

Memorandum

To: Ted Vore, Director, Public Works
CC: 2005 aerial mapping project file
Public Works file 2004
From: Jerry Wright, Superintendent, Solid Waste Operations
Date: 12/13/2004
Re: Request for proposals to conduct aerial mapping of landfill property

I am requesting permission from the City Council to select a firm to conduct the aerial mapping of the landfill property. Please find attached the scope of work and related performance specifications for the above mentioned work. This is budgeted in the 2005 budget, Department 7102 Solid Waste Disposal(Landfill), line item 4223 for \$15,000. This work is tentatively scheduled for the early part of 2005. Once approved, I will arrange and conduct the interviews for the selection of the provider. If you have any questions please let me know.

RE: Request for Proposal for Photogrammetric mapping for the Rapid City Landfill

PROJECT SCOPE OF WORK

The project consists of Photogrammetric mapping of approximately 680 acres of city landfill area south of Rapid City in section 19 and a portion of Section 30, in Township 1N, Range 8 E.

The project area encompasses city landfill property south of the U.S. Highway 16 bypass.

The topographic data obtained from the photogrammetric mapping will be used to compute volumetric calculations for ongoing landfill operations, and for future planning and design.

The mapping boundary is diagrammed on the enclosed map.

GROUND CONTROL REQUIREMENTS

The contractor will be responsible for determining and specifying ground control locations and configuration on the site, in support of 2' contour interval mapping. The contractor will be responsible for paneling and survey of the control locations, and is to provide a suggested control layout with the proposal.

The project will be done on the city of Rapid City GIS coordinate system, which is on the NAD 83 horizontal Datum, and the NAVD 88 Vertical, and the South Dakota State Plane South Zone. Units of measurement will be in U.S. Survey Feet.

Survey data for all points are to be provided in a final survey report signed by a Registered Land Surveyor and also as a digital file in standard ASCII X, Y, Z format.

AERIAL PHOTOGRAPHY

All photography will be obtained with a precision mapping camera, which has a current USGS Calibration Certificate and will be suitable for preparing the digital topographic maps described in this Request for Proposal.

Aerial imagery will be obtained as soon as possible after targets are in place (ground, leaf and weather conditions permitting).

Photography will be obtained when the sky is sufficiently clear of smoke, haze, and dust, and the ground is sufficiently free of snow cover. A solar angle of 30 degrees or better above the horizon is required at the time of exposure.

OBLIQUE & HIGH ALTITUDE PHOTOGRAPHY

The city requires acquisition of oblique aerial photos, especially from the east of the landfill, covering the project area looking west in addition to a single exposure, which covers the entire site.

DIGITAL TOPOGRAPHIC MAPPING

The city requires analytical compilation of the Digital Terrain Model data to support 2' contour mapping for the entire project area as specified by the project boundary. The DTM data will include 3-D breaklines and elevation points in .DWG format compatible with AutoCAD 2000, on CD-ROM.

Topographic mapping of the site will be done at 2' contour interval at a scale of 1" = 100'. Plotted contour maps of the site will be stored on CD-ROM. The maps will contain contour and Planimetric map features in .DWG format compatible with AutoCAD 2000.

The planimetric features to be compiled include:

Land Use Features

Pit Boundary
 Athletic Field

Structures

Berm/Dike
 Bridge
 Building - Foundation/Ruin
 Building - Roof Line
 Building - Under Construction
 Cattle Guard
 Culvert - (Line)
 Culvert - Inlet/Outlet (Symbol)
 Dam
 Electrical Transmission Tower
 Fence - Unidentified
 Located Object (Line)
 Located Object (Symbol)
 Mobile Home
 Pile Outline
 Pipeline
 Pole - Electrical Distribution
 Sign - (Line)
 Slab/Pad - Concrete
 Tank
 Tower - Communication/Radio/Tv
 Wall - Free Standing
 Wall - Retaining

Natural Features

Cliff Line
 Drainage Line

Pond/Lake/Waterline
 Rock Outcrop Boundary
 Stream
 Swamp - (Line)
 Swamp - (Symbol)
 Tree - Unidentified (Line)
 Tree - Unidentified (Symbol)
 Wash

Topographic Features

Contour - Index
 Contour - Index - Depression
 Contour - Index - Obscured
 Contour - Index - Obscured, Depression
 Contour - Intermediate
 Contour - Intermediate - Depression
 Contour - Intermediate - Obscured
 Contour - Intermediate - Obscured, Dep.
 Contour - Supplemental
 Contour - Supplemental - Depression
 General Annotation
 Grid Lines
 Grid Tics
 Ground Control - Horizontal
 Ground Control - Horizontal/Vertical
 Ground Control - Vertical
 Obscured Area - Boundary Line
 Spot Elevation
 DTM Features
 Tin Breakline
 Tin Random Points

A photo-reproducible Mylar plot at 1" = 100' will be produced from the mapping, which includes titleblock, legend, contours, spot elevations, grid ticks, and planimetric features.

ACCURACY

The data collection procedure shall be designed to meet the requirements of National Map Accuracy Standards for 1" = 100' scale mapping and 2' contour interval.

PROJECT SCHEDULE

Interviewing and selection of the contractor will be done in January. Acquisition may begin as soon as the solar angle reaches 30 degrees in the area, and sufficient snow has melted on the project site as observed by city landfill personnel.

Please provide a schedule for completion of flight, mapping, and product deliveries within your proposal

DELIVERABLES

Digital Deliverables:

The contractor will deliver the following items to the city of Rapid City.

Digital Contour and Planimetric Map Data in AutoCAD 2000 file format.

Digital Terrain Model Data - DTM data including random elevations and 3D breaklines used for the generation of contours in AutoCAD 2000.

Hardcopy Deliverables:

Photo reproducible Mylar Plot at 1"= 100' scale

9x9 inch B&W Contact Prints – 1 set

Ground Survey Report

(Photo enlargements will be ordered separately based upon the selection of imagery from the oblique and high altitude photography.)