

**SUBMITTAL TO THE FLOOD CONTROL AND
WATER CONSERVATION DISTRICT BOARD
COUNTY OF RIVERSIDE, STATE OF CALIFORNIA**

126B



FROM: General Manager-Chief Engineer

SUBMITTAL DATE:
June 28, 2011

SUBJECT: Aerial Imagery and/or Light Detection and Ranging Data Services
Multi -Year Consulting Services Agreement
HJW Geospatial

RECOMMENDED MOTION:

1. Approve the multi-year Consulting Services Agreement (Agreement) between the District and HJW Geospatial (Consultant);
2. Authorize the Chairman to execute the Agreement documents on behalf of the District; and
3. Authorize the District's General Manager-Chief Engineer to renew the Agreement for Fiscal Years 2012-2013 and 2013-2014.

BACKGROUND:
Continued on page 2

WARREN D. WILLIAMS
General Manager-Chief Engineer

FINANCIAL DATA	Current F.Y. District Cost:	\$0	In Current Year Budget:	N/A
	Current F.Y. County Cost:	N/A	Budget Adjustment:	NO
	Net District Cost:	\$100,000	For Fiscal Year:	2011-12, 2012-13, 2013-14

SOURCE OF FUNDS: Continued on page 2	Positions To Be Deleted Per A-30	<input type="checkbox"/>
	Requires 4/5 Vote	<input type="checkbox"/>

C.E.O. RECOMMENDATION: APPROVE

BY:
Michael R. Shetler

County Executive Office Signature

MINUTES OF THE FLOOD CONTROL AND WATER CONSERVATION DISTRICT

On motion of Supervisor Buster, seconded by Supervisor Stone and duly carried by unanimous vote, IT WAS ORDERED that the above matter is approved as recommended.

Ayes: Buster, Tavaglione, Stone, Benoit and Ashley
Nays: None
Absent: None
Date: June 28, 2011

Kecia Harper-Ihem
Clerk of the Board
By:
Deputy

Prev. Agn. Ref.: _____ District: All Agenda Number: _____

11.10
(Master P8183262)

FORM APPROVED COUNTY COUNSEL
 DATE _____
 BY: NEAL R. KIPNIS
 Departmental Concurrence
 FISCAL PROCEDURES APPROVED
 IVAN M. CHAND, FINANCE DIRECTOR
 BY: 5/10/11
 IVAN M. CHAND

**FLOOD CONTROL AND WATER CONSERVATION DISTRICT BOARD SUBMITTAL
COUNTY OF RIVERSIDE, STATE OF CALIFORNIA**

SUBJECT: Aerial Imagery and/or Light Detection and Ranging Data Services
Multi-Year Consulting Services Agreement
HJW Geospatial

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Page 2

BACKGROUND: (continued)

Board Policy H-7 was used to establish a pre-qualified list of aerial imaging and/or Light Detection and Ranging (LiDAR) services providers. On November 2, 2010, the Board of Supervisors approved the selection of the pre-qualified list of aerial imaging and/or LiDAR services providers that include Digital Mapping, Inc. (Consultant).

The Agreement sets forth the terms and conditions by which Consultant will provide consulting services in support of the District's aerial imagery and/or Light Detection and Ranging (LiDAR) data on an as-needed basis.

This Agreement will expire on June 30, 2012 and will be extended on an annual basis at District's discretion through FY 2013-2014.

County Counsel has approved the Agreement as to legal form and Consultant has executed the Agreement.

SOURCE OF FUNDS: (continued)

525440 25110 947400 Zone 1, Professional Services (221-1-6-0940)
525440 25120 947420 Zone 2, Professional Services (222-2-6-0940)
525440 25130 947440 Zone 3, Professional Services (223-3-6-0940)
525440 25140 947460 Zone 4, Professional Services (224-4-6-0940)
525440 25150 947480 Zone 5, Professional Services (225-5-6-0940)
525440 25160 947500 Zone 6, Professional Services (226-6-6-0940)
525440 25160 947520 Zone 7, Professional Services (227-7-6-0940)

FINANCIAL:

The services noted in Exhibit "A" and the rates proposed in Exhibit "B" of this Agreement will apply for fiscal years 2011-12, 2012-13, 2013-14. Sufficient funding will be included in the budgets for the same fiscal years.

P8\137399

CONSULTING SERVICES AGREEMENT

for

AERIAL IMAGERY and/or LIGHT DETECTION and RANGING DATA SERVICES

The RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT, hereinafter called "DISTRICT", and HJW GEOSPATIAL, hereinafter called "CONSULTANT", hereby agree as follows:

1. **SCOPE**

CONSULTANT shall provide "on-call" professional services as described in Exhibit "A" attached hereto and made a part hereof, in support of DISTRICT'S aerial imagery and/or Light Detection and Ranging (LiDAR) data.

2. **RETAINER**

DISTRICT hereby retains CONSULTANT, as an independent contractor, to provide all technical and professional services including but not limited to expertise, labor, material, equipment, transportation, supervision, and other incidental services to fully and adequately perform and complete in a skillful and professional manner any one or more of the following consulting services: i) analog black and white photography, ii) analog color photography, iii) digital imagery and iv) LiDAR data to assist the DISTRICT in the compilation of engineering mapping at various scales.

CONSULTANT'S services under this Agreement shall be procured in the following manner:

- A. DISTRICT will contact CONSULTANT and request a written proposal regarding the specific task or services to be provided by CONSULTANT.
- B. DISTRICT and CONSULTANT shall discuss CONSULTANT'S proposal and mutually agree on CONSULTANT'S proposed scope of services, personnel

1 and project schedule. Following DISTRICT'S approval of CONSULTANT'S
2 proposed scope of services, personnel and project schedule, DISTRICT will
3 issue a written Notice to Proceed for the agreed upon services to
4 CONSULTANT.

5 C. CONSULTANT shall commence performance within five (5) calendar days of
6 DISTRICT'S issuance of a Notice to Proceed.

7 By entering into this Agreement, CONSULTANT assumes responsible charge of the work
8 pursuant to Section 8703 of the Professional Land Surveyors' Act; Chapter 15
9 (commencing with Section 8700) of Division 3 of the Business and Professions Code,
10 where applicable, and shall be wholly responsible for the completeness and accuracy of all
11 calculations, data, measurements, calibration, plans, specifications, computer files, maps,
12 field notes, reports, estimates and any other materials prepared pursuant to this Agreement,
13 and shall check all such material accordingly.

14
15 3. TIME FOR PERFORMANCE

16 CONSULTANT shall not commence performance of any work or services, for any reason
17 whatsoever, until DISTRICT has provided CONSULTANT with written Notice to
18 Proceed authorizing CONSULTANT to initiate work pursuant to this Agreement. No
19 payment will be made for any work or services performed prior to the issuance of said
20 Notice to Proceed. CONSULTANT'S performance under this Agreement shall start on
21 July 1, 2011 and shall terminate at midnight on June 30, 2012 with option for two (2)
22 additional one-year extensions. By mutual written consent of DISTRICT and
23 CONSULTANT, this Agreement may be renewed for two (2) additional fiscal years
24 through June 30, 2014.
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4. AERIAL IMAGING AND LIGHT DETECTION AND RANGING (LiDAR) SERVICES

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2 A. Specifications and Standards

3 All work shall be performed in accordance with DISTRICT standards, as
4 described in Exhibit "A" and any special criteria established by DISTRICT for
5 specific task or services. All deliverables prepared by CONSULTANT
6 pursuant to this Agreement shall be prepared in accordance with Exhibit "A"
7 and/or current DISTRICT practices, regulations, policies, procedures and
8 standards where applicable. All deliverables shall be subject to review and
9 approval by DISTRICT.

10 Services provided by CONSULTANT under this Agreement shall be
11 performed in a manner consistent with that standard of care and skill
12 ordinarily exercised by members of the same profession currently practicing
13 under similar circumstances.

14
15 B. Control Surveys

16 Unless otherwise specified herein, DISTRICT shall provide CONSULTANT
17 with primary survey control monuments including both horizontal (California
18 Coordinate System) and vertical control positions.

19
20 C. Quality Control

21 CONSULTANT shall implement and maintain effective quality control
22 procedures throughout all phases of assigned task and/or services.
23 CONSULTANT shall have a quality control plan in effect during the entire
24 time task and/or services are being performed under this Agreement. The plan
25 shall establish a process whereby all calculations and documents prepared
26 under this Agreement are independently checked, corrected and back-
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1 checked, and all pertinent job related correspondence and memoranda are
2 bound in appropriate job files. Evidence that the quality control plan is
3 functional may be requested by DISTRICT. All documents and any other
4 items submitted to DISTRICT for review shall be initialed by
5 CONSULTANT'S project manager, or his designee, as being fully checked
6 and that the preparation of the material followed the quality control plan
7 established for the work.

8
9 5. COMPENSATION

10 DISTRICT shall pay CONSULTANT for actual services satisfactorily performed and
11 expenses incurred in accordance with the rates set forth on Exhibit "B" attached hereto and
12 made a part hereof. The total amount of compensation paid to CONSULTANT under this
13 Agreement shall not exceed the sum of one hundred thousand dollars (\$100,000) in any
14 given fiscal year.

15 6. PAYMENT

16 Upon satisfactory performance of the task and/or services as set forth herein, DISTRICT
17 shall make payment to CONSULTANT within thirty (30) days of receipt of appropriate
18 invoice(s) from CONSULTANT. CONSULTANT shall keep employee and expense
19 records according to customary accounting methods and such records shall, upon request,
20 be made available for inspection by DISTRICT to verify CONSULTANT'S invoices. All
21 invoices shall itemize charges to conform to the portion(s) of work and rates as set forth on
22 DISTRICT approved CONSULTANT'S proposal and Exhibit "B", respectively.

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24 7. SUBCONTRACTING

25 CONSULTANT may, at CONSULTANT'S own expense, employ special consultants to
26 accomplish the work covered by this Agreement; however, except as specifically provided
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1 in Exhibit "A" or as expressly identified in this Agreement, no portion of the services
2 pertinent to this Agreement shall be subcontracted without prior written approval and
3 authorization by the DISTRICT.

4 In the event CONSULTANT subcontracts any portion of CONSULTANT'S duties under
5 this Agreement, CONSULTANT shall require its subcontractors to comply with the terms
6 of this Agreement in the same manner as required of CONSULTANT. The fact that
7 CONSULTANT employs special consultants not in his regular employ shall not relieve
8 CONSULTANT of any responsibility regarding the adequacy of the special consultant's
9 designs or other work performed pursuant to this Agreement.
10

11 8. TERMINATION

12 At any time during the term of this Agreement, DISTRICT may:

- 13 A. Terminate this Agreement without cause upon providing
14 CONSULTANT thirty (30) days written notice stating the extent
15 and effective date of termination;
16
17 B. Upon five (5) days written notice, terminate this Agreement for
18 CONSULTANT default, if CONSULTANT refuses or fails to
19 comply with the provisions of this Agreement or fails to make
20 progress so as to endanger performance and does not cure such
21 failure within a reasonable period of time. In the event of such
22 termination, the DISTRICT may proceed with the work in any
23 manner deemed proper to DISTRICT.
24

25 In the event DISTRICT issues a Notice of Termination, CONSULTANT shall: (i) stop
26 all work under this Agreement on the date specified in the Notice of Termination; and
27 (ii) transfer to DISTRICT and deliver in the manner, and to the extent, if any, as directed
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1 by DISTRICT, any equipment, data or reports which, if the Agreement had been
2 completed, would have been required to be furnished to DISTRICT.

3 In the event DISTRICT terminates this Agreement, DISTRICT shall make payment for
4 all services performed in accordance with this Agreement to the date of termination, a
5 total amount which bears the same ratio to the total maximum fee otherwise payable
6 under this Agreement as the services actually bear to the total services necessary for
7 performance of this Agreement. Notwithstanding any of the other provisions of this
8 Agreement, CONSULTANT rights under this Agreement shall terminate (except for fees
9 accrued prior to the date of termination) upon dishonesty, or a willful or material breach
10 of this Agreement by CONSULTANT, or in the event of CONSULTANT'S
11 unwillingness or inability for any reason whatsoever to perform the duties hereunder, or
12 if the Agreement is terminated pursuant to Section 22, hereinafter titled NON-
13 DISCRIMINATION. In such event, CONSULTANT shall not be entitled to any further
14 compensation under this Agreement. The rights and remedies of DISTRICT provided in
15 this section shall not be exclusive and are in addition to any other rights and remedies
16 provided by law or under this Agreement.

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19 9. ERRORS AND OMISSIONS

20 In the event of errors or omissions in any work product which result in expense to
21 DISTRICT greater than would have resulted if there were no errors or omissions in the
22 work product, the additional imagery and/or LIDAR data expense shall be borne solely
23 by CONSULTANT.

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25 10. DISPUTES

26 A. In the event CONSULTANT considers any work demanded of
27 CONSULTANT to be outside the requirements of this Agreement, or if
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1 CONSULTANT considers any order, instruction or decision of DISTRICT to
2 be unfair, CONSULTANT shall promptly, upon receipt of such order,
3 instruction or decision, ask for a written confirmation of the same whereupon
4 CONSULTANT shall proceed without delay to perform the work or to
5 conform to the order, instruction, or decision. However, if CONSULTANT
6 finds such order, instruction or decision unsatisfactory, CONSULTANT shall,
7 within 21 calendar days after receipt of same, file a written protest with
8 DISTRICT stating clearly and in detail its objections and reasons therefore.
9
10 Except for such protests or objections as are made of record in the manner
11 specified and within the time stated herein, and except for such instances
12 where the basis of a protest could not reasonably have been foreseen by
13 CONSULTANT within the time limit specified for protest, CONSULTANT
14 hereby waives all grounds for protests or objections to orders, instruction, or
15 decisions of DISTRICT and hereby agrees that, as to all matters not included
16 in such protests, the orders, instructions and decisions of DISTRICT will be
17 limited to matters properly falling within DISTRICT'S authority.
18

- 19 B. Any controversy or claim arising out of or relating to this Agreement which cannot
20 be resolved by mutual agreement may be settled by arbitration, provided that the
21 parties hereto mutually agree to submit to arbitration.
- 22 C. Neither the pendency of a dispute nor its consideration by arbitration shall excuse
23 CONSULTANT from full and timely performance in accordance with the terms of
24 this Agreement.
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11. LICENSES

At all times while performing services under this Agreement, CONSULTANT, its employees, agents, contractors and subcontractors shall maintain professional licenses as required by the laws of the State of California, including but not limited to Chapter 15 of Division 3 of the Business and Professions Code (Professional Land Surveyors' Act).

12. INDEPENDENT CONTRACTOR

CONSULTANT and the agents and employees of CONSULTANT, shall act at all times in an independent capacity during the term of this Agreement and in the performance of the services to be rendered hereunder and shall not act as or shall not be and shall not in any manner be considered to be employees or agents of DISTRICT.

13. INSURANCE

Without limiting or diminishing CONSULTANT'S obligation to indemnify or hold DISTRICT harmless, CONSULTANT shall procure and maintain or cause to be maintained, at its sole cost and expense, the following insurance coverage's during the term of this Agreement:

A. Workers' Compensation:

If CONSULTANT has employees as defined by the State of California, CONSULTANT shall maintain statutory Workers' Compensation Insurance (Coverage A) as prescribed by the laws of the State of California. Policy shall include Employers' Liability (Coverage B) including Occupational Disease with limits not less than \$1,000,000 per person per accident. Policy shall be endorsed to waive subrogation in favor of DISTRICT and, if applicable, to provide a Borrowed Servant/Alternate Employer Endorsement.

1 B. Commercial General Liability:

2 Commercial General Liability insurance coverage, including but not limited to,
3 premises liability, unmodified contractual liability, products and completed
4 operations liability, personal and advertising injury, and cross liability coverage,
5 covering claims which may arise from or out of CONSULTANT'S performance of
6 its obligations hereunder. Policy shall name the Riverside County Flood Control
7 and Water Conservation District, the County of Riverside, its agencies, districts,
8 special districts, and departments, their respective directors, officers, Board of
9 Supervisors, employees, elected or appointed officials, agents or representatives as
10 additional insureds. Policy's limit of liability shall not be less than \$1,000,000 per
11 occurrence combined single limit. If such insurance contains a general aggregate
12 limit, it shall apply separately to this Agreement or be no less than two (2) times the
13 occurrence limit.
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15 C. Vehicle Liability:

16 If vehicles or mobile equipment are used in the performance of the obligations
17 under this Agreement, then CONSULTANT shall maintain liability insurance for all
18 owned, non-owned or hired vehicles so used in an amount not less than \$1,000,000
19 per occurrence combined single limit. If such insurance contains a general
20 aggregate limit, it shall apply separately to this Agreement or be no less than two (2)
21 times the occurrence limit. Policy shall name the Riverside County Flood Control
22 and Water Conservation District, the County of Riverside, its agencies, districts,
23 special districts, and departments, their respective directors, officers, Board of
24 Supervisors, employees, elected or appointed officials, agents or representatives as
25 additional insureds.
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1 D. Professional Liability:

2 CONSULTANT shall maintain Professional Liability Insurance providing coverage
3 for CONSULTANT'S performance of work included within this Agreement, with a
4 limit of liability of not less than \$1,000,000 per occurrence and \$2,000,000 annual
5 aggregate. If CONSULTANT'S Professional Liability Insurance is written on a
6 claims made basis rather than an occurrence basis, such insurance shall continue
7 through the term of this Agreement and CONSULTANT shall purchase at his sole
8 expense either: 1) an Extended Reporting Endorsement (also known as Tail
9 Coverage); or 2) Prior Dates Coverage from a new insurer with a retroactive date
10 back to the date of, or prior to, the inception of this Agreement; or 3) demonstrate
11 through Certificates of Insurance that CONSULTANT has maintained continuous
12 coverage with the same or original insurer. Coverage provided under items: 1), 2)
13 or 3) will continue as long as the law allows.

15 E. General Insurance Provisions – All Lines:

- 16
- 17 1) Any insurance carrier providing insurance coverage hereunder shall be
18 admitted to the State of California and have an A.M. BEST rating of not less
19 than an A: VIII (A: 8) unless such requirements are waived, in writing, by the
20 County Risk Manager. If the County Risk Manager waives a requirement for
21 a particular insurer such waiver is only valid for that specific insurer and only
22 for one policy term.
- 23
- 24 2) The CONSULTANT must declare its insurance self-insured retention for
25 each coverage required herein. If any such self-insured retention exceeds
26 \$500,000 per occurrence each such retention shall have the prior written
27 consent of the County Risk Manager before the commencement of operations
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1 under this Agreement. Upon notification of self-insured retention deemed
2 unacceptable to the DISTRICT, and at the election of the County Risk
3 Manager, CONSULTANT'S carriers shall either: 1) reduce or eliminate such
4 self-insured retention with respect to this Agreement with DISTRICT, or 2)
5 procure a bond which guarantees payment of losses and related
6 investigations, claims administration, and defense costs and expenses.

- 7 3) CONSULTANT shall cause their insurance carrier(s) to furnish DISTRICT
8 with: 1) a properly executed original Certificate(s) of Insurance and certified
9 original copies of Endorsements effecting coverage as required herein; and 2)
10 if requested to do so orally or in writing by the County Risk Manager,
11 provide original certified copies of policies including all Endorsements and
12 all attachments thereto, showing such insurance is in full force and effect.
13 Further, said Certificate(s) and policies of insurance shall contain the
14 covenant of the insurance carrier(s) that thirty (30) days written notice shall
15 be given to DISTRICT prior to any material modification, cancellation,
16 expiration or reduction in coverage of such insurance. In the event of a
17 material modification, cancellation, expiration or reduction in coverage, this
18 Agreement shall terminate forthwith, unless DISTRICT receives, prior to
19 such effective date, another properly executed original Certificate of
20 Insurance and original copies of Endorsements or certified original policies,
21 including all endorsements and attachments thereto, evidencing coverages set
22 forth herein and the insurance required herein is in full force and effect.
23 *CONSULTANT shall not commence operations until DISTRICT has been*
24 *furnished with original Certificate(s) of Insurance and certified original*
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1 *copies of Endorsements and if requested, certified original policies of*
2 *insurance including all endorsements and any and all other attachments as*
3 *required in this Section. An individual authorized by the insurance carrier to*
4 *do so on its behalf shall sign the original endorsements for each policy and*
5 *the Certificate of Insurance.*

6 4) It is understood and agreed by the parties hereto that CONSULTANT'S
7 insurance shall be construed as primary insurance, and DISTRICT'S
8 insurance and/or deductibles and/or self-insured retentions or self-insured
9 programs shall not be construed as contributory.

10 5) If, during the term of this Agreement or any extension thereof, there is a
11 material change in the scope of services or there is a material change in the
12 equipment to be used in the performance of the scope of work which will add
13 additional exposures (such as the use of aircraft, watercraft, cranes, etc.); or
14 the term of this Agreement, including any extensions thereof, exceeds five (5)
15 years, DISTRICT reserves the right to adjust the types of insurance required
16 under this Agreement and the monetary limits of liability for the insurance
17 coverages currently required herein, if; in the County Risk Manager's
18 reasonable judgment, the amount or type of insurance carried by
19 CONSULTANT has become inadequate.

20 6) CONSULTANT shall pass down the insurance obligations contained herein
21 to all tiers of subcontractors working under this Agreement.

22 7) The insurance requirements contained in this Agreement may be met with a
23 program(s) of self-insurance acceptable to DISTRICT.
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1 8) CONSULTANT agrees to notify DISTRICT of any claim by a third party or
2 any incident or event that may give rise to a claim arising from the
3 performance of this Agreement.

4 14. INDEMNIFICATION

5 CONSULTANT shall indemnify and hold harmless DISTRICT (including its officers,
6 Board of Supervisors, elected and appointed officials, employees, agents and
7 representatives) from any liability, claim, damage, proceeding or action, present or
8 future, based upon, arising out of or in any way relating to CONSULTANT'S (including
9 its officers, employees, subcontractors and agents) actual or alleged negligent, reckless
10 or willful misconduct acts or omissions related to this Agreement, performance under
11 this Agreement, or failure to comply with the requirements of this Agreement, including
12 but not limited to: (a) property damage; (b) bodily injury or death; or (c) any other
13 element of any kind or nature whatsoever.

15 CONSULTANT shall defend, at its sole expense, including all costs and fees (including
16 but not limited to attorney fees, cost of investigation, defense and settlements or awards),
17 DISTRICT (its officers, Board of Supervisors, elected and appointed officials,
18 employees, agents and representatives) in any claim, proceeding or action for which
19 indemnification is required.

21 With respect to any of CONSULTANT'S indemnification requirements,
22 CONSULTANT shall, at its sole cost, have the right to use counsel of their own choice
23 and shall have the right to adjust, settle, or compromise any such claim, proceeding or
24 action without the prior consent of DISTRICT; provided, however, that such adjustment,
25 settlement or compromise in no manner whatsoever limits or circumscribes
26 CONSULTANT'S indemnification obligations to DISTRICT.

1 CONSULTANT'S indemnification obligations shall be satisfied when CONSULTANT
2 has provided to DISTRICT the appropriate form of dismissal (or similar document)
3 relieving DISTRICT from any liability for the claim, proceeding or action involved.

4 The specified insurance limits required in this Agreement shall in no way limit or
5 circumscribe CONSULTANT'S obligations to indemnify and hold harmless DISTRICT
6 from third party claims.

7 In the event there is conflict between this section and California Civil Code Section
8 2782, this section shall be interpreted to comply with California Civil Code Section
9 2782. Such interpretation shall not relieve the CONSULTANT from indemnifying
10 DISTRICT or the County of Riverside to the fullest extent allowed by law.

11
12 15. WORK PRODUCT

13 All calculations, data, measurements, plans, specifications, computer files, maps, field
14 notes, reports, estimates and any other documents furnished in accordance with this
15 Agreement shall meet the criteria for acceptance and be a product of neat appearance,
16 well organized and contents shall be of similar types produced by DISTRICT and
17 applicable utilities.

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19 Upon completion of all work under this Agreement, ownership and title to all
20 calculations, data, measurements, plans, specifications, computer files, maps, field notes,
21 reports, estimates and any other documents produced as part of this Agreement shall be
22 and remain the sole property of DISTRICT. CONSULTANT shall not publish or
23 transfer any material produced or resulting from activities supported by this Agreement.
24 If any such material is subject to copyright or trademark, the parties agree that the right
25 to any and all copyright and/or trademark in and to the material is expressly reserved to
26 DISTRICT. If any such material is copyrighted, the parties hereto understand and agree
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1 that DISTRICT reserves a royalty-free, non-exclusive, and irrevocable license to
2 reproduce, publish, and use such material, in whole or in part, and to authorize others to
3 do so, provided written credit is given to the author.

4 16. CONFIDENTIALITY OF DATA

5 All financial, statistical, personal, technical or other data and information which is
6 designated confidential by DISTRICT and subsequently made available to
7 CONSULTANT shall not be disclosed (in whole or in part) by CONSULTANT to any
8 third parties and shall be protected by CONSULTANT from unauthorized use and
9 disclosure. The only exception to this shall be if disclosure is approved in advance in
10 writing by DISTRICT or if the disclosure is made to CONSULTANT'S subcontractors
11 as anticipated by this Agreement.
12

13 CONSULTANT shall not issue any news release or public relations item regarding
14 designated confidential information or CONSULTANT'S work under this Agreement,
15 without prior review of the contents and written approval by DISTRICT.

16 These same requirements shall be applicable to any of CONSULTANT'S subcontractors.

17 CONSULTANT shall include the requirements stated in this section in the agreement
18 with any of its subcontractors.
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20 17. TIME EXTENSIONS

21 Any delay in providing services required by this Agreement, occasioned by causes
22 beyond the control and not due to the fault or negligence of CONSULTANT, shall be
23 deemed reason for granting an extension of time for the completion of the aforesaid
24 work. If such delay occurs, CONSULTANT shall promptly notify DISTRICT in writing
25 of the cause and of the extent of the delay whereupon DISTRICT shall ascertain the facts
26 and the extent of the delay and grant an extension of time for the completion of the work
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1 when, in DISTRICT'S sole judgment, their findings of fact justify such an extension of
2 time.

3 18. ASSIGNMENT

4 Neither this Agreement nor any part thereof shall be assigned by CONSULTANT
5 without the prior written consent of DISTRICT.

6 19. JURISDICTION/LAW/SEVERABILITY

7 This Agreement is to be construed in accordance with the laws of the State of California.
8 If any provision of this Agreement is held by a court of competent jurisdiction to be
9 invalid, void or unenforceable, the remaining provisions shall be declared severable and
10 shall be given full force and effect to the extent possible

11 Any legal action, in law or in equity related to the performance or interpretation of this
12 Agreement shall be filed only in the Superior Court of the State of California located in
13 Riverside, California, and the parties waive any provision of law providing for a change
14 of venue to another location. Prior to the filing of any legal action, the parties shall be
15 obligated to attend a mediation session with a neutral mediator or try to resolve the
16 dispute.
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19 20. WAIVER

20 Any waiver by DISTRICT of any breach of any one or more of the terms of this
21 Agreement shall not be construed to be a waiver of any subsequent or other breach of the
22 same or of any other term thereof. Failure on the part of DISTRICT to require exact, full
23 and complete compliance with any terms of this Agreement shall not be construed as in
24 any manner changing the terms hereof, or estopping DISTRICT from enforcement
25 hereof.
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21. CONFLICT OF INTEREST

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CONSULTANT warrants, by execution of this Agreement, that no person or selling agency has been employed or retained to solicit or secure this Agreement upon an agreement or understanding for a commission, percentage, brokerage or contingent fee, excepting bona fide employees or bona fide established commercial or selling agencies maintained by CONSULTANT for the purpose of securing business. For breach or violation of this warranty, DISTRICT has the right to annul this Agreement without liability, pay only for the value of the work actually performed, or in its discretion to deduct from the Agreement price or consideration, or otherwise recover, the full amount of such commission, percentage, brokerage, or contingent fee. CONSULTANT may be requested to complete a Conflict of Interest Statement prior to, during, or after execution of this Agreement. CONSULTANT understands that as a condition of this Agreement, CONSULTANT agrees to complete the Conflict of Interest Statement when requested to do so by DISTRICT.

22. NON-DISCRIMINATION

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In the performance of the terms of this Agreement, CONSULTANT shall not engage in nor permit others he may employ to engage in discrimination in the employment of persons because of the race, color, national origin or ancestry, religion, physical handicap, disability as defined by the Americans with Disabilities Act (ADA), medical condition, marital status or sex of such persons, in accordance with the provision of California Labor Code Section 1735.

23. NOTICES

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Any notices sent or required to be sent to either party shall be mailed to the following addresses:

1 RIVERSIDE COUNTY FLOOD CONTROL
2 AND WATER CONSERVATION DISTRICT
3 1995 Market Street
4 Riverside, CA 92501
5 Attn: Photogrammetry Section

HJW Geospatial
2001 Broadway, 3rd Floor
Oakland, CA 94612
Att: Mr. Devin Kelley

4 24. NON-APPROPRIATION OF FUNDS

5 It is mutually agreed and understood that the obligation(s) of DISTRICT are limited by
6 and contingent upon the availability of DISTRICT funds for the reimbursement of
7 CONSULTANT'S fees. In the event that such funds are not forthcoming for any reason,
8 DISTRICT shall immediately notify CONSULTANT in writing. This Agreement shall be
9 deemed terminated and have no further force and effect immediately on receipt of
10 DISTRICT'S notification by CONSULTANT. In the event of such termination,
11 CONSULTANT shall be entitled to payment for work already performed satisfactorily in
12 accordance with this Agreement.
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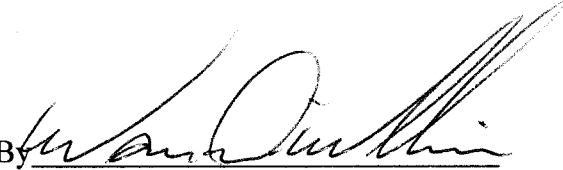
IN WITNESS WHEREOF, the parties hereto have executed this Agreement on

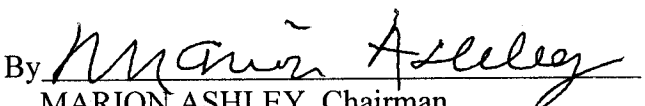
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6/28/2011
(to be filled in by Clerk of the Board)

RECOMMENDED FOR APPROVAL:

**RIVERSIDE COUNTY FLOOD CONTROL
AND WATER CONSERVATION DISTRICT**

By 
WARREN D. WILLIAMS
General Manager-Chief Engineer

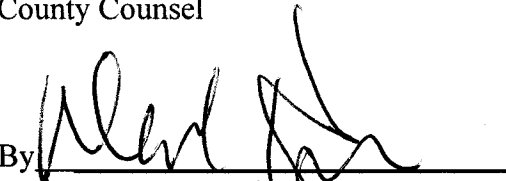
By 
MARION ASHLEY, Chairman
Riverside County Flood Control and Water
Conservation District Board of Supervisors

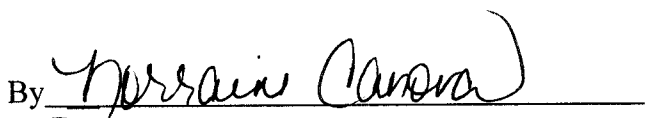
APPROVED AS TO FORM:

ATTEST:

PAMELA J. WALLS
County Counsel

KECIA HARPER-IHEM
Clerk of the Board


By 
NEAL R. KIPNIS

By 
Deputy

(SEAL)

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HJW GEOSPATIAL

By 
MARK MEADE
Sr. Vice President

Hjw Geospatial - Consulting Services Agreement – FY 11/14
On-call aerial imagery and/or LiDAR services
5/5/11

EXHIBIT "A"

Consulting Services Agreement
for

AERIAL IMAGERY and/or LIGHT DETECTION and RANGING DATA SERVICES

A. SCOPE OF SERVICES

The Consultant will provide any one or more of the following mapping services on an on-call basis: 1) analog black and white photography, 2) analog color photography, 3) digital imagery, and 4) LiDAR data.

B. REQUIREMENTS FOR IMAGERY/LiDAR

1. Requirements for Analog Imagery

All aspects of the aerial flight and acquisition of aerial photography to follow industry best practice. Specifications for aerial photograph have been included in Section C below.

2. Requirements for Digital Imagery

All aspects of the aerial flight and acquisition of aerial photography to follow industry best practice. State the manufacturer and model of the digital sensor you will be using.

2.1) Provide color digital imagery with 60% forward overlap and 30% side overlap.

2.2) When airborne GPS is required, provide the raw airborne GPS data as the District will process the data. District survey staff will have a minimum of two base stations running at the time of the flight so coordination will need to take place between the Consultant and District survey staff. District survey staff will provide the ground receiver information.

2.2.1) Provide the exterior orientation elements; X, Y, Z, T, omega, kappa and phi.

2.2.2) Provide the pilot's log sheet.

2.2.3) Provide a detailed diagram of the separation between the GPS antenna and the camera.

2.2.4) The flight window is from 10:30 a.m. to 2:30 p.m. and will only be flown Monday through Thursday as District survey crews do not work on Fridays or weekends.

2.3) Provide the imagery in 8 and 12 bit format and compress using a Q-factor of 5.

- 2.4) When labeling the images, the job name, photo scale, date and exposure number should be shown on the first exposure only. All subsequent exposures should have date and exposure number only. Date in upper left corner and Photo No. in upper right corner. Number photos as indicated on the flight plan. Use aerial font, size 14.

3. Requirements for LiDAR Data

All aspects of the LIDAR and acquisition to follow industry best practice.

Provide LIDAR generated bare earth Digital Terrain Model (DTM) all points file and a separate file with model key points. High resolution DTM having a vertical accuracy of 95% at 0.6' and 90% at 0.5' and as a separate option a DTM having a vertical accuracy of 95% at 1.2' and 90% at 1.0', when checked in flat open terrain.

C. SPECIFICATIONS FOR AERIAL PHOTOGRAPHY

1. Aircraft and Crew

- 1.1 All aircraft shall be maintained and operated in accordance with regulations of the Federal Aviation Administration and the Civil Aeronautics Board. The recommended FAA preflight inspection of the aircraft and instruments must be performed prior to each photographic mission. Aircraft shall have a service ceiling (with operating load of crew, camera, film, oxygen, and other required equipment) not less than 5% above the highest altitude necessary to achieve the smallest photographic scale required. If the project is in controlled air space the appropriate Air Traffic Control Center (AIRTCC) must be contacted. If the project area includes a military installation, the contractor must comply with security regulations. At the flight altitudes required for this photography, the aircraft shall have flight characteristics to provide a stable platform for the operation of the camera that will not degrade the orientation or the resolution of the photographic image.
- 1.2 The design of the aircraft shall be such that when the camera is mounted, an unobstructed view is obtained, shielded from the exhaust gasses, oil, effluence and air turbulence.
 - 1.2.1 If an aircraft camera has a port glass it shall be preferably 50mm thick but not less than 37mm 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) October 1975, C-1 optical quality or better. The physical characteristics of any port glass shall be reported to the District on request.
 - 1.2.2 The camera shall be mounted vertically in the aircraft in a mount designed to isolate the camera from vibration of the aircraft. Angular vibration of the camera shall be reduced to such a level so as to have no significant detrimental effect on resolution.

1.2.3 The camera window shall be mounted in material eliminating excessive mechanical stress to the window. The opening shall be designed so that the field of view is unobstructed when the camera is mounted.

1.3 Individual crew members shall have two years or more apprenticeship in flying photographic missions for aerial surveys. In addition, it is desirable that crew members have meaningful prior experience with the same type camera and aircraft to which assigned.

2. Camera and Associated Equipment

2.1 The camera will be a metric quality vertical format aerial mapping of nominal focal length of 152mm with format dimensions of 230mm x 230mm. The lens must meet the requirements outlined below based on a U.S. Geological Survey Report of Camera Calibration. Failure of the camera to meet all of the specified requirements shall be cause for rejection of the proposal.

2.1.1 Lens shall be corrected for the spectral range of the film used. The lens shall meet or exceed all the requirements outlined in items (a), (b), (c) and (d), below.

- (a) Calibrated Focal length - 153.0mm ±3.0mm;
- (b) Usable angular field - at least 90°;
- (c) Radial distortion in the usable angular field, based on the calibrated focal length referred to the calibrated principal point (point of symmetry), shall not exceed 12 um for any tested point, and 16 of the tested points shall have radial distortion values not exceeding 5 um.
- (d) Resolution - The lens should have an Area Weighted Average Resolution (AWAR) of at least 72.0 line pairs per millimeter as determined by the U.S. Geological Survey Report of Calibration. The following table lists the minimum acceptable radial and tangential lens resolution at various field angles.

Field angle	0°	7.5°	15°	22.5°	30°	35°	40°
<u>Line pairs per mm</u>							
Radial	95	87	67	57			
Tangential	95	80	70	67	67	57	45

2.1.2 Filters - Only optical filters provided by the lens manufacturer meeting the same optical specifications shall be used. The filter shall have surfaces parallel within 10 seconds of arc and its optical quality shall be such that its addition to the camera shall not cause an undesirable reduction in image

definition. The light fall-off in cameras having an angle of view larger than 60 degrees shall be compensated by a graded (anti vignetting) filter.

- 2.1.3 Shutter - The camera shall be equipped with a between-the-lens shutter with variable speed settings such that in conjunction with flight height and aircraft speed, the camera will produce high definition photographs at full aperture. The shutter shall have a minimum efficiency of 70 percent at a speed of 1/200 second.
- 2.1.4 Magazine Platen - The camera shall be equipped with an approved means of flattening the film at the instant of exposure. The platen against which the film is pressed shall not depart from a true plane by more than 15 um when the camera/magazine vacuum is applied.
- 2.1.5 Fiducial Marks - The camera shall record eight (8) fiducial marks which are clear and well defined on each negative. The marks shall be located in each corner and at the center of each side. The corner fiducial marks shall form a quadrilateral whose sides are equal within 0.050mm. The midside fiducial marks shall be equidistant within 0.050mm from the adjacent corner fiducial marks. Lines joining opposite pairs of fiducial marks shall intersect at an angle of $90^{\circ} \pm 30''$. The intersection of the lines shall indicate the true position of the principal point of autocollimation within $\nabla 0.030$ mm.
- 2.1.6 Stereomodel Flatness - The average departure from flatness (at negative scale) for two computer simulated stereomodels may not exceed 15um for any symmetrically arranged point tested by USGS. The difference between the highest and lowest value shall not exceed 25 um. The average of values given for points tested by USGS (which are averages themselves) shall not exceed 7.5 um.
- 2.1.7 Calibration Report - The contractor shall provide a camera calibration report prepared by the U.S. Geological Survey Optical Calibration Laboratory, which reflects the current condition of the camera to be used. The report shall be based on the Laboratory's standard tests and measurements, made after complete assembly of all parts of the camera unit, with the light filters in place. This report must be dated within three (3) years of the date of the photography. The combination of camera cone, lens, camera body and magazine(s) submitted for testing shall be, if acceptable, the only combination used for this project. Use of additional equipment shall be equally certified. The camera shall be recalibrated if there is any reason to believe that the dimensional relationship of the lens, fiducial marks, and film plane have been disturbed by partial disassembly or unusual mechanical shock, the camera must be resubmitted for recalibration at the contractor's expense. The District reserves the right to restrict the use of any camera based upon data contained in the calibration report, or based upon operational results.

- 2.2 Forward Motion Compensation is required for all photography requested at 3000 ft. above mean terrain and for all requested photographic coverage at altitudes lower than 3000 ft. above mean terrain. The contractor shall provide the proper equipment as well as the experience in the use of Forward Motion Compensation.
- 2.3 The camera shall be installed in a mount which attenuates the effects of aircraft vibration. The mount should be regularly serviced and maintained.

3. Aerial Film and Image Quality

3.1 Aerial Film

- 3.1.1 The type of film to be used shall be unexpired and have a dimensional stable polyester base.
- 3.1.2 Color and panchromatic emulsions shall be sensitive to the entire visible spectrum with an extended red sensitivity. Color infrared and black and white infrared emulsions shall be sensitive to the visible and near infrared spectrum from 400 to 900 nanometers.
- 3.1.3 Extreme care shall be exercised to ensure proper exposure to minimize vignetting due to differential exposure. This differential shall not exceed that which would result from a basic 1/3 stop difference in exposure.
- 3.1.4 The conditions of the film stock to be used shall be such that when the unexposed film is processed it shall be free of stains, discoloration, or brittleness that can be attributed to aging or improper storage and the base-plus-fog density for all negative films and the minimum-density for all color reversal films shall conform to the manufacturer's predicted density levels.

3.2 Storage and Handling

- 3.2.1 Storage and handling of all photographic film shall be in accordance with the manufacturer's recommendation. All aerial film shall be stored in the original containers to prevent any exchange in moisture between the rolls and their surroundings up to the time they are exposed. The film shall not be rolled tightly on spools or in any way stretched, buckled, distorted, or exposed to direct sunlight or other sources of heat.
- 3.2.2 Adverse storage conditions can affect the color emulsion layers, as well as overall sensitivity. Unexposed color films that are to be stored for several months, shall be stored at 0 to -10 degrees Fahrenheit (-18 to -23 degrees Celsius).
- 3.2.3 Color infrared film stored in the field prior to use shall be refrigerated at all times at a temperature of approximately 40 degrees Fahrenheit (4 degrees Celsius) or lower.

3.3 Processing and Drying

- 3.3.1 All black and white and color aerial film shall be processed in a sensitometrically controlled process using the manufacturer's recommended process monitoring system. Prior to processing the film a calibrated, 21-step sensitometric wedge (in .15 nominal density increments) shall be exposed on one end of the roll of film and become a permanent part of the roll.
- 3.3.2 The film shall be thoroughly fixed and washed to ensure archival quality. The residual thiosulfate content of the processed black and white film should not exceed 0.04 milligrams per square inch as measured using a Kodak Hypo Estimator and Hypo Test Solution HT-2 or other approved method.
- 3.3.3 Processing and drying of film shall be carried out without affecting the metric quality specified in paragraph 3.4.1. At no time shall the film be subjected to extreme temperature and humidity changes.
- 3.3.4 The processed film shall be free from chemicals, stains, tears, scratches, abrasions, watermarks, finger marks, lint, dirt, light streaks, static marks, and any other physical defects that would interfere with the intended purpose of the photography.

3.4 Metric Quality of Processed Film

- 3.4.1 The original processed film or contact diapositives produced from them shall not contain residual Y-parallaxes after relative orientation in excess of 20 micrometers anywhere in the model. The dimensional change in any direction across a 9" distance shall not exceed 127 micrometers.

3.5 Image Quality of Processed Film

- 3.5.1 The imagery on the aerial film shall be clear and sharp and evenly exposed across the format. The film shall be free from clouds, cloud shadows, smoke, haze, snow, shadows, crimps, scratches, and any other blemishes which interfere with the intended purpose of the photography. Allowances will be made for unavoidable shadows, permanent snow fields, or reflectance from water bodies.
- 3.5.2 When there is doubt concerning the sharpness (resolution) of images obtained on the original film, a comparison will be made of well-defined edges by:
 - A 3X enlargement on film, and/or
 - By comparison to a calibrated matrix in a visual edge-matched comparator, and/or
 - By edge traces in a microdensitometer, and/or
 - By a combination of these methods.

If the imagery is obviously degraded the original film shall be rejected for poor image quality.

3.5.3 Density measurements will be taken on processed film using a transmission densitometer with a 2mm probe for scales 1/36,000 and larger and with a 1m probe for scales 1/36,000 and smaller. Readings will be made no closer than 1-1/2' from the image edge. Densities for black and white films shall be:

- a. Black and white negative film density measurement.

Max Base-Plus-Fog	.20 +/- .10
D-Min	.40 +/- .10
D-Max	1.50

Base-Plus-Fog shall be measured between and at the edges of the negative frame, and conform with the manufacturer's predicted density value. The minimum usable density shall be no less than 0.30 and maximum usable density no more than 1.50 after deducting Base-Plus-Fog density. The average density range aim point should be 1.0 and the minimum no less than 0.55.

3.5.4 Maximum photographic image and color quality control is required when exposing and processing color infrared film. The color infrared film shall be exposed and processed to the manufacturer's recommendations unless otherwise required in project specifications. It is recommended that the following color balance test be conducted prior to using the film on a project. Remove approximately 3 feet of unexposed film from the outside wrap. Expose a 21-step sensitometric wedge (0.15 density increments) on the film strip and process it using the manufacturer's recommended process tolerances. The color balance shall be established by obtaining two points on the characteristic curve at $D=1.0$, one being at the midpoint of the two visible-light curves, and the second at the point of intersection of $D=1.0$ with the IR-curve. A color balance aim point of 20 has been determined empirically to be optimum for most applications. The processed stepwedge will become part of the roll from which they were removed. These stepwedges will be maintained on file and used as criteria for acceptable color balance of the exposed and processed film. Exposed and processed film which does not have a color balance within $\pm 0.06 \text{ Log E}$ of the color balance aim point will be cause for rejection.

3.5.5 The camera instrument panel and all fiducial marks shall be sharp and clearly legible on all processed film.

3.5.6 All exposed color films should be processed as soon as possible to avoid desirable color balance shifts.

4. Photographic Operations

- 4.1 Photography shall not be secured when the ground is obscured by haze, snow, smoke, dust, flood waters, or environmental factors that may obscure ground detail. Clouds and/or shadows of clouds shall not appear in the photograph. The solar altitude shall be defined by the application but in general it should not be less than 30 degrees when aerial negatives are exposed. Priorities will be provided to the contractor by the District prior to the date of photography and the contractor shall follow these priorities consistent with local flight conditions and logical flight planning. For projects which will have targeted ground control points, photographic operations must be coordinated with the placing of targets so that a minimum of time will elapse between targeting and photography.
- 4.2 The camera should be checked to be sure it is properly secured onto the mount and that all cable connections are tight. The camera lens, filters, and camera port must be inspected to assure that the surfaces are not scratched, stretched, or discolored and that they are free of foreign particles and condensation.
- 4.2.1 The camera magazine must be clean, firmly seated on the camera. The transport system must be operating properly and the correct information entered into the data block recording devices.
- 4.3 Flight Lines - The District will provide flight maps, pdf and dgn files for the location of the flight lines. All flying shall be done in strict conformance with the instructions and the intended locations specified on the flight maps. Flight lines shall be continuous and straight with no breaks throughout the entire length of the flight line unless otherwise specified. Each project shall be flown in its entirety with the same camera. The maximum angle of deviation between the actual flight path and the specified flight line shall not exceed three (3) degrees at any point on the lines. Reflights for rejected exposures shall include the entire flight line unless the flight line contains more than 15 exposures in which case a portion of the flight line may, with permission of District, be replaced.
- 4.3.1 Every effort shall be made to avoid breaks within individual flight lines. Where breaks within a flight line are necessary, the entire flight line composed of the resulting segments shall meet all of the requirements set forth in these Specifications. Where breaks occur, these shall have an overlap of at least four frames to ensure a stereo model of overlap or tie. All photos within a single flight line shall be acquired with the same aerial camera and with the camera oriented in the same direction.
- 4.3.2 Exposures acquired to replace rejected, damaged, lost or otherwise destroyed exposures shall fully conform to these Specifications. Replacement exposures shall be acquired with the same aerial camera(s) used to acquire the original exposures and shall be exposed as nearly as possible to the same day and lighting conditions as the original exposures.

- 4.4 Flight Height - Departures from flight heights required to produce the desired photo scale shall not exceed -2% or +5% unless changed by Air Route Traffic Control Centers.
- 4.5 Changes in the course of the aircraft between successive overlapping photographs within a flight line shall not exceed 3 degrees.
- 4.6 While exposing aerial photography, the camera shall be compensated for crab of the aircraft, with a resultant error not exceeding 3 degrees.
- 4.7 Exposure Overlap - The overlap shall be sufficient to provide full stereoscopic coverage as follows:
 - 4.7.1 Endlap - Forward overlap in the line of flight shall average not less than 57% or more than 62% at the mean elevation of the terrain, unless otherwise specified. Individual forward overlaps shall not be less than 55% or more than 68% excepting the situation where in a forward overlap in areas of low elevation must exceed 68% to attain the minimum 55% forward overlap in adjacent areas of higher elevation. Wherever there is a change in direction between two flight lines (other than between adjacent parallel flight lines) junction areas between the adjoining flight lines shall be covered stereoscopically by both lines.
 - 4.7.2 Sidelap - Any flight line with an exposure having sidelap (overlap of parallel strips of vertical photography) of less than twenty (20) percent or more than forty (40) percent may be rejected. Sidelap, per strip, shall average thirty (30) percent, plus or minus five (5) percent.
- 4.8 The combined effect of aircraft course corrections, crab and tilt shall result in an apparent crab not greater than 5 degrees on successive photographs. Apparent crab is defined as the angle between a line joining fiducial marks in the direction of flight and the line between the indicated principal point and the conjugate image of the indicated principal point of the adjacent photograph within the same line of flight.
- 4.9 The tilt within a single frame shall not exceed 4 degrees nor shall the difference in tilt between two consecutive overlapping frames within a flight line exceed 4 degrees. The average tilt for all negatives of the same nominal scale shall not exceed 1 degree.
- 4.10 All film shall be exposed using the fastest shutter speed possible when the aperture is set at its optimum value in consideration of the optical resolution and image motion.
- 4.11 Each roll of aerial film shall have an unexposed leader at least ten frames in length. This unexposed leader will be used to expose a sensitometric wedge before processing. Whenever a roll of aerial film is used in a discontinuous fashion such as from one day to the next or from a morning flight to an afternoon flight, a spacer at least four frames in length shall be rolled forward just prior to the commencement of taking new photographs.

- 4.12 All film shall be exposed using the fastest shutter speed possible when the aperture is set at its optimum value in consideration of the optical resolution and image motion.

5. Preliminary Checks

- 5.1 Each roll of aerial film shall be processed as soon as possible after it is exposed. Navigation of the flight lines and image quality shall be quick-checked for compliance with these Specifications.
- 5.2 Reflights shall be immediately ordered for the purpose of securing replacement exposures for all frames which fail to meet minimum standards set forth in these specifications, provided ground conditions have not yet terminated the photographic "season".

6. Deliverable Products

Photography shall be taken as early as possible in the flying season once the flight conditions are met. Priorities will be provided to the Consultant by the District prior to the date of photography and the contractor shall follow these priorities consistent with local flight conditions and logical flight planning. For projects which will have targeted ground control points, photographic operations must be coordinated with the placing of targets so that a minimum of time will elapse between targeting and photography. Notification shall be sent to the District once a project has been flown. Exposure of the film shall be in accordance with the manufacturer's recommendations and with a goal toward achieving density requirements set forth in paragraph 3.5.3. The negatives shall be clear and sharp in detail, free from light streaks and static marks, and of uniform tone and degree of contrast to permit ground details to show clearly in all scene reflectance, with particular emphasis on pattern recognition in the shadow areas.

6.1 Aerial Film

- 6.1.1 The exposed/processed aerial film should be delivered in accordance with the stipulations of delivery schedule and delivery address.
- 6.1.2 Each processed roll or partial roll of aerial film shall be kept in roll form, on the spool, and in the metal or plastic container supplied by the film manufacturer. Rejected exposures shall be removed. All flights belonging to a project shall be in the **same** container.

6.2 Color and Black and White Contact Prints

The contractor is to furnish three complete sets of 9" x 9" contact color prints of all color flights and one complete set of 9" x 9" contact prints of all black and white flights, unless otherwise specified. Contact prints shall be made on an automatic dodging printer on medium weight resin-coated paper on which ink and pencil can be used on both sides.

- 6.2.1 The photographic emulsion shall be of fine grain and have a suitable light sensitivity range and contrast for the making of prints from the aerial film exposed under this contract. Outdated materials shall not be used.
- 6.2.2 Processing, including exposure, development, fixation, washing, and drying of all photographic materials, shall result in finished photographic prints having a fine grain quality, a normal, uniform density, and such tone and contrast that all photographic details shall show clearly within the dark and light tone areas as well as in areas with intermediate tones. Adequate grades of contact paper and proper laboratory procedures shall be used to achieve the best prints possible. Excessive variance in tone or contrast between adjoining prints shall be cause for rejection.
- 6.2.3 Photographic prints shall be trimmed as specified by the District. When trimmed always leave the camera fiducial marks, GPS and other data recorded in the border of each image. Prints showing fiducial marks of inadequate clarity and definition, or prints omitting fiducial marks, shall be rejected.
- 6.2.4 All prints shall be clear and free from chemical stains, blemishes, uneven spots, air bells, light streaks or fog, and other defects which would, in the opinion of the District, interfere with their intended purpose. Prints shall be delivered to the District in a smooth, flat, and usable condition.
- 6.2.5 Titling and Labeling - All lettering shall be positioned as closely as possible to the inside leading edge of the format of the exposure. The characters used for making the exposures shall be 3/16 inch, drafted or stamped with opaque ink to avoid deformation of the film as to what is manifested with heat embossed titlers. The lettering shall clearly show on all copies of the photographs perpendicular to the line of flight, as shown in the "Method of Negative Identification" below.

METHOD OF NEGATIVE IDENTIFICATION

FOR 9" x 9" PHOTOS

The exposure numbers shall be consecutive for the entire project. The exposure number shall be in the upper right corner of the photograph printed from each exposure to be read as one looks northerly along the flight line or easterly if lines are east-west. The date of photography shall be in the upper left corner. When labeling the images the District would like the job name, photo scale, date and exposure number on the first exposure only. All subsequent exposures should have the date and exposure number only.

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SAMPLE I – NOT TO SCALE
INFORMATION ABOVE TO BE NOTED ON FIRST EXPOSURE

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SAMPLE 2 – NOT TO SCALE
ALL OTHER EXPOSURES WILL INDICATE DATE AND NO. OF PHOTO

**HJW GeoSpatial Rate Schedule
November 18th, 2010**

The rates listed below provide an accurate representation of costs for project work to be performed under contract with the Riverside County Flood Control District through 2011. Since geospatial projects and services, by nature, require a customized approach to project design which takes into consideration weather, site location, level of urban build-up, current capacity, etc., we request the opportunity to actively participate in the cost estimating process whenever possible, on a project-by-project basis. By doing so, we believe that we can provide the best value and most flexibility to the District.

Section 1: Flight Operations

All estimates are dependent on specific project size, shape and location.

LiDAR Flights (Leica ALS50 Phase II or Optech Gemini)

- Mobilization to Riverside County (including de-mobilization): \$9,000
- Per hour of data collection: \$1,500
- Estimated collection per hour of operation: 8 square miles at 1-m posting
- Estimated processing requirement (to bare earth): 40 hrs per flight mission

Digital Aerial Photography (Ultracam X or Intergraph DMC)

- Mobilization to Riverside County (including de-mobilization): \$8,500
- Per hour of data collection: \$1,500
- Estimated collection per four hours of operation: 25 square miles of 3" resolution, 100 square miles of 6" resolution, 400 square miles of 12" resolution.
- Estimated post-processing requirement (GPS/IMU, imagery balancing, etc.): 24 hrs per flight mission.

Film Photography (RC-30)

See: "skyview price list 03-10-09.pdf"

Section 2: Production Operations

- Project Management: \$100/hr
- Orthophoto Processing Specialist: \$80/hr
- LiDAR Processing Specialist: \$80/hr
- Stereo Compilation Specialist: \$80/hr
- GIS/Other Specialist: \$80/hr