

**PALM BEACH COUNTY
BOARD OF COUNTY COMMISSIONERS
AGENDA ITEM SUMMARY**

Meeting Date: 11/17/09 ☒ Consent ☐ Regular
 ☐ Ordinance ☐ Public Hearing
Department
Submitted By: Information Systems Services
Submitted For: Countywide GIS

I. EXECUTIVE BRIEF

Motion and Title: Staff recommends motion to:

A) approve Amendment No. 2 to Contract R2006-2516 with Surdex Corporation to extend the term of the contract to November 21, 2010; and

B) approve Amendment No. 2 to Contract R2006-2517 with BAE Systems NSS Inc., to extend the term of the contract to November 21, 2010; and

C) approve Amendment No. 2 to Contract R2006-2518 with Woolpert, Inc. to extend the term of the contract to November 21, 2010; and

D) receive and file BAE Systems Task Order No. 3.

Summary: Three firms were selected using the Consultant Competitive Negotiations Act (CCNA) process, contracted on November 21, 2006 to perform digital ortho photography and planimetric mapping for the County (R2006-2516, R2006-2517, and R2006-2518). These Amendments exercise the second of three (3) one-year renewal options set forth in the original contracts. No additional costs are associated with these amendments. BAE Systems Task Order No. 3, which was under \$100,000 and previously executed is submitted for receive and file purposes.

Background and Justification: In November, 2006, contracts were established with Surdex Corporation, BAE Systems NSS Inc., and Woolpert, Inc. to provide mapping services. Planimetric mapping entails delineating a list of features, such as drainage, building outlines and edge of pavements, from aerial photos to within +/- 0.5 foot accuracy. Digital ortho photography is aerial photos rectified to match the earth's surface location. All Task Orders in excess of \$100,000 must be approved by the Board. The first one-year renewal option was approved by the Board of County Commissioners on October 21, 2008.

Attachments: Amendment No. 2 for Surdex Corporation (2) originals
 Amendment No. 2 for BAE Systems NSS Inc. (2) originals
 Amendment No. 2 for Woolpert, Inc. (2) originals
 Receive and File Task Order No. 3 for BAE Systems, Inc. (1) original

Recommended By: Steve Bordelon 10/28/09
 Department Director Date

Approved By: Joe Baker 11/9/09
 County Administrator Date

II. FISCAL IMPACT ANALYSIS

A. Five Year Summary of Fiscal Impact:

Fiscal Years	2009	2010	2011	2012	2013
Capital Expenditures	\$ -0-	-0-	-0-	-0-	-0-
Operating Costs	-0-	-0-	-0-	-0-	-0-
External Revenues	-0-	-0-	-0-	-0-	-0-
Program Income (County)	-0-	-0-	-0-	-0-	-0-
In-Kind Match (County)\$	-0-				
NET FISCAL IMPACT	\$ *	-0-	-0-	-0-	-0-
#ADDITIONAL FTE POSITIONS (Cumulative)	-0-	-0-	-0-	-0-	-0-

Is Item Included In Current Budget? Yes _____ No _____
Budget Account No.: Fund _____ Agency _____ Org. M010 Object _____
Reporting Category _____

B. Recommended Sources of Funds/Historical Summary:

Capital Outlay Fund - GIS Project

Woolpert Task Orders

Task Order #1 \$235,000 (\$117,500 from Property Appraiser)

BAE Task Orders

Task Order #1 \$ 94,425 (from Env. Res. Mgmt. Coastal Project)

Task Order #2 \$165,000 (\$82,500 from Property Appraiser)

Task Order #3 \$ 99,359 (from Env. Res. Mgmt. Coasts and Inlets)

Total \$358,784

Surdex Task Orders

Task Order #1 \$220,000 (\$110,000 from Property Appraiser)

Task Order #2 \$ 95,600 (from Env. Res. Mgmt. Coastal Monitoring Project)

Total \$315,600

C. Departmental Fiscal Review

III. REVIEW COMMENTS

A. OFMB Fiscal and/or Contract Administration Comments:

Fiscal impact is indeterminable at this time, work will be performed on a task order basis.
Dr. J. J. J. 11/3/09
OFMB *10/29/09* Contract Administration

B. Legal Sufficiency:

Paul F. J. 10/29/09
Assistant County Attorney

These Amendments comply with our review requirements.

C. Other Department Review:

Department Director

This summary is not to be used as a basis for payment.

AMENDMENT NO. 2 TO CONTRACT FOR
CONSULTING/PROFESSIONAL SERVICES

This AMENDMENT No. 2, dated October 20, 2009 to the contract of November 21, 2006, between Palm Beach County, a political Subdivision of the State of Florida, by and through, its Board of Commissioners, hereinafter referred to as COUNTY, and SURDEX CORPORATION, 520 Spirit of St. Louis Blvd., St. Louis, MO 63006, a corporation authorized to do business in the State of Florida, hereinafter referred to as the CONSULTANT, whose Federal I.D. is 43-0690641.

WHEREAS, the parties have entered into a Contract (R2006-2516) of November 21, 2006, under which the CONSULTANT furnishes professional/consultation services in the area of Planimetric and Digital Ortho Photography mapping goods and services on behalf of the COUNTY; and

WHEREAS, the parties mutually desire to extend the Contract until November 21, 2010.

NOW THEREFORE, in consideration of the mutual promises contained herein the parties agree as follows:

1. In Article 2, SCHEDULE, the expiration date of the contract amended on October 21, 2008 to November 21, 2009 is deleted, and November 21, 2010 is substituted.

Except as expressly modified above all the terms and conditions of the contract of November 21, 2006 are confirmed and remain in full force and effect.

IN WITNESS WHEREOF, the Board of County Commissioners of Palm Beach County, Florida has made and executed this Amendment on behalf of the COUNTY and CONSULTANT has hereunto set its hand.

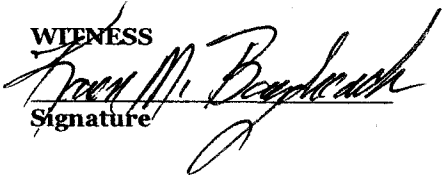
ATTEST
SHARON R. BOCK
CLERK & COMPTROLLER

PALM BEACH COUNTY
BOARD OF COUNTY COMMISSIONERS

By: _____
Deputy Clerk

By: _____

WITNESS


Signature

Karen M. Bazdresch
Name (type or print)

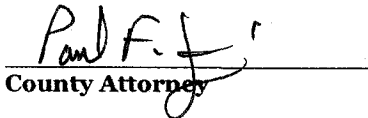
CONSULTANT

SURDEX CORPORATION


Signature

Name (type or print)
Ronald C. Hoffmann
Title: President

APPROVED AS TO FORM
AND LEGAL SUFFICIENCY


County Attorney

APPROVED AS TO TERMS
AND CONDITIONS


Steve Bordelon, Director of ISS

ATTACHMENT # 1

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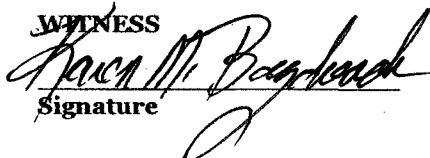
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ATTEST
SHARON R. BOCK
CLERK & COMPTROLLER

PALM BEACH COUNTY
BOARD OF COUNTY COMMISSIONERS

By: _____
Deputy Clerk

By: _____

WITNESS

Signature

Karen M. Bazdresch
Name (type or print)

CONSULTANT

SURDEX CORPORATION


Signature

Name (type or print)
Ronald C. Hoffmann
Title: President

APPROVED AS TO FORM
AND LEGAL SUFFICIENCY


County Attorney

APPROVED AS TO TERMS
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Steve Bordelon, Director of ISS

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This **AMENDMENT No. 2**, dated _____, 2009 to the contract of November 21, 2006, between Palm Beach County, a political Subdivision of the State of Florida, by and through, its Board of Commissioners, hereinafter referred to as COUNTY, and BAE SYSTEMS/NSS INC., a corporation authorized to do business in the State of Florida, hereinafter referred to as the CONSULTANT, whose Federal I.D. is 33-0536290.

WHEREAS, the parties have entered into a Contract (R2006-2517) of November 21, 2006, under which the CONSULTANT furnishes professional/consultation services in the area of Planimetric and Digital Ortho Photography mapping goods and services on behalf of the COUNTY; and

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ATTEST
SHARON R. BOCK
CLERK & COMPTROLLER

PALM BEACH COUNTY
BOARD OF COUNTY COMMISSIONERS


By: _____
Deputy Clerk

By: _____

WITNESS

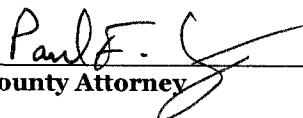
Signature

Dan Jewell
Name (type or print)

CONSULTANT
BAE SYSTEMS/NSS INC.

Signature

Didi Rufer
Name (type or print)
Title: Manager Contracts

**APPROVED AS TO FORM
AND LEGAL SUFFICIENCY**


County Attorney

**APPROVED AS TO TERMS
AND CONDITIONS**


Steve Bordelon, Director of ISS

ATTACHMENT #2

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ATTEST
SHARON R. BOCK
CLERK & COMPTROLLER

PALM BEACH COUNTY
BOARD OF COUNTY COMMISSIONERS

By: _____
Deputy Clerk

By: _____
Jeff Koons, Chairman

WITNESS

Signature

Dan Jewell
Name (type or print)

CONSULTANT

BAE SYSTEMS/NSS INC.

Signature

Didi Rufer
Name (type or print)

Title: Manager Contracts

**APPROVED AS TO FORM
AND LEGAL SUFFICIENCY**

County Attorney

**APPROVED AS TO TERMS
AND CONDITIONS**

Steve Bordelon, Director of ISS

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WHEREAS, the parties have entered into a Contract (R2006-2518) of November 21, 2006, under which the CONSULTANT furnishes professional/consultation services in the area of Planimetric and Digital Ortho Photography mapping goods and services on behalf of the COUNTY; and

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ATTEST
SHARON R. BOCK
CLERK & COMPTROLLER

PALM BEACH COUNTY
BOARD OF COUNTY COMMISSIONERS

By: _____
Deputy Clerk

By: _____
Jeff Koons, Chairman

WITNESS

CONSULTANT

Signature

WOOLPERT, INC.

Jim Speelman

Name (type or print)

Signature

Richard R. Hudson

Name (type or print)

Title: Senior Associate

APPROVED AS TO FORM
AND LEGAL SUFFICIENCY

APPROVED AS TO TERMS
AND CONDITIONS

Paul F. [Signature]
County Attorney

Steve Bordelon [Signature]
Steve Bordelon, Director of ISS

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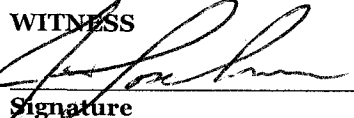
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ATTEST
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CLERK & COMPTROLLER

PALM BEACH COUNTY
BOARD OF COUNTY COMMISSIONERS

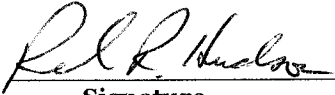
By: _____
Deputy Clerk

By: _____
Jeff Koons, Chairman

WITNESS

Signature

Jim Speelman
Name (type or print)

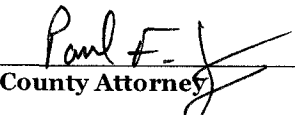
CONSULTANT

WOOLPERT, INC.

Signature

Richard R. Hudson
Name (type or print)

Title: Senior Associate

APPROVED AS TO FORM
AND LEGAL SUFFICIENCY


County Attorney

APPROVED AS TO TERMS
AND CONDITIONS


Steve Bordelon, Director of ISS

TASK ORDER

TASK ORDER # 3

CONSULTANT **BAE Systems**

ACCOUNT # **3901-491-M010-6508**

CONTRACT **R2006-2517**

COUNTY PROJECT MANAGER **Kelly Ratchinsky** PHONE **681-3958**

PROJECT NAME **2009 Environmental Aerial Photography**

LOCATION **Palm Beach County - Coasts and Inlets**

TASK DESCRIPTION

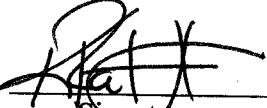
Color Aerial Photography at 1"=600' scale per attached specifications.

DELIVERABLES +/- **See Attached** DUE DATE **October 30, 2009**

TASK ORDER TYPE **Lump Sum** RETAINAGE **10%**

TOTAL AMOUNT **Not to exceed \$99,359**

PROJECT MANAGER



Signature

DATE

5-13-09

CONSULTANT


Printed Name/Title:


Didi Rufer, Manager Contracts

DATE

5-13-09

PALM BEACH COUNTY
BOARD OF COUNTY COMMISSIONERS


Steve Bordelon, Director of ISS

APPROVED AS TO FORM
AND LEGAL SUFFICIENCY


COUNTY ATTORNEY

**Palm Beach County
Florida**

Environmental Aerial Photography Acquisition

For

Palm Beach County Coasts & Inlets

Scope of Work

April 29, 2009

Provided by BAE SYSTEMS

BAE SYSTEMS

BAE SYSTEMS*Palm Beach County (Coastal Ortho Project) - Scope of Work*

April 14, 2009

Mr. Kelly Ratchinsky
Countywide GIS Coordinator
Palm Beach County ISS
2300 N. Jog Road, 4th Floor
West Palm Beach, FL 33411

Reference: Environmental Aerial Photography Acquisition For Palm Beach County Coasts & Inlets

Dear Mr. Ratchinsky,

BAE SYSTEMS is pleased to submit this proposal for Color Digital Orthophotography and related services for the entirety of the Palm Beach County Coastline located in Palm Beach County, Florida, from the Martin County line to the Broward County line. The coastal and nearshore coverage includes all inlets as follows:

- Jupiter Inlet – West to Alternate A1A
- Lake Worth Inlet – West to the Port of Palm Beach
- South Lake Worth Inlet – West to the Boynton boat ramp
- Boca Raton Inlet – West to Palmetto Park Road

Coastal coverages, at a minimum, will match the imagery provided by prior contractors for 2007 and 2008 and will include no less than 2,000' from shore and land mass sufficient for aerial triangulation and orthorectification of the photographs. Relative to the flight conditions described in Paragraph 3 of the County's Technical Specifications, approximately 1/3 of the photo frame will be land mass and 2/3 ocean.

All of the products and services described below will be completed under the direct supervision of certified photogrammetrists, licensed surveyors and other geospatial professionals and will meet or exceed the standards and specifications for Palm Beach County.

SCOPE OF SERVICES

Project Management

Ms. Debra Taylor will be your overall project manager for this project. She will be BAE SYSTEMS primary point of contact and will have overall management responsibility. Ms. Taylor will produce and distribute all status reports and should be used as the central point for communication. Ms. Taylor will prepare Palm Beach County Contract Management a written report to track the status of production and to note milestones and/or issues that require resolution. BAE SYSTEMS will also prepare and submit monthly invoices.

Aerial Photography

BAE SYSTEMS will acquire new color aerial photography for this project only on days when conditions are considered optimal for collection of aerial photography. Other factors during aerial photography acquisition include:

- Sun angle is between 15 degrees and 35 degrees from the horizon
- Flown on a rising tide, at least 2 hours after low tide and no later than 1 hour after high tide to ensure clear water inside the inlets

BAE SYSTEMS*Palm Beach County (Coastal Ortho Project) - Scope of Work*

- Calm seas and clear water are essential for acceptable images
- Acquisition area is free of haze, smoke and/or fog
- Conditions are considered cloud-free
- Tilt shall not exceed 5 degrees for any one photograph or 2 degrees for any 10 or more photographs in a line or one degree for the entire project.
- Crab shall not exceed 10 degrees as measured from the flight line, as indicated, by two or more consecutive photographs.

This new aerial photography will be flown at 3600' AMT. The negative scale of the aerial photography is 1" = 600', with 80% forward overlap and 30% sidelap. There will be a total of (10) flight lines with (551) exposures.

PBC shall approve all photography prior to orthorectification. We will provide within two (2) weeks from completion of aerial flights the digital raw scanned imagery to PBC for this purpose. We will furnish aerial film of a quality that is equal or superior to Kodak color 2444 negative film.

We understand that PBC requires that photography capture will start on the north end of the County. We will attempt to capture the entire coastline during each photo mission. Factors which may keep this from occurring would be acts of God, clouds below the aircraft, rain or high winds.

Logs will be maintained and provided to PBC for the following:

- A flight log representing aircraft flight time shall be maintained on an hourly basis. The time of takeoff, start of photographs, end of photographs, and landing shall be recorded to the nearest of 0.1 of an hour.
- A daily weather log shall be maintained for each flight window to substantiate any delays due to inclement weather. The weather log shall include date, location, weather report, and weather forecast from the U.S. Weather Bureau. This information may be supplemented by direct observation.
- A tide log shall include the date, time, the location of the nearest NOAA tide station(s) being reported, and the tide elevation at the beginning, middle, and end of data collection as calculated for photo collection location (through interpolation between adjacent tide stations). All reported tide elevations shall be referenced to NAVD 1988.

Ground Control Surveys & Targeting

We will incorporate the most recent aerotriangulation block, to be provided by PBC, in place of running our own control network. We understand that PBC will approve this method toward meeting the NMAS 1" = 100' standards. No other control should be necessary to attain the specified accuracy requirements. Offshore control is not required.

Coordinate Reference Frame

Survey Datum – NAD 83/90 (feet) Horizontal; NAVD 88 - Vertical

Scanning

BAE SYSTEMS fully recognizes the technical performance required in the conversion of analog aerial film to a digital form during scanning. Since all subsequent processing steps build upon the scanned imagery base, we maintain close control over the processing and quality of this digital imagery. We will scan directly from the film rolls into positive image files at a resolution of 14 microns or better.

BAE SYSTEMS*Palm Beach County (Coastal Ortho Project) - Scope of Work*

Scanning will be performed at a 12-bit resolution in order to enhance feature detail, with special emphasis on the subsurface areas.

Analytical Triangulation

BAE SYSTEMS will use the most recent triangulation data to be provided by Palm Beach County. This will be used to obtain as many tie points as possible to control the new photography to a block that already exceeds NMAS and thereby eliminate the need for new ground control.

BAE SYSTEMS understands that PBC expects the analytical triangulation solution will support the required accuracy for this project (1" = 100' NMAS). We will perform Softcopy analytical triangulation to extend and densify the ground control survey points, and establish orientation parameters for each scanned image. Softcopy analytical triangulation is an entirely digital process using scanned images of the film negatives. Our softcopy workstations support sub-pixel accuracy and will be utilized for both compilation and orientation measurement. The results will be checked to make certain that they conform to National Map Accuracy Standards with respect to scale and RMSE.

DEM

PBC will provide the surface model necessary for orthorectification. We will be responsible for verifying the completeness and supplementing the collection, where required.

Digital Orthophotography

Digital orthorectification will include a spatial and radiometric transformation of the scanned image from line / sample space into the specified ground coordinate system. Inputs into the orthorectification process are the scanned image, the interior and exterior orientation parameters for each image, corrections for lens distortion, earth curvature & atmospheric refraction, camera calibration information, and the Digital Elevation Model (DEM). In the process, each pixel in the scanned image is geometrically transformed from a line/sample value to a geographic location. The interior and exterior orientation parameters are used to project each pixel into the ground coordinate system, while the DEM is used to correct for relief displacement. In order to better reveal subsurface features, a gamma stretch will be used. Color and tone will be defined during the Pilot phase of this project. The final output will be at both a 0.5' GPR and 1' GPR.

BAE SYSTEMS will provide the raw digital orthorectified imagery for each frame of photography. This will give PBC the opportunity to scrutinize image detail after it has been orthorectified, but before the images were mosaicked, cleaned up, color balanced, or feathered along cut lines. These will be at .5' GPR and delivered with .tifw and .tif files.

Every frame of the 80% forward overlap photography will be utilized for this project to ensure that most of the final orthophotography imagery will be as close as possible to nadir in the direction of flight. This will result in less building lean, less subsurface displacement from water refraction, and less surface reflection from sunlight.

Using this approach, BAE SYSTEMS highly skilled and experienced staff will produce and deliver color digital orthophotos at a 0.5' pixel resolution. Once the images are ortho-rectified, they are checked for geometric accuracy, image quality, and tone balancing.

BAE SYSTEMS*Palm Beach County (Coastal Ortho Project) - Scope of Work*

The final .5' pixel color digital orthophotography will be a seamless database of imagery delivered in section format to Palm Beach County. Achieving this goal requires that the tone of the imagery be matched for consistency, and that the individual overlapping orthophotos be mosaicked together. Imagery along adjacent tile edges will not be displaced by more than one pixel.

Quality Control

BAE SYSTEMS sought and achieved certification by the International Standards Organization (ISO) in 1998.

ISO standards are a series of internationally recognized Quality System requirements that encompass all areas of corporate organization. BAE SYSTEMS Quality Program is an extensive set of processes and tested procedures that ensure our clients receive the highest quality products and services. The following statements summarize our Program:

- BAE SYSTEMS is committed to providing products and services that will meet or exceed the expectations of our customers.
- BAE SYSTEMS will achieve the goals of our Quality Program through our total and continuous dedication to world-class quality in all stages and phases of our production cycle, from beginning to end.
- BAE SYSTEMS will implement our Quality Program via thorough training of our employees to ensure that they understand our external and internal customers, as well as project requirements and deadlines, and can apply the proper procedures needed to meet those requirements on time and without error, each and every time.
- Providing quality products and services is the responsibility of everyone at BAE SYSTEMS.

PBC will return comments to us within (15) days of receipt of imagery. We will respond to PBC's comments or concerns within (15) days, either making necessary corrections or providing clarification.

Delivery Items

- Original roll(s) of aerial film negatives (to be stored by BAE SYSTEMS)
- One copy of the Analytical Triangulation Report in digital and hardcopy format (will include the current camera calibration report)
- One copy of the Image Processing and Quality Control Report in digital and hardcopy format (will include the flight and film inspection report and statistical validation report)
- One copy of the flight report signed by the pilot of the aerial photographer. The flight report will contain the flight, tide, and weather logs.
- Raw digital orthorectified imagery provided on DVD's with .tfw and .tif files produced at .5' GPR before they were mosaicked, cleaned up, or color balanced. We understand that they will only be used for PBC's internal purposes.
- (92) digital orthorectified tiles provided on DVDs or on USB2 or firewire external hard drive with .tfw and .tif files produced at both .5' GPR and 1' GPR
- Digital imagery provided in MrSID format in 3 segments, and these 3 images will be created at 20x compression for the 1' GPR images
- Digital spot index map with all sheets numbered and referenced in .dwg and .shp format
- Digital photo mosaic index in MrSID format upon completion of the analytical triangulation
- Federally compliant metadata in electronic format for each deliverable in item 6 bullet point above

BAE SYSTEMS*Palm Beach County (Coastal Ortho Project) - Scope of Work*

- Updated DEM in uncompressed ArcInfo Generate if modified

Project Schedule

BAE SYSTEMS proposes to commence project mobilization upon Task Order approval. All deliverables will be sent to PBC ninety (90) days after completion of successful aerial photography. (Assuming May-August 2007). BAE SYSTEMS will submit a schedule for this project in Microsoft Project format (Gantt Chart) within (10) days after receipt of the Task Order.

The following is an approximate delivery schedule:

Contract Execution	May 2009
Aerial Photography, Scanning & Analytical Triangulation	May/June 2009
Digital Orthophotography & Project Completion	July/Aug. 2009

Total Project Costs

New Aerial Photography	\$ 26,932
Project Management	\$ 4,336
Scanning	\$ 7,014
Analytical Triangulation	\$ 21,850
Digital Orthophotography	<u>\$ 39,227</u>

TOTAL \$ 99,359

Payment Terms

We will utilize the payment terms that are already in place as per our existing contract with Palm Beach County.

Insurance Coverage

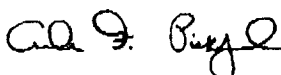
During the terms of any contract which might result from this proposal, BAE SYSTEMS will have in place the following types of insurance coverage: a) professional liability; b) statutory workman's compensation; c) valuable papers insurance; d) public liability protection; e) automobile insurance.

BAE SYSTEMS liability of any future claims relating to the services performed as part of this contract will be strictly limited to the total dollar value of the services specified within this proposal.

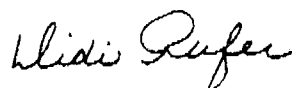
Thank you for the opportunity to submit this proposal. We look forward to working with you on this very important project. If you have any questions or comments concerning this proposal, please contact Andy Pickford at (856) 793-4316, or andrew.pickford@baesystems.com

Very Truly Yours,

BAE SYSTEMS



Andrew F. Pickford
Regional Manager



Didi Rufer
Manager Contracts II

2009 TECHNICAL SPECIFICATIONS

ENVIRONMENTAL AERIAL PHOTOGRAPHY ACQUISITION FOR PALM BEACH COUNTY COASTS & INLETS

1. PURPOSE

Palm Beach County (PBC) intends to issue a contract to provide digital orthophotography in the coastal areas for the purposes of monitoring coastal erosion, performance of restoration projects, accretion in inlet shoals, and mapping and quantifying exposed rock and/or reef in nearshore waters. In order to ensure that the photographs meet the needs for these purposes, these technical specifications include criteria for physical conditions during the time of the photography (sun angle, tide stage, sea surface conditions, water clarity, and those conditions outlined in Paragraph 3 below), photographic equipment, horizontal and vertical control and aerotriangulation, orthorectification, and deliverables. The minimum acceptable criteria are as follows:

2. LOCATION AND COVERAGE

The area of coverage includes the entirety of the Palm Beach County coastline located in Palm Beach County, Florida, from the Martin County line to the Broward County Line. The coastal and nearshore coverage includes all inlets as follows:

- **Jupiter Inlet.** West to Alternate A1A
- **Lake Worth Inlet.** West to the Port of Palm Beach
- **South Lake Worth Inlet.** West to the Boynton boat ramp
- **Boca Raton Inlet.** West to Palmetto Park Road

The orthophotography deliverable for this project involves 92 tiles that cover 4,200' x 3,000' each at a map scale of 1"=100' (Exhibit A).

Coastal coverages, at a minimum, must match the imagery provided by prior contractors for 2007 and 2008 and will include no less than 2,000' from shore and land mass sufficient for aerial triangulation and orthorectification of the photographs. Relative to the flight conditions described in Paragraph 3 below, approximately 1/3 of the photo frame should be land mass and 2/3 ocean.

3. FLIGHT CONDITIONS

PBC requires that aerials be flown on a rising tide, at least 2 hours after low tide and no later than 1 hour after high tide to ensure clear water inside the inlets. Water clarity and sea state are the most important factors in obtaining the necessary image quality for evaluating the reefs in the nearshore waters. Calm seas and clear water are essential for acceptable images. Cloud cover, fog, smoke and other factors must be considered to ensure acceptance, and the sun angle must be between 15 degrees and 35 degrees.

The flight window of opportunity shall begin on May 1. The goal is to complete the flights before the rainy season, as once the rains begin it becomes increasingly difficult to schedule flights. The preferred months for flights are May through August when the seas are likely to be the calmest. Prior to flight, the contractor will provide PBC with a chart showing the calendar dates of flight opportunities that are favorable to the sun angle and tide constraints of the project (See Exhibit B). PBC and the contractor will then jointly monitor various Federal, State, and Local internet web sites for favorable weather, tide, and water clarity conditions immediately preceding those dates of flight opportunity. **PBC will provide the final on site assessment of**

the sea conditions and, in consultation with the contractor who will be monitoring the sky conditions, will provide the final authorization for the flight 24 hours prior to the anticipated flight.

PBC requires that photography capture will start on the north end of the County. The contractor will attempt to capture the entire coastline during each photo mission. Factors which may keep this from occurring would be acts of God, clouds below the aircraft, rain or high winds.

Logs shall be maintained and provided to PBC for the following:

- A. A flight log representing aircraft flight time shall be maintained on an hourly basis. The time of takeoff, start of photographs, end of photographs, and landing shall be recorded to the nearest of 0.1 of an hour.
- B. A daily weather log shall be maintained for each flight window to substantiate any delays due to inclement weather. The weather log shall include date, location, weather report, and weather forecast from the U.S. Weather Bureau. This information may be supplemented by direct observation.
- C. A tide log shall include the date, time, the location of the nearest NOAA tide station(s) being reported, and the tide elevation at the beginning, middle, and end of data collection as calculated for photo collection location (through interpolation between adjacent tide stations). All reported tide elevations shall be referenced to NAVD 1988.

4. SCOPE OF WORK

The contractor shall furnish all necessary materials, labor, supervision, equipment, and transportation necessary to execute and complete all work required by these specifications.

The scope of work includes new aerial photography and digital orthophotography. The contractor shall provide vertical color aerial photography, digital photo index maps, aerial triangulation, scanning, orthorectified digital images, and digital plot files. All requirements commonly included in comparable professional grade work are to be included in these specifications and all deliverables specified in Section 11 are required to complete the scope of work.

5. CONTROL & TARGETING

The contractor will incorporate the most recent aerotriangulation block, to be provided by PBC, in place of running its own control network. PBC will approve this method toward meeting the NMAS 1"=100' standards. The contractor will therefore repeat this process for this project.

Prior to the photography acquisition, the contractor may elect to repaint additional existing targets for additional statistical QC purposes.

No other control should be necessary to attain the specified accuracy requirements. Offshore control is not required.

6. AERIAL PHOTOGRAPHS

The images shall be furnished from new aerial photography flown specifically for this contract. Vertical aerial color photographs shall cover the areas specified in item 2 above. The aerial images shall be suitable for producing digital orthophotos at both 0.5-ft and 1.0-ft ground pixel resolution (GPR). The photography shall be flown at 1"= 600' (1:7200) nominal camera scale (NCS). **PBC shall approve all photography prior to**

orthorectification. The contractor will provide within two (2) weeks from completion of aerial flights the digital raw scanned imagery to PBC for this purpose.

A minimum of 80% forward overlap is required. The increase of forward overlap supports improved visibility through the water surface.

Tilt shall not exceed 5 degrees for any one photograph or 2 degrees for any 10 or more photographs in a line or one degree for the entire job. Crab shall not exceed 10 degrees as measured from the flight line, as indicated, by two or more consecutive photographs.

The contractor shall furnish aerial film of a quality that is equal or superior to Kodak color 2444 negative film. Only fresh, fine grain, dimensional, stable, and safety base aerial film shall be used. If digital photography is used in lieu of film, the same or better quality and resolution as the 2005 and 2007 aerial photographs must be provided.

The contractor shall scan the aerial photography at 14 microns (approximately 0.33-foot ground pixel resolution for the 1"=600' photography).

All images shall be clear and sharp in detail, fine-grained, uniform average density, average minimum contrast, free of clouds and cloud shadows, light streaks, smoke, static marks, fog, stains, or other blemishes which would render them unsuitable for their intended purpose. Light reflections from water areas shall be kept to the minimum when possible, consistent with wave action, use of filters, and time of photography and without extensive obscuration from ground shadow. If requested and if film is used, the negatives shall be uncut and furnished on spools and in suitable rigid containers or canisters. The outside of the containers shall be labeled with project name, date of photographic exposure numbers on the roll, and survey number.

Each exposure shall be numbered just within the exposed area, in consecutive order throughout the entire area, starting with exposure number one on roll number one and continuing the numbering in consecutive order through all rolls. The approximate time and scale of the photographs shall appear on the first and last exposure of each flight line, the month, day, and year shall appear on each exposure, just within the exposed area. The exposures shall show the date, scale of photography, project identification designator, survey number, roll number (R-1) and flight line number followed by the photo number as reading from left to right on each photograph.

A photo spot index map for the entire project will be provided to PBC. Each image position will be labeled with the image/sheet number and be provided in electronic format as ESRI shape files. In addition, the contractor will provide a digital photo mosaic index in MrSID format. This shall be delivered to PBC immediately upon completion of the aerotriangulation.

7. COORDINATE REFERENCE FRAME

Survey: Datum- NAD 83/90 (feet) - Horizontal
NAVD 88 - Vertical

8. AERIAL TRIANGULATION

The contractor will use the most recent aerotriangulation data to be provided by Palm Beach County. The purpose of this is to obtain as many tie points as possible to control the new photography to a block that already exceeds NMAS and thereby eliminate the need for new ground control.

PBC expects the aerial triangulation solution will support the required accuracy for this project (1"=100' NMAS). The contractor shall deliver a digital and bound copy of its aerial triangulation report to PBC.

9. DIGITAL ORTHOPHOTOGRAPHIC IMAGES (TIF and TFW)

The contractor shall prepare and deliver digital orthorectified color image files in TIF/TFW format.

- 9.1 Scanners.** The scanning of the aerial film shall be at 14 microns. PBC expects the imagery to be re-sampled up to the final output resolution (6" ground pixel resolution). Down sampling from the original scans to a finer resolution for output is not acceptable. The final file output for the images shall be TIF and TFW file format. (Sample TFW with metadata shown in Exhibit C).

Scanning will be performed at 12-bit resolution in order to enhance feature detail, with special emphasis on the subsurface areas.

- 9.2 Surface Model.** PBC will provide the surface model necessary for orthorectification. The contractor will be responsible for verifying the completeness and supplementing the collection, where required.

- 9.3 Image Processing.** In order to better reveal subsurface features, a gamma stretch shall be used. Color and tone will be defined and submitted to PBC for approval and that definition will be approved by PBC and used by the contractor for production of the remaining project. The final output will be at both a 0.5-ft GPR and 1.0-ft GPR.

- 9.4 Raw Orthorectified Imagery.** The contractor will provide the raw digital orthorectified imagery for each frame of photography. This will give PBC the opportunity to scrutinize image detail after it has been orthorectified, but before the images were mosaiced, cleaned up, color balanced, or feathered along cut lines. These will be at 0.5-ft GPR and delivered on DVDs or USB2 or firewire external hard drive with .tfw, .tif files. **This raw imagery is provided with a strict understanding that they will only be used for PBC's internal purposes and will not be made available to the general public.**

- 9.5 Image Mosaicing.** When two or more digital orthophoto chips are mosaiced, the chip judged by visual inspection to have the best contrast should be used as the reference image. The brightness value of the other chips shall be adjusted to match that of the reference chip. The join lines between the overlapping chips shall be chosen so as to minimize tonal variations. Localized adjustments of the brightness values shall be performed to minimize tonal differences between join areas. Sheets will end match precisely with adjacent sheets with no cover, a seamless mosaic digital image shall be created of the overall basin.

Every frame of the 80% forward overlap photography will be utilized for this project to ensure that most of the final orthophoto imagery will be as close as possible to nadir in the direction of flight. This will result in less building lean, less subsurface displacement from water refraction, and less surface reflection from sunlight.

- 9.6 MrSID Imagery.** The contractor shall produce three (3) MrSID files at 20x compression that match the tile layouts for the 1.0-ft GPR images.

10. QUALITY CONTROL

The contractor shall make every effort to minimize errors or defects in the final imagery. PBC will return comments to the contractor within fifteen (15) days of receipt of imagery. The contractor shall respond to PBC's comments or concerns within fifteen (15) days, either making necessary corrections or providing clarification.

11. DELIVERABLES

On completion of the service, all data required shall be delivered or mailed to PBC at the address shown in the contract and shall be accompanied by a properly numbered, dated and signed letter or shipping form listing the materials being transmitted. All costs of the deliverables shall be borne by the contractor. Item to be delivered include, but are not limited to, the following:

1. Original roll(s) of aerial film negatives, if film is used (To be stored by the contractor.)
2. One copy of the Aerial Triangulation Report in digital and hardcopy format. (Includes the current aerial camera calibration report.)
3. One copy of the Image Processing and Quality Control Report in digital and hardcopy format. (Includes the Flight and Film Inspection Report and Statistical Validation Report.)
4. One copy of the flight report signed by the pilot or the aerial photographer. The flight report shall contain the flight, tide, and weather logs as outlined in Section 3.
5. Raw digital orthorectified imagery provided on DVDs with .tfw, .tif files produced at 0.5-ft GPR before they were mosaiced, cleaned up, or color balanced. These are provided with a strict understanding that they will only be used for PBC's internal purposes and will not be made available to the general public.
6. 92 digital orthorectified tiles provided on DVDs or on an USB2 or firewire external hard drive with .tfw, .tif files produced at both 0.5-ft GPR and 1.0-ft GPR.
7. Digital imagery provided in MrSID format in 3 segments, and these 3 images will be created at 20x compression for the 1.0-ft GPR images.
8. Digital spot index map with all sheets numbered and referenced in .dwg and .shp format.
9. Digital photo mosaic index in MrSID format upon completion of the aerotriangulation.
10. Federally compliant metadata in electronic format for each deliverable in Item 6 above.
11. Updated DEM in uncompressed ArcINFO GENERATE if modified.

12. SCHEDULE

All deliverables will be sent to PBC ninety (90) days after completion of successful aerial photography. The contractor shall submit a schedule for this project in Microsoft Project format (Gantt Chart) within ten (10) days of receipt of the Task Order.

BUDGET AVAILABILITY STATEMENT**REQUEST DATE:** 05/01/09**REQUESTED BY:** Janet Phipps**PHONE:** 233-2513**PROJECT TITLE:** Countywide Coastal Aerial Photography**LOCATION:****Project NO:****ORIGINAL CONTRACT AMOUNT:****BCC RESOLUTION#****REQUESTED AMOUNT:** \$99,359.00**DATE:****CSA/LOA CHANGE ORDER AMOUNT:****CSA/LOA CHANGE ORDER NUMBER:****CONTRACTOR/CONSULTANT NAME:** BAE Systems

PROVIDE A BRIEF STATEMENT OF THE SCOPE OF SERVICES TO BE PROVIDED BY THE CONSULTANT/CONTRACTOR: Provide digital orthophotography in the coastal areas as describe on the attached specifications.

BUDGET ACCOUNT NUMBER (IF KNOWN):

FUND	DEPART	UNIT	OBJ	PROG	PG PERIOD	AMOUNT
3652	381	M045	3120	E045	CIP	\$3,050.50
3652	381	M028	3120	E028	CIP	\$5,665.21
3652	381	M037	3120	E037	CIP	\$4,139.96
3652	381	M044	3120	E044	CIP	\$3,486.28
3652	381	M015	3120	E015	CIP	\$5,665.21
3900	381	M700	3120	E700	CIP	\$5,883.10
3652	381	M041	3120	E041	CIP	\$6,754.67
3652	381	M039	3120	E039	CIP	\$3,486.28
3652	381	M051	3120	E051	CIP	\$3,050.50
3652	381	M016	3120	E016	CIP	\$2,614.71
3652	381	M100	3120	S102	M100	\$55,562.60

☐ AD VALOREM☒ OTHER☐ FEDERAL**REVENUE:****ANTICIPATED DATE OF APPROVAL:****BAS APPROVED BY:** Fig Phipps **DATE:** 5/4/09**REQUIREMENT:** Invoice must be approved by ERM before submitting to ISS for payment.

\\ERMP2800\Data\fs\FinancialManagement\Fiscal\BAS\BAS09\9bas.Coastal Aerial_JP.doc



Information Systems Services

301 N. Olive Avenue, 8th Floor
West Palm Beach, FL 33401

(561) 355-2823

FAX: (561) 355-3482 (8th Floor)

FAX: (561) 355-4120 (4th Floor)

www.pbcgov.com



**Palm Beach County
Board of County
Commissioners**

Jeff Koons, Chairman

Burt Aaronson, Vice Chairman

Karen T. Marcus

Shelley Vana

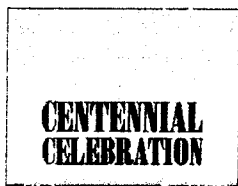
Steven L. Abrams

Jess R. Santamaria

Priscilla A. Taylor

County Administrator

Robert Weisman



*"An Equal Opportunity
Affirmative Action Employer"*

Official Electronic Letterhead

October 14, 2009

Ms. Didi Rufer
BAE Systems, Inc.
124 Gaither Drive, Suite 100
Mt. Laurel, NJ 08054

RE: BAE Systems Contract R2006-2517
Task Order No. 3 – 2009 Environmental Aerial Photography

Dear Ms. Rufer,

We have been informed of the delays encountered with obtaining the coastal aerial photography this year due to unfavorable weather conditions. We are glad that you were finally able to capture the photography this month and anticipate completing Task Order No. 3 by the end of the year.

Palm Beach County hereby grants your request to extend the completion date of Task Order No. 3 from October 30 to December 31, 2009. The extension is for time only and there are no changes with respect to the terms and conditions of the Task Order or the Task Order amount.

Thank you for your diligence to provide quality imagery for the benefit of those who will use it in their environmental workflow processes.

Sincerely,

Steve Bordelon, Director
Information Systems Services

c: Janet Phipps, Environmental Analyst
Irwin Jacobowitz, Director, Contract Development & Control
Penny Anderson, Senior Coordinator