RFP 12-05

Exhibit B

AERIAL TOPOGRAPHIC
AND RELATED SERVICES
FOR SOLID WASTE FACILITIES
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I. SCOPE OF WORK

San Joaquin County Public Works Department Solid Waste Division (COUNTY) seeks a Contractor to provide Aerial Topographic and related services at County owned Solid Waste Facilities. Typical tasks in a year include:

- Photo-topographic survey
- Fill volume calculations from AutoCAD topographic drawings
- Ground survey and construction staking

The County will identify the area for each ground survey or other and construction staking task in writing. County’s Engineer may also provide verbal instructions in the field to the Contractor as needed.

The County will provide minimum of two (2) week’s notice to the Contractor for Aerial Topographic survey tasks and minimum of two (2) working days notice for ground survey work. The work schedule may be adjusted to accommodate the Contractor’s work as approved in writing with the County. Aerial Topographic surveys will be scheduled primarily during the months of June and July.

The County will issue single work orders for Aerial Topographic survey services at Corral Hollow and Harney Lane Landfill. The County will issue combined work order for Aerial Topographic surveys at Foothill and North County Landfill.

1. GENERAL

   A. DEFINITIONS
      i. Engineer: The authorized representative of the County (Solid Waste Division staff).

   B. PRODUCT OWNERSHIP

      Work product of this project, including intermediate work, shall be the property of the County. Products include AutoCAD Drawings and other electronic files used for the work, hand-written notes, emails and other correspondence.

   C. WORK LOCATION

      Work will be at the following landfills owned by the County:

      1. Corral Hollow Sanitary Landfill is located at 31130 S. Corral Hollow Road, Tracy, CA 95376 near the intersection of Corral Hollow Road and Interstate 580 in southwestern San Joaquin County in Section 18, Township 3 South, Range 5 East, MDB&M (Figure 2).
2. **Harney Lane Sanitary Landfill** is located at 14750 E. Harney Lane, Lodi, CA 95240, approximately one mile east of Jack Tone Road in northeastern San Joaquin County, in Section 19, Township 3 North, Range 8 East, MDB&M (Figure 3).

3. **Foothill Sanitary Landfill** is located at 6484 N. Waverly Road, Linden, CA 95236, on the eastern edge of San Joaquin County in Sections 12 and 13, Township 2 North, Range 9 East, MDB&M (San Joaquin County APN # 09344002) (Figure 4).

4. **North County Sanitary Landfill** (NCSL) is located at 17720 E. Harney Lane, Lodi, CA 95240 just west of Atkins Road in northeastern San Joaquin County, in Section 21, Township 3 North, Range 8 East, (San Joaquin County APN # 06512004) MDB&M (Figure 5).

### D. SITE ACCESS HOURS

Access to the site for survey work will be Monday through Friday excluding public holidays during normal operating hours. Normal operating hours are:

- North County: 7:00 A.M. to 4:00 P.M.
- Harney Lane landfill, Foothill Landfill and Corral Hollow Landfill:

  7:00 A.M. to 4:30 P.M

### E. SITE CONDITIONS

#### i GENERAL

a. **Refuse**

Refuse at County Landfills are household refuse, demolition debris, tree trimmings, and miscellaneous refuse. Contractor's work may involve survey near active refuse disposal. Contractor shall minimize contact with refuse.

b. **Landfill Gas (LFG)**

When buried in a landfill, refuse and other organic material produces LFG, which is approximately 50 percent methane by volume and may contain other contaminants. Methane gas is combustible and has a lower explosive limit of 5 percent by volume. The Contractor shall ensure that work is conducted when working conditions meet OSHA Requirements. It is not anticipated that the contractor will come into contact with measurable amounts of landfill gas.

c. **Site Terrain**

Some of the work will be on the landfill surfaces with gentle slopes. Some work will be on slopes up to 3:1. The Contractor may schedule work when surface conditions permit workability.
d Animals

Sheep are brought to all sites for vegetation control in the spring. Cattle are sometimes grazing at Foothill Landfill in areas that may require ground survey for flight crosses. Contractor shall be aware of the presence of animals in the landfill property. Grazing animals may destroy flight cross or control points established in the field. Contractor shall make flight cross markings in the field animal-resistant as needed to complete the work.

e Safety

The Contractor is solely and wholly responsible for the safety of workers and damage to equipment. Contractor shall practice OSHA and other applicable safety procedures.

2. USE OF SITE

A. Contractor shall provide drinking water.

B. Contractor may use the portable toilets when available at the sites and the permanent toilet at North County Landfill.

C. Contractor must sign for, and will be provided, a key for the locks of main entrance gates at all sites which shall be returned at the conclusion of the contract.

D. Contractor shall keep gate chains looped to close the gate when on site.

E. Contractor shall collect meal trash and other litter generated by the Contractor and dispose of this material appropriately.

F. The Contractor shall be responsible for contractor’s materials and equipment. The County is not responsible for thefts, vandalism or damage to Contractor’s material and equipment left on site. The sites have perimeter fences.

G. Smoking will be allowed only in Contractor’s vehicles when located in an area not subject to fire. Smoking materials shall be contained within Contractor’s vehicle. Burning cigarettes shall not be thrown at the site. Failure to comply with this requirement will result in a smoking ban at the sites.
II. TASKS

1. AERIAL TOPOGRAPHIC SURVEY

A. DESCRIPTION

i Contractor shall perform aerial topographic survey of each site’s survey area (see Figures). The horizontal mapping scale shall be: 1”=100 ft. Contour interval shall be two (2) feet.

ii For the Corral Hollow and North County Landfill, a portion of the processing area is beyond County property. The County understands that accuracy of the topo diminishes as the distance from the control points increase. For areas beyond County property, the specified topo accuracy does not apply.

iii Contractor shall lay necessary flight cross or ground control targets.

a Ground control targets shall be placed on County property.

b The horizontal and vertical ground control points shall be tied to the existing on-site control points as shown in the contract figures.

iv Contractor shall provide stakes and other items to place ground control or flight crosses.

v Contractor shall field-survey the elevations of at least six (6) locations as identified by the Engineer. These locations will be accessible by foot. Contractor’s topo contours shall match to the elevations of the field survey locations. Natural and manmade features shall be represented in the aerial topographic survey.

vi Fee for field survey work for the topos shall be included in the fee for the topos.

B. DELIVERABLES

i A topographic map (topo) electronic file for each site showing the area in AutoCAD version 2010 or approved earlier version.

a Contractor shall submit a list of the proposed layers and colors to the County after receiving notice to proceed.

b Topo lines shall be accurate within one foot of the indicated elevation, that is, the actual elevation of a location on the landfill shall vary no more than one foot from the indicated elevation.

c The topo shall x-ref into County’s existing topo at 0, 0. County will provide the previous topos for the purpose of calculating volumes.

d Contour lines shall be poly lines with widths set to 0

e UCS shall be set to “World”
f Contractor shall use individual layers for each class of features in the topo, such as "roads", "paved areas", "buildings".

g Contractor shall use layer colors as approved by the County. Index topo contours shall be color red. Intermediate contours shall be color No 8

h Above-ground piping shall be represented with un-broken lines.

i Topo shall be to scale 1:1. The topo shall have a North arrow and a scale bar in model space on a separate layer.

j Control points shall be identified in the topo on a separate layer titled “Survey Controls”.

k The Topo shall have the date of the aerial topographic survey.

l Units shall be set to “feet”.

ii One 24”x36” hard copy print of the topo. Contractor shall certify the topo to be accurate. The hard copy print shall list the survey control points of the topo and datum reference.

iii Contractor shall provide ortho photos with aerial topographic survey. The ortho photos shall be black and white.

iv The topo’s AutoCad file and ortho photos shall be provided on a CD to the County. CDs shall be clearly marked to identify the sites name and the date of survey.

2. VOLUME CALCULATIONS

i At the North County and Foothill Landfills, the Contractor will calculate the:

a Refuse fill volume

b Soil cut volume

c Remaining capacity of the landfill compared to the maximum-fill design provided by the County

ii The Contractor shall provide the method of volume calculation to the Engineer upon receiving notice to proceed.

iii The volume calculations are based on the previous topo, the most current topo and the final design topos, over areas identified by the Engineer. The Engineer will provide each site’s previous topo, and final design topos to the Contractor for volume calculations. The topos supplied by the engineer will be comprise of lines at elevation.
iv Compensation for volume calculations will be paid on a time-and-materials basis. Approximate volume calculation hours are listed in the bid sheet.

v The deliverables for the volume calculation shall be in cubic yards identified in a tabular format. Contractor shall provide a figure identifying the depth of cut or fill at 50-ft on center spacing.

3. MISCELLANEOUS GROUND SURVEY

A. DESCRIPTION

i The Engineer will request the Contractor to perform ground survey work as needed. The Engineer will provide the Contractor with a scope for each ground survey in writing, and may send AutoCAD drawings identifying the area to be surveyed or the points to be staked in the field. The Contractor shall perform ground survey tasks as directed by the Engineer. Typical ground survey tasks include:

a Construction staking

b Groundwater well casing survey

c Topographic mapping of small areas

ii Contractor shall provide a crew with GPS RTK surveying equipment for ground survey work.

iii The vertical accuracy for surveying groundwater well casing elevations shall be +/- 0.01 foot.

iv The vertical accuracy for general surveying shall be +/- 0.03 foot.

v Minimum of two working days of notice will be provided by the County for ground survey work.

vi Contractor may bill a minimum four (4) survey crew hours for each miscellaneous survey task. Engineer may combine ground survey tasks.

vii The Contractor shall use ½” rebar stakes 18 inches long with wooden lath, or equivalent as approved by the Engineer, to stake locations in areas where animals are present.

viii Contractor shall label stakes and mark on stakes as directed by the Engineer.

x Contractor shall flag stakes with a ribbon.
B. PAYMENT FOR MISCELLANEOUS SURVEY

i. Compensation for miscellaneous ground survey work will be on an hourly basis.

ii. Establishing flight crosses and other work associated with the topos shall be included in the cost for topos, and will not be included under “miscellaneous surveying”.

C. DELIVERABLES

Deliverables shall include:

i. X, Y, Z coordinates of surveyed items based on the on-site control points in a tabular format.

ii. Other data as requested by the Engineer.