REQUEST FOR PROPOSAL

SOLICITATION NUMBER: USDA-FS-1-11

DIGITAL AERIAL IMAGERY
for San Juan National Forest, Colorado; Comanche National Grasslands, Colorado; and Cimarron National Grasslands, Kansas

Solicitation Issue Date: March 25, 2011
Proposal Due Date: April 25, 2011

U.S. DEPARTMENT OF AGRICULTURE
FARM SERVICE AGENCY
AERIAL PHOTOGRAPHY FIELD OFFICE

NOTICE TO OFFEROR

Any proposal submitted for this RFP must be identified with the following information labeled on the outside of the mailing package:

SOL.NO: USDA-FS-1-11
DUE DATE: April 25, 2011, 4:30 PM
RECEIVING OFFICE: CONTRACTING

Mail To: AERIAL PHOTOGRAPHY FIELD OFFICE
CONTRACTING OFFICER
2222 WEST 2300 SOUTH
SALT LAKE CITY UTAH 84119

NOTICE TO PROSPECTIVE OFFERORS :

OFFERORS ARE CAUTIONED TO NOTE THE FOLLOWING SPECIAL CONTRACT REQUIREMENTS:

This contract requires tiled-based imagery. If a non-frame based digital sensor system is proposed, the proposal must include a description of the process used in creating files in a tile format similar to those of a frame-based sensor, sample image tiles, and sample contact prints to demonstrate that contact prints made from the imagery viewable in stereo through an analog stereoscope.

Proposal Preparation Instructions, See Section L. Any proposal submitted in response to this solicitation must be presented in two parts, a pricing proposal and a technical proposal.

Option Items for Orthorectification Services: See Section B-5 and B-6. The orthorectified imagery under this option is for color-corrected, 16-bit per band DOQQ or GeoTIFF at 30cm GSD.

This RFP is subject to the Availability of Funds Clause (FAR 52.232-18). See Section B-1.6.

The complete text of any or all clauses referenced herein may be obtained by submitting a request, identifying this solicitation number, to the Contracting Officer, USDA, FSA, Aerial Photography Field Office, 2222 West 2300 South, Salt Lake City, Utah 84119. Complete copies of the FAR in loose-leaf or CFR form may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington D.C. 20402.

SOLICITATION, OFFER AND AWARD

1. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CFR 700) ▶ RATING

2. CONTRACT NUMBER	3. SOLICITATION NUMBER	4. TYPE OF SOLICITATION	5. DATE ISSUED	6. REQUISITION/PURCHASE NUMBER
	USDA-FS-1-11	☐ SEALED BID (IFB) ☒ NEGOTIATED (RFP)	3/25/2011	

7. ISSUED BY CODE

USDA-FSA-Aerial Photography Field Office
2222 West 2300 South
Salt Lake City, UT 84119-2020

8. ADDRESS OFFER TO *(If other than Item 7)*

Contracting Officer, USDA/FSA-APFO
2222 West 2300 South
Salt Lake City, UT 84119-2020

NOTE: In sealed bid solicitations "offer" and "offeror" mean "bid" and "bidder".

SOLICITATION

9. Sealed offers in original and 1 copies for furnishing the supplies or services in the Schedule will be received at the place specified in Item 8, or if handcarried, in the depository located in Rm. 10, Aerial Photography Field Office until 16:30 *(Hour)* local time 4/25/2011 *(Date)*

CAUTION - LATE Submissions, Modifications, and Withdrawals: See Section L, Provision No. 52.214-7 or 52.215-1. All offers are subject to all terms and conditions contained in this solicitation.

10. FOR INFORMATION CALL:	A. NAME	B. TELEPHONE *(NO COLLECT CALLS)*			C. E-MAIL ADDRESS
		AREA CODE	NUMBER	EXT.	
	Michelle C. Clifford	801	844-2909		

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OFFER *(Must be fully completed by offeror)*

NOTE: Item 12 does not apply if the solicitation includes the provisions at 52.214-16, Minimum Bid Acceptance Period.

12. In compliance with the above, the undersigned agrees, if this offer is accepted within _____ calendar days *(60 calendar days unless a different period is inserted by the offeror)* from the date for receipt of offers specified above, to furnish any or all items upon which prices are offered at the price set opposite each item, delivered at the designated point(s), within the time specified in the schedule.

13. DISCOUNT FOR PROMPT PAYMENT *(See Section I, Clause No. 52.232-8)*	10 CALENDAR DAYS (%)	20 CALENDAR DAYS (%)	30 CALENDAR DAYS (%)	CALENDAR DAYS (%)

14. ACKNOWLEDGMENT OF AMENDMENTS *(The offeror acknowledges receipt of amendments to the SOLICITATION for offerors and related documents numbered and dated)*:	AMENDMENT NO.	DATE	AMENDMENT NO.	DATE

15A. NAME AND ADDRESS OF OFFEROR — CODE ____ FACILITY ____

16. NAME AND TITLE OF PERSON AUTHORIZED TO SIGN OFFER *(Type or print)*

15B. TELEPHONE NUMBER			15C. CHECK IF REMITTANCE ADDRESS IS DIFFERENT FROM ABOVE - ENTER SUCH ADDRESS IN SCHEDULE.	17. SIGNATURE	18. OFFER DATE
AREA CODE	NUMBER	EXT.	☐		

AWARD *(To be completed by Government)*

19. ACCEPTED AS TO ITEMS NUMBERED	20. AMOUNT	21. ACCOUNTING AND APPROPRIATION

22. AUTHORITY FOR USING OTHER THAN FULL AND OPEN COMPETITION:
☐ 10 U.S.C. 2304(c)) ☐ 41 U.S.C. 253(c) ( )

23. SUBMIT INVOICES TO ADDRESS SHOWN IN *(4 copies unless otherwise specified)* ▶ ITEM

24. ADMINISTERED BY *(If other than Item 7)* CODE ____

25. PAYMENT WILL BE MADE BY CODE ____

26. NAME OF CONTRACTING OFFICER *(Type or print)*

27. UNITED STATES OF AMERICA *(Signature of Contracting Officer)*

28. AWARD DATE

IMPORTANT - Award will be made on this Form, or on Standard Form 26, or by other authorized official written notice.

PART I - THE SCHEDULE

SECTION B - SUPPLIES OR SERVICES AND PRICES/COSTS

B-1 DIGITAL AERIAL PHOTOGRAPHY SERVICES

Furnish direct digital aerial imagery and all related services and supplies in accordance with the requirements, specifications, terms, conditions, clauses, and provisions specified herein.

1.1 Intended Use of Imagery

The imagery shall be used by the United States Forest Service to collect and measure natural resource data by means of photo interpretation, image processing and geographic information systems (GIS) technologies. The uncorrected digital imagery will be used in the creation of mosaics, if option item 5 is not exercised, and in stereo-viewing (both using analog contact prints and soft copy). Imagery is intended to be collected in late summer and fall to maximize the change in color of the hardwoods.

1.2 Importance of Image Quality

Any imagery submitted to the Government that does not meet the minimum quality requirement may impact the Government's ability to properly use the imagery for its intended purpose and may be subject to a price reduction based on the diminished usability of the product.

1.3 Project Flight Planning Requirement

Contractor is required to provide the necessary flight line plans, which shall include flight altitude determinations, for the acquisition of precise vertical aerial imagery in accordance with the technical requirements in Section C-5.2, Flight Planning.

1.4 Direct Digital Sensor Acquisition

The direct digital imagery acquisition requirements will be for the collection of visible (Red, Green, Blue) and color near infrared (IR) imagery captured simultaneously. The digital sensor system shall be a tested, stable, geometrically calibrated system with appropriate documentation, suitable for use in precision photogrammetric orthoimagery applications.

(a) Digital sensor acquisitions require the Contractor to comply with the technical requirements and specifications of this contract, and Attachment A: USDA Digital Camera Specification which defines the essential elements in securing high quality direct digital imagery.

(b) The Contractor is required to provide a detailed technical description and sample image of the digital camera/sensor being proposed for use. See Section L-3, Digital Sensor Approval Requirements.
(c) The digital sensor system shall have the appropriate image resolving power and field of view required to provide the required ground sample distance (GSD). The proposed direct digital sensor system shall have the capacity and the through-put necessary to acquire complete project item quantities in accordance with delivery schedules as indicated herein.
(d) The contractor shall deliver all imagery in a tiled-based format if a non-frame based digital sensor is being used.

1.5 Non-Discrimination Statement

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of Discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, SW., Washington, DC 20250-9410, or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

1.6 Availability of Funds (FAR 52.232-18, APR 1984)

Funds are not presently available for this contract. The Government's obligation under this contract is contingent upon the availability of appropriated funds from which payment for contract purposes can be made. No legal liability on the part of the Government for any payment may arise until funds are made available to the Contracting Officer for this contract and until the Contractor receives notice of such availability, to be confirmed in writing by the Contracting Officer.

B-2 PROJECT ITEM 1: SAN JUAN NATIONAL FOREST, COLORADO

PROJECT ITEM 1: SAN JUAN NATIONAL FOREST, COLORADO					
PROJECT ITEM	**GSD**	**QTY**	**UNIT**	**UNIT PRICE**	**TOTAL AMOUNT**
1	30 cm	3,271	Square Miles	$	$

2.1 Project Code: 612130 and Agency Designator: USDA-F.

2.2 Project Item Requirements:

(a) Spatial Resolution: All imagery shall be acquired at 30 cm (12 inch) ground sample distance (GSD) or better.

(b) Radiometric Resolution: All imagery shall be collected at a minimum of 12-bits per band.

(c) Acquisition Period: June 15, 2011 through October 15, 2011.

(d) Minimum Sun Angle: 40 degrees.

(e) Overlaps: Endlap: Optimum 62%, Minimum 57%, Maximum 67%;
Sidelap: Optimum 30%, Minimum 20%, Maximum 45%.

2.3 Contract Deliverables

THE CONTRACTOR SHALL SUBMIT ONE (1) COMPLETE COPY OF ALL DELIVERABLES. The following deliverables shall be submitted by the Contractor and prepared in accordance with specifications and work statement (Section C), packaging and marking (Section D), inspection and acceptance (Section E), and delivery schedule (Section F):

(a) Project flight plan (for approval)
(b) 4-band georeferenced, uncompressed digital image files in tile format (See Section C-6.1)*
(c) Photo Center File (See Section C-7.4)
(d) ABGPS/IMU Data Files in ecef format (See Section C-6.4)*
(e) Footprint Shapefile (See Section C-7.5)*
(f) Pilot logs
(g) Progress reports
(h) Metadata and other text files*

* delivered on internal hard drive

B-3 PROJECT ITEM 2: COMANCHE NATIONAL GRASSLANDS, COLORADO

PROJECT ITEM 2: COMANCHE NATIONAL GRASSLANDS, COLORADO					
PROJECT ITEM	**GSD**	**QTY**	**UNIT**	**UNIT PRICE**	**TOTAL AMOUNT**
2	30 cm	1,741	Square Miles	$	$

3.1 Project Code: 612126 and Agency Designator: USDA-F.

3.2 Project Item Requirements:

(a) Spatial Resolution: All imagery shall be acquired at 30 cm (12 inch) ground sample distance (GSD) or better.

(b) Radiometric Resolution: All imagery shall be collected at a minimum of 12-bits per band.

(c) Acquisition Period: June 15, 2011 through October 15, 2011.

(d) Minimum Sun Angle: 40 degrees.

(e) Overlaps: Endlap: Optimum 62%, Minimum 57%, Maximum 67%;
Sidelap: Optimum 30%, Minimum 20%, Maximum 45%.

3.3 Contract Deliverables

THE CONTRACTOR SHALL SUBMIT ONE (1) COMPLETE COPY OF ALL DELIVERABLES. The following deliverables shall be submitted by the Contractor and prepared in accordance with specifications and work statement (Section C), packaging and marking (Section D), inspection and acceptance (Section E), and delivery schedule (Section F):

(a) Project flight plan (for approval)
(b) 4-band georeferenced, uncompressed digital image files in tile format (See Section C-6.1)*
(c) Photo Center File (See Section C-7.4)
(d) ABGPS/IMU Data Files in ecef format (See Section C-6.4)*
(e) Footprint Shapefile (See Section C-7.5)*
(f) Pilot logs
(g) Progress reports
(h) Metadata and other text files*

* delivered on internal hard drive

B-4 PROJECT ITEM 3: CIMARRON NATIONAL GRASSLANDS, KANSAS

PROJECT ITEM 3: CIMARRON NATIONAL GRASSLANDS, KANSAS					
PROJECT ITEM	**GSD**	**QTY**	**UNIT**	**UNIT PRICE**	**TOTAL AMOUNT**
3	30 cm	499	Square Miles	$	$

4.1 Project Code: 612127 and Agency Designator: USDA-F.

4.2 Project Item Requirements:

(a) Spatial Resolution: All imagery shall be acquired at 30 cm (12 inch) ground sample distance (GSD) or better.

(b) Radiometric Resolution: All imagery shall be collected at a minimum of 12-bits per band.

(c) Acquisition Period: June 15, 2011 through October 15, 2011.

(d) Minimum Sun Angle: 40 degrees.

(e) Overlaps: Endlap: Optimum 62%, Minimum 57%, Maximum 67%;
Sidelap: Optimum 30%, Minimum 20%, Maximum 45%.

4.3 Contract Deliverables

THE CONTRACTOR SHALL SUBMIT ONE (1) COMPLETE COPY OF ALL DELIVERABLES. The following deliverables shall be submitted by the Contractor and prepared in accordance with specifications and work statement (Section C), packaging and marking (Section D), inspection and acceptance (Section E), and delivery schedule (Section F):

(a) Project flight plan (for approval)
(b) 4-band georeferenced, uncompressed digital image files in tile format (See Section C-6.1)*
(c) Photo Center File (See Section C-7.4)
(d) ABGPS/IMU Data Files in ecef format (See Section C-6.4)*
(e) Footprint Shapefile (See Section C-7.5)*
(f) Pilot logs
(g) Progress reports
(h) Metadata and other text files*

* delivered on internal hard drive

B-5 OPTION ITEM 4: 30 CM GSD, ORTHORECTIFICATION SERVICES

The Government will consider price proposals on an optional award for orthorectification services. The Contracting Officer may exercise this option upon contract award or by notice to the Contractor within 60 days of the contact award. **The Government reserves the right to award an orthorectification option individually, inclusive of the project item base requirements (Sections B-2, B-3, and B-4), for one, two or all three project items. This option Item will be considered mutually exclusive of Option Item 5 in Section B-6; either one or the other may be considered.**

Option items will **not** be awarded without the corresponding base item. Therefore, pricing below should reflect only the incremental or additional price for performing the option item in conjunction with the base Item in Sections B-2, B-3, or B-4.

OPTION ITEM 4a: ORTHORECTIFIED IMAGERY FOR SAN JUAN NATIONAL FOREST, COLORADO					
OPTION ITEM	**GSD**	**QTY**	**UNIT**	**UNIT PRICE**	**TOTAL AMOUNT**
4a	30 cm	3,271	Square Miles	**$**	**$**
OPTION ITEM 4b: ORTHORECTIFIED IMAGERY FOR COMANCHE NATIONAL GRASSLANDS, COLORADO					
OPTION ITEM	**GSD**	**QTY**	**UNIT**	**UNIT PRICE**	TOTAL AMOUNT
4b	30 cm	1,741	Square Miles	**$**	**$**
OPTION ITEM 4c: ORTHORECTIFIED IMAGERY FOR CIMARRON NATIONAL GRASSLANDS, KANSAS					
OPTION ITEM	**GSD**	**QTY**	**UNIT**	**UNIT PRICE**	**TOTAL AMOUNT**
4c	30 cm	499	Square Miles	**$**	**$**

5.1 Project Item Requirements:

(a) Spatial Resolution: All imagery shall have a 30 cm (12 inch) ground sample distance (GSD) or better.

(b) Horizontal Accuracy Requirements: All orthorectified image tiles shall have 95% of well-defined points tested fall within 6.0 meters of true ground.

(c) Offset: The offset between adjacent image tiles, defined as the distance between identifiable features on two neighboring images, shall not exceed 12.0 meters

5.2 Contract deliverables

THE CONTRACTOR SHALL SUBMIT ONE (1) COMPLETE COPY OF ALL DELIVERABLES. The following deliverables shall be submitted by the Contractor and prepared in accordance with specifications and work statement (Section C), packaging and marking (Section D), inspection and acceptance (Section E), and delivery schedule (Section F):

(a) Radiometric samples (See Section C-6.2(d))
(b) 4-band digital orthorectified, 16-bit image files in GeoTIFF format*
(c) Stereo-block files*
(d) Aero-Triangulation block files (delivered with orthorectified image tiles)*
(e) Metadata and other text files*
(f) RMSE Accuracy and Quality Control Reports*

* delivered on internal hard drive

B-6 OPTION ITEM 5: 30 CM GSD, DOQQ ORTHORECTIFICATION SERVICES

The Government will consider price proposals on an optional award for 4-band, digital orthophoto quarter quadrangles (DOQQs). The Contracting Officer may exercise this option upon contract award or by notice to the Contractor within 60 days of the contact award. **The Government reserves the right to award an orthorectification option individually, inclusive of the project item base requirements (Sections B-2, B-3, and B-4), for one, two or all three project items. This option item will be considered mutually exclusive of Option 4 in Section B-5; either one or the other may be considered.**

Option items will **not** be awarded without the corresponding base item. Therefore, pricing below should reflect only the incremental or additional price for performing the option item in conjunction with the base Item in Sections B-2, B-3, or B-4.

OPTION ITEM 5a: DOQQ, ORTHORECTIFIED IMAGERY FOR SAN JUAN NATIONAL FOREST, COLORADO					
OPTION ITEM	**GSD**	**QTY**	**UNIT**	**UNIT PRICE**	**TOTAL AMOUNT**
5a	30 cm	3,271	Square Miles	**$**	**$**
OPTION ITEM 5b: DOQQ, ORTHORECTIFIED IMAGERY FOR COMANCHE NATIONAL GRASSLANDS, COLORADO					
OPTION ITEM	**GSD**	**QTY**	**UNIT**	**UNIT PRICE**	**TOTAL AMOUNT**
5b	30 cm	1,741	Square Miles	**$**	**$**
OPTION ITEM 5c: DOQQ, ORTHORECTIFIED IMAGERY FOR CIMARRON NATIONAL GRASSLANDS, KANSAS					
OPTION ITEM	**GSD**	**QTY**	**UNIT**	**UNIT PRICE**	**TOTAL AMOUNT**
5c	30 cm	499	Square Miles	**$**	**$**

6.1 Project Item Requirements:

(a) Spatial Resolution: All imagery shall have a 30 cm (12 inch) ground sample distance (GSD) or better.
(b) Horizontal Accuracy Requirements: All orthorectified image tiles shall have 95% of well-defined points tested fall within 6.0 meters of true ground.
(c) Offset: The offset between adjacent image DOQQs, defined as the distance between identifiable features on two neighboring images, shall not exceed 12.0 meters.

6.2 Contract deliverables

THE CONTRACTOR SHALL SUBMIT ONE (1) COMPLETE COPY OF ALL DELIVERABLES. The following deliverables shall be submitted by the Contractor and prepared in accordance with specifications and work statement (Section C), packaging and marking (Section D), inspection and acceptance (Section E), and delivery schedule (Section F):

(a) Radiometric samples (See Section C-6.2(d))
(b) 4-band digital orthorectified, 16-bit image files in DOQQ format*
(c) Stereo-block files*
(d) Aero-Triangulation block files (delivered with DOQQs)*
(e) Metadata and other text files*
(f) RMSE Accuracy and Quality Control Reports*

* delivered on internal hard drive

B-7 GOVERNMENT-FURNISHED PROPERTY

Pursuant to the Government-Furnished Property (GFP) clause (see Section I, Contract Clauses) the Government shall furnish the item(s) of property listed below as GFP to the Contractor.

7.1 Coverage Shapefile

The Contractor will be furnished upon award one (1) ESRI® compatible shapefile containing the required contract coverage for each Project Item awarded. Due to the unique footprint of digital sensors the Contractor is responsible for the complete acquisition within the shapefile area.

7.2 Metadata Template

The Contractor will be furnished upon award two (2) data text files (.txt) containing Federal Geographic Data Committee (FGDC) compliant metadata templates to be used when creating the georeferenced image files and the orthorectified image files (*latter only provided if orthorectification option is exercised*) metadata as required in Section C-6.1, Georeferenced Uncompressed Digital Image Files, and C-6.2/C-6.3, Color-corrected, Orthorectified 16-bit Image Files. Government furnished templates will not be provided for other required metadata.

PART I - THE SCHEDULE

SECTION C - DESCRIPTION/SPECIFICATIONS/WORK STATEMENT

C-1 SCOPE OF CONTRACT

The general scope of the contract is to procure precise vertical aerial imagery for one or more of the following purposes: natural resource inventory, stereomodel compilation, analytical aerotriangulation, orthophotography, and extraction of data by means of photogrammetric measurements and image processing. The Contractor is responsible for furnishing direct digital imagery and related services and supplies in accordance with requirements, specifications, terms and conditions specified herein.

1.1 Technical Requirements and Specifications

The technical requirements and specifications of this contract are described in this section and Attachment A, USDA Digital Camera Specification, dated April 16, 2010, which define the essential elements in securing high quality digital imagery. Any deviation from the specifications stated herein may cause increased time and effort in using the imagery as intended.

1.2 Delivery and Performance

The delivery and performance requirements of this contract are described in Section F, Deliveries or Performance. All contract materials shall be shipped within the time limits and to the place of delivery specified herein. Performance of the contract shall be authorized and monitored by the Contracting Officer and/or the Contracting Officer's Representative.

1.3 Quality Control

Quality control shall be exercised by the Contractor continuously throughout the performance of the contract. Procedures shall be established to assure that all aerial photographic materials are delivered in accordance with the delivery schedule and at the required level of accuracy and quality. The Contractor shall acquire immediate reflights of any photography where coverage or image quality fails to meet minimum requirements of the contract specifications. USDA inspection and acceptance procedures are described in Section E, Inspection and Acceptance.

1.4 Location of Work

The project name, location, and quantities of areas to be acquired under this contract will be described in Section B, Supplies or Services & Price/Cost, and shown on the project maps in Section J, Exhibit 1, Project Maps. The Contractor’s place of performance where

work will be performed on this contract shall be indicated in ORCA Certification. (See Section K-1, Representations, Certifications, and Other Statements of Offers)

1.5 Project Management and Flight Planning

The Contractor is required to provide the necessary project management, coordination, and supervision to conduct project planning, flight line planning and acquisition, image processing, product delivery, and related technical and progress reports as required in the contract (see Section C-7, Project Management).

1.6 Labor and Materials

The Contractor shall furnish all materials, equipment, transportation, superintendence, and labor as required herein. The Contractor shall execute and finish the imagery acquisition, imagery production and related services for the project specified and shall deliver to the USDA all materials called for in Section F-1, Materials to be Delivered.

C-2 APPLICABLE DOCUMENTS

2.1 Attachments

The following documents attached to this solicitation document are considered requirements and specifications under the resulting contract(s), as applicable to the Contractor's technical proposal:

(a) USDA Digital Camera Specification, dated April 16, 2010 (Attachment A)
(b) USDA Digital Imagery Quality Specification, dated May 28, 2009 (Attachment B)
(c) USDA Digital File Format Specification, dated April 16, 2010 (Attachment C)

2.2 References

The following documents referenced in this solicitation document are considered requirements and specifications under the resulting contract(s), as applicable to the Contractor's technical proposal:

(a) Federal Geographic Data Committee (FGDC) Specification, FGDC-STD-001-1998 ("Content Standard for Digital Geospatial Metadata")
(b) Federal Geographic Data Committee (FGDC) Specifications, FGDC-STD-007.3-1998 ("Geospatial Positioning Accuracy Standards, Part 3: National Standard for Spatial Data Accuracy")
(c) Code of Federal Regulation (CFR) Title 14 ("Federal Aviation Regulations")
(d) GeoTIFF Revision 1.0 Specification, dated December 28, 2000 (Version 1.8.2)
(e) TIFF Specification Revision 6 dated June 3, 1992 (Adobe Systems Inc.)

C-3 GENERAL REQUIREMENTS

The Contractor shall furnish all materials, equipment, transportation, superintendence, and labor required to plan, acquire, manage, and process digital imagery for the project items as specified in Section B, Supplies or Services and Price/Cost.

C-4 EQUIPMENT REQUIREMENTS

Any key acquisition equipment such as aircraft and digital sensors (in addition to those submitted at the time of offer) proposed to be used by the Contractor must be approved for use by the Contracting Officer. If key acquisition equipment proposed for use are not owned by the Contractor, a written statement of availability from the owner of the equipment shall be furnished to the Contracting Officer.

4.1 Precision Aerial Mapping Digital Sensor

Digital sensors used for acquiring aerial imagery shall meet contract specifications (see Attachment A). Digital Sensors must be compatible with precision stereoscopic mapping instruments and with analytical mensuration procedures used in photogrammetric surveys and in preparing accurate orthoimagery.

(a) Digital Sensor Evaluation: Proposed digital sensor systems will be evaluated to determine if they meet the contract specifications, based on current technical descriptions and samples. The Contracting Officer shall have the right to require the removal of a camera/sensor from use when deficiencies in imagery attributable to the camera are found to exist. Any camera/-sensor removed from use by the Contracting Officer shall not be returned to use on any APFO contracts until the cause of the malfunction is corrected to the satisfaction of the Contracting Officer. That determination will be based on acceptable samples, calibration reports, and/or an additional test by the Optical Science Laboratory of the USGS, if directed by the Contracting Officer.

(b) Digital Sensor Operation: The digital sensor and its mount shall be checked for proper installation prior to each mission. In conformance with conventional photogrammetric practice, it is the preference of the Government that the Contractor use digital sensor configurations, that when installed in the aircraft, advances imagery parallel to the line of flight.

(c) Accessories:

(1) Automatic Exposure Control. An automatic exposure control device is permitted, but a manual override capability is required for some types of terrain to achieve proper exposure.
(2) Camera Mount. The camera mount shall be regularly serviced and maintained and shall be insulated against aircraft vibration.

(3) Camera Port Glass. Aircraft camera port glass shall be preferably 50mm thick but not less than 32mm thick. The surface finish shall be 80/50 or better. Glass material shall be polished crown, group category M, Mil Specs Mil-W-1366F (ASG), dated October 1975, C-1 optical quality or better.

4.2 Aircraft Requirements

(a) FAA Certification. All aircraft used in the performance of the work under this contract shall be maintained and operated in accordance with all regulations required by the U.S. Department of Transportation, Federal Aviation Administration (FAA). Aircraft operated in the acquisition of aerial photography or digital imagery under this contract shall be FAA certified to a service ceiling with operating load (crew, camera, film, oxygen, and other required equipment) of not less than the highest altitude required.

(b) Positive Control Airspace. The proposed project item areas may contain areas of controlled or restricted airspace. It is the responsibility of the Contractor to obtain all approvals necessary to assure that required clearances are achieved. When the flight plan and location of any project item coverage fall within positive-control airspace, the aircraft must contain the appropriate equipment to operate in such positive-control areas within the purview of the Federal Aviation Regulations. In addition, 18 USC Section 795 requires permission of the commanding officer to photograph or map some military and naval installations. If any delay to the acquisition or production schedule is caused due to 18 USC Section 795 or similar statutes, the Contractor is required to notify the Contracting Officer in writing within 72 hours and shall include detail information regarding the issue, point of contact at the installation, and estimated delay. (See Section H-2, Airspace Permits and Clearances)

(c) Aircraft Configuration. The design of the aircraft shall be such that when the camera is mounted with all its parts within the outer structure, an unobstructed field of view is obtained. The field of view shall be shielded from the exhaust gases, oil, effluence, and air turbulence. The camera port glass shall be free of scratches and of such quality that it will not degrade the resolution or the accuracy of the camera and shall conform to Section C-4.1(c)(3), Camera Port Glass.

(d) Airborne Global Positioning System. The aircraft shall have an Airborne Global Positioning System (ABGPS), Inertial Measurement Unit (IMU) system capable of generating accurate control points used in the creation of the photo-center data file (see Section C-7.4, Photo-Center Data File).

C-5 IMAGERY ACQUISITION REQUIREMENTS

5.1 Photographic Conditions

Imagery shall be acquired when skies are clear, free from smoke, clouds, cloud shadows, excessive haze, and well-defined images can be resolved. The ground shall be free from

snow below timberline, standing water (other than natural or man-made ponds and lakes), flood waters from streams which have overflowed their banks, and wet ground which obscures field, soil or crop lines.

5.2 Flight Planning

The Contractor shall create a flight plan to be submitted to the Contracting Officer for Government review prior to commencing acquisition of the project area. The flight plan shall provide flight line planning necessary to acquire precision, high quality, stereo imagery for the production of digital quarter quadrangle orthoimagery, which shall include at a minimum, exposure stations, flight altitude determinations and overlap stereoscopic coverage. The boundaries and exact coverage of this project item is determined by the official coverage shapefile. See Section B-7.1, Coverage Shapefile.

5.3 Flight Requirements

The Contractor shall obtain precise vertical digital imagery in accordance with the following technical requirements:

(a) Acquisition Periods. The Contractor shall acquire imagery only during that portion of the day when the sun angle exceeds the requirement stated in Sections B-2.2(c), B-3.2(c), and B-4.2(c), Minimum Sun Angle. The Contractor shall limit operations to the dates specified in Section B, Supplies or Services & Price/Cost, or as otherwise provided in writing by the Contracting Officer as stated under Section F-4, Performance of the Work.

(b) Tilt. It is desired that exposures be made when the optical axis of the digital sensor is in a vertical position. The Contractor shall not acquire imagery when the tilt (departure from the vertical) of any exposure exceeding four degrees (4º) or relative tilt between any two successive exposures exceeding six degrees (6º). Tilt shall not average more than 2 degrees (2º) in any 16 km (10 mile) section of a flight line and shall not average more than 1 degree (1º) for the entire project.

C-6 DIGITAL IMAGERY PROCESSING

6.1 Georeferenced, Stereo, Uncompressed Digital Image Files

Contractor shall provide single point georeferenced, stereo-coverage, radiometrically uncorrected digital image files at the resolution in accordance with Section B. If any digital image files are rejected by the contractor's quality control process and/or reflights are acquired, only one acceptable image file shall be submitted. The image shall be submitted in the native camera footprint (non-frame based sensors shall submit imagery in a tile format comparable to frame-based sensors and file sizes will be mutually agreed upon by the Government and the Contractor). The file shall cover the entire area of the

native camera footprint and shall be projected in the 1983 North American Datum (NAD83), using the native Universal Transverse Mercator (UTM) zone in meters.

(a) Image Quality. The Contractor shall not make any radiometric enhancements, such as stretching, dodging, or other Look Up Table (LUT) adjustments, to the acquired imagery.

(b) File Format. The 4-band imagery shall be 16-bit per band in accordance with the Adobe TIFF and GeoTIFF Specifications and shall have the following band order: Red, Green, Blue, and Infrared. GeoTIFF files shall be saved such that the first pixel (0,0) is the northwest corner of the image. The image shall be saved so that the most northwest corner of the image is saved to the file as the top left pixel (i.e. north faces up on a computer screen), and viewable in ArcMap in the same north orientation. Files shall use the naming convention specified in Section J, Exhibit 2, File Naming Convention.

(c) Georeferenced Accuracy. The principal point shall have an accuracy not exceeding a 6 meter offset from true ground.

(d) Media Requirements. All georeferenced imagery shall be delivered on internal computer hard drives as defined in Section D-1.3, Internal Hard Drives. **Maximum disk space that can be used cannot exceed seventy-five (75%) of the individual hard drive capacity.** This unused disk space is reserved for the creation of auxiliary files post Government inspection. The files shall be stored in a single subdirectory under the root directory called "georeferenced."

(e) Metadata. The Contractor shall create Federal Geographic Data Committee (FGDC) compliant, per FGDC-STD-001-1998 specification, metadata file for each digital image file. Metadata must parse cleanly through the USGS metadata parser "mp" version 2.8.10 (or later version) without any errors.

6.2 Orthorectified, Color-corrected 16-bit Image Files ***(Applicable only if Orthorectification Option Item 4 is Exercised)***

The Contractor shall create color-corrected, orthorectified image files using the imagery associated with the files created in Section C-6.1, Georeferenced, Uncompressed Digital Image Files. The file shall cover the entire area of the native camera footprint and shall use the same coordinate reference system as the georeferenced, uncompressed digital image files. The Contractor shall use the smallest minimum boundary rectangle necessary in order not to cut or clip any of the the orthorectified imagery.

(a) Image Quality. All files shall meet the image quality requirements specified in Attachment B, USDA Digital Image Quality Specifications. The Contractor shall color-correct the files so that they radiometrically match the ground at the time of exposure including, but not limited to, any dodging, histogram stretching, brightness

adjustments, and/or color balancing. The files shall not contain any borders, artifacts, or other non-image items.

(b) File Format. The digital image shall be a 4-band, 16-bit per band, untiled, georeferenced tagged image file format (GeoTIFF) created in accordance with Attachment C, paragraph 4.0, USDA File Format Specification, but with the appropriate TIFF tag values for 16-bit per band image. Files shall use the same file naming specified in Section J, Exhibit 2, File Naming Convention.

(c) Raster Support File. The Contractor shall provide an AUX (ESRI compatible Auxilary statistic/projection file) and a RRD (ESRI compatible Reduced Resolution Dataset pyramid file) for each image file. The auxiliary file shall contain the proper projection information for the file and shall match the information in the GeoTIFF header. The files shall use the same naming convention as the image files but with an ".rrd" and ".aux" extension respectively.

(d) Radiometric Sample. The Contractor shall submit a single radiometric corrected image within 21 days of the first image acquisition for Government review. The sample shall be a TIFF (GeoTIFF preferred), and submitted on a standard CD or DVD (labeling requirements in Section E are not required). The Government will evaluate and provide an approval or disapproval letter with comments no later than 3 business days, with a goal of 24 hours. Additional project item area samples may be submitted for review if approved by the Contracting Officer Representative (COR).

(e) Horizontal Accuracy: All orthorectified digital image files shall have 95% of all well-defined points tested fall within six (6) meters of true ground.

(f) Offset: The offset between adjacent image tiles, defined as the distance between identifiable features on two neighboring images, shall not exceed 12.0 meters.

(g) Aero Triangulation: The contractor shall perform aero triangulation, or similar process, for all orthorectified image tiles. Flight lines in an area of interest must be tied together using control points.

(h) Media Requirements. All files shall be delivered on internal computer hard drives as defined in Section D-1.3, Internal Hard Drives. **Maximum disk space that can be used cannot exceed ninety percent (90%) of the individual hard drive capacity.** The files shall be stored in a single subdirectory under the root directory called "ortho".

(i) Metadata: The Contractor shall create Federal Geographic Data Committee (FGDC) compliant, per FGDC-STD-001-1998 specification, metadata file for each digital image file. Metadata must parse cleanly through the USGS metadata parser "mp" version 2.8.10 (or later version) without any errors.

6.3 Digital Orthorectified 16-bit Quarter Quadrangle Tiles ***(Applicable only if Orthorectification Option Item 5 is Exercised)***

The Contractor shall acquire imagery and provide orthorectification services to produce 4-band, 16-bit, mosaicked digital orthorectified quarter quadrangles (DOQQs) for the project area defined in Section B-4.1, Coverage Shapefiles. The DOQQ shall cover the entire image area of one USGS standard quarter quadrant, with a 100 meter buffer on all four sides. The DOQQs shall be projected in native UTM NAD83 Zone in meters.

(a) Image Quality: All DOQQs shall meet the image quality requirements specified in Attachment B, USDA Digital Image Quality Specifications. The Contractor shall radiometrically balance the files to eliminate any checker board pattern appearance in the DOQQ. However, it is the Government's preference not to have the DOQQs "radiometrically balanced" with other neighboring DOQQs. The DOQQs shall not contain any borders, artifacts, or other non-image items.

(b) Coverage: When a DOQQ partially covers the forest boundary, the Contractor may elect to submit a partial DOQQ so that it completely covers the forest boundary. Any partial DOQQ shall include a 100 meter buffer on the outside of the forest boundary.

(c) File Format: The DOQQ tiles shall be a 4-band, 16-bit per band .ERDAS® img file format. Files shall use the same file naming specified in Section J, Exhibit 2, File Naming Convention.

(d) Raster Support File: The Contractor shall provide an .ige AUX ERDAS compatible xxxx file) for each image file.

(e) Image Source: The Contractor may use imagery from multiple exposures, i.e., using the "sweet spot" from a preceding or succeeding image, when creating the tile images. Using "chips" (imagery pieces from other frames) to correct defects is also permitted. All exposures shall be from the same type of sensor and must be from the same acquisition season. When multiple exposures are used in creating a tile, the acquisition date with the largest area shall be used when reporting dates in a single date field, such as metadata or attribute data. An average or mean date shall not be used.

(f) Radiometric Sample: The Contractor shall submit a single radiometrically corrected image within 21 days of the first image acquisition for Government review. The sample shall be a TIFF and submitted on a standard CD or DVD (labeling requirements in Section E are not required). The Government will evaluate and provide an approval or disapproval letter with comments no later than three (3) business days, with a goal of 24 hours. Additional project item area samples may be submitted for review if approved by the Contracting Officer Representative (COR).

(g) Horizontal Accuracy: See Section 6.2(e) for requirements.

(h) Offset: See Section 6.2(f) for requirements.

(i) Media Requirements: See Section 6.2(h) for requirements.

(j) Metadata: The Contractor shall create Federal Geographic Data Committee (FGDC) compliant, per FGDC-STD-001-1998 specification, metadata file for each digital image file. Metadata must include a separate lineage section for each georeferenced, uncompressed digital image file used in the creation of the DOQQ. The lineage title will contain the actual file name of the image tile used. Metadata must parse cleanly through the USGS metadata parser "mp" version 2.8.10 (or later version) without any errors. The metadata file shall use the same naming convention as the DOQQ but shall use a ".met" extension.

6.4 ABGPS/IMU Data Files

The Contractor shall post-process Airborne Global Positioning System (ABGPS) and Inertial Measurement Unit (IMU) data. The Contractor shall submit the raw and processed data. See Section F-1.7, ABGPS/IMU Data Files. The processed data shall be compatible with ERDAS Imagine, Leica Photogrammerty Suite (LPS), ESRI Stereo Analyst for ArcGIS, BAE Socet Set, and ESRI Stereo Analyst for ArcGIS.

The Contractor shall deliver the data in two coordinates systems: projected (using the same coordinates reference system as the GeoTIFF images) and earth-centered earth-fixed (.ecef) format.

(a) File Format: The ABGPS/IMU Data shall be an ASCII text file. Contractor may use any consistent and logical naming convention.

(b) Media: ABGPS/IMU data files shall be delivered on internal computer hard drives as defined in Section D-1.3, Internal Hard Drives. The files shall be stored in a single subdirectory under the root directory called "gps".

(c) Metadata: The Contractor shall create Federal Geographic Data Committee (FGDC) compliant, per FGDC-STD-001-1998 specification, metadata file for each digital image file. Metadata must parse cleanly through the USGS metadata parser "mp" version 2.8.10 (or later version) without any errors.

6.5 Supplemental GPS Ground Data

The Contractor shall provide any GPS ground data used to supplement the ABGPS positional data adjustments. For example, base stations or CORS. The data shall use the same datum and projection required for the GeoTIFF image files.

(a) File Format: Supplemental data shall be delivered in a non-proprietary format mutually agreeable to the Government and Contractor. Contractor may use any consistent and logical naming convention.

(b) Media: All supplemental ground control files shall be delivered on internal computer hard drives as defined in Section D-1.3, Internal Hard Drives. The files shall be stored in a single subdirectory under the root directory called "gps_base".

(c) Metadata: The Contractor shall create FGDC compliant, per the FGDC-STD-001-1998 specification, metadata file for each supplemental ground data file. Metadata must parse cleanly through the USGS metadata parser "mp" version 2.8.10 (or later version) without any errors.

6.6 Stereo Block Files ***(Applicable only if Orthorectification Option is Exercised)***

The Contractor shall provide a stereo block file so that digital image files created in Section C-6.1, Georeferenced, Uncompressed Digital Image Files, can be brought in and viewed in stereo-pairs. In the case of reflights or the completion flight line(s) during an additional acquisition season, the stereo block file must be updated to include new and/or reflown imagery for the affected flight lines.

(a) Image Reference Structure: The image reference structure of the stereo block files must be mutually agreed upon between the Government and the Contractor.

(b) File Format. The stereo block files shall be Leica Photogrammetry Suite (LPS) compatible block file and shall be readable in Stereo Analyst extensions for ERDAS IMAGINE 10 and ESRI ArcGIS 9.3. Contractor may use any consistent and logical naming convention. The Government prefers the use of .blk over .prj files.

(c) Media. Stereo block files shall be delivered on internal computer hard drives as defined in Section D-1.3, Internal Hard Drives. The stereo block files, georeferenced uncompressed digital image files, and all associated files shall be stored in a single subdirectory under the root directory called "stereo". Files should be hardcoded to the e: drive.

(d) Metadata. The Contractor shall create FGDC compliant, per the FGDC-STD-001-1998 specification, metadata file for each block file. Metadata must parse cleanly through the USGS metadata parser "mp" version 2.8.10 (or later version) without any errors. No metadata template will be provided

6.7 Regional Settings

All digital files, including imagery and metadata, shall be created using standard ANSI English-US setting. For example, periods (ACII 46) shall be used to separate the whole number from the fractional portion when recording decimal numbers and data representing a long date shall be recorded as "Wednesday, August 18, 2010 5:09:38 PM."

C-7 PROJECT MANAGEMENT

The Contractor shall establish and maintain a project management system with a designated project manager for this effort. Project management consists of those activities required to plan, manage, administer, and control efforts to accomplish the objective of the contract. The project manager will serve as the primary point of contact for the Contractor's activity with the Government. The project manager's name and contact information shall be identified, in writing, to the Contracting Officer within 21 calendar days of contract award.

7.1 Progress Reports

A Progress Report is required for each day progress is made in acquiring project imagery. Each progress report shall be sent by email transmission not later than the day following performance and only for days when performance was accomplished.

In the event that day is a holiday or non-business day, the report shall be sent on the next business day. Separate reports are required from each photographic crew assigned to a project item. Such "next day" reporting shall start when the Contractor receives the Notice to Proceed, and continue until the area is completed or the photographic season and any extensions end. If reflights are determined necessary or ordered by the Contracting Officer, progress reports covering such performance are required.

An e-mail address will be provided at contract award. See Section J, Exhibit 4, Progress Report, for syntax and example.

7.2 Flight Logs

The Contractor shall maintain daily flight logs for all acquisition missions. As a minimum, flight logs should record date of flight, tail number, camera serial number and for each flight line information should include: line number, start and stop time, direction, altitude, speed, and number of exposures.

7.3 Subcontract Management

If the Contractor uses subcontractors in the performance of the contract, a plan and procedure will be established to manage its subcontractors. Contractor should give prior notification of any subcontracts in accordance with Section G-5, Subcontracts. The Contractor is encouraged to maximize its use of partnerships and subcontractors to accomplish the requirements of this contract. However, the Contractor is solely responsible for the performance and cost control of its partnerships and subcontractors.

7.4 Photo-Center File

The Contractor shall prepare a digital photo-center data file for the aerial imagery delivered under this contract and shall include a FGDC compliant metadata support file. The photo-center location, latitude and longitude coordinates, shall be corrected to reflect

the physical ground location and shall be accurate within 5 meters (16.4 feet) of true location. The coordinates shall be expressed in Decimal Degrees and formatted to the same datum and projection required for the GeoTIFF image files. The photo-center file must be resubmitted with any resubmissions or corrections to imagery files.

(a) File Format. The photo-center file(s) shall be provided in ASCII comma delimited text format. A comma delineated header file shall precede the data in each file as shown in the example. Files shall use the naming convention specified in Exhibit 1, File Naming Convention. The file(s) shall include the following attributes:

DESCRIPTION	MAX NUMBER OF CHARACTERS IN FIELD	HEADER NAME
Project Identification Code	6	ProjID
Flight Line Number*	4	FltLn
Exposure Number*	4	ExpNum
Date of Exposure (YYYYMMDD)	8	ExpDate
Time of Exposure – Local 24 Hour Clock (HHMMSS)	6	ExpTime
Sensor Serial Number **	15	Sensor
Corrected Latitude (DD.DDDDDD)	9	Lat
Corrected Longitude (-DDD.DDDDDD (Negative))	11	Lon
Flight Altitude in meters at camera (MMMMM.MM; MSL)	8	FltAlt
Number of GPS Satellites Acquired	2	GPSNum
Position Dilution of Precision (PDOP)	3	PDOP
IMU omega value (Radians)	10	Omega
IMU phi value (Radians)	10	Phi
IMU kappa value (Radians)	10	Kappa

*Same image number used for image file naming convention.
**If a digital camera has more than one sensor head please use the camera serial number.
Example:
ProjID,FltLn,ExpNum,ExpDate,ExpTime,Sensor,Lat,Lon,FltAlt,GPSNum,PDOP,Omega,Phi,Kappa
612130,25,1,20110827,130755,12345678,57.71936,-135.41498,7048.63,5,1.5,.0001358,.01073000,-.873265

(b) Media. Photo-center file(s) shall be delivered on external computer hard drives as defined in Section D-1.3, External Hard Drives. The files shall be stored in a single subdirectory under the root directory called “pcf”.

(c) Metadata. The Contractor shall create FGDC compliant, per the FGDC-STD-001-1998 specification, metadata file for each photo-center file. Metadata must parse cleanly through the USGS metadata parser “mp” version 2.8.10 (or later version) without any errors. No metadata template will be provided.

7.5 Footprint Shapefile

The Contractor shall provide an ESRI® compatible polygon shapefile index for each project item. The index shall contain a polygon for each exposure footprint delivered under this contract and shall include a FGDC compliant metadata support file. The photo-center location, latitude and longitude coordinates, shall be corrected to reflect the physical ground location and shall be accurate within 6 meters (19.7 feet) of true ground. The coordinates shall be expressed in Decimal Degrees and formatted to the same datum and projection required for the GeoTIFF image files. The footprint shapefile must be resubmitted with corrections reflecting any image corrections, reflights, or completion of additional flights after original submission.

(a) File Format. The footprint shapefile(s) shall be a ESRI® compatible shapefile format. Files shall use the naming convention specified in Exhibit 2, File Naming Convention. The shapefile(s) shall include the following attributes:

ATTRIBUTE DESCRIPTION	COLUMN NAME	DATA TYPE	EXAMPLE
Project Identification Code	PROJID	Char(6)	612130
Flight Line number	FLTLN	Char(4)[±]	0025
Exposure number	EXPNUM	Char(4)[±]	0001
Date of exposure (YYYY-MM-DD)	IDATE	Char(10)	2010-08-27
Image file name			612130_0025_ 0001_20110827.tif
Polygon start date/time[*]	SDATE	Char(16)	08/27/2011 13:52
Polygon end date/time[*]	EDATE	Char(16)	08/27/2011 13:53
Color Type[**]	BCON	Char(3)	M4B
Camera type[***]	CAM_TYPE	Char(20)	Digital
Camera manufacturer	CAM_MAN	Char(50)	Zeiss
Camera model	CAM_MOD	Char(25)	DMC
Sensor serial number	SENSNUM	Char(100)	30029
Corrected center point latitude (DD.DDDDDD)	LAT	Double(19)[‡]	57.71936
Corrected center point longitude (-DDD.DDDDDD)	LON	Double(19)[‡]	-135.41498
Flight altitude in meters at camera (MMMMM.MM; MSL)	FLTALT	Double(19)[‡]	7048.63
Number of GPS satellites acquired	GPSNUM	Short Integer	5
Position Dilution of Precision	PDOP	Double(19)[‡]	1.5

(PDOP)			
IMU omega value (Radians)	OMEGA	Double(19)‡	.0001358
IMU phi value (Radians)	PHI	Double(19)‡	.01073000
IMU kappa value (Radians)	KAPPA	Double(19)‡	-.873265

± Padded with leading zeros
‡ Double data type shall be length of 19 (18 precision, 11 scale)
* Local 24-hour clock. The start/end time will be for the collection of the individual polygon (will be the same for frame-based systems)
** Possible values are: NC (natural color), CIR (color infrared), and M4B (4-band)
*** Possible values are: Digital or Film

(b) Media. The footprint shapefile(s) shall be delivered on internal computer hard drives as defined in Section D-1.3, Internal Hard Drives. The files shall be stored in a single subdirectory under the root directory called "index".

(c) Metadata. The Contractor shall create FGDC compliant, per the FGDC-STD-001-1998 specification, metadata file for each footprint shapefile. Metadata must parse cleanly through the USGS metadata parser "mp" version 2.8.10 (or later version) without any errors. No metadata template will be provided.

C-8 QUALITY CONTROL

Quality control shall be exercised by the Contractor continuously throughout the performance of the contract. Procedures shall be established to assure that all contract materials are delivered in accordance with the delivery schedule and at the required level of accuracy and quality. The Contractor shall inspect and constantly monitor the image quality and coverage, and shall undertake immediate reflights of any imagery where the quality fails to meet minimum requirements of the contract specifications. Any marginal photography/imagery submitted for inspection which does not meet minimum requirements may be rejected. The marginal photography may be accepted, at the Government's convenience, but shall be subject to a price reduction based on the diminished usability of the product. The nature and urgency of this project may require the Government to make equitable financial adjustments for materials deemed rejectable or where product use is adversely impacted. USDA inspection and acceptance procedures are described in Section E, Inspection and Acceptance.

8.1 RMSE Accuracy and Quality Control Report ***(Only Applicable if Orthorectification Option is Exercised)***

The Contractor shall provide RMSE accuracy reports and quality control reports generated during the AT and/or orthorectification processes for all image files in accordance with Section F-1.4, RMSE Accuracy and Quality Control Report.

(a) File Format. The reports shall be delivered in a non-proprietary format mutually agreeable to the Government and Contractor. Contractor may use any consistent and logical naming convention.

(b) Media. Accuracy Reports shall be delivered on external computer hard drives as defined in Section D-1.3, Internal Hard Drives. The files shall be stored in a single subdirectory under the root directory called “rmse”.

PART I - THE SCHEDULE

SECTION D - PACKAGING AND MARKING

D-1 PREPARATION OF MATERIALS FOR SHIPMENT

All digital imagery and text files shall be labeled and shipped in packaging designed for their protection.

1.1 Compact Disks

All compact disks (CDs) shall be delivered on archival media, 700 Megabytes (80-minute) per disk CD-R, hybrid ISO 9660 Mode 1 format using level 2 interchange with Rockridge and Joliet extensions. The format of the DVD will allow long file names up to 64 characters in length, and will be readable by both Windows and UNIX systems where the file names will appear the same on both systems. The Contractor must insure that each and every copy session has been properly closed. No multi-session enabled CDs shall be acceptable. The CD media shall have a label attached identifying the digital contents of the CD in accordance with Section J, Exhibit 3, Figures 1, CD/DVD Label, (thermal printed CDs are acceptable). In addition to the packaging requirements in Section D-2, all CD media shall be packaged in standard single CD jewel cases (5-5/8" x 4-15/16" x 3/8") with a clear front cover. The CD label should be readable without opening the case or removing the CD from the case. “Slim” or other non-standard sized jewel cases will not be accepted.

1.2 Digital Versatile Disk

All digital versatile disks (DVDs) shall be delivered on archival media, single-sided, 4.7 Gigabyte (120-minutes) DVD-R discs. DVD-R(A), DVD-RW, DVD+R, or DVD+RW formats are not acceptable. DVDs shall meet all other requirements, except of the media type, required for CDs (see paragraph above).

1.3 Internal Hard Drives

All hard disk drives (HDDs) used to deliver imagery shall be internal Serial Advanced Technology Attachment (SATA) 3½ inch, 3.0 Gbit/s transfer-rate hard drives, with a minimum rotation speed of 7,200 rpm, not more than 2 Terabytes. **Maximum disk space that can be used cannot exceed seventy-five percent (75%) of the individual hard drive capacity for georeferenced digital image files, and ninety percent (90%) for orthorectified digital image files, unless otherwise specified in Section C.** The SATA drives shall be formatted using Microsoft’s NTFS file system. Each drive will be enclosed in a static bag and shall have one label attached directly to the outer surface of the static bag and on placed directly on the internal hard drive identifying the project contained on

the drive in accordance with Section J, Exhibit 3, Figure 2, Hard Drive Labeling Requirements. The drives shall become property of the Government and will not be returned to the Contractor.

D-2 PACKAGING FOR SHIPMENT

All material shall be packed for shipment in such a manner that will insure acceptance by common carrier and safe delivery at destination. Containers and closures shall comply with the Interstate Commerce Commission regulations, Uniform Freight Classification rules, or regulations of other carriers as applicable to the mode of transportation. Damaged materials will be replaced by the Contractor at no cost to the Government.

A packing slip shall accompany each shipment and shall itemize all material included in the shipment.

D-3 SHIPPING RECEIPTS

Receipts from common carriers for shipment of materials shall be retained by the Contractor and be made available to the Contracting Officer upon request.

D-4 SHIPPING CONTAINER MARKINGS

All shipping containers shall be clearly marked with delivery address. See Section F-2, Place of Delivery – FOB Destination, within Consignee's Premises.

PART I -THE SCHEDULE

SECTION E - INSPECTION AND ACCEPTANCE

E-1 INSPECTION AND ACCEPTANCE (FEB 1988)(AGAR 452.246-70)

The Contracting Officer or the Contracting Officer's duly authorized representative will inspect and accept the supplies and/or services to be provided under this contract.

Inspection and acceptance will be performed at:

Aerial Photography Field Office
2222 West 2300 South
Salt Lake City, Utah 84119-2020

E-2 INSPECTION PROCEDURE

All materials specified in Section F-1, Materials to be Delivered, will be inspected to determine conformance to all contract requirements and specifications. Inspection of the image files will be performed utilizing a comprehensive method of quality assurance inspection procedures including a random sampling technique to test for compliance to the horizontal accuracy requirement in the imagery delivered. (Refer to FAR 52.246-2, Inspection of Supplies-Fixed Price and FAR 52.246-4, Inspection of Services-Fixed Price)

If inspection of materials reveals deficiencies that may cause increased time and effort in using the digital imagery and aerial photography as intended, the Government may require the Contractor to perform the services again in conformity with contract requirements, at no increase in contract amount. When the defects in services cannot be corrected by re-performance, the Government may:

(a) Require the Contractor to take necessary action to ensure that future performance conforms to contract requirements and
(b) Reduce the contract price to reflect the reduced value of services performed.

E-3 INSPECTION SCHEDULE

The Government will make every effort to inspect all material specified within 60 calendar days after they are received at the point designated. **Therefore, without the complete delivery of all materials the Government cannot efficiently begin inspection, thus delaying the inspection schedule.** Should the inspection procedure be delayed longer than 60 days, the Contractor will be notified of the reason(s) for delay and given the estimated completion date.

Contract materials will be inspected in the order of their receipt, unless otherwise prioritized by the Government. Inspection of project items where the photographic season is open will be given priority over projects for which the season has closed.

The Contractor will be notified in writing whether the materials are satisfactory and what areas, if any, shall be reacquired and what materials, if any, shall be remade because of nonconformity with contract requirements.

E-4 PARTIAL COVERAGE

If the Contractor obtains only partial coverage for any project item during the season, all partial imagery and contract deliverables shall be processed and delivered according to the requirements specified for completed imagery. Interim products may be required to satisfy partial delivery. The requirement for processing partial coverage may be waived only by the Contracting Officer.

E-5 ACCEPTANCE

5.1 Final Acceptance

Final acceptance will be made by the Contracting Officer after inspection by the Government of all required materials delivered at the specified destination. The acceptance date shall be the date of the letter, by the Government to the Contractor, stating all materials are acceptable and an invoice may be submitted.

5.2 Partial Acceptance of a Completed Project

The Government may make a partial acceptance on a completed project area due to the rejection of deficient or non-compliant material(s). A partial acceptance will result in a contract price reduction based on the final determination of contract material compliance to contract requirements and specifications. The Government will issue an acceptance letter to the Contractor, stating the materials that have been accepted and the materials that have been rejected, at which time an invoice may be submitted.

5.3 Partial Acceptance of a Project with a Contract Season Extension

Partial acceptance on any uncompleted project will be made only after the acquisition season has ended and all materials required for the project area have been delivered, inspected, and accepted by the Government. The acceptance date shall be the date of the letter by the Government to the Contractor identifying the amount of partial acceptance and at which time an invoice maybe submitted.

E-6 CLAUSES INCORPORATED BY REFERENCE (FEB 1998) (FAR 52.252-2)

This contract incorporates one or more clauses by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. Also, the full text of a clause may be accessed electronically at this address: www.arnet.gov/far.

FEDERAL ACQUISITION REGULATION (48 CFR CHAPTER 1) CLAUSES:

52.246-02 Inspection of Supplies - Fixed Price (AUG 1996)

52.246-04 Inspection of Services - Fixed Price (AUG 1996)

52.246-16 Responsibility for Supplies (APR 1984)

PART I - THE SCHEDULE

SECTION F - DELIVERIES OR PERFORMANCE

F-1 MATERIALS TO BE DELIVERED

The materials shall be delivered as required and consist of the following items. The Contractor shall maintain a copy of the digital data until APFO acknowledges receipt.

1.1 PROJECT FLIGHT PLAN

Item	Requirement
Format	txt, doc, or pdf
Media	Paper Copy, Email, or CD/DVD
Naming Convention	None
Quantity	One (1)
Date of First Submittal	Prior to Commencing Acquisition
Submittal Frequency	Once
Government Approval Required	Yes
Required Metadata	No

1.2 GEOREFERENCED, UNCOMPRESSED DIGITAL IMAGE FILES

Item	Requirement
Format	GeoTIFF
Media	Hard Drive (see Section D-1.3)
Naming Convention	See Section J, Exhibit 2 (i.e. “612130_0025_0001_20110827.tif”)
Quantity	One (1) set of images per set of hard drives. Only one project item on each set of drives.
Date of First Submittal	No later than ninety (90) calendar days after acquisition period.
Submittal Frequency	Once
Government Approval Required	Yes (see Section E)
Required Metadata	Yes (separate file for each image file)

1.3 ORTHORECTIFIED, COLOR-CORRECTED 16-BIT IMAGE FILES ***(Applicable Only if Orthorectification Option Item 4 or 5 is Exercised)***

Item	Requirement
Format	GeoTIFF (Option Item 4) or .img (Option Item 5)
Media	Hard Drive (see Section D-1.3)
Naming Convention	See Section J, Exhibit 2 (i.e. "612130_0025_0001_20110827_ortho.tif")
Quantity	One (1) set of ortho-rectified image files per set of hard drives. Only one project item on each set of drives.
Date of First Submittal	No later than ninety (90) calendar days after acquisition period.
Submittal Frequency	Once
Government Approval Required	Yes (see Section E)
Required Metadata	Yes (separate file for each orthorectified image file)

1.4 RMSE ACCURACY AND QUALITY CONTROL REPORTS ***(Applicable Only if Orthorectification Option Item 4 or 5 is Exercised)***

Item	Requirement
Format	ASCII preferred
Media	Hard Drive (see Section D-1.3)
Naming Convention	None
Quantity	One (1)
Date of First Submittal	Delivered with Ortho Image Files (see Section F-1.3)
Submittal Frequency	Once
Government Approval Required	No
Required Metadata	None

1.5 PROGRESS REPORTS

Item	Requirement
Format	See Section J, Exhibit 4
Media	Electronic mail
Quantity	One per day per crew
Date of First Submittal	Daily (as required in accordance with Section C- 7.1)
Submittal Frequency	Daily (only required for days that aerial acquisition was accomplished)
Government Approval Required	No
Required Metadata	None

1.6 PHOTO-CENTER FILE

Item	Requirement
Format	ASCII comma delimited text file
Media	Hard Drive (see Section D-1.3)
Naming Convention	See Section J, Exhibit 2
Quantity	One (1) per hard drive
Date of First Submittal	Delivered with Georeferenced, Uncompressed Digital Image Files (see Section F-1.2)
Submittal Frequency	Once
Government Approval Required	No
Required Metadata	Yes

1.7 ABGPS/IMU DATA FILES

Item	Requirement
Format	ASCII comma delimited text file
Media	Hard Drive (see Section D-1.3)
Naming Convention	None
Quantity	One of each file format per set of imagery: One (1) projected One (1) ECEF file format
Date of First Submittal	Delivered with Georeferenced, Uncompressed Digital Image Files (see Section F-1.2)
Submittal Frequency	Once
Government Approval Required	No
Required Metadata	Yes

1.8 FOOTPRINT SHAPEFILE

Item	Requirement
Format	ASCII comma delimited text file
Media	Hard Drive (see Section D-1.3)
Naming Convention	See Section J, Exhibit 2
Quantity	One (1)
Date of First Submittal	Delivered with Georeferenced, Stereo, Uncompressed Digital Image Files
Submittal Frequency	Once
Government Approval Required	No
Required Metadata	Yes

1.9 STEREO-BLOCK FILE(S) ***(Applicable Only if Orthorectification Option Item 4 or 5 is Exercised)***

Item	Requirement
Format	Leica LPS Compatible File
Media	Hard Drive (see Section D-1.3)
Naming Convention	See Section J, Exhibit 2
Quantity	One (1) file per Set of Hard Drive
Date of First Submittal	No later than ninety (90) calendar days after acquisition period.
Submittal Frequency	Once
Government Approval Required	No
Required Metadata	Yes (separate file for each block file)

1.10 PILOT LOGS

Item	Requirement
Format	Paper copies
Media	Paper
Quantity	One per mission
Date of First Submittal	Delivered with Georeferenced, Uncompressed Digital Image Files (see Section F-1.2)
Submittal Frequency	Once
Government Approval Required	No
Required Metadata	None

F-2 PLACE OF DELIVERY - FOB DESTINATION, WITHIN CONSIGNEE'S PREMISES

The materials to be furnished hereunder shall be delivered, all transportation charges paid by the Contractor, and in accordance with FAR Clause 52.247-35, F.o.b. Destination, Within Consignee's Premises, to:

USDA Aerial Photography Field Office
Attn: Contracting Officer - Resource
2222 West 2300 South
Salt Lake City, Utah 84119-2020

Offers submitted on a basis other than F.o.b. Destination within consignee's premises will be deemed unacceptable or rejected as non-responsive.

F-3 SCHEDULE FOR DELIVERY OF MATERIALS

All delivery materials required in this contract shall be shipped within the time period specified below. Failure to ship within this period will be considered as failure by the Contractor to prosecute the work as to ensure completion and will render the contract subject to default. Date of shipment will be shown by postmark or carrier receipt.

3.1 Original Materials - Delivery Schedule

The required delivery schedule for all contract materials, including options, required for a project item shall be shipped no later than ninety **(90)** calendar days after the acquisition period has ended, or any season extension thereof.

DELIVERY SCHEDULE		
Item or Option Number	**Project Name**	**Required Shipment Date**
Project Item 1	San Juan National Forest, Colorado	January 13, 2012
Project Item 2	Comanche National Grasslands, Colorado	January 13, 2012
Project Item 3	Cimarron National Grasslands, Kansas	January 13, 2012
Option Item 4	30 cm Orthorectification Services	January 13, 2012
Option Item 5	DOQQ Orthorectification Services	January 13, 2012

It is recommended that materials be shipped when completed, since prompt delivery of materials will better assure timely inspection and avoidance of peak seasonal workload delays.

3.2 Remake Materials - Delivery Schedule

Remake materials shall be shipped as soon as possible after correction is made, but no later than 30 days after receipt in the Contractor's facility of the materials or data required to make the corrections. Only materials as specifically requested by the Contracting Officer or Contracting Officer’s Representative to be remade shall be submitted for inspection. Signed delivery receipts will be required to verify date of receipt of such data or materials by the Contractor.

F-4 PERFORMANCE OF THE WORK

The Contracting Officer will authorize and direct the acquisition period to begin or end anytime within thirty (30) days before or after the approximate acquisition dates specified in Section B, depending upon the weather, ground, foliage, and sun angle conditions required for the project item. No imagery shall be undertaken before the Notice to Proceed is issued or after the final date of the acquisition period (or its extension) has occurred. Weather and ground conditions for all project locations will be monitored daily to determine Contractor compliance to performance requirements.

4.1 Notice To Proceed

The Notice to Proceed will be given by telephone or email, and confirmed in writing by regular mail. Failure of the Contractor to proceed with flights on a project item within ten (10) calendar days after a "Notice to Proceed" is given, may be considered as evidence of failure to perform the work so as to ensure its timely completion. As evidence of performance, Progress Reports shall be submitted.

4.2 Acquisition Period Extension

The Government reserves the right to extend the acquisition period of this contract beyond the approximate period indicated in Section B. A lower minimum sun angle requirement may be necessary to allow the season extension.

The Government may extend the season of this contract, at no increase in price, by written notice to the Contractor at any time prior to the end of the acquisition period. (Refer to FAR 52.217-08, Option to Extend Services)

4.3 Extension of the Term of the Contract (MAR 2000) (FAR 52.217-9)

IT IS THE EXPRESSED INTENT OF THE GOVERNMENT TO HAVE ALL IMAGERY REQUIRED UNDER THIS CONTRACT COMPLETED WITHIN THE ACQUISITION PERIOD SPECIFIED IN SECTION B.

The Government may extend the term of this contract, at no increase in price, by written notice to the Contractor within six (6) months after the acquisition period has ended. The Contracting Officer may extend this option twice. (Refer to FAR 52.217-09 “Option to Extend the Term of the Contract”.)

F-5 CLAUSES INCORPORATED BY REFERENCE (FEB 1998) (FAR 52.252-2)

This contract incorporates one or more clauses by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. Also, the full text of a clause may be accessed electronically at this address: www.arnet.gov/far.

FEDERAL ACQUISITION REGULATION (48 CFR CHAPTER 1) CLAUSES:

52.242-15 Stop Work Order (AUG 1989)

52.242-17 Government Delay of Work (APR 1984)

PART I - THE SCHEDULE

SECTION G - CONTRACT ADMINISTRATION DATA

G-1 CONTRACTING OFFICE

The Aerial Photography Field Office (APFO) of the United States Department of Agriculture (USDA), Farm Service Agency (FSA), is responsible for the solicitation, award, and administration of this contract.

Communications shall be directed to:

Contracting Officer, USDA - FSA
Aerial Photography Field Office
2222 West 2300 South
Salt Lake City, Utah 84119-2020

Telephone (801) 844-2910
Facsimile (801) 956-3641

Written correspondence shall reference the contract number and/or solicitation number plus the project item number.

G-2 CONTRACTING OFFICER'S REPRESENTATIVE

Each awarded contract item may have a Contracting Officer's Representative (COR) or a Contracting Officer's Technical Representative (COTR). Such designations will be made either at the time of award or by appointment letter.

G-3 CONTRACT INTERPRETATION

Technical assistance regarding interpretation of the specifications and/or terms of the contract will be provided by the Contracting Officer or the COR. Only the Contracting Officer has authority to award, modify, and terminate contracts. The Contractor is encouraged to visit the USDA-APFO facilities and discuss the contract and inspection procedures.

3.1 Discrepancies

Any discrepancy in the schedule or official flight data shall be immediately called to the attention of the Contracting Officer for decision. A discrepancy shall not be adjusted without approval of the Contracting Officer, except at the Contractor's own risk and expense.

G-4 PROGRESS REPORTS

Progress Reports are required for this contract. If completion instructions contained in the reports (see Section J, Exhibit 4) are not adequate, contact the Contracting Officer for clarification. It is essential that all items of information requested on the report be provided. Progress Reports shall be prepared and submitted for performance periods during the acquisition period as stated in Sections C-7.1 and F-1.5, Progress Reports. Failure to comply with the requirement may result in $25,000 or 5 percent of the contract amount, whichever is less, being withheld from payment. (Refer to FAR 52.242-2, Production Progress Reports)

G-5 SUBCONTRACTS

Before entering into a subcontract covering any part of the work called for, the Contractor shall inform the Contracting Officer and submit information required by the Contracting Officer to determine acceptability and approval of the anticipated subcontractor's equipment to be used.

G-6 CHARGES TO CONTRACTOR

The USDA may, at its option, correct deficiencies found to exist in connection with materials submitted by the Contractor and deduct from the Contractor's vouchers the cost thereof to the Government. When the deficiencies to be corrected are such that the cost exceeds $500.00 at current prices, such corrections will be made only with the prior approval of the Contractor, except in the event of termination for default.

G-7 INVOICES

One original invoice shall be submitted to the Contracting Officer designated in this contract. To constitute a proper invoice, the invoice must include the following information and/or attached documentation:

(a) Name and address of the Contractor
(b) Invoice date and invoice number
(c) Contract number, or other authorization for supplies delivered or services performed
(d) Description, quantity, unit of measure, unit price, and extended price of supplies delivered or services performed
(e) Shipping and payment terms
(f) Name (where practicable), title, phone number, and complete mailing address of responsible official to whom payment is to be sent
(g) Any other information or documentation required by the contract
(h) While not required, contractors are strongly encouraged to assign an identification number to each invoice.

Notice of an apparent error, defect, or impropriety in an invoice will be given to the Contractor within 7 days of receipt of an invoice and suitable documented.

G-8 PROGRESS PAYMENTS

A progress payment may be made following the earlier of: 1) the completion of imagery acquisition, or 2) the end of the acquisition season, as extended, if applicable. The payment shall not exceed 80% of the contractor's total costs to acquire the imagery, less the sum of all previous progress payments made by the Government under this contract. The total amount of progress payments shall not exceed 80% of the total contract price and shall be approved by the Contracting Officer under the conditions stated in FAR 52.232-16, Progress Payments.

G-9 PARTIAL PAYMENTS

For a partially completed project item or partially completed area within a project item, listed as a line item in Section B, Supplies or Services and Prices/Costs, acceptance and payment will be made on a square mile basis at the rate of ninety (90) percent of the amount due. Any payment thus made is a partial payment of the contract. Upon acceptance of the complete project item awarded, the remaining payment, to total the full payment due for the project item awarded, will be made. Partial payments shall be approved by the Contracting Officer under the conditions stated in FAR 52.232-1, Payments.

G-10 PAYMENT DUE DATE

The required payment date will be thirty (30) calendar days after the date of actual receipt of a proper invoice by the office designated to receive the invoice, or the date all contract deliverables are accepted, whichever is later. The date of the check issued in payment or the date of the payment by electronic funds transfer shall be considered to be the date payment is made.

G-11 INTEREST ON OVERDUE PAYMENTS

The Prompt Payment Act, Public Law 100-496 (96 Stat. 85, 31 USC 1801) is applicable to payments under this contract and requires the payment to Contractors of interest on overdue payments and improperly taken discounts.

Determinations of interest due will be made in accordance with the provisions of the Prompt Payment Act and Office of Management and Budget Circular A-125.

PART I - THE SCHEDULE

SECTION H - SPECIAL CONTRACT REQUIREMENTS

H-1 PERMITS AND RESPONSIBILITIES

The Contractor shall, without additional expense to the Government, be responsible for obtaining any necessary licenses and permits, and for complying with any Federal, State, and municipal laws, codes, and regulations applicable to the performance of the work. The Contractor shall also be responsible for all damages to persons or property that occur as a result of the Contractor's fault or negligence. The Contractor shall also be responsible for all materials delivered and work performed until completion and acceptance of the entire work, except for any completed unit of work which may have been accepted under the contract.

H-2 AIRSPACE PERMITS AND CLEARANCES

It shall be the responsibility of the Contractor to determine and secure all necessary permits and clearances for controlled or restricted airspace areas.

The Contractor shall contact the Federal Aviation Administration (FAA) watch supervisor in charge of the Air Traffic Control (ATC) facility to gain approval to operate within controlled airspace. It is suggested that pre-flight coordination be completed at least one week in advance. The FAA suggests that on the day of the flight, the photo mission pilot will contact the ATC facility and:

(a) Confirm previous arrangements, and

(b) State that "this is a photo survey mission" via air/ground communications, and subsequently inform the controller when the flight line is commenced.

Military Operation Areas (MOA) will be identified in advance, and if necessary a contact for airspace clearance established. The Contractor is responsible for obtaining flight approvals and security clearances if required by the U.S. Department of Defense. Photographic and digital materials of classified areas shall be stored, handled, and shipped in accordance with existing security regulations. In the event of difficulty, the Contracting Officer shall be contacted for guidance and/or assistance.

H-3 AIRCRAFT REGULATIONS AND CERTIFICATIONS

All aircraft used in the performance of the work under this contract shall be maintained and operated in accordance with all regulations required by the U.S. Department of Transportation, Federal Aviation Administration (FAA). Aircraft operated in the acquisition of aerial

photography or digital imagery under this contract shall be FAA certified to the highest flying altitude required to obtain proposed imagery.

H-4 OWNERSHIP OF CONTRACT MATERIALS

The Government shall receive copyright and ownership to all data delivered under this contract, including but not limited to photographic materials, imagery, databases, and paper products, upon formal acceptance. The Contractor may maintain copyright and ownership of all original or derived works which are not required submittals under this contract. The Contractor is encouraged to create, market, and sell derived works not related to or in direct competition with the data delivered under this contract. For example, if this contract requires 1m orthorectified imagery be delivered to the Government, the Contractor may create 5m imagery from the original product, prior to its submittal to the Government, and resell it to other Government agencies or the general public. However, the Government also maintains the rights to derive additional products from the data delivered under this contract. No public distribution of the original or derived works shall be made prior to acceptance by the Government unless specified in the contract or authorized by the Contracting Officer.

H-5 NOTICE TO THE GOVERNMENT OF DELAY

The Contractor shall immediately, upon becoming aware of any difficulties in meeting performance requirements during the photographic season or when difficulties are encountered which may delay deliveries under the contract, notify the Contracting Officer in writing thereof. Such notification shall identify difficulties, the reasons therefore, and the estimated period of anticipated delay.

FAILURE OF THE CONTRACTOR TO GIVE SUCH NOTICE MAY PRECLUDE LATER CONSIDERATION OF ANY CLAIM FOR NON-PERFORMANCE DUE TO WEATHER CONDITIONS OR ANY REQUEST FOR AN EXTENSION OF CONTRACT TIME.

H-6 WAGE DETERMINATION

The Wage Determination applicable to any contract resulting from this solicitation is determined by the location of the Contractor's establishment. Wage Determination number 1995-0222, Revision 31, dated November 29, 2010 will be applicable for Contractors located nationwide. See Section J, Exhibit 5, Wage Determination.

H-7 INDUSTRY SMALL BUSINESS STANDARD

The small business industry size standard for the type of services covered by this procurement, under NAICS code 541922, is the average annual receipts of the concern and its affiliates for the preceding three (3) years not in excess of $7 million.

PART II - CONTRACT CLAUSES

SECTION I - CONTRACT CLAUSES

I-1 STATEMENT OF EQUIVALENT RATES FOR FEDERAL HIRES (MAY 1989) (FAR 52.222-42)

In compliance with the Service Contract Act of 1965, as amended, and the regulations of the Secretary of Labor (29 CFR part 4), this clause identifies the classes of service employees expected to be employed under the contract and states the wages and fringe benefits payable to each if they were employed by the contracting agency subject to the provisions of 5 U.S.C. 5341 or 5332.

THIS STATEMENT IS FOR INFORMATION ONLY.
IT IS NOT A WAGE DETERMINATION.

Employee Class	Monetary Wage - Fringe Benefits
Aircraft Pilot	$52,562
Aerial Photographer	$26,270

I-2 CLAUSES INCORPORATED BY REFERENCE (FEB 1998) (FAR 52.252-2)

This contract incorporates the following clauses by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. Also, the full text of a clause may be accessed electronically at this address: www.arnet.gov/far.

FEDERAL ACQUISITION REGULATION (48 CFR CHAPTER 1) CLAUSES:

52.202-01 Definitions (JUL 2004)

52.203-03 Gratuities (APR 1984)

52.203-05 Covenant Against Contingent Fees (APR 1984)

52.203-06 Restrictions on Subcontractor Sales to the Government (SEP 2006)

52.203-07 Anti-Kickback Procedures (OCT 2010)

52.203-08 Cancellation, Rescission, and Recovery of Funds for Illegal or Improper Activity (JAN 1997)

52.203-10 Price or Fee Adjustment for Illegal or Improper Activity (JAN 1997)

52.203-12 Limitation on Payments to Influence Certain Federal Transactions (OCT 2010)

52.204-04 Printing/Copying Double-Sided on Recycled Paper (AUG 2000)

52.204-07 Central Contractor Registration (APR 2008)

52.204-08 Annual Representations and Certifications (JAN 2011)

52.209-06 Protecting the Government's Interest When Subcontracting With Contractors Debarred, Suspended, or Proposed for Debarment (DEC 2010)

52.211-05 Material Requirements (AUG 2000)

52.215-02 Audit and Records - Negotiation (OCT 2010)

52.215-08 Order of Precedence - Uniform Contract Format (OCT 1997)

52.215-11 Price Reduction for Defective Cost or Pricing Data - Modifications (OCT 2010)

52.215-13 Subcontractor Cost or Pricing Data - Modifications (OCT 2010)

52.215-14 Integrity of Unit Prices (OCT 2010)

52.217-09 Option to Extend the Term of the Contract (MAR 2000)

52.219-08 Utilization of Small Business Concerns (JAN 2011)

52.219-09 Small Business Subcontracting Plan (JAN 2011)

52.222-03 Convict Labor (JUN 2003)

52.222-04 Contract Work Hours and Safety Standards Act - Overtime Compensation (JUL 2005)

52.222-21 Prohibition of Segregated Facilities (FEB 1999)

52.222-26 Equal Opportunity (MAR 2007)

52.222-35 Equal Opportunity for Special Disabled Veterans, Veterans of the Vietnam Era, and Other Eligible Veterans (SEP 2010)

52.222-36 Affirmative Action for Workers with Disabilities (JUN 1998)

52.222-37 Employment Reports on Special Disabled Veterans and Veterans of the Vietnam Era, and Other Eligible Veterans (SEP 2010)

52.222-41 Service Contract Act of 1965, as Amended (NOV 2007)

52.222-44 Fair Labor Standards Act and Service Contract Act - Price Adjustment (SEP 2009)

52.223-06 Drug-Free Workplace (MAY 2001)

52.223-14 Toxic Chemical Release Reporting (AUG 2003)

52.225-03 Buy American Act - North American Free Trade Agreement - Israeli Trade Act (JUN 2009)

52.225-13 Restrictions on Certain Foreign Purchases (JUN 2008)

52.227-01 Authorization and Consent (DEC 2007)

52.227-03 Patent Indemnity (APR 1984)

52.227-14 Rights in Data - General - Alternate I (DEC 2007)

52.229-03 Federal, State, and Local Taxes (APR 2003)

52.232-01 Payments (APR 1984)

52.232-08 Discounts for Prompt Payment (FEB 2002)

52.232-09 Limitation on Withholding of Payments (APR 1984)

52.232-11 Extras (APR 1984)

52.232-17 Interest (OCT 2010)

52.232-19 Availability of Funds for the Next Fiscal Year (APR 1984)

52.232-23 Assignment of Claims (JAN 1986)

52.232-25 Prompt Payment (OCT 2008)

52.233-01 Disputes (JUL 2002)

52.233-03 Protest After Award (AUG 1996)

52.242-02 Production Progress Reports (APR 1991)

52.242-13 Bankruptcy (JUL 1995)

52.243-01 Changes - Fixed Price - Alternate II (APR 1987)

52.246-25 Limitation of Liability - Services (FEB 1997)

52.248-01 Value Engineering (OCT 2010)

52.249-04 Termination for Convenience of the Government (Services) (Short Form) (APR 1984)

52.249-08 Default (Fixed-Price Supply and Service) (APR 1984)

52.253-01 Computer Generated Forms (JAN 1991)

PART III - LIST OF DOCUMENTS, EXHIBITS, AND OTHER ATTACHMENTS

SECTION J - LIST OF ATTACHMENTS

Exhibit	Description	Page
Exhibit 1	Project Maps (3 pages)	49-51
Exhibit 2	File Naming Convention (1 page)	52
Exhibit 3	Labeling Requirements (2 pages)	53-54
Exhibit 4	Progress Report (2 pages)	55-56
Exhibit 5	Quarter Quad Numbering Logic (1 page)	57
Exhibit 6	Wage Determination (3 Pages)	58-60
Exhibit 7	Glossary and Definitions (2 pages)	61-62

Attachment A: APFO Specification for Digital Sensor Based Acquisition, dated April 16, 2010 (4 pages)

Attachment B: USDA Digital Imagery Quality Specification, May 28, 2009 (3 pages)

Attachment C: USDA Digital File Format Specification, April 16, 2010 (9 pages)

EXHIBIT 1
Figure 1(a)
PROJECT MAP

U.S. DEPARTMENT OF AGRICULTURE
AERIAL IMAGERY
SOLICITATION NO: USDA-FS-1-11
ITEM 1: San Juan National Forest, COLORADO
GROUND SAMPLE DIST: 30cm (11.8 inches)
IMAGERY: 4 Band Direct Digital
PROJECT IDENTIFICATION CODE: 612130

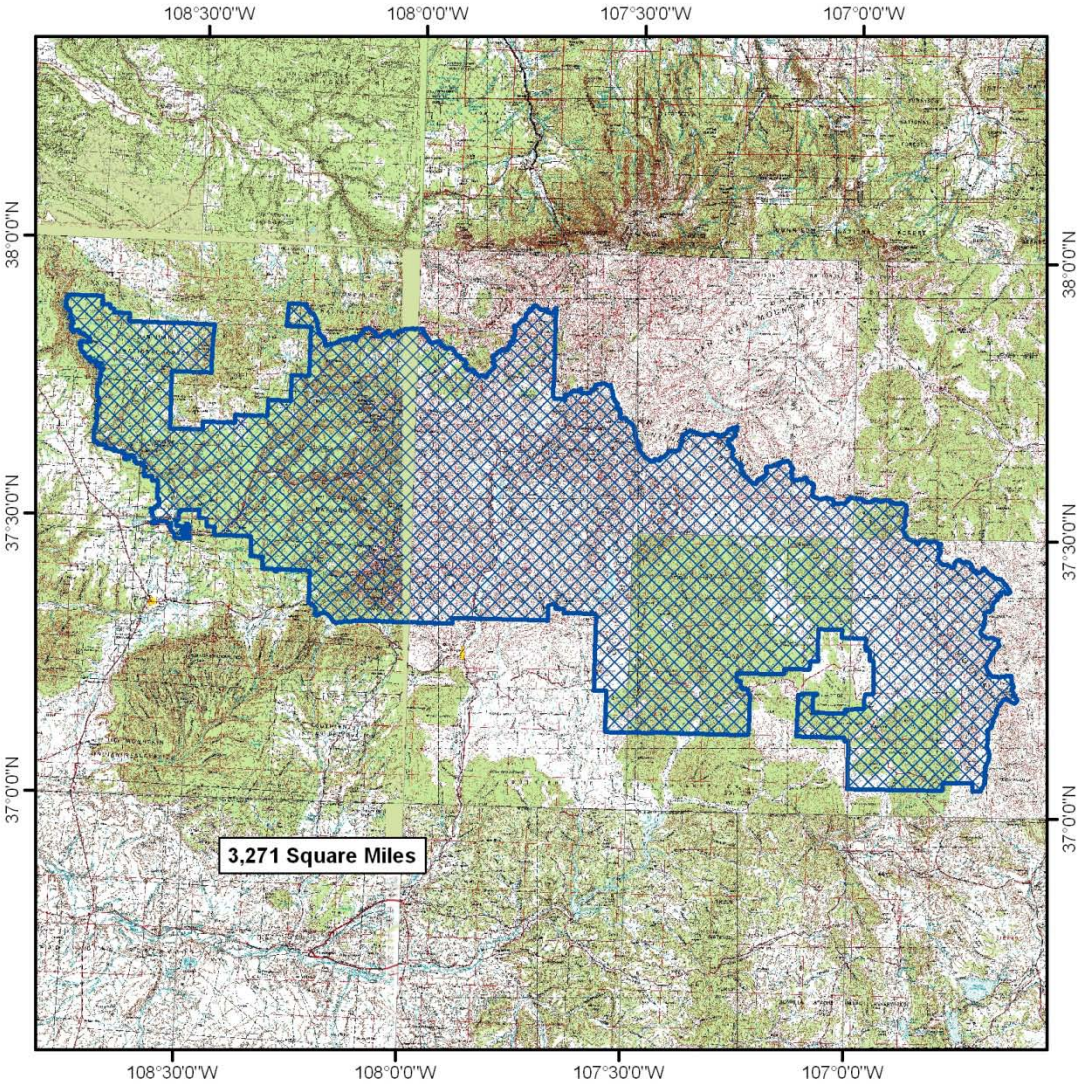


EXHIBIT 1
Figure 1(b)
PROJECT MAP

U.S. DEPARTMENT OF AGRICULTURE
AERIAL IMAGERY
SOLICITATION NO: USDA-FS-1-11
ITEM 2: Comanche National Grassland, COLORADO
GROUND SAMPLE DIST: 30cm (11.8 inches)
IMAGERY: 4 Band Direct Digital
PROJECT IDENTIFICATION CODE: 612126

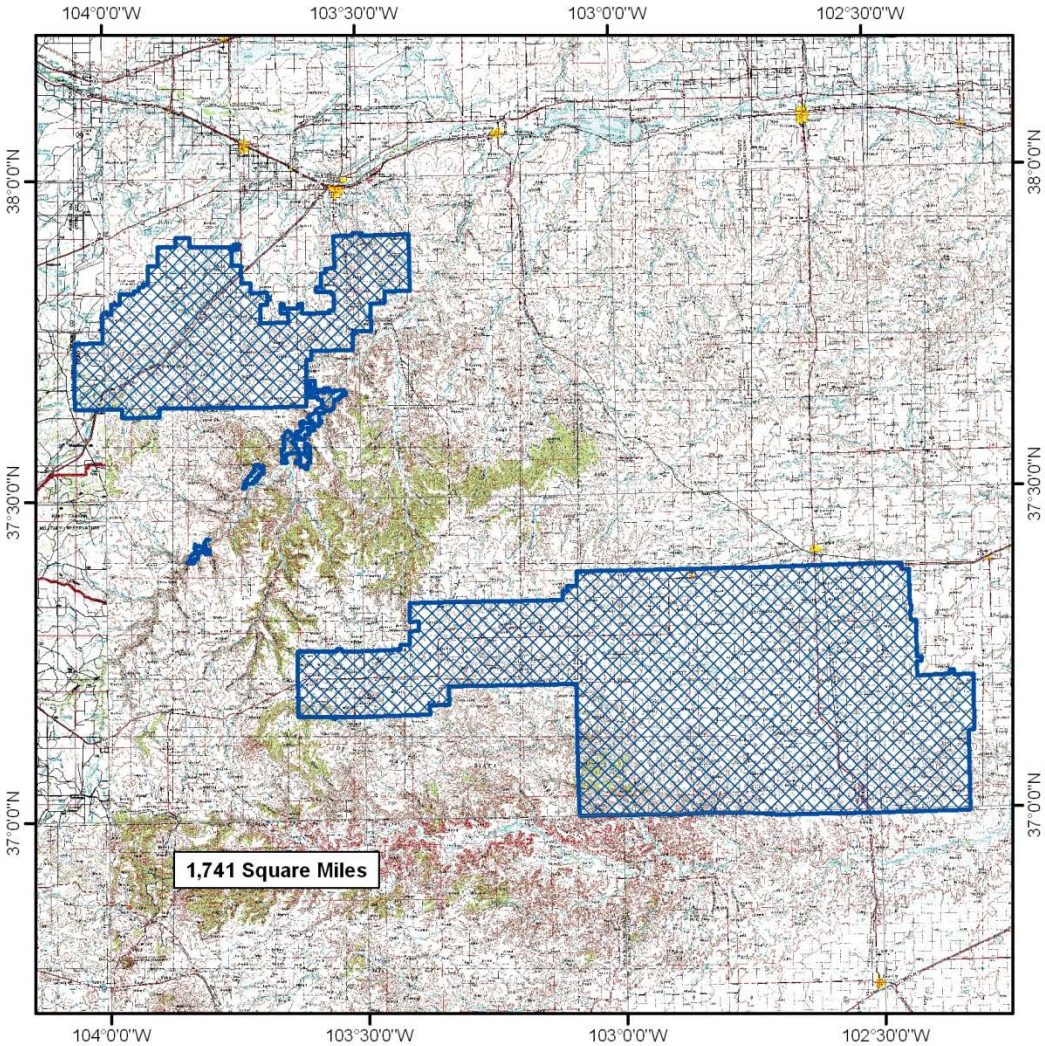


EXHIBIT 1
Figure 1(c)
PROJECT MAP

U.S. DEPARTMENT OF AGRICULTURE
AERIAL IMAGERY
SOLICITATION NO: USDA-FS-1-11
ITEM 3: Cimarron National Grassland, KANSAS
GROUND SAMPLE DIST: 30cm (11.8 inches)
IMAGERY: 4 Band Direct Digital
PROJECT IDENTIFICATION CODE: 612127

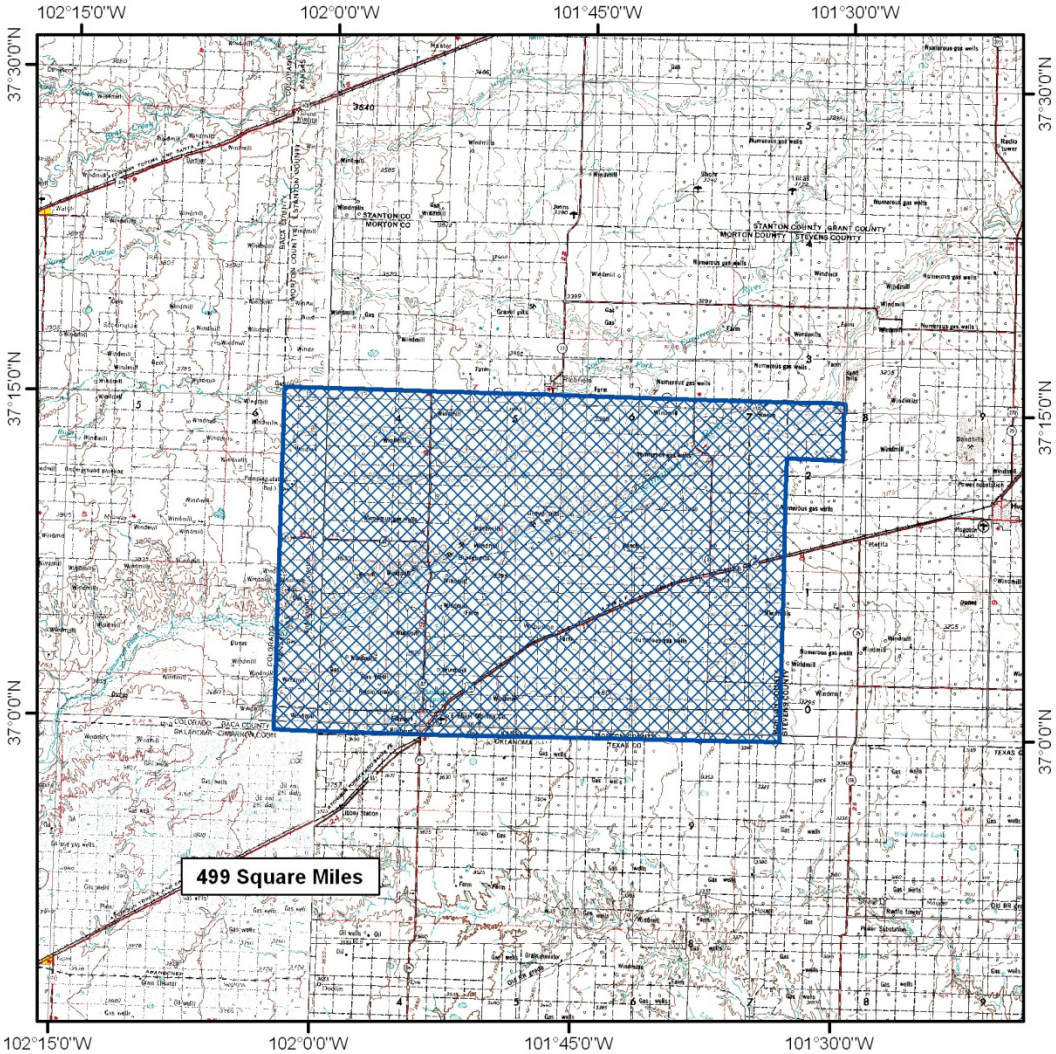


EXHIBIT 2
FILE NAMING CONVENTION

Non-geoprocessed, Unprocessed Digital Image Files:

File Name: <project code>_<flight line >_<exposure>_<yyyymmdd>.tif

<project code> - project code for each project item specified in Section B
<flight line> - flight line number (4 characters padded with leading zeros)
<exposure> - consecutively numbered value (4 characters padded with leading zeros)
<yyyymmdd> - image exposure date

Example: 612130_0025_0001_20110827.tif

Color-corrected, Orthorectified 16-bit Image Files ***(Applicable Only if Orthorectification Option is Exercised):***

File Name: <project code>_<flight line >_<exposure>_<yyyymmdd>_ortho.<xxx>

<project code> - project code for each project item specified in Section B
<flight line> - flight line number (4 characters padded with leading zeros) in numerical sequence in numerical sequence
<exposure> - consecutively numbered value (4 characters padded with leading zeros)
<yyyymmdd> - image exposure date
<xxx> - alternate extensions (.tif or .img)

Example: 612130_0025_0001_20110827_ortho.tif

Photo-center File:

File Name: <project code>_pcf_<solno>.txt

<project code> - project code for each project item specified in Section B
<solno> - contract solicitation number
<item> - project item number

Example: 612130_pcf_1-11_1.txt

Stereo Block File: (*Applicable Only if Orthorectification Option is Exercised)*

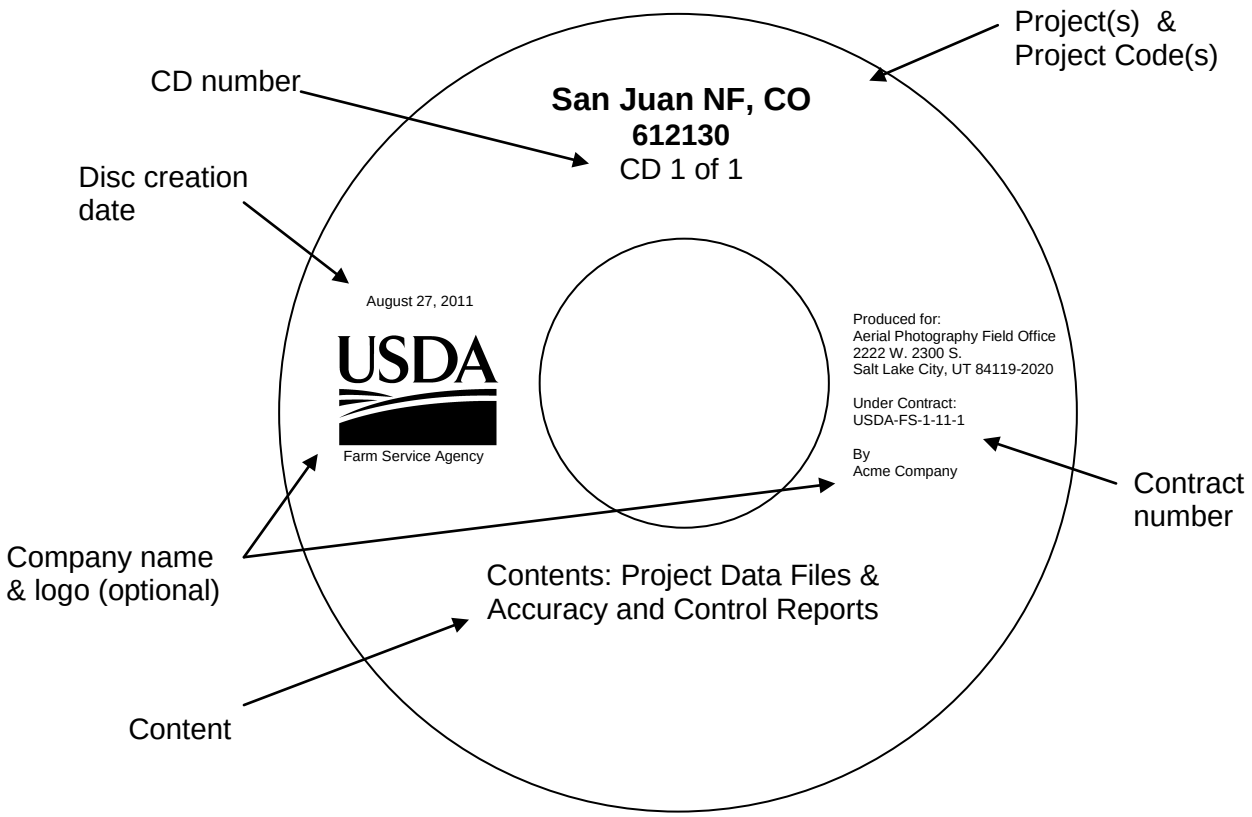
File Name: <project code>_<block no>.blk

<project code> - project code for each project item specified in Section B
<block no> - consecutively numbered value (2 characters padded with leading zero)

Example: 612130_01.blk

EXHIBIT 3
Figure 1

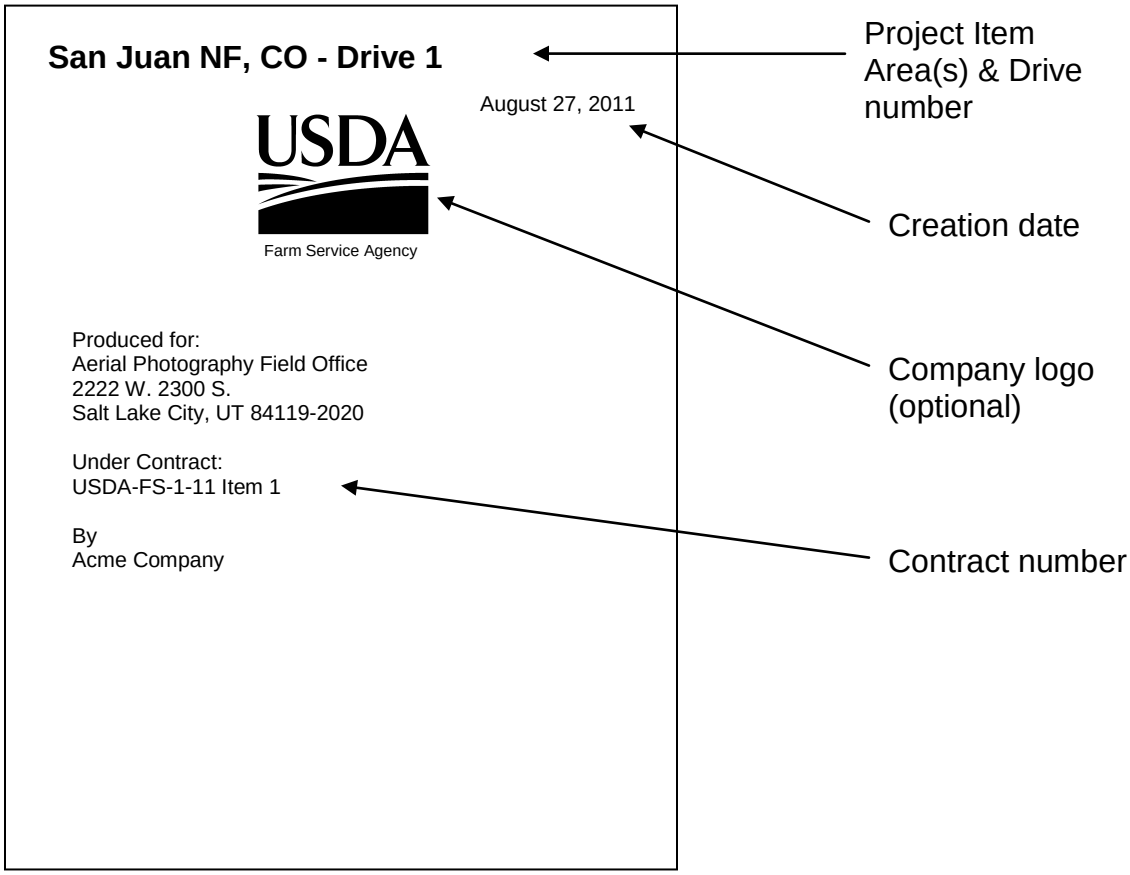
CD/DVD Labeling Requirements



ELEMENT	EXAMPLE
CD Number	CD 1 of 1
Company name & logo	Acme Company
Content	Project Data Files & Accuracy and Control Reports
Contract number	USDA-FS-1-11-1
Creation date	August 27, 2011
Project	San Juan NF, CO
Project Code	612130

EXHIBIT 3
Figure 2

Hard Drive Labeling Requirements



ELEMENT	EXAMPLE
Company name & logo	Acme Company
Contract number	USDA-FS-1-11-1
Creation date	August 27, 2011
Project item area & drive number	San Juan NF, CO–Hard Drive 1

Approximate label dimensions: 3-1/2” (width) x 4-1/2” (height)

EXHIBIT 4

PROGRESS REPORT CONVENTION

Syntax:

HEADER ITEMS:	field-name ":"[field-body][CRLF]
BODY ITEMS:	body item [CRLF]

Header Items:
All four header items are required to be submitted in each and every submittal.

DESCRIPTION	KEYWORD	FORMAT
Contractor Name	CONTRACTOR	Alphanumeric
Contract Award Number	CONTRACT	Numeric (N-YY)
Award Item	ITEM	Numeric (N)
Date Flown	DATE	Date (YYYYMMDD)

Body Items:
All data elements are required for each line of data submitted. Data elements are to be separated by 5 ASCII decimal 32 (white space). Acquisition and rejected exposure stations can be submitted as separate reports or as a combined report.

DESCRIPTION	KEYWORD	FORMAT
Latitude	N/A	DD.DDDDD
Longitude	N/A	-DDD.DDDDD
Status	N/A	Char(1)*

* Status Field:
A - Indicates the Exposure Station has been collected
R – Indicates the contractor has rejected a previously acquired Exposure Station

When an exposure station is rejected the exposure station will appear in a later report marked with an "R". Each report submitted should include only one status indicator for a particular exposure station.

EXHIBIT 4 (CON'T)

PROGRESS REPORT CONVENTION

Sample:

```
CONTRACTOR:  Acme Photography
CONTRACT:  1-11
ITEM:  1
DATE:  20110827

64.00002,-144.18751,A
64.04166,-144.18750,A
64.08332,-144.18752,A
64.12501,-144.18751,A
```

Notes:
1) Text is case insensitive.
2) Header fields are not required to occur in any particular order.
3) Body items must occur after the headers.
4) Each header item must be on a single line (no "folding")
5) Keywords may not contain spaces and must be followed immediately by a colon.
6) The header items and body items may be separated by a NULL line (a blank line with a carriage-return/line-feed (CRLF)(ASCII 13 and 10).
7) Body items can only contain one data item per line and must be terminated by a carriage-return/line-feed.
8) Contract award number must be sent without prefix (i.e., USDA-FS-1-11 should be sent as 1-11).
9) Date must be transmitted as YYYYMMDD.
10) No e-mail attachments.

EXHIBIT 5

QUARTER QUAD NUMBERING LOGIC

121° 00' 00"
49° 00' 00" •

01	02	03	04	05	06	07	08
09	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24
25	26	27	28	29	30	31	32
33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48
49	50	51	52	53	54	55	56
57	58	59	60	61	62	63	64

• 48° 00' 00"
120° 00' 00"

NW	NE
SW	SE

The image ID for this scan would be: 4812043_ne

Each Block (ie: 43) is a full Quad within the 1 degree grid; it is further subdivided into 4 quarter-quads

Sample: 4812043_ne Where:

Latitude: Identified by 2 digit numerical value of a 1 degree block.
Longitude: Identified by 3 digit numerical value of a 1 degree block, including a leading “0" as needed.
Quadrangle Number: Identified by grid number (01, 02, 03, ... 63, 64) See Exhibit 7.
Quarter Quadrangle Location: Identified by grid letters (nw, ne, sw, se)

EXHIBIT 6

REGISTER OF WAGE DETERMINATIONS UNDER THE SERVICE CONTRACT ACT By direction of the Secretary of Labor	U.S. DEPARTMENT OF LABOR EMPLOYMENT STANDARDS ADMINISTRATION WAGE AND HOUR DIVISION WASHINGTON D.C. 20210
	Wage Determination No.: 1995-0222
Shirley F. Ebbesen Director Division of Wage Determinations	Revision No.: 31 Date Of Last Revision: 11/29/2010

Nationwide: Applicable in the continental U.S. Alaska, Puerto Rico, Hawaii and Virgin Islands.

Fringe Benefits Required Follow the Occupational Listing

Employed on U.S. Government contracts for aerial photographer, aerial seeding, aerial spraying, transportation of personnel and cargo, fire reconnaissance, administrative flying, fire detection, air taxi mail service, and other flying services.

OCCUPATION CODE - TITLE	MINIMUM WAGE RATE
31010 - Airplane Pilot	25.27
(not set) - First Officer (Co-Pilot)	23.01
(not set) - Aerial Photographer	12.63

EXCEPT SCHEDULED AIRLINE TRANSPORTATION AND LARGE MULTI-ENGINE AIRCRAFT SUCH AS THE B-727, DC-8, AND THE DC-9.

ALL OCCUPATIONS LISTED ABOVE RECEIVE THE FOLLOWING BENEFITS:

HEALTH & WELFARE: $3.50 per hour or $140.00 per week or $606.67 per month

VACATION: 2 weeks paid vacation after 1 year of service with a contractor or successor; 3 weeks after 5 years, and 4 weeks after 15 years. Length of service includes the whole span of continuous service with the present contractor or successor, wherever employed, and with the predecessor contractors in the performance of similar work at the same Federal facility. (Reg. 29 CFR 4.173)

HOLIDAYS: A minimum of ten paid holidays per year, New Year's Day, Martin Luther King Jr's Birthday, Washington's Birthday, Memorial Day, Independence Day, Labor Day, Columbus Day, Veterans' Day, Thanksgiving Day, and Christmas Day. (A contractor may substitute for any of the named holidays another day off with pay in accordance with a plan communicated to the employees involved.) (See 29 CFR 4174)

VACATION (Hawaii): 2 weeks paid vacation after 1 year of service with a contractor or successor; 3 weeks after 10 years, and 4 weeks after 15 years. Length of service includes the whole span of continuous service with the present contractor or successor, wherever employed, and with the predecessor contractors in the performance of similar work at the same Federal facility. (Reg. 29 CFR 4.173)

HEALTH & WELFARE (Hawaii): $1.42 per hour, or $56.80 per week, or $246.13 per month hour for all employees on whose behalf the contractor provides health care benefits pursuant to the Hawaii prepaid Health Care Act. For those employees who are not receiving health care benefits mandated by the Hawaii prepaid Health Care Act, the new health and welfare benefit rate will be $3.50 per hour.

EXHIBIT 6 (Con't)

Wage Determination 1995-0222, 31 Page 2 of 3

HAZARDOUS PAY DIFFERENTIAL: An 8 percent differential is applicable to employees employed in a position that represents a high degree of hazard when working with or in close proximity to ordinance, explosives, and incendiary materials. This includes work such as screening, blending, dying, mixing, and pressing of sensitive ordance, explosives, and pyrotechnic compositions such as lead azide, black powder and photoflash powder. All dry-house activities involving propellants or explosives. Demilitarization, modification, renovation, demolition, and maintenance operations on sensitive ordnance, explosives and incendiary materials. All operations involving regrading and cleaning of artillery ranges.

A 4 percent differential is applicable to employees employed in a position that represents a low degree of hazard when working with, or in close proximity to ordance, (or employees possibly adjacent to) explosives and incendiary materials which involves potential injury such as laceration of hands, face, or arms of the employee engaged in the operation, irritation of the skin, minor burns and the like; minimal damage to immediate or adjacent work area or equipment being used. All operations involving, unloading, storage, and hauling of ordance, explosive, and incendiary ordnance material other than small arms ammunition. These differentials are only applicable to work that has been specifically designated by the agency for ordance, explosives, and incendiary material differential pay.

** UNIFORM ALLOWANCE **

If employees are required to wear uniforms in the performance of this contract (either by the terms of the Government contract, by the employer, by the state or local law, etc.), the cost of furnishing such uniforms and maintaining (by laundering or dry cleaning) such uniforms is an expense that may not be borne by an employee where such cost reduces the hourly rate below that required by the wage determination. The Department of Labor will accept payment in accordance with the following standards as compliance:

The contractor or subcontractor is required to furnish all employees with an adequate number of uniforms without cost or to reimburse employees for the actual cost of the uniforms. In addition, where uniform cleaning and maintenance is made the responsibility of the employee, all contractors and subcontractors subject to this wage determination shall (in the absence of a bona fide collective bargaining agreement providing for a different amount, or the furnishing of contrary affirmative proof as to the actual cost), reimburse all employees for such cleaning and maintenance at a rate of $3.35 per week (or $.67 cents per day). However, in those instances where the uniforms furnished are made of "wash and wear" materials, may be routinely washed and dried with other personal garments, and do not require any special treatment such as dry cleaning, daily washing, or commercial laundering in order to meet the cleanliness or appearance standards set by the terms of the Government contract, by the contractor, by law, or by the nature of the work, there is no requirement that employees be reimbursed for uniform maintenance costs.

The duties of employees under job titles listed are those described in the "Service Contract Act Directory of Occupations", Fifth Edition, April 2006, unless otherwise indicated. Copies of the Directory are available on the Internet. A links to the Directory may be found on the WHD home page at http://www.dol.gov/esa/whd/ or through the Wage Determinations On-Line (WDOL) Web site at http://wdol.gov/.

REQUEST FOR AUTHORIZATION OF ADDITIONAL CLASSIFICATION AND WAGE RATE {Standard Form 1444 (SF 1444)}

Conformance Process:

The contracting officer shall require that any class of service employee which is not listed herein and which is to be employed under the contract (i.e., the work to be performed is not performed by any classification listed in the wage determination), be classified by the contractor so as to provide a reasonable relationship (i.e., appropriate level of skill comparison) between such unlisted classifications and the classifications listed in the wage determination. Such conformed classes of employees shall be paid the monetary wages and furnished the fringe benefits as are determined. Such conforming process shall be initiated by the contractor prior to the performance of contract work by such unlisted class(es) of employees. The conformed classification, wage rate, and/or fringe benefits shall be retroactive to the commencement date of the contract. {See Section 4.6 (C)(vi)} When multiple wage determinations are included in a contract, a separate SF 1444 should be prepared for each wage determination to which a class(es) is to be conformed.

EXHIBIT 6 (Con't)

Wage Determination: 1995-0222, 31 Page 3 of 3

The process for preparing a conformance request is as follows:

1) When preparing the bid, the contractor identifies the need for a conformed occupation(s) and computes a proposed rate(s).

2) After contract award, the contractor prepares a written report listing in order proposed classification title(s), a Federal grade equivalency (FGE) for each proposed classification(s), job description(s), and rationale for proposed wage rate(s), including information regarding the agreement or disagreement of the authorized representative of the employees involved, or where there is no authorized representative, the employees themselves. This report should be submitted to the contracting officer no later than 30 days after such unlisted class(es) of employees performs any contract work..

3) The contracting officer reviews the proposed action and promptly submits a report of the action, together with the agency's recommendations and pertinent information including the position of the contractor and the employees, to the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, for review. (See section 4.6(b)(2) of Regulations 29 CFR Part 4).

4) Within 30 days of receipt, the Wage and Hour Division approves, modifies, or disapproves the action via transmittal to the agency contracting officer, or notifies the contracting officer that additional time will be required to process the request.

5) The contracting officer transmits the Wage and Hour decision to the contractor.

6) The contractor informs the affected employees.

Information required by the Regulations must be submitted on SF 1444 or bond paper.

When preparing a conformance request, the "Service Contract Act Directory of Occupations" (the Directory) should be used to compare job definitions to insure that duties requested are not performed by a classification already listed in the wage determination. Remember, it is not the job title, but the required tasks that determine whether a class is included in an established wage determination. Conformances may not be used to artificially split, combine, or subdivide classifications listed in the wage determination.

** OCCUPATIONS NOT INCLUDED IN THE SCA DIRECTORY OF OCCUPATIONS **

Aerial Photographer

The aerial photographer must be skilled in reading flight maps, capable of assisting the pilot to adhere to flight lines, be able to level and operate a cartographic camera and its auxiliary equipment mounted in the aircraft so that the photographs that are taken will have the required forward lap and side lap for use in photogrammetric mapping equipment, and possess a working knowledge of aerial films and camera filters to insure proper exposure of the films.

First Officer (Co-Pilot)

Is second in command of commercial airplane and its crew while transporting passengers, mail, or other cargo on scheduled or nonscheduled flights. Assists or relieves an airline captain in operating the controls of an airplane; monitoring flight and engine instruments; and maintaining air-to-ground communications.

EXHIBIT 7

GLOSSARY AND DEFINITIONS

Acquisition Period: The calendar period in which the project item area imagery is required to be acquired.

Camera System: The combination of lens, cone, magazine(s), and camera filter(s) which have been calibrated as an integral unit.

Contract Award Item: A separately awarded contract that may contain one or more project item areas awarded to a single contractor. Contract award items are indicated by the numeric solicitation number followed by sequential award item numbers (i.e., 1-06-1, 1-06-2, 1-06-3, etc).

Contracting Officer's Technical Representative (COTR): A person who has the responsibility of providing technical information such as site ground and weather conditions on a contract.

Contracting Officer's Representative (COR): A person who is responsible for specific technical and administrative duties related to a contract.

Direct Digital Imagery: Vertical, high resolution imagery directly captured using a digital sensor. Either airborne or space-borne systems.

Exposure Stations: Pre-determined locations where photo centers of individual frames are to be exposed.

Georeferenced: Registering data with correct real world coordinates. Defining location using map coordinates and assignment of a known reference system, which allows data to be viewed, queried, and analyzed with other geographic data.

Ground Sample Distance: The ground sample distance is the distance on the ground represented by each pixel in the x and y components.

Original Imagery/Photography: All aerial imagery/photography, as secured by the Contractor, prior to its inspection by the USDA, including any reflights made at the discretion of the Contractor.

Project Item Area: An area or areas described in the Schedule for which an award shall be made to one offeror.

Reflight Photography: Photography reflown to replace original imagery/photography rejected by USDA.

Remake Materials: Any contract materials ordered remade by USDA.

Stereomodel: The area covered by the conjugate images of three successive overlapping exposures.

Uncorrected: No radiometric corrections or enhancements.

EXHIBIT 7 (Cont'd)

FILE EXTENSIONS

.blk: Stands for "block file." A term used to describe and characterize all of the information associated with a photogrammetric mapping project, such as projection, spheroid, and datum; imagery; camera or sensor model information; GCPs; and geometric relationship between imagery and the ground. A block file is a binary file.

.img: Stands for "image file." An ERDAS IMAGINE file used to store raster data, including file information, ground control points, sensor information, layer information, attribute data, statistics, map information, projection information, pyramid layers, data file values, compression, and block size.

.prj: Stands for "project file." A SOCET SET file containing the information required to restore the current state of a work. All necessary files, settings, and preferences are stored in the project file.

.sup: Stands for "support file." Generally a ASOCET SET file containing photogrammetric metadata associated with an image in a project file.

PART IV - REPRESENTATIONS AND INSTRUCTIONS

SECTION K

REPRESENTATIONS, CERTIFICATIONS, AND OTHER STATEMENTS OF OFFERORS

K-1 ANNUAL REPRESENTATIONS AND CERTIFICATIONS (JAN 2011) (FAR 52.204-8)

(a)(1) The North American Industry Classification System (NAICS) code for this acquisition is **541922**.

(2) The small business size standard is **$7 million**.

(3) The small business size standard for a concern which submits an offer in its own name, other than on a construction or service contract, but which proposes to furnish a product which it did not itself manufacture, is 500 employees.

(b)(1) If the clause at 52.204-7, Central Contractor Registration, is included in this solicitation, paragraph (c) of this provision applies.

(2) If the clause at 52.204-7 is not included in this solicitation, and the offeror is currently registered in CCR, and has completed the ORCA electronically, the offeror may choose to use paragraph (c) of this provision instead of completing the corresponding individual representations and certifications in the solicitation. The offeror shall indicate which option applies by checking one of the following boxes:

[ ] (i) Paragraph (c) applies.

[ ] (ii) Paragraph (c) does not apply and the offeror has completed the individual representations and certifications in the solicitation.

(c) The offeror has completed the annual representations and certifications electronically via the Online Representations and Certifications Application (ORCA) website at http://orca.bpn.gov. After reviewing the ORCA database information, the offeror verifies by submission of the offer that the representations and certifications currently posted electronically have been entered or updated within the last 12 months, are current, accurate, complete, and applicable to this solicitation (including the business size standard applicable to the NAICS code referenced for this solicitation), as of the date of this offer and are incorporated in this offer by reference (see FAR 4.1201); except for the changes identified below *[offeror to insert changes, identifying change by clause number, title, date]*. These amended representation(s) and/or certification(s) are also incorporated in this offer and are current, accurate, and complete as of the date of this offer.

FAR Clause #	Title	Date	Change
_____	_____	_____	_____

Any changes provided by the offeror are applicable to this solicitation only, and do not result in an update to the representations and certifications posted on ORCA.

(End of provision)

K-2 INCOMPLETE CONTRACTS AS OF DATE OF PROPOSAL

Indicate by Linear Miles	Remaining Work - Summer	Remaining Work - Winter
U.S. Government Contracts		
All Other Contracts		

K-3 AIRCRAFT TO BE USED IN COMPLETION OF ITEM(S) IN THIS CONTRACT

Make/Model	Registration #	Operating Ceiling	Offeror Owned (check appropriate block)
			[ ] Yes [ ] No *
			[ ] Yes [ ] No *
			[ ] Yes [ ] No *

* If the aircraft is/are not offeror owned, a written statement of availability from the owner of the aircraft must be enclosed. See Section C-2, Description/Specifications/Work Statement.

K-4 CAMERA(S) TO BE USED IN COMPLETION OF ITEM(S) IN THIS CONTRACT

Current calibration report(s) must be enclosed or on file at the Aerial Photography Field Office.

Calibration Report Number	Camera Make/Model	Serial Number	Offeror Owned (check appropriate block)
			[ ] Yes [ ] No *
			[ ] Yes [ ] No *
			[ ] Yes [ ] No *

* If the camera(s) is/are not offeror owned, a written statement of availability from the owner(s) of the camera(s) must be enclosed. See Section C-4, Equipment Requirements.

K-5 PLACE OF PERFORMANCE (OCT 1997) (FAR 52.215-6)

(a) The offeror or respondent, in the performance of any contract resulting from this solicitation, ❑ intends, ❑ does not intend [check applicable block] to use one or more plants or facilities located at a different address from the address of the offeror or respondent as indicated in this proposal or response to request for information.

(b) If the offeror or respondent checks "intends" in paragraph (a) of this provision, it shall insert in the following spaces the required information:

PLACE OF PERFORMANCE (STREET ADDRESS, CITY, STATE, COUNTY, ZIP CODE)	NAME AND ADDRESS OF OWNER AND OPERATOR OF THE PLANT OR FACILITY IF OTHER THAN OFFEROR OR RESPONDENT
_____	_____
_____	_____

K-6 ADDRESS TO WHICH PAYMENT SHOULD BE MAILED

In the space provided below, the Contractor is requested to indicate the address to which payment should be mailed, or indicate "same" if it is the same as the address shown on the solicitation form (page 1).

_____

_____

K-7 PAST PERFORMANCE REFERENCES

If no previous contracts have been held by the offeror with the Aerial Photography Field Office, list two (2) references with whom the offeror has held similar contracts. If possible, one reference should be within the Federal Government. List company or agency name, address, name of person to contact, and telephone number:

(1)_____	(2)_____
_____	_____
_____	_____

K-8 KEY PERSONNEL INTENDED FOR PERFORMANCE ON THIS CONTRACT

List all key professional and technical personnel intended to perform on this contract. List may include project manager, pilot(s), photographer(s), and key back-up or support personnel.

Name	Title	Education	Years of Experience

K-9 SOLICITATION PROVISIONS INCORPORATED BY REFERENCE (FEB 1998) (FAR 52.252-1)

This contract incorporates one or more solicitation provisions by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. The offeror is cautioned that the listed provisions may include blocks that must be completed by the offeror and submitted with its quotation or offer. In lieu of submitting the full text of those provisions, the offeror may identify the provision by paragraph identifier and provide the appropriate information with its quotation or offer. Also, the full text of a solicitation provision may be accessed electronically at this address: www.arnet.gov/far.

FEDERAL ACQUISITION REGULATION (48 CFR CHAPTER 1) PROVISIONS:

52.203-11 Certification and Disclosure Regarding Payments to Influence Certain Federal Transactions (SEP 2007)

52.204-05 Women-Owned Business (Other Than Small Business) (MAY 1999)

PART IV - REPRESENTATIONS AND INSTRUCTIONS

SECTION L - INSTRUCTIONS, CONDITIONS, AND NOTICES TO OFFERORS

L-1 TYPE OF CONTRACT (APR 1984)(FAR 52.216-01)

The Government contemplates award of a Firm-Fixed-Price contract resulting from this solicitation.

L-2 INSTRUCTIONS FOR PREPARATION OF TECHNICAL AND PRICING PROPOSALS

The following instructions establish the acceptable minimum requirements for the format and content of proposals. Offerors are advised to furnish all information in the sequence and format specified below. Failure to furnish all information requested may adversely affect the evaluation of the proposal. Proposals will be evaluated in accordance with the evaluation factors set forth in Section M of this solicitation.

2.1 General Instructions

Proposal must be prepared in two parts: Part I: Pricing Proposal, and Part II: Technical Proposal. Each of the parts shall be separate and complete in itself so that evaluation of one may be accomplished independently from evaluation of the other. The technical proposal must not contain any reference to cost or price.

Proposal should be precise, factual and responsive and must include, but is not limited to, the information listed below. Proposal content shall be organized in two separate parts and be submitted in the order indicated as follows:

2.2 PART I - Pricing Proposal

Pricing information and related data shall be submitted as Part I of the offeror's proposal. Each proposal must contain a signed and dated Standard Form 33 (page 1 of the solicitation) with items 12 through 18 completed. Section B should be submitted in its entirety with the quantities offered, the unit price(s), and the total price(s) for the item(s) indicated in the appropriate locations.

2.3 PART II - Technical Proposal

Response to the following technical statements will form the basis of a proposal's technical merit. Offerors are cautioned to address all requested information as complete and accurate as possible. Data contained in Section K of the solicitation document shall be referenced in support of statements. **If a non-frame based sensor is being proposed, the submission of samples are required as indicated in (c) below.**

(a) Past Performance History

(1) Past performance will be evaluated based on relevant performance history contained in USDA contract records of projects awarded by the FSA Aerial Photography Field Office. Offeror's past performance will be evaluated according to the following criteria and may include other relevant factors:
(i) Contract performance record;
(ii) Project completion record;
(iii) Delivery schedule compliance record.

(2) If no previous contracts have been held by the offeror with the Aerial Photography Field Office, list two (2) references with whom the offeror has held similar contracts. List past performance references in the space provided in Section K of the solicitation document.

(3) If an offeror does not have, or have available, a past performance history, the offeror's proposal will not be evaluated favorably or unfavorably on past performance.

(b) Project Management Capability. Statement of project management capability that would assure timely completion and shipment of all work by or before the required delivery schedule. Statement should include detailed description of planned approach, procedures, management techniques, capacities, and specialized equipment and processes to be used in performance of the work. The following should be discussed in detail:

(1) Subcontract Management. Statement of subcontractor management plan which includes a list of proposed subcontractors, what work they will perform, and how their performance will be managed and monitored.

(2) Site Basing. Scheduling and site basing of aerial photo crew and aircraft based on knowledge of the weather patterns during the acquisition period and restricted/controlled airspace in vicinity of the project item.

(3) Aircraft and Sensor Availability. List all aircraft and digital sensors intended to be used in completion of this contract in the appropriate locations in Section K of the solicitation document. If availability of equipment is contingent on other contractual commitments running concurrently with the work contemplated by this solicitation, indicate such in proposal statement. Unless otherwise stated, all aircraft and digital sensors listed will have exclusive availability for performance of the work as defined in this contract.

(4) Personnel Qualifications. List all professional and technical personnel intended to perform on this contract in the appropriate location in Section K of this solicitation document. Recommended list includes: Project Manager, Aircraft Pilot(s), Aerial Photographer(s), and key back-up or support personnel. Brief resumes may be provided on separate papers for the personnel listed, stating name, title, education, past experience, and years of experience

(c) Technical Approach. Statement of technical approach that would assure products and/or services meet all contract specifications and requirements. Statement should include detailed description of the digital image processing techniques, capacities, and specialized equipment and processes to be used in performance of the work. **If a non-frame based digital sensor system is being proposed, the proposal must include a detailed description of the process used in creating files in a tile format similar to that which is produced by a frame based sensor. Sample image tiles and contact prints must also be submitted to demonstrate that contact prints could be made from this product and viewed in stereo by an analog stereoscope.** The following should be discussed in detail:

(1) Image Processing. Summary of the proposed post-processing workflow such as (i) pan-sharpening (if applicable); (ii) radiometric processing; (iii) geometric processing; and (iv) initial acquisition inspection.

(2) Color Correction. Proposed approach on color correcting imagery to match ground conditions at time of exposure. Description should address histogram stretching, LUT creation methodology, dodging techniques, and atmospheric condition adjustments.

(3) Aero-Triangulation (AT). Describe the proposed AT process (such as traditional block solution or direct geopositioning) and the use of any automatic pass and tie points. Describe the process for collecting ground control (if applicable). Describe the proposed workflow for processing the ABGPS and IMU data.

(4) Stereo Block. Explain the production and verification processes to ensure the stereo block file can be utilized via standard stereoscopes or soft copy workstations.

(5) Orthorectification. Explain the orthorectification workflow and include at a minimum: (i) step by step process, (ii) software that will be used; (iii) how results will be verified; (iv) what elevation model would be used; (v) what is the seamline generation process to create the mosaics; and (vi) past experience with similar products from a similar geographical area (i.e. mountains and forest).

(d) Quality Control System. Detailed statement on Contractor quality control system that will insure all contract materials submitted for inspection are in compliance with contract specifications. (See Section C, Description/Specifications/Work Statement, and C-1.3, Quality Control, for quality control requirements.

(e) Incomplete Contracts. List all incomplete contracts which require performance during the approximate photographic period indicated in Section B and affect equipment and personnel listed herein. List shall include project name, client, and remaining linear miles. Total remaining linear miles shall be summarized in the appropriate location in Section K, Representations, Certifications, and Other Statements of Offerors, of the solicitation document.

2.4 Solicitation Document and Supporting Data

The offeror's proposal must include the following required information and supporting data specified in the solicitation document:

Section K:

(a) Annual Representations and Certifications (CCR and ORCA),
(b) Incomplete Contracts as of Date of Proposal,
(c) Aircraft to be Used in Completion of the Contract,
(d) Cameras or Digital Sensors to be Used in Completion of the Contract,
(e) Past Performance References (if required),
(f) Key Personnel to Perform on the Contract.

Section L:

(a) Camera Calibration Report(s),
(b) Current Financial Statement,
(c) Digital Sensor Sample Imagery

The solicitation document may be submitted in its entirety, complete with Sections C through M, or at a minimum with Sections A, B, K, and L.

L-3 DIGITAL SENSOR APPROVAL REQUIREMENTS

Each offeror proposing to use a digital camera/sensor, shall have on file with the Aerial Photography Field Office, or shall submit with the offer, (1) a report of calibration, (2) sample digital imagery, **(2a) if the digital sensor proposed is not frame based, sample image tiles and contact prints must be submitted**, (3) digital sensor documentation from the camera/sensor proposed for use. Please refer to Attachment A for digital camera/sensor approval requirements.

For each digital sensor proposed to be used, please indicate which statement is correct:

[ ] Digital Sensor Approval Requirements on file at APFO.

[ ] Digital Sensor Approval Requirements submitted with offer.

[ ] Not required.

L-4 CURRENT FINANCIAL STATEMENT

Offerors may be required to provide a "current" financial statement. For purposes of this solicitation, a current financial statement would be the most recent annual report, updated, if necessary, so that information reflects the company's financial status within six (6) months.

All data shall be certified by an authorized company officer as to its accuracy and veracity or validated by an independent certified public account. If necessary, the Contracting Officer may request additional financial information.

Financial information received will be treated as confidential and will not be used for purposes other than evaluation of financial responsibility. Failure to provide this information may delay or prohibit the Contracting Officer from making an affirmative decision on the offerors responsibility. Please indicate which statement is correct:

[ ] Current financial statement on file at APFO.

[ ] Current financial statement submitted with offer.

L-5 CONTRACT DIFFICULTIES AND CONTINGENCIES

Offerors are cautioned to examine the solicitation, visit the work location if necessary, and evaluate the facilities needed and difficulties attending the execution of the proposed contract. Considerations include local conditions, uncertainty of weather, availability of landing fields, restricted air space, and all other contingencies.

L-6 SERVICE OF PROTEST (SEP 2006) (FAR 52.233-2)

Protests, as defined in Section 33.101 of the Federal Acquisition Regulation, that are filed directly with an agency, and copies of any protests that are filed with the General Accounting Office (GAO) shall be served on the Contracting Officer (addressed as follows) by obtaining written and dated acknowledgment of receipt from; Director, Acquisition Management, USDA/FSA/MSD/AG Code 0567, P.O. Box 2415, Washington, D.C. 20013-2415.

The copy of any protest shall be received in the office designated above within one day of filing a protest with the GAO.

L-7 INQUIRIES (FEB 1988) (AGAR 452.204-70)

Inquiries and all correspondence concerning this solicitation should be submitted in writing to the Contracting Officer. Offerors should contact only the contracting officer issuing the solicitation about any aspect of this requirement prior to contract award.

L-8 SOLICITATION PROVISIONS INCORPORATED BY REFERENCE (FEB 1998)

(FAR 52.252-1)

This solicitation incorporates one or more solicitation provisions by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. The offeror is cautioned that the listed provisions may include blocks that must be completed by the offeror and submitted with its quotation or offer. In lieu of submitting the full text of those provisions, the offeror may identify the provision by paragraph identifier and provide the appropriate information with its quotation or offer. Also, the full text of a solicitation provision may be accessed electronically at this address: www.arnet.gov/far.

FEDERAL ACQUISITION REGULATION (48 CFR CHAPTER 1) PROVISIONS:

52.207-1 Notice of Standard Competition.(MAY 2006)

52.215-01 Instructions to Offerors - Competitive Acquisition (JAN 2004)

PART IV - REPRESENTATIONS AND INSTRUCTIONS

SECTION M - EVALUATION FACTORS FOR AWARD

M-1 PROPOSAL EVALUATION

Proposal evaluation is an assessment of the proposal and the offeror's ability to perform the prospective contract successfully. The Government shall establish an evaluation team that includes appropriate contracting, technical, and other expertise to ensure a comprehensive evaluation of proposals.

1.1 Technical Evaluation Team

The Technical Evaluation Team will evaluate, and rank according to technical merit, all proposals in accordance with the evaluation factors established in this solicitation. The team will not have access to the pricing proposal during the technical evaluation process. The offeror's proposal shall be in the format prescribed in Section L and shall contain a response to each of the areas identified.

1.2 Competitive Range

The Contracting Officer shall establish the competitive range based on ratings of each proposal against all evaluation criteria including price. The competitive range shall be comprised of all of the most highly rated proposals. The competitive range can be limited for purposes of efficiency (see FAR 52.215-1(f)(4)). If negotiations are conducted in the source selection process they shall occur after establishment of the competitive range.

1.3 Source Selection Decision

The Contracting Officer shall select for purposes of contract award the overall superior proposal which offers the "best value” to the Government, price and other factors considered. The decision shall be based on a comparative assessment of proposals against all source selection criteria in the solicitation.

1.4 Evaluation of Options (JULY 1990)(FAR 52.217-5)

Except when it is determined in accordance with FAR 17.206(b) not to be in the Government’s best interests, the Government will evaluate offers for award purposes by adding the total price for all options to the total price for the basic requirement. Evaluation of options will not obligate the Government to exercise the option(s).

M-2 EVALUATION FACTORS

Proposals shall be evaluated according to the following criteria including all supporting information furnished by the offeror with the proposal. The evaluation criteria are listed in descending order of importance with relative point values indicated. See Section L for instructions for preparation of technical and pricing proposals.

2.1 Technical Evaluation

Evaluation Criteria		Relative Point Value
(a)	Past Performance History	25
(b)	Project Management Capability	25
(c)	Technical Approach	20
(d)	Quality Control System	20
(e)	Incomplete Contracts	10
		100

2.2 Price Evaluation

While technical excellence is considered more significant than price, the proposed price between technically superior proposals shall be an important factor in selection of a proposal for award. The Government reserves the right to make an award to other than the lowest priced offeror, or other than the highest technically rated offeror, when the perceived benefits and tradeoffs provide the Government the greatest value.

Based on comparative evaluations of the pricing proposals for the basic and optional award item requirements the Government will consider for award that offer that represents the greatest value and is determined to be in the best interest and the most advantageous to the Government.

Offerors are cautioned to insert the unit price and the total price for the Project Item(s) in the appropriate locations in Section B. In case of discrepancy between a unit price (price per square mile) and an extended price (total price), the unit price will be presumed to be correct, subject, however, to correction to the same extent and in the same manner as any other mistake.

2.3 Other Factors

The Contracting Officer will consider, in addition to the evaluation criteria, the prospective Contractor's responsibility record in terms of financial resources, business integrity and ethics, and other standards, as defined in the Federal Acquisition Regulation, Part 9.

M-3 CONTRACT AWARD

The Government intends to evaluate proposals and award a contract or contracts resulting from this solicitation after conducting discussions with offerors whose proposals have been determined to be within the competitive range.

3.1 Contract Award

The contract will be awarded to that responsive and responsible offeror whose proposal represents the greatest value and is determined to be in the best interest and the most advantageous to the Government, price and other factors considered.

3.2 Possibility of Award Without Discussion

Notice is given to all offerors that there is a possibility that award may be made without discussion or further negotiation. Proposals should be submitted initially on the most favorable terms, from a price and technical standpoint, which the offeror can submit to the Government.

3.3 Required or Requested Information

Award will be made only in conjunction with proposals from responsible prospective Contractors. Failure to provide the information, material, and/or documentation either required in Sections K and L may result in the proposal being rejected. Information requested by the Contracting Officer shall be submitted within eight (8) calendar days of the request, failure to do so may result in the proposal being rejected.

ATTACHMENT A

USDA DIGITAL CAMERA SPECIFICATION
Dated April 16, 2010

1.0 INTRODUCTION AND BACKGROUND

The U.S. Federal Government has not yet established an independent government evaluation and calibration policy for digital camera systems since digital sensor technology is still rather new. Until a policy is developed and implemented, the U.S. Department of Agriculture (USDA), Farm Service Agency (FSA) has proceeded to validate the quality and capabilities of current digital camera systems by obtaining relevant information from camera manufacturers and data providers. The following specifications and requirements have been developed to ensure that any digital camera proposed for use on USDA contract meets minimum requirements to provide the highest quality orthoimagery products.

2.0 DIGITAL CAMERA SPECIFICATIONS AND REQUIREMENTS

This document covers digital camera specifications and requirements for the USDA imagery programs. Acquisition of the digital imagery may be from airborne or space borne platforms. Digital cameras for acquiring precise vertical digital imagery are required to be tested and calibrated. Digital camera systems proposed for use must be of comparable precision and quality with traditional stereoscopic mapping cameras. Digital camera systems must also be compatible with analytical mensuration procedures used in photogrammetric surveys and in preparing accurate orthophotography. Only approved digital camera systems, which meet the requirements of these specifications as determined by appropriate camera system documentation and sample imagery submitted, shall be used.

3.0 GENERAL REQUIREMENTS

Digital cameras systems must be tested and calibrated with appropriate certification documentation. The digital camera must be geometrically stable and suitable for use in precise, high-accuracy photogrammetric imagery applications. All delivered imagery shall be acquired and processed in such a way as to eliminate or minimize pixel or band offset or misalignment between bands. The digital camera system shall provide the following:

3.1 Ground Sample Distance

The camera shall provide the resolution and field of view necessary to meet the ground sample distance (GSD) requirement, as specified in Section B of the contract. Color interpretation or pan sharpening will be permitted to achieve GSD requirements.

3.2 Color Band and Depth.

The digital camera shall capture red, green, and blue channels (RGB) for natural color, and a near infrared channel(s) for color infrared (CIR) orthoimagery. The camera shall capture a minimum of 12-bits per color channel. All systems that use "pan-sharpened" algorithms shall have a color to panchromatic ratio not greater that 1:5.

3.3 Radiometric Accuracy

If more than one lens and more than one shutter are used in the camera system, the difference in radiometric values between two panchromatic or two multi-spectral sensors shall be less than ±5%. For example, a 12-bit image shall not have more than ±205 difference in gray values.

3.4 System Operation

The digital camera and its mount shall be checked for proper installation prior to each mission. An automatic exposure control device is permitted, but a manual override capability is required for some types of terrain to achieve proper coverage and exposure. The camera mount shall be regularly serviced and maintained and shall be insulated against aircraft vibration.

(a) Camera Port Glass. Aircraft camera port glass shall be preferably 50 mm thick, but not less than 32 mm thick. The surface finish shall be 80/50 or better. Glass material shall be polished crown, group category M, Mil Specs Mil-W 1366F (ASG), dated October 1975, C-1 optical quality or better.
(b) Malfunctions. The contracting officer shall be notified of all digital camera system malfunctions within 72 hours with a written report of the malfunction. A malfunction is defined as a failure in any element or process of the digital camera system that causes an interruption of the normal operations of the system. Any malfunctions or failures of global positioning systems or inertial measurement unit systems shall be reported directly to the contracting officer.

3.5 Calibration Reports

Calibration reports for each digital camera proposed for use shall be submitted to the contracting officer with the contractor's proposal and prior to project imagery acquisition if the digital camera system is removed and remounted. The contractor shall follow manufacturer's specifications for appropriate calibration and recalibration. The calibration reports shall address the geometric performance of the system, and at a minimum, include:

(a) Date of report
(b) The name of the person or company performing the calibration
(c) The methodology and procedures used for calibration
(d) Final calibration parameters, such as calibrated focal length, lens distortion values, radiometric calibration parameters, and principal point location.

NOTE: The government recognizes that individual calibration reports, procedures, and parameters may be unique to a certain manufacturer since equipment and systems vary from manufacturer to manufacturer.

3.6 System Maintenance

The contractor shall perform all maintenance in accordance with the manufacturers recommended and established procedures. The contractor shall maintain a complete history of all maintenance done to the digital camera system and have it available for Government inspection. The contractor shall provide certification that the system has been maintained, preventive maintenance and calibration performed, to the manufacturers requirements.

4.0 DIGITAL CAMERA APPROVAL REQUIREMENTS

All digital camera systems must be approved by the Contracting Officer before acquiring imagery under this contract. When requesting approval, the Contractor shall submit, or have on file with APFO, a report of calibration (see Paragraph 3.5), sample digital imagery (see Paragraph 4.1), and camera documentation (see Paragraph 4.2). Sample imagery must be at the same scale and resolution of the project that the Contractor is requesting approval for. It is highly recommended that the sample imagery include agriculture areas.

4.1 Digital Camera Sample Imagery Requirements

The contractor shall acquire and submit with their proposal, sample images from the digital camera proposed for use. The sample imagery shall represent the type of terrain (agriculture, cropland, forest, etc.) that is similar to the proposed project item area being offered.

The digital camera sample imagery shall provide the following minimum characteristics:

(a) Display the same GSD resolution being offered as indicated in Section B.
(b) For natural color proposals (RGB bands), the sample image shall be 8-bits per band in color depth.
(c) For color infrared proposals (IR, R, G bands), the sample image shall be 8-bits per band in color depth.
(d) Sample image shall be ortho-rectified, with the projection stated in the contract.
(e) Sample shall be produced as a GeoTIFF image.
(f) The sample imagery shall fit on one standard CD.

4.2 Digital Camera Documentation Requirements

The contractor shall provide with their proposal detailed documentation of the digital camera proposed for use. Documentation may include brochures, technical specifications, marketing material, manufacturer’s user manuals, or other descriptive literature. The documentation shall contain at a minimum the following information:

(a) General overview information
(b) Product configuration description
(c) Camera component description
(d) Technical specifications
(e) Computer management and storage systems
(f) Image acquisition and processing workflow.

4.3 Multiple Camera Approval

The use of more than one type of digital camera system (i.e.: DMC, ADS40, UltraCam) in the acquisition of the same project item area requires submittal of sample imagery and approval by the contracting officer. The contractor must submit sample imagery with appropriate documentation that demonstrates successful mixing or blending of two different camera systems without offsets, obvious seam lines, or other apparent defects. The contractor's sample imagery of "mixed" camera systems shall be provided in accordance with the image characteristics as specified in Paragraph 4.1 above. Sample imagery may be submitted as part of the contractor's proposal and must meet all accuracy and quality requirements and specifications of this contract.

ATTACHMENT B

USDA DIGITAL IMAGERY QUALITY SPECIFICATION
Dated May 28, 2009

1.0 SCOPE

This document establishes the image quality criteria to be used in the production of digital imagery products for all contracts issued by the Untied States Department of Agriculture's (USDA) Aerial Photography Field Office.

2.0 APPLICABLE DOCUMENTS

In the event of conflict between the contents of this specification and the documents referenced herein, the contents of this specification shall take precedence.

2.1 National Agriculture Imagery Program (NAIP) Suggested Best Practices – Final Report, dated Feb 1, 2007 (ITT Space Systems Division)

3.0 GENERAL REQUIREMENTS

USDA programs use imagery for various programs including, but not limited to forest management, agriculture land use analysis, natural resource inventory, and extraction of data by means of photogrammetric measurements. The complex nature and need for consistent imagery require adhere to exact format and content of this specification.

3.1 Geographic Extent. Imagery shall cover the entire image area, including the required minimum buffer on all four sides. Extents shall be computed by projecting the geographic corners and side midpoints to the appropriate projection, then adding the buffer on each side of the resulting minimum bounding rectangle.

3.2 Image blemishes, scratches and artifacts. Imagery shall be free of blemishes, scratches, and artifacts that obscure ground feature detail. The following table defines the maximum acceptable limits for blemishes, scratches, and artifacts. Clusters of blemishes, scratches, and artifacts that do not individually meet these criteria may be considered unacceptable.

Acceptable Image blemishes, scratches and artifacts	
1 pixel wide	100 pixels in length
2 pixels wide	60 pixels in length
3 pixels wide	20 pixels in length
4 – 12 pixels wide	12 pixels in length

3.3 Image Mosaicking. Imagery may be created using multiple digital images ("chips") to produce the final product. Specular reflections in imagery should be minimized, especially in agriculture areas, by patching the area using chips from other imagery.

(a) Radiometric Balance. When a mosaic of two or more chips is made, the brightness and color values of the other chips will be adjusted to match that of the principal chip. The join lines between the overlapping chips will be chosen to minimize tonal variations. Localized adjustment of the brightness and color values will be done to reduce radiometric differences between join areas.

(b) Edge-Matching. All chips shall not have more than ±3 pixels offset between the principal chip.

3.4 Non-image data. Imagery shall only use a pixel digital number (DN) of zero (0) for non-data values.

3.5 Band-to-Band Registration Accuracy. Misregistration between any color bands shall not exceed 1 pixel.

3.4 Original Image Resolution. The original image, original scan, or original capture used to create the imagery shall not be resampled from the original image with resolution greater or less than the following numbers:

Ground Sample Distance (GSD)	**Original Image Resolution**	
	Maximum (meters)	**Minimum (meters)**
0.3-meter	0.15	0.32
0.6-meter	0.3	0.63
1-meter	0.50	1.05

4.0 Unprocessed Imagery

All unprocessed imagery shall have minimal radiometric enhancements, such as stretching, dodging, or other Lookup Table (LUT) adjustments, to the imagery.

5.0 Color Corrected Imagery

All color corrected imagery shall have proper histograms, tone balance, and color balance and saturation.

5.1 Natural Color Image Quality.

(a) Clipping. Imagery shall have a tonal range that prevents the clipping of highlight or shadow detail from the image. When calculated against the luminosity histogram, the cumulative pixel count between the first and last five histogram bin values (5 and 250 respectively for 8-bit depth) shall not be less than 98.0%, with a preferred value greater than 99%.

(b) Contrast. When calculated against the luminosity histogram, the difference between the histogram digital number (DN) value that contains 99.0% of the cumulative pixel count and the DN value that contains 1.0% shall be greater than 140 but less than 160 (aim point of 150). If the cumulative pixel count percentage falls between two histogram bin values, the closest value shall be used. For example, if the luminosity DN value 222 contains 99% of the cumulative pixel count and DN value 44 contains 1% count, therefore the difference is 178.

(c) Brightness. Imagery shall have a mean pixel count within ±7.5% of the middle DN value allowed for the bit depth. For example, an 8-bit depth image must have the histogram mean value between 108 and 147.

(d) Color Balance. Imagery should have a neutral tonal range without the dominance of any individual color. The difference between the minimum and maximum DN value in a RBG triplet of any nearly neutral objects within the image shall be less than 5.

5.2 Color infrared Imagery. All color infrared imagery shall have proper contrast to allow highlight and shadow detail.

5.3 Multispectral Imagery. Multispectral Imagery shall be radiometrically processed such than the natural color bands (RGB) meet the quality requirements in paragraph 5.1.

6.0 DEFINITIONS

Chip – Each separate piece of a mosaicked image that contributes to the final image.

Clipping – The presence of pixels exhibiting the minimum or maximum digital number in an image's dynamic range.

Digital Number – The value (0-255 for an 8-bit image) that depicts the pixel radiance for that color band.

Dodging – Manipulating the intensity of part of a photograph by selectively shading or masking.

Resample – Interpolation of pixel values based upon neighboring pixel values.

Unprocessed Imagery – Imagery that has been minimally processed, including no radiometric enhancements, such as stretching, dodging, or other Look Up Table (LUT) adjustments, to the acquired imagery. A pixel value of "0,0,0,0" shall be used for any non-data value.

ATTACHMENT C

USDA DIGITAL FILE FORMAT SPECIFICATION
Dated April 16, 2010

1.0 SCOPE

This document establishes the file format criteria to be used in the production of digital imagery for all contracts issued by the Aerial Photography Field Office.

2.0 APPLICABLE DOCUMENTS

In the event of conflict between the contents of this specification and the documents referenced herein, the contents of this specification shall take precedence.

2.1 TIFF Specification Revision, 6 dated June 3, 1992 (Adobe Systems Inc.). The Tagged Image File Format (TIFF) is a copyrighted standard of Adobe Systems, Inc.

2.2 GeoTIFF Revision 1.0 Specification, dated December 28, 2000 (Version 1.8.2). The GeoTIFF Format Specification is a public domain extension of TIFF that provides a robust and flexible method of storing georeferencing information in a TIFF file.

2.3 JPEG 2000 Image Coding System, ISO/IEC 15444-1:2004 (JPEG Committee)

3.0 TIFF REQUIREMENTS

Imagery shall be readable by older applications that assume TIFF 5.0 or an earlier version of the specification. Files that use designated "Extended TIFF 6.0 file" features, as defined in Section 2 of the TIFF Specification, shall not be used. This includes, but not limited to, any of the major new extensions such as "tiled images." Features designated as "not recommended for general data interchange" are considered extensions to the baseline TIFF 6.0 specification and shall not be used. List 1, Tag Listings, List 2 and "tiffinfo" Output shows an example of a TIFF tag listing.

3.1 All public tags shall conform to the TIFF Specification and shall not be modified outside of the parameters given in the specification. Use of tag numbers not specified in the TIFF Specification for either Grayscale or RGB full color images, depending on color band of the imagery, is not permitted. As a minimum, the TIFF tags listed in Table 1, Required TIFF Tags, shall be included when creating imagery under this specification.

3.2 Tags numbered 32,768 or higher, sometimes called private tags, are reserved and shall not be used unless listed in Table 2, Approved Private Tags. Enumeration constants numbered 32,768 or higher are reserved and shall not be used.

3.3 Tags numbered in the "reusable" 65,000-65,535 range shall not be used.

3.4 Imagery files shall be created using the little-endian byte order as specified in the TIFF Specification. Bytes 0-1 of the Image File Header must be “II” (4949.H).

3.5 Imagery files shall only have a single Image File Directory (IFD).

3.6 Tiled TIFF files are not allowed.

Table 1, Required TIFF Tags

TAG NAME	DESCRIPTION
ImageDescription tag (270.d, 10e.h)	The ImageDescription tag shall contain the project item name. For example, under this contract the tag will read: “U.S. Forest Service Resource Program”
DocumentName tag (269.d, 10d.h)	Unless otherwise specified in the contract, the DocumentName tag shall have the following form: <Quad Name> <Quadrant> <Quad id> where: <Quad Name> is the name of the quadrangle taken from the provided list of quarter quadrangles for a county. <Quadrant> Is the quadrant identifier for a quadrangle. <Quad id> is the “Usgsqdno” field taken from the provided list of quarter quadrangles for a county

Table 2, Approved Private Tags

TAG NAME	ID
ModelPixelScaleTag	33550 (SoftDesk)
ModelTransformationTag	34264 (JPL Carto Group)
INGR Packet Data Tag	33918 (Intergraph)
INCR Flag Registers	33919 (Intergraph)
IrasB Transformation Matrix	33920 (Intergraph)
UnUsed	33921 (Intergraph)
ModelTiepointTag	33922 (Intergraph)
GeoKeyDirectoryTag	34735 (SPOT)
GeoDoubleParamsTag	34736 (SPOT)
GeoAsciiParamsTag	34737 (SPOT)

4.0 GeoTIFF REQUIREMENTS

Georeferenced tagged image format (GeoTIFF) imagery shall meet all requirements listed in paragraph 3.0, TIFF Requirements, and be produced in accordance with this specification, the GeoTIFF 1.0 Specification, and the baseline TIFF 6.0 Specification (stated in order of precedent). List 3, ListGeo Output shows an example of a GeoTIFF tag listing.

4.1 A GeoTIFF file is a TIFF 6.0 file, and inherits the file structure as described in the corresponding portion of the TIFF Specification. All GeoTIFF specific information is encoded in several additional reserved TIFF tags, and contains no private Image File Directories (IFD's), binary structures, or other private information invisible to standard TIFF readers.

4.2 The GeoTIFF 1.0 standard uses a MetaTag (GeoKey) approach to encode dozens of data elements into just six TIFF 6.0 tags. GeoKeys are structurally similar to TIFF 6.0 tags, but at one lower level of abstraction. As a minimum, the four tags listed in Table 3, Required GeoTIFF MetaTags, shall be included when creating imagery under this specification.

4.3 As a minimum, the TIFF tags listed in Table 1, Required TIFF Tags, and Table 2, Required GeoTIFF Specific Tags, shall be included when creating imagery under this specification.

Table 3, Required GeoTIFF Specific Tags

TAG NAME	DESCRIPTION
ModelPixelScaleTag (33550.d, 830e.h)	The X and Y values must be populated and be equal to the ground distance of one pixel.
ModelTiepointTag (33922.d, 8482.h)	This tag specifies the (X,Y) ground coordinates of the (0,0) image pixel, by convention in the upper left corner of the image. GeoTIFF 1.0 allows considerable flexibility in how an image is tied to the ground, but image data should be tied to the (0,0) pixel. The Z coordinate value should be set to 0. See section 2.6.1 of the GeoTIFF 1.0 standard.
GeoAsciiParamsTag (34737.d, 87b1.h) (required)	This tag is used to store all the ASCII-valued GeoKeys. See section 2.4 of the GeoTIFF 1.0 standard.
GeoKeyDirectoryTag (34735.d, 87af.h) (required)	This tag references all non-ASCII GeoKeys. All projection and datum information is stored in GeoKeys. See section 2.10.2.2 of this standard and section 2.4 of the GeoTIFF 1.0 standard.

Table 3, Required GeoTIFF MetaTags

TAG NAME	DESCRIPTION
GTModelTypeGeoKey (1024.d, 400.h) (required)	The required value is 1 (ModelTypeProjected).
GTRasterTypeGeoKey (1025.d, 401.h) (required)	a. The required value is 1 (RasterPixelIsArea) which is the default value. b. The "PixelIsArea" raster grid space uses coordinates I and J, with (0,0) denoting the upper-left corner of the image, and increasing I to the right, increasing J down. The first pixel-value fills the square grid cell with the bounds top-left = (0,0), bottom-right = (1,1) and so on; by extension this one-by-one grid cell is also referred to as a pixel. An N by M pixel image covers an area with the mathematically defined bounds (0,0),(N,M). c. This raster space designates the upper-left corner of an image. The coordinate pair values for this location shall be “a whole number of pixels.” Each value “must be integer multiple of the resolution” of the imagery. For a 1-meter resolution image this pair can be odd or even whole numbers, for a 2-meter resolution image this pair needs to even whole numbers. d. The desired result is to have “Exact Pixel Registration,” meaning that pixels from multiple images line up exactly. This should not be confused with overlaps or gaps, but the cells have to fall on an even multiple of the cell width and height from one another, and adjacent images cannot have cells starting halfway, or partially into the cells of the original image
ProjectedCSTypeGeoKey (3072.d, c00.h) (required)	This key contains a coded value for the projection, datum, and possibly plane coordinate zone. Legal values for this key are listed in section 6.3.3.1 of the GeoTIFF 1.0 standard.
PCSCitationGeoKey (3073.d, c01.h) (required)	This is a free text field for describing the projection and datum. These fields shall describe the datum and projection using <datum>/< projection> format. For example: NAD83 / UTM zone 15N

GTCitationGeoKey (1026.d, 402.h) (required)	This is a free text field for providing a description of the imagery. The GeoKey contents shall be in the following form. a. <project> <year> <n>_<lat><lon><quad>_<loc>_ <xx>_<rr>_<yyyymmdd> Where: project – Project code year - Program year (i.e., 2010). n – Spectrap type (n=natural color, c=color infrared, or m=multispectral) lat – Latitude, identified by 2 digit numerical value of a 1º block (including the leading "0" if needed). lon – Longitude, identified by 3 digit numerical value of a 1º block (including the leading "0" if needed). quad – Quadrangle location, identified by a 2 digit numerical value to identify the position in a one degree block. loc – Quarter quadrangle location, identified by grid letters (nw,ne,sw,se). xx – Two digit UTM zone. r – Image resolution in centimeters yyyymmdd – date of acquisition. b. Example: 6121202010n_3309403_nw_13_30_20100827
ProjLinearUnitsGeoKey (3076.d, c04.h) (required)	This key contains a coded value for the linear units used by the projection. Legal values for this key are listed in section 6.3.3.1 of the GeoTIFF 1.0 standard. Imagery shall use the code value of 9001 ("Linear_Meter").

5.0 LizardTech's MrSID® REQUIREMENTS

MrSID imagery shall be compressed and saved in Generation Three (MG3) format. Compression ratio shall be 1:15 if no ratio is specified in the individual contract. All standard MrSID® MG3 files generated by the LizardTech software (i.e., .sid, .sdw, and .txt) shall be included. When encoding the image, the following settings shall be applied:

- compression block size of 64
- both the transparency and background values set to an RGB value of 0,0,0 (black)
- use the "maximum zoom level" applicable to the input image, for example: - checking the "Use Maximum Zoom Levels for Image" button in the encoding options menu.

All compression shall be at the same ratio and settings ("region of interest" compressed at a different ratio will not be accepted).

6.0 JPEG2000 REQUIREMENTS

JPEG2000 imagery shall be compressed and saved in the JPEG 2000 format with an unsigned, 8-bit depth. A target compression ratio shall be 1:15 if no ratio is specified in the individual contract. When encoding the image, the following settings shall be applied:

- Tiling: None
- Code blocks: 64
- Precincts: 256 x 256
- Strip height: 12
- Progression order: rpcl
- Quality layers: 8
- Packet length markers: Yes
- Filter: 9-7
- Tile length markers: No
- Transparency: Yes
- Background: Transparent, Black, White (stated in order of preference)

All compression shall be at the same ratio and settings ("region of interest" compressed at a different ratio will not be accepted).

7.0 DEFINITIONS

Band – A range of wavelengths of electromagnetic radiation. Also, image data gathered at this wavelength range.

Field – Refers only to the entire field, including the value, of the geokey (as defined in the TIFF Specification).

Image File Directory – Contains information about the image. There must be at least 1 IFD in a TIFF file and each IFD must have at least one entry.

Metadata – Description of the content, quality, condition, and other characteristics of the data.

Private tags – TIFF tags numbered 32,768 or higher. Private tags are not defined in the TIFF Specification.

Public tags – TIFF tags that are defined by the TIFF Specification.

Tag – Refers only to the identifying number portion of the geokey (as defined in the TIFF Specification).

List 1, Tag Listings

The following table summarizes the TIFF 6.0, GeoTIFF 1.0, and GeoKey requirements. The values in the table are consistent with the TIFF 6.0 and GeoTIFF 1.0 standards, but there are less options than are allowed by TIFF. Additional guidelines and requirements for the values of tags and keys are detailed in the body of this standard. Additional public tags and keys may be used at the data producer's option, providing they do not conflict with the required tags.

TIFF tags required by baseline TIFF:

TagName	Decimal	Hex	Type	Value
ImageWidth	256	100	SHORT or LONG	
ImageLength	257	101	SHORT or LONG	
BitsPerSample	258	102	SHORT	8,8,8
Compression	259	103	SHORT	1
PhotometricInterpretation	262	106	SHORT	2
Orientation	274	112	SHORT	1
StripOffsets	273	111	SHORT or LONG	
SamplesPerPixel	277	115	SHORT or LONG	3 or 4
RowsPerStrip	278	116	SHORT or LONG	1
StripByteCounts	279	117	SHORT or LONG	
ExtraSamples*	338	152	SHORT	0

* Tag required only if SamplesPerPixel is greater than 3.

TIFF tags defined by GeoTIFF:

TagName	Decimal	Hex	Type	Value
ModelPixelScaleTag	33550	830E	DOUBLE	
ModelTiepointTag	33922	8482	DOUBLE	
GeoAsciiParamsTag	34737	87B1	ASCII	
GeoKeyDirectoryTag	34735	87AF	SHORT	

GeoKeys defined by GeoTIFF and used by APFO:

TagName	Decimal	Hex	Type	Value
GTModelTypeGeoKey	1024	400	6.3.1.1 code	1
GTRasterTypeGeoKey	1025	401	6.3.1.2 code	1
GTCitationGeoKey		1026	402	ASCII
ProjectedCSTypeGeoKey	3072	C00	6.3.3.1 code	
PCSCitationGeoKey	3073	C01	ASCII	
ProjLinearUnitsGeoKey	3076	C04	SHORT	

List 2, "tiffinfo" Output

This listing is an output of the libtiff utility program "tiffinfo".

```
TIFF Directory at offset 0x2370bc4
  Image Width: 3247 Image Length: 3815
  Resolution: 200, 200 (unitless)
  Bits/Sample: 8
  Compression Scheme: none
  Photometric Interpretation: RGB color
  Document Name: "Garvin NE 3309401:
  Image Description: "USDA-FSA-APFO National Agriculture Imagery Program"
  Samples/Pixel: 3
  Rows/Strip: 1
  Planar Configuration: single image plane
```

List 3, ListGeo Output

The following is an example of a GeoTIFF tag and GeoKey listing from a NAIP image. This listing is the output of the libgeotiff utility program "listgeo". The projection information below the line "End_Of_Geotiff" is implied by the standard projection and is not stored explicitly in the data file. The descriptions are retrieved from libgeotiff lookup tables in the listgeo application.

```
Geotiff_Information:
   Version: 1
   Key_Revision: 1.0
   Tagged_Information:
      ModelTiepointTag (2,3):
         0          0          0
         337962     3763838    0
      ModelPixelScaleTag (1,3):
         2          2          1
      End_Of_Tags.
   Keyed_Information:
      GTModelTypeGeoKey (Short,1): ModelTypeProjected
      GTRasterTypeGeoKey (Short,1): RasterPixelIsArea
      GTCitationGeoKey (Ascii,45): "2004 NAIP n_3309403_nw_15_2_20050714"
      ProjectedCSTypeGeoKey (Short,1): PCS_NAD83_UTM_zone_15N
      PCSCitationGeoKey (Ascii,21): "NAD83 / UTM zone 15N"
      ProjLinearUnitsGeoKey (Short,1): Linear_Meter
      End_Of_Keys.
   End_Of_Geotiff.
```

PCS = 26915 (name unknown)

Projection = 16015 ()
Projection Method: CT_TransverseMercator
  ProjNatOriginLatGeoKey: 0.000000 (0d 0' 0.00"N)
  ProjNatOriginLongGeoKey: -93.000000 (93d 0' 0.00"W)
  ProjScaleAtNatOriginGeoKey: 0.999600
  ProjFalseEastingGeoKey: 500000.000000
  ProjFalseNorthingGeoKey: 0.000000
GCS: 4269/NAD83
Datum: 6269/North American Datum 1983
Ellipsoid: 7019/GRS 1980 (6378137.00,6356752.31)
Prime Meridian: 8901/Greenwich (0.000000/ 0d 0' 0.00"E)
Projection Linear Units: 9001/metre (1.000000m)

Corner Coordinates:
Upper Left (337962.000,3763838.000) (94d45'16.56"W, 34d 0' 9.55"N)
Lower Left (337962.000,3756208.000) (94d45'11.47"W, 33d56' 1.94"N)
Upper Right (344456.000,3763838.000) (94d41' 3.51"W, 34d 0'13.09"N)
Lower Right (344456.000,3756208.000) (94d40'58.63"W, 33d56' 5.47"N)
Center (341209.000,3760023.000) (94d43' 7.54"W, 33d58' 7.53"N)