircraft operations, as well as the use of natural gas and electricity for building operations and airfield lighting. The construction of the runway will not cause a significant increase in amount of energy required. Therefore, energy consumption will not cross the threshold of significance. Materials for construction are readily available and not in short supply.

R. LIGHT EMISSIONS

The construction of an extension to Runway 26 will have a minimal increase on light emissions at the Michael J. Smith Airport. Therefore, the threshold of significance will not be crossed.

S. SOLID WASTE IMPACTS

The project will not produce any quantity or types of solid waste appreciably different than if the project did not take place. Therefore, the threshold of significance will not be crossed.

T. CONSTRUCTION IMPACTS

In general, construction impacts are of short duration. When appropriate mitigation measures are taken, the actual construction impacts can be minimal. Several of the most common impacts caused by construction include air, water, and noise pollutants. As long as appropriate measures are taken to mitigate any impacts through following current federal, state, and local guidelines, the actual construction of the runway extension will

be environmentally safe. The project area will require minor grading, consequently, there will be minimal land disturbance. Therefore, the threshold of significance will not be crossed.

Several of the most common impacts caused by construction include air, water, and noise pollutants. The most noticeable pollutant during construction is perhaps air pollution, mainly dust, which can be handled easily by several different methods. Water can be used to keep appropriate areas damp, covered haul trucks can be used, and the use of dust palliatives and penetration asphalt on temporary roads can be utilized. Also, any on-site burning should be done in accordance with local ordinances. If a conscious effort is made, air pollutants, stemming from construction, can be maintained and kept within acceptable levels.

Water pollution can be mitigated by the implementation of Best Management Practices (BMPs). Best Management Practices is defined as a practice, or combination of practices, that is determined to be the most effective means of reducing the amount of pollution generated by nonpoint sources to a level compatible with water quality goals. The design of the airport will include practices to minimize the impact on the surrounding areas. The BMPs are designed in accordance with the Best Management Handbooks published by the North Carolina Department of Environmental and Natural Resources.

The most critical time for pollution of downstream areas is during the actual construction phase. The BMPs used during construction will consist of the methods outlined in the North Carolina Erosion and Sediment Control Handbook and FAA Specification Item P-156, "Temporary Air and Water Pollution, Soil Erosion and Sediment Control." Practices such as temporary sediment traps and temporary sediment basins will be used to detain sediment-laden runoff from disturbed areas to allow the majority of the sediment to settle out. Other methods, such as silt fence, diversion dikes, stone filters,

and inlet protection, will be used to intercept sediment and prevent it from entering drainage features prior to permanent stabilization of the disturbed areas. Temporary seeding of disturbed areas will be utilized in order to prevent erosion and soil loss.

To insure that the above BMPs are adhered to during construction, the Contractor will be required to develop and execute a Storm Water Pollution Prevention Plan in accordance with the Clean Water Act. This plan will outline the Contractor's erosion and sediment control practices, as well as his "good housekeeping" methods for waste disposal and spill prevention. Good housekeeping practices reduce the possibility of accidental spills, improve the response time if spills occur, and reduce safety hazards. Examples of good housekeeping on a construction project may include the following:

A. **Materials Management:** Neat and orderly storage of any chemicals, pesticides, fertilizers, fuels, etc., that are being stored at the site

- **Waste Disposal:** Regular garbage, rubbish, construction waste, and sanitary waste disposal

- **Spill Response:** Prompt cleanup of any spills of liquid or dry materials that have occurred

- **Offsite Tracking:** Cleanup of sediments that have been tracked by vehicles or have been transported by wind or storm water about the site or onto nearby roadways.

Management practices to minimize the potential for fuel/oil spills during construction should be implemented. Such practices could include the following:

- Designate a centralized fueling and storage area for all equipment

- Designate a centralized fueling and storage area for all equipment
- Where feasible, construct containment berm around fueling area
- Locate equipment and materials to clean up petroleum spills in fueling areas and on fuel trucks
- Perform regular preventative maintenance on all equipment to prevent leaks

In general, higher noise levels are perceived to be less irritating during daylight hours. Therefore, noise pollution can be kept to a minimum by utilizing the construction equipment during daylight hours only.

U. HAZARDOUS MATERIALS

Federal regulations require sponsors receiving Federal funds to assure property contains no hazardous materials. Consequently, prior to the acquisition of any property, an Environmental Due Diligence Audit (EDDA) will need to be conducted. The audit will determine if contamination or the potential for contamination exists on any property prior to being purchased.

A. ENVIRONMENTAL CONSEQUENCES, OTHER CONSIDERATIONS

During a careful evaluation, and thorough preparation of the Environmental Assessment, it has been concluded that the proposed runway extension at Michael J. Smith Airport will not have a significant impact upon the environment.

1. CONSISTENCY WITH OTHER PLANS

The proposed runway extension at Michael J. Smith Airport does not conflict with the objectives of any federal, state, regional or local land use plans, policies and controls -- either in Carteret County or within the immediate proposed airport vicinity, particularly the Town of Beaufort.

2. CUMULATIVE IMPACTS

A cumulative impact is defined by the Council on Environmental Quality as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or nonfederal) or persons undertakes such actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time." There are no known foreseeable actions associated with this project which would result in significant cumulative environmental impacts.

In examining the 21 impact categories cumulatively, the impacts are centered on short term construction impacts which can be mitigated by adherence to best management practices during construction and operation, and compliance with guidelines set forth by the State of North Carolina, Carteret County and the Town of Beaufort, and other regulatory agencies.

As stated in the purpose and need, the extension of Runway 8-26 is being proposed to accommodate existing demand. As the project is justified to serve business, corporate and general aviation aircraft, increases in air passenger traffic are anticipated. Significant construction activity in the three to five year planning period is expected to be limited to pavement rehabilitation and lighting projects which are not environmentally significant as separate or cumulative actions. These rehabilitative actions are anticipated for other pavements on the airport as they are needed.

Also, some increase in business or corporate aviation activity requiring the construction of additional apron or hangar facilities is anticipated. The Beaufort-Morehead City Airport Authority has been approached and been made aware of plans to relocate two (2) Citation series jets to the airport. However, land has been reserved on the airport for this development and this minor construction will not significantly contribute to any additional adverse impacts. Future development of corporate and general aviation facilities has been identified in the Master Plan Update completed in 1994.

No thresholds of significance are reached or exceeded for this project in any impact category at this time. Detailed field survey work was undertaken to evaluate wetlands and historic, archeological, and cultural resources.

3. ADVERSE IMPACTS WHICH CANNOT BE AVOIDED

There are several adverse impacts which cannot be avoided. These include social impacts. Parcels of property need to be purchased to develop the airport. Once taken, this property cannot be used for any other purpose.

Construction of a runway extension for the recommended alternative will directly impact six (6) parcels of land, five (5) property owners, and 16 acres for the runway protection zone. Land clearing activities prior to and during construction will cause minimal removal

of the natural land vegetation. Most of the land is in agricultural use or open space with little or no habitat. Property for the relocated power line will require a right-of-way linear easement over 5,000 feet x 50 feet across the same property owners.

4. PUBLIC PARTICIPATION

To provide an opportunity for residents in the area to comment on the proposed project, a public information meeting was held on May 18, 1999. The meeting was attended by 20-25 people. In addition, the Airport Authority has met with the Town of Beaufort Planning Commission on June 3, 1999 to discuss the projects and its impact to long term planning in the town.

A. ENVIRONMENTAL SUMMARY

The proposed runway extension of the Michael J. Smith Airport does not present any environmental consequences which cannot be addressed, minimized, or mitigated. The proposed runway extension is compatible with the current land uses and surroundings. There are no conflicts with federal, state, or local plans.

1. NOISE

The 65 DNL contours developed from projected aircraft operations for the year 2012 fall within the proposed airport property lines. The potential impacts will be minimized and the threshold of significance will not be crossed.

2. COMPATIBLE LAND USE

The Comprehensive Plans and Zoning Ordinances of the Town of Beaufort includes the airport. The Town's plan specifically prefers and recommends the extension of Runway 26. The airport site is currently classified as developed. The proposed runway extension of Michael J. Smith Airport is compatible with land uses in the immediate vicinity of the airport. The proposed extension of the runway will serve to mitigate overflights in existing established neighborhoods. For compatible land use considerations under the preferred alternative, the threshold of significance will not be crossed.

3. SOCIAL IMPACTS

The proposed runway extension will have minimal impact which would require acquisition of property and no relocation of residential properties or businesses, alter transportation

patterns, disrupt established communities or planned development, or create an appreciable change in employment. However, there are five (5) property owners whose portions of land will be acquired regarding this project. The threshold of significance, regarding social impacts of the runway extension at Michael J. Smith Airport will not be crossed.

4. INDUCED SOCIOECONOMIC IMPACTS

The proposed runway extension for Michael J. Smith would allow the airport to meet the current demand for certain aircraft. This would enhance the airport's efforts to maintain an efficient and cost effective facility. The induced socioeconomic impacts will not cross the threshold of significance.

5. AIR QUALITY

The air quality impacts of the project are below the de minimus levels as applied for nonattainment areas. The project is consistent with the State Implementation Plan; therefore, the threshold of significance will not be crossed.

6. WATER QUALITY

Construction of the runway extension will have no significant impact on aquatic systems near the proposed site area. Additionally, the majority of the construction area of the runway extension is on existing airport property. By adhering to best management practices (BMPs) during construction and operation, and complying with guidelines set forth in Erosion and Sedimentation Laws/Regulations and Storm Water Management Laws/Regulations, any potential impacts to water quality will be minimized. The threshold of significance, with mitigation, will not be crossed.

7. DOT, SECTION 4(F) LANDS

There are no DOT Section 4(f) lands in the vicinity of the runway extension. The project does not require the acquisition of any lands designated for public parks and recreational areas; therefore, the threshold of significance will not be crossed.

8. HISTORIC, ARCHITECTURAL, ARCHEOLOGICAL, AND CULTURAL RESOURCES

There are no significant impacts on historical structures or archaeological resources; therefore, the threshold of significance will not be crossed.

9. BIOTIC COMMUNITIES

No plants are known to exist on airport property which are listed as endangered or threatened on either the federal or state list; therefore, the threshold of significance will not be crossed.

10. ENDANGERED AND THREATENED SPECIES

No endangered or threatened species are known to be in the vicinity of the airport or noticed during any field surveys. The absence of impacts to habitat also means that any ETS will not be harmed by airport construction/operations; therefore, the threshold of significance will not be crossed.

11. WETLANDS

There are jurisdictional wetlands on the proposed site. However, the threshold of significance will not be crossed if proper mitigation and permitting procedures are followed.

12. FLOODPLAINS

Most of the current airport and the proposed runway extension lie in the 100 year floodplain. Because the floodplain is so large, the proposed project would not significantly increase the level of the floodplain to thresholds described in FAA Order 5050-4A.

13. & 14. COASTAL ZONE MANAGEMENT PROGRAM/COASTAL BARRIERS

The inland location of the runway extension at Michael J. Smith Airport should not sustain any impact to the coastal zone management program or coastal barriers, nor will the threshold of significance be crossed. However, a final consistency determination needs to be made by the NC Division of Coastal Management during clearinghouse review.

15. WILD AND SCENIC RIVERS

Since there are no proximate wild and scenic rivers in the vicinity of the runway extension, the threshold of significance will not be crossed.

16. FARMLAND

The recommended action will be constructed on airport property. Therefore, the runway extension at Michael J. Smith Airport will not have significant impact on the loss of farmland in the project area, nor will any thresholds of significance be crossed.

17. ENERGY SUPPLY AND NATURAL RESOURCES

An increase in consumption of energy will have no significant impact on the current energy supply and natural resources. The threshold of significance will not be crossed.

18. LIGHT EMISSIONS

The runway approach will extend over open agricultural area with very low population density, there will be no significant impact on the area. The light emissions of the runway extension will not cross the threshold of significance.

19. SOLID WASTE IMPACT

A review with local airport officials indicated that the projected quantity or types of solid waste generation and collection would not be appreciably different than if the project did not take place. Therefore, no significant impact on solid waste is anticipated, and the threshold of significance will not be crossed.

20. CONSTRUCTION IMPACTS

Temporary impacts of short duration will occur. Mitigation measures include erosion and sediment control, dust control, daylight construction only, and implementation of Best Management Practices; therefore, with mitigation, the threshold of significance will not be crossed.

21. HAZARDOUS MATERIALS

An environmental audit of the site has not been conducted. Consequently, the threshold of significance can not be determined. An environmental audit should be conducted prior to the purchase of any property for the development of the project.

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APPENDIX "A"

GLOSSARY

GLOSSARY

A

Abatement: The method of reducing the degree of intensity of pollution, also the use of such a method.

Absorption: The penetration of a substance into or through another. For example, in air pollution control, absorption is the dissolving of a soluble gas, present in an emission, in a liquid which can be extracted.

Acclimation: The physiological and behavioral adjustments of an organism to changes in its immediate environment.

Activated Sludge Process: The process of using biologically active sewage sludge to hasten breakdown of organic matter in raw sewage during secondary waste treatment.

Adhesion: The adhesion of a substance to the surface of a solid or liquid. Absorption is often used to extract pollutants by causing them to be attached to such absorbents as activated carbon or silica gel. Hydrophobic, or water-repulsing absorbents, are used to extract oil from waterways in oil spills.

Aeration: The process of being supplied or impregnated with air. Aeration is used in waste water treatment to foster biological and chemical purification.

Aesthetic: That which people find beautiful or attractive. The quality of being aesthetic is not the opposite of the qualities of "practicality" or "reality" but rather another aspect ow way of experiencing the same real world phenomena. Thus, blue shies, uncontaminated water, and uncluttered urban landscapes all have aesthetic impact, because they imply health, pleasure and security.

Air Mass: A widespread body of air with properties that were established while the air was situated over a particular region of the earth's surface and that undergoes specific modifications while in transit away from that region.

Air Navigational Facility (NAVAID): Any facility used for guiding or controlling flight in the air or during the landing or takeoff of aircraft.

Air Pollution: The presence of contaminants in the air in concentrations that prevent the normal dispersive ability of the air and that interfere directly or indirectly with man's health, safety or comfort or with the full use and enjoyment of his property.

Air Pollution Episode: The occurrence of abnormally high concentrations of air pollutants usually due to low winds and temperature inversion and accompanied by an increase in illness and death.

Air Quality Control Region: An area designed by the federal government where two or more communities - either in the same or different states - share a common air pollution system.

Air Quality Standards: The prescribed level of pollutants in the outside air that cannot be exceeded legally during a specified time in a specified geographical area.

Aircraft Mix: An arbitrary classification system which identifies and groups aircraft having similar operational characteristics for the purpose of computing runway capacity.

Airshed: The air overlying any arbitrary geographical region, frequently lumping together adjacent cities or areas which share intermixed air pollution problems.

ALP: Airport Layout Plan.

Alternatives: Under NEPA, all reasonable alternatives to the proposed action/project, including the no action alternative, must be considered in the EIS/EIR; under SEQRA, only those that meet project objectives and that produce lesser impacts must be considered along with the no action alternative.

Ambient Air: Any undefined portion of the atmosphere; the outside air.

Anti-Degradation Clause: A provision in air quality and water quality laws that prohibits deterioration of air or water quality in areas where the pollution levels are presently below those allowed.

Aquifer: An underground bed or stratum of earth, gravel, or porous stone that contains water.

Aquatic Plants: Plants that grow in water either floating on the surface, growing up from the bottom of the body of water, or growing under the surface of the water.

Archeological Site: The location of a significant event, a prehistoric, or historic occupation or activity, or a building or structure, whether standing, ruined, or vanished, where the location itself maintains historical or archeological value regardless of the value of any existing structure.

Area Source: In air pollution, any small individual fuel combustion source, including any transportation sources. This is a federal definition; area source is legally and precisely defined in federal regulations. See point source.

A-Scale Sound Level: The measurement of sound approximating the auditory sensitivity of the human ear. The A-Scale sound level is used to measure the relative noisiness or annoyance of common sounds.

ASDS: Aircraft Sound Description System - A system of estimating noise exposure based on minutes of exposure greater than 35 decibels.

Assimilation: Conversion or incorporation of absorbed nutrients into protoplasm. Also refers to the ability of a body of water to purify itself of organic pollution.

Audiometer: An instrument for measuring hearing sensitivity.

B

Background Level: With respect to air pollution, amounts of pollutants present in the ambient air due to natural resources.

Background Radiation: Normal radiation present in the lower atmosphere from cosmic rays and from earth sources.

Bioassay: the employment of living organisms to determine the biological effect of some substance, factor, or condition.

Biochemical Oxygen Demand (BOD): A measure of the amount of oxygen consumed in the biological processes that break down organic matter in water. Large amounts of organic waste use up large amounts of dissolved oxygen. Thus the greater the degree of pollution, the greater the BOD.

Biodegradable: The process of decomposing quickly as a result of the action of microorganisms.

Biomonitoring: The use of living organisms to test the suitability of effluent for discharge into receiving waters and to test the quality of such waters downstream from a discharge.

Biota: All the species of plants and animals occurring within a certain area.

BOD: The amount of dissolved oxygen consumed in five days by biological processes breaking down organic matter in an effluent. See biological oxygen demand.

Bog: Wet, spongy land usually poorly drained, highly acid, and rich in plant residue.

BTU: "British Thermal Unit." The amount of heat required to raise the temperature of one pound of water one degree fahrenheit at its point of maximum density.

Bulk Emissions: The aggregate of air pollutant emissions from various sources for a given period of time.

C

Carbon Monoxide (CO^2): A colorless, odorless, highly toxic gas that is a normal byproduct of incomplete fossil combustion. CO, one of the major air pollutants, can be harmful in small amounts if breathed over a certain period of time.

Carcinogenic: Cancer producing.

Catalytic Converter: An air pollution abatement devise that removes organic contaminants by oxidizing them into carbon dioxide and water through chemical reaction. Can be used to reduce nitrogen oxide emissions from motor vehicles.

Channelization: The straightening and deepening of streams to permit water to move faster, to reduce flooding, or to drain marshy acreage for farming. However, channelization reduces the organic waste assimilation capacity of the stream and may disturb fish breading and destroy the stream's natural beauty, flood retention capability, and ability to recharge aquifers.

Chemical Oxygen Demand (COD): A measure of the amount of oxygen required to oxidize organic and oxidizable inorganic compounds in water. The COD test, like the BOD test, is used to determine the degree of pollution in an effluent.

Climax Vegetation: The final, stable vegetation community in an ecosystem which will remain in an area if undisturbed.

Coastal Zone: Coastal waters and adjacent lands that exert a measurable influence on the uses of the sea and its ecology.

COD: See chemical oxygen demand.

Combined Sewers: A sewerage system that carries both sanitary sewage and storm water runoff.

Composting: A controlled process of degrading organic matter by microorganisms.

Conditioned(al) Negative Declaration: A negative declaration issued by a lead agency for an unlisted action, involving an applicant, in which the action as initially proposed may result in one or more significant adverse environmental effects; however, mitigation measures identified and required by the lead agency will modify the proposed actions so that no significant adverse environmental impacts will result.

Cumulative Impact: The impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

D

Decibel: The unit of measurement of the intensity of sound, wherein an increase of 10 decibels is equivalent to a doubling of sound level.

Decomposers: Living plants and animals, chiefly fungi and bacteria, that live by extracting nutrients from the tissues of dead plants and animals. vital to the life cycle.

Desiccant: A chemical agent that may be used to remove moisture from plants or insects causing them to wither and die.

Dew Point: The temperature at which a given percentage of moisture in the air condenses into droplets of water.

Dispersion: The process by which air pollutants emitted by a point or area source are mixed through dilution with clean air according to the dynamics of the atmosphere.

Dissolved Oxygen: Oxygen suspended in water in the form of microscopic bubbles.

Dissolved Solids: The total amount of dissolved material, organic or inorganic, contained in water or wastes.

E

Ecological Impact: The total of an environmental change, either natural or human-made, o the ecology of the area.

Ecology: The interrelationships of living things to one another and to their environment or the study of such interrelationships.

Ecosystem: An integrated unity or "system" in nature, sufficient unto itself with a balanced assortment of life forms, to be studied as a separate entity. Examples might be a rotting log in a forest, a pond, a coral atoll, a continent, or the earth itself.

Effluent: A discharge from an exit that is relatively self-contained such as an industrial smokestack, nuclear power plant, thermal plume, or a sewage treatment plant. In common usage, referred to as a source of pollution, or as the pollution itself. Generally used in regard to discharges into waters.

Emission: See effluent. (Generally used in regard to discharges into air.)

Emission Factor: The average amount of a pollutant emitted from each type of polluting source in relation to a specific amount of material processed. For example, an emission factor for a blast furnace (used to make iron) would be a number of pounds of particulates per tone of raw materials.

Emission Inventory: A list of air pollutants emitted into a community's atmosphere, in amounts (usually tons) per day, by type or source. The emission inventory is basic to the establishment of emission standards.

Emission Standard: The maximum amount of pollutant legally permitted to be discharged from a single source, either mobile or stationary.

Environment: the physical conditions which will be affected by a proposed action, including land, air, water, minerals, flora, fauna, noise, resources of agricultural, archeological, historic, or aesthetic significance, existing patterns of pollution concentration, distribution or growth, existing community or neighborhood character, and human health.

Environmental Quality: Environmental quality refers to the properties and characteristics of the environment, either generalized or local, as they impinge on human beings and other organisms. Environmental quality is a general term which can refer to 1) varied characteristics such as air and water pollution, noise, access to open space, and the visual effects of building and 2) the potential effects which such characteristics may have on physical and mental health.

Environmental Impact Analysis: The orderly and logical process by which the potential impact of a proposed development project on its immediate and more distant environments is analyzed. Types of analyses may range from impact on animal and plant life to impact on urban economy or health, depending on the nature and location of the development project.

Environmental Impact Statement: The actual presentation that results from an environmental impact analysis. It may be in the form of test, statistics, matrices, visual overlays, film, computer graphics and other graphic techniques, or a combination of any or all of these, depending on the client and the nature of the development project.

Erodibility Factor: The "k" factor in the soil less equations. The amount of soil which erodes from a standard experimental plot of bare soil under standard conditions of slope, rainfall, etc. It varies with the physical characteristics of the soil.

F

FAA: Federal Aviation Administration.

FAR: Federal Aviation Regulation.

Finding of No Significant Impact (FONSI) Negative Declaration: A document by the environmental reviewing agency briefly presenting the reasons why an action will not have a significant effect on the environment and for which an EIS therefore will not be prepared.

Fleet Mix: The proportion of aircraft types or models expected to operate at an airport.

Flood Peak: Maximum instantaneous flow of stream channel water movement.

Forbs: Non-Grassy herbaceous plants.

G

GA - General Aviation: Refers to all civil aircraft and operations which are not classified as air carrier.

Generic EIS/EIR: An EIS or EIR on implementation of programs and developments of policies where the combined results or activities under such programs or policies may result in cumulative damage to the environment not otherwise susceptible to adequate review. A generic EIS/EIR may be particularly appropriate as a planning aid to agencies contemplating significant revisions to regulations, policies, or programs.

Green Belts: Certain areas restricted form being used for buildings and houses; they often serve as separating buffers between pollution sources and concentrations of population.

Ground Cover: Grasses or other plants grown to keep soil from being blown or washed away.

Groundwater: The supply of fresh water under the earth's surface in an aquifer or soil that forms the natural reservoir for man's use.

Groundwater Runoff: Groundwater that is discharged into a stream channel as spring or seepage water.

H

Habitat: The sum total of environmental conditions of a specific place that is occupied by an organism, a population, or a community.

Hazardous Air Pollutant: According to law, a pollutant wo which no ambient air quality standard is applicable and that may cause or contribute to an increase in mortality or in serious illness. For example, asbestos, beryllium, and mercury have been declared hazardous air pollutants.

I

Implementation Plan: A document of the steps to be taken to ensure attainment of environmental quality standards within a specified time period. Implementation plans are required by various laws.

Interceptor Sewers: Sewers used to collect the flows from main and trunk sewers and carry them to a central point for treatment and discharge.

Interested Agency: An agency that lacks the jurisdiction to fund, approve, or directly undertake an action, but wishes to participate in the review process because of its specific expertise and concern about the proposed action. An "interested agency" has the same ability to participate in the review process as a member of the public.

L

Lapse Rate: The rate at which air temperature decreased with height.

Leaching: The process by which soluble materials in the soil, such as nutrients, pesticide chemicals, or contaminants are washed into a lower layer of soil or redissolved and carried away by water.

Lead Agency: Agency principally responsible for carrying out, funding, or approving an action, and therefore responsible for determining whether an EIS/EIR is required in connection with the action, and for the preparation and filing of the EIS/EIR if one is required.

L_{dn} - Day Night Average Sound Level: The 24-hour equivalent sound level (L_{eq}) with a 10-decibel penalty applied to nighttime (10 p.m. - 7 a.m.) levels.

L_{eq} - Equivalent Sound Level: The equivalent A weighted sound level for a specified period of time.

LTO Cycle: Landing Takeoff Cycle.

M

Masking: Covering over of one sound or element by another. Quantitatively, masking is the amount of the audibility threshold that one sound is raised by the presence of a second masking sound. Also used in regard to odors.

Master Plan: Long-range plan or airport development requirements.

MGD: Millions of gallons per day. MGD is commonly used to express rate of flow.

Microclimate: Localized climatic conditions which are different from the regional climate.

Microgram: One millionth of a gram.

Microgram Per Cubic Meter: One millionth of a gram dispersed in cone cubic meter of air.

Ministerial Act: An action performed upon a given state of facts in a prescribed manner imposed by law without the exercise of any judgement or discretion as to the proprietary of the action, such as the granting of a hunting or fishing license.

Mitigation/Mitigation Measures: Include:
a. Avoiding an environmental impact altogether by not taking a certain action or parts of an action.

b. Minimizing impacts by limiting the degree or magnitude of the action and its implementation.

c: Rectifying the impact by repairing, rehabilitation, or restoring the affected environment.

d. Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.

e. Compensating for the impact by replacing or providing substitute resources or environments.

Monitoring: Periodic or continuous determination of the amount of pollutants or radioactive contamination present in the environment.

Movement: Synonymous with the term operation; i.e., a takeoff or a landing.

MSL: Mean Sea Level.

N

NAVAID: See Air Navigation Facility.

NEPA: National Environmental Policy Act, 1969.

Niche: Both the physical place and the ecological role of an organism in a particular community.

No Action Alternative: Analysis of future conditions if no action is taken regarding the proposed project.

Noise Abatement: A procedure for the operation of aircraft at an airport which minimizes the impact of noise on the environs of the airport.

O

Operation: An aircraft arrival at or departure from an airport.

P

PANCAP: Practical Annual Capacity.

Participating Agency: An agency to which an application for a permit or for financial assistance has been or will be made.

Peak-Day Activity: That level of activity, existing or forecast, which is representative of typical peak-day conditions; demand levels in excess of the peak-day value may occasionally occur as atypical highs.

Permit: A permit, lease, license certificate or other entitlement for use or permission to act that may be granted or issued by an agency.

pH: A measure of the acidity or alkalinity of a material, liquid, or solid. pH is represented on a scale of 0 to 14 with 7 representing a neutral state, 0 representing the most acid and 14 the most alkaline.

Physiographic: The geographic and topographic characteristics of an area.

Point Source: In air pollution, a stationary source of a large individual emission, generally of an industrial nature.

Pollutant: Any introduced gas, liquid, or solid that makes a resource unit for a specific purpose.

Pollution: The presence of matter or energy whose nature, location, or quantity produces undesired environmental effects.

Positive Declaration: A determination by the environmental agency that a development of action under consideration will have a significant adverse environmental impact, and, therefore will require and EIS.

PPM: Parts per million.

Primary Treatment: The first stage in waste water treatment in which substantially all floating or settleable solids are mechanically removed by screening and sedimentation.

Project: Work, project, or activity either directly undertaken by an agency, or if undertaken by a person, which seeks the provision of financial assistance by an agency or requires the issuance of permits by an agency.

Project Sponsor: A person or agency, including a designee or successor in interest, which undertakes or has a major role in the undertaking of a project.

Pumping Station: A station at which sewage is pumped to a higher level.

R

Receiving Waters: Rivers, lakes, oceans, or other bodies that receive treated or untreated waste waters.

Retention Pond: An artificial basin or impoundment constructed to temporarily hold storm water runoff.

Runoff: The portion of rainfall, melted snow, or irrigation water that flows across ground surface and eventually is returned to streams. Runoff can pick up pollutants from the air or the land and carry them to the receiving waters.

S

Sanitary Landfilling: An engineered method of solid waste disposal on land in a manner that protects the environment; waste is spread in thin layers, compacted to the smallest practical volume, and covered with soil at the end of each working day.

Sanitary Sewers: Sewers that carry only domestic or commercial sewage. Storm water runoff is carried in a separate system. See storm sewer.

Scope: A written statement by the lead agency representative which specified the form, content, level of detail, and alternatives required for the EIS/EIR. The scope: to determine the form, content, level of detail, and alternatives for an EIS/EIR.

Scoping: The process by which the lead agency identifies the significant issues related to the proposed action which are to be addressed in the draft EIS including, where possible, the content and level of detail of the analysis, the range of alternatives, the mitigation measures needed to minimize or eliminate adverse impacts, and the identification of nonrelevant issues. Scopeing is intended to promote the efficiency of the lead agency's review of the draft EIS, to provide an applicant with guidance on matters which must be considered, and to provide an opportunity for early involved agency and public awareness of the proposal.

Secondary Treatment: Waste water treatment, beyond the primary stage in which bacteria consume the organic parts of the waste. This biochemical action is accomplished by use of trickling filters or the activated sludge process.

Segmentation: The division of the environmental review of an action such that various activities or stages are addressed as though they were independent, unrelated activities, needing individual determinations of significance.

Significance: Subjective judgment by the lead agency about the relative effect of a proposed action. It recognizes that many actions will occur which have an effect on the environment but which do not rise to the appropriate threshold in context or intensity based on criteria set forth in the environmental regulations.

Significant: In relation to environmental analysis, the term includes considerations of importance and magnitude, primarily the former.

Soil Loss Equation: Equation used to determine the amount of soil which will erode from a unit area over a year's time under varying conditions of rainfall, slope, etc.

Solid Waste Management: The purposeful, systematic control of the generation, storage, collection, transport, separation, processing, recycling, recovery, and disposal of solid wastes.

Storm Sewer: A conduit that collects and transports rain and snow runoff back to the groundwater. In a separate sewerage system, storm sewers are entirely separate from those carrying domestic and commercial waste water.

Subjective: That which cannot be measured according to agreed upon standards or techniques. Whether or not such agreed standards or techniques exist is in no way related to the importance or significance of an environmental impact question.

Substantial: In relation to environmental analysis, the term "substantial" implies an impact which is sufficiently great to alter the basic nature or substance of an environmental system or element.

T

Tertiary Treatment: Waste water treatment beyond the secondary, or biological stage that includes removal of nutrients such as phosphorus and nitrogen, and a high percentage of suspended solids. Tertiary treatment, also known as advanced waste treatment, produces a high quality effluent.

Thermal Pollution: Degradation of water quality by the introduction of a heated effluent.

Threshold Dose: The minimum dose of a given substance necessary to produce a measurable physiological or psychological effect.

Tidelands: Generally, all lands and waters now or formerly lying between the high water mark and the seaward limit of the state's jurisdiction.

Tiering: Refers to a coverage of general matters in broader EISs/EIRs (such as national program or policy statements) with subsequent narrower statements or environmental analyses (such as regional or basin-wide program statement) incorporating by reference the general discussions and concentrating solely on the issue specific to the statement subsequently prepared.

W

Water Pollution: The addition of sewage, industrial wastes, or other harmful or objectionable material to water in concentrations or in sufficient quantities to result in measurable degradation of water quality.

Water Quality Criteria: The levels of pollutants that affect the suitability of water for a given use. Generally, water use classification includes: public water supply; recreation; propagation of fish and other aquatic life; agricultural use; and industrial use.

Water Quality Standard: A plan for water quality management containing four major elements. The use (recreation, drinking water, fish and wildlife propagation, industrial or agricultural) to be made of the water; criteria to protect those uses; implementation plans (for needed industrial-municipal waste treatment improvements) and enforcement plans; and an anti-degradation statement to protect existing high quality water.

Worst Case Analysis: In situations where specific information is unavailable or incomplete, or where scientific uncertainty exists, a worst-case analysis must be presented with an EIS/EIR, as well as, an evaluation of the probability of occurrence.

APPENDIX "B"

AIRPORT NOISE RESULTS

NM 5.2 ECHO REPORT 17-May-99 10:32

STUDY: J:\DOWNLOAD\SMITH1\
Created : 02-Mar-99 18:58
Units : English
Airport :
Description :
Michael J. Smith Airport

ASE: BASECASE
Created date: 03-Mar-99 14:04
Description : 1999

STUDY AIRPORT
Lat : 34.737879 deg
Long : -76.655950 deg
Elev : 11.00 ft
Temp : 64.00 F
Press : 29.92 in-Hg
Wind : 8.00 knt

STUDY RUNWAYS
03
Lat : 34.727468 deg
Long : -76.661909 deg
X : -0.2947 nmi
Y : -0.6236 nmi
Elevation: 6.9 ft
OtherEnd : 21
Length : 4190 ft
Gradient : 0.01%
Wind : 8.0 knt
TkoThrsh : 0 ft
AppThrsh : 184 ft
08
Lat : 34.733234 deg
Long : -76.668751 deg
X : -0.6330 nmi
Y : -0.2782 nmi
Elevation: 7.2 ft
OtherEnd : 26
Length : 4248 ft
Gradient : 0.01%
Wind : 8.0 knt
TkoThrsh : 0 ft
AppThrsh : 0 ft
08X
Lat : 34.733234 deg
Long : -76.668751 deg
X : -0.6330 nmi
Y : -0.2782 nmi
Elevation: 11.0 ft
OtherEnd : 26Y
Length : 5011 ft
Gradient : 0.00%
Wind : 8.0 knt
TkoThrsh : 0 ft
AppThrsh : 0 ft
14
Lat : 34.736192 deg
Long : -76.665519 deg
X : -0.4732 nmi
Y : -0.1010 nmi
Elevation: 7.1 ft
OtherEnd : 32
Length : 4000 ft
Gradient : 0.10%
Wind : 8.0 knt
TkoThrsh : 0 ft
AppThrsh : 0 ft
21
Lat : 34.737879 deg
Long : -76.655950 deg
X : 0.0000 nmi
Y : 0.0000 nmi
Elevation: 7.4 ft
OtherEnd : 03
Length : 4190 ft
Gradient : -0.01%
Wind : 8.0 knt

```
    TkoThrsh : 0 ft
    AppThrsh : 0 ft
 26
    Lat      :   34.737602 deg
    Long     :  -76.655637 deg
    X        : 0.0155 nmi
    Y        : -0.0166 nmi
    Elevation: 7.8 ft
    OtherEnd : 08
    Length   : 4248 ft
    Gradient : -0.01%
    Wind     : 8.0 knt
    TkoThrsh : 0 ft
    AppThrsh : 0 ft
 26Y
    Lat      :   34.738463 deg
    Long     :  -76.653321 deg
    X        : 0.1300 nmi
    Y        : 0.0350 nmi
    Elevation: 11.0 ft
    OtherEnd : 08X
    Length   : 5011 ft
    Gradient : 0.00%
    Wind     : 8.0 knt
    TkoThrsh : 0 ft
    AppThrsh : 0 ft
 32
    Lat      :   34.728759 deg
    Long     :  -76.655711 deg
    X        : 0.0118 nmi
    Y        : -0.5463 nmi
    Elevation: 11.1 ft
    OtherEnd : 14
    Length   : 4000 ft
    Gradient : -0.10%
    Wind     : 8.0 knt
    TkoThrsh : 0 ft
    AppThrsh : 1001 ft

STUDY TRACKS
  RwyId-OpType-TrkId
    Sub  PctSub   TrkType   Delta(ft)
 03 -APP-1
    0   100.00   Vectors     0.0
 03 -DEP-1
    0   100.00   Vectors     0.0
 03 -DEP-2
    0   100.00   Vectors     0.0
 08 -APP-1
    0   100.00   Vectors     0.0
 08 -DEP-1
    0   100.00   Vectors     0.0
 08 -DEP-2
    0   100.00   Vectors     0.0
 08X-APP-1
    0   100.00   Vectors     0.0
 08X-DEP-1
    0   100.00   Vectors     0.0
 08X-DEP-2
    0   100.00   Vectors     0.0
 14 -APP-1
    0   100.00   Vectors     0.0
 14 -APP-2
    0   100.00   Vectors     0.0
 14 -DEP-1
    0   100.00   Vectors     0.0
 14 -DEP-2
    0   100.00   Vectors     0.0
 14 -DEP-3
    0   100.00   Vectors     0.0
 21 -APP-1
    0   100.00   Vectors     0.0
 21 -APP-2
    0   100.00   Vectors     0.0
 21 -APP-3
    0   100.00   Vectors     0.0
 21 -DEP-1
    0   100.00   Vectors     0.0
 21 -DEP-2
    0   100.00   Vectors     0.0
 21 -DEP-3
```

```
    0   100.00   Vectors      0.0
 21 -TGO-1
    0   100.00   Vectors      0.0
 26 -APP-1
    0   100.00   Vectors      0.0
 26 -APP-2
    0   100.00   Vectors      0.0
 26 -DEP-1
    0   100.00   Vectors      0.0
 26 -DEP-2
    0   100.00   Vectors      0.0
 26 -DEP-3
    0   100.00   Vectors      0.0
 26 -TGO-1
    0   100.00   Vectors      0.0
26Y-APP-1
    0   100.00   Vectors      0.0
26Y-APP-2
    0   100.00   Vectors      0.0
26Y-APP-3
    0   100.00   Vectors      0.0
26Y-DEP-1
    0   100.00   Vectors      0.0
26Y-DEP-2
    0   100.00   Vectors      0.0
26Y-DEP-3
    0   100.00   Vectors      0.0
26Y-TGO-1
    0   100.00   Vectors      0.0
 32 -APP-1
    0   100.00   Vectors      0.0
 32 -DEP-1
    0   100.00   Vectors      0.0
 32 -DEP-2
    0   100.00   Vectors      0.0

STUDY TRACK DETAIL
   RwyId-OpType-TrkId-SubTrk
         SegType       Param1     Param2(nmi)
   03 -APP-1   -0
      1  Straight    20.0000 nmi
      2  RightTurn   45.0000 deg    0.5550
      3  Straight     1.5000 nmi
      4  RightTurn   90.0000 deg    0.3889
      5  Straight     0.5550 nmi
      6  RightTurn   90.0000 deg    0.3889
      7  Straight     0.5550 nmi
   03 -DEP-1   -0
      1  Straight     1.0000 nmi
      2  RightTurn   75.0000 deg    0.5550
      3  Straight    20.0000 nmi
   03 -DEP-2   -0
      1  Straight     1.0000 nmi
      2  LeftTurn    45.0000 deg    0.3889
      3  Straight    20.0000 nmi
   08 -APP-1   -0
      1  Straight    20.0000 nmi
      2  LeftTurn    45.0000 deg    0.3889
      3  Straight     0.9675 nmi
   08 -DEP-1   -0
      1  Straight    20.0000 nmi
   08 -DEP-2   -0
      1  Straight     1.0000 nmi
      2  LeftTurn    60.0000 deg    0.5000
      3  Straight    20.0000 nmi
   08X-APP-1   -0
      1  Straight    20.0000 nmi
      2  LeftTurn    45.0000 deg    0.3889
      3  Straight     1.5000 nmi
      4  LeftTurn    45.0000 deg    0.3889
      5  Straight     0.5550 nmi
      6  LeftTurn    90.0000 deg    0.5550
      7  Straight     0.5225 nmi
   08X-DEP-1   -0
      1  Straight     1.0000 nmi
      2  RightTurn   75.0000 deg    0.5550
      3  Straight    20.0000 nmi
   08X-DEP-2   -0
      1  Straight     0.9750 nmi
      2  LeftTurn    45.0000 deg    0.3899
      3  Straight    20.0000 nmi
```

```
14 -APP-1   -0
    1  Straight    20.0000 nmi
    2  LeftTurn    45.0000 deg    0.3289
    3  Straight     0.7750 nmi
14 -APP-2   -0
    1  Straight    20.0000 nmi
    2  RightTurn   45.0000 deg    0.8890
    3  Straight     0.7750 nmi
14 -DEP-1   -0
    1  Straight    20.0000 nmi
14 -DEP-2   -0
    1  Straight     1.0000 nmi
    2  LeftTurn    60.0000 deg    0.8224
    3  Straight    20.0000 nmi
14 -DEP-3   -0
    1  Straight     1.0000 nmi
    2  RightTurn   60.0000 deg    0.8224
    3  Straight    50.0000 nmi
21 -APP-1   -0
    1  Straight    20.0000 nmi
    2  LeftTurn    90.0000 deg    0.5550
    3  Straight     0.5000 nmi
    4  LeftTurn    75.0000 deg    0.4500
    5  Straight     0.5225 nmi
21 -APP-2   -0
    1  Straight    20.0000 nmi
    2  LeftTurn    45.0000 deg    0.3889
    3  Straight     0.7725 nmi
    4  LeftTurn    90.0000 deg    0.5550
    5  Straight     0.1337 nmi
    6  LeftTurn    90.0000 deg    0.5550
    7  Straight     0.5225 nmi
21 -APP-3   -0
    1  Straight    20.0000 nmi
    2  LeftTurn    45.0000 deg    0.3889
    3  Straight     0.5225 nmi
21 -DEP-1   -0
    1  Straight    20.0000 nmi
21 -DEP-2   -0
    1  Straight     1.0000 nmi
    2  LeftTurn    45.0000 deg    0.3889
    3  Straight    20.0000 nmi
21 -DEP-3   -0
    1  Straight     1.0000 nmi
    2  RightTurn   45.0000 deg    0.3889
    3  Straight    20.0000 nmi
21 -TGO-1   -0
    1  Straight     1.0225 nmi
    2  LeftTurn    90.0000 deg    0.5550
    3  Straight     1.3370 nmi
    4  LeftTurn    90.0000 deg    0.5550
    5  Straight     1.5451 nmi
    6  LeftTurn    90.0000 deg    0.5550
    7  Straight     1.3370 nmi
    8  LeftTurn    90.0000 deg    0.5550
    9  Straight     0.5225 nmi
26 -APP-1   -0
    1  Straight    20.0000 nmi
    2  LeftTurn    45.0000 deg    0.3889
    3  Straight     0.7750 nmi
26 -APP-2   -0
    1  Straight    20.0000 nmi
    2  RightTurn   45.0000 deg    0.3889
    3  Straight     0.7750 nmi
26 -DEP-1   -0
    1  Straight    20.0000 nmi
26 -DEP-2   -0
    1  Straight     1.0000 nmi
    2  RightTurn   90.0000 deg    0.5550
    3  Straight    20.0000 nmi
26 -DEP-3   -0
    1  Straight     1.0000 nmi
    2  RightTurn   45.0000 deg    0.3889
    3  Straight    20.0000 nmi
26 -TGO-1   -0
    1  Straight     1.0225 nmi
    2  LeftTurn    90.0000 deg    0.5550
    3  Straight     1.3370 nmi
    4  LeftTurn    90.0000 deg    0.5550
    5  Straight     1.5451 nmi
    6  LeftTurn    90.0000 deg    0.5550
```

```
     7  Straight     1.3770 nmi
     8  LeftTurn    90.0000 deg    0.5550
     9  Straight     0.5225 nmi
 26Y-APP-1   -0
     1  Straight    20.0000 nmi
     2  LeftTurn    45.0000 deg    0.3889
     3  Straight     0.7750 nmi
 26Y-APP-2   -0
     1  Straight    20.0000 nmi
     2  RightTurn   45.0000 deg    0.3889
     3  Straight     0.7750 nmi
 26Y-APP-3   -0
     1  Straight    20.0000 nmi
     2  LeftTurn    45.0000 deg    0.3889
     3  Straight     0.7750 nmi
 26Y-DEP-1   -0
     1  Straight    20.0000 nmi
 26Y-DEP-2   -0
     1  Straight     1.0000 nmi
     2  RightTurn   90.0000 deg    0.5550
     3  Straight    20.0000 nmi
 26Y-DEP-3   -0
     1  Straight     1.0000 nmi
     2  RightTurn   45.0000 deg    0.3889
     3  Straight    20.0000 nmi
 26Y-TGO-1   -0
     1  Straight     1.0225 nmi
     2  LeftTurn    90.0000 deg    0.5550
     3  Straight     1.3370 nmi
     4  LeftTurn    90.0000 deg    0.5550
     5  Straight     1.5451 nmi
     6  LeftTurn    90.0000 deg    0.5550
     7  Straight     1.3770 nmi
     8  LeftTurn    90.0000 deg    0.5550
     9  Straight     0.5225 nmi
 32 -APP-1   -0
     1  Straight    20.0000 nmi
     2  RightTurn   45.0000 deg    0.4934
     3  Straight     0.7750 nmi
 32 -DEP-1   -0
     1  Straight    20.0000 nmi
 32 -DEP-2   -0
     1  Straight     1.0000 nmi
     2  RightTurn   60.0000 deg    0.3889
     3  Straight    20.0000 nmi

'UDY AIRCRAFT
 BEC58P User-defined
    Descrip   : BARON 58P/TS10-520-L
    UserID    : GA
    WgtCat    : Small
    OwnerCat  : GenAviation
    EngType   : Piston
    NoiseCat  : 0
    Type      : Prop
    NumEng    : 1
    NoiseId   : TSIO52
    ATRS      : Yes
    TkoWgt    : 6100 lb
    LndWgt    : 6100 lb
    LndDist   : 2733 ft
    StaticThr : 779 lb
 CIT3   Standard data
 CL600  Standard data
 DHC6   User-defined
    Descrip   : DASH 6/PT6A-27
    UserID    : GA
    WgtCat    : Small
    OwnerCat  : Commercial
    EngType   : TurboProp
    NoiseCat  : 0
    Type      : Prop
    NumEng    : 1
    NoiseId   : PT6A27
    ATRS      : No
    TkoWgt    : 12500 lb
    LndWgt    : 12300 lb
    LndDist   : 1500 ft
    StaticThr : 2000 lb
 GASEPF Standard data
```

TUDY SUBSTITUTION AIRCRAFT
BEC55
Beechcraft Model 55 Barron
Acft Percent
BEC58P 100.0 %

SER-DEFINED NOISE

Type	Thrust Crv	200	400	630	1000	2000	4000	6300	10000	16000	25000

SER-DEFINED PROFILES

OpType	Prof	Weight(lb)

USER-DEFINED PROFILE POINTS

	Distance(ft)	Altitude(ft)	Speed(knt)	Thrust	Curve
BEC58P-TGO-S1					
1	-11287.0	900.0	116.5	50.2 %	N
2	-10287.0	900.0	110.4	23.4 %	N
3	-6858.0	600.0	99.9	27.2 %	N
4	0.0	0.0	99.0	26.6 %	N
5	377.6	0.0	85.5	122.8 %	N
6	678.7	0.0	95.5	122.8 %	N
7	2883.1	266.6	115.4	101.9 %	N
8	7355.6	900.0	116.5	103.5 %	N
9	7605.6	900.0	116.5	50.2 %	N

SER-DEFINED PROCEDURES

	StepType	Flap	ThrType	Param1	Param2(knt)	Param3

IGHT OPERATIONS

AcftId	Op	Prof	Rwy	Track	Group	Day	Eve	Night
BEC58P	APP	S1	03	1	0 GA	1.2066	0.0000	0.0532
BEC58P	APP	S1	08	1	0 GA	0.4826	0.0000	0.0213
BEC58P	APP	S1	14	1	0 GA	0.2413	0.0000	0.0106
BEC58P	APP	S1	14	2	0 GA	0.2413	0.0000	0.0106
BEC58P	APP	S1	21	1	0 GA	1.2066	0.0000	0.0532
BEC58P	APP	S1	21	2	0 GA	1.2066	0.0000	0.0532
BEC58P	APP	S1	21	3	0 GA	0.9049	0.0000	0.0399
BEC58P	APP	S1	26	1	0 GA	0.0531	0.0000	0.0023
BEC58P	APP	S1	26	2	0 GA	0.0072	0.0000	0.0003
BEC58P	APP	S1	32	1	0 GA	0.1207	0.0000	0.0053
BEC58P	DEP	S1	03	1	0 GA	0.5670	0.0000	0.0250
BEC58P	DEP	S1	03	2	0 GA	0.5670	0.0000	0.0250
BEC58P	DEP	S1	08	1	0 GA	0.2268	0.0000	0.0100
BEC58P	DEP	S1	08	2	0 GA	0.2268	0.0000	0.0100
BEC58P	DEP	S1	14	1	0 GA	0.1701	0.0000	0.0075
BEC58P	DEP	S1	14	2	0 GA	0.1134	0.0000	0.0050
BEC58P	DEP	S1	14	3	0 GA	0.1701	0.0000	0.0075
BEC58P	DEP	S1	21	1	0 GA	1.1340	0.0000	0.0500
BEC58P	DEP	S1	21	2	0 GA	1.1340	0.0000	0.0500
BEC58P	DEP	S1	21	3	0 GA	1.1340	0.0000	0.0500
BEC58P	DEP	S1	26	1	0 GA	0.0567	0.0000	0.0025
BEC58P	DEP	S1	26	2	0 GA	0.0567	0.0000	0.0025
BEC58P	DEP	S1	32	1	0 GA	0.0567	0.0000	0.0025
BEC58P	DEP	S1	32	2	0 GA	0.0567	0.0000	0.0025
CIT3	APP	S1	03	1	0 GA	0.0681	0.0000	0.0000
CIT3	APP	S1	08	1	0 GA	0.0272	0.0000	0.0000
CIT3	APP	S1	14	1	0 GA	0.0136	0.0000	0.0000
CIT3	APP	S1	14	2	0 GA	0.0136	0.0000	0.0000
CIT3	APP	S1	21	1	0 GA	0.0681	0.0000	0.0000
CIT3	APP	S1	21	2	0 GA	0.0681	0.0000	0.0000
CIT3	APP	S1	21	3	0 GA	0.0511	0.0000	0.0000
CIT3	APP	S1	26	1	0 GA	0.0030	0.0000	0.0000
CIT3	APP	S1	26	2	0 GA	0.0004	0.0000	0.0000
CIT3	APP	S1	32	1	0 GA	0.0068	0.0000	0.0000
CIT3	DEP	S1	03	1	0 GA	0.0320	0.0000	0.0000
CIT3	DEP	S1	03	2	0 GA	0.0320	0.0000	0.0000
CIT3	DEP	S1	08	1	0 GA	0.0128	0.0000	0.0000
CIT3	DEP	S1	08	2	0 GA	0.0128	0.0000	0.0000
CIT3	DEP	S1	14	1	0 GA	0.0096	0.0000	0.0000
CIT3	DEP	S1	14	2	0 GA	0.0064	0.0000	0.0000
CIT3	DEP	S1	14	3	0 GA	0.0096	0.0000	0.0000
CIT3	DEP	S1	21	1	0 GA	0.0640	0.0000	0.0000
CIT3	DEP	S1	21	2	0 GA	0.0640	0.0000	0.0000
CIT3	DEP	S1	21	3	0 GA	0.0640	0.0000	0.0000
CIT3	DEP	S1	26	1	0 GA	0.0032	0.0000	0.0000
CIT3	DEP	S1	26	2	0 GA	0.0032	0.0000	0.0000
CIT3	DEP	S1	32	1	0 GA	0.0032	0.0000	0.0000
CIT3	DEP	S1	32	2	0 GA	0.0032	0.0000	0.0000
DHC6	APP	S1	03	1	0 GA	0.9574	0.0000	0.0000
DHC6	APP	S1	08	1	0 GA	0.3830	0.0000	0.0000
DHC6	APP	S1	14	1	0 GA	0.1915	0.0000	0.0000

DHC6	APP	S1	14	2	0	GA	0.1915	0.0000	0.0000
DHC6	APP	S1	21	1	0	GA	0.9574	0.0000	0.0000
DHC6	APP	S1	21	2	0	GA	0.9574	0.0000	0.0000
DHC6	APP	S1	21	3	0	GA	0.7181	0.0000	0.0000
DHC6	APP	S1	26	1	0	GA	0.0421	0.0000	0.0000
DHC6	APP	S1	26	2	0	GA	0.0057	0.0000	0.0000
DHC6	APP	S1	32	1	0	GA	0.0957	0.0000	0.0000
DHC6	DEP	S1	03	1	0	GA	0.4500	0.0000	0.0000
DHC6	DEP	S1	03	2	0	GA	0.4500	0.0000	0.0000
DHC6	DEP	S1	08	1	0	GA	0.1800	0.0000	0.0000
DHC6	DEP	S1	08	2	0	GA	0.1800	0.0000	0.0000
DHC6	DEP	S1	14	1	0	GA	0.1350	0.0000	0.0000
DHC6	DEP	S1	14	2	0	GA	0.0900	0.0000	0.0000
DHC6	DEP	S1	14	3	0	GA	0.1350	0.0000	0.0000
DHC6	DEP	S1	21	1	0	GA	0.9000	0.0000	0.0000
DHC6	DEP	S1	21	2	0	GA	0.9000	0.0000	0.0000
DHC6	DEP	S1	21	3	0	GA	0.9000	0.0000	0.0000
DHC6	DEP	S1	26	1	0	GA	0.0450	0.0000	0.0000
DHC6	DEP	S1	26	2	0	GA	0.0450	0.0000	0.0000
DHC6	DEP	S1	32	1	0	GA	0.0450	0.0000	0.0000
DHC6	DEP	S1	32	2	0	GA	0.0450	0.0000	0.0000
GASEPF	APP	S1	03	1	0	GA	13.8298	0.0000	1.5957
GASEPF	APP	S1	08	1	0	GA	5.5319	0.0000	0.6383
GASEPF	APP	S1	14	1	0	GA	2.7660	0.0000	0.3191
GASEPF	APP	S1	14	2	0	GA	2.7660	0.0000	0.3191
GASEPF	APP	S1	21	1	0	GA	13.8298	0.0000	1.5957
GASEPF	APP	S1	21	2	0	GA	13.8298	0.0000	1.5957
GASEPF	APP	S1	21	3	0	GA	10.3723	0.0000	1.1968
GASEPF	APP	S1	26	1	0	GA	0.6085	0.0000	0.0702
GASEPF	APP	S1	26	2	0	GA	0.0830	0.0000	0.0096
GASEPF	APP	S1	32	1	0	GA	1.3830	0.0000	0.1596
GASEPF	DEP	S1	03	1	0	GA	6.5000	0.0000	0.7500
GASEPF	DEP	S1	03	2	0	GA	6.5000	0.0000	0.7500
GASEPF	DEP	S1	08	1	0	GA	2.6000	0.0000	0.3000
GASEPF	DEP	S1	08	2	0	GA	2.6000	0.0000	0.3000
GASEPF	DEP	S1	14	1	0	GA	1.9500	0.0000	0.2250
GASEPF	DEP	S1	14	2	0	GA	1.3000	0.0000	0.1500
GASEPF	DEP	S1	14	3	0	GA	1.9500	0.0000	0.2250
GASEPF	DEP	S1	21	1	0	GA	13.0000	0.0000	1.5000
GASEPF	DEP	S1	21	2	0	GA	13.0000	0.0000	1.5000
GASEPF	DEP	S1	21	3	0	GA	13.0000	0.0000	1.5000
GASEPF	DEP	S1	26	1	0	GA	0.6500	0.0000	0.0750
GASEPF	DEP	S1	26	2	0	GA	0.6500	0.0000	0.0750
GASEPF	DEP	S1	32	1	0	GA	0.6500	0.0000	0.0750
GASEPF	DEP	S1	32	2	0	GA	0.6500	0.0000	0.0750

NUP OPERATIONS

ID	X(nmi)	Y(nmi)	Head	Thrust	Time(sec)	Day	Eve	Night

USER-DEFINED METRICS

Type	Family	Day	Eve	Night	Time(dB)

ER-DEFINED FLAP COEFFICIENTS

Flap	Op	Coeff R	Coeff C_D	Coeff B

ER-DEFINED JET THRUST COEFFICIENTS

ThrType	CoeffE	Coeff F	CoeffGA	CoeffGB	CoeffH

USER-DEFINED PROP THRUST COEFFICIENTS

ThrType	Efficiency	Power

IDS

	X(nmi)	Y(nmi)	Ang(deg)	DistI(nmi)	DistJ(nmi)	NI	NJ
CNR Contour	-12.0000	-12.0000	0.0	16.0000	16.0000	2	2

N OPTIONS

```
Run Type       : SingleMetric
NoiseMetric    : DNL
TA Threshold   : 85.0 dB
Do Terrain     : No
Do Contour     : Yes
Refinement     : 9
Tolerance      : 0.25
Do Population  : No
Do Locations   : No
Do Stand.Grid  : No
Do Detail.Grid: No
Low Cutoff     : 55.0
High Cutoff    : 75.0
Compute System Metrics:
   DNL     : Yes
```

CNEL : No
LAEQ : No
LAEQD : No
LAEQN : No
SEL : No
LAMAX : No
TALA : No
NEF : No
WECPNL : No
EPNL : No
PNLTM : No
TAPNL : No

ID	X(nmi)	Y(nmi)	Head	Thrust	Time(sec)	Day	Eve	Night

SER-DEFINED METRICS

Type	Family	Day	Eve	Night	Time(dB)

SER-DEFINED FLAP COEFFICIENTS

Flap	Op	Coeff R	Coeff C_D	Coeff B

USER-DEFINED JET THRUST COEFFICIENTS

ThrType	CoeffE	Coeff F	CoeffGA	CoeffGB	CoeffH

SER-DEFINED PROP THRUST COEFFICIENTS

ThrType	Efficiency	Power

RIDS

	X(nmi)	Y(nmi)	Ang(deg)	DistI(nmi)	DistJ(nmi)	NI	NJ
CNR Contour	-12.0000	-12.0000	0.0	16.0000	16.0000	2	2

UN OPTIONS

- Run Type : SingleMetric
- NoiseMetric : DNL
- TA Threshold : 85.0 dB
- Do Terrain : No
- Do Contour : Yes
- Refinement : 9
- Tolerance : 0.25
- Do Population : No
- Do Locations : No
- Do Stand.Grid : No
- Do Detail.Grid: No
- Low Cutoff : 55.0
- High Cutoff : 75.0
- Compute System Metrics:
  - DNL : Yes
  - CNEL : No
  - LAEQ : No
  - LAEQD : No
  - LAEQN : No
  - SEL : No
  - LAMAX : No
  - TALA : No
  - NEF : No
  - WECPNL : No
  - EPNL : No
  - PNLTM : No
  - TAPNL : No

CIT3	DEP	S1	32	2	0	GA	0.0250	0.0000	0.0000
CL600	APP	S1	03	1	0	GA	0.0842	0.0000	0.0000
CL600	APP	S1	08X	1	0	GA	0.2105	0.0000	0.0000
CL600	APP	S1	14	1	0	GA	0.0093	0.0000	0.0000
CL600	APP	S1	14	2	0	GA	0.0118	0.0000	0.0000
CL600	APP	S1	21	1	0	GA	0.0211	0.0000	0.0000
CL600	APP	S1	21	2	0	GA	0.0316	0.0000	0.0000
CL600	APP	S1	21	3	0	GA	0.0316	0.0000	0.0000
CL600	APP	S1	26Y	1	0	GA	0.2105	0.0000	0.0000
CL600	APP	S1	26Y	2	0	GA	0.2105	0.0000	0.0000
CL600	APP	S1	26Y	3	0	GA	0.1579	0.0000	0.0000
CL600	APP	S1	32	1	0	GA	0.0211	0.0000	0.0000
CL600	DEP	S1	03	1	0	GA	0.0400	0.0000	0.0000
CL600	DEP	S1	03	2	0	GA	0.0400	0.0000	0.0000
CL600	DEP	S1	08X	1	0	GA	0.1000	0.0000	0.0000
CL600	DEP	S1	08X	2	0	GA	0.1000	0.0000	0.0000
CL600	DEP	S1	14	1	0	GA	0.0034	0.0000	0.0000
CL600	DEP	S1	14	2	0	GA	0.0034	0.0000	0.0000
CL600	DEP	S1	14	3	0	GA	0.0132	0.0000	0.0000
CL600	DEP	S1	21	1	0	GA	0.0300	0.0000	0.0000
CL600	DEP	S1	21	2	0	GA	0.0300	0.0000	0.0000
CL600	DEP	S1	21	3	0	GA	0.0200	0.0000	0.0000
CL600	DEP	S1	26Y	1	0	GA	0.2000	0.0000	0.0000
CL600	DEP	S1	26Y	2	0	GA	0.2000	0.0000	0.0000
CL600	DEP	S1	26Y	3	0	GA	0.2000	0.0000	0.0000
CL600	DEP	S1	32	1	0	GA	0.0100	0.0000	0.0000
CL600	DEP	S1	32	2	0	GA	0.0100	0.0000	0.0000
DHC6	APP	S1	03	1	0	GA	0.4211	0.0000	0.0421
DHC6	APP	S1	08X	1	0	GA	1.0526	0.0000	0.1053
DHC6	APP	S1	14	1	0	GA	0.0463	0.0000	0.0046
DHC6	APP	S1	14	2	0	GA	0.0589	0.0000	0.0059
DHC6	APP	S1	21	1	0	GA	0.1053	0.0000	0.0105
DHC6	APP	S1	21	2	0	GA	0.1579	0.0000	0.0158
DHC6	APP	S1	21	3	0	GA	0.1579	0.0000	0.0158
DHC6	APP	S1	26Y	1	0	GA	1.0526	0.0000	0.1053
DHC6	APP	S1	26Y	2	0	GA	1.0526	0.0000	0.1053
DHC6	APP	S1	26Y	3	0	GA	0.7895	0.0000	0.0789
DHC6	APP	S1	32	1	0	GA	0.1053	0.0000	0.0105
DHC6	DEP	S1	03	1	0	GA	0.2000	0.0000	0.0200
DHC6	DEP	S1	03	2	0	GA	0.2000	0.0000	0.0200
DHC6	DEP	S1	08X	1	0	GA	0.5000	0.0000	0.0500
DHC6	DEP	S1	08X	2	0	GA	0.5000	0.0000	0.0500
DHC6	DEP	S1	14	1	0	GA	0.0170	0.0000	0.0017
DHC6	DEP	S1	14	2	0	GA	0.0170	0.0000	0.0017
DHC6	DEP	S1	14	3	0	GA	0.0660	0.0000	0.0066
DHC6	DEP	S1	21	1	0	GA	0.1500	0.0000	0.0150
DHC6	DEP	S1	21	2	0	GA	0.1500	0.0000	0.0150
DHC6	DEP	S1	21	3	0	GA	0.1000	0.0000	0.0100
DHC6	DEP	S1	26Y	1	0	GA	1.0000	0.0000	0.1000
DHC6	DEP	S1	26Y	2	0	GA	1.0000	0.0000	0.1000
DHC6	DEP	S1	26Y	3	0	GA	1.0000	0.0000	0.1000
DHC6	DEP	S1	32	1	0	GA	0.0500	0.0000	0.0050
DHC6	DEP	S1	32	2	0	GA	0.0500	0.0000	0.0050
GASEPF	APP	S1	03	1	0	GA	7.4105	0.0000	0.3368
GASEPF	APP	S1	08X	1	0	GA	18.5263	0.0000	0.8421
GASEPF	APP	S1	14	1	0	GA	0.8152	0.0000	0.0371
GASEPF	APP	S1	14	2	0	GA	1.0375	0.0000	0.0472
GASEPF	APP	S1	21	1	0	GA	1.8526	0.0000	0.0842
GASEPF	APP	S1	21	2	0	GA	2.7789	0.0000	0.1263
GASEPF	APP	S1	21	3	0	GA	2.7789	0.0000	0.1263
GASEPF	APP	S1	26Y	1	0	GA	18.5263	0.0000	0.8421
GASEPF	APP	S1	26Y	2	0	GA	18.5263	0.0000	0.8421
GASEPF	APP	S1	26Y	3	0	GA	13.8947	0.0000	0.6316
GASEPF	APP	S1	32	1	0	GA	1.8526	0.0000	0.0842
GASEPF	DEP	S1	03	1	0	GA	3.5200	0.0000	0.1600
GASEPF	DEP	S1	03	2	0	GA	3.5200	0.0000	0.1600
GASEPF	DEP	S1	08X	1	0	GA	8.8000	0.0000	0.4000
GASEPF	DEP	S1	08X	2	0	GA	8.8000	0.0000	0.4000
GASEPF	DEP	S1	14	1	0	GA	0.2992	0.0000	0.0136
GASEPF	DEP	S1	14	2	0	GA	0.2992	0.0000	0.0136
GASEPF	DEP	S1	14	3	0	GA	1.1616	0.0000	0.0528
GASEPF	DEP	S1	21	1	0	GA	2.6400	0.0000	0.1200
GASEPF	DEP	S1	21	2	0	GA	2.6400	0.0000	0.1200
GASEPF	DEP	S1	21	3	0	GA	1.7600	0.0000	0.0800
GASEPF	DEP	S1	26Y	1	0	GA	17.6000	0.0000	0.8000
GASEPF	DEP	S1	26Y	2	0	GA	17.6000	0.0000	0.8000
GASEPF	DEP	S1	26Y	3	0	GA	17.6000	0.0000	0.8000
GASEPF	DEP	S1	32	1	0	GA	0.8800	0.0000	0.0400
GASEPF	DEP	S1	32	2	0	GA	0.8800	0.0000	0.0400

RUNUP OPERATIONS

STUDY SUBSTITUTION AIRCRAFT
BEC55
Beechcraft Model 55 Baron

Acft	Percent
BEC58P	100.0 %

SER-DEFINED NOISE

Type	Thrust Crv	200	400	630	1000	2000	4000	6300	10000	16000	25000

USER-DEFINED PROFILES

OpType	Prof	Weight(lb)

USER-DEFINED PROFILE POINTS

	Distance(ft)	Altitude(ft)	Speed(knt)	Thrust	Curve
BEC58P-TGO-S1					
1	-11287.0	900.0	116.5	50.2 %	N
2	-10287.0	900.0	110.4	23.4 %	N
3	-6858.0	600.0	99.9	27.2 %	N
4	0.0	0.0	99.0	26.6 %	N
5	377.6	0.0	85.5	122.8 %	N
6	678.7	0.0	95.5	122.8 %	N
7	2883.1	266.6	115.4	101.9 %	N
8	7355.6	900.0	116.5	103.5 %	N
9	7605.6	900.0	116.5	50.2 %	N

SER-DEFINED PROCEDURES

	StepType	Flap	ThrType	Param1	Param2(knt)	Param3

NIGHT OPERATIONS

AcftId	Op	Prof	Rwy	Track	Group	Day	Eve	Night
BEC58P	APP	S1	03	1	0 GA	0.5053	0.0000	0.0421
BEC58P	APP	S1	08X	1	0 GA	1.2632	0.0000	0.1053
BEC58P	APP	S1	14	1	0 GA	0.0556	0.0000	0.0046
BEC58P	APP	S1	14	2	0 GA	0.0707	0.0000	0.0059
BEC58P	APP	S1	21	1	0 GA	0.1263	0.0000	0.0105
BEC58P	APP	S1	21	2	0 GA	0.1895	0.0000	0.0158
BEC58P	APP	S1	21	3	0 GA	0.1895	0.0000	0.0158
BEC58P	APP	S1	26Y	1	0 GA	1.2632	0.0000	0.1053
BEC58P	APP	S1	26Y	2	0 GA	1.2632	0.0000	0.1053
BEC58P	APP	S1	26Y	3	0 GA	0.9474	0.0000	0.0789
BEC58P	APP	S1	32	1	0 GA	0.1263	0.0000	0.0105
BEC58P	DEP	S1	03	1	0 GA	0.2400	0.0000	0.0200
BEC58P	DEP	S1	03	2	0 GA	0.2400	0.0000	0.0200
BEC58P	DEP	S1	08X	1	0 GA	0.6000	0.0000	0.0500
BEC58P	DEP	S1	08X	2	0 GA	0.6000	0.0000	0.0500
BEC58P	DEP	S1	14	1	0 GA	0.0204	0.0000	0.0017
BEC58P	DEP	S1	14	2	0 GA	0.0204	0.0000	0.0017
BEC58P	DEP	S1	14	3	0 GA	0.0792	0.0000	0.0066
BEC58P	DEP	S1	21	1	0 GA	0.1800	0.0000	0.0150
BEC58P	DEP	S1	21	2	0 GA	0.1800	0.0000	0.0150
BEC58P	DEP	S1	21	3	0 GA	0.1200	0.0000	0.0100
BEC58P	DEP	S1	26Y	1	0 GA	1.2000	0.0000	0.1000
BEC58P	DEP	S1	26Y	2	0 GA	1.2000	0.0000	0.1000
BEC58P	DEP	S1	26Y	3	0 GA	1.2000	0.0000	0.1000
BEC58P	DEP	S1	32	1	0 GA	0.0600	0.0000	0.0050
BEC58P	DEP	S1	32	2	0 GA	0.0600	0.0000	0.0050
CIT3	APP	S1	03	1	0 GA	0.2105	0.0000	0.0000
CIT3	APP	S1	08X	1	0 GA	0.5263	0.0000	0.0000
CIT3	APP	S1	14	1	0 GA	0.0232	0.0000	0.0000
CIT3	APP	S1	14	2	0 GA	0.0295	0.0000	0.0000
CIT3	APP	S1	21	1	0 GA	0.0526	0.0000	0.0000
CIT3	APP	S1	21	2	0 GA	0.0789	0.0000	0.0000
CIT3	APP	S1	21	3	0 GA	0.0789	0.0000	0.0000
CIT3	APP	S1	26Y	1	0 GA	0.5263	0.0000	0.0000
CIT3	APP	S1	26Y	2	0 GA	0.5263	0.0000	0.0000
CIT3	APP	S1	26Y	3	0 GA	0.3947	0.0000	0.0000
CIT3	APP	S1	32	1	0 GA	0.0526	0.0000	0.0000
CIT3	DEP	S1	03	1	0 GA	0.1000	0.0000	0.0000
CIT3	DEP	S1	03	2	0 GA	0.1000	0.0000	0.0000
CIT3	DEP	S1	08X	1	0 GA	0.2500	0.0000	0.0000
CIT3	DEP	S1	08X	2	0 GA	0.2500	0.0000	0.0000
CIT3	DEP	S1	14	1	0 GA	0.0085	0.0000	0.0000
CIT3	DEP	S1	14	2	0 GA	0.0085	0.0000	0.0000
CIT3	DEP	S1	14	3	0 GA	0.0330	0.0000	0.0000
CIT3	DEP	S1	21	1	0 GA	0.0750	0.0000	0.0000
CIT3	DEP	S1	21	2	0 GA	0.0750	0.0000	0.0000
CIT3	DEP	S1	21	3	0 GA	0.0500	0.0000	0.0000
CIT3	DEP	S1	26Y	1	0 GA	0.5000	0.0000	0.0000
CIT3	DEP	S1	26Y	2	0 GA	0.5000	0.0000	0.0000
CIT3	DEP	S1	26Y	3	0 GA	0.5000	0.0000	0.0000
CIT3	DEP	S1	32	1	0 GA	0.0250	0.0000	0.0000

```
     7  Straight     1.3770 nmi
     8  LeftTurn    90.0000 deg    0.5550
     9  Straight     0.5225 nmi
 26Y-APP-1   -0
     1  Straight    20.0000 nmi
     2  LeftTurn    45.0000 deg    0.3889
     3  Straight     0.7750 nmi
 26Y-APP-2   -0
     1  Straight    20.0000 nmi
     2  RightTurn   45.0000 deg    0.3889
     3  Straight     0.7750 nmi
 26Y-APP-3   -0
     1  Straight    20.0000 nmi
     2  LeftTurn    45.0000 deg    0.3889
     3  Straight     0.7750 nmi
 26Y-DEP-1   -0
     1  Straight    20.0000 nmi
 26Y-DEP-2   -0
     1  Straight     1.0000 nmi
     2  RightTurn   90.0000 deg    0.5550
     3  Straight    20.0000 nmi
 26Y-DEP-3   -0
     1  Straight     1.0000 nmi
     2  RightTurn   45.0000 deg    0.3889
     3  Straight    20.0000 nmi
 26Y-TGO-1   -0
     1  Straight     1.0225 nmi
     2  LeftTurn    90.0000 deg    0.5550
     3  Straight     1.3370 nmi
     4  LeftTurn    90.0000 deg    0.5550
     5  Straight     1.5451 nmi
     6  LeftTurn    90.0000 deg    0.5550
     7  Straight     1.3770 nmi
     8  LeftTurn    90.0000 deg    0.5550
     9  Straight     0.5225 nmi
 32 -APP-1   -0
     1  Straight    20.0000 nmi
     2  RightTurn   45.0000 deg    0.4934
     3  Straight     0.7750 nmi
 32 -DEP-1   -0
     1  Straight    20.0000 nmi
 32 -DEP-2   -0
     1  Straight     1.0000 nmi
     2  RightTurn   60.0000 deg    0.3889
     3  Straight    20.0000 nmi

UDY AIRCRAFT
 BEC58P User-defined
    Descrip   : BARON 58P/TS10-520-L
    UserID    : GA
    WgtCat    : Small
    OwnerCat  : GenAviation
    EngType   : Piston
    NoiseCat  : 0
    Type      : Prop
    NumEng    : 1
    NoiseId   : TSIO52
    ATRS      : Yes
    TkoWgt    : 6100 lb
    LndWgt    : 6100 lb
    LndDist   : 2733 ft
    StaticThr : 779 lb
 CIT3   Standard data
 CL600  Standard data
 DHC6   User-defined
    Descrip   : DASH 6/PT6A-27
    UserID    : GA
    WgtCat    : Small
    OwnerCat  : Commercial
    EngType   : TurboProp
    NoiseCat  : 0
    Type      : Prop
    NumEng    : 1
    NoiseId   : PT6A27
    ATRS      : No
    TkoWgt    : 12500 lb
    LndWgt    : 12300 lb
    LndDist   : 1500 ft
    StaticThr : 2000 lb
 GASEPF Standard data
```

```
14 -APP-1   -0
    1  Straight    20.0000 nmi
    2  LeftTurn    45.0000 deg    0.3289
    3  Straight     0.7750 nmi
14 -APP-2   -0
    1  Straight    20.0000 nmi
    2  RightTurn   45.0000 deg    0.8890
    3  Straight     0.7750 nmi
14 -DEP-1   -0
    1  Straight    20.0000 nmi
14 -DEP-2   -0
    1  Straight     1.0000 nmi
    2  LeftTurn    60.0000 deg    0.8224
    3  Straight    20.0000 nmi
14 -DEP-3   -0
    1  Straight     1.0000 nmi
    2  RightTurn   60.0000 deg    0.8224
    3  Straight    50.0000 nmi
21 -APP-1   -0
    1  Straight    20.0000 nmi
    2  LeftTurn    90.0000 deg    0.5550
    3  Straight     0.5000 nmi
    4  LeftTurn    75.0000 deg    0.4500
    5  Straight     0.5225 nmi
21 -APP-2   -0
    1  Straight    20.0000 nmi
    2  LeftTurn    45.0000 deg    0.3889
    3  Straight     0.7725 nmi
    4  LeftTurn    90.0000 deg    0.5550
    5  Straight     0.1337 nmi
    6  LeftTurn    90.0000 deg    0.5550
    7  Straight     0.5225 nmi
21 -APP-3   -0
    1  Straight    20.0000 nmi
    2  LeftTurn    45.0000 deg    0.3889
    3  Straight     0.5225 nmi
21 -DEP-1   -0
    1  Straight    20.0000 nmi
21 -DEP-2   -0
    1  Straight     1.0000 nmi
    2  LeftTurn    45.0000 deg    0.3889
    3  Straight    20.0000 nmi
21 -DEP-3   -0
    1  Straight     1.0000 nmi
    2  RightTurn   45.0000 deg    0.3889
    3  Straight    20.0000 nmi
21 -TGO-1   -0
    1  Straight     1.0225 nmi
    2  LeftTurn    90.0000 deg    0.5550
    3  Straight     1.3370 nmi
    4  LeftTurn    90.0000 deg    0.5550
    5  Straight     1.5451 nmi
    6  LeftTurn    90.0000 deg    0.5550
    7  Straight     1.3370 nmi
    8  LeftTurn    90.0000 deg    0.5550
    9  Straight     0.5225 nmi
26 -APP-1   -0
    1  Straight    20.0000 nmi
    2  LeftTurn    45.0000 deg    0.3889
    3  Straight     0.7750 nmi
26 -APP-2   -0
    1  Straight    20.0000 nmi
    2  RightTurn   45.0000 deg    0.3889
    3  Straight     0.7750 nmi
26 -DEP-1   -0
    1  Straight    20.0000 nmi
26 -DEP-2   -0
    1  Straight     1.0000 nmi
    2  RightTurn   90.0000 deg    0.5550
    3  Straight    20.0000 nmi
26 -DEP-3   -0
    1  Straight     1.0000 nmi
    2  RightTurn   45.0000 deg    0.3889
    3  Straight    20.0000 nmi
26 -TGO-1   -0
    1  Straight     1.0225 nmi
    2  LeftTurn    90.0000 deg    0.5550
    3  Straight     1.3370 nmi
    4  LeftTurn    90.0000 deg    0.5550
    5  Straight     1.5451 nmi
    6  LeftTurn    90.0000 deg    0.5550
```

```
    0   100.00   Vectors     0.0
 21 -TGO-1
    0   100.00   Vectors     0.0
 26 -APP-1
    0   100.00   Vectors     0.0
 26 -APP-2
    0   100.00   Vectors     0.0
 26 -DEP-1
    0   100.00   Vectors     0.0
 26 -DEP-2
    0   100.00   Vectors     0.0
 26 -DEP-3
    0   100.00   Vectors     0.0
 26 -TGO-1
    0   100.00   Vectors     0.0
26Y-APP-1
    0   100.00   Vectors     0.0
26Y-APP-2
    0   100.00   Vectors     0.0
26Y-APP-3
    0   100.00   Vectors     0.0
26Y-DEP-1
    0   100.00   Vectors     0.0
26Y-DEP-2
    0   100.00   Vectors     0.0
26Y-DEP-3
    0   100.00   Vectors     0.0
26Y-TGO-1
    0   100.00   Vectors     0.0
 32 -APP-1
    0   100.00   Vectors     0.0
 32 -DEP-1
    0   100.00   Vectors     0.0
 32 -DEP-2
    0   100.00   Vectors     0.0

STUDY TRACK DETAIL
   RwyId-OpType-TrkId-SubTrk
          SegType       Param1     Param2(nmi)
   03 -APP-1   -0
       1  Straight    20.0000 nmi
       2  RightTurn   45.0000 deg    0.5550
       3  Straight     1.5000 nmi
       4  RightTurn   90.0000 deg    0.3889
       5  Straight     0.5550 nmi
       6  RightTurn   90.0000 deg    0.3889
       7  Straight     0.5550 nmi
   03 -DEP-1   -0
       1  Straight     1.0000 nmi
       2  RightTurn   75.0000 deg    0.5550
       3  Straight    20.0000 nmi
   03 -DEP-2   -0
       1  Straight     1.0000 nmi
       2  LeftTurn    45.0000 deg    0.3889
       3  Straight    20.0000 nmi
   08 -APP-1   -0
       1  Straight    20.0000 nmi
       2  LeftTurn    45.0000 deg    0.3889
       3  Straight     0.9675 nmi
   08 -DEP-1   -0
       1  Straight    20.0000 nmi
   08 -DEP-2   -0
       1  Straight     1.0000 nmi
       2  LeftTurn    60.0000 deg    0.5000
       3  Straight    20.0000 nmi
   08X-APP-1   -0
       1  Straight    20.0000 nmi
       2  LeftTurn    45.0000 deg    0.3889
       3  Straight     1.5000 nmi
       4  LeftTurn    45.0000 deg    0.3889
       5  Straight     0.5550 nmi
       6  LeftTurn    90.0000 deg    0.5550
       7  Straight     0.5225 nmi
   08X-DEP-1   -0
       1  Straight     1.0000 nmi
       2  RightTurn   75.0000 deg    0.5550
       3  Straight    20.0000 nmi
   08X-DEP-2   -0
       1  Straight     0.9750 nmi
       2  LeftTurn    45.0000 deg    0.3899
       3  Straight    20.0000 nmi
```

```
    TkoThrsh : 0 ft
    AppThrsh : 0 ft
 26
    Lat      :   34.737602 deg
    Long     :  -76.655637 deg
    X        : 0.0155 nmi
    Y        : -0.0166 nmi
    Elevation: 7.8 ft
    OtherEnd : 08
    Length   : 4248 ft
    Gradient : -0.01%
    Wind     : 8.0 knt
    TkoThrsh : 0 ft
    AppThrsh : 0 ft
 26Y
    Lat      :   34.738463 deg
    Long     :  -76.653321 deg
    X        : 0.1300 nmi
    Y        : 0.0350 nmi
    Elevation: 11.0 ft
    OtherEnd : 08X
    Length   : 5011 ft
    Gradient : 0.00%
    Wind     : 8.0 knt
    TkoThrsh : 0 ft
    AppThrsh : 0 ft
 32
    Lat      :   34.728759 deg
    Long     :  -76.655711 deg
    X        : 0.0118 nmi
    Y        : -0.5463 nmi
    Elevation: 11.1 ft
    OtherEnd : 14
    Length   : 4000 ft
    Gradient : -0.10%
    Wind     : 8.0 knt
    TkoThrsh : 0 ft
    AppThrsh : 1001 ft

UDY TRACKS
 RwyId-OpType-TrkId
   Sub  PctSub   TrkType   Delta(ft)
 03 -APP-1
    0   100.00   Vectors      0.0
 03 -DEP-1
    0   100.00   Vectors      0.0
 03 -DEP-2
    0   100.00   Vectors      0.0
 08 -APP-1
    0   100.00   Vectors      0.0
 08 -DEP-1
    0   100.00   Vectors      0.0
 08 -DEP-2
    0   100.00   Vectors      0.0
 08X-APP-1
    0   100.00   Vectors      0.0
 08X-DEP-1
    0   100.00   Vectors      0.0
 08X-DEP-2
    0   100.00   Vectors      0.0
 14 -APP-1
    0   100.00   Vectors      0.0
 14 -APP-2
    0   100.00   Vectors      0.0
 14 -DEP-1
    0   100.00   Vectors      0.0
 14 -DEP-2
    0   100.00   Vectors      0.0
 14 -DEP-3
    0   100.00   Vectors      0.0
 21 -APP-1
    0   100.00   Vectors      0.0
 21 -APP-2
    0   100.00   Vectors      0.0
 21 -APP-3
    0   100.00   Vectors      0.0
 21 -DEP-1
    0   100.00   Vectors      0.0
 21 -DEP-2
    0   100.00   Vectors      0.0
 21 -DEP-3
```

```
AM 5.2 ECHO REPORT  17-May-99 10:34

STUDY: J:\DOWNLOAD\SMITH1\
   Created : 02-Mar-99 18:58
   Units   : English
   Airport :
   Description :
     Michael J. Smith Airport

ASE: FORECAST
   Created date: 15-Mar-99 14:08
   Description : runway extension to 08/26

TUDY AIRPORT
   Lat    :   34.737879 deg
   Long   :  -76.655950 deg
   Elev   : 11.00 ft
   Temp   : 64.00 F
   Press  : 29.92 in-Hg
   Wind   : 8.00 knt

STUDY RUNWAYS
   03
      Lat       :   34.727468 deg
      Long      :  -76.661909 deg
      X         : -0.2947 nmi
      Y         : -0.6236 nmi
      Elevation: 6.9 ft
      OtherEnd : 21
      Length    : 4190 ft
      Gradient : 0.01%
      Wind      : 8.0 knt
      TkoThrsh : 0 ft
      AppThrsh : 184 ft
   08
      Lat       :   34.733234 deg
      Long      :  -76.668751 deg
      X         : -0.6330 nmi
      Y         : -0.2782 nmi
      Elevation: 7.2 ft
      OtherEnd : 26
      Length    : 4248 ft
      Gradient : 0.01%
      Wind      : 8.0 knt
      TkoThrsh : 0 ft
      AppThrsh : 0 ft
   08X
      Lat       :   34.733234 deg
      Long      :  -76.668751 deg
      X         : -0.6330 nmi
      Y         : -0.2782 nmi
      Elevation: 11.0 ft
      OtherEnd : 26Y
      Length    : 5011 ft
      Gradient : 0.00%
      Wind      : 8.0 knt
      TkoThrsh : 0 ft
      AppThrsh : 0 ft
   14
      Lat       :   34.736192 deg
      Long      :  -76.665519 deg
      X         : -0.4732 nmi
      Y         : -0.1010 nmi
      Elevation: 7.1 ft
      OtherEnd : 32
      Length    : 4000 ft
      Gradient : 0.10%
      Wind      : 8.0 knt
      TkoThrsh : 0 ft
      AppThrsh : 0 ft
   21
      Lat       :   34.737879 deg
      Long      :  -76.655950 deg
      X         : 0.0000 nmi
      Y         : 0.0000 nmi
      Elevation: 7.4 ft
      OtherEnd : 03
      Length    : 4190 ft
      Gradient : -0.01%
      Wind      : 8.0 knt
```

APPENDIX "C"

ECONOMIC IMPACT SUMMARY

Economic Impact of
Michael J. Smith Airport
Beaufort, NC

A Report Prepared for the
Carteret County Economic Development Council

by

David T. Hartgen
Professor and Coordinator of Transportation Studies

Harrison S. Campbell, Jr.
Assistant Professor, Geography and Earth Science

and

Alfred W. Stuart
Professor, Geography and Earth Science

March 18, 1999

Transportation Publication Number 187

UNCCHARLOTTE
Center for Interdisciplinary Transportation Studies
Cameron Center, Room 276
9201 University City Blvd.
Charlotte, N.C. 28223

Economic Impact of Michael J. Smith Airport

Executive Summary

March 18, 1999

Michael J. Smith Airport, a general aviation facility in Beaufort, NC, is the 3rd busiest of North Carolina's 60 general aviation airport, serving 86 based aircraft and 52,500 operations (take-offs and landings) per year. The Airport serves based aircraft owners, transient flyers, longer-distance vehicle storage customers, and the general business community. This study, conducted by UNC Charlotte's Transportation Studies Center, assesses the economic impact of the Airport on the community, through the activities of these groups. It also reviews four options for the Airport's future: continuing as is, runway lengthening, moving to a new site, or closure. Since the Center does not do advocacy studies, no recommendation is made on which option is best.

The study was based on extensive surveys of Airport users, the business community, and residents. Detailed questionnaires were administered to based aircraft owners, transient flyers, and vehicle storage customers during the fall of 1998. Information was obtained concerning use of the Airport; aircraft characteristics, origins of flights, and trip purposes; local expenditures for passengers, crew and fuel; and opinions about Airport improvements. A separate questionnaire was sent to over 1,700 establishments employing 3 or more persons in Carteret County and surrounding areas, asking about commercial and general aviation travel, awareness and use of Michael J. Smith Airport, and Airport-related or Airport-dependent business activity. In addition, a random telephone survey of 448 Carteret and Havelock residents was also conducted. The information obtained from those surveys was then used to estimate Airport-related economic activity in the community.

Activity at Michael J. Smith Airport has been growing steadily and is predicted to reach 115 based planes and 70,000 operations by 2010. The increase is expected to include more multi-engine aircraft. Seasonal flight activity is somewhat lower in winter months but averages 140-200 operations per day between May and December. The assessed valuation of based aircraft is about $4.2M; local property taxes on based aircraft are about $37,800 per year. The Airport's operating budget is reasonably balanced between operating costs on one hand versus revenues and local taxes on based aircraft.

Surveys show that the economic impact of Michael J. Smith Airport totals about $14.5M annually, just over 1% of the region's economy. About 18 local businesses depend partially or substantially on the Airport, and another 86 indicate that the Airport is an important but not essential part of their business. The Airport-

related economic activity of these businesses is about $5.1M. The 58 vehicle storage customers create about $1.4M in economic activity, transient visiting flyers conservatively $2.8M, and based aircraft owners $487,000. Indirect and induced economic activity caused by these direct expenditures add another $4.7M. Thus, on average, each operation of an aircraft at Michael J. Smith Airport generates about $276 in local economic activity.

Most area residents and businesses have favorable opinions toward the Airport and want to see it improved at its present location. Recruitment of commercial service is the top interest of both groups, followed by runway lengthening and continuing as is. Only 8.5% of businesses and 18% of residents favor moving the Airport to a new site; and only 3-4% in each group favor closure. Only 8% of residents felt that the Airport is too noisy, while 58% felt it was safe. Over 60% of residents agree that the Airport is conveniently located, helps the local economy, and provides access to summer homes and vacation sites. Current Airport users generally favor continued operation as is, with improved aircraft guidance and weather information systems.

Lengthening the Airport's Runway 8-26 to 5,000 feet would cost about $950,000, but would increase local economic activity to about $15.1M annually. Adding better aircraft guidance systems would cost an additional $400,000 but would increase local economic activity substantially, to $17.3M annually. These features are also important for attracting longer flights and larger aircraft, as well as increasing the potential for reinstated commercial air service. Constructing a new comparable facility at a new location would cost an estimated $20M, but would increase economic impacts to $17.8M annually. However, conflicts with nearby airports, both military and public, would probably increase and noise levels at the new site would be higher. Closing the Airport would result in the loss of about $9.6M in local economic activity, about two-thirds of the current impact.

But away from MRA & HD

In comparison with 17 other similar facilities in Virginia, North Carolina and South Carolina, it was found that Michael J. Smith Airport is the 3rd busiest and has the most based planes. However, 9 of the 17 have longer runways, and 12 of the 17 have received more capital investment in the 1990's, than Michael J. Smith Airport. No capital projects are in the current 7-year State Transportation Improvement Plan for Michael J. Smith.

The study concludes that the economic impacts of Michael J. Smith Airport are substantial, extending well beyond the immediate benefits to local aircraft owners. Impacts would also increase if the Airport's Runway 8-26 were lengthened and better aircraft guidance implemented. The study recommends that the community move decisively -- one way or the other -- on decisions concerning runway extension, that reinstatement of commercial air service be studied, and that the present fee structure and lease revenues be reviewed.

APPENDIX "D"

RELOCATED NC ROUTE 101 MEMORANDUM

JUL 3 1 1998

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

JAMES B. HUNT JR.
GOVERNOR

P.O. BOX 25201. RALEIGH. N.C. 27611-5201

E. NORRIS TOLSON
SECRETARY

To: Frank Kalka
This may help with the power lines.
Art

June 17, 1998

Mr. Art Gill, Chairman
Beaufort-Morehead City Airport Authority
P. O. Box 875
Beaufort, North Carolina 28516

Dear Mr. Gill:

SUBJECT: US 70, From Four lanes at Radio Island to North of Pinners Point Road (SR 1303), Beaufort, Carteret County, Federal Aid Project No. STPNHF-70(43), State Project No. 8.1162501, TIP No. R-3307.

The Planning and Environmental Branch of the Division of Highways is studying the proposed US 70 improvements described above. The project is included in the 1998-2004 North Carolina Transportation Improvement Program and is scheduled for right of way to begin in fiscal year 2002 (FY 02) and construction to begin after the year 2004.

The project consists of replacing the existing drawbridge over Gallants Channel with a high-rise bridge and extending US 70 as a multilane facility from four lanes at Radio Island to north of Pinners Point Road (SR 1303), a length of 3.5 kilometers (2.2 miles). These improvements are proposed to eliminate travel delays occurring at the drawbridge and to increase the traffic carrying capacity of US 70 in the Beaufort area.

Eight alignment alternatives are being considered for the project. These are described as follows and shown on Figure 1.

- Alternative 1A replaces the existing Gallants Channel drawbridge with a four-lane high-rise bridge and extends US 70 as a four-lane parkway on new location from Stanton Road to north of Pinners Point Road (SR 1303). A connector is proposed from Stanton Road to Turner Street (Turner Street Connector) to maintain access between the Town of Beaufort and the new US 70 route.

- Alternative 1B is the same as Alternative 1A except for the connector between Beaufort and US 70. Alternative 1B provides a connector along Stanton Road and Queen Street (Queen Street Connector) to maintain access between Beaufort and the new US 70 route.
- Alternative 1C is the same as Alternative 1A from Radio Island to NC 101 and provides the Turner Street Connector. From NC 101 to US 70, Alternative 1C extends farther north to reduce driveway conflicts with existing commercial and residential development on the east side of the town.
- Alternative 1D is the same as Alternative 1B from Radio Island to NC 101 and provides the Queen Street Connector. From NC 101 to US 70, Alternative 1D extends farther north to reduce driveway conflicts with existing commercial and residential development on the east side of the town.
- Alternative 2A replaces the existing drawbridge with a four-lane high-rise bridge and widens existing West Beaufort Road and US 70 to five lanes from Stanton Road to north of Pinners Point Road (SR 1303). The Turner Street Connector is proposed to maintain access between Beaufort and US 70.
- Alternative 2B is the same as Alternative 2A except for the connector between Beaufort and US 70. The Queen Street Connector is proposed for this alternative.
- Alternative 3A replaces the existing drawbridge with a four-lane high-rise bridge along the existing location and widens existing Cedar Street and Live Oak Road to five lanes from east of Gallants Channel to north of SR 1303 (Pinners Point Road).
- Alternative 3B replaces the existing drawbridge with a four-lane high-rise bridge along the existing location, provides a one-way pair along existing Cedar Street and Pine Street, and widens Live Oak Road to five lanes from Cedar Street to north of SR 1303 (Pinners Point Road).

We would appreciate information you might have that would be helpful in evaluating potential environmental impacts of the project. If applicable, please identify any permits or approvals which may be required by your agency. Your comments will be used in the preparation of a federally-funded Environmental Assessment. This document will be prepared in accordance with the National Environmental Policy Act. It is desirable that your agency respond by July 30, 1998 so that your comments can be used in the preparation of this document.

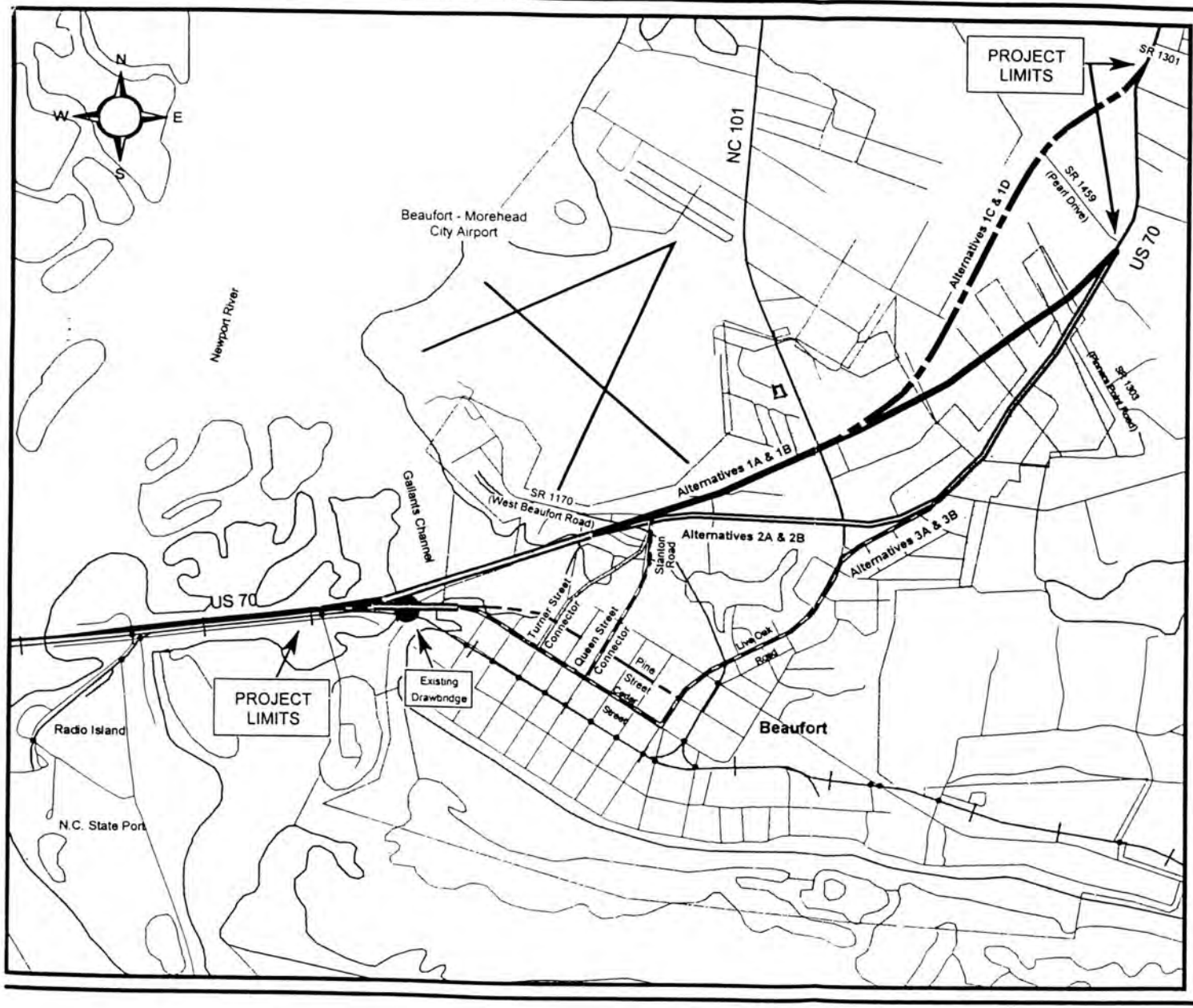
If you have any questions concerning the project, please contact Mark Reep, Project Planning Engineer, of this Branch at (919) 733-7844, Extension 213.

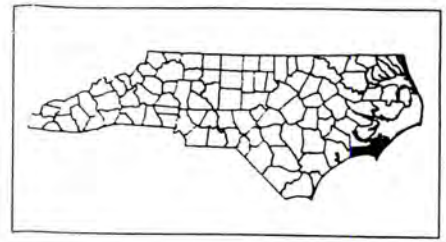
Sincerely,

William E Gilmore

for William D. Gilmore, P. E., Manager
Planning and Environmental Branch

WDG/plr
Attachment





LEGEND

County Boundary (100K)
- County Boundary
- State Boundary

Roads (DOT 24k - no attributes)
- Railroad
- Interstate
- US
- NC
- SR
- City
- Other
- Railroad Crossings (24k)

Hydro - Rivers/Streams (100k)

Hydro - Major Rivers/Streams (100k)

Municipal Boundaries (24k)

North Carolina - Department of Transportation
Division of Highways
Planning and Environmental Branch

US 70 From Radio Island to SR 1303
Beaufort, Carteret County
TIP No. R-3307

0 1/4 1/2 (Kilometer)
0 1/4 (Mile)

FIGURE 1

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

JAMES B. HUNT JR.
GOVERNOR

DIVISION OF HIGHWAYS
P.O. BOX 25201, RALEIGH, N.C. 27611-5201

GARLAND B. GARRETT JR.
SECRETARY

March 17, 1997

MEMORANDUM TO: Mr. Bob Mattocks, Member, Board of Transportation
Mr. C. E. Lassiter, P.E., Division Engineer, Division 2
Mr. C. W. Leggett, P.E.
Mr. W. H. Webb, P.E.
Mr. J. M. Lynch, P.E. (6) Attention: Roberto Canales, P.E.
Congestion Management Engineer
Mr. J. B. Williamson
Mr. H. F. Vick, P.E. (2)
Mr. D. R. Morton, P.E.
Mr. G. T. Shearin, P.E.
Mr. M. R. Poole, P.E.
Mr. A. L. Avant (2)
Mr. J. D. Lane
Mr. T. A. Peoples, P.E.
Mr. L. K. Barger, P.E.

FROM: David G. Modlin, Ph.D., P.E. David Modlin
Head of Feasibility Studies

SUBJECT: Feasibility Study # R-3624, NC 101 relocation at Beaufort-Morehead City Airport, Carteret County.

Our staff has completed a feasibility study for the subject proposed project. This brief analysis suggests improvements that would be logical if the project were to be funded. A copy of our report is attached for your information.

DGM/joa

Attachment

cc: Dr. L. R. Goode, P.E.
Mr. B. G. Jenkins, P.E.
Mr. D. W. Conner

FEASIBILITY STUDY

NC 101 Relocation
at Beaufort-Morehead City Airport
Carteret County

R-3624

Division 2

Prepared by
Program Development Branch
Division of Highways
N. C. Department of Transportation

David W. Conner
Highway Planning Engineer

David G. Modlin Jr., Ph.D., P.E.
Head of Feasibility Studies

2/21/97
Date

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

JAMES B. HUNT JR.
GOVERNOR

DIVISION OF HIGHWAYS
P.O. BOX 25201. RALEIGH. N.C. 27611-5201

GARLAND B. GARRETT JR.
SECRETARY

March 17, 1997

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Attachment

cc: Dr. L. R. Goode, P.E.
Mr. B. G. Jenkins, P.E.
Mr. D. W. Conner

NC 101 Relocation
at Beaufort-Morehead City Airport

Carteret County

R-3624

I. General Description of Alternates

This is a feasibility study describing three alternates for relocating a segment of NC 101 in the area of the Beaufort-Morehead City Airport to allow extension of Runway 28. The location of the study area and each of the alternates is depicted on the attached Figure 1. The studied alternates are described below.

Alternate 1

1. Construction, on new location, of a new 5-lane, 68-foot (20.7-m) wide (face-to- face), curb-and-gutter section, with 10-foot (3.0-m) wide berms, from immediately south of Carteret Memorial Gardens, to NC 101 at approximately 600 feet (182.9 m) north of SR 1170 (Beaufort Road) then along existing NC 101 to SR 1170, then on new location to US 70. A right-of-way width of 100 feet (30.5 m) is suggested. This roadway segment will have a length of approximately 1.7 miles (2.7 km).
2. Construct a new connector from the relocated NC 101 to US 70 at Wellons Drive. The connector should be a 2-lane, 28-foot (8.5-m) wide curb-and-gutter section, with 10-foot (3.0-m) wide berms on a 60-foot (18.3-m) wide right-of-way. This segment of roadway will have a length of approximately 0.5 miles (0.8 km).

It is estimated that there will be 5 residences and 1 business relocated as a result of this alternate.

The total cost of right-of-way and construction of Alternate 1 is estimated to be $8,300,000 as follows:

Right-of-way	$2,400,000
Construction	5,900,000
Total Cost	$8,300,000

Alternate 2

Alternate 2 is identical to Alternate 1 with the exception of the alignment of the connector from the relocated NC 101 to US 70 which will connect to existing US 70 via Campen Road in lieu of connecting at Wellons Drive. The connector along Campen Road will have a length of approximately 0.5 miles (0.8 km) and will include some construction on new location and the widening of existing Campen Road from a 2-lane shoulder section to a 28-foot (8.5-m) wide, face-to-face, curb-and-gutter section.

It is estimated that there will be 5 residences and 1 business relocated as a result of this alternate.

The total cost of right-of-way and construction of Alternate 2 is estimated to be $8,100,000 as follows:

Right-of-way	$2,300,000
Construction	5,800,000
Total Cost	$8,100,000

Alternate 3

1. Construction, on new location, of a new 5-lane, 68-foot (20.7-m) wide (face-to-face), curb-and-gutter section, with 10-foot (3.0-m) wide berms, from immediately south of Carteret Memorial Gardens, to US 70 at approximately 0.2 miles (0.3 km) northeast of SR 1303. A right-of-way width of 100 feet (30.5 m) is suggested. This roadway segment will have a length of approximately 1.3 miles (2.1 km). A minimum distance of 1,000 feet (305.0 km) should be maintained between the R-3307 and R-3624 intersections with US 70.
2. Construct a new connector from the relocated NC 101 to SR 1212 (Airport Road). The connector should be a 2-lane, 28-foot (8.5-m) wide curb-and-gutter section, with 10-foot (3.0-m) wide berms on a 60-foot (18.3-m) wide right-of-way. This segment of roadway will have a length of approximately 0.7 miles (1.1 km).

It is estimated that there will be 6 residences and 1 business relocated as a result of this alternate.

The total cost of right-of-way and construction of Alternate 3 is estimated to be $6,600,000 as follows:

Right-of-way	$1,650,000
Construction	4,950,000
Total Cost	$6,600,000

This study is the initial step in the planning and design process for this project and is not to be considered the product of exhaustive environmental or design investigations. The purpose of the study is to describe the problem, recommend a treatment including costs, and identify potential problem areas that deserve consideration in the planning and design phases.

II. Existing Conditions

The purpose of this project is to relocate a section of NC 101 to allow for the extension of Runway 25 at the Beaufort-Morehead City Airport and to provide improved access to US 70 from north of Beaufort.

NC 101 is designated a major thoroughfare on the Morehead City Thoroughfare Plan and a major collector on the North Carolina Statewide Functional Classification System.

Existing NC 101 is generally a 2-lane rural shoulder section with a 22-foot (6.7-m) wide pavement. It is developed with dense commercial development around the US 70 intersection and a mix of light commercial and residential from SR 1299 (Carraway Drive) to the north project terminal. The Beaufort-Morehead City Airport is located immediately west of NC 101 at SR 1212 (Airport Road).

Existing Campen Road is a 2-lane rural shoulder section with a 20-foot (6.1-m) wide pavement. It is completely developed on both sides with single family residences that are set back from the existing roadway approximately 60 feet (18.3 m). Campen Road is signalized at the US 70 intersection, on the south end, and runs adjacent to Carteret Middle School on the north end.

Airport Road is a 2-lane shoulder section with an 18-foot (5.5-m) wide pavement. It is the main entrance to the Beaufort-Morehead City Airport.

Within the project terminals, the 1995 Average Daily Traffic (ADT) on NC 101 is approximately 5,600 vehicles per day (vpd). The estimated design year (2020) volumes, on the relocated NC 101, are 13,200 vpd for Alternates 1 and 2 and 13,900 vpd for Alternate 3.

The Level Of Service (LOS), on NC 101, is currently estimated to be a level D. With construction of either of the studied alternates, the LOS is expected to improve to a Level A which should prevail through the design year (2020). Without improvements it is estimated that a Level E will be reached prior to the design year.

During the period from March 1, 1993, through February 29, 1996, there were 14 accidents reported on NC 101 between the project terminals. This resulted in an accident rate of 121.8 accidents per 100 million vehicle miles (Acc/100 MVM), compared to a statewide average of 317 Acc/100 MVM for all urban NC routes during 1994. One of the accidents resulted in a fatality and 14 other accidents resulted in injuries. The most prevalent accident types were rear-end (31.6%) and left-turn (15.8%). The wider cross section with center turn lane will reduce the potential for these types of accidents.

III. Detailed Description of Alternates

Three alternates were studied for relocation of a segment of NC 101 around the proposed extension of Runway 23 at the Beaufort-Morehead City Airport. The location of the alternates are depicted on the attached Figure 1 and a detailed description of the alternates is as follows:

Alternate 1

1. Construction, on new location, of a new 5-lane, 68-foot (20.7-m) wide (face-to-face), curb-and-gutter section, with 10-foot (3.0-m) wide berms, from immediately south of Carteret Memorial Gardens, to NC 101 at approximately 600 feet (182.9 m) north of SR 1170 (Beaufort Road) then along existing NC 101 to SR 1170, then on new location to US 70. A right-of-way width of 100 feet (30.5 m) is suggested. This roadway segment will have a length of approximately 1.7 miles (2.7 km).
2. Construct a new connector from the relocated NC 101 to US 70 at Wellons Drive. The connector should be a 2-lane, 28-foot (8.5-m) wide curb-and-gutter section, with 10-foot (3.0-m) wide berms on a 60-foot (18.3-m) wide right-of-way. The easternmost 300 feet (91.5 m) of the section should be widened to three lanes to facilitate turning

movements at US 70. This segment of roadway will have a length of approximately 0.5 miles (0.8 km).

3. Construct four new cul-de-sacs on existing NC 101 located (a) immediately north and south of the proposed runway extension, (b) immediately south of the new intersection of existing NC 101 and the new roadway, and (c) immediately north of the new intersection of existing NC 101 and the new roadway. See Figure 1 for cul-de-sac locations.
4. Construct a new 2-lane connector from existing NC 101 to the new roadway at approximately 0.2 miles (0.3 km) south of Carteret Memorial Gardens.
5. Construct a new 2-lane connector from the relocated NC 101 to Airport Road.
6. Construct a new 2-lane connector from SR 1169 to existing NC 101 immediately north of the proposed runway extension.
7. Install new traffic signals at the intersections of US 70 with existing NC 101 and with Wellons Drive.

It is estimated that there will be 5 residences and 1 business relocated as a result of this alternate.

The total cost of right-of-way and construction of Alternate 1 is estimated to be $8,300,000 as follows:

Right-of-way	$2,400,000
Construction	5,900,000
Total Cost	$8,300,000

Alternate 2

Alternate 2 is identical to Alternate 1 with the exception of the alignment of the connector from the relocated NC 101 to US 70 which will connect to existing US 70 via Campen Road in lieu of connecting at Wellons Drive. The connector along Campen Road will have a length of approximately 0.5 miles (0.8 km) and will include some construction on new location and the widening of existing Campen Road from a 2-lane shoulder section to a 28-foot (8.5-m) wide, face-to-face, curb-and-gutter section. The easternmost 300 feet (91.5 m) of the section should be widened to three lanes to facilitate turning movements at US 70. The existing traffic signal at US 70 will require upgrading.

It is estimated that there will be 5 residences and 1 business relocated as a result of this alternate.

The total cost of right-of-way and construction of Alternate 2 is estimated to be $8,100,000 as follows:

Right-of-way	$2,300,000
Construction	5,800,000
Total Cost	$8,100,000

Alternate 3

1. Construction, on new location, of a new 5-lane, 68-foot (20.7-m) wide (face-to-face), curb-and-gutter section, with 10-foot (3.0-m) wide berms, from immediately south of Carteret Memorial Gardens, to US 70 at approximately 0.2 miles (0.3 km) northeast of SR 1303. A right-of-way width of 100 feet (30.5 m) is suggested. This roadway segment will have a length of approximately 1.3 miles (2.1 km). A minimum distance of 1,000 feet (305.0 km) should be maintained between the R-3307 and R-3624 intersections with US 70.
2. Construct a new connector from the relocated NC 101 to SR 1212 (Airport Road). The connector should be a 2-lane, 28-foot (8.5-m) wide curb-and-gutter section, with 10-foot (3.0-m) wide berms on a 60 foot (18.3-m) wide right-of-way. This segment of roadway will have a length of approximately 0.7 miles (1.1 km).
3. Construct a 2-lane connector from Bunch Road to Airport Road extension.
4. Construct a new 2-lane connector from existing NC 101 to the new roadway at approximately 0.2 miles (0.3 km) south of Carteret Memorial Gardens.
5. Construct three new cul-de-sacs on existing NC 101 located (a) immediately north and south of the proposed runway extension and (b) immediately south of the new intersection of existing NC 101 and the new roadway. See Figure 1 for cul-de-sac locations.
6. Construct a new 2-lane connector from SR 1169 to existing NC 101 immediately north of the proposed runway extension.
7. Install a new traffic signal at the intersection of the new roadway and US 70.

It is estimated that there will be 6 residences and 1 business relocated as a result of this alternate.

The total cost of right-of-way and construction of Alternate 3 is estimated to be $6,600,000 as follows:

Right-of-way	$1,650,000
Construction	4,950,000
Total Cost	$6,600,000

IV. Other Comments

An environmental screening was not conducted for this study; however, there are no apparent streams, drainage structures, or wetlands which should be directly affected by this project.

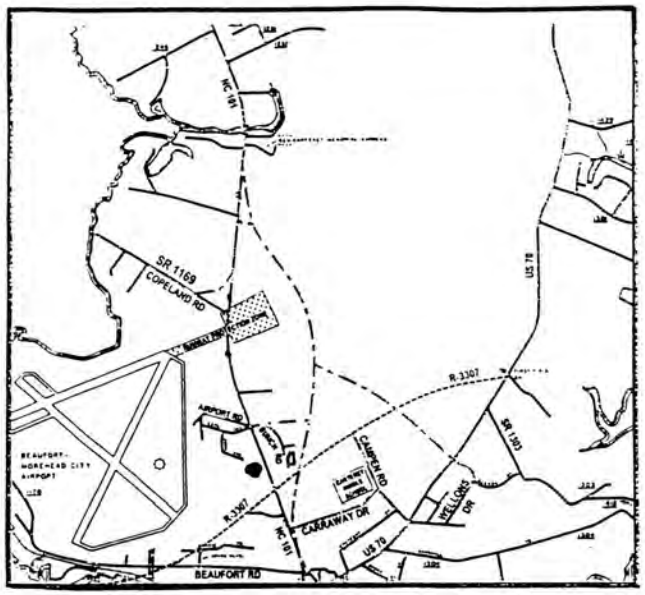
The Beaufort Historic District is located immediately south of existing US 70. None of the alternatives included in this report should affect the historic district.

Wide outside lanes are included in the studied alternates to facilitate movement of and safety of bicycle traffic.

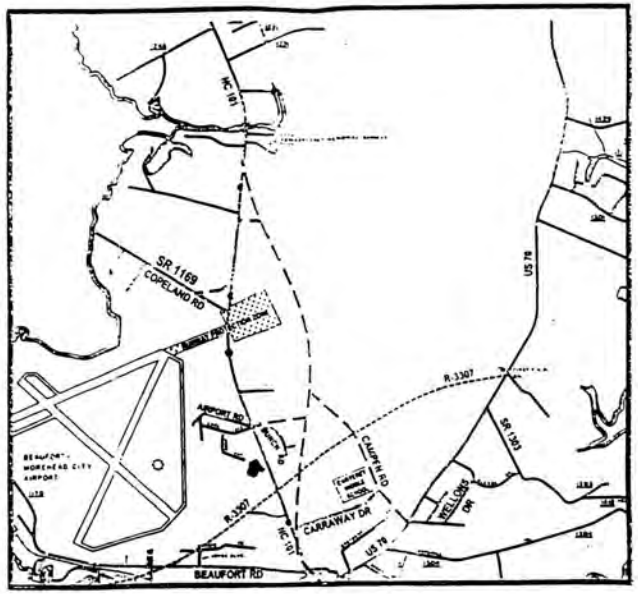
Coordination with the FAA is expected to insure no conflict with the glide paths to the Beaufort-Morehead City Airport.

Power Lines?

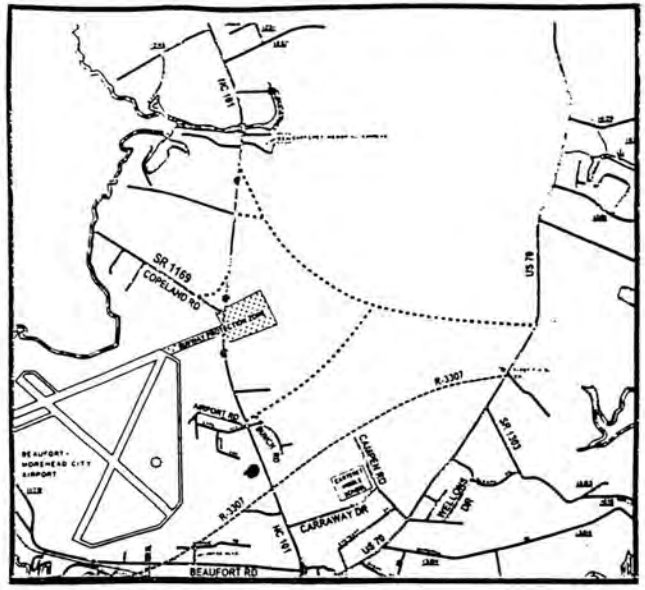
Traffic projections and roadway cross sections, included in this report, are based on the assumption that R-3437 (Newport Connector from US 70 to NC 101) will be constructed. R-3437 is included in the 1996 Transportation Improvement Program as an identified future need. If R-3437 is not constructed, NC 101 should function well as a 2-lane cross section with construction costs being significantly reduced.



ALTERNATE 1



ALTERNATE 2



ALTERNATE 3

LEGEND
ALTERNATE 1
ALTERNATE 2
ALTERNATE 3
TIP # R-3307
PROPOSED CUL DE SACS

SCALE

North Carolina Department of Transportation
Program Development Branch

R-3624

NC 101
NC 101 relocation at Beaufort-Morehead City Airport
Carteret County

DIV. 2 FIGURE 1

APPENDIX "E"

CULTURAL RESOURCES SURVEY

AUG 0 7 1998

North Carolina Department of Cultural Resources

James B. Hunt Jr., Governor
Betty Ray McCain, Secretary

Division of Archives and History
Jeffrey J. Crow, Director

August 4, 1998

Francis P. Kulka
Airport Planner
Delta Airport Consultants, Inc.
9101 Southern Pine Boulevard, Suite 140
Charlotte NC 28273

Re: Archaeological study, Runway 8-26 Extension, Michael J. Smith Airport, Beaufort, Carteret County, Delta No. NC 98011, ER 99-7108

Dear Mr. Kulka:

Thank you for your letter of July 14, 1998, transmitting the archaeological survey report by Coastal Carolina Research, Inc. (CCR) concerning the above project.

During the course of the survey no archaeological sites were located within the project area. CCR has recommended that no further archaeological investigation be conducted in connection with this project. We concur with this recommendation since this project will not involve significant archaeological resources. The report meets our office's guidelines and those of the Secretary of the Interior.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, please contact Renee Gledhill-Earley, environmental review coordinator, at 919/733-4763.

Sincerely,

David Brook/w

David Brook
Deputy State Historic Preservation Officer

DB:slw

cc: Coastal Carolina Research

North Carolina Department of Cultural Resources

James B. Hunt Jr., Governor
Betty Ray McCain, Secretary

Division of Archives and History
Jeffrey J. Crow, Director

August 26, 1998

Francis P. Kulka
Airport Planner
Delta Airport Consultants, Inc.
9101 Southern Pines Boulevard, Suite 140
Charlotte NC 28273

Re: Runway extension, Michael J. Smith Airport,
Beaufort, Carteret County, ER 99-7237

Dear Mr. Kulka:

Thank you for your letter of August 7, 1998, transmitting the historic structures survey report by Longleaf Historic Resources concerning the above project.

One National Register-listed property is located in the general project area:

Carteret County Home

We concur that none of the other properties evaluated in the survey report appears eligible for listing in the National Register of Historic Places.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, please contact Renee Gledhill-Earley, environmental review coordinator, at 919/733-4763.

Sincerely,

David Brook
Deputy State Historic Preservation Officer

DB:slw

cc: Rick Barkes, NCDOT Division of Aviation
Beaufort Historic Preservation Commission

CULTURAL RESOURCES STUDY
PROPOSED IMPROVEMENTS TO MICHAEL J. SMITH FIELD
BEAUFORT
CARTERET COUNTY, NORTH CAROLINA

PREPARED FOR:

DELTA AIRPORT CONSULTANTS
9101 SOUTHERN PINE BOULEVARD
CHARLOTTE, NORTH CAROLINA 28273

PREPARED BY:
LORETTA LAUTZENHEISER
PRINCIPAL INVESTIGATOR
and
SHANE PETERSEN

COASTAL CAROLINA RESEARCH, INC.
310 E. BAKER STREET
TARBORO, NORTH CAROLINA 27886

JULY 1998

TABLE OF CONTENTS

LIST OF FIGURES

ARCHAEOLOGICAL SURVEY OF PROPOSED IMPROVEMENTS MICHAEL J. SMITH FIELD BEAUFORT, CARTERET COUNTY, NORTH CAROLINA

MANAGEMENT SUMMARY

Coastal Carolina Research, Inc., conducted an archaeological survey of the proposed improvements to Runway 8-26, at Michael J. Smith Field in Beaufort, Carteret County, North Carolina. The study was conducted for Delta Airport Consultants, in compliance with Sections 106 and 110 of the National Historic Preservation Act of 1966, and the Advisory Council on Historic Preservation's regulations for compliance with Section 106, codified as 36 CFR Part 800. The scope of investigations was consistent with the Secretary of the Interior's *Standards and Guidelines for Archaeology and Historic Preservation*. The report conforms to *Guidelines for the Preparation of Reports of Archaeological Surveys and Evaluations*, issued by the North Carolina State Historic Preservation Office (SHPO).

The study consisted of an intensive survey designed to identify archaeological resources within the survey area and, if possible, to determine whether or not these resources were potentially eligible for listing in the National Register of Historic Places. The focus of the survey was the east end of Runway 8-26 between the end of the runway and highway NC 101. The survey was confined to the area within the airport property and consisted of approximately 18 acres.

In addition to the archaeological survey, a survey of the architectural resources within the Area of Potential Effect (APE) was conducted by Dr. Ruth Little. Dr. Little's report appears in a separate document.

The fieldwork for the study was conducted on May 27, 1998, and required two person-days to complete. Survey methodology included the excavation of a series of shovel tests placed at 30 m intervals. The majority of the shovel tests encountered wet or muck soils.

As a result of the survey, no archaeological sites were recorded. This phase of the undertaking will not affect archaeological properties on or eligible for the National Register of Historic Places, and no further work is recommended.

ARCHAEOLOGICAL SURVEY OF PROPOSED IMPROVEMENTS MICHAEL J. SMITH FIELD BEAUFORT, CARTERET COUNTY, NORTH CAROLINA

INTRODUCTION

Coastal Carolina Research, Inc., conducted an archaeological survey of the proposed improvements to Runway 8-26 at Michael J. Smith Field in Beaufort, Carteret County, North Carolina (Figure 1). The study was conducted for Delta Airport Consultants in compliance with Sections 106 and 110 of the National Historic Preservation Act of 1966, and the Advisory Council on Historic Preservation's regulations for compliance with Section 106, codified as 36 CFR Part 800. The scope of investigations was consistent with the Secretary of the Interior's *Standards and Guidelines for Archaeology and Historic Preservation*. The report conforms to *Guidelines for the Preparation of Reports of Archaeological Surveys and Evaluations*, issued by the North Carolina State Historic Preservation Office (SHPO).

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Background research was conducted at the Office of State Archaeology in Raleigh, the Carteret County Library in Beaufort, and the library at Coastal Carolina Research, Inc., in Tarboro. John Betts, Airport manager, also provided information.

Loretta Lautzenheiser served as Principal Investigator and was assisted in the field by Brian Overton. Shane Petersen prepared portions of the report.

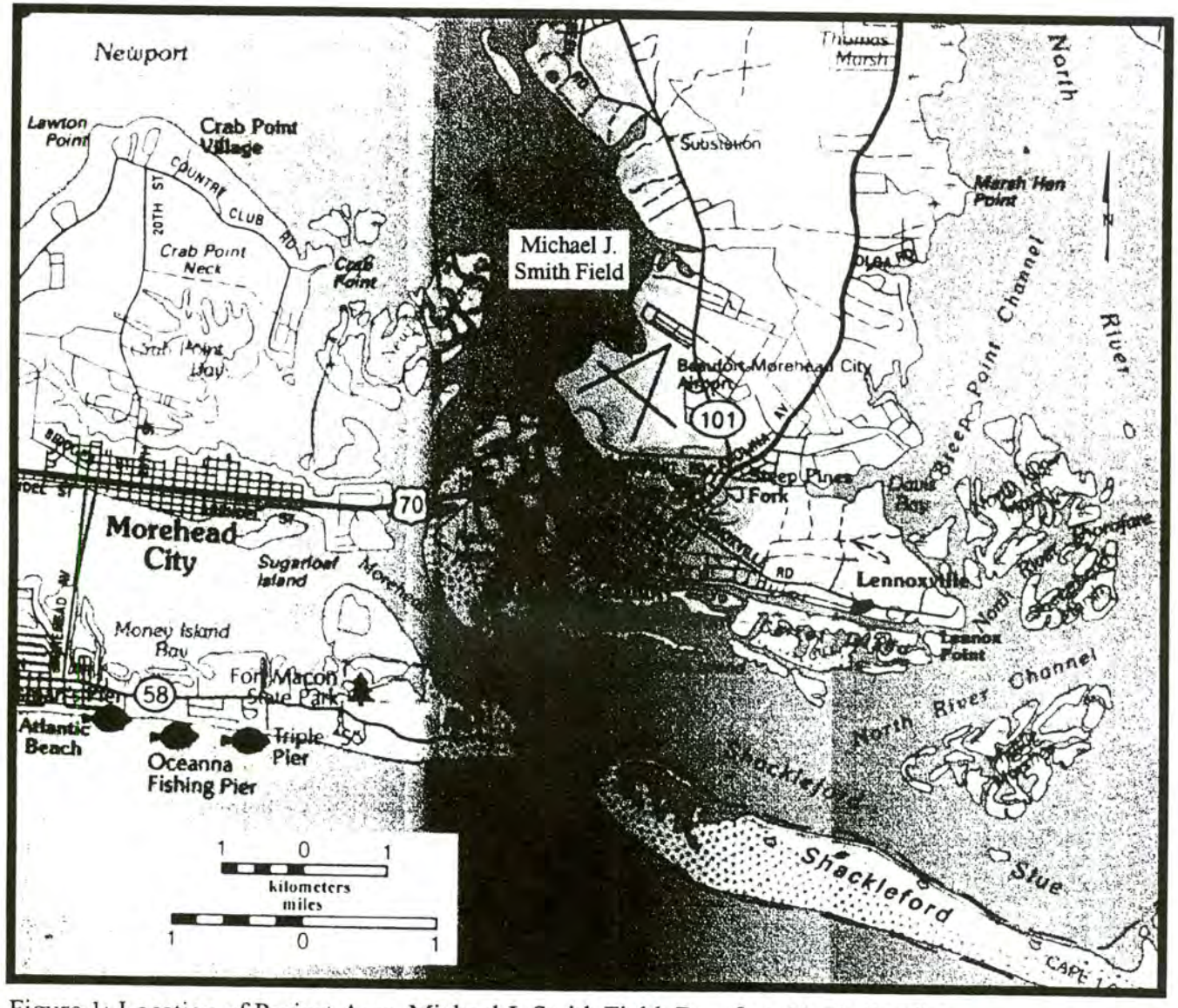

Figure 1: Location of Project Area, Michael J. Smith Field, Beaufort, North Carolina.

ENVIRONMENTAL CONTEXT

Physiography

Carteret County is located on the Atlantic Plain, the emerged portion of the Coastal Plain physiographic region. During the accumulations of Coastal Plain sediments there have been numerous changes in the relationship of land and sea. The present manifestation of the Coastal Plain region is the result of the deposition of sediments on the coastal peneplain and the uplifting of that area. Like the offshore portions of the Continental Shelf, the Coastal Plain tilts upward towards the older inland geologic structures. With increasing distance inland from the coast the gradient of the land increases. The frequency and size of stream tributaries also increase with the steepening gradient of the Coastal Plain. The topography of the Coastal Plain is generally composed of Pleistocene terraces. These Pleistocene terraces to some extent correlate in age with the time of the glacial invasions. The origin of the terraces may be related to continental depression and outwash from glacial action or may be the result of the intermittent rise in sea level associated with interglacial periods (Fenneman 1938).

The project area is located on the Pamlico Terrace. This gently sloping terrace averages less than ten feet in elevation. It consists of fossiliferous marine sands and clays (Bellis et al. 1975). The marine origin of the Pamlico Terrace is demonstrated by abundant marine fossils. Much of the terrace consists of vast areas of swamp land (Stucky and Conrad 1985).

During the last glacial period, approximately 18,000 years ago, sea level was approximately 400 feet below its present level. This exposed much of the Continental Shelf, which was probably covered with cold lowland marshes and swamps (Bellis et al. 1975). A generally warming climate resulted in the thawing of glacial ice and a rising sea level. Gradual warming forced the spruce-fir forest to retreat, and it was eventually replaced by pines on the well-drained sandy beach ridges.

The shoreline during the last glacial period was probably at least 30 to 50 miles east of its present location. As sea level began rising, it inundated the lower river and stream valleys. The Outer Banks, a chain of barrier islands unique to the Atlantic Coast, were probably formed 4,000 years ago (Riggs and O'Connor 1974). Sea level is continuing to rise and is inundating marshes and eroding shorelines.

Geology

The project area is underlain by undivided Quarternary surficial deposits. The geologic units within these deposits are composed of sand, clay, gravel, and peat. They were deposited in marine, fluvial, eolian, and lacustrine environments (NCGS 1985).

Hydrology

The nearest hydrological feature is the Gallants Channel which connects the Newport River to Bogue Sound. The Newport River runs from the northwest through Carteret County, around Crab Point to Bogue Sound. Gallants Channel flows into Bogue Sound opposite Beaufort Inlet. The point of land containing the airport is bounded on the north by Gable Creek and on the south by Town Creek.

Vegetation

The Southeastern Evergreen Forest Region is essentially coextensive with the Coastal Plain physiographic region. The most prominent feature is the preponderance of evergreen trees. The longleaf pine forests of the sandy uplands dominate the landscape of much of the Coastal Plain. This forest is an edaphic climax modified and stabilized by recurring fires to the point that it is considered a fire subclimax (Braun 1950).

The natural vegetation of the region consists of a variety of very different forest communities: coniferous, mixed coniferous and hardwood, deciduous hardwood, and mixed deciduous and broad-leaved evergreen hardwoods. These communities are interrupted by swamps, bogs, and praries. The bays or shrub-bogs have a floristic composition that is part of the Subtropical Evergreen Forest rather than the Deciduous Forest Formation (Braun 1950).

Soils

In some of the eastern and central areas of the Pamlico Terrace in Carteret County there are areas there are very poorly and poorly drained loamy soils located on low marine and stream terraces. Usually these soils are found on broad interstream flats and depressions. These areas are mainly used as woodlands, however, some areas have been used for agricultural purposes (Goodwin 1978).

Soils in the study area are as follows (Goodwin 1978):

Augusta loamy fine sand: This is a flat and nearly level soil that is somewhat poorly drained. It is found on the flats and depressions of low marine and stream terraces near rivers, creeks, sounds and bays. The surface layer is a very dark grayish brown loamy fine sand followed by a layer of light yellowish brown loamy fine sand. Subsoil is light yellowish brown sandy clay loam with light brownish gray mottles. Underlying this layer is a light gray fine sandy loam and loamy fine sand. Permeability of the subsoil is moderate as is the available water capacity. Flooding is rare, but it is possible in low-lying areas.

Arapahoe fine sandy loam: This is a poorly drained soil that is nearly level. It is located on low marine and stream terraces in broad flats and depressions. The surface layer of this soil is typically black and very dark gray fine sandy loam. The

subsoil is a dark grayish brown fine sandy loam with underlying light brownish gray loamy sand and sand. Seasonal wetness, rare flooding and ponding is possible. Permeability of the subsoil is moderately rapid.

Tomotley fine sandy loam: This poorly drained soil is nearly level. It is located on low marine and stream terraces in broad flats and depressions. The surface layer of this soil is dark gray fine sandy loam above light brownish gray fine sandy loam. The subsoil is light brownish gray fine sandy loam over gray sandy clay loam. The underlying material is gray loamy fine sand. The permeability and available water capacity of this soil is moderate. Seasonal wetness and rare flooding in low-lying areas are possible.

PREHISTORIC BACKGROUND

Paleo-Indian Period

Prehistoric occupation of North Carolina dates to the Paleo-Indian Period, which is thought to have begun about 12,000 BC. Evidence of occupation during this period is generally sparse. The temporal marker for this period is the fluted projectile point, usually recovered as surface finds.

The most important excavated North Carolina site yielding Paleo-Indian components is the Hardaway site, located on the west bank of the Yadkin River in Stanly County. This site is unusual in that it contains stratified deposits including Paleo-Indian materials. Investigations at the Hardaway site form the basis of the Paleo-Indian and Early Archaic sequences defined by Coe (1964) for the Piedmont and which are generally valid for the Coastal Plain as well.

The classic fluted Clovis projectile point was not recovered from the Hardaway site, but it is thought to be contemporary with the Hardaway phase (Ward 1983), the earliest occupation at the site dating to at least 8000 BC. The Hardaway and Hardaway-Dalton projectile point types are broad, thin blades with concave bases. The Hardaway-Dalton type has a deeply concave base and shallow side-notches (Coe 1964).

The subsistence pattern during this time is assumed to have been a hunting and gathering lifestyle. Recent work at the Hardaway site has focused on attempts to retrieve subsistence data to obtain a more complete view of Paleo-Indian lifeways (Ward 1983). Investigations at other Paleo-Indian sites in the Southeast have demonstrated a uniformity of tool types for the period. Work at the Adams site in western Kentucky, a single-component Paleo-Indian site, has compiled a complete sequence of Clovis point manufacture. Tools for bone and wood working and a variety of scraping, cutting, chopping, shredding, and planing tools were present (Sanders 1988).

Paleo-Indian sites with stratified deposits have not been identified from the Coastal Plain. Phelps (1983) reports one site, 31Pt3, located on an older Tar River levee, which has a possible buried Paleo-Indian stratum. The zone, buried 1.1 meters below surface, is overlain by Woodland occupation zones.

A projectile point type, transitional between the Paleo-Indian and Archaic periods, has been proposed by Phelps (1976) for the Coastal Plain. These points have ground bases with extreme basal thinning rather than flutes and are notched for a slightly "eared" effect. Phelps suggests that the rudimentary corner-notches and small size of the points indicate changing ideas of production. Since most of these points are of quartz or quartzite, however, it is also possible that the style reflects adaptation to locally available material.

Archaic Period

The Archaic Period (8000-1000 BC) was apparently a time of climatic change. A shift from boreal forests to northern hardwoods occurred around the time of the Early Archaic Period (8000-5000 BC). In the early Holocene, a cool, moist climate prompted the expansion of species-rich Mixed Hardwood Forest in the Eastern United States. During this Hypsithermal, the Oak-Chestnut Forest became dominant in the central and southern Appalachians, oak and hickory were replaced by southern pine on the Coastal Plain, and the Oak-Hickory-Southern Pine Forest covered the Piedmont (Delcourt and Delcourt 1981, 1985). These changes were probably accompanied by an increase in population, as seen in the greater number of sites with Archaic components (Phelps 1983).

The Early Archaic Palmer phase is typified by a small corner-notched blade with a straight, ground base and pronounced serrations. The use of hafted end scrapers increased during this period (Coe 1964, Davis and Daniel 1990).

During the Kirk phase the points increased in size and basal grinding declined. A broad-stemmed, deeply serrated point gradually replaced the earlier corner-notched style. It is generally thought that in the Archaic Period there was a continuation of the hunting and gathering lifestyle, with a possible seasonal round of movement between base camps and hunting camps. The depth of the Kirk midden at the Hardaway site indicates a long-term occupation (Coe 1964).

During excavations at Icehouse Bottom in Tennessee (Chapman 1977) a bifurcate projectile point tradition was stratigraphically isolated between the Early Archaic Kirk and the Middle Archaic Stanly traditions. No major shift in the artifact assemblage was observed except for the bifurcate point, and the shift was viewed as a modification in the hafting element. The bifurcate tradition was not identified at the Hardaway site, although more recent investigations at the Haw River in Chatham County have confirmed its stratigraphic placement in North Carolina (Claggett and Cable 1982).

The Middle Archaic Stanly phase appears to have developed out of the preceding phases (Coe 1964, Phelps 1983). The major difference in the artifact assemblage seems to be the appearance of polished stone atlatl weights.

The Morrow Mountain and Guilford phases appear during the Middle Archaic period (5000-3000 BC). These phases have been referred to by Coe (1964) as the western intrusive horizons. The Morrow Mountain projectile point type is a relatively small point with short, tapering stems. The Guilford phase, with no apparent cultural antecedents in the region, is characterized by long, lanceolate points and chipped stone axes.

The Halifax phase was identified from the Gaston site on the Roanoke River (Coe 1964) and did not appear at the Hardaway or Doerschuk sites. The Halifax zone overlay

the Guilford material. The Halifax point type, usually made of vein quartz, is a slender blade with shallow side-notches. The base and side-notches were usually ground. The Halifax point is well represented from sites in the northern Coastal Plain. Coe (1964) has proposed a northern origin for the Halifax phase.

The terminal Archaic is the Savannah River phase (3000-1000 BC). During this period there is evidence of larger sites containing steatite bowls, human burials, and prepared hearths, which suggests a more settled lifestyle (Ward 1983). The Savannah River projectile point is a large, heavy, triangular blade with a broad stem (Coe 1964).

Woodland Period

The Early Woodland Period (1000 BC-300 BC) is marked by the introduction of the bow and arrow and the beginnings of ceramic manufacture. In the Early Woodland Period, regional differences begin to be noticed. The Early Woodland and its transition from the Archaic Period is the least known of the prehistoric periods from the Coastal Plain (Phelps 1983).

The earliest ceramics are noted during the terminal Archaic Period and are probably dated around 2500-2000 BC (Phelps 1983). They are fiber-tempered wares which are reported from the south Coastal Plain, generally below the Neuse River drainage. The reported specimens are all Stallings Plain and do not include the decorated types. The ware is reported from at least 38 sites, all but a few in the area below the Neuse River (Phelps 1983).

The Early Woodland ceramic type in the north Coastal Plain is a coarse sand-tempered ware called Deep Creek. The cord-marked wares are the majority type, with minor quantities of net-impressed and fabric-impressed wares (Phelps 1983). The large Roanoke Triangular projectile points are also a part of the artifact assemblage. Phelps indicates that the type had its origin to the north in the Mid-Atlantic region. In the south Coastal Plain, the ceramic type during this period is also a coarse-sand-tempered ware termed New River (Loftfield 1976). The New River series is differentiated by the presence of a thong-marked ware in addition to cord-marked and net- and fabric-impressed finishes.

An earlier ceramic, Thoms Creek Punctate, is also reported from the south Coastal Plain. This ceramic type is a non-tempered, fine-textured ware which is identified by its punctated decoration. The reed-punctated variety is decorated with individual linear reed punctations. The core area of this type is in South Carolina, although it is known to extend into the south Coastal Plain of North Carolina. Carbon dates of 2220 BC and 1870 BC provide chronological placement for the Thoms Creek Ware (Trinkley 1976).

The Middle Woodland (300 BC-AD 800) is called the Mount Pleasant phase in the north Coastal Plain (Phelps 1983) and the Cape Fear phase in the south Coastal Plain

(South 1976) . The ceramics are tempered with sand and pebbles and are generally fabric-impressed or cord-marked on the surface.

South (1976) has defined a clay-tempered ware, Hanover, which is associated with the Middle Woodland period. The clay temper generally appeared to be crushed sherds. South defined two surface finishes, cord-marked and fabric-impressed. Loftfield (1976) has also defined a clay-tempered ware for the south Coastal Plain, termed Carteret, and reports a minority of smooth types. Net-impressed wares have also been recovered from the south Coastal Plain (Lautzenheiser 1989). Hanover wares are frequently found in the same contexts as Mount Pleasant ceramics (Phelps 1983). Because of the priority of South's typology, the term Hanover is used in this report to refer to clay-tempered wares.

The burial pattern for the Middle Woodland period is usually a flexed or semi-flexed inhumation or a cremation. In the south Coastal Plain and Sand Hills regions, there is a rather extensive distribution of low sand burial mounds. These mounds are generally reported south of the Neuse River; however, a few are known from north of the river (Phelps 1983). The Neuse River drainage appears to be the northern limit of mound distribution.

The Late Woodland (AD 800-1650) is the last prehistoric period in the Coastal Plain, and the archaeological assemblages of this period can usually be related to ethnohistoric information. The tidewater and estuarine zone of the north Coastal Plain was inhabited by the Carolina Algonkians. The Algonkian artifact assemblage is known as the Colington phase. The ceramic type is a shell-tempered ware, and the projectile points are small Roanoke Triangles. Shell tools and beads, together with bone tools, are also part of the assemblage. Site locations are concentrated along the sounds, estuaries, and major rivers and their tributaries. Site types include not only base camps, seasonal villages, and special activity camps, but also capital villages. Burials are found in large ossuaries of secondary inhumations.

In the south Coastal Plain the inhabitants appear to have been Siouan (Phelps 1983, South 1976). Swanton (1946) indicated that the south Coastal Plain was the territory of the Cape Fear Indians, who may have been part of the Waccamaw tribe. South's Oak Island phase is probably associated with these Indians.

The Oak Island ceramics are shell tempered, although in all of the sherds collected by South in his study the shell had leached out. Loftfield (1976) has also identified a shell-tempered ware from the south Coastal Plain, which he terms White Oak. South's specimens were mostly smooth with a small number of net-impressed sherds present. Loftfield also reported cord-marked, fabric-impressed, and thong-impressed sherds.

Currently, the Oak Island phase is best known for the coast proper. There is archaeological evidence for an Algonkian presence from the Neuse River south to the area of Onslow County (Bogdan and Weaver 1989).

HISTORIC BACKGROUND

European Contact

At the time of the first European explorations of North Carolina, the original inhabitants of the south Coastal Plain were apparently Siouan-speaking peoples (Swanton 1946). The Algonkians inhabited the Tidewater in the northern Coastal Plain and the Tuscarora lived in the inner Coastal Plain (Phelps 1983). The first English contact with the North Carolina coast occurred in 1584. The Roanoke Voyages were expeditions of exploration and discovery begun in 1584 under a royal patent to Walter Raleigh (Quinn and Quinn 1982). None of the Roanoke settlements survived, and it was not until the seventeenth century that permanent settlements were established in North Carolina.

Early Settlement

By 1664, there were sufficient settlers in the northeastern part of the colony to require formation of a governmental unit. Albemarle County consisted of all the province of Carolina east of the Chowan River. The poorly defined county covered approximately 1,600 square miles. An additional county was formed in 1696 and covered the area south of the Albemarle River. It was divided into three precincts in 1705. One of these precincts, Archdale, became Craven County in 1712, and Carteret County was formed from Craven in 1722 (Corbitt 1950).

The area around the North River became known as the "Core Sound" settlements. In 1708, the area was growing rapidly, and some of the earliest colonists included John and Francis Shackleford, John Nelson, Edward and Enoch Ward, John May, and Benjamin Simpson (Paschal 1953: 36).

As European settlement intensified, it began spreading up the rivers into the interior. The Tuscaroras saw these settlements aiming at their territory along the Tar and Neuse rivers. The coastal Indians who had already been displaced by the colonists were also moving into the region, and, in addition, a brisk trade in Indian slaves was being conducted. The Coastal Plains Indians found themselves in a position of having to stand and fight or be overrun (Paschal 1953).

The Tuscarora War

King Hancock, chief of the town of Catechna, was able to persuade several of the southern towns and adjacent tribes to join him in a planned attack. These included the Coree and Neuse (Neusiok) tribes. Small groups of Indians left the town of Catechna and entered the various settlements along the Neuse, Trent, and Pamlico rivers, and in the Core Sound region. On the morning of September 22, 1711, they all attacked at daybreak and massacred the settlers. Between 130 and 140 settlers were killed or wounded and many others were captured for slaves (Paschal 1953).

The remaining settlers fled to the few fortified areas for refuge. Eleven garrisons had been established in Bath County by October. In the Core Sound area, the Shackleford plantation on the west side of the North River was garrisoned as a refuge (Paschal 1953).

The government of North Carolina, in disarray under Proprietary rule, sent out a plea for help to its neighbors in Virginia and South Carolina. South Carolina sent an expedition under John Barnwell to relieve the colonists. After several unsuccessful engagements, Barnwell signed an unauthorized treaty with the Indians. He returned to South Cafolina, taking Indian slaves in violation of his own treaty and leaving behind an angry North Carolina government and a new Indian War (Paschal 1953).

Colonel James Moore of South Carolina was in charge of a second expedition against the Indians. This culminated in an attack against the Tuscarora fort at Neoheroka, where 950 men, women, and children were killed or captured. This event broke the strength of the Tuscarora, and on April 14, 1713, a preliminary peace accord was signed. After the defeat of the main army at Neoheroka, Moore's forces pursued small bands of hostile Indians who were ranging through the coastal swamps. A few Core Indians remained to threaten the Core Sound settlements, and Moore stationed some of his men there to protect the settlements. It was not until 1715 that a final accord was reached (Paschal 1953).

The Founding of Beaufort

The safe harbor at Cape Lookout Bay provided an impetus for the settlement of the area between the Newport and North rivers. The area had attracted settlers before 1708, and a number of people were in the area by the time of the uprising which began the Tuscarora War. The presence of the hostile Tuscarora prevented the rapid spread of settlements inland, and it was just after the destruction of Fort Neoheroka that conditions favored a more permanent settlement in the Cope Sound area (Paschal 1953, Kell 1980).

The Hammock House, ca. 1700, was shown on early maps of the inlet as the White House and was a guide to early mariners (Paul and Paul 1975:36).

The area containing the town of Beaufort was part of a 780-acre land grant given to Furnival Green in 1708. Green signed over his patent to Robert Turner, who had 200 acres surveyed for a town. The town was named Beaufort in honor of the Duke of Beaufort (Paul and Paul 1975).

The streets were laid out parallel to the banks of Town and Taylors creeks and retain their original pattern today. The westernmost street was named Moore for the hero of the Tuscarora Wars. Moving east, the streets were named Orange for William of Orange, Turner for himself, Craven for the Earl of Craven, Queen, for Queen Anne, running east-west, was also named for Queen Anne (Paul and Paul 1975).

Turner Street was planned as the center of the town. A spring located at the south end of the street was a watering place for horses, and a stagecoach stop was planned here. Also planned for Turner Street were a customhouse, a courthouse, a general store, a slave block, and a boat landing (Paul and Paul 1975).

Turner sold the town in 1720 to Richard Rustall. The area was incorporated in 1722 and named an official port of entry. That year Carteret Precinct was formed from Craven County and consisted of the Core Sound settlements. Beaufort was named the county court (Kell 1980).

Beaufort was a busy port, which attracted shipbuilders, merchants, and importers. A less legitimate group also used the Beaufort port. A number of pirates were active along the coast, and it is said that Blackbeard was welcome in the town. Not all buccaneers were welcome, however, and pirates sacked the town twice in the summer of 1747 (Kell 1980).

The Spanish were also a threat along the coast. The General Assembly authorized forts along the southern coast, including one at Core Sound. If these forts were built, they were not effective, and the Assembly hired a fleet to protect the coast. The British Navy also provided some ships. These too were ineffective, and North Carolina shippers charged that the Spaniards were so "encouraged by the Indolence, if not the c[owardi]ce of the English commander that they ravaged the coast with impunity". This inability to protect the coast was proven in 1747 when the Spanish attacked and plundered Beaufort (Lefler and Newsome 1954:154).

The Revolutionary War

At the outbreak of the Revolutionary War, the exposed condition of the inlet was again a problem. In 1777, Fort Hancock was built. The fort was deactivated in 1780 when colonial forces focused on the threat of invasion from the south. After the defeat of Cornwallis, the British entered Beaufort harbor in 1782. The town was again plundered and fired upon. After a battle between the soldiers and the townspeople, the town was occupied from April 3 to April 17, 1782 (Kell 1980).

Also at the outbreak of the war, the Continental Congress realized the provisioning requirements for maintaining troops in the field. One of the major provisions they required was salt, which the salt marshes of North Carolina were thought to be able to produce in abundance. During the spring of 1776 the provincial congress authorized Waightstill Avery, William Thompson, Richard Blackledge, and Robert Williams to establish salt works in North Carolina. Williams began immediately to establish a salt works on Gallant's Point, north of the town of Beaufort. The provincial committee of safety then issued him 500 pounds through John Eaton of Beaufort. As soon as the first salt bed began to produce salt, Williams then began a second bed. This second bed proved to be too financially taxing and he soon ran out of money. The provincial congress then turned the salt works over to Eaton, who was to manage the works for public use until the matter could be investigated. However, a committee of the

house had already declared the salt works on Gallant's Point unsatisfactory (Hilldrup 1945).

The Federal Period and the War of 1812

In the post Revolution period, the town grew and a number of new homes were built in the town. Shipping, boat-building, and naval stores production were the chief activities in that area. The Clubfoot Canal was constructed linking the Newport River with the Neuse River. This made the interior more accessible (Kell 1980).

In 1810, the town was described as having about 585 residents. There were about 74 houses, ten stores, eight shops, and a church. The church was originally an Episcopal church, but was now used by all sects. On the south side of the inlet stood Fort Hampton, which formed "to the mariner an excellent sea-mark" (Kell 1980:10).

When the United States Congress passed a resolution of war with Great Britain in June 1812, it came as no surprise. The United States had wished to remain neutral and trade with both France and England during their conflict but was unable to do so. The beginning of hostilities saw only 6,686 American regulars. Congress authorized the raising of additional regiments, and the number had grown to 38,186 by the end of the war (Lemmon 1971).

As the British blockaded the ports at Charleston and Baltimore, the smaller southern ports became more important. The North Carolina government, however, was slow to act to raise and equip the army. The militia reporting to Fort Johnston at Smithville did so without uniforms and had to buy their own on credit. The federal government essentially stated that "the State must rely on her own resources". President Madison did promise to provide gunboats as soon as they were available. In July 1813, the Secretary of War wrote to Governor Hawkins with authorization for three companies of militia to be sent to the coast. He did not mail the letter for two weeks, however, by which time the British had invaded the North Carolina coast (Lemmon 1971:14).

Militia companies from Lenoir, Craven, Beaufort, and Onslow counties were sent to Fort Hampton across from the town of Beaufort. The men had been assembled at New Bern and marched to Beaufort under the command of Major Nathan Tisdale. They at first camped in a church and the courthouse, until they had built barracks. The poorly equipped forces were released in September as they were not prepared to withstand the winter in their exposed position. They were replaced by smaller forces of regulars (Lemmon 1971).

Major General Thomas Pinckney, stationed in Charleston, was in command of the North Carolina coastal defenses. He felt that, with so much coast to defend and so few resources available, he would defend only the most vulnerable places and the rest would have to fend for themselves. Beaufort and Wilmington were the only two places in the state termed important enough to guard (Lemmon 1971)

Many of the planters had town houses where they moved in the summer to escape the heat and danger of malaria (Kell 1971).

The Civil War

Fort Macon, at the entrance to Beaufort Inlet, was constructed from 1826 to 1834. At the beginning of the Civil War, a group of local militia occupied the fort, removing the lone Federal guard. After the fall of New Bern in 1862, the town and fort were cut off from the interior of the state. Union boats blockaded the harbor. On March 25, 1862, Federal troops occupied Carolina City, outside of Moorhead City, and three companies moved into Beaufort (Kell 1971).

In April, Fort Macon was attacked and fell to the Federal forces. Beaufort was occupied by Union troops for the next three years. General Burnside, who was in command of the occupation forces, maintained his headquarters in Beaufort in a house on Queen Street (Kell 1980). The occupation forces included a company of Zouaves, who maintained a camp on Courthouse Square (Paul and Paul 1975).

Postbellum Period and the Twentieth Century

After the war Beaufort resumed its role as a commercial center. The menhaden fishing industry developed after the war. A number of boardinghouses and hotels were constructed for the tourist trade. A devastating hurricane in 1879 caused severe damage in the town and destroyed the Atlantic Hotel. The town of Moorhead City had been laid out in 1857 at the end of the railroad and drew some of the resort trade from Beaufort. The railroad reached Beaufort in 1908, and the first highway bridge was completed in 1926, ending Beaufort's isolation (Kell 1980).

During the 1930s the East Carolina Corporation cleared property on Gallant's Point for the creation of the "West Beaufort Subdivision". At this time, Turner Street extended through to State Route 101. The company never built any houses, however, and went bankrupt in 1939. The county government foreclosed on the land for non-payment of taxes.

At this time, Earl Taylor, a local farmer, maintained a small 1400-foot airship in the southwest corner of the property. During the 1940s Taylor was given permission to extend his runway by the Carteret County government. In 1942, the Civil Air Patrol laid out several runways in dirt on Gallant's Point, where they remained for six months. The following year the Federal Government condemned the airport land, purchased all the homes that had been built in the area and moved them towards State Route 101. .The property became Beaufort Airfield, one of four auxiliary training field for Cherry Point Marine Air Base during World War II. It was at this time that the airstrips were paved, and the usable area on the point was expanded by dumping fill from the Newport River. After the war, in 1946, the Federal government returned the Airport to county control. It was named for Michael J. Smith, an astronaut killed on the space shuttle Challenger (John Betts, personal communication 1998).

PREVIOUS RESEARCH

The first extensive archaeological investigation of the Carolina coast was undertaken by William Haag in 1955 and 1956 (Haag 1958). Haag surveyed the coastline of the Outer Banks and sounds, primarily north of the Neuse River. A later survey of the southern coast did not result in a formal report, although site forms from that survey are on file at the Office of State Archaeology. Haag's survey primarily recorded sites known to residents of the area. Test excavations were undertaken at a few locations that retained intact midden remains. Haag's study provided the first attempt at a coastal chronology, and he devised a beginning ceramic typology.

In 1969 and 1970 Thomas Loftfield conducted a survey of the Harkers Island and North River area (Loftfield 1970). During this survey, Loftfield conducted extensive investigations of the shorelines within the project area with some exploration inland. The survey results were combined with previous surface collections in the area to create a database for prehistoric settlement and ecological change along the North River and Harkers Island. His initial hypothesis was that evidence for the rise in sea level could be obtained by the differential speciation of shellfish due to changes in water salinity. Though Loftfield was unable to support this hypothesis, he was able to determine that within the project area the largest proportion of prehistoric sites was located on the shorelines rather than farther inland.

The most extensive research on the Coastal Plain has been conducted by David Phelps of East Carolina University. Phelps has formulated settlement patterns and ceramic typologies based on decades of research on the North Carolina Coast and Coastal Plain.

David Phelps conducted a brief archaeological investigation of Money Island (Phelps 1976) to determine if dredging activities by the US Army Corps of Engineers would effect any archaeological resources. Phelps identified three prehistoric sites on the island (31CR149, 31CR150, and 31CR151). A fourth area of cultural material was identified but was not given a site designation because spoil deposition in the area made it difficult to determine the nature of the site. Based on his observations, Phelps concluded that these sites were temporary camps designed to provide seasonal subsistence for larger permanent villages. He was able to speculate that 31CR150 was occupied between A. D. 0-1000 and that 31CR149 was probably occupied between A.D. 1000-1500, but no date could be provided for 31CR151. Phelps recommended all of the sites on Money Island for nomination to the National Register of Historic Places.

In 1987 Mark Mathis of the Office of State Archaeology returned to Money Island to evaluate the sites in response to proposed residential development. Subsurface testing at 31CR151 recovered no cultural materials and no further archaeological work was recommended for the site. Surface inspection at the other sites indicated that 31CR149 and 31CR150 appeared to be undisturbed and further investigations were recommended to determine the nature and extent of these sites (Mathis 1987).

On the end of Bogue Banks, overlooking Beaufort Inlet is Fort Macon State Park. Fort Macon, constructed from 1826 to 1834, was captured by local militia at the outbreak of the Civil War in 1861 and was recaptured and occupied by Federal forces the following year (Kell 1980). In 1979, Thomas Funk, of the North Carolina Division of Archives and History, conducted an assessment of potential archaeological resources at the park. Despite reoccupation and reuse at various points in United States history, Funk determined that there was a high probability that the fort would be archaeologically productive. He recommended a "full-scale archaeological reconnaissance" of Fort Macon (Funk 1979). In 1987, Thomas Hargrove conducted an archaeological survey on Fort Macon State Park property for a proposed septic line and septic fields. Hargrove found that the surveyed area was composed of recent fill deposited over marshland. He discovered no archaeological resources and did not recommend additional archaeological investigations within that area (Hargrove 1987).

Within the city of Beaufort, Stanley South conducted some of the first archaeological investigations. In 1965, South was contacted by the Beaufort Historical Society to confirm the date of construction for the Bell House, believed to have been built in 1766, and to investigate the relationship between the main house and additions in the rear (South 1965). Archaeological investigations of the yard were carried out to search for evidence of important outbuildings. A second visit was made in 1966 after modern additions to the Bell house had been removed during the restoration process (South 1966). At this time South determined that the existing house dated to the early nineteenth century and was oriented to the side street following a division of the property in 1821. The existing house would have been built behind the eighteenth century structure.

Wilson Angley of the North Carolina Department of Cultural Resources researched the location of the Revolutionary War saltworks on the shore of Gallant's Point to assess potential damage by the placement of dredge fill in this area. After a review of the area and the historical documentation, Angley determined that no archaeological investigations were warranted due to the high probability that the saltworks had already been destroyed by modern construction. He did note however that historic maps from the beginning of the nineteenth century placed a house on "Island Creek" (probably Gable Creek), and evidence of this house may remain (Angley 1981).

In 1982, Thomas Hargrove and Michael Hammond of Archaeological Research Consultants Inc., investigated the Clodfelter property in Beaufort (Hargrove and Hammond 1982). The investigation was to determine the potential for intact cultural remains that might be damaged by the construction of a boat dock on the property. Subsurface testing of the area detected no archaeological resources and documentary evidence indicated that dredging of Taylor Creek to the south of the site during the early twentieth century probably destroyed any potential remains. In 1984, Hargrove conducted terrestrial investigations at the Bruce Ethridge Permit Site in Beaufort while Gordon Watts conducted an underwater archaeological evaluation for (Hargrove and Watts 1984). This project area was the site of a proposed motel, boat basin, and marina on Gallant's Channel. Hargrove determined that the terrestrial portion of the project area was created by landfill in the late nineteenth or early twentieth century. He also

determined that none of the existing structures on the property seemed eligible for the National Register of Historic Places and therefore no further archaeological work was required. Historic documentation revealed that Gallant's Channel was altered in the nineteenth and twentieth centuries to accommodate boat traffic. Watts determined that the underwater portion of the project area contained no archaeological materials and required no further archaeological work.

In 1991, Coastal Carolina Research Inc., directed archaeological investigations of the Old Beaufort Burying Ground. These investigations were conducted in order to document any unknown burials in two areas of the Beaufort Burying Ground. A number of trenches or trench segments were excavated in order to identify possible burial shafts in the unmarked areas of the cemetery. The subsurface testing of these areas revealed a large number of burial shafts in all investigated areas. No portion of the Burying Ground appears to contain unused space and any planned use of unmarked ground in the cemetery would require full subsurface investigations (Lautzenheiser 1991).

METHODS

Background Research

The site files at the Office of State Archaeology were examined to identify previously recorded sites in the vicinity of the project area. Previous research reports were also examined to determine the level of knowledge about the archaeology of the area. Additional research was conducted at the Carteret County Library in Beaufort and the library at Coastal Carolina Research, Inc. John Betts, Airport manager, also provided information on the history of the airport.

Archaeological Field Methods

Two transects were defined beginning at the corners of the pavement at the end of the runway and oriented with the runway (Figure 2). Shovel tests were placed on 30-m intervals extending to NC 101. The transects encountered numerous drainage ditches and some areas of standing water. Except in areas of standing water, the shovel tests were initiated, but were abandoned if muck soils or water was encountered. Additional tests were placed on diagonal transects to follow between the drainage ditches.

Evaluation

A site would be defined by the recovery of three artifacts in reasonable association. Evaluation followed the criteria of eligibility for the National Register of Historic Places. These criteria require that the quality of significance in American history, architecture, culture, and archaeology should be present in sites that possess integrity of location, design, setting, materials, workmanship, feeling and association, and that the sites:

A. are associated with events that have made a significant contribution to the broad patterns of our history; or

B. are associated with the lives of persons significant in our past; or

C. embody the distinctive characteristics of a type, period, or method of construction or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

D. have yielded, or may be likely to yield, information important in prehistory or history (NPS 1986).

In assessing the significance of the resource, the integrity of the resource will be considered. Also considered will be the degree of redundancy contained in the resource.

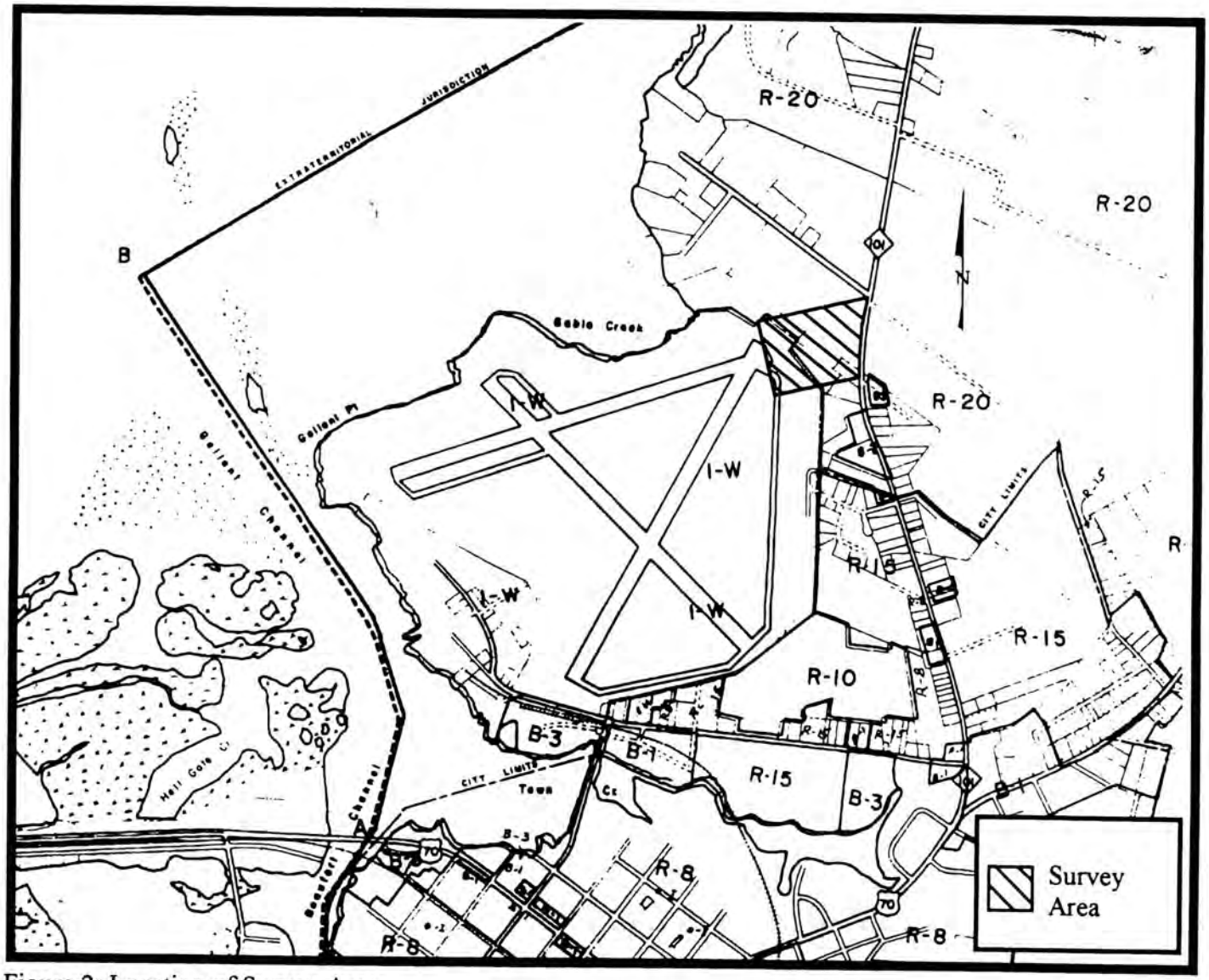

Figure 2: Location of Survey Area.

In general, sites which lack sub-plow zone artifact-bearing deposits, have low-density artifact distribution, contain evidence of deep plowing, lack spatial integrity, lack artifact concentrations, or exhibit signs of earth-disturbing activities do not appear to be good candidates for inclusion in the National Register of Historic Places. Sites which contain concentrations of artifacts, which contain large ceramic sherds, especially those with fresh breaks, which appear to have spatial integrity, or which contain evidence of intact deposits are recommended for additional evaluation to determine if they are eligible for inclusion in the National Register of Historic Places.

RESULTS AND RECOMMENDATIONS

The archaeological survey of the Michael J. Smith Field at Beaufort, North Carolina was conducted at the east end of Runway 8-26 (Figure 3). The results of the survey indicate that the area is low and the soils are poorly drained. This is also indicated by the drainage ditches that run throughout the fields surrounding the airport. Some evidence of the dredge spoil used to raise the level of the field was encountered near the existing runway. The survey area did not contain evidence of archaeological resources, and no additional archaeological work is recommended for the survey area.

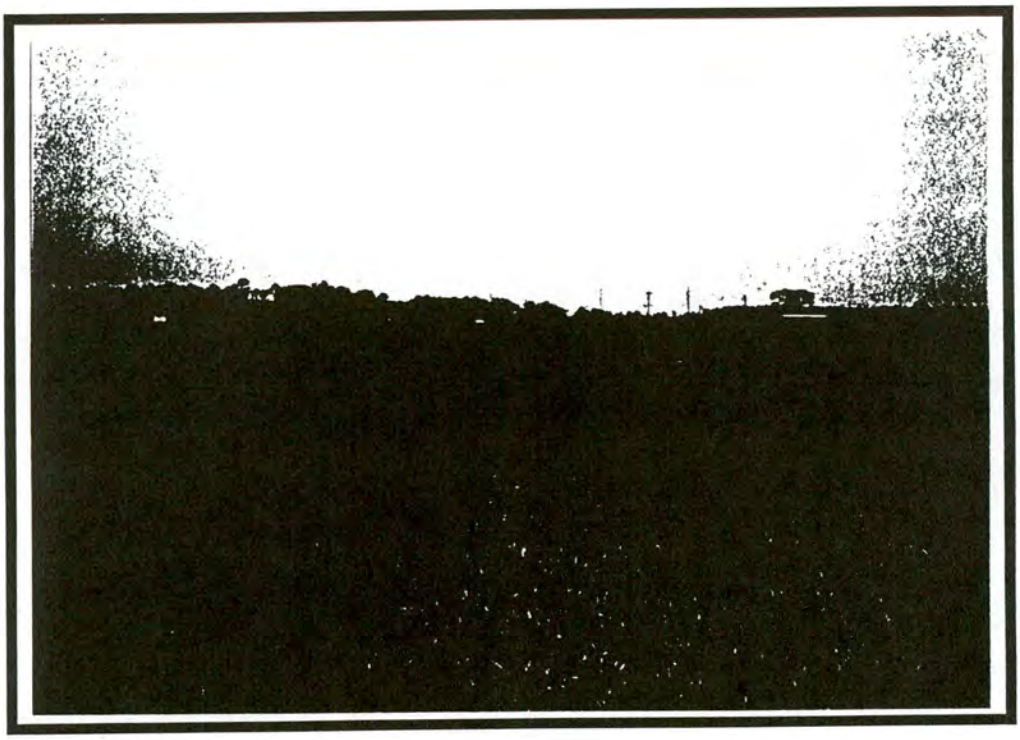

Figure 3: View of Drainage Ditches and Level Terrain Around Airport.

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APPENDIX A
SCOPE OF WORK

PROPOSAL TO CONDUCT CULTURAL RESOURCES SERVICES

COASTAL CAROLINA RESEARCH, INC.
310 EAST BAKER STREET
TARBORO, NORTH CAROLINA 27886
919-641-1444

INTRODUCTION

PROJECT: Phase I Cultural Resources Survey, Michael J. Smith Field, Beaufort, Carteret County, North Carolina

DATE: January 28, 1998

Coastal Carolina Research, Inc. proposes to conduct an archaeological survey of the area to be impacted by proposed improvements to Michael J. Smith Field, in Beaufort, Carteret County, North Carolina. The survey will be conducted for Delta Airport Consultants, in compliance with Section 106 of the National Historic Preservation Act of 1966 and the Advisory Council on Historic Preservation's regulations for compliance with Section 106, codified as 36 CFR Part 800. The scope of the investigations will be consistent with the Secretary of the Interiors' *Standards and Guidelines for Archaeology and Historic Preservation.*

The purpose of the survey is to determine if archaeological resources which are on, or potentially eligible for, the National Register of Historic Places are located within the project area. If such properties are found to be present, the report will make recommendations for any needed additional work or management options.

The project area is located in north of the town of Beaufort in Carteret County. The project includes the land proposed for the extension of Runway 26. The Area of Potential Effect (APE) for archaeology is the project limits.

This proposal for the architectural study is based on the scope of services utilized for recent similar projects as specified by the North Carolina State Historic Preservation Office (NCSHPO) and Rick Barcus, Federal Aviation Authority (FAA). The NCSHPO defines the area of potential impact (APE) to historic properties of an airport facility as not only the area in which physical and visual effects would take place, but also as the area within the 65 LDN contour line where noise effects would take place. There is no noise contour map for this project. Instead, the accompanying map shows a rectangular area, called the area of delineation, at the northeast edge of the existing airport where acquisition will take place for the extension. The area beyond this area where the noise

impact will fall does not contain any structures, therefore the cultural resources impact will be limited to the structures within and to the north and south of the delineation area.

TECHNICAL APPROACH

BACKGROUND RESEARCH

Background research will be conducted to define a historic context for the study area. Information on previously recorded sites and buildings will be obtained from the NCSHPO. Other information will be gathered as needed.

FIELDWORK

Architectural Survey. The reconnaissance survey is understood to consist of driving or walking all roads within the APE and taking photographs of all structures over 50 years old.. These will be keyed to a USGS map, a management summary will be prepared, and the findings presented to NCSHPO and FAA at a review meeting.

The estimated amount of field time is based upon an examination of the USGS map of the area. Recordation of any historic properties, and preparation of a report will follow the post-field review meeting with NCSHPO and will require a supplemental contract.

Archaeological Survey. The goals of the survey will be to 1. identify archaeological resources within the potential environmental impact zone, and 2. recover and provide sufficient information to assess the sites and provide recommendations regarding the need for further investigations or treatment of identified archaeological properties.

Surface and subsurface survey methods will be employed in the testing. Surface survey will be the method of choice and will be supplemented by shovel tests. Shovel tests will only be placed in sites or in areas with ground cover. Even in areas with reduced visibility, tree-falls, erosional ditches, roads and cutbanks and kidworks will be sought out and examined to supplement, or substitute for, shovel tests.

Shovel tests are generally 30 cm in diameter and will be excavated into the subsoil or sterile soil. Occasionally larger tests will be utilized. Fill from the tests will be screened through 0.25-inch mesh screen. In the event that the soil cannot be screened, the fill will be hand and trowel sorted. Records of shovel and auger tests will be maintained.

An archaeological site will be defined by the recovery of three artifacts in reasonable association. Historic sites are also defined by the presence of surface or subsurface structural remains. Diagnostic isolated finds are given a site number for management purposes. On occasion, an isolated find will be defined as a site, particularly in those

instances where the find is recovered from an area of low visibility or heavy erosion and in an area where the presence of a site would be expected.

When an archaeological site is identified, the approximate horizontal and vertical extent of the site, as well as the internal configuration of the site will be defined. If a site extends outside the survey area an effort will be made to estimate the approximate extent. Survey will not extend beyond the corridor boundaries.

If possible, an assessment of eligibility of the site for the National Register of Historic Places will be made. This is usually possible when the site is clearly *not* eligible, but less likely when the site *may* be eligible. In that event, it may be necessary to conduct additional testing to evaluate the site for eligibility for the NRHP. Intensive testing is not included in this proposal and will require a supplemental contract.

Analysis. At the completion of the fieldwork, the recovered artifacts will be analyzed. This information will be included in the final report.

All artifacts will be cleaned, labeled, and prepared for curation according to the standards and guidelines issued by the North Carolina Office of State Archaeology. At the completion of the study, the artifacts will be submitted to the Office of State Archaeology or other acceptable repository. Fees for curation are not included in this budget.

ARCHAEOLOGICAL REPORT

A Management Summary detailing the archaeological investigations will be provided within 10 working days after the completion of fieldwork. This report is a preliminary analysis of the survey.

A draft report detailing the results of the fieldwork and analyses will be submitted to Delta Airport Consultants for transmittal to the SHPO for comments. Five copies of the report will be submitted.

The report format will comply with the "*Guidelines for the Preparation of Reports of Archaeological Surveys and Evaluations*" issued by the North Carolina State Historic Preservation Office and the Secretary of the Interior's Standards and Guidelines for Archaeological Documentation (*Federal Register*, Vol. 48, No. 190).

Upon receipt of comments on the draft report, the final report will be revised and submitted within 30 days. Ten copies of the final report will be provided.

OTHER CONDITIONS

1. No work will begin without a mutually acceptable, fully executed contract and written notice to proceed.

2. The schedule will be negotiated upon receipt of contracts and notice to proceed.

3. Delta Airport Consultants will provide access to private property, and will provide a copy of the right of entry letter to the investigators prior to starting fieldwork.

4. Delta Airport Consultants will provide to the investigators, prior to the start of the fieldwork, maps, which designate the survey area as well as any design plans, aerial photographs, or other necessary information.

5. Compensation. Invoices for the percentage of work completed will be submitted monthly to Delta Airport Consultants .

6. This proposal does not provide for the preparation of a formal evaluation of effects report for submittal to the Advisory Council on Historic Preservation, a formal request for Determination of Eligibility (DOE) if required in the event of a disagreement between the agency and the SHPO on the eligibility of a site, and 4(f) documentation, or a memoranda of agreement.

NOTE: The current project included *only* those areas inside the airport property.

Historic Property Evaluation

Beaufort Airport Expansion EA

Carteret County

prepared for
Delta Airport Consultants, Inc.

by Longleaf Historic Resources
Raleigh, N.C.

July 1998

Management Summary
Phase 1 HistoricArchitecture Assessment
Beaufort Airport Runway Expansion

This management summary records the results of a reconnaissance survey of the area of potential effect surrounding the runway expansion area of the Beaufort Airport (see **Fig. 1. Runway Expansion Area).** Beaufort Airport is located north of Beaufort approximately 1 1/3 mile from the Beaufort Historic District. It lies between Calico Creek on the west and Highway 101, the old New Bern Road which was the town's sole road link to inland towns until the bridge across the Newport River was built in 1927. The town limits extend up to the airport property. The character of the airport vicinity consists of a mixture of housing built from the 1930s to the present, intermittent commercial activities such as automotive garages, and on the east, to the rear of the buildings, large expanses of agricultural fields. The large triangle between Hwy 101 and U.S. 70 appears to be one large produce farm, with flat fields drained by deep ditches.

History

The history of the airport, as told by John Betts, Manager, Beaufort Airport, in a telephone interview, June 2, 1998 with Ruth Little, is as follows.

1930s: The property was cleared by the East Carolina Development Corporation in the 1930s to create the "West Beaufort Subdivision." At this time, Turner Street extended through the property to Hwy. 101. The company never built any houses, and went bankrupt in 1939. The county foreclosed on the land for non-payment of taxes. Earl Taylor had a small, 1400 ft. airstrip in the southwest corner of the property at this time.

1940: Carteret County gave Taylor permission to extend his runway. Taylor was also a farmer and had a cabbage farm in the area to the west toward Smith Fish Factory.

1942: Civil Air Patrol laid out the runways in their present configuration in dirt. They were here about 6 months.

1943: Federal government condemned the airport land, purchased the houses which had been built here by individuals, and moved the houses to Hwy. 101. The airfield became Beaufort Airfield, an outlying training field for Cherry Point Marine Air Base during World War II. The government paved the airstrips at this time. This paving is still in place. They also pumped up a lot of fill dirt from the Newport River to create the airfield. Cherry Point had three other auxiliary training fields in the vicinity: Bogue Field, Atlantic Field, and Oak Grove Field.

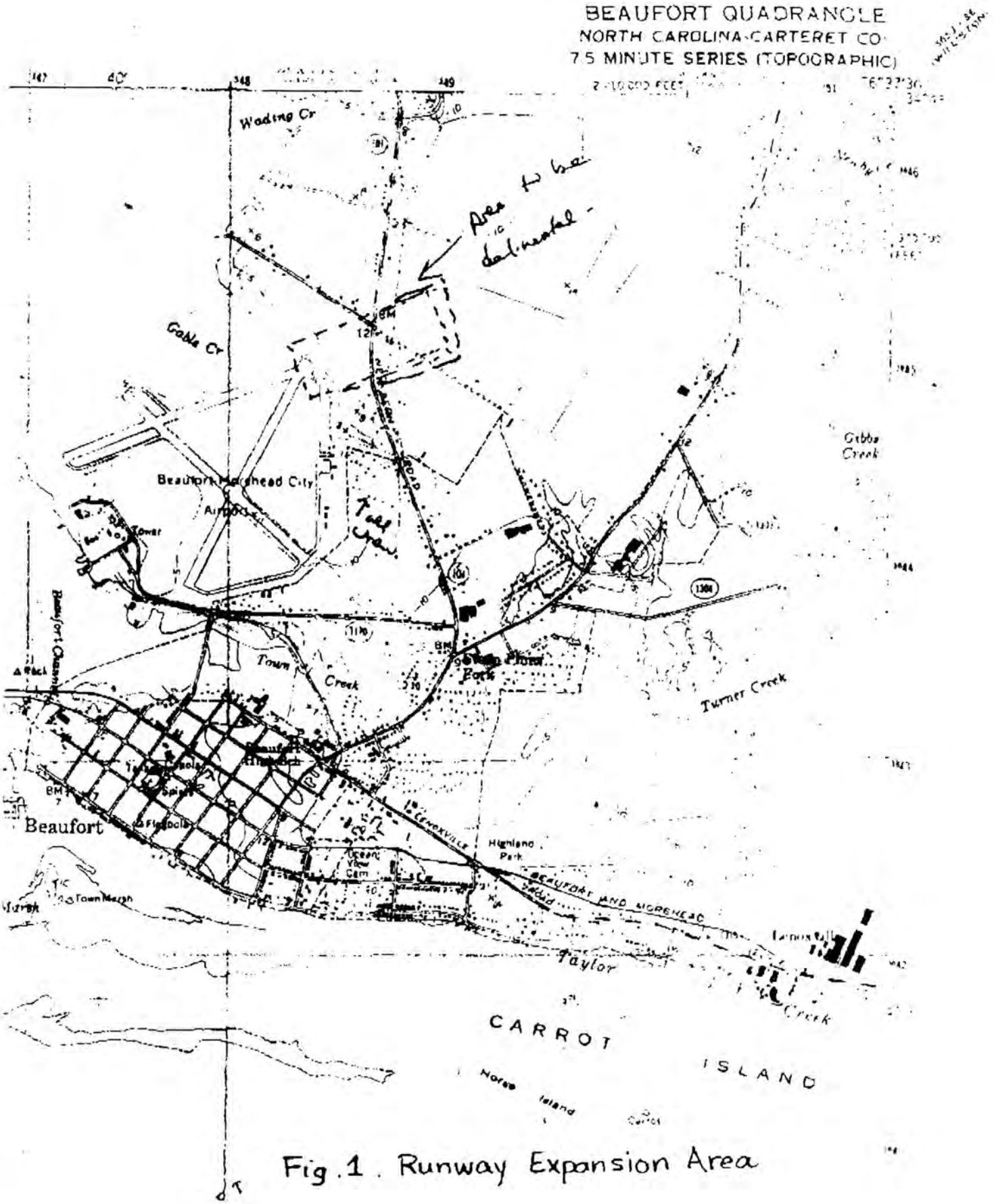

Fig. 1. Runway Expansion Area

1946: Airport returned to county control from the federal government. It has been a general aviation field since that time. By the end of World War II, all of the wartime buildings at the field were apparently gone. At least one hangar is said to have burned during the war.

1998: At the present time, a small terminal building of recent construction stands at the airport. As the economy of Beaufort has prospered in recent years, traffic at the airport has continued to increase.

Survey Methodology

Survey methodology consisted of a windshield survey covering 100% of the survey area, shown in **Fig. 2. Survey Area and Surveyed Properties.** The current USGS map, Beaufort Quadrangle, was utilized as the field map. The surveyor, M. Ruth Little, was not given a right-of-entry letter. She was instructed not to enter on any private property, but to conduct the survey from the public right-of-way. Ms. Little conducted the survey in May 1998. Each property or group of properties is numbered.

There is one property listed on the National Register of Historic Places in the study area, the Carteret County Home, 299 Highway 101. There are no properties in the area that have been determined eligible for the National Register.

The reconnaissance survey identified approximately 22 properties over fifty years of age or almost fifty years of age, located in or adjacent to the survey area: approximately 20 Craftsman style houses dating from the 1930s to the 1950s, the above-mentioned Carteret County Home, an automotive garage built in 1942, and an early 20th century vernacular farmhouse. The surveyor photographed all of these properties and keyed them to the base map, shown in Fig. 2.

A meeting to review the survey results was held on July 9, 1998. Attending were Renee Gledhill-Earley, environmental review coordinator of the State Historic Preservation Office, Debby Bevin, assistant environmental review coordinator, and M. Ruth Little, survey consultant, Longleaf Historic Resources. Ms. Gledhill-Earley and Ms. Bevin concurred that none of the surveyed properties meet the criteria for eligibility to the National Register of Historic Places.

Following is the list of recorded properties, with a brief evaluation of their history and significance. The buildings were recorded on green multi-building data sheets. Survey data sheets, photographic contact sheets, and negatives are enclosed in a manila envelope attached as an appendix to this report.

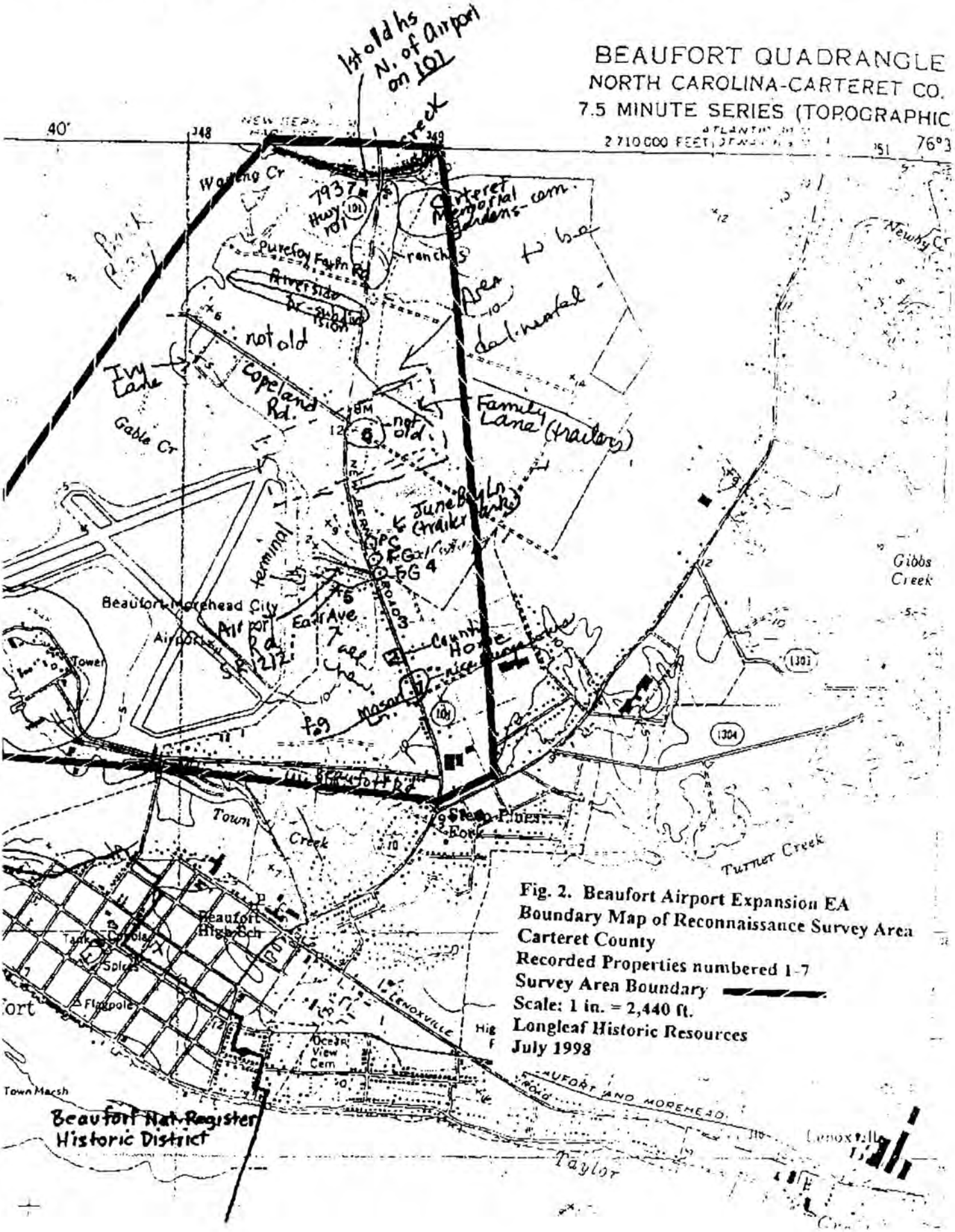

Fig. 2. Beaufort Airport Expansion EA
Boundary Map of Reconnaissance Survey Area
Carteret County
Recorded Properties numbered 1-7
Survey Area Boundary
Scale: 1 in. = 2,440 ft.
Longleaf Historic Resources
July 1998

Historic Building Survey and Evaluations

Airport: There are no over-fifty-year-old buildings at the airport.

1. Houses and Laughton's Garage. 200 block Highway 101:
Five 1940s buildings stand on both sides of the highway in this block, between Mason Lane and Earl Avenue.

1. Laughton's Garage. West side. A vernacular frame building, front-gable, built about 1944 for George Laughton. The building is covered with tin. Laughton's son now operates the garage.

2. George Laughton House. West side, adjacent to Laughton's Garage. Built about 1944, the Craftsman style house has a side, clipped gable roof, and one-bay front gable porch with Mission Style porch posts on brick bases. It remains basically intact except for a modern three-part window set into the center bay. The house has an expansive, well-landscaped setting.

3. Hugh and Dolly Carraway House. Across the street stands a front-gable Craftsman house, very intact, built about 1940 for Hugh and Dolly Carraway. It also occupies a large, neatly landscaped lot.

North of the Carraway House stand two more Craftsman houses.

4. No. 266 is a large two-story house with a hipped front porch and hipped dormer.

5. No. 272 is a small side-gable Craftsman house.

The block is not eligible for the National Register because the buildings are representative examples of the Craftsman style, a style that characterizes most of the dwellings built in North Carolina between the late 1920s and the late 1940s. Furthermore, the houses in the block have some alterations that affect their architectural integrity. However this block retains a pleasant rural 1940s residential-commercial character that has value for the entrance to Beaufort.

2. Carteret County Home 299 Highway 101. Listed in National Register 1996

The "county poor farm," built in 1914, occupied a large agricultural tract on both sides of Highway 101 until 1942, when the home was closed. During World War II it housed farm laborers working the nearby fields for the war effort. Since that time the farm acreage has been subdivided and sold off.

The home is a long, one-story frame building with a center 2-story supervisor's unit and twenty rooms in flanking wings. The room at each end sits at right angles to the main block. A hip roofed porch extends the entire length of the building.

The building remained little altered until the 1990s. a few years ago a couple had the building listed on the Register and are currently conducting a historically sympathetic restoration to convert it to a bed and breakfast. The building sits close to Highway 101, with a lane of cedar trees screening it from the highway. The Carteret County Home is an important architectural landmark along Highway 101, as well as having considerable historical significance in the history of Carteret County.

3. Houses. 300 block Highway 101 between Mason Ln. and Earl Ave.

Group of some ten Craftsman houses set on both sides of the block, in dense formation. At least one of these originally stood on the airport property, and was moved to the site in 1942 when the airport was built. Most of them are small front-gable houses, although one is two-story, and one with a hip roof and 4/4 sash appears to date from the early twentieth century. The houses are occupied, many with boats in the driveways, and have been remodelled and updated over the years.

These Craftsman houses are representative examples of the Craftsman style that prevailed in North Carolina dwellings from the late 1920s to the late 1940s. Because of alterations, they lack the high degree of architectural integrity that would be necessary for eligibility to the National Register.

4. Houses. 374-404 Highway 101

At the north end of the 300 block of Highway 101, Airport Road, the entrance to the airport, intersects. Three houses on the east side of the highway have some historic character. No. 374, the Warren House, is a front-gable Craftsman of similar character to those in the rest of the 300 block, but it occupies a large lot landscaped with tall cedar trees. This appears to have been a small farm. Next door, No. 388 is also a front-gable Craftsman on an ample lot. The third house, the G. M.Finch Home at 404 Highway 101, is a period cottage from the late 1940s-early 1950s period. The tall 1 1/2 story brick and frame house has multiple cross-gable windows and occupies a large lot.

As with the other dwellings along Highway 101 in the vicinity of the Beaufort Airport, these houses are representative examples of the Craftsman and later Period Cottage styles of architecture, styles that were extremely popular in North Carolina during the 1920s to the 1950s These houses have no particular historical significance.

5. Earl Avenue House

South of the airport, along Earl Avenue, is a subdivision apparently built in the 1970s-1980s. In the center, at the southeast corner of Earl Avenue and Park Avenue, stands one over-fifty-year-old house, a 1940s Craftsman. The house, an interesting transition between the Craftsman and Ranch styles, is side-gable, with a front-gable porch, plain siding, Craftsman sash, and a front

picture window with flanking Craftsman sash, that appears to be original. The house is representative of a large group of houses still standing in North Carolina, and has no particular individual architectural or historical significance that would make it eligible for the National Register.

6. Copeland Road Structures

Directly opposite the runway that will be extended, east of Highway 101, a dirt lane that is an extension of intersecting Copeland Road contains two structures that appear to serve agricultural uses for the large farm located here. One is a small stuccoed concrete building, built ca. 1970, with small, high windows. The other, a long, low side-gabled frame building with lots of windows, appears to be a migrant worker dormitory. It may date from the 1950s-1960s.

These buildings do not appear to be fifty years of age, and thus are not historic. They are included in this survey because they are located directly within the runway expansion area.

7. House. 793 Highway 101.

The one-story, three-bay framehouse with extremely steep side-gable roof, stands far back from the highway beside Wading Creek, a sizeable waterway. The house has 6/6 sash and a hipped porch with Craftsman posts. In front of the house, a large, grassed lawn with mature trees extends to the highway.

Inspection of this property from the road indicates that it is of early twentieth century construction. It appears to represent a middle-class farmhouse. It is the oldest building in the airport vicinity to the north. It is located approximately 1/2 mile from the airport. Closer evaluation of this house would be necessary to make a definitive judgement about its eligibility for the National Register. However, it appears to be one of a number of farmhouses of this period that stand in Carteret County. A comprehensive survey of the county would be necessary to judge its architectural significance in relation to similar examples of this type.

Proposal for Reconnaissance Survey of Historic Architecture
Beaufort Airport Expansion
Longleaf Historic Resources
January 26, 1998

Longleaf Historic Resources proposes to perform the following historic architectural services for Delta Airport Consultants, Inc. in compliance with Section 106 of the National Historic Preservation Act of 1966, the Advisory Council on Historic Preservation's Regulations for compliance with Section 106, codified as 36 CFR Part 800, and Section 4(f) of the Federal Highway Act.

This proposal is based on the scope of services utilized for recent similar projects conducted by Longleaf Historic Resources, as specified by the North Carolina State Historic Preservation Office and Rick Barcus, Federal Aviation Authority (FAA). The NCSHPO defines the area of potential impact (APE) to historic properties of an airport facility as not only the area in which physical and visual effects would take place, but also as the area within the 65 LDN contour line where noise effects would take place. There is no noise contour map for this project. Instead, the accompanying map shows a rectangular area, called the area of delineation, at the northeast edge of the existing airport where acquisition will take place for the extension. The area beyond this area where the noise impact will fall does not contain any structures, therefore the cultural resources impact will be limited to the structures within and to the north and south of the delineation area.

The reconnaissance survey is understood to consist of driving or walking all roads within the APE and taking photographs of all over-50 year old structures. These will be keyed to a USGS map, a management summary will be prepared, and the findings presented to NCSHPO and FAA at a review meeting.

The estimated amount of field time is based upon an examination of the USGS map of the area. Recordation of any historic properties, and preparation of a report will follow the post-field review meeting with NCSHPO and will be under supplemental contract.

No work can begin without a mutually acceptable, fully executed contract. Delta Airport Consultants, Inc. will provide a Right of Entry letter to Longleaf Historic Resources before the fieldwork can begin.

Special Terms

Compliance beyond the reconnaissance survey stage is not included in this proposal. Any additional research necessary to prepare formal Determinations of Eligibility to be submitted to the Secretary of the Interior (as opposed to the level of effort required in the NCSHPO guidelines) for eligible properties that will be adversely affected by the final corridor, and any

additional work required to prepare Memoranda of Agreement under Section 106 or Section 4(f) must be negotiated in a separate contract.

Scope of Work: If a difference in the level of effort to meet the requirements of this project shall occur between this proposal and the Engineering Agreement, then this proposal will take precedence.

Submissions other than those included here: Submissions listed are the only ones covered under this contract. Any other submissions, such as maps other than those included in the review meeting and reports or photographs needed prior to the schedule contained here will be subject to an additional charge. Also, services requested in a piecemeal fashion rather than as a whole will be subject to an additional charge. [This refers to the division of the fieldwork or report preparation into smaller portions rather than being performed at the same time.]

Payment Schedule: Project will be invoiced at the first of the month for the work performed in the previous month, but in no case should payment be made later than 60 days from date of invoice. A maximum of 10% may be retained by the contractor. It will be due upon the completion of LHR's obligation. If the project is tabled, any retainage will be paid no later than six months after the work stoppage. Subcontractor is a sole proprietorship, and cannot maintain normal business activities without timely payment. Contractor reserves the right to delay submission of the final report when payment for previous invoices has been delayed for more than 60 days.

Work Schedule: The work schedule will depend upon the receipt of maps, contracts and permission to proceed. No work will be initiated without a mutually acceptable executed contract.

APPENDIX "F"

WETLANDS REPORT

NEWKIRK
ENVIRONMENTAL, INC

Wetlands Delineation and Assessment

Michael J. Smith Field
Runway 8-26 Extension
Beaufort, North Carolina

August 27, 1998

1.0 Introduction

As a subconsultant for Delta Airport Consultants, Inc., Newkirk Environmental, Inc. was employed to complete a wetlands delineation and assessment of lands proposed to used for the extension of an existing runway at Michael J. Smith Field. Michael J. Smith field is located adjacent to Highway 101 in the city of Beaufort, North Carolina. The specific project area reviewed by Newkirk Environmental, Inc. is located at the eastern end of runway 8-26 between the existing paved runway and Highway 101.

2.0 Wetlands Survey

The area reviewed by Newkirk Environmental, Inc. consists of an open field maintained by routine mowing. Several former agricultural ditches and other active ditches bisect the surveyed area. Forested tracts of land are located adjacent to, but outside of, the survey area. Surrounding areas across Highway 101 are currently utilized as agricultural lands for the productions of row crops.

The project site appears to have been formerly used as agricultural land. Soils in the site are classified as, and match the description for, Augusta loamy fine sand and Arapahoe fine sandy loam. Both of these soils are listed as being somewhat poorly drained soils associated with low terraces adjacent to streams and sounds. Additionally, both soils have some problems associated with ponding and slow permeability, however, ditching and grading of the land is effective in

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reducing or eliminating these problems.

Wetlands identified in the site by Newkirk Environmental, Inc. are limited to salt water wetlands found in the lower reaches of some of the ditches that bisect the site. Many of the ditches are not jurisdictional, however, those ditches that are subject to tidal inundation and influence and that are vegetated by salt marsh vegetation are jurisdictional. Newkirk Environmental, Inc. has flagged the uppermost reaches of the ditches that are jurisdictional. Pink and black striped flagging was tied to existing vegetation where the limits of jurisdiction stop. Beyond the flagged point, it is the opinion of Newkirk Environmental, Inc. that the ditches are upland cut and therefore are not jurisdictional. Figure 1 illustrates the approximate location of the ditches identified as being jurisdictional.

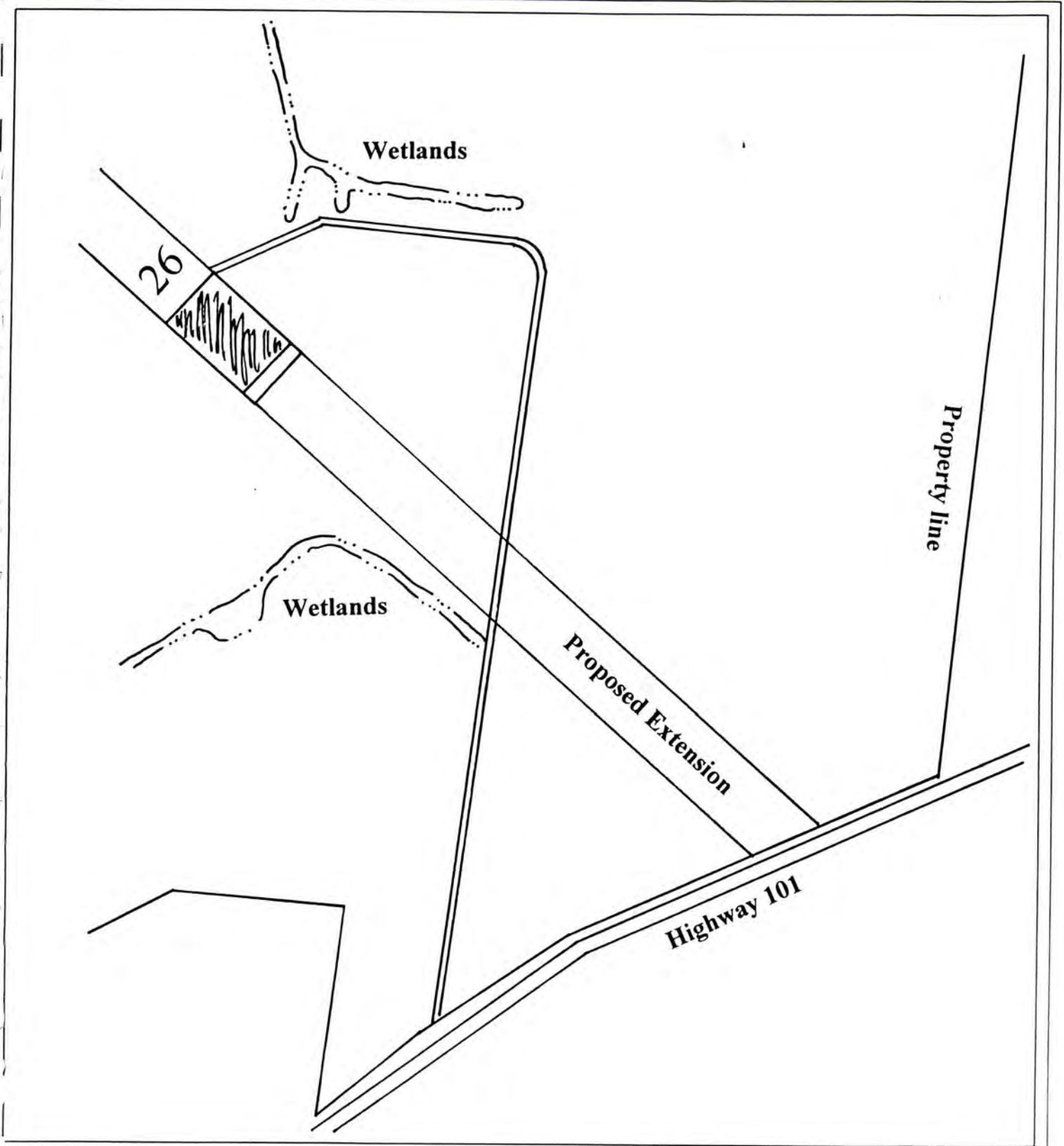
It should be noted that, although Newkirk Environmental, Inc. is confident in our assessment, the US Army Corps of Engineers and the North Carolina Division of Coastal Management are the only agencies that can make final decisions regarding wetland delineations, therefore, all preliminary determinations are subject to change until written verification is obtained. Until verification is received from the appropriate agencies, no legal reliance may be made in the preliminary determination. Newkirk Environmental, Inc. strongly recommends that a comprehensive delineation and field survey be completed and written verification be obtained prior to closing on the property, beginning any site work or making any legal reliance on this determination.

Final verification of the identified wetlands may be obtained by completing a land survey of the wetlands, illustrating their location on a plat and submitting the appropriate information to the state and federal agencies for verification. In some circumstances a member of the state and federal agencies may request a field review of the delineation. If a field review is not requested, verification will be made based upon aerial photography and available mapping. The verification process normally takes three to four weeks upon submittal to the agencies.

3.0 Permitting Assessment

Newkirk Environmental, Inc. contacted the North Carolina Division of Coastal Management regarding procedures and potential for obtaining permits to impact the identified wetlands. Mr. Doug Huggett with the NCDCM indicated that permits were available to impact salt water wetlands and that they are issued on a case by case basis. Decisions regarding the permits are made based upon the size, location and quality of the wetland proposed to be impacted. Portions of the NCDCM policy and handbook have been included with this report.

Based upon our discussions with the NCDCM and the proposed use of the land, it is the opinion of Newkirk Environmental, Inc. that obtaining a permit to impact these wetlands is worth pursuing. Mitigation of some form will likely be required. However, it is likely that some type of on-site mitigation could be used (i.e. creation or enhancement of exiting wetlands).



NEWKIRK
ENVIRONMENTAL, INC

Michael J. Smith Field
Beaufort, North Carolina

Runway 8-26 Extension

Approximate Location
Of
Jurisdictional Wetlands

Figure One

Permitting is an uncertain and sometimes time consuming process. Generally, obtaining permits to fill wetlands takes between 45 and 60 days to complete.

4.0 Conclusion

Based upon Newkirk Environmental, Inc.'s review and survey of the site, very few wetlands are located within the project area. The identified wetlands consist of salt water wetlands confined to incised ditches. Because the wetlands are part of ditches and not major marsh bodies, it is Newkirk Environmental, Inc.'s opinion portions of these wetlands may be filled with the appropriate state and federal permits. If any activity is to occur in the project area, it is strongly recommended that the location of the wetlands be verified whether a wetlands permit is needed or not.

State Guidelines and Policy for Wetlands Permitting

Does Your Project Need a Coastal Area Management Act Permit?

If you think your project is in or near an area of environmental concern, then you should check with the nearest Division of Coastal Management (DCM) field representative or local permit officer (LPO) to see if a permit is required. (See appendices for addresses and phone numbers.)

The Coastal Area Management Act requires a permit if the project meets all of the following conditions:

- it is located in one of the 20 counties covered by CAMA;
- it is in or affects an area of environmental concern (AEC) designated by the Coastal Resources Commission;
- it is considered "development" under the terms of the Act; and
- it does not qualify for an exemption identified by the Act or by the Coastal Resources Commission.

1. Is your project located in one of the 20 counties covered by CAMA?

If yes, a CAMA permit may be required.

The provisions of the Coastal Area Management Act only apply to the 20 counties located along the state's tidal rivers, sounds, and the Atlantic Ocean (see Figure 1). You do not need a CAMA permit if your project is not in one of these counties:

Beaufort	Hertford
Bertie	Hyde
Brunswick	New Hanover
Camden	Onslow
Carteret	Pamlico
Chowan	Pasquotank
Craven	Pender
Currituck	Perquimans
Dare	Tyrrell
Gates	Washington

Figure 1. North Carolina's 20 coastal counties covered by the Coastal Area Management Act.

Permits issued by the Division of Coastal Management under the state's Dredge and Fill Act can be required in counties in addition to those listed above.

2. Is your project in or affecting an area of environmental concern?

If yes, a CAMA permit may be required.

If your project is located in one of the AECs described in this handbook (an estuarine system AEC, an ocean hazard system AEC, a public water supply AEC, or a natural or cultural resource AEC), chances are that you will need to get a CAMA permit. You are probably in an AEC if your project is:

- in or on the waters of the state;
- on a marsh or wetland area;
- within 75 feet of the mean high water line along an estuarine shoreline;
- within about 300 feet of the ocean beach;
- within about 1,000 feet of an inlet; or

- near one of the public water supplies designated as an AEC.

3. Does your project fall under CAMA's definition of "development"?

If yes, a CAMA permit may be required.

Section 103(5)(b) of the Coastal Area Management Act defines development as: "any activity in a duly designated area of environmental concern...involving, requiring, or consisting of the construction or enlargement of a structure; excavation; dredging; filling; dumping; removal of clay, silt, sand, gravel or minerals; bulkheading; driving of pilings; clearing or alteration of land as an adjunct of construction; alteration or removal of sand dunes; alteration of the shore, bank, or bottom of the Atlantic Ocean or any sound, bay, river, creek, stream, lake, or canal."

4. Does your project qualify for an exemption from the permit requirement?

If no, a CAMA permit is required.

Section 103(5)(b) of CAMA specifically excludes certain activities from the above definition of development and therefore exempts them from the permit requirement. These exempted activities are:

- road maintenance within the public right-of-way;
- utility maintenance and extensions to projects that already have CAMA permits;
- energy facilities to the extent covered by other laws or N.C. Utilities Commission rules;
- agricultural or forestry production which does not involve the excavation or filling of estuarine or navigable waters or coastal marshland;
- agricultural or forestry ditches equal to or less than six feet wide by four feet deep;
- emergency maintenance and repairs where life or property are in serious danger; and
- the construction of an accessory building usually found with an existing structure, if no filling is involved.

In addition, Section 103(5)(c) of the Act allows the CRC to define certain classes of minor maintenance and improvements that are exempt from the permit requirement. The specific types of projects eligible for exemptions are those with successful track records in not damaging the resources around them. Projects exempted under this section are identified in the use standards described in chapter three.

In any case, it is best to check with a DCM field representative or local permit officer to see if your project qualifies for an exemption.

Does Your Project Need a Major Development Permit or a Minor Development Permit?

CAMA's permit program involves two main categories of permits: one for "**major**" development and one for "**minor**" development. In addition to these are general permits (see page 24).

You must obtain a **major development permit** if the project involves any of the following:

- alteration of more than 20 acres of land and/or water within an AEC;
- construction of one or more buildings covering a ground area greater than 60,000 square feet on a single parcel of land;
- excavation or drilling for natural resources on land in an AEC or under water; or
- another state or federal permit, license, or authorization (such as for dredging and filling, sedimentation control, wastewater discharge, or mining).

A CAMA major development permit is most commonly required for projects that must have a "Permit to Excavate and/or Fill" under the Dredge and Fill Act (G.S. 113-229). This is usually required if there is any dredging or filling of water or marsh, or if piers or docks are proposed.

Major development permits, which involve larger projects that are of concern to the state as a whole, are administered directly by the Division of Coastal Management and the Coastal Resources Commission.

If your project meets **none** of the above conditions, you will need to obtain a **minor development permit.** Minor development permits are administered by the local government under authority granted by the Coastal Area Management Act and using standards adopted by the Coastal Resources Commission.

Exemptions from the Major Development Permit

The Coastal Resources Commission does not require a **major development permit** for the maintenance and expansion of certain projects for which a state easement and/or Dredge and Fill permit has already been issued. Such a project qualifies for the exemption **only** if it meets **all** of the following conditions:

- the project's dimensions do not exceed 20 percent of the dimensions originally permitted;
- the project's purpose or primary use does not change; and
- such action will cause no damage to the natural environment and/or adjacent property owners.

The CRC has also exempted from the major development permit requirement minor additions or modifications to bulkheads, piers, docks, boathouses, and boat ramps that are already in place and permitted. The exemption is aimed at simple modifications intended for private use; these must still meet specific criteria to qualify for the exemption. The DCM field representative can tell you what these criteria are and whether or not your project is exempt from the major development permit requirement. This exemption is officially stated in Title 15, Subchapter 7K, Section .0202 of the N.C. Administrative Code.

Exemptions from the Minor Development Permit

The Coastal Resources Commission does not require a **minor development permit** for the following development activities:

- the maintenance and repair (excluding replacement) of any structure in a similar manner, size, and location as it existed prior to damage, unless such repair or replacement would violate current CAMA standards; and
- accessory uses or structures related to the main use of the site that require no electricity, plumbing, or other service connections and that do not exceed 200 square feet of floor area.

In both of the above situations, the project must meet **all** of the following conditions to qualify for the exemption:

- it must not disturb more than 200 square feet of land area on a slope greater than 10 percent;
- it must not remove, damage, or destroy threatened or endangered plants and animals;
- it must not alter surface drainage channels;
- it must not alter the form or vegetation of a frontal dune;
- it must not be within 20 feet of any permanent surface waters; and

- it must comply with all applicable CAMA standards and local land use plans in effect at the time.

In any case, it is best to check with a DCM field representative or local permit officer to see if your project qualifies for an exemption. This exemption is officially stated in Title 15, Subchapter 7K, Sections .0302, .0303, and .0304 of the N.C. Administrative Code.

State Review of Projects Requiring Federal Permits

Projects that require federal permits or any form of federal authorization which are being proposed in the 20 coastal counties are reviewed by the Division of Coastal Management for consistency with the North Carolina Coastal Management Program. These reviews are mandated as a result of North Carolina receiving federal approval of its coastal management program in September 1978 under the U.S. Coastal Zone Management Act of 1972.

Under the Act, federal agencies cannot issue a permit for a project if it is found to be inconsistent with the state program. Finding that a project is consistent with the state program, however, does not mean that the federal permit must be issued.

Federal Licenses and Permits Subject to Consistency

The following are some of the common federal permits reviewed for consistency with the coastal management program:

- U.S. Army Corps of Engineers Section 10 permit for building structures in navigable waters
- U.S. Army Corps of Engineers Section 404 permit for placing fill material in wetlands
- U.S. Coast Guard permits for the construction or modification of bridges and causeways over navigable waters

Information about other federal licenses and permits subject to consistency can be obtained from the DCM field offices in Wilmington, Morehead City, Washington, and Elizabeth City.

Permit Review Process

The Division of Coastal Management is the state agency responsible for preparing a state response for federal permit applications in the 20 coastal counties. This involves coordinating and obtaining comments from other state agencies which review applications to ensure that proposed projects meet state requirements. This review is the basis for determining whether or not a project is consistent with the coastal management program.

There are separate review procedures for determining the consistency of projects proposed for designated areas of environmental concern and projects outside of designated areas of environmental concern but within any of the 20 coastal counties.

Projects Within AECs

A project proposed for construction within an AEC that requires a federal permit automatically requires a CAMA major development permit. Therefore, an application for a CAMA major permit must be submitted when a federal permit is applied for. The state has developed a joint application form with the U.S. Army Corps of Engineers, Wilmington District. Only one permit application needs to be filled out in order to apply for a federal Corps permit and a state CAMA permit.

When an applicant completes the application form, he or she must certify the consistency of the project with the coastal management program by signing the completed permit form which includes a statement to this effect. The issuance of a CAMA permit constitutes the state's concurrence with the applicant's certification.

The denial of a CAMA permit is a finding that the project is inconsistent with the management program.

Projects Outside AECs

The Division of Coastal Management is notified of projects outside AECs but within the 20 coastal counties by the federal agency from which a permit is being requested. In these cases, the federal agency informs the applicant of the consistency requirement. North Carolina has an agreement with most federal agencies which allows the agency to send some or all of the information needed to conduct a consistency review of the project.

Time Limits for Consistency Reviews

The state is allowed six months from receipt of an applicant's consistency certification, or receipt of the information needed to make a consistency determination, to conduct a consistency review. If a determination has not been made within three months of the beginning of a review, the state must let the federal agency and the applicant know the status of the review.

Applicant's Appeal Rights

If the state finds an applicant's project to be inconsistent with the coastal management program, the applicant has the right to appeal the decision. The appeal must be filed with the U.S. Secretary of Commerce within 30 days of receipt of the state's objection. Guidance on how to file the appeal may be obtained from the Division of Coastal Management. In all cases, the appeal must be based on the grounds that the activity is consistent with the objectives of the federal Coastal Zone Management Act. The applicant must supply the Secretary of Commerce with detailed information that supports this position.

Division of Coastal Management and Corps of Engineers General Permits

The Division of Coastal Management and the U.S. Army Corps of Engineers issue general permits authorizing certain types of activities that have minimal environmental impacts. Any activity covered under a specific general permit has been certified to be consistent with the North Carolina Coastal Management Program. Therefore, a consistency certification is not required. However, a project must be conducted in accordance with the conditions of the general permit.

Minor Development Permits

If your project requires a minor development permit, you should contact the local permit officer for the community where the project is located (see appendices). The local permit officer (LPO) is a local government employee (usually the building inspector, zoning administrator, or planner) who has been trained by the Division of Coastal Management to review applications for consistency with CAMA standards, to issue minor development permits, and to advise applicants on how to design their projects.

The local permit officer will discuss the proposed project and give you an Application for CAMA Minor Development Permit (see Figure 2). The LPO can help you fill out the application and suggest ways to carry out the project to meet the CRC's guidelines for development in areas of environmental concern.

The Permit Application

The permit application packet asks for basic information about the project and the property involved. This information includes:

- the names, addresses, and telephone numbers of the landowners and authorized agents;
- the location, scale, and nature of the project;
- a statement of property ownership;
- a list of adjacent riparian (waterfront) property owners and their addresses; and
- a signed statement allowing the local permit officer to enter the property.

The information for the statement of ownership can be found on the deed to the property. The names of adjacent waterfront property owners are available from the local tax office.

Notifying Adjacent Property Owners

In addition to listing adjacent waterfront landowners, you must notify them of your project either in person or by mail. Failing to do this is grounds for revoking your permit if a neighboring property owner protests and appeals approval of the permit.

AEC Hazard Notice

If your project is located in an ocean hazard AEC (that is, a designated ocean erodible area, inlet hazard area, or high hazard flood area), you must fill out and sign an AEC Hazard Notice as part of the minor development permit application. This notice states that you recognize the natural hazards present in building on the site, that the Coastal Resources Commission does not guarantee the safety of your project, and that the CRC assumes no liability for future damage to the project.

Site Drawing

Your permit application must be accompanied by a site drawing which shows the dimensions and other characteristics of the property, as well as the location and nature of the project itself. The permit application form lists the specific information that must appear on the site drawing. The local permit officer can give suggestions on how to prepare the drawing and where to get the information that must appear on it.

To make the application easy to understand and review, the site drawing should be as clear and simple as possible (see Figure 4). It should be done on clean, white, 8 1/2" x 11" paper with black ink or dark, thin pencil. The drawing does not need to be to scale but significant dimensions should be indicated. It does not have to be prepared by an engineer or architect; however, it must provide clear and complete information.

Application Fee

When you submit the permit application form and site drawing to the local permit officer, you must also pay a $25 fee to cover the administrative costs of processing the application. This should be paid with a check made out to the local government.

How the Application is Reviewed

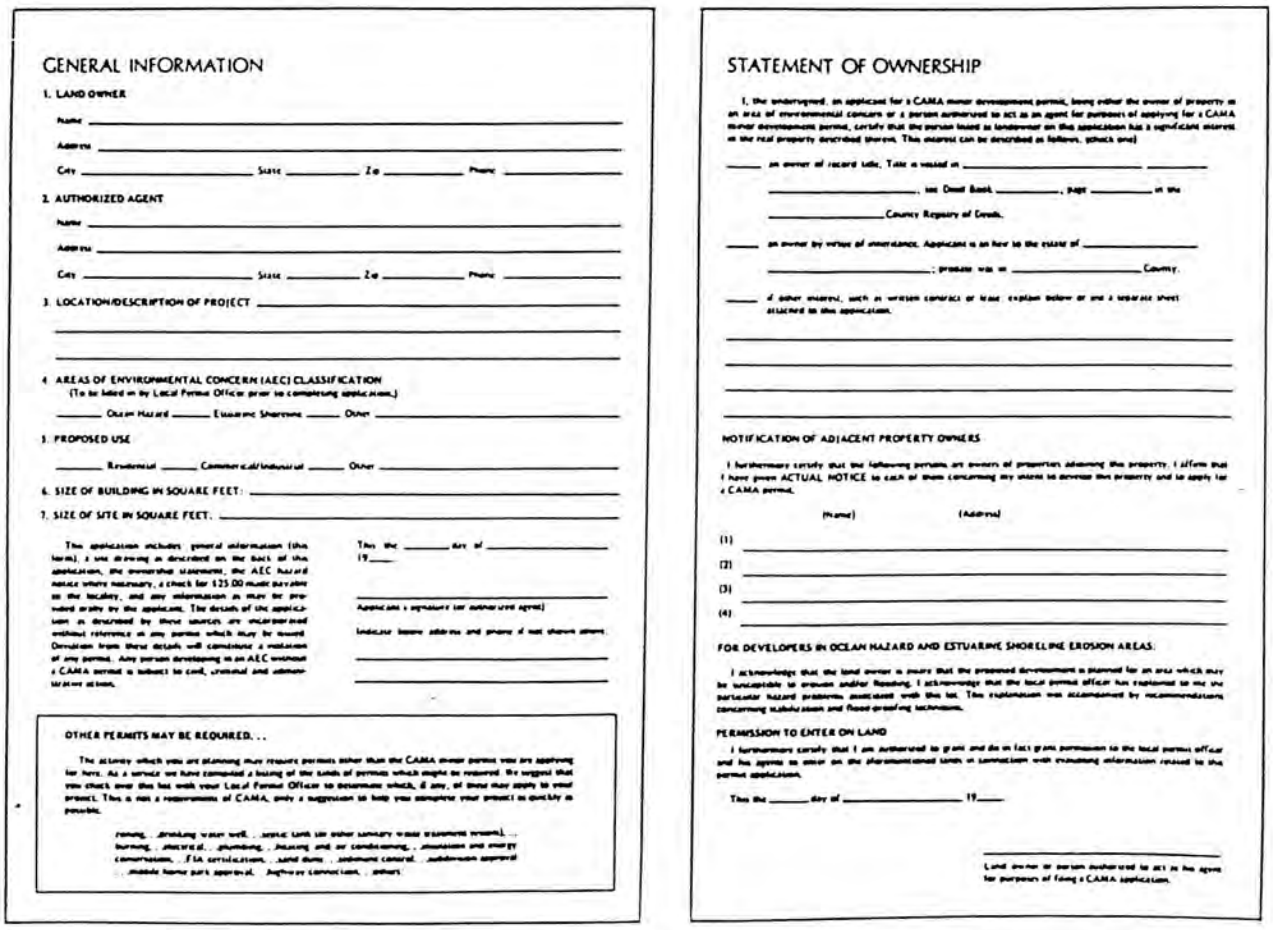
Once the local permit officer has received all of the application materials, he or she will visit the project site, see if the project meets the Coastal Resources Commission's standards for development in the AEC, and see if the project complies with the local CAMA land use plan and local development ordinances (see Figure 5).

Site Visit

The local permit officer will visit the project site to make sure that the site drawing is accurate. The LPO will look for any condition (marshes, eroding shorelines, etc.) that the project will have to work around or overcome in order to meet the CRC's development standards. The permit officer will also post at the site an official notice that an application has been filed for a minor development permit (see Figure 3).

Compliance with CRC Standards

In conjunction with the site visit, the local permit officer will check to make sure that the proposed project complies with the CRC's "general standards" for that AEC and "specific use standards" for that type of development. The standards are described in this handbook; the



GENERAL INFORMATION

1. LAND OWNER

Name _____

Address _____

City _____ State _____ Zip _____ Phone _____

2. AUTHORIZED AGENT

Name _____

Address _____

City _____ State _____ Zip _____ Phone _____

3. LOCATION/DESCRIPTION OF PROJECT _____

4. AREAS OF ENVIRONMENTAL CONCERN (AEC) CLASSIFICATION
(To be filled in by Local Permit Officer prior to completing application.)

_____ Ocean Hazard _____ Estuarine Shoreline _____ Other _____

5. PROPOSED USE

_____ Residential _____ Commercial/Industrial _____ Other _____

6. SIZE OF BUILDING IN SQUARE FEET: _____

7. SIZE OF SITE IN SQUARE FEET: _____

This application includes general information (this form), a site drawing as described on the back of this application, the ownership statement, the AEC hazard notice where necessary, a check for $25.00 made payable to the locality, and any information as may be prescribed orally by the applicant. The details of the application as described by these sources are understood and without reference to any parties which may be named. Omission from these details will constitute a violation of any permit. Any person developing in an AEC without a CAMA permit is subject to civil, criminal and administrative action.

This the _____ day of _____ 19____

_____
Applicant's signature (or authorized agent)

Indicate below address and phone if not shown above.

_____

_____

OTHER PERMITS MAY BE REQUIRED...

The activity which you are planning may require permits other than the CAMA minor permit you are applying for here. As a service we have compiled a listing of the kinds of permits which might be required. We suggest that you check over this list with your Local Permit Officer to determine which, if any, of these may apply to your project. This is not a requirement of CAMA, only a suggestion to help you complete your project as quickly as possible.

_____ mining; _____ drinking water well; _____ septic tank or other sanitary waste treatment system; _____ burning; _____ electrical; _____ plumbing; _____ heating and air conditioning; _____ insulation and energy conservation; _____ fire considerations; _____ sand dune; _____ subdivision control; _____ subdivision approval; _____ mobile home park approval; _____ highway connection; _____ others.

STATEMENT OF OWNERSHIP

I, the undersigned, an applicant for a CAMA minor development permit, being either the owner of property in an area of environmental concern or a person authorized to act as an agent for purposes of applying for a CAMA minor development permit, certify that the person listed as landowner on the application has a significant interest in the real property described therein. This interest can be described as follows, (check one):

_____ an owner of record title. Title is vested in _____ _____

_____, see Deed Book _____, page _____ in the _____ County Registry of Deeds.

_____ an owner by virtue of inheritance. Applicant is an heir to the estate of _____; probate was in _____ County.

_____ of other interest, such as written contract or lease (explain below or see a separate sheet attached to the application.

_____

_____

_____

_____

NOTIFICATION OF ADJACENT PROPERTY OWNERS

I hereby certify that the following persons are owners of properties adjoining this property. I affirm that I have given ACTUAL NOTICE to each of them concerning my intent to develop this property and to apply for a CAMA permit.

(Name) (Address)

(1) _____

(2) _____

(3) _____

(4) _____

FOR DEVELOPERS IN OCEAN HAZARD AND ESTUARINE SHORELINE EROSION AREAS:

I acknowledge that the land owner is aware that the proposed development is planned for an area which may be susceptible to erosion and/or flooding. I acknowledge that the local permit officer has explained to me the particular hazard problems associated with this lot. This explanation was accompanied by recommendations concerning stabilization and flood proofing techniques.

PERMISSION TO ENTER ON LAND

I hereby certify that I am authorized to grant and do in fact grant permission to the local permit officer and his agents to enter on the aforementioned lands in connection with evaluating information related to this permit application.

This the _____ day of _____ 19____

_____
Land owner or person authorized to act as his agent for purposes of filing a CAMA application.

Figure 2. Sample application form required when applying for a CAMA minor development permit.

local permit officer can explain the standards and how they affect a particular project.

Compliance with the Local CAMA Land Use Plan and Local Development Ordinances

The local permit officer will check to make sure that the project complies with the local CAMA land use plan. The land use plan is prepared by the local government to describe the community's policies for development and identifies different classifications of land where a particular activity is or is not allowed. Your project will be denied a CAMA permit if it does not comply with the policies and land classification in the land use plan.

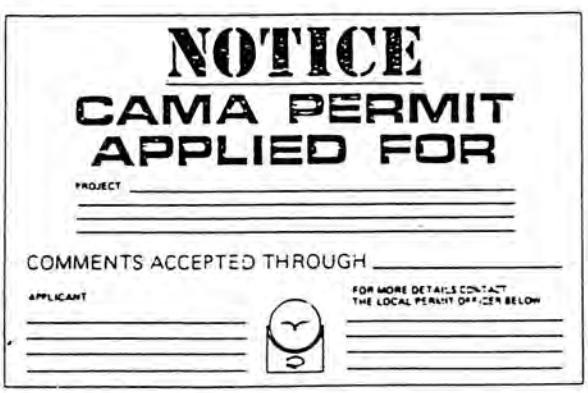
The local permit officer will also check to make sure that the project complies with the local zoning ordinance, subdivision ordinance, and other development regulations. If the project will violate any of these local ordinances, then it cannot receive a permit. When you first talk to the LPO, it is a good idea to ask how the land use plan and local development regulations might affect your project.

Additional Information

If the local permit officer needs more information to review the application, you will be notified by certified or registered mail. If the review will take longer than the 25 days allowed under the Coastal Area Management Act, the local permit officer will send you a notice extending the review time for an additional 25 days; this is also done by registered or certified mail. The LPO can extend the review period only once.

Public Notice

Once the LPO receives the complete application, he or she will publish a legal notice in the local newspaper. This notice lets other people in the community know that the project is being considered for a minor development permit. The public has the right to examine the application file to see if the project complies with the CRC's development standards, the local land use plan, and local development ordinances.


NOTICE

CAMA PERMIT APPLIED FOR

PROJECT

COMMENTS ACCEPTED THROUGH

APPLICANT

FOR MORE DETAILS CONTACT THE LOCAL PERMIT OFFICER BELOW

Figure 3. Sample CAMA permit notice.

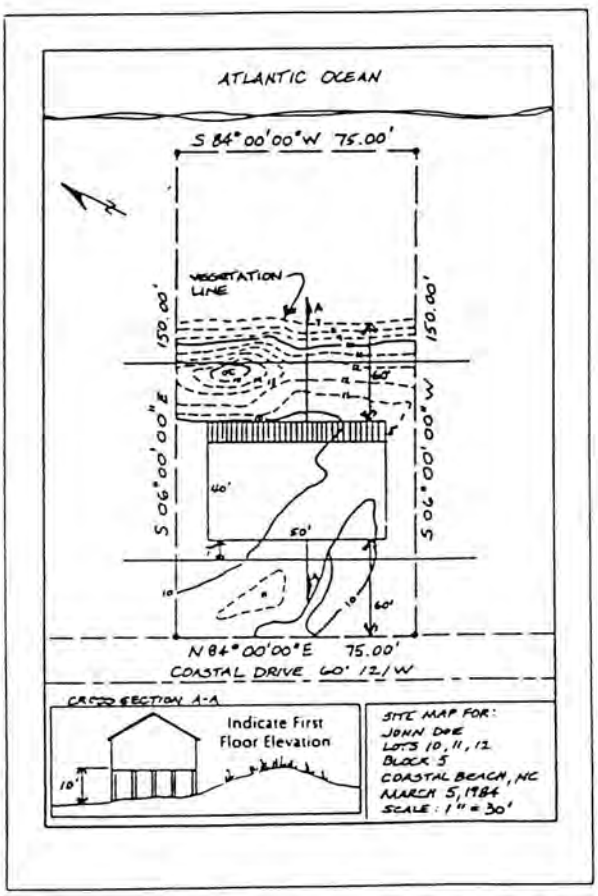


Figure 4. Sample site drawing to be included with a minor development permit application.

The Permit Decision

The Coastal Area Management Act gives the local permit officer 25 days to make a decision to approve or deny a minor development permit application. (As noted above, the LPO may extend this deadline once.) Based on the review of the application, the LPO will do one of three things:

- approve the permit with no conditions;
- approve the permit with conditions; or
- deny the permit.

An **approval** is issued if the project complies with the CRC's development standards, the local land use plan, and local development regulations.

An **approval with conditions** means that the applicant must take certain steps to make the project meet all requirements needed to receive a minor development permit. The LPO will list these conditions on the permit itself. Some common conditions attached to minor development permits are described below.

- "Where backfill is used, either a filter cloth or a ____-foot vegetative buffer will be used to prevent fill material from washing into adjacent waters or marshes."
- "Enclosed area is limited to a maximum area of 500 square feet."
- "No marsh grass will be graded or filled."
- "Disturbed areas will be immediately stabilized."
- "This permit must be renewed every six months."
- "Unenclosed gazebo attached to the walk shall not exceed 500 square feet."

A **denial** will be issued if the project will violate the CRC's standards for development in areas of environmental concern, the local CAMA land use plan, or a local development regulation.

Once the LPO makes the decision, you will be sent an official CAMA permit decision (see Figure 6) by registered or certified mail. The decision will be marked "permit," "conditional permit," or "denial." If your permit is approved, you must sign the permit decision form and return it to the LPO within 20 days. If you fail to do this, the decision will be considered a denial.

If an applicant for a minor development permit does not receive a decision or a notification of extension within 25 days of the date the application was received by the LPO, then the permit may be considered issued and the applicant can begin work on the project.

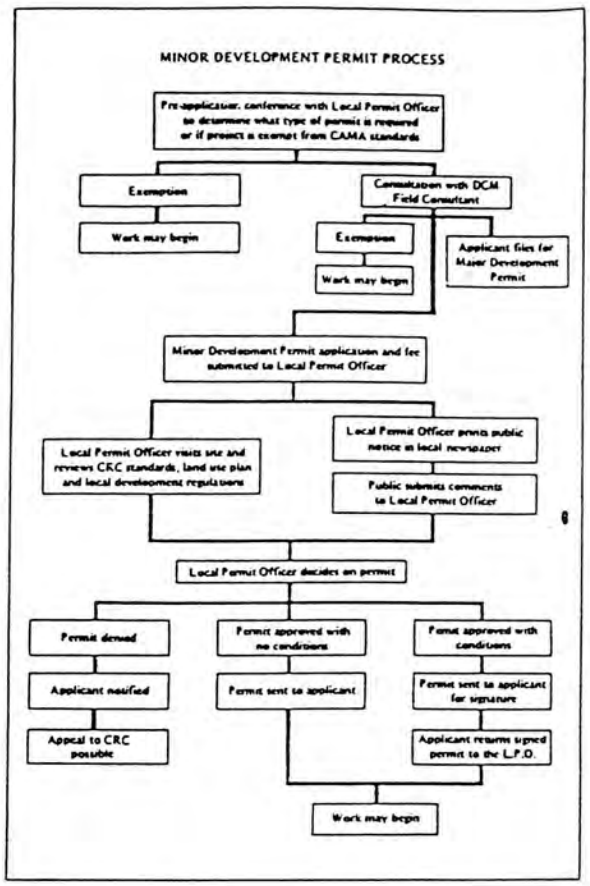


Figure 5. Minor development permit process.

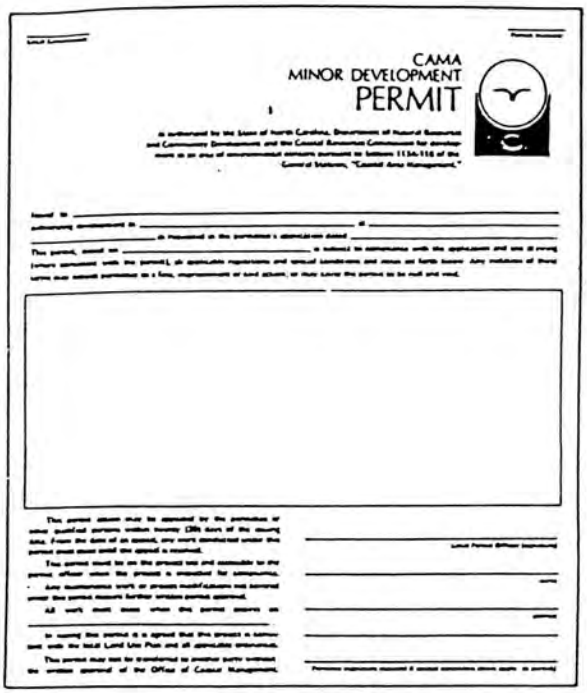


Figure 6. Sample minor permit that will be issued if a project is approved by the local permit officer.

APPENDIX "G"

STATE CLEARINGHOUSE COMMENTS

RECEIVED
OCT 12 1999

North Carolina Department of Cultural Resources

State Historic Preservation Office

David L. S. Brook, Administrator

James B. Hunt Jr., Governor
Betty Ray McCain, Secretary

Division of Archives and History
Jeffrey J. Crow, Director

October 1, 1999

Francis P. Kulka
Airport Planner
Delta Airport Consultants
Charlotte, NC 28273

RE: Runway 8-26 Extension, Michael J. Smith Airport, Beaufort, Carteret County, ER 99-7237

Dear Mr. Kulka:

Thank you for your letter of September 20, 1999 providing further information concerning the above project. We have reviewed the information provided and look forward to receiving the Environmental Assessment (EA) from the State Clearinghouse.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, please contact Renee Gledhill-Earley, environmental review coordinator, at 919/733-4763.

Sincerely,

David Brook
Deputy State Historic Preservation Officer

cc: Mark Esposito, NCDOT
Chrys Baggett, NC Dept of Administration

DELTA
AIRPORT CONSULTANTS, INC.
engineers - planners
Charlotte, NC | Fort Worth, TX | Harrisburg, PA | Richmond, VA

September 20, 1999

Mr. David Brook
Deputy State Historic Preservation Officer
North Carolina Department of Cultural Resources
4617 Mail Service Center
Raleigh, North Carolina 27699-4617

RE: Environmental Study
Runway 8-26 Extension
Michael J. Smith Airport
Beaufort, North Carolina
Delta Project No. NC 98011

Dear Mr. Brook:

Delta Airport Consultants, Inc. received your letter of July 19, 1999 concerning the Environmental Study at Michael J. Smith Airport for the extension of Runway 8-26. After carefully reviewing the letter, we find it necessary to respond since we cannot in any way agree with the conclusion that this project will have '*an audible adverse effect*' on the Beaufort Historic District and Carteret County Home.

Could you please supply us with the technical information or research that brought you to this conclusion? Your reference to maps and files may possibly shed some light on this issue for us. Hearing a plane, like hearing traffic, does not constitute an adverse environmental effect. The DNL methodology used in the Environmental Study is the only recognized and accepted noise metric by the Federal government including the FAA, DOD, EPA and Department of Housing and Urban Development.

Second, I suggest rereading Chapter 4 of the study regarding Section A., Noise and Section B. Land Use. By examining the noise exposure maps on Figures 4-1 and 4-2, one can see that the 65 DNL contour for the existing case (1998) stays on airport property. The 65 DNL contour is the threshold of significance for adverse noise exposure. Neither the Historic District nor Carteret County Home lies within this contour nor do they lie within the 60 DNL, a full five decibels less than the threshold. Also, with the extension of Runway 8-26, the larger (and louder) aircraft will land and depart away from the Historic District thereby reducing departures over the Historic District, please see Page 4-7, second paragraph.

Please notice, as well, Table 4-1 regarding land use compatibility. The table notes all land uses below the 65 DNL contour to be compatible. Consequently, we do not agree with your conclusion since the contours stay on airport property and the two sites in question are considerable distances from the airport. Also, the County Home, as we understand it, is being converted into a bed and

9101 Southern Pine Boulevard, Suite 140
Charlotte, North Carolina 28273
Homepage: http://www.deltaairport.com
Telephone (704) 521-9101
Fax (704) 521-9109
E-mail: delta@deltaairport.com

breakfast/motel establishment, a retail lodging establishment. Activity of this kind, outside the 65 DNL contour is compatible with airport operations.

Third, your recommendation to move the airport appears to us unnecessary and not realistic. The Airport Authority and NC DOT do not have the financial resources to simply build another airport. The environmental impacts, land acquisition, costs, and disruptions far outweigh extending an existing runway on property owned by the Airport Authority.

We would appreciate receiving any technical information to support your conclusion, otherwise, we stand by our conclusions in the report. If you have any questions or comments to this letter please contact me at your earliest convenience.

Sincerely,

Francis P. Kulka
Airport Planner

FPK/rlr

cc Art Gill, Chairman Beaufort-Morehead City Airport Authority
Mark Esposito, NC DOT
Chrys Baggett, NC Department of Administration

North Carolina Department of Cultural Resources

James B. Hunt Jr., Governor
Betty Ray McCain, Secretary

MAILING ADDRESS
4617 Mail Service Center
Raleigh, NC 27699-4617

Division of Archives and History
Jeffrey J. Crow, Director

LOCATION
507 North Blount Street
Raleigh, NC
State Courier 53-31-31

July 19, 1999

Francis P. Kulka
Airport Planner
Delta Airport Consultants
9101 Southern Pines Boulevard, Suite 140
Charlotte NC 28273

Re: Runway Extension, Michael J. Smith Airport,
Beaufort, Carteret County, 99-E-0000-0813

Dear Mr. Kulka:

We have received information concerning the above project from the State Clearinghouse.

We have reviewed our maps and files and have determined that the extension of runway 8-26 at the Michael J. Smith Airport will have an audible adverse effect on the following properties listed in the National Register of Historic Places:

Beaufort Historic District (CR 1)

Carteret County Home (CR 226)

Owners of historic properties in the Beaufort Historic District have complained about the existing noise levels related to the location of the airport and its proximity to the district. It is foreseeable that the extension of runway 8-26 will increase the amount of air traffic generated by the airport and, as a result, increase the adverse audible impact.

We recommend identifying a new airport site rather than extending the runway at the current airport site.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, please contact Renee Gledhill-Earley, environmental review coordinator, at 919/733-4763.

Sincerely,

David Brook
Deputy State Historic Preservation Officer

DB:slw

cc: State Clearinghouse
Rick Barkes, NCDOT Division of Aviation
Beaufort Historic Preservation Commission

North Carolina
Department of Administration

RECEIVED
AUG 10 1999

James B. Hunt, Jr., Governor

Katie G. Dorsett, Secretary

August 4, 1999

Mr. Francis Kulka
Beaufort-Morehead City Airport Auth.
c/o Delta Airport Consultants, Inc.
9101 Southern Pine Blvd., Suite 140
Charlotte, NC 28273

Dear Mr. Kulka:

Re: SCH File # 99-E-0000-0813; Scoping Environmental Study for the Proposed Extension of Runway 8-26 at the Michael J. Smith Airport in Beaufort, NC

The above referenced project has been reviewed through the State Clearinghouse Intergovernmental Review Process. Attached to this letter are comments made by agencies reviewing this document.

Should you have any questions, please do not hesitate to call me at (919) 807-2425.

Sincerely,

Chrys Baggett

Ms. Chrys Baggett
Environmental Policy Act Coordinator

Attachments

cc: Region P

DELTA
AIRPORT CONSULTANTS, INC.
engineers - planners

Charlotte, NC | Fort Worth, TX | Harrisburg, PA | Richmond, VA

September 28, 1999

Ms. Melba McGee
DNER Environmental Coordinator
Department of Environment and Natural Resources
P.O. Box 29535
Raleigh, North Carolina

RE: Environmental Study
Runway 8-26 Extension
Michael J. Smith Airport
Beaufort, North Carolina
Delta Project No. NC 98011

Dear Ms. McGee:

In order to complete our Environmental Study for the Runway 8-26 Extension at Michael J. Smith Airport, I am writing to respond to comments in a memorandum dated June 28, 1999 to the State Clearinghouse. I believe these comments will address your agency's concerns and allow us to submit this report to the NC DOT Division of Aviation for their acceptance.

1. Please find attached two exhibits showing the wetland ditches and soil maps as they are related to the airport. Based on our consultant's analysis (Newkirk Environmental), we are not impacting any regulated wetlands but there are ditches subject to tidal inundation. Prior to construction, a complete wetland delineation and field survey need to be completed and field verified. The length of the ditches directly impacted is approximately 500 linear feet.

2. We have also expanded our discussion on construction impacts to outline activities needed to be undertaken prior to construction. The airport has an SWPPP and it will be reviewed prior to any construction to ensure there is a current plan in place. Other regulatory requirements for any construction related activity, i.e., Erosion and Sedimentation and Control Plan will also be in place and reviewed by the appropriate reviewing agency.

3. Copies of your comments to the State Clearinghouse will also be included in the final report.

Thank you for your comments. If you have any additional comments, please let me know.

Sincerely,

Francis P. Kulka
FPK/lyh
Enclosures

cc: Art Gill, Beaufort-Morehead City Airport Authority w/encl
Mark Esposito, NCDOT w/encl
Chrys Baggett, Environmental Policy Act Coordinator w/encl

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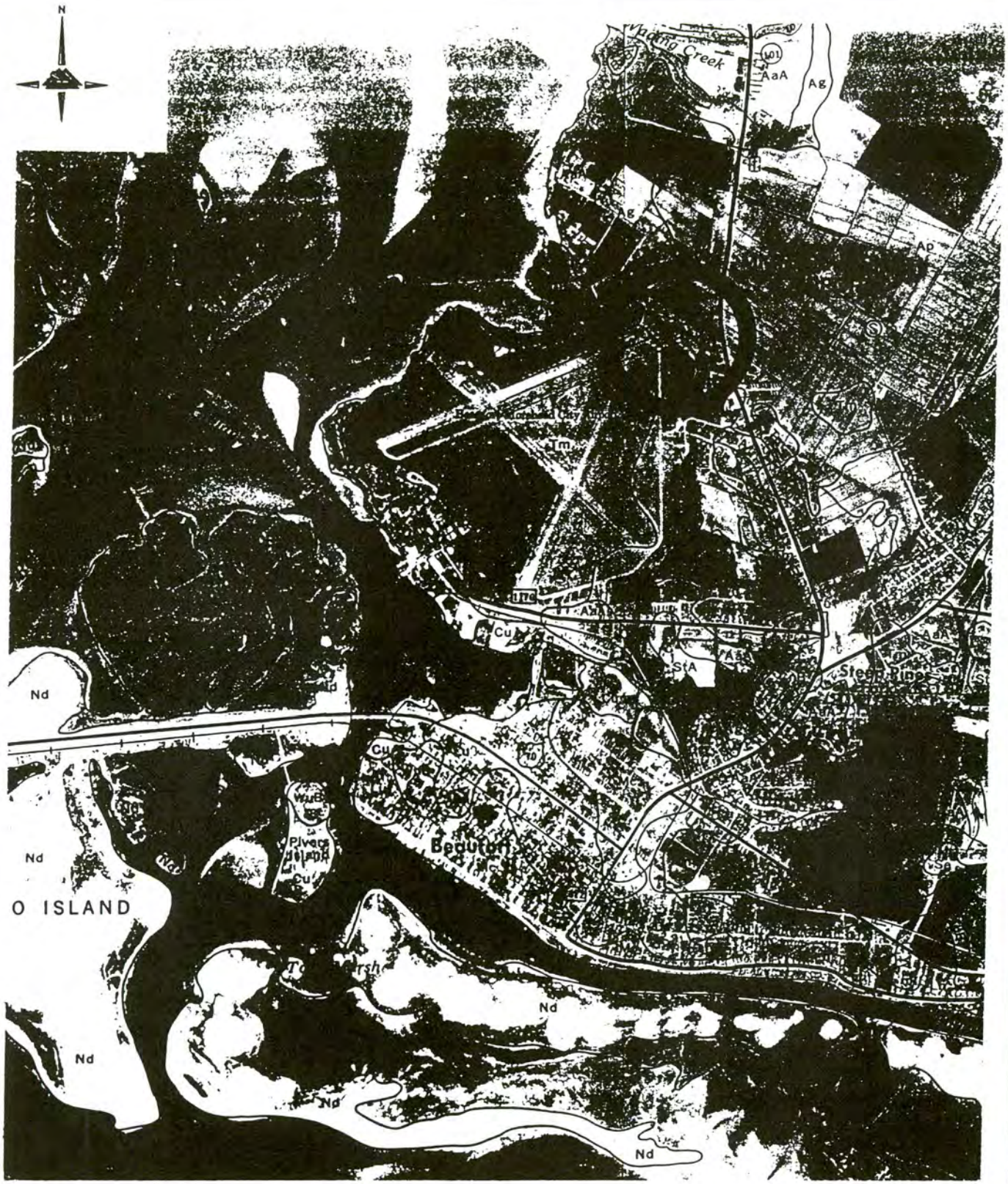
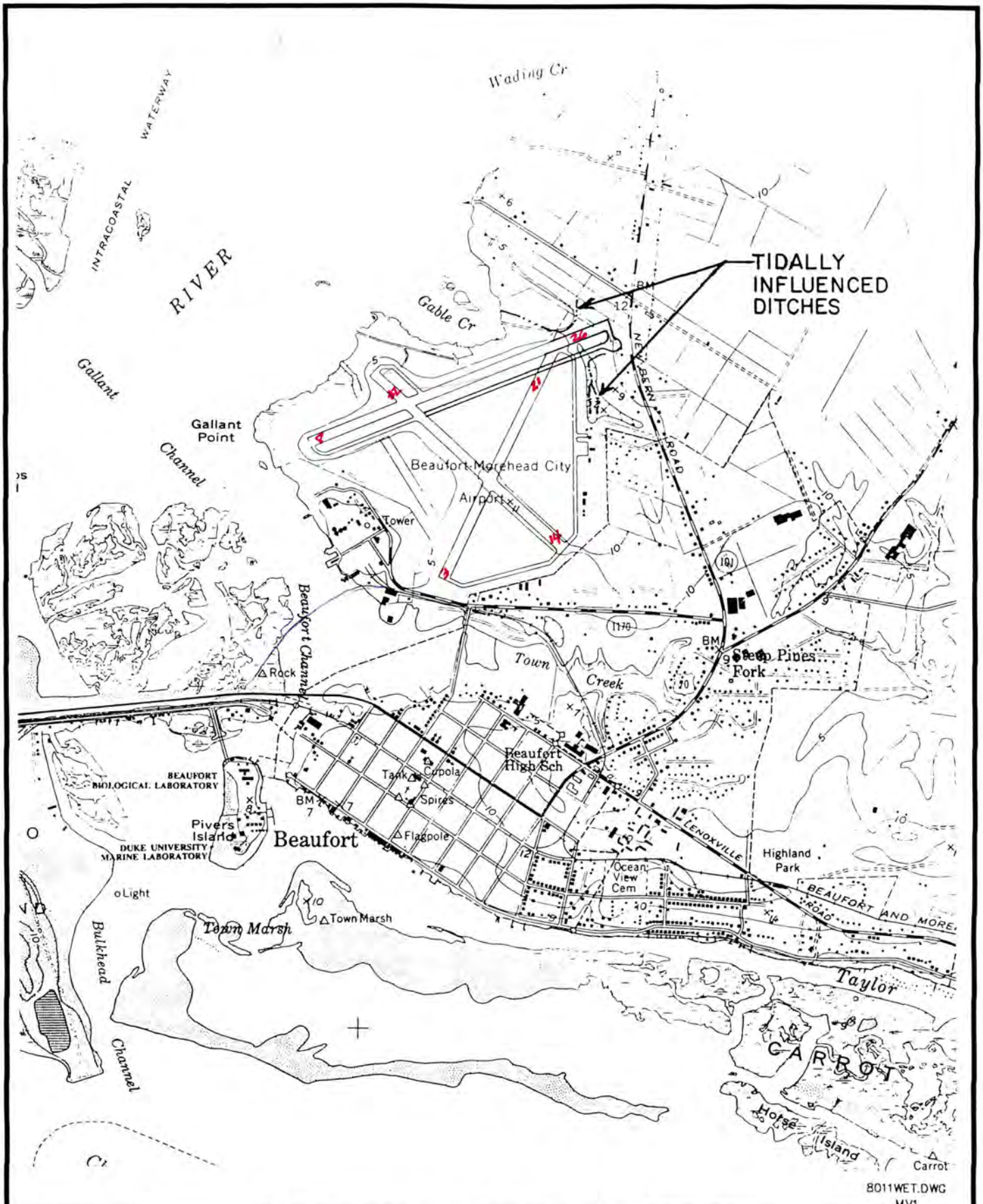
E-mail: delta@deltaairport.com



8011SOILS.DWG
MV1

MICHAEL J. SMITH AIRPORT
SOILS MAP

EXHIBIT
4-7



MICHAEL J. SMITH AIRPORT
WETLANDS

EXHIBIT
4-4

NORTH CAROLINA DEPARTMENT OF
ENVIRONMENT AND NATURAL RESOURCES

NCDENR

JAMES B. HUNT JR.
GOVERNOR

WAYNE MCDEVITT
SECRETARY

MEMORANDUM

TO: Chrys Baggett
State Clearinghouse

FROM: Melba McGee
Environmental Review Coordinator

RE: 99-0813 Michael J. Smith Airport Expansion, Carteret County

DATE: June 28, 1999

The Department of Environment and Natural Resources has reviewed the proposed information. The attached comments are for the applicant's information and consideration.

Thank you for the opportunity to review.

attachments

P.O. BOX 27687, RALEIGH NC 27611-7687 / 512 NORTH SALISBURY STREET, RALEIGH NC 27604
PHONE 919-733-4984 FAX 919-715-3060 WWW.EHNR.STATE.NC.US/EHNR/

State of North Carolina
Department of Environment and Natural Resources

Reviewing Office: Wilmington

INTERGOVERNMENTAL REVIEW – PROJECT COMMENTS

Project Number: 99E0813 Due Date: 2/22/99

After review of this project it has been determined that the ENR permit(s) and/or approvals indicated may need to be obtained in order for this project to comply with North Carolina Law. Questions regarding these permits should be addressed to the Regional Office indicated on the reverse of the form. All applications, information and guidelines relative to these plans and permits are available from the same Regional Office.

	PERMITS	SPECIAL APPLICATION PROCEDURES or REQUIREMENTS	Normal Process Time (statutory time limit)
☐	Permit to construct & operate wastewater treatment facilities, sewer system extensions & sewer systems not discharging into state surface waters.	Application 90 days before begin construction or award of construction contracts. On-site inspection. Post-application technical conference usual.	30 days (90 days)
☐	NPDES - permit to discharge into surface water and/or permit to operate and construct wastewater facilities discharging into state surface waters.	Application 180 days before begin activity. On-site inspection. Pre-application conference usual. Additionally, obtain permit to construct wastewater treatment facility-granted after NPDES. Reply time, 30 days after receipt of plans or issue of NPDES permit--whichever is later.	90-120 days (N/A)
☐	Water Use Permit	Pre-application technical conference usually necessary	30 days (N/A)
☐	Well Construction Permit	Complete application must be received and permit issued prior to the installation of a well.	7 days (15 days)
☐	Dredge and Fill Permit	Application copy must be served on each adjacent riparian property owner. On-site inspection. Pre-application conference usual. Filling may require Easement to Fill from N.C. Department of Administration and Federal Dredge and Fill Permit.	55 days (90 days)
☐	Permit to construct & operate Air Pollution Abatement facilities and/or Emission Sources as per 15 A NCAC (2Q.0100, 2Q.0300, 2H.0600)	N/A	60 days
☒	Any open burning associated with subject proposal must be in compliance with 15 A NCAC 2D.1900	N/A	60 days (90 days)
☐	Demolition or renovations of structures containing asbestos material must be in compliance with 15 A NCAC 2D.1110 (a) (1) which requires notification and removal prior to demolition. Contact Asbestos Control Group 919-733-0820.		
☐	Complex Source Permit required under 15 A NCAC 2D.0800		
☒	The Sedimentation Pollution Control Act of 1973 must be properly addressed for any land disturbing activity. An erosion & sedimentation control plan will be required if one or more acres to be disturbed. Plan filed with proper Regional Office (land Quality Sect.) At least 30 days before beginning activity. A fee of $30 for the first acre and $2000 for each additional acre or part must accompany the plan.		20 days (30 days)
☐	The Sedimentation Pollution control Act of 1973 must be addressed with respect to the referenced Local Ordinance.		(30 days)
☐	Mining Permit	On-site inspection usual. Surety bond filed with ENR. Bond amount varies with type mine and number of acres of affected land. Any are mined greater than one acre must be permitted. The appropriate bond must be received before the permit can be issued.	30 days (60 days)
☐	North Carolina Burning permit	On-site inspection by N.C. Division Forest Resources if permit exceeds 4 days	1 day (N/A)
☐	Special Ground Clearance Burning Permit - 22 counties in coastal N.C. with organic soils	On-site inspection by N.C. Division Forest Resources required "if more than five acres of ground clearing activities are involved. Inspections should be requested at least ten days before actual burn is planned."	1 day (N/A)
☐	Oil Refining Facilities	N/A	90-120 days (N/A)
☐	Dam Safety Permit	If permit required, application 60 days before begin construction. Applicant must hire N.C. qualified engineer to: prepare plans, inspect construction, certify construction is according to ENR approved plans. May also require permit under mosquito control program. And a 404 permit from Corps of Engineers. An inspection of site is necessary to verify Hazard Classification. A minimum fee of $200.00 must accompany the application. An additional processing fee based on a percentage or the total project cost will be required upon completion.	30 days (60 days)

Continued on reverse

	PERMITS	SPECIAL APPLICATION PROCEDURES or REQUIREMENTS	Normal Process Time (statutory time limit)
☐	Permit to drill exploratory oil or gas well	File surety bond of $5,000 with ENR running to State of NC conditional that any well opened by drill operator shall, upon abandonment, be plugged according to ENR rules and regulations.	10 days (N/A)
☐	Geophysical Exploration Permit	Application filed with ENR at least 10 days prior to issue of permit. Application by letter. No standard application form.	10 days (N/A)
☐	State Lakes Construction Permit	Application fee based on structure size is charged. Must include descriptions & drawings of structure & proof of ownership of riparian property.	15-20 days (N/A)
☒	401 Water Quality Certification	N/A	60 days (130 days)
☐	CAMA Permit for MAJOR development	$250.00 fee must accompany application	55 days (150 days)
☐	CAMA Permit for MINOR development	$50.00 fee must accompany application	22 days (25 days)
☐	Several geodetic monuments are located in or near the project area. If any monuments need to be moved or destroyed, please notify: N.C. Geodetic Survey, Box 27687, Raleigh, NC 27611		
☒	Abandonment of any wells, if required must be in accordance with Title 15A Subchapter 2C.0100.		
☒	Notification of the proper regional office is requested if "orphan" underground storage tanks (USTS) are discovered during any excavation operation.		
☒	Compliance with 15A NCAC 2H 1000 (Coastal Stormwater Rules) is required.		45 days (N/A)
*	Other comments (attach additional pages as necessary, being certain to cite comment authority)		

REGIONAL OFFICES

Questions regarding these permits should be addressed to the Regional Office marked below.

☐ Asheville Regional Office
59 Woodfin Place
Asheville, NC 28801
(704) 251-6208

☐ Fayetteville Regional Office
Suite 714 Wachovia Building
Fayetteville, NC 28301
(919) 486-1541

☐ Mooresville Regional Office
919 North Main Street, P.O. Box 950
Mooresville, NC 28115
(704) 663-1699

☐ Raleigh Regional Office
3800 Barrett Drive, Suite 101
Raleigh, NC 27609
(919) 571-4700

☐ Washington Regional Office
943 Washington Square Mall
Washington, NC 27889
919) 946-6481

☐ Wilmington Regional Office
127 Cardinal Drive Extension
Wilmington, NC 28405
(919) 395-3900

☐ Winston-Salem Regional Office
585 Waughtown St.
Winston-Salem, NC 27107
(910) 771-4600

NORTH CAROLINA DEPARTMENT OF
ENVIRONMENT AND NATURAL RESOURCES
DIVISION OF COASTAL MANAGEMENT

JAMES B. HUNT JR.
GOVERNOR

WAYNE MCDEVITT
SECRETARY

ROGER N. SCHECTER
DIRECTOR

MEMORANDUM

TO: Melba McGee, NC Division of Policy and Development
FROM: Steve Benton, NC Division of Coastal Management

SUBJECT: Review of SCH# 99-0813 DATE: 7.27.99

✓ A COPY OF ALL COMMENTS RECEIVED BY THE SCH IS REQUESTED

___ REVIEWER COMMENTS ATTACHED

Review Comments:

___ This document is being reviewed for consistency with the NC Coastal Management Program pursuant to federal law and or NC Executive Order 15. Agency comments received by SCH are needed to develop the State's consistency position.
Project Review Number (if different from above) _____.
A consistency position will be developed based upon our review on or before _____.

✓ A Consistency Determination document ✓ is, or ___ may be required for this project pursuant to federal law and or NC Executive Order 15. Applicant should contact Steve Benton or Caroline Bellis in Raleigh, phone (919)733-2293, for information on proper document format and applicable state guidelines and land use plan policies.

✓ Proposal is in draft form, a consistency response is inappropriate at this time. A Consistency Determination should be included in the final document.

___ A Consistency Determination Document (pursuant to federal law and/or NC Executive Order 15) is not required.
___ A consistency response has already been issued.
Project Number _____ Date Issued _____
___ Proposal involves < 20 Acres and or a structure < 60,000 Square Feet and no AEC's or Land Use Plan problems.
___ Proposal is not in the Coastal Area and will have no significant impacts on any land or water use or natural resources of the Coastal Area.

___ A CAMA Permit ___is, or___ may be required for all or part of this project. Applicant should contact _____in _____, phone #_____, for information.

___ A CAMA Permit ___has already been issued, or___is currently being reviewed under separate circulation. Permit Number_____ Date Issued_____

___ Other (see attached).

State of North Carolina Consistency Position:

___ The proposal is consistent with the NC Coastal Management Program provided that all conditions are adhered to and that all state authorization and/or permit requirements are met prior to implementation of the project.

___ The proposal is inconsistent with the NC Coastal Management Program.

___ Other (see attached).

P.O. BOX 27687, RALEIGH, NC 27611-7687 / 2728 CAPITAL BLVD., RALEIGH, NC 27604
PHONE 919-733-2293 FAX 919-733-1495

State of North Carolina
Department of Environment
and Natural Resources
Division of Water Quality

James B. Hunt, Jr., Governor
Wayne McDevitt, Secretary
Kerr T. Stevens, Director

July 23, 1999

MEMORANDUM

To: Melba McGee
DENR Environmental Coordinator

From: Gloria Putnam
DWQ SEPA Coordinator

Subject: Michael J. Smith Airport Runway Expansion
Carteret County
DENR # 99E-0813, DWQ# 12463

The Division of Water Quality (Division) has reviewed the "Environmental Study for the Extension of Runway 26" in Carteret County. The Division requests that the comments offered below be addressed in the environmental assessment of this project. If the applicant has questions regarding these comments, please have them call Eric Fleek of the 401 Wetlands Group at (919) 733-1786 or at eric_fleek@h2o.enr.state.nc.us.

Comments

1. As is noted in Section K. Wetlands (Page 4-15): "Several former agricultural ditches and other active ditches bisect the surveyed area." Please provide a map depicting the proposed runway footprint in relation to these ditches and in relation to any streams or channels present. Please also include this information in the format of a USGS and County SCS Soils Survey map detailing which water features are within the runway footprint.

2. Again, under Section K. Wetlands (Page 4-16) the document notes that "Augusta loamy fine sand and Araphahoe fine sandy loam" are present on site and that both are listed as poorly drained soils that have "problems associated with ponding and slow permeability" and that "ditching and grading of the land is effective in reducing impacts." Please be aware of the Division's Wetland Ditching and Draining Policy that prohibits new ditching or the expansion of existing ditches through wetlands. For more

Please be aware of the Division's Wetland Ditching and Draining Policy that prohibits new ditching or the expansion of existing ditches through wetlands. For more information regarding this policy please visit our website at http://h2o.enr.state.nc.us/NDbranch/wetland/wetland.html

3. Please provide the following information in the amended EA: a) Wetland map showing runway footprint and resultant impacts (in acreage), b) Information (again use USGS and SCS maps) depicting any stream and/or ditch fill, culverting, or relocation associated with the runway footprint. All impacts to these features should be given in linear feet.

4. Under item ten "Endangered and Threatened Species" it is not clear as to whether a) formal survey for these species was conducted. The N.C. Natural Heritage Program, N.C. Wildlife Resources Commission, and the U.S. Fish and Wildlife Service should be contacted for a more accurate review of this matter. If a formal survey was conducted please provide the results. If these aforementioned agencies were contacted please provide a copy of their reports.

5. This project will require stormwater management. Please provide a detailed discussion of what stormwater management practices will be installed at this site to control stormwater.

Thank you for the opportunity to comment.

Wetlands/401 Certification Unit

Wetlands Ditching and Draining Policy

WETLANDS DRAINING POLICY

N. C. Division of Water Quality

Department of Environment and Natural Resources

Revised July 9, 1999

BACKGROUND

The N.C. Division of Water Quality (DWQ) in consultation with the N.C. Attorney General's Office has determined that wetland water quality standards set forth at 15A NCAC 2B .0231 (see attachment) may be violated by activities that result in the draining of wetlands such as ditching and groundwater pumping. For several years ditching of wetlands has required 404 Permits and 401 Certifications which were conditioned to ensure that these standards were met. Recent federal court decisions have prevented the Corps of Engineers from requiring 404 permits for draining of wetlands unless spoil is sidecast from the ditch into wetlands. As a result, thousands of acres of wetlands have recently been drained in the coastal plain of North Carolina. This situation has forced DWQ to reexamine whether the unregulated draining of wetlands is violating the state's wetland standards. DWQ has adopted the following policy to insure that activities that drain wetlands will not violate the water quality standards for wetlands.

DWQ intends to examine wetland drainage activities for compliance with the state's wetland water quality standards, particularly those for hydrologic conditions necessary to support wetlands function (15A NCAC 2B .0231(b)(5) and biological integrity (15A NCAC 2B .0231(b)(6)). "Drainage activities" include ditching and installation of groundwater pumping systems that affect wetlands after March 1, 1999. If DWQ discovers any such "drainage activities", DWQ staff will notify landowners in writing that their activity has violated or is likely to violate the state's wetland standards. The landowner will then be given a short time to refute DWQ's findings. If these findings are not successfully refuted, DWQ will initiate an enforcement action and require that the natural hydrology be restored. The U.S. Army Corps of Engineers has informed DWQ that in some instances, the filling of ditches may require the issuance of a 404 Permit. The Corps anticipates that most such activities could be authorized under Nationwide Permit 27. The Corps and DWQ will

work to issue any required Permits and Certifications in a timely manner in order to facilitate the expeditious restoration of the natural wetland hydrology. Certification fees will not be required for wetland restoration done as a result of an enforcement action ordered by DWQ although notification to DWQ is required.

DIVISION OF WATER QUALITY: WETLANDS DRAINING POLICY, Revised July 9, 1999

1. **Any new or continued ditching after March 1st, 1999 is a violation of state wetland standards unless as otherwise specified in this policy. Any ditches dug after March 1, 1999 must be filled, using Nationwide Permit 27.**
2. **Ditches impacting wetlands that were installed prior to October 1, 1998 are not covered by this policy.**
3. **DWQ will not initiate a wetland standard enforcement action for drainage systems installed before March 1, 1999.**
4. **If the project is not in compliance with its Sediment and Erosion Control Plan approved prior to March 1, 1999, (i.e., the ditch sides were not appropriately sloped, appropriate BMP's were not installed, ditching went beyond that which was approved or was not installed as approved) and, as appropriate, the National Pollutant Discharge Elimination System (NPDES) permit for stormwater discharge associated with construction activities, then DWQ and DLR will examine the project to determine which of the following actions may be appropriate:**
    a. **bring the approved ditches into compliance without additional wetland fill, except for sediment and erosion control measures approved by DLR, DWQ and the US Army Corps of Engineers; or**
    b. **fill in the ditch using Nationwide Permit 27.**
    c. **DWQ and DLR will also determine whether to assess civil penalties.**
5. **Any ditch installed between October 1, 1998 and March 1, 1999 without an approved Erosion and Sediment Control Plan, where required, is in violation of the Sedimentation and Pollution Control Act, NC General Statute 143.215.1, for failure to obtain a NPDES stormwater permit, and may be in violation of water quality standards. DWQ and DLR will examine the site and where appropriate the landowner will be notified in writing and required to fill the ditch and restore the natural hydrology. The landowner is also subject to possible civil penalties. If the Division of Land Resources determines that any of these projects did not require a Sediment and Erosion Control Plan, then these ditches are acceptable as long as downstream water quality standards are protected.**
6. **Agricultural ditches that impact wetlands will be treated as any other**

ditches under this policy. "Farmed wetlands" as designated by the Natural Resources Conservation Service may be managed as desired by the owner without violating wetland standards since these wetlands have severely altered wetland hydrology and biological integrity.

7. **Maintenance of ditches constructed before March 1, 1999 is allowed if the original dimensions of the ditch, when it was initially constructed are not exceeded. Additions, including deepening, to any existing drainage system beyond maintenance will be considered as a new activity if it drains wetlands. DWQ will consult with the Division of Forest Resources in determining whether forestry operations comply with this provision.**
8. **Ditches installed for silvicultural purposes after March 1, 1999 must be part of a Forest Management Plan prepared or approved by a Registered Forester and must have water management structures in place that maintain the hydrology of the wetland area. These structures may be managed to temporarily drain the wetland during harvest, planting, and early tree growth for up to three years. If after the three-year period the wetland area is not reforested, the ditches shall be filled and the wetland hydrology restored. Any significant alterations to the biological integrity of the wetland are not allowed. For sites where ditching occurred between October 1, 1998 and March 1, 1999, and the landowner claims that the ditches were installed for silvicultural purposes, the Division of Forest Resources and Division of Land Resources will examine the sites to determine if they are eligible for a silvicultural exemption from the Sediment Pollution Control Act.**
9. **Consistent with water quality regulations and DWQ policy, wetland draining activities, which were allowed prior to March 1, 1999, may be examined by DWQ staff for compliance with downstream water quality standards including turbidity, salinity, and dissolved oxygen. If the wetland draining causes violations of water quality standards, DWQ will take appropriate enforcement action.**

10. **Temporary ground water pumping is allowed since it will not permanently alter the wetland hydrology as long as the pumping is in compliance with the following Best Management Practices. Following written approval from DWQ of an operation and monitoring plan , a maximum of three days of pumping followed by seven days of non-pumping is allowed., The applicant shall also install monitoring wells along a transect or in several directions of the pumping and supply data to DWQ for review in order to demonstrate the effect of the pumping. If these monitoring wells demonstrate the adverse impacts of the pumping on adjacent wetland hydrology or biological integrity, the pumping regime shall be altered to reduce the impact. The discharge location for water shall be into adjacent, upslope**

wetlands as much as possible in order to maintain their hydrology and must be shown on the applicant's plan. As an alternative to this pumping and monitoring regime, DWQ may approve a site specific plan which will protect wetland hydrology.

DWQ CONTACTS FOR ADDITIONAL QUESTIONS AND SITE REVIEWS

DWQ's Regional Offices should be contacted with respect to possible violations of this policy or for site visits.

Asheville 828-251-6208

Fayetteville 910-486-1541

Mooresville 704-663-1699

Raleigh 919-471-4700

Washington 252-946-6481

Wilmington 910-395-3900

Winston-Salem 336-771-4608

The Central Office in Raleigh should be contacted at 919-733-1786 for questions regarding the policy.

The Wetlands/401 Water Quality Certification Unit of the Division of Water Quality - North Carolina Department of Environment and Natural Resources. For more information please call (919) 733-1786 or write NC DENR/Division of Water Quality, Wetlands Unit, 1621 Mail Service Center, Raleigh, NC 27699-1621. For information or comments on this Web Site please email Todd St. John - "todd_st.john@h2o.enr.state.nc.us"

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

JAMES B. HUNT JR.
GOVERNOR

P.O. BOX 25201, RALEIGH, N.C. 27611-5201

DAVID McCOY
SECRETARY

August 25, 1999

Ms. Jeanette Furney
NC State Clearinghouse
Administration Building
Raleigh, NC 27603

Re: Environmental Study – Michael J. Smith Airport
99-E-0000-0813

Dear Ms. Furney:

We have reviewed the Final Draft Report for the proposed Runway 26 extension at the Michael J. Smith Airport in Beaufort. The proposal is to extend the current runway an additional 751 ft. to a length of 5,000 ft. It will also require the relocation of 115 KV power lines outside the safe approach path of Runway 26.

The ultimate length of Runway 26 depicted on the Airport Layout Plan (ALP) is 5,500 ft. This requires purchasing up to an additional 135 acres as well as relocating NC highway 101, currently cost prohibitive. The scope of this document mentions but does not provide a detailed evaluation of Alternatives 3 or 4 (1,251 ft. extension) as they require relocating NC 101.

It does, however, address the relocation of the 115KV power lines, for approach protection, through a newly acquired easement agreement. Any anticipated corridor for the relocation of the power lines are yet to be defined and, as such, are not fully evaluated at this time for all environmental consequences. They are limited to schematic depictions.

The Runway Protection Zone (RPZ) for a 5,000 ft. Category B-II runway with a 34:1 Non-Precision Approach is approximately 30 acres. While preferably secured by fee simple ownership, it is possible to control the use of the RPZ through the local "Airport Overlay" zoning ordinance currently being considered by the Town of Beaufort.

While the FAA Environmental Handbook 5050.4A, Section 47(e)(1) Noise, does not require noise analysis with less than 90,000 annual propeller operations, a detailed noise analysis was performed, none the less, using the FAA Integrated Noise Model (INM-version 2A). This was done to address any concerns over, and to quantify, the noise levels in the area. The results of the analysis, depicted in Exhibits 4-1 and 4-2, show any increase in air traffic, and subsequent noise resulting from the proposed project, would be concentrated over Runway 26, away from the Town of Beaufort. There may, however, be a visual impact from a possible increase in "pattern traffic" around the immediate vicinity of the airport.

Based on our review of the draft document, it appears that the process for consideration of the environmental effects of the proposed action has been adequately addressed. We concur with the recommendation that Alternative 2 appears to be the most cost effective and environmentally feasible alternative at this time.

Should you have any questions, or request additional comments, please call.

Sincerely,

Mark Esposito

Mark Esposito, P.E.
Airport Development Engineer

Cc: Chris McAdams, NCDOT
Delta Airport Consultants

DELTA
AIRPORT CONSULTANTS, INC.
engineers - planners

Charlotte, NC | Fort Worth, TX | Harrisburg, PA | Richmond, VA

September 21, 1999

North Carolina Natural Heritage Program
Division of Parks and Recreation
P.O. Box 27687
Raleigh, North Carolina 27699-1615

Environmental Study
Michael J. Smith Airport
Delta Project No. 98011.01

Dear Sir or Madam:

Our firm is conducting an environmental study at the Michael J. Smith Airport to extend runway 8-26. As part of this study, we are requesting from your office any information regarding known endangered or threatened species in the vicinity of the airport. I have enclosed a series of maps of the area for your information which include; a location map, a USGS topographic map (Beaufort Quad), a vicinity map, and a site map showning the proposed runway extension.

If you have any questions or need any additional information please let me know. Thank you for your time and consideration to this matter we appreciate it very much.

Sincerely,

Francis P. Kulka
Airport Planner

FPK/rlr

Enclosures

9101 Southern Pine Boulevard, Suite 140
Charlotte, North Carolina 28273
Homepage: http://www.deltaairport.com

Telephone (704) 521-9101
Fax (704) 521-9109
E-mail: delta@deltaairport.com

DELTA
AIRPORT CONSULTANTS, INC.
engineers - planners

Charlotte, NC | Fort Worth, TX | Harrisburg, PA | Richmond, VA

September 21, 1999

North Carolina Wildlife Resources Commission
512 N. Salisbury Street
Raleigh, North Carolina 27604-1188

Environmental Study
Michael J. Smith Airport
Delta Project No. 98011.01

Dear Sir or Madam:

Our firm is conducting an environmental study at the Michael J. Smith Airport to extend runway 8-26. As part of this study, we are requesting from your office any information regarding known endangered or threatened species in the vicinity of the airport. I have enclosed a series of maps of the area for your information which include; a location map, a USGS topographic map (Beaufort Quad), a vicinity map, and a site map showning the proposed runway extension.

If you have any questions or need any additional information please let me know. Thank you for your time and consideration to this matter we appreciate it very much.

Sincerely,

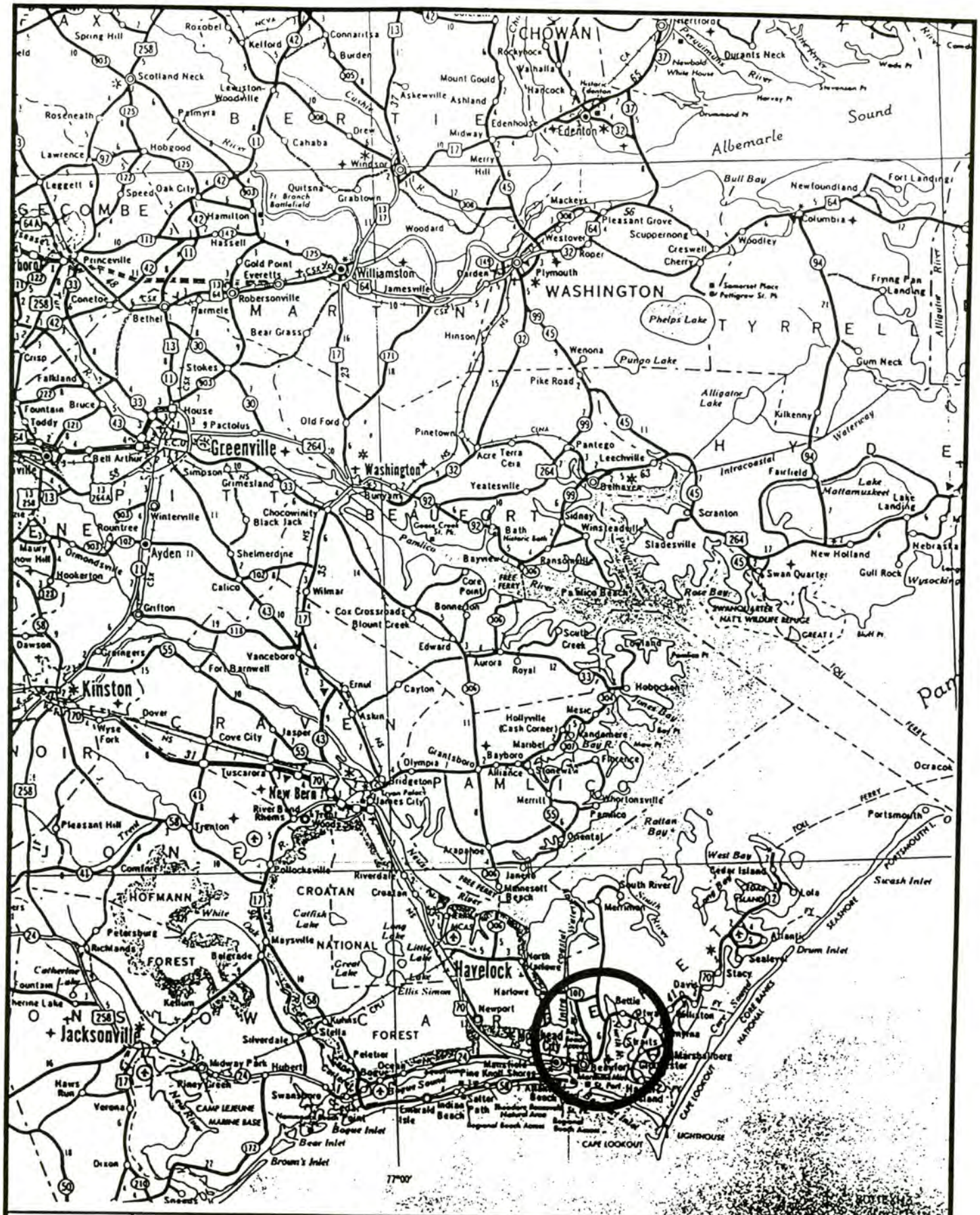
Francis P. Kulka
Airport Planner

FPK/rlr

Enclosures

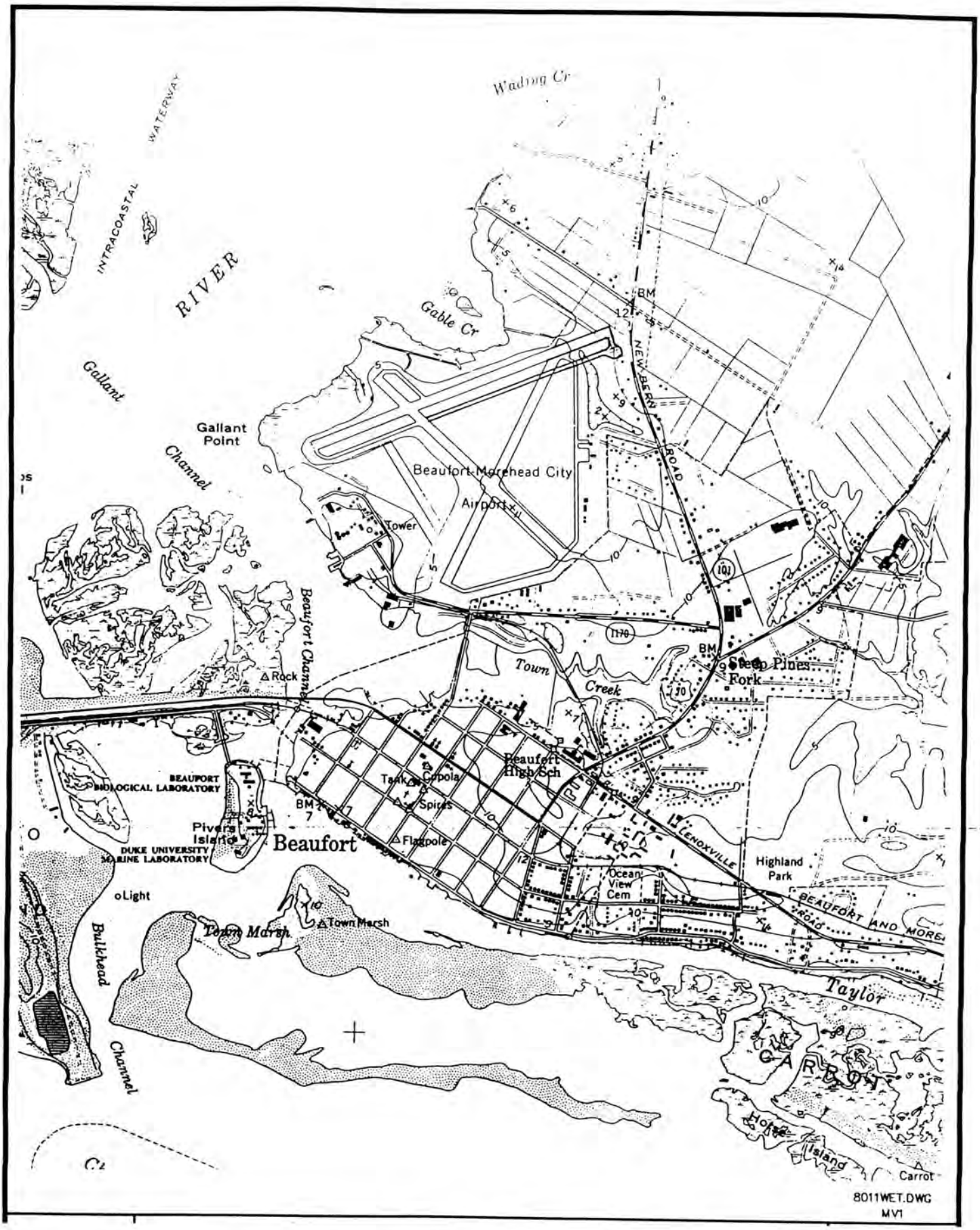
9101 Southern Pine Boulevard, Suite 140
Charlotte, North Carolina 28273
Homepage: http://www.deltaairport.com

Telephone (704) 521-9101
Fax (704) 521-9109
E-mail: delta@deltaairport.com



MICHAEL J. SMITH AIRPORT
LOCATION MAP

EXHIBIT
3-1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RIVER
Gable Cr
Gallant
Gallant Point
Channel
NEWBERN ROAD
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Beaufort-Morehead City Airport
Tower
Beaufort Channel
Rock
Town Creek
Steep Pines Fork
BEAUFORT BIOLOGICAL LABORATORY
Pivers Island
DUKE UNIVERSITY MARINE LABORATORY
Beaufort
Tank
Cupola
Spires
Flagpole
Beaufort High Sch
LENOXVILLE
Highland Park
Ocean View Cem
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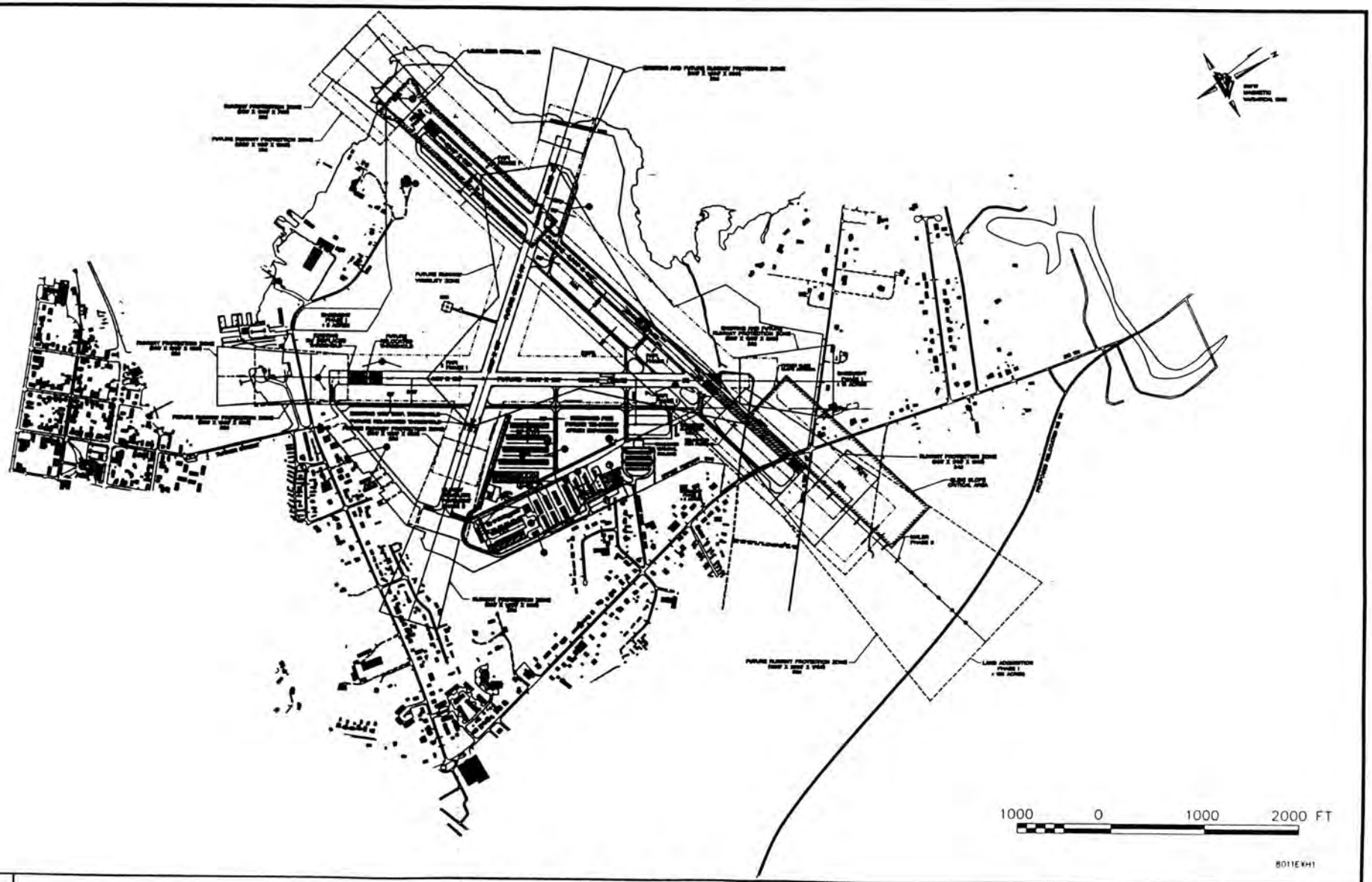
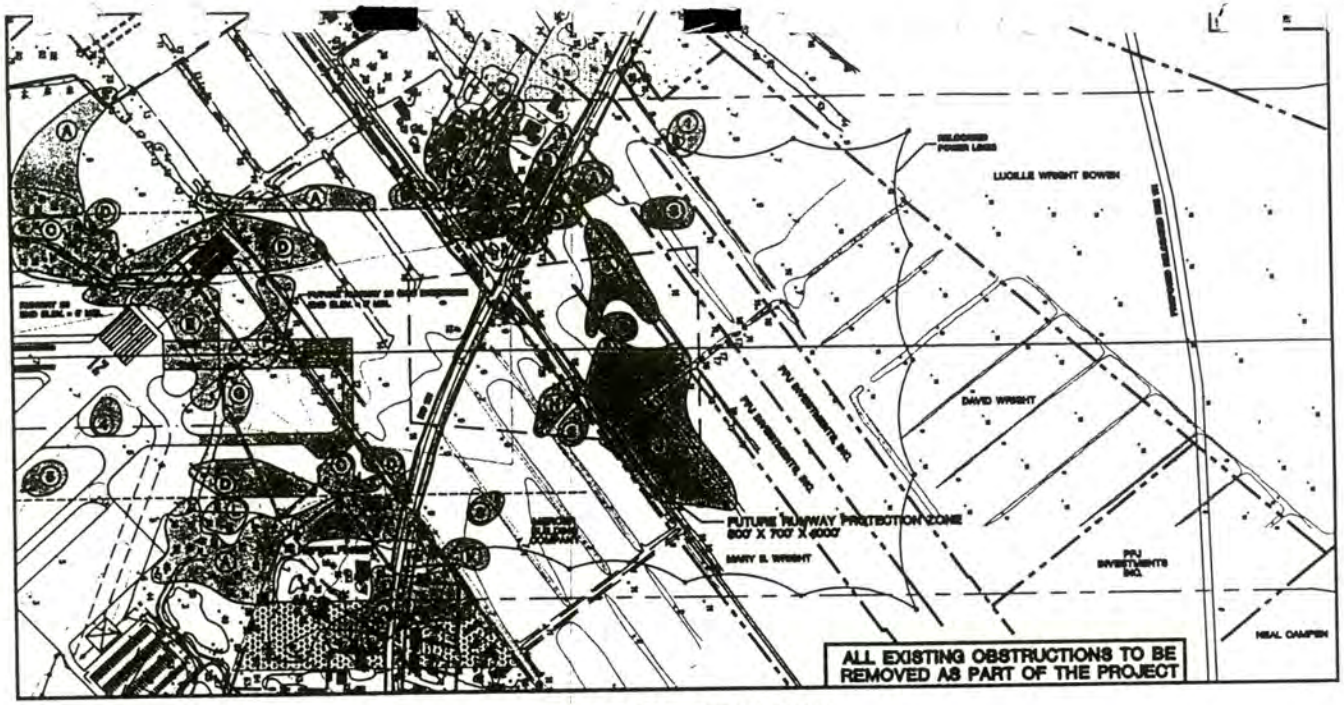


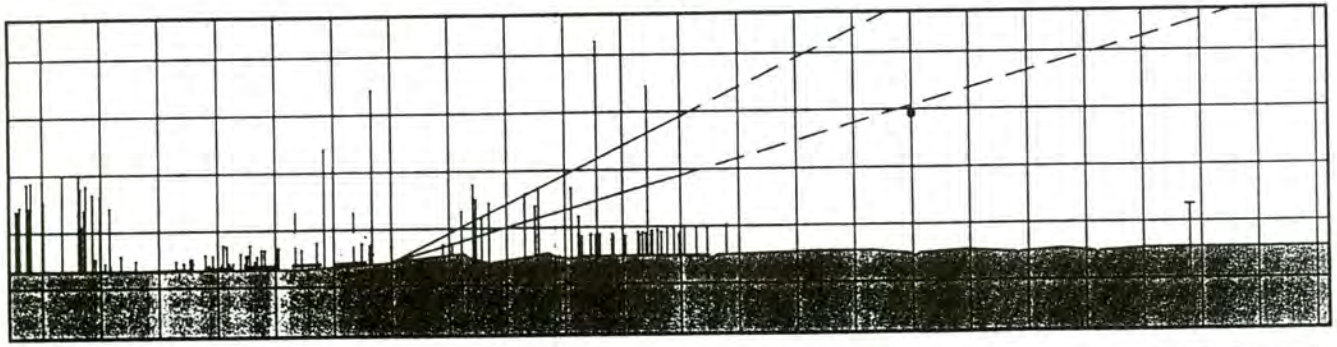
MICHAEL J. SMITH AIRPORT
VICINITY MAP

EXHIBIT
3-2



RUNWAY PROTECTION ZONE

PLAN VIEW RUNWAY 26



NOTES:

1. (1) LETTER DENOTES OBSTRUCTION GROUP.
2. ALL ELEVATIONS ARE IN ACCORDANCE WITH NATIONAL MAP ACCURACY STANDARDS. SPOT ELEVATIONS AND GROUND CONTOURS ARE DERIVED FROM AERIAL PHOTOGRAMMETRY AND ARE APPROXIMATE. GROUND SURVEYS ARE RECOMMENDED TO VERIFY ACCURACY.
3. ALL ELEVATIONS ARE IN FEET ABOVE MEAN SEA LEVEL. .

   GROUND CONTOURS AND OBSTRUCTION ELEVATIONS ARE BASED UPON AERIAL PHOTOGRAPHY PREPARED BY:

   POTOMAC AERIAL SURVEYS INC.
   1919 BUCHEIMER ROAD
   FREDERICK, MARYLAND 21701
   AUGUST 1992
4. 15 FEET ADDED TO PUBLIC ROAD ELEVATIONS TO DETERM EXISTING AND FUTURE CLEARANCE TO APPROACH SURFAC
5. ALL OBSTRUCTIONS TO FUTURE RUNWAY 26 PRIMARY SURFACE TO BE REMOVED.

LEGEND

- (1) NON-PENETRATING OBJEC
- (1) PENETRATING OBJECTS
- VERTICAL ROAD CLEARAN
- EXIST. AIRPORT PROPERT
- FUTURE PROPERTY ACQU
- EXISTING PRIMARY SURFA
- FUTURE PRIMARY SURFAC
- FUTURE AVIGATION EASE

	ALTERNATIVE CONCEPT #2 MICHAEL J. SMITH FIELD AIRPORT BEAUFORT, NC	EXHIBIT 2-1

NCDENR

JAMES B. HUNT JR.
GOVERNOR

WAYNE MCDEVITT
SECRETARY

DR. PHILIP K. MCKELLY
DIRECTOR

NORTH CAROLINA DEPARTMENT OF
ENVIRONMENT AND NATURAL RESOURCES

DIVISION OF PARKS AND RECREATION

September 29, 1999

RECEIVED

Mr. Francis P. Kulka
Delta Airport Consultants, Inc.
9101 Southern Pine Boulevard, Suite 140
Charlotte, NC 28273

SUBJECT: Rare Species, High Quality Natural Communities, and Significant Natural Heritage Areas at The Proposed Michael J. Smith Airport Runway Extension Project, Beaufort, Carteret County, North Carolina.

Dear Mr. Kulka:

The NC Natural Heritage Program (NCNHP) does not have records of high quality natural communities and Significant Natural Heritage Areas within a 1.0 mile radius of the proposed runway extension project at the Michael J. Smith Airport, Beaufort, Carteret County, North Carolina. However, there are three rare species within a 1.0 radius of the site. Table 1 (attached) gives the particulars of my site reviews.

Enclosed are lists of rare species known to exist in Carteret County. If habitat for any of these species exist at the site, they may be present there. Consultant acquired knowledge of the existing habitat should determine if a survey is necessary.

Please do not hesitate to contact me at the address below or call me at (919) 715-8703 if you have any questions or need further information.

Sincerely,

Susan Reece Giles
Information Specialist
Natural Heritage Program

Enclosure

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Table 1: Element Occurrences Near the Proposed Runway Extension Project of the Michael J. Smith Airport in Carteret County, NC.

EO	Common Name	Scientific Name/ Comments	NC Status	US Status
Animal	Eastern wood rat	*Neotoma floridana floridana*; historic record; 344442N, 763930W	T	-
Animal	Yellow rail (bird)	*Coturnicops noveboracensis*; 344345N, 763935W	SR	-
Animal	Eastern painted bunting	*Passerina ciris ciris;* 344213N, 763825W	SR	FSC

Carteret-Current

GLOBAL SCIENTIFIC NAME	COMMON NAME	STATE STATUS	FED. STATUS	STATE RANK	GLOBAL RANK
Vertebrate Animal					
Aimophila aestivalis	Bachman's Sparrow	SC	FSC	S3B,S2N	G3
Alligator mississippiensis	American Alligator	T	T(S/A)	S3	G5
Ammodramus henslowii	Henslow's Sparrow	SR	FSC	S2B,S1N	G4
Anhinga anhinga	Anhinga	SR	-	S2B,SZN	G5
Botaurus lentiginosus	American Bittern	SR	-	S1B,S3N	G4
Caretta caretta	Loggerhead	T	LT	S2B,S2N	G3
Charadrius melodus	Piping Plover	T	LT	S2B,S2N	G3
Chelonia mydas	Green Turtle	T	LT	S1B,SZN	G3
Circus cyaneus	Northern Harrier	SR	-	S1B,S4N	G5
Coturnicops noveboracensis	Yellow Rail	SR	-	S2N	G4
Crotalus adamanteus	Eastern Diamondback Rattlesnake	SR (PE)	-	S1	G4
Egretta caerulea	Little Blue Heron	SC	-	S3B,S3N	G5
Egretta thula	Snowy Egret	SC	-	S3B,S3N	G5
Egretta tricolor	Tricolored Heron	SC	-	S3B,S3N	G5
Falco peregrinus	Peregrine Falcon	E	LE	S1B,S2N	G4
Himantopus mexicanus	Black-necked Stilt	SR	-	S2B	G5
Lanius ludovicianus ludovicianus	Loggerhead Shrike	SC	-	S3B,S3N	G5T5
Laterallus jamaicensis	Black Rail	SR	FSC	S3B,S2N	G4
Malaclemys terrapin centrata	Carolina Diamondback Terrapin	SC	-	S3	G4T4
Nerodia sipedon williamengelsi	Carolina Salt Marsh Snake	SC	-	S3	G5T3
Ophisaurus mimicus	Mimic Glass Lizard	SC (PT)	FSC	S2	G3
Passerina ciris ciris	Eastern Painted Bunting	SR	FSC	S3B,SZN	G5T3T4
Pelecanus occidentalis	Brown Pelican	SC (PD)	-	S3B,S4N	G4
Picoides borealis	Red-cockaded Woodpecker	E	LE	S2	G3
Plegadis falcinellus	Glossy Ibis	SC	-	S2B,S1N	G5
Rana capito capito	Carolina Gopher Frog	SC (PT)	FSC	S2	G4T3
Rynchops niger	Black Skimmer	SC	-	S3B,S3N	G5
Sistrurus miliarius	Pigmy Rattlesnake	SR (PSC)	-	S3	G5
Sterna nilotica	Gull-billed Tern	T	-	S3B,SZN	G5
Trichechus manatus	Manatee	E	LE	S1N	G2?
Invertebrate Animal					
Amblyscirtes reversa	Reversed Roadside-skipper	SR	-	S3	G4
Atrytone arogos arogos	Arogos Skipper	SR	FSC	S1	G3G4T1T2
Calephelis virginiensis	Little Metalmark	SR	-	S3	G4
Euphyes berryi	Berry's Skipper	SR	-	S1?	G3G4
Euphyes bimacula	Two-spotted Skipper	SR	-	S1S2	G4
Meropleon cinnamicolor	an owlet moth	SR	-	S2S3	GU
Papilio cresphontes	Giant Swallowtail	SR	-	S2	G5
Vascular Plant					
Agalinis aphylla	Scale-leaf Gerardia	SR	-	S3	G3G4
Agalinis virgata	Branched Gerardia	SR	-	S2	G3G4Q
Amaranthus pumilus	Seabeach Amaranth	T	LT	S2	G2
Asclepias pedicellata	Savanna Milkweed	C	-	S2	G3?
Cladium mariscoides	Twig-rush	SR	-	S2	G5
Dionaea muscipula	Venus Flytrap	C-SC	FSC	S3	G3
Eleocharis cellulosa	Gulfcoast Spikerush	SR	-	S1	G4G5
Eleocharis robbinsii	Robbins's Spikerush	C	-	S2	G4G5
Eleocharis rostellata	Beaked Spikerush	SR	-	S2	G5
Helianthemum corymbosum	Pinebarren Sunrose	SR	-	S1	G4G5
Ipomoea imperati	Beach Morning-glory	SR	-	S1	G5
Lachnocaulon beyrichianum	Southern Bogbutton	SR	-	S2S3	G2G3
Litsea aestivalis	Pondspice	C	FSC	S2	G3
Ludwigia alata	Winged Seedbox	SR	-	S2	G3G4
Ludwigia lanceolata	Lanceleaf Seedbox	C	-	S1	G3
Ludwigia linifolia	Flaxleaf Seedbox	SR	-	S2	G4
Lysimachia asperulifolia	Rough-leaf Loosestrife	E	LE	S3	G3
Malaxis spicata	Florida Adder's Mouth	SR	-	S1	G4?
Myriophyllum laxum	Loose Watermilfoil	T	FSC	S1	G3
Panicum tenerum	Southeastern Panic Grass	SR	-	S3	G4
Peltandra sagittifolia	Spoonflower	SR	-	S2S3	G3
Pinguicula pumila	Small Butterwort	SR	-	S2	G4
Platanthera integra	Yellow Fringeless Orchid	T	-	S1	G3G4
Polygala hookeri	Hooker's Milkwort	C	-	S2	G3

GLOBAL SCIENTIFIC NAME	COMMON NAME	STATE STATUS	FED. STATUS	STATE RANK	GLOBAL RANK
Special Animal Habitat					
Gull*Tern*Skimmer Colony	Colonial Waterbirds Nesting Site	-	-	-	-
Shorebird Foraging Area	-	-	-	-	-
Wading Bird Rookery	-	-	-	-	-
Carteret-Historic					
Vertebrate Animal					
Eretmochelys imbricata	Hawksbill	E	LE	SZN	G3
Evorthodus lyricus	Lyre Goby	SR	-	S2	G5
Lampropeltis getula sticticeps	Outer Banks Kingsnake	SC	-	S2	G5T2Q
Lepidochelys kempii	Atlantic Ridley	E	LE	SAB,SZN	G1
Neotoma floridana floridana	Eastern Woodrat (Coastal Plain Subspecies)	T	-	S1	G5T5
Sterna dougallii	Roseate Tern	E	LE	SAB,SZN	G4
Invertebrate Animal					
Spartiniphaga carterae	Carter's Noctuid Moth	SR	FSC	S2S3	G2G3
Vascular Plant					
Ceratophyllum muricatum ssp australe	Southern Hornwort	SR	-	S1	G5T?
Cyperus tetragonus	Four-angled Flatsedge	SR	-	S1	G4?
Erythrina herbacea	Coralbean	SR	-	S1	G5
Helianthemum georgianum	Georgia Sunrose	C	-	S1	G4
Hibiscus aculeatus	Comfortroot	C	-	S1	G4G5
Polygonum hirsutum	Hairy Smartweed	SR	-	S1	G4G5
Sabal palmetto	Cabbage Palm	SR	-	S1	G5
Solidago leavenworthii	Leavenworth's Goldenrod	SR	-	S1	G3G4
Xyris flabelliformis	Savanna Yellow-eyed-grass	C	-	S1	G4
Nonvascular Plant					
Campylopus carolinae	Savanna Campylopus	C	FSC	S1	G1
Lejeunea bermudiana	a liverwort	SR	-	SH	G3G4
Lejeunea dimorphophylla	a liverwort	C	-	S1	G2G3
Plagiochila miradorensis var miradorensis	a liverwort	SR	-	S1	G4T4
Sphagnum fitzgeraldii	Fitzgerald's Peatmoss	SR	-	S2S3	G2G3
Special Animal Habitat					
Marsh Bird Nesting Area	-	-	-	-	-
Carteret-Obscure					
Vertebrate Animal					
Dermochelys coriacea	Leatherback	E	LE	SAB,SZN	G3
Eleotris pisonis	Spinycheek Sleeper	SR	-	S2	G5
Felis concolor couguar	Eastern Cougar	E	LE	SH	G5TH
Heterodon simus	Southern Hognose Snake	SR (PSC)	FSC	S3	G4
Invertebrate Animal					
Atrytonopsis loammi	Loammi Skipper	SR	-	S1?	G2G4Q
Doryodes sp 1	a new owlet moth	SR	-	S3?	G3G4
Dysgonia similis	an owlet moth	SR	-	S2S3	GU
Fixsenia favonius ontario	Northern Hairstreak	SR	-	S3?	G4T4
Hemipachnobia subporphyrea	Venus Flytrap Cutworm Moth	SR	FSC	S1?	G1?
Phragmatiphila interrogans	an owlet moth	SR	-	S2?	GU
Satyrium kingi	King's Hairstreak	SR	-	S2S3	G3G4
Zale declarans	an owlet moth	SR	-	S2S3	G5
Vascular Plant					
Schoenoplectus acutus	Hardstem Bulrush	SR	-	SH	G5

GLOBAL SCIENTIFIC NAME	COMMON NAME	STATE STATUS	FED. STATUS	STATE RANK	GLOBAL RANK
Polygonum glaucum	Seabeach Knotweed	C	-	S1	G3
Ponthieva racemosa	Shadow-witch	SR	-	S2	G4G5
Rhexia cubensis	West Indies Meadow-beauty	SR	-	S1	G4G5
Rhynchospora breviseta	Short-bristled Beaksedge	C	-	S2	G3G4
Rhynchospora globularis var pinetorum	Small's Beaksedge	SR	-	S1	G5T3?
Rhynchospora harperi	Harper's Beaksedge	C	-	S1	G4?
Rhynchospora odorata	Fragrant Beaksedge	SR	-	S1	G4
Rhynchospora oligantha	Feather-bristle Beaksedge	C	-	S2S3	G4
Rhynchospora pleiantha	Coastal Beaksedge	C	-	S1	G3
Rhynchospora scirpoides	Long-beak Baldsedge	SR	-	S2	G4
Sageretia minutiflora	Small-flowered Buckthorn	C	-	S1	G4
Sagittaria graminea var chapmanii	Chapman's Arrowhead	C	-	S1	G5T3?
Scleria baldwinii	Baldwin's Nutrush	C	-	S1	G4
Scleria georgiana	Georgia Nutrush	SR	-	S2	G4
Scleria verticillata	Savanna Nutrush	C	-	S1	G5
Solidago gracillima	Graceful Goldenrod	SR	-	S1S2	G4?
Solidago pulchra	Carolina Goldenrod	E	FSC	S3	G3
Solidago verna	Spring-flowering Goldenrod	T	FSC	S3	G3
Spiranthes laciniata	Lace-lip Ladies'-tresses	C	-	S1	G4G5
Spiranthes longilabris	Giant Spiral Orchid	C	-	S1	G3
Tofieldia glabra	Carolina Asphodel	C	FSC	S3	G3
Trichostema sp 1	Dune Bluecurls	C	FSC	S2	G2
Utricularia olivacea	Dwarf Bladderwort	T	-	S2	G4
Xyris brevifolia	Shortleaf Yellow-eyed-grass	SR	-	S2	G4G5
Xyris stricta	a yellow-eyed grass	C	-	S1	G3G4
Yucca gloriosa	Moundlily Yucca	SR	-	S2?	G4?
Nonvascular Plant					
Teloschistes flavicans	Sunrise Lichen	SR	-	S1	G3G4
Natural Community					
Basic Mesic Forest (Coastal Plain Subtype)	-	-	-	S1?	G5T3
Brackish Marsh	-	-	-	S5	G5
Coastal Fringe Evergreen Forest	-	-	-	S1	G3?
Coastal Fringe Sandhill	-	-	-	S1	G3?
Coastal Plain Semipermanent Impoundment	-	-	-	S4	G5
Coastal Plain Small Stream Swamp (Blackwater Subtype)	-	-	-	S5	G5
Dune Grass	-	-	-	S3	G3G4
Estuarine Fringe Loblolly Pine Forest	-	-	-	S3?	G3?
High Pocosin	-	-	-	S4	G4
Interdune Pond	-	-	-	S1	G2?
Low Pocosin	-	-	-	S3	G3
Maritime Dry Grassland	-	-	-	S2	G3
Maritime Evergreen Forest	-	-	-	S1	G2G3
Maritime Shrub	-	-	-	S3	G4
Maritime Shrub Swamp	-	-	-	S1	G1
Maritime Swamp Forest	-	-	-	S1	G1
Maritime Wet Grassland	-	-	-	S2?	G3?
Mesic Mixed Hardwood Forest (Coastal Plain Subtype)	-	-	-	S4	G5T5
Mesic Pine Flatwoods	-	-	-	S3	G5
Nonriverine Swamp Forest	-	-	-	S3	G2G3
Nonriverine Wet Hardwood Forest	-	-	-	S1	G1
Pine Savanna	-	-	-	S2	G3
Pond Pine Woodland	-	-	-	S4	G4G5
Salt Flat	-	-	-	S4	G5
Salt Marsh	-	-	-	S5	G5
Salt Shrub	-	-	-	S4	G5
Small Depression Pocosin	-	-	-	S1?	G2?
Small Depression Pond	-	-	-	S2	G3
Tidal Cypress--Gum Swamp	-	-	-	S3	G4
Upper Beach	-	-	-	S3	G4
Wet Pine Flatwoods	-	-	-	S3	G3G4
Xeric Sandhill Scrub	-	-	-	S4	G5