

Levy County, Florida



George T Lewis Airport (CDK)

Airport Layout Plan & Narrative Report including Aerial Photography and Exhibit A Property Inventory Map Update

Planning Services

By

Passero Associates, LLC

(Passero Project No. 20121626.0008)

Work Order 21-08

Work Order 21-08
Airport Layout Plan & Narrative Report including Aerial Photography and Exhibit A Airport Property
Inventory Map Update
for George T Lewis Airport (CDK), Cedar Key, Florida

PASSERO ASSOCIATES, LLC (PA or Consultant) agrees to perform the following services, in accordance with the terms and conditions of this Work Order and the Master Consulting Services Agreement with Levy County (Client or County), dated September 17, 2012 and the Master Consulting Services Amendment, dated April 16, 2019 with the Levy County Commission, all of which terms and conditions are incorporated herein by reference:

Project Location: George T Lewis Airport (CDK), Cedar Key, Florida.

Project Description: Airport Layout Plan and Narrative Report.

Scope of Basic Services: Airport Planning Services (See Attachment A: Scope of Services).

Scope of Special Services: Aerial Mapping and Exhibit A Airport Property Inventory Map Update.

Client Manager: Mr. Wilbur Dean, County Coordinator

PA Project Officer: Mr. Bradley J. Wentz. P.E.

PA Project Manager: Mr. Chris Johnson, Airport Planner

Basic Services Compensation & Method of Payment: Planning Phase Lump Sum: \$122,270.00

Special Services Compensation & Method of Payment: Aerial Mapping & Survey Lump Sum: \$25,580.00

Exhibit A Map Lump Sum: \$12,150.00

Total Fee (all Phases) Lump Sum: \$160,000.00

Schedule: Begin upon Notice-to-Proceed from the County.

Meetings: Numerous project coordination/review meetings will be scheduled with the County, Airport staff and the Technical Advisory Committee (TAC), as needed and directed by the Client. (See Attachment A – Scope of Services, Tasks 8 & 9).

Deliverables:

1. 1st Submittal: Working Paper 1 (Chapters 1,2,&3) for Sponsor, Airport staff & TAC review and comment
2. 2nd Submittal: Revised Working Paper 1 for FDOT approval
3. 3rd Submittal: Working Paper 2 (Chapters 4, & 5) for Sponsor, Airport staff & TAC review and comment
4. 4th Submittal: Working Paper 3 (Chapters 6, 7, 8) for Sponsor, Airport staff & TAC review and comment
5. 5th Submittal: Complete draft of the Narrative Report (Chapters 1-8)
6. 6th Submittal: Final Narrative Report and ALP set.

"Consultant"

Passero Associates, LLC

BY: _____

Bradley J. Wentz

Bradley J. Wentz, Vice President
Typed Name, Title

ATTEST:

BY: _____

Angela Witt

Angela Witt, Grants/Contracts Administrator
Name, Title

Date: _____

9/17/2021

"Client"

Levy County

BY: _____

John Meeks, Chairman
Typed Name, Title

ATTEST:

BY: _____

Name, Title

Date: _____

SCHEDULE A – SCOPE OF SERVICES

GEORGE T LEWIS AIRPORT

Airport Layout Plan & Narrative Report including Aerial Photography and Exhibit A Property Inventory Map Update

Project Description: This Project will update the Layout Plan (ALP) drawing set and Narrative Report.

A. Basic Services: This project will start off by identifying the goals & objectives, then continue on with the inventory existing conditions, including surveying & mapping; forecast aeronautical demand; analysis/determination of design standards, demand/capacity analysis, facility requirements and resiliency analysis; and provide updated ALP and Narrative Report, including a phasing & implementation plan for improvements. There will be an Information Campaign & Community Engagement process throughout this Project. (See Schedule A – Scope of Services, and Schedule B)

B. Special Services (See Schedule A – Scope of Services, and Schedule B)

1. Subconsultants - Consultant intends to hire subconsultants to perform a portion of the services contemplated by this Work Order. The proposals with such subconsultants are included in Attachment A to this Work Order. Client shall not be a party to any agreement contained in such proposals and shall not be responsible for any agreement requirements contained in such proposals. Any agreement contained in a subconsultant's proposal included in Attachment A shall be between the Consultant and the applicable subconsultant and any agreement requirements shall be between the Consultant and the applicable subconsultant. Consultant shall be responsible for the quality of the services, work product, and conduct of any subconsultants performing work on this Work Order. Any subconsultants for this Work Order will be required to carry insurance at the same limits as Consultant pursuant to the Master Consulting Services Agreement, and shall name "Levy County, a political subdivision of the State of Florida, its officials, employees, agents and volunteers" as an additional insured on all applicable policies. Consultant shall timely pay any subconsultant for services rendered for this Work Order. Client will not be responsible for oversight or payments to subconsultants for any services pursuant to this Work Order.
2. Aerial Mapping and Survey: Detailed orthophotography; 2D and 3D planimetric and topographic; 3D elevations on elevated features within the topographic mapping areas, including top elevations of buildings and trees; and, signed and sealed project report.
3. Property Map Update: Using the FAA ARP SOP 3.00 as a basis, a Exhibit A Airport Property Inventory Map (Exhibit A) will be developed that will include all Airport-owned property and easements that have been acquired to-date. Furthermore, any proposed property fee simple/easement acquisitions identified in this Project will also be illustrated on the Exhibit A.

C. Other Considerations

1. This Scope of Services does not include the following:
 - Environmental Assessment;
 - Wetlands and threatened/endangered species assessment, outside of what is publicly provided by the U.S. Fish and Wildlife Service (USFWS);
 - Security Plan;
 - Sustainability Study;
 - Intermodal Plan; and,
 - Ground Transportation Plan.

If such services are later determined to be required before the project is complete, they shall be performed as additional services only under a separate written agreement and as approved by the County.

2. The County is responsible for providing complete and thorough data in a timely fashion as requested by Passero, including all necessary data from County archives. Passero is not responsible for data that is not provided for during the course of this Agreement.

End of Scope of Services

INTRODUCTION

The Consultant (Passero Associates), on behalf of the Sponsor (Levy County Commission), will prepare an update to the George T Lewis (CDK) Airport Layout Plan (ALP) and Narrative Report. These documents will be developed in accordance with the Federal Aviation Administration's (FAA) Advisory Circulars 150/5070-6B, *Airport Master Plans*, and 150/5300-13A, *Airport Design*, as well as the Florida Department of Transportation's (FDOT) publication, *Guidebook for Airport Master Planning*.

This Update will develop an inventory of the current facilities, present forecasts of growth, assess the need for facility improvements and additional development, and provide a plan, including cost estimates, for additional development or rehabilitation. The Consultant will recommend any changes to the existing facility needed to ensure consistency with FAA Advisory Circulars and guidelines/procedures. Specifically, the Consultant will comply with the Standard Operating Procedure (SOP) recently released by the FAA, *ARP SOP 2.00 Standard Procedure for FAA Review and Approval of Airport Layout Plans (ALPs)*. The Consultant will also comply with FAA grants and grant conditions that may apply to this work.

I. TASKS

Task 1 – Study Design

This task develops the work scope, project organization, time schedule of events and labor and expense cost breakdown for the study to be prepared. Through extensive coordination with the Sponsor and Airport staff, the Consultant has developed a work scope specifically for CDK which focuses on the most substantive issues and needs of the Airport, while remaining consistent with the guidance set forth in FAA Advisory Circular 150/5070-6B and FDOT guidance. A Technical Advisory Committee (TAC) consisting of airport and community stakeholders will be established by the Sponsor to guide the development of the master plan and support the consulting team as an engaged planning participant. As part of this task the Consultant will guide the TAC in a goal setting and visioning process as well as a subjective Strengths, Weaknesses, Opportunities, and Threats (SWOT) assessment.

Product: The scope of services and identification of goals and objectives are the products of this task.

Task 2 – Inventory of Existing Conditions

Task 2.1 – Surveying and Mapping Products

The Consultant will hire a subconsultant to obtain new color digital orthorectified aerial of Airport property and adjacent property within the vicinity of the Airport. The subconsultant will develop a base file of airport planimetric detail and obtain a digital elevation model of airport property. The Consultant will obtain a digital collarless USGS quad maps for the Airport area. Lastly, the subconsultant will obtain potential airspace obstructions within the immediate airfield environment and approach/departure zones for use in airspace analysis.

Product: Digital Ortho-photo, base file creation of airfield planimetric detail and terrain modeling, digital collarless USGS quad map acquisition, Approach/Departure obstruction mapping, and updated property mapping.

Task 2.2 - Inventory

This task consists of creating a compilation of Airport and airfield facilities, including economic, financial, and community information deemed necessary by the Consultant in order to establish a baseline conditions for the study. A three-step procedure will be used in completion of the task: Data Collection, Analysis and Coordination, and Data Reporting. The first step, Data Collection, relates directly to assembling available information. Data Analysis and Coordination involves the interpretation and extrapolation of the various data sources in order to examine the strength of correlational coefficients between data points where relationships may be expected.

The Consultant will assist the Sponsor with an inventory questionnaire to obtain and verify data prior to performing the on-site inventory assessment. Specifically, the following data will be collected from the Sponsor, online sources, the FAA, and FDOT:

Since establishment of this base of project information is vital to the preparation of the Plan, it is important that the most current information available be used. Collection efforts will first be directed at locating and reviewing any previous reports, studies and/or construction documents that have been completed in regard to the Airport. After these are reviewed, more detailed efforts will be undertaken in the following areas:

1. Collection and Review of Existing Plans, Studies and Drawings

- State Aviation System Plan
- National Plan of Integrated Airport Systems (NPIAS)
- Previous Airport Master Plans
- Environmental Assessments or Impact Studies
- As-Built and/or Construction drawings/plans completed since the last Master Plan
- Any other studies/reports accomplished specifically for or relevant to the Airport since the last Master Plan
- Available Geospatial data for Airport area (multiple sources, Federal/State agencies, County, City, others).

2. Airport Facility Information

- Runway System
- Taxiway/Taxilane System
- Aprons
- Tie downs
- Fuel Farms Fuel Flowage – Gallons of fuel sold annually
- FBO and other Airport Tenants
- Airport Property Holdings

3. Collection of Historical Aviation Activity Data

Historical aircraft activity data will be obtained, reviewed, and updated with the latest available statistics. Data collection will include general aviation activity and peaking characteristics where appropriate.

- Based Aircraft
- Aircraft Operational Data
 - Fleet Mix
 - Runway utilization
 - Existing noise abatement procedures (if any)
 - Airspace and air traffic limitations and operational constraints
 - Day/night usage
 - VFR and IFR operations.

5. Socioeconomic Data

Population, income, and employment data will be obtained from appropriate local agencies or data clearinghouses. This information will be for both historical and forecast periods.

5. Comprehensive Planning Data

The Consultant will work with the Sponsor and online County sources to obtain the following data:

- Existing and Future Land Use Maps.
- Existing and Future Zoning Maps and Regulations
- Building Codes
- Height Zoning
- Near-/On-Airport utilities

6. Preliminary Environmental Data

Using online State and Federal resources, the Consultant will get the following information:

- Wind data supplemented by other nearby FAA approved weather reporting stations as necessary to compile a 10-year weather history.
- Wetlands
- Floodplains
- Soils
- Any other pertinent environmental data that becomes available.

Product: Information from the inventory task will be summarized describing the existing airport facilities, airspace, surrounding properties, historical aviation activities and community trends, and potential environmental constraints to development. Upon completion of this task, the Inventory of Existing Conditions and Historical Aviation Statistics chapters will be drafted for the Airport. These chapters will be included in submission of **Working Paper 1**.

Task 3 – Forecast of Aeronautical Demand

This task involves reviewing previous forecasts and preparing a revised forecast which will provide short (0-5 year), intermediate (6 to 10 year) and long (11 to 20 year) range projections of aviation demand for the Airport. The revised forecast shall form the basis of the other tasks in the Scope of Work including demand/capacity analysis, facility requirements, conceptual design and phasing, land use analysis, and phasing. The following parameters will be forecast:

1. Based Aircraft by Type – The number of aircraft stored at each airport on an annual basis by the following category types of aircraft (single-engine piston, multi-engine piston, turboprop, jet, and rotor)
2. Aircraft Operations - Landings and take-offs performed by local and transient aircraft will be forecast. General aviation movements will be forecast by the type of operation, as applicable (i.e. general aviation, air carrier, commuter, military, etc.).

3. Terminal Area Relationships – Peak-period activity will be forecast based on historical data and trends

Several different projections will be developed using the considerations listed above. From these projections, a preferred forecast will be selected. Whenever possible, additional forecasts will be derived from other forecasts. Examples of these derivative forecasts include:

1. Based aircraft fleet mix
2. Aircraft Operations
3. General Aviation Passengers
4. Auto Parking
5. Peak period analysis

Airport-specific forecasts prepared as part of a national or state/regional planning effort are normally of a top-down nature. Whereas these forecasts are satisfactory for their respective planning effort, they are usually not as sensitive to local conditions as is needed for individual airport planning. Consequently, a bottom-up type of methodology may be used as a basis for forecasting aviation demand at the Airport.

Annual aviation activity forecasts prepared by the Consultant will employ standard statistical modeling techniques, such as, trend-line analysis, market share analysis, and comparative analysis.

Lastly, a determination of critical aircraft for airport planning and design purposes will be identified based on historical and projected aircraft activity levels.

Product: At the completion of this task, a report chapter will be drafted and distributed to the TAC for review and comment. This chapter will be a combined narrative, graphic and tabular presentation that conveys the assumptions, techniques and results of the numerous analyses utilized by the Consultant. Once any necessary revisions have been made and the TAC approves, the final draft chapter will be distributed to FDOT as part of **Working Paper 1**.

Working Paper 1 will contain drafts of the inventory of existing conditions, historical aviation activity statistics, and aviation demand forecast chapters of the Narrative Report. FDOT review and approval of the forecasts will be requested.

Task 4 – Design Standards, Demand/Capacity Analysis, and Facility Requirements

This task will begin with a summation of the FAA design standards for the Airport. This analysis will be based on the most demanding aircraft expected to perform more than 500 annual operations at each facility (the “design/critical aircraft”). Upon completion of the design standards review, a demand/capacity analysis will be completed. The objective of the capacity analysis is to determine the ability of existing facilities at the Airport to accommodate the planning activity levels. This analysis identifies facility deficiencies so that facility requirements can be determined.

The analysis will measure the existing capacity of various operational airport elements as follows:

1. Airspace: Consultant will refer to the latest edition of the FAA Jacksonville Sectional chart to identify airspace restrictions and noted obstructions. In addition, the Consultant will review the surveyed obstruction data. This data will be used for the obstruction analysis task (FAA FAR Part 77, FAA Threshold Siting Surface and FAA EB99 surface analysis).
2. Airfield: The evaluation of the airfield will be based upon the FAA's AC 150/5060-5, Airport Capacity Manual. Both hourly capacity and Annual Service Volume will be considered. Changes in the runway and taxiway system and potential capacity increases or reductions resulting from one or more of the above will be analyzed. Additionally, a runway length analysis will be performed to ensure unrestricted operations by the critical aircraft can be facilitated at the airport.
3. Landside: Landside facility requirements will be analyzed by comparing the existing based fleet plus transient aircraft requirements with the amount of existing and planned facilities. These facilities include terminal space, hangars, apron space and auto parking.
4. Support Facilities: This analysis will evaluate such items as airport maintenance area, fuel farms, and other support functions in an effort to determine future requirements.
5. Airport Access: The capacity of existing and planned on-airport roadways including public use terminal area, and public use general aviation facilities be determined.

Other elements which cannot be mathematically analyzed in a demand/capacity relationship will also be analyzed. These items include:

1. Approach and navigational aids
2. Airfield lighting, signage, and pavement marking
3. Airport security and fencing
4. Non-aviation use

Upon completion of the demand/capacity analysis, Facility requirements will be determined for each of the above elements based on the aviation activity forecasts and planning activity levels and periods. This task will identify facility needs, as indicated by the examination of existing facilities, the capacity analyses, and the forecasts of demand. Improvements will be classified as short-, intermediate- or long-range to allow the development of a staging plan. However, all recommendations will be related to the planning activity levels that will trigger the need for action.

The final task of establishing facility requirements is identifying potential actions to improve the resiliency of CDK. With the continual rise in sea level, coastal communities and facilities are becoming subject to impacts caused by sea level rise. These impacts include, but are not limited to: flooding, erosion and subsidence. Being that CDK is located on an Island in the Gulf of Mexico, it is imperative to develop preliminary strategies to enhance the resiliency of the Airport.

Product: Information from this task will be summarized in either one or two chapters that will include, Design Criteria and Demand/Capacity Analysis and Facility Requirements. These sections will be compiled in **Working Paper 2**.

Task 5 – Airport Development Plan

In this task, the information from all previous tasks will be integrated into an overall plan which depicts and describes the proposed development the Airport over the 20-year planning period. During the concept development, it will be assumed that relevant policy considerations will be maintained. These include; meeting forecast demand, maximizing compatibility with surrounding communities, and reinforcing the plan and policies of other governmental agencies, which promote compatibility and create public value.

The development plan created in this task will not include a formal analysis of several alternatives, instead, no more than two alternatives will be compared/contrasted to identify the best layout for the future development. The TAC will be included in this process to identify the best preferred alternatives. These alternatives will be based on the forecast demand, required facility improvements, and strategic development goals of the Airport. Additionally, factors such as the existing physical conditions and constraints of each site, operational effectiveness, flexibility and expandability, and existing and proposed land uses on and adjacent to the Airport. A record of TAC engagement, and other public outreach, will be supplied as an appendix to the master planning document.

Task 6 – Airport Layout Plan Set

Based upon decisions made during the course of the study, a final plan set for the Airport will be prepared on 22" x 34" size sheets. The final plan will be depicted on a series of drawings prepared in accordance with the guidelines presented in Advisory Circulars 150/5070-6B and 150/5300-13A. The ALP set will follow the guidance and direction provided in FAA ARP SOP 2.00 and will include the following sheets:

Cover

The ALP cover sheet will include project name, title, and associated grant numbers from funding partners. This sheet will also include a location and vicinity map for the airport and an index of sheets which comprise the full ALP set.

Data Sheet

The Airport Data sheet will include a variety of tabular information relative to the existing airport and proposed future changes/additions to the Airport. Additionally, the wind roses developed as part of the study process will be included on the data sheet.

Existing Facilities

The Existing Facilities sheet will provide a snapshot of Airport facilities at the time of this study and serves as the basis for future planning considerations.

Airport Layout Plan

The Airport Layout Plan (ALP) is a scaled drawing and will depict existing and proposed airport facilities, including property lines, along with pertinent clearance and dimensional information to show conformance

with applicable standards. This drawing and related documents will be prepared for planning purposes only, using scaled dimensions. Phasing of development will also be depicted on the ALP.

Terminal Area Plans (Multiple sheets as needed)

The terminal area plan will depict landside improvement areas on the airport. The factors that determine the overall size, layout, and location of the terminal and support facilities will be based upon the results of the Demand/Capacity and Facility Requirements.

Airspace Plan

The airspace plan will be developed in accordance with the FAA's FAR Part 77, "Obstructions Affecting Navigable Airspace". A plan view of the imaginary surfaces described in Subpart C of Part 77 will be depicted.

Inner-Portion of the Approach Surface Plan and Profile (Multiple Sheets)

The runway approach plans and profiles will illustrate in greater detail the approach areas immediately beyond the ends of the runways. The area within the runway protection zone should be kept free from obstacles that would constitute a hazard to aircraft approaching or departing the airport. The inner approach plan and profiles will identify any obstacles and indicate the ultimate disposition of the obstacles. Roads, railroads and other pertinent items that cross within the runway protection zone are also shown on the plan. It should be noted that each viewport will only show the portion of the approach surface up to an allowable height of 100 feet. Therefore, only obstacles (roadway, railroad, or other) within the viewport will be evaluated.

Departure Surface Plan and Profile (Multiple Sheets)

For each runway that is designated for instrument departures the applicable departure surface as defined in Paragraph 303 of FAA AC 150/5300-13A will be depicted. Similar to the inner-portion of the approach plan and profile sheets, the departure surface sheet will identify objects within the departure surface which impact or obstruct that surface and provide an ultimate disposition of those obstructions. It should be noted that each viewport will only show the portion of the departure surface up to an allowable height of 100 feet. Therefore, only obstacles (roadway, railroad, or other) within the viewport will be evaluated.

Land Use Plan

The Land Use Plan will be prepared on appropriate available mapping of the area and will identify existing general land uses as obtained from the Sponsor and Levy County, or other agencies as required, for both on-airport and adjacent uses.

Exhibit A Airport Property Inventory Map

Using the FAA ARP SOP 3.00 as a basis, a Exhibit A Airport Property Inventory Map (Exhibit A) will be developed that will include all Airport-owned property and easements that have been acquired to-date. Furthermore, any proposed property fee simple/easement acquisitions identified in this Project will also be illustrated on the Exhibit A. The existing Airport Property Map for CDK will be referenced in completing the Exhibit A. Any updates required for the Exhibit A will be prepared by the subconsultant.

Electronic CAD files and PDFs for all ALP sheets will be provided to the client upon completion and approval.

Task 7 – Phasing and Implementation Plan

A phasing plan will be developed which will schedule the improvements for the short (0-5-year), intermediate (6-10-year), and long (11-20-year) term timeframes. For the short-term period, each project will be individually described in sufficient detail to describe the nature and purpose of the project, identify potential conflicts with other projects, and identify projects that must occur to enable completion. These will be accompanied by detailed cost estimates in a form that can be easily updated. For the medium- and long-term time periods, the project staging will consist of a list of required projects but without the level of implementation detail provided in the short term.

It is important to recognize that activity levels trigger the requirements for improvements, rather than timeframes. Thus, if a particular segment of activity does not meet the forecasts, certain improvements may be accelerated or delayed. However, a five-year program will be worked out in sufficient detail to be utilized for potential federal and state funding purposes.

Additionally, historical airport financial records will be reviewed and a pro-forma financial forecast developed to coincide with the five-year CIP for the purpose of expressing the financial feasibility of the CIP identified.

Product: The final phasing of the projects will be summarized in a report chapter and depicted in graphic form. This chapter will be included with the Airport Development Plan and ALP chapters in the submission of **Working Paper 3**.

Task 8 – Meetings, Presentations and Coordination

No more than seven (7) project coordination/review meetings will be scheduled for this project. These include meetings that will happen with the Sponsor, Airport Staff and the TAC.

Task 9 – Information Campaign & Community Engagement

As part of this task the Consultant will add value to the overall master planning effort by engaging in a formal information campaign designed to engage the regional public in the master planning effort by working with the Sponsor to update the County of Cedar Key and Levy County websites at the completion of the Master Plan.

At a minimum the following will be included on the website, after Sponsor approval:

- Working Papers
- Various Graphics from the Master Plan
 - Development Alternatives
 - Airfield Facility Needs
 - Pages from the ALP
- TAC Meeting Minutes and Agenda

In addition to the website, the Consultant will present the final Master Plan findings at one of the public County Meetings, and request a resolution of local approval.

DELIVERABLES

The CDK ALP Narrative Report will include the following chapters:

Chapter 1	Introduction, Goals & Objectives
Chapter 2	Inventory of Existing Conditions
Chapter 3	Forecasts of Aviation Demand
Chapter 4	Design Standards
Chapter 5	Demand/Capacity Analysis, Facility Requirements and Resiliency
Chapter 6	Airport Development Plan
Chapter 7	Airport Layout Plan Set
Chapter 8	Phasing and Implementation

The deliverables will be provided in six (6) submittals as follows:

- 1st Submittal: Working Paper 1 (Chapters 1,2,&3) for Sponsor, Airport staff & TAC review and comment
- 2nd Submittal: Revised Working Paper 1 for FDOT approval
- 3rd Submittal: Working Paper 2 (Chapters 4, & 5) for Sponsor, Airport staff & TAC review and comment
- 4th Submittal: Working Paper 3 (Chapters 6, 7, 8) for Sponsor, Airport staff & TAC review and comment
- 5th Submittal: Complete draft of the Narrative Report (Chapters 1-8)
- 6th Submittal: Final Narrative Report and ALP set.

Any deliverables, except those for FDOT, will be given to the Sponsor who will be responsible for distributing to any other desired agencies. Transmission of the deliverables to FDOT will be handled by the Consultant.

II. SPECIAL SERVICES

To accomplish the scope of services outlined above the following required special services will be provided.

- Aerial Mapping – Digital Ortho-Photo and obstruction survey (GPI, Geospatial Inc.).
- Professional Land Surveyor – Exhibit A Preparation (Geomatics Corporation).

III. BASIC ASSUMPTIONS

The following is a list of assumptions which forms the basis of the cost for providing these services. It must be noted that any change to these assumptions constitutes a change in the project scope possibly requiring additional fee.

1. The Sponsor and airport staff will be responsible for providing all available documentation, reports, and statistics regarding the Airport for the period from 2005-2020. This is to include the following:

- Survey information of current facilities, elevations, square footage, trees, etc.
 - Project Funding Assistance Received (from the FAA, FDOT, others)
 - Aviation Activities (operations - local and itinerant, fuel sold, based aircraft)
 - Existing and proposed land uses surrounding the Airport.
 - Environmental assessment and impact statements
 - Property, boundary, easement, right-of-way, topographic and utility surveys
 - Zoning, deed and other land use restriction
2. The Sponsor will be responsible for copying and distributing all material to the general public and agencies other than FAA, FDOT, and TAC prior to meetings, including working papers, notices, mailings, or webhosting.
 3. The Sponsor will provide for and/or arrange access to and make provisions for the Consultant to enter upon public and private property for performance of the Scope of Work.
 4. The Sponsor or TAC will examine studies, reports, sketches, drawings, specifications, proposals and other documents presented by the Consultant and render in writing decisions or comments pertaining thereto within a reasonable time so as not to delay completion of the Scope of Work.

End of Scope of Work

ATTACHMENT A

PROPOSAL

FOR PROFESSIONAL SERVICES

George T Lewis
Airport (CDK), in
Cedar Key, FL

Passero Associates,
LLC

St. Augustine, FL

Submitted by:
GPI Geospatial, Inc. (GPI)
Iarelis D. Hall, PSM
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9/11/2020

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GPI

LiDAR | Photogrammetry | Asset Management



September 11, 2020

Mr. Christopher "CJ" Johnson
Airport Planner II
PASSERO ASSOCIATES, LLC
4730 Casa Cola Way
Suite 200
St. Augustine, FL 32095
Direct: 904-224-7084
cjohnson@passero.com

Subject: George T Lewis Airport (CDK), in Cedar Key, FL
GPI Geospatial Proposal No. 2020509.00

GPI Geospatial, Inc. greatly appreciates this opportunity to provide Passero Associates, LLC, hereafter referred to as The Client, with our proposal to perform professional geospatial services as requested. The following proposal is based on our understanding of the scope of work.

Project Description

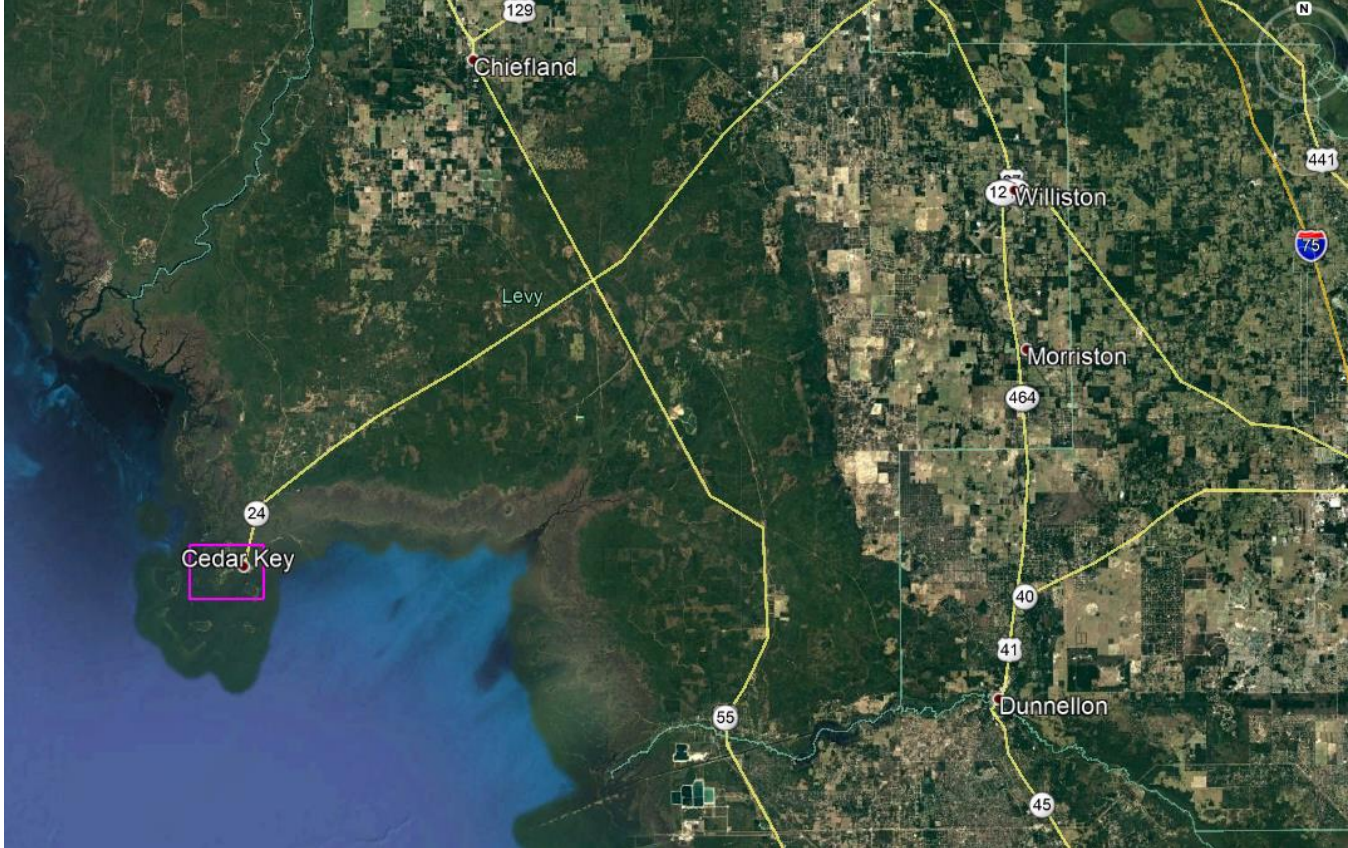
GPI Geospatial understands that Client requires topographic, obstruction mapping, and digital Orthophotos at the George T Lewis Airport (CDK), in Cedar Key, FL. This mapping will be used to support the updating of the Airport Layout plans for CDK. The areas of mapping and imagery required, as shown below, were provided in an email received on September 10, 2020. GPI's scope of services will provide all items requested by the highlighted fields in the attached Table 2.1 received from Client on September 10, 2020. The project will be focused on runway 5/23.

All geospatial tasks will be performed following the current Standards of Practice for Surveying and Mapping in Florida.

Intended End Use of the Data ➤
Required Tasks ▼
Provide a Survey and Quality Control Plan
Establish or validate Airport Geodetic Control
Perform, document and report the tie to National Spatial Reference System (NSRS)
Survey runway end(s)/threshold(s)
Monument runway end(s)/threshold(s)
Document runway end(s)/threshold location(s)
Identify and survey any displaced threshold(s)
Monument displaced threshold(s)
Document displaced threshold(s) location
Determine or validate runway length
Determine or validate runway width
Determine runway profile using 50 foot stations
Determine runway profile using 10 foot stations
Determine the touchdown zone elevation (TDZE)
Determine and document the intersection point of all specially prepared hard surface (SPHS) runways
Determine and document the horizontal extents of any Stopways
Determine any Stopway profiles
Determine if the runway has an associated clearway
Survey clearway to determine objects penetrating the slope
Determine and document the taxiway intersection to threshold distance
Determine runway true azimuth
Determine or validate and document the position of navigational aids
Determine or validate and document the position of runway abeam points of navigational aids
Determine potential navigational aid screening objects
Collect and document VOR receiver checkpoint location and associated data
Perform or validate and document an airport airspace analysis
Collect and document helicopter touchdown lift off area (TLOF)
Collect and document helicopter final approach and takeoff area (FATO)
Collect or validate and document airport planimetric data
Determine or validate the elevation of the Air Traffic Control Tower Cab Floor (if one is on the airport)

Project Limits

The total area outlined by the magenta polygon (see flight plan-5,304 acres) will have digital orthophoto imagery at 0.25' resolution, and the airport property areas bounded by the cyan polygon (see flight plan-122 acres) will include aerial topographic mapping and show the heights of objects such as trees, poles, and buildings, to identify obstructions and hazards to aviation. The obstacles will be determined only in the areas created by extending 5,000 feet from each runway end (5 and 23) to depict all penetrations to the proposed and existing approach surfaces. The width of the extensions will be 300'.



Aerial Data Acquisition

Simultaneous Acquisition	Yes
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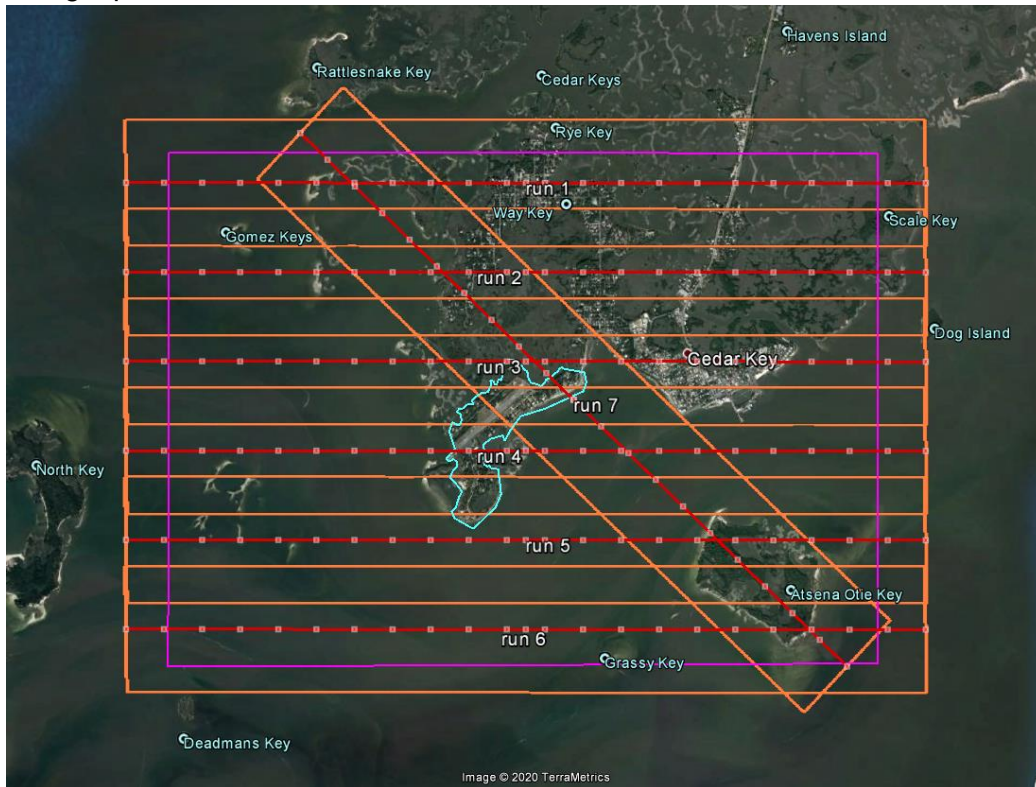
Imagery Acquisition	
Sensor	PhaseOne
Flight Altitude	3,000' AGL
Sidelap	30%
Forward Lap	60%

LiDAR Acquisition	
Sensor	Riegl 1560i
Flight Altitude	3,000' AGL
Sidelap	30%
Field of View (FOV)	58.5°

Ground Sample Distance (GSD)	6.9cm (2.7")	Points Per Square Meter (PPSM): Average	42-ppsm
Mobilization Time	4-hrs.	Flight Line Miles	23nm
Number of Flight Lines	7	Mobilization Time	4-hrs.
Flight Time	0.5-hr.	Number of Flight Lines	7
Number of Exposures	153	Flight Time	0.5-hr.
Number of Targets	12	Number of Targets	12
Image Project Area	5,304 Acres	Mapping Project Area	122 Acres

- The imagery shall be free of haze, snow, clouds and smoke.
- The photography shall not contain any excessive tip, tilt, or crab.
- All flight plans shall be designed by a Certified Photogrammetrist and approved prior to acquisition.
- Weather conditions and access to airspace can affect acquisition schedules.
- Certain restricted airspace may require the presence of an appropriate law enforcement official.

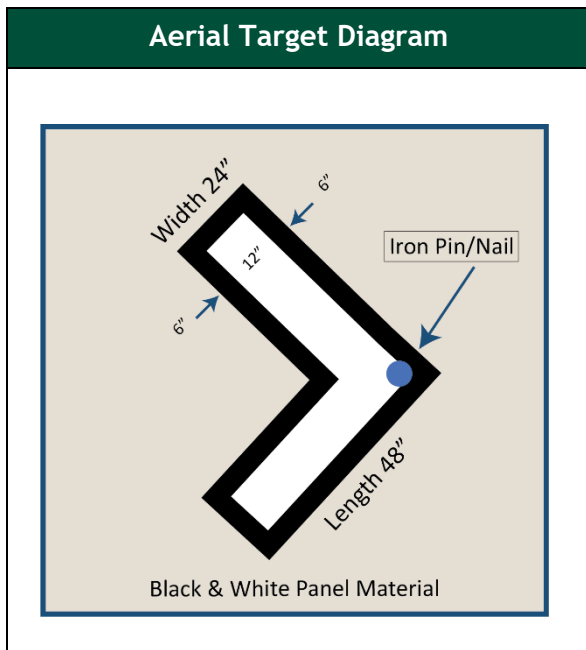
The proposed flight plan is shown below.



Mapping Control

Targeting and Ground Control for Aerial LiDAR and Imagery Acquisition

GPI Geospatial will provide the necessary ground control surveys to support this project. We estimate that 12 points will be required. A combination of paneled points set before acquisition and photo identifiable points will be used for this project. Photo identifiable points will be used if sufficient physical features exist.



All horizontal control shall be referenced to State Plane Coordinate System in NAD 83(2011), Florida West, and all vertical control shall be referenced to NAVD88.

The aerial imagery shall be controlled with POS AV Airborne GPS, ground control panels, and photo identifiable features. This cutting-edge inertial position and orientation system will provide accurate photo center positions to triangulate the entire block of imagery in one bundle adjustment.

Aerial LiDAR Mission

GPI proposes capturing the Lidar data with our Riegl VQ-1560ii. The new ultra-high performance, fully integrated, and calibrated Dual Channel Airborne Mapping System RIEGL VQ-1560ii makes use of Riegl's sophisticated Waveform-LiDAR technology enabling an excellent multiple-target detection capability and Multiple-Time-Around (MTA) processing. The system is capable of online waveform processing as well as full or smart waveform recording, resulting in unsurpassed information content on every single target. The new VQ-1560ii provides a laser pulse repetition rate of up to 4 MHz resulting in more than 2.6 million measurements per second on the ground and operates at an altitude of up to 15,500 ft. That allows operation at varying flight altitudes resulting in a wide range of point densities. Thus, the system is ideally suited for aerial survey of ultra-wide areas as well as of complex urban environments. By the way, faster and more efficient flight planning and safer flights are enabled.

The laser data shall be integrated with our Applanix POS AV Inertial Measuring Unit and GPS to provide the highest degree of positional and orientation accuracy needed for modeling.

LiDAR Processing

GPI will download and post-process GNSS / Inertial Measuring Unit (IMU) data, creation of scan best estimate trajectories (SBET), and analysis of relative agreement between individual scan runs using scan route data overlaps for comparison. This also includes the separation of large point cloud data sets into manageable LAS files with corresponding graphic “tile” index.

GPI will transform, calibrate, and adjust the LiDAR point cloud to surveyed project control. We are proposing to collect and calibrate the LiDAR point cloud for this project because of the particular location of it makes it challenging to target, leaving the project 50% uncontrolled. The LiDAR is simultaneous with the imagery and constrained to the same GPS location variables.

Aerial Triangulation

Identified as the procedure of establishing geometric relationships among forward and side lapping imagery to extend and densify supplemental horizontal and vertical control points.

Using the Horizontal and Vertical control survey data, and the Exterior Orientation Parameters of all frames (AGPS & IMU), GPI shall precisely perform manual and automatic digital aerial triangulation using our Trimble Inpho Match-AT or ISAT software.

Image points will be established at the Von Gruber locations on each image and will be 3 ray points except for the first and last image on each strip. Appropriate XY&Z weight factors to the control points will be established based on mapping scale requirements.

Before the commencement of photogrammetric map compilation, a Certified Photogrammetrist will study and approve the aero-triangulation results; a PSM signed and sealed certification shall accompany the report.

Automatic and manual tie point matching shall be performed on the entire set of imagery to best contribute to the strength and quality of the block.

Accuracy

GPI shall use the “compiled to meet” statement when the above guidelines for testing by an independent source of higher accuracy cannot be followed, and an alternative means is used to evaluate accuracy. We will provide accuracy reports for the imagery, and the LiDAR against the field surveyed control points.

Feature Extraction

GPI uses DATEM, MicroStation, TopoDOT, LP360, Global Mapper, ArcGIS, Terra Solid, VrOne, and VrTwo for breakline collection and planimetric mapping.

Planimetric Features

GPI will extract planimetric features from a LiDAR generated point cloud and/or controlled imagery using our extraction software. Detailed 3D lines and features will be extracted to allow the creation of topographic/planimetric surveys and accurate digital terrain models. Georeferenced imagery or stereo models will be used in conjunction with the point cloud information to assist in the planimetric mapping.

Orthophotography

Using the Exterior Orientations from the triangulation and the surface model, GPI shall perform a rigorous orthorectification of all imagery. The high-quality orthophotos shall have a constant scale, and all man-made 3D objects shall be presented in their true locations at the ground without disturbing relief displacements. All orthos shall be processed to produce the Client's specified pixel resolution, file format, and tiling scheme. GPI Geospatial shall use our Trimble Inpho OrthoVista to bring it all together in a seamless homogeneous mosaic. OrthoVista is a powerful professional mosaicking software that utilizes advanced imaging techniques to automatically adjust and compensate intensity and color variations; it also computes radiometric adjustments such as hot spots and lens vignetting on the entire block to match the color and brightness of adjacent images.

Deliverables

Acquisition:

- Flight report - included in the final project Report

Mapping Control:

- Excel file
- Photos of control points

Aerial Triangulation:

- AT Report - included in the final project Report

Orthophotography:

- Resolution 0.25'
- 3 band
- 8-bit
- File Format: TIFF
- Sheet layout in CAD

Aerial LiDAR:

- Calibrated and Classified LAS
- Bare Earth LAS, ASCII
- Calibration Report

Mapping:

- 2D and 3D Planimetric and Topographic mapping at 50 scale
- 3D elevations on elevated features within the topographic mapping area. The highest points on buildings will be located. Top elevations of trees are included within the mapping

area. Large groups of trees may be identified together where individual trees cannot be located, and the highest point within each 100-foot grid will be shown.

- File Format: DWG
- DTM format: DWG
- ASCII

Reports:

- Signed and Sealed Project Report

Exclusions

- FAA AGIS collection, reporting or delivery
- Tree surveys (size, type, etc.)
- Obscured area survey
- Drainage surveys (pipe size, material, invert, etc.)
- Subsurface utilities
- File or data merging
- No boundary, property or right-of-Way determination
- Field reviews
- Sign identification
- Paint lines outside of the runway and taxiway areas
- Parking Stripes outside of the aircraft parking markings

Schedule

Imagery / LiDAR

It is anticipated this project will require approximately eight weeks to complete from Notice to Proceed (NTP) date. Weather and other factors such as access and flight restrictions may impact the schedule. A final schedule will be provided at NTP.

Fees

Location	Subtotal
<i>Mapping Control</i>	\$5,400.00
<i>Aerial Imagery and LiDAR</i>	\$9,250.00
<i>3D Planimetric/Topographic Mapping</i>	\$6,680.00
<i>Orthophotography</i>	\$4,250.00
Lump Sum (Total Fee)	\$25,580.00

Notes:

1. Items not included in the fees such as permitting, site access costs, etc. shall be billed separately.

This proposal can be individually modified to meet your requirements, upon request.

ATTACHMENT A



GEOMATICS CORP.

“Where Service, Quality, and Professionalism Come Together”

Sept. 11, 2020

Christopher “CJ” Johnson
Airport Planner II
PASSERO ASSOCIATES, LLC
4730 Casa Cola Way
Suite 200
St. Augustine, FL 32095

Sent via email: cjohnson@passero.com

RE: Cedar Key Airport, a.k.a. George T. Lewis Airport – Airport Master Plan Update
– Surveying and Mapping Support

Specialty Services Proposal for Updated Deed Research and Updating of Exhibit
A – Airport Property Map. –

Dear Chris,

Geomatics Corp is pleased to submit this proposal for surveying and mapping services for the above referenced site.

Scope of Services

Prepare Airport Property Map (Exhibit A) to update prior Map by EarthTech to show existing & new purchases & sales since its publication. The EarthTech Map will be made available to Geomatics Corp. in .pdf format only.

It should be noted that the existing APM by EarthTech as supplied by Passero may not be complete. It should also be noted that there is a good possibility that the vesting deeds to some of the parcels are not available online from the Clerk’s office and multiple in-person trips may be required to visit the courthouse in Levy County to obtain the deeds.

We anticipate having a field crew visit the site and recover A PORTION of the Boundary Corners of the property and then using those points to map the entire boundary. It must be noted that we WILL NOT be producing any type of Boundary Survey for this project.

A DBE CERTIFIED FIRM

Geomatics Corp., 2804 N. Fifth Street, St. Augustine, FL 32084, phone 904-824-3086, fax 904-824-5753

At this time we anticipate the following effort by our firm:

Meeting Support: 5 hrs. of Professional Surveyor @ \$130.00/hr. = \$650.00

Calculations & PM: 10 hrs. of Professional Surveyor @ \$130.00/hr. = \$1,300.00
20 hrs. Survey Technician @ \$90.00/hr. = \$1,800.00

General Consulting: 10 hrs of Professional Surveyor @ \$130.00/hr. = \$1,300.00
5 hrs of Survey Technician @ \$90.00/hr. = \$450.00

Field Support: 20 hrs of Survey Crew @ \$140.00/hr. = \$2,800.00

Prepare Exhibit A Map:

10 hrs. of Professional Surveyor @\$130.00/hr.=
\$1,300.00

25 hrs. of Survey Technician @ \$90.00/hr. = \$2,250.00

5 hrs. Clerical @ \$60.00/hr. = \$300.00

Title Work:

Geomatics will sub-consult a Title Company to run title on the airport. The anticipated fee is \$750.00.

TOTAL FEE FOR ABOVE ITEMS..... \$ 12,150.00

As we discussed, due to the nature of the work and all the uncertainties involved, Geomatics will bill Passero on a Time & Materials basis (hourly) at our Standard Hourly Rates, unless other arrangements are made.

Deliverables

Geomatics Corp. anticipates a majority of the deliverables to be either digital CADD files and/or GIS files (shape files). All digital files will be georeferenced for easy implementation into any number of GIS platforms. With the delivery of certain digital files, a signed/sealed Surveyor's Report may be required.

In some cases it may be necessary for Geomatics Corp. to produced signed/sealed hardcopies of surveys along with the digital files.

Revisions

Revisions or changes to work accomplished under this agreement that are beyond the scope of services are not included in the lump sum fee and are, therefore, additional services and will be billed at our standard hourly rates or negotiated separately from this agreement.

A DBE CERTIFIED FIRM

Geomatics Corp., 2804 N. Fifth Street, St. Augustine, FL 32084, phone 904-824-3086, fax 904-824-5753

Standard Hourly Rates

Officer/ Principle.....	\$190.00
Professional Surveyor.....	\$130.00
Survey Technician/ Draftsman.....	\$90.00
Survey Crew.....	\$140.00
Administrative.....	\$60.00

Fees for any work required on an overtime basis, such as staffing to meet unanticipated expedited scheduling, will be billed at 1.5 times the standard rate.

Payment

Invoicing for tasks outlined above will be submitted monthly. Client shall notify Geomatics, in writing, of any objections, if any, to an invoice within ten days of the date of invoice, otherwise, the client shall deem the invoice proper and acceptable. Amounts indicated on invoices are due and payable upon receipt.

Contract(s)/Invoice(s) shall be governed by and construed according to the laws of the State of Florida. Should Payment in full for Contract(s)/Invoice(s) not be received within 30 days, the amount stated shall accrue interest from the 30th day at the maximum allowable rate of interest. Client agrees to pay all costs of collection for the Contract(s)/Invoice(s), regardless of whether a lawsuit is filed, including without limitation court costs and reasonable attorney's fees.

We appreciate the opportunity to submit this proposal for your consideration. Should you have further questions or need additional information, please feel free to contact me.

If this proposal is acceptable please sign and date below.

Sincerely,



Pablo Ferrari, PSM
President
Geomatics Corporation

Authorized Agent (Please print name below) Date