



Geographic Resource Solutions (GRS)

- **GRS**, located in Arcata CA, was founded in 1989 to provide superior-quality resource information development, technical, and consulting services.
- **GRS is a leader in the implementation of ecologically-based field data collection methodologies** designed to provide comprehensive, quantitative, and detailed species-specific cover estimates of the botanical and abiotic features that comprise the ecosystems we must accurately describe.
- **GRS offers "state-of-the-art" natural resource inventory and land cover mapping services** based on the application of our unique Discrete Classification Mapping Methodology in combination with traditional vendor provided applications; GRS maps (not models) species-specific cover as a continuous variable, along with other landscape and abiotic characteristics to develop comprehensive resource inventory information.
- **GRS offers complex resource analyses** that include natural resource inventory, growth projection, long-term sustained yield projection, long-term harvest scheduling, change detection, and vegetation classification.

The **natural resource field inventory methodologies** employed by Geographic Resource Solutions are adaptations of tried and true sampling approaches that date back to the noted early American ecologist Fredrick Clements, as found in his book "Research Methods in Ecology", first published in 1905. GRS has enhanced the line-transect sampling methodology by incorporating the collection of detailed, species-specific, multi-layer vegetation and abiotic features, as well as fire-fuel estimates, and the presence of trace species. Resource information includes layer specific estimates of cover, stems per acre, quadratic mean diameter, height, crown diameter, cubic volume, and biomass.

The **Discrete Classification Mapping Methodology (DCMM) remote sensing methodology** developed by Geographic Resource Solutions is state-of-the-art and said to be "15 to 20 years before its time¹." GRS has developed and used his approach since 1990 to develop comprehensive, detailed, and accurate resource inventory map data sets for nearly 50 million acres of lands in the Western US and Alaska, including four National Parks. The results of the recently completed Lassen Volcanic National Park Comparative Mapping Project showed conclusively that GRS's approach results in map data sets with significantly higher mapping accuracy and detail than a comparable map data set developed using traditional photointerpretation techniques. Such more detailed and accurate quantitative resource inventory information provide invaluable planning, inventory, and monitoring capabilities that enable resource managers to better understand the natural resources they manage, monitor changes that may be occurring, and develop resource management plans and applications to both enhance and preserve natural resources. While accuracies are typically higher, the overall cost of mapping projects using GRS's DCMM is the same or less than typical photointerprative mapping projects.

¹ Dr. Janet Franklin, Arizona State University, "Envisioning the Future: Vegetation Mapping Based on the National Vegetation Classification as a Basis for Spatially Explicit Habitat Modeling and Conservation Planning", Presentation OOS 39-8, Ecological Society of America, 2014 Annual Meeting.



GSA Contract Terms and Conditions

Authorized Federal Supply Schedule Price List

Contract Number: GS-10F-0451N

For more information on ordering from Federal Supply Schedules click on FSS Schedules button at fss.gsa.gov

Contract Period: 6/15/2013 – 6/15/2018

Geographic Resource Solutions

A SMALL BUSINESS

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Customer Information

1. SINs 899-1 and 899-1RC Environmental Consulting Services; SINs 899-3 and 899-3RC Environmental Training Services; and SINs 899-7 and 899-7RC Geographic Information Systems (GIS) Services.
2. Maximum Order: \$1,000,000.00 each SIN
3. Minimum Order: \$100.00
4. Geographic Coverage: Domestic and Overseas.
5. Production Point: 1125 16th St., Suite 213.
6. Discounts: Prices shown are NET prices.
7. Quantity Discounts: None offered.
8. No prompt payment terms.
- 9a. We accept government VISA and MasterCard payments for purchases at or below \$2,500.00
- 9b. No discount for credit card payments.
10. Foreign Items: N/A.
- 11a. Time of Delivery: To be negotiated with end user as specified on the task order.
- 11b. Expedited Delivered: Items available for expedited delivery will be specified on the task order.
- 11c. Overnight and 2-day Delivery: Contact Contractor.
- 11d. Urgent Requirements: Contact Contractor.
12. FOB Point: Destination.
- 13a. Ordering Address: Same as company address.
14. Payment Address: Same as company address.
15. Warranty Provision: Contractor's standard commercial warranty
16. Export packing charges, if applicable: N/A.
17. Terms and conditions of Government purchase card acceptance: Contact Contractor.
18. Terms and conditions of rental, maintenance, and repair (if applicable): N/A.
19. Terms and conditions of installation (if applicable): N/A.
20. Terms and conditions of repair parts indicating date of parts price lists and any discounts from list prices (if applicable): N/A.
- 20a. Terms and conditions for any other services (if applicable): N/A.
21. List of service and distribution points (if applicable): N/A.
22. List of participating dealers (if applicable): N/A.



23. Preventive maintenance (if applicable): N/A.
- 24a. Special attributes such as environmental attributes (e.g., recycled content, energy efficiency, and/or reduced pollutants): N/A.
- 24b. If applicable, indicate that Section 508 compliance information is available on Electronic and Information Technology (EIT) supplies and services and show where full details can be found (e.g. contractor's website or Other location.) The EIT standards can be found at: www.Section508.gov/.
25. Data Universal Number System (DUNS) number: 780022091
26. Notification regarding registration in Central Contractor Registration (CCR) database: Registered.



GSA Services Offered

GRS offers several different types of environmental services under SIN 899. These services are primarily focused on the development, analysis, summarization, and reporting of natural resource inventory and monitoring information and data sets. GRS provides Consulting Services under SINs 899-1 and 899-1RC to support natural resource inventory and GIS/Remote Sensing projects; Training Services under SINs 899-3 and 899-3RC to support natural resource inventory and GIS/Remote Sensing projects; and Professional Services involving natural resource inventory and GIS/Remote Sensing projects under SINs 899-7 and 899-7RC.

All of the aforementioned GRS services use the same price structure (see our GSA Schedule Rates towards the end of this document). Please contact GRS at (707)-822-8005 to request a separate copy of GRS's FSS pricelist. A brief description of the services that GRS offers for each application area follows:

The different Environmental Services that GRS offers may be categorized into one of seven (7) different application areas:

1. Quantitative and Detailed Field Data Collection Sample Design, Implementation, and Analysis,
2. Vegetation Classification and Description,
3. Resource Inventory Information Development (Remote Sensing and Image Processing),
4. Pixel (Raster) Aggregation and Stand/Polygon Development,
5. Resource Inventory Change Detection and Monitoring,
6. Map Data Set Accuracy Assessment,
7. GIS Development, Implementation, Programming, and Maintenance

For each of these application areas GRS provides training and support, consultation regarding these different application areas, and/or performance of these different services for GSA clients. Training may be in the form of workshops, seminars, or hands-on exercises. Consultation may include feasibility studies, project management, research, modeling, analysis, and/or evaluation involving these different application areas. Performance of these types of environmental services involves GRS providing the staff and resources necessary to accomplish these type services. The most significant aspects of these seven application areas that often differentiate GRS's efforts and capabilities from those of other GSA services providers are listed below:

1. Quantitative and Detailed Field Data Collection Sample Design, Implementation, and Analysis
 - Implements a layered line-point transect methodology or ocular estimation techniques;
 - Uses techniques that are standardized, easy to learn, and implement;
 - Develops consistent and accurate estimates using staff of different levels of experience;
 - Allocates field samples based on a stratified approach to prevent over sampling of abundant types and undersampling of rare less frequently occurring type;
 - Develops quantitative, detailed information for all overstory and understory species;
 - Includes sampling of ground and substrate abiotic characteristics and woody debris counts/tonnage;
 - Implements field data collection software to facilitate the collection of error-free field data and machine readable output files;
 - Develops estimates that support the development of both Vegetation Classification and Natural Resource Mapping efforts;



- Develops estimates that support the assignment of National Vegetation Classification System (NVCS) Alliance and Association types; and
 - Develops estimates that support the assignment of different types based on any vegetation classification system without crosswalking type data.
2. Vegetation Classification and Description
- Analyzes and evaluates detailed quantitative field data;
 - Develops mutually exclusive vegetation/land cover types (Alliances/Associations);
 - Develops NVCS Alliances and Associations specific to the project area;
 - Develops quantitative based species/feature-specific Type Keys; and
 - Develops NVCS vegetation descriptions that include estimates of species/feature-specific cover averages, minima, and maxima and species frequencies for different lifeforms, individual canopy layers, all (total) canopy layers, and the “bird’s-eye” view canopy layer;
3. Resource Inventory Information Development (Remote Sensing and Image Processing)
- Implements GRS’s Discrete Classification Mapping Methodology (DCMM);
 - Maintains all field training sites as uniquely identifiable individual map classes;
 - Validates all field training classes by evaluating both Confusion and Fidelity reports;
 - Limits, as appropriate, individual field training classes to specific ecotype regions;
 - Links all field training site characteristics (attributes) to the resulting classified map data set;
 - Develops information including estimates of species/feature-specific cover, species composition, quadratic mean diameter, crown diameter, status, and trees per acre by canopy layer and in total;
 - Develops information regarding composition and condition of the ground surface, as well as fine and coarse woody debris counts and tonnage;
 - May develop Information regarding height, volume (cubic), and biomass (tonnage) by canopy layer and in total;
 - Develops map estimates that support the assignment of National Vegetation Classification System (NVCS) Alliance and Association types; and
 - Develops map estimates that support the assignment of different types based on any vegetation classification system without crosswalking type data.
4. Pixel (Raster) Aggregation and Stand/Polygon Development
- Implements “Rules of Similarity” based primarily on ecological principles and characteristics rather than spectral/image similarities;
 - Evaluates similarity of adjacent mapped characteristics, including differences in the magnitude of species/feature-specific cover estimates and presence of species;
 - Implements minimum mapping unit (MMU) size constraints for all stands/polygons;
 - Implements variable MMU size constraints and can use different limits based on the relative significance of the different vegetation/land cover features being mapped;
 - Develops all stand/polygon level characteristics (attributes) by computing the weighted averages of all pixel classification class characteristics (attributes) that comprise each aggregated stand;
 - May adjust and modify “Rules of Similarity” to develop new maps that may emphasize different ecological concepts (rules) and MMU size limits;



- Develops stand/polygon level map estimates that support the assignment of National Vegetation Classification System (NVCS) Alliance and Association types; and
 - Develops stand/polygon level map estimates that support the assignment of different types based on any vegetation classification system without crosswalking type data.
5. Resource Inventory Change Detection and Monitoring
- Compares two or more highly detailed quantitative map data sets;
 - Identifies changes of ecological, physiological and land cover characteristics of the temporal map/image datasets, as opposed to spectral differences;
 - Characterizes change by the magnitude of individual stand attribute differences;
 - Detects and reports change for individual species/features; and
 - May monitor changes in species composition over time.
6. Map Data Set Accuracy Assessment (AA)
- Implements a random stratified sample (RSS) design;
 - Develops new independently sampled field data for AA testing and do not withhold any original training site data for use in the AA data set;
 - Develops map accuracy scores in “Error” cross-tabulation matrices;
 - Generates “User” and “Producer” map accuracies and Kappa statistics;
 - Develops area-weighted map accuracies that can be visually displayed as an “Accuracy” map;
 - Bases type matches on statistical consideration of attribute differences;
 - Uses **no** “Fuzzy Logic”; and
 - Considers alternative type/class characteristics when mapped and/or field site characteristics are statistically close to AA test thresholds.
7. GIS Development, Implementation, Programming and Maintenance
- Experienced with multiple GIS/CAD software platforms;
 - Considers alternative type/class characteristics when mapped and/or field site characteristics are statistically close to AA test thresholds.
 - Experienced with both small and large GIS map data sets;
 - Experienced with many different application areas that include natural resources, transportation, public utilities (sewer, storm water, and water), tax parcels, petroleum exploration, security, and municipal;
 - Experienced with data integration, export/import, validation, and attribution;
 - Develops custom GIS applications, processes, and workflows; and
 - Develops and provides customized training on client’s hardware at client’s site using client’s own map data set(s).



Labor Category Descriptions

Job Title, Class, Grade, and Labor Category Definitions

Geographic Resource Solution's rate schedule is based on standard job titles, classes, grades, and categories. Job titles reflect the general nature of the responsibilities of that position. Job classes, such as Technician, Analyst, and Consultant reflect the general level of skills, responsibility, and complexity associated with the different job classes. Job grades (1-6) within a job class represent the range of education and job related experience required, at a minimum, to perform these different job grades. Experience may be prior job related work, or continued/in-progress college education in a field related to each Job's responsibilities.

Job categories are a combination of the job class and the job grade.

GIS Job Titles

GIS Conversion Technician 1 - Category T1

Functional Responsibility: An entry-level position that performs many GIS data input and edit functions. Performs digital conversion, digitizing, and quality control processes. Uses specialized tools and commands for automation of conversion tasks. Operates scanner and scanning software. Assists in data quality control and validation software processes.

Minimum Education and Experience:

High School diploma or GED and 3 years of experience, or
Associates' degree and 1 year of experience, or
Bachelor's degree in GIS-related field and 0 years of experience.

GIS Conversion Technician 2 - Category T2

Functional Responsibility: Performs most GIS data input and edit functions. Performs digital conversion, digitizing, and quality control processes. Uses specialized tools and commands for automation of conversion tasks. Operates scanner and scanning software. Uses programs to import and export data sets. Performs relational database functions. Assists in data quality control and validation software processes. May develop simple routines and macros.

Minimum Education and Experience:

High School diploma or GED and 5 years of experience, or
Associates' degree in GIS-related field and 3 years of experience, or
Bachelor's degree in GIS-related field and 1 year of experience.



GIS Conversion Analyst 1 - Category A1

Functional Responsibility: Performs digital conversion, digitizing, and quality control processes concerning more complex projects. Performs digital conversion requiring interpretation and knowledge of application data. Implements data format conversion and data validation processes. Uses programs to import and export data sets. Performs relational database functions. Edits data and resolves unusual data errors. Implements quality control processes for digital conversion projects. Develops simple routines and macros. Assists in the supervision and training of GIS Conversion Technicians.

Minimum Education and Experience:

Associates' degree in GIS-related field and 3 years of experience or
Bachelor's degree in GIS-related field and 1 year of experience.

GIS Analyst 1 - Category A1

Functional Responsibility: Builds digital datasets using conversion, digitizing, and quality control processes. Assists in the analysis of GIS data using standard GIS analytical tools that perform spatial analysis and grid analysis. Performs relational database operations including database query and reporting. Operates scripts required for process automation. Develops simple routines and macros. Implements and monitors established workflows and techniques for analyses.

Minimum Education and Experience:

Associates' degree in GIS-related field and 3 years of experience or
Bachelor's degree in GIS-related field and 1 year of experience.

GIS Analyst 2 - Category A2

Functional Responsibility: Builds digital datasets using conversion, digitizing, and quality control processes. Assists in the analysis of GIS data using standard GIS analytical tools that perform spatial analysis and grid analysis. Performs relational database operations including database query and reporting. Operates scripts required for process automation. Develops workflows, routines, and macros. Implements and monitors established workflows and techniques for analyses. Participates in the development of proposals.

Minimum Education and Experience:

Associates' degree in GIS-related field and 4 years of experience, or
Bachelor's degree in GIS-related field and 2 years of experience, or
Master's degree in GIS-related field and 0 years of experience.



GIS Analyst 3 - Category A3

Functional Responsibility: Builds digital datasets using conversion, digitizing, and quality control processes. Performs analysis of GIS data using standard GIS analytical tools that perform spatial analysis and grid analysis. Performs relational database operations including database query and reporting. Assists in the development of scripts and batch processes to automate analyses. Assists in the development of workflows, routines, macros, queries, and reports. Implements and monitors established workflows and techniques for analyses and data manipulation. Participates in the development of proposals.

Minimum Education and Experience:

Bachelor's degree in GIS-related field and 3 years of experience, or
Master's degree in GIS-related field and 1 year of experience.

GIS Analyst 4 - Category A4

Functional Responsibility: Builds digital datasets using conversion, digitizing, and quality control processes. Performs analysis of GIS data using standard GIS analytical tools that perform spatial analysis and grid analysis. Performs relational database operations including database query and reporting. Assists in the development of scripts and batch processes to automate analyses. Assists in the development of workflows, routines, macros, queries, and reports. Implements and monitors established workflows and techniques for analyses and data manipulation. Participates in the development of proposals.

Minimum Education and Experience:

Bachelor's degree in GIS-related field and 4 years of experience or
Master's degree in GIS-related field and 2 years of experience.

GIS Analyst 5 - Category A5

Functional Responsibility: Performs analysis of GIS data using standard and complex GIS analytical tools that perform spatial analysis and grid analysis. Performs relational database operations including database query and reporting. Builds digital datasets using conversion, digitizing, and quality control processes. Develops scripts and batch processes to automate analyses. Develops workflows, routines, macros, queries, and reports. Participates in the development of proposals. Implements and monitors established workflows and techniques for analyses and data manipulation. Provides supervision, support, and training to GIS Analyst and GIS Conversion positions. Participates in the development of proposals. Makes presentations and publishes papers.

Minimum Education and Experience:

Bachelor's degree in GIS-related field and 5 years of experience or
Master's degree in GIS-related field and 3 years of experience.



GIS Analyst 6 - Category A6

Functional Responsibility: Performs analysis of GIS data using standard and complex GIS analytical tools that perform spatial analysis and grid analysis. Performs relational database operations including database query and reporting. Builds digital datasets using conversion, digitizing, and quality control processes. Develops scripts and batch processes to automate analyses. Develops workflows, routines, macros, queries, and reports. Implements and monitors established workflows and techniques for analyses and data manipulation. Provides supervision, support, and training to GIS Analyst and GIS Conversion positions. Participates in the development of proposals. Makes presentations and publishes papers.

Minimum Education and Experience:

Bachelor's degree in GIS-related field and 10 years of experience or
Master's degree in GIS-related field and 5 years of experience.

GIS Consultant 1 - Category C1

Functional Responsibility: Manages and directs GIS projects. Designs and develops GIS application software and project workflows. Integrates specific scientific applications and models with GIS technologies. Responsible for the development of project application workflows and objectives. Performs advanced GIS activities including: GIS design, planning, implementation, and management; systems analysis; training; and evaluation for new or existing systems. Develops and instructs custom courses and seminars for specific GIS software and applications. Develops and implements custom programs and procedures. Supervises GIS Analysts and Technicians. Prepares proposals. Makes presentations and publishes papers.

Minimum Education and Experience:

Bachelor's degree in GIS-related field and 3 years of experience or
Master's degree in GIS-related field and 1 year of experience.

GIS Consultant 2 - Category C2

Functional Responsibility: Manages and directs GIS projects. Designs and develops GIS application software and project workflows. Integrates specific scientific applications and models with GIS technologies. Responsible for the development of project application workflows and objectives. Performs advanced GIS activities including: GIS design, planning, implementation, and management; systems analysis; training; and evaluation for new or existing systems. Develops and instructs custom courses and seminars for specific GIS software and applications. Develops and implements custom programs and procedures. Supervises GIS Analysts and Technicians. Prepares proposals. Makes presentations and publishes papers.

Minimum Education and Experience:

Bachelor's degree in GIS-related field and 5 years of experience or
Master's degree in GIS-related field and 3 year of experience.



GIS Consultant 3 - Category C3

Functional Responsibility: Manages and directs GIS projects. Designs and develops GIS application software and project workflows. Integrates specific scientific applications and models with GIS technologies. Responsible for the development of project application workflows and objectives. Performs advanced GIS activities including: GIS design, planning, implementation, and management; systems analysis; training; and evaluation for new or existing systems. Develops and instructs custom courses and seminars for specific GIS software and applications. Develops and implements custom programs and procedures. Supervises GIS Analysts and Technicians. Prepares proposals. Makes presentations and publishes papers.

Minimum Education and Experience:

Bachelor's degree in GIS-related field and 10 years of experience or
Master's degree in GIS-related field and 5 year of experience.

GIS Consultant 4 - Category C4

Functional Responsibility: Manages and directs GIS projects. Designs and develops GIS application software and project workflows. Integrates specific scientific applications and models with GIS technologies. Responsible for the development of project application workflows and objectives. Performs advanced GIS activities including: GIS design, planning, implementation, and management; systems analysis; training; and evaluation for new or existing systems. Develops and instructs custom courses and seminars for specific GIS software and applications. Develops and implements custom programs and procedures. Supervises GIS Consultants, Analysts and Technicians. Develops and prepares proposals. Develops presentations and publishes papers. Develops and presents GIS training exercises and workshops.

Minimum Education and Experience:

Bachelor's degree in GIS-related field and 15 years of experience or
Master's degree in GIS-related field and 10 year of experience.

Remote Sensing/Image Processing Job Titles

Remote Sensing/Image Processing Analyst 2 - Category A2

Functional Responsibility: Assists in image/raster data preparation and integration. Assists in the development of training data sets. Implements and monitors processes in support of remote sensing/image processing functions and analyses. Participates in field data collection activities for the development of ground truth. Develops relational data base information and associated training information. Knowledgeable about GIS processes and analyses. Operates automated scripts and processes to accomplish image-processing objectives.

Minimum Education and Experience:

Bachelor's degree in IP/GIS-related field and 2 years of experience or
Master's degree in IP/GIS-related field and 0 years of experience.



Remote Sensing/Image Processing Analyst 3 - Category A3

Functional Responsibility: Assists in image/raster data preparation and integration. Assists in the development of training data sets. Implements and monitors processes in support of remote sensing/image processing functions and analyses. Participates in field data collection activities for the development of ground truth. Develops relational data base information and associated training information. Knowledgeable about IP/GIS processes and analyses. Operates automated scripts and processes to accomplish image-processing objectives.

Minimum Education and Experience:

Bachelor's degree in an IP/GIS-related field and 3 years of experience or
Master's degree in an IP/GIS-related field and 1 year of experience.

Remote Sensing/Image Processing Analyst 4 - Category A4

Functional Responsibility: Responsible for image/raster data preparation and integration. Participates in field data collection activities for the development of ground truth. Develops training data sets. Responsible for the classification and analysis of imagery based on established project and workflow design. Responsible for the investigation and resolution of spectral and attribute confusion. Responsible for implementation of quality control and accuracy assessment procedures. Evaluates and modifies classification and model parameters to accomplish project specifications. Develops scripts for workflow automation and edits existing scripts to accommodate project specific requirements. Supervises, supports, and trains Image Processing/Remote Sensing Analysts. Prepares proposals. Makes presentations and publishes papers.

Minimum Education and Experience:

Bachelor's degree in an IP/GIS-related field and 4 years of experience or
Master's degree in an IP/GIS-related field and 2 years of experience.

Remote Sensing/Image Processing Analyst 5 - Category A5

Functional Responsibility: Responsible for image/raster data preparation and integration. Participates in field data collection activities for the development of ground truth. Develops training data sets. Responsible for the classification and analysis of imagery based on established project and workflow design. Responsible for the investigation and resolution of spectral and attribute confusion. Responsible for implementation of quality control and accuracy assessment procedures. Evaluates and modifies classification and model parameters to accomplish project specifications. Develops scripts for workflow automation and edits existing scripts to accommodate project specific requirements. Supervises, supports, and trains Image Processing/Remote Sensing Analysts. Prepares proposals. Makes presentations and publishes papers.

Minimum Education and Experience:

Bachelor's degree in an IP/GIS-related field and 5 years of experience or
Master's degree in an IP/GIS-related field and 3 years of experience.



Remote Sensing/Image Processing Analyst 6 - Category A6

Functional Responsibility: Responsible for image/raster data preparation and integration. Participates in field data collection activities for the development of ground truth. Develops training data sets. Responsible for the classification and analysis of imagery based on established project and workflow design. Responsible for the investigation and resolution of spectral and attribute confusion. Responsible for implementation of quality control and accuracy assessment procedures. Evaluates and modifies classification and model parameters to accomplish project specifications. Develops scripts for workflow automation and edits existing scripts to accommodate project specific requirements. Supervises, supports, and trains Image Processing/Remote Sensing Analysts. Prepares proposals. Makes presentations and publishes papers.

Minimum Education and Experience:

Bachelor's degree in an IP/GIS-related field and 10 years of experience or
Master's degree in an IP/GIS-related field and 5 years of experience.

Remote Sensing/Image Processing Consultant 2 - Category C2

Functional Responsibility: Responsible for remote sensing project management and administration tasks. Designs and implements field data collection efforts. Responsible for the design and development of processes, workflows, and software applications in support of remote sensing projects. Responsible for the development of software, rules, and models for image processing classification and pixel aggregation. Responsible for the configuration of project specific parameters and variables required to satisfy project objectives. Responsible for design and implementation of accuracy assessment processes. Supervises, supports, and trains Remote Sensing/Image Processing staff. Prepares proposals and writes reports. Makes presentations and publishes papers.

Minimum Education and Experience:

Bachelor's degree in an IP/GIS-related field and 5 years of experience or
Master's degree in an IP/GIS-related field and 3 years of experience.

Remote Sensing/Image Processing Consultant 3 - Category C3

Functional Responsibility: Responsible for remote sensing project management and administration tasks. Designs and implements field data collection efforts. Responsible for the design and development of processes, workflows, and software applications in support of remote sensing projects. Responsible for the development of software, rules, and models for image processing classification and pixel aggregation. Responsible for the configuration of project specific parameters and variables required to satisfy project objectives. Responsible for design and implementation of accuracy assessment processes. Supervises, supports, and trains Remote Sensing/Image Processing staff. Prepares proposals and writes reports. Makes presentations and publishes papers.

Minimum Education and Experience:

Bachelor's degree in an IP/GIS-related field and 10 years of experience or
Master's degree in an IP/GIS-related field and 5 years of experience.



Remote Sensing/Image Processing Consultant 4 - Category C4

Functional Responsibility: Responsible for remote sensing project management and administration tasks. Designs and implements field data collection efforts. Responsible for the design and development of processes, workflows, and software applications in support of remote sensing projects. Responsible for the development of software, rules, and models for image processing classification and pixel aggregation. Responsible for the configuration of project specific parameters and variables required to satisfy project objectives. Responsible for design and implementation of accuracy assessment processes. Supervises, supports, and trains Remote Sensing/Image Processing Consultants, Analysts and Technicians. Develops and prepares proposals. Writes reports. Develops presentations and publishes papers. Develops and presents GIS training exercises and workshops.

Supervises, supports, and trains Remote Sensing/Image Processing Consultants, Analysts and Technicians. Develops and prepares proposals. Writes reports. Develops presentations and publishes papers. Develops and presents GIS training exercises and workshops.

Minimum Education and Experience:

Bachelor's degree in an IP/GIS-related field and 15 years of experience or
Master's degree in an IP/GIS-related field and 10 years of experience.

Photo Interpreter 4 - Category A4

Functional Responsibility: Performs photo interpretation and non-analytical mapping from air-photos. Performs the interpretation and mapping of features that can be easily identified without extensive ground knowledge or expertise. This includes the mapping of linear features, such as roads, rivers, forest harvest units, and cultural features.

Minimum Education and Experience:

Bachelor's degree in a Remote Sensing-related field and 4 years of experience or
Master's degree in a Remote Sensing-related field and 2 years of experience

Photo Interpreter 6 - Category A6

Functional Responsibility: Responsible for the interpretation and non-analytical mapping from air-photos. Interprets features that require application specific knowledge such as geology, forestry, botany, or wildlife ecology. Includes the mapping and interpretation of vegetation cover to specific ecological classifications. Responsible for the collection of field data used for photo interpretation training efforts. Responsible for implementation of quality control and accuracy assessment procedures.

Minimum Education and Experience:

Bachelor's degree in a Remote Sensing-related field and 10 years of experience or
Master's degree in a Remote Sensing-related field and 5 years of experience and
Certification as a Photogrammetrist by a recognized professional association.



Software Programming/Development Job Titles

Software Programmer/Analyst 3 – Category A3

Functional Responsibility: Performs routine coding as specified by the application designer/developer. Assists in basic software design using application tools and common programming languages and libraries. Also assists in development of automation code and scripts using vendor-specific programming languages. Assists in process testing and support.

Minimum Education and Experience:

Associate's degree in a GIS/CIS-related field and 5 years of experience, or
Bachelor's degree in a GIS/CIS-related field and 3 years of experience, or
Master's degree in a GIS/CIS-related field and 1 year of experience.

Software Programmer/Analyst 6 – Category A6

Functional Responsibility: Assists in the development of project application code using vendor specific application software tools and library interfaces with low-level languages. Performs routine coding as specified by the application designer/developer. Assists in basic software design using application tools and common programming languages and libraries. Also assists in development of processes and scripts using vendor-specific programming languages. Assists in process testing, debugging, and support.

Minimum Education and Experience:

Bachelor's degree in a GIS/CIS-related field and 10 years of experience, or
Master's degree in a GIS/CIS-related field and 5 years of experience.

Software Developer/Programmer 2 – Category C2

Functional Responsibility: Responsible for the design and development of project application code using vendor specific application software tools and library interfaces as required to accomplish project objectives. Responsible for software design using application tools and common programming languages and libraries. Responsible for process testing, debugging, and support. Designs and writes software and algorithms for client applications and special analyses. Develops automated workflows for new or complex processes.

Minimum Education and Experience:

Bachelor's degree in a GIS/CIS-related field and 5 years of experience, or
Master's degree in a GIS/CIS-related field and 3 years of experience.



Software Developer/Programmer 3 – Category C3

Functional Responsibility: Responsible for the design and development of project application code using vendor specific application software tools and library interfaces as required to accomplish project objectives. Responsible for software design using application tools and common programming languages and libraries. Responsible for process testing, debugging, and support. Designs and writes software and algorithms for client applications and special analyses. Develops automated workflows for new or complex processes.

Minimum Education and Experience:

Bachelor's degree in a GIS/CIS-related field and 10 years of experience, or
Master's degree in a GIS/CIS-related field and 5 years of experience.

Field Resource Assessment/Evaluation Job Titles

Field Data Collection Technician 1 - Category T1

Functional Responsibility: Assists in the collection of field data. Implements and monitors data collection methods in support of remote sensing/image processing data collection needs. Participates in field data collection activities for the development of ground truth. Knowledgeable about GIS, GPS, and field data collection techniques. Operates hand-held data collection and GPS devices.

Minimum Education and Experience:

High School diploma or GED and 3 years of experience, or
Associates' degree in GIS or Natural Resource Sciences-related field and 1 year of experience, or
Bachelor's degree in GIS or Natural Resource Sciences-related field and 0 years of experience.

Field Data Collection Technician 2 – Category T2

Functional Responsibility: Assists in the collection of field data. Implements and monitors data collection methods in support of remote sensing/image processing data collection needs. Participates in field data collection activities for the development of ground truth. Knowledgeable about GIS, GPS, and field data collection techniques. Operates hand-held data collection and GPS devices.

Minimum Education and Experience:

High School diploma or GED and 5 years of experience, or
Associates' degree in GIS or Natural Resource Sciences-related field and 3 years of experience, or
Bachelor's degree in GIS or Natural Resource Sciences-related field and 1 year of experience.



Field Forestry/Botany/Ecology Technician 2 – Category T2

Functional Responsibility: Assists in the collection of field data. Implements and monitors data collection methods in support of remote sensing/image processing data collection needs. Participates in field data collection activities for the development of ground truth. Knowledgeable about GIS, GPS, and field data collection techniques. Operates hand-held data collection and GPS devices. Some knowledge of “local” plant species required. Participates in operational planning and of field data collection activities and implementation of field data collection plans and schedules. Acts as Field Crew leader of two person field crews comprised of Field Technicians. Participates in field data collection training exercises and workshops and provides support of these activities.

Minimum Education and Experience:

High School diploma or GED and 5 years of experience, or
Associates’ degree in Natural Resource Sciences-related field and 3 years of experience, or
Bachelor’s degree in Natural Resource Sciences-related field and 1 year of experience.
Experience must include plant identification and field data collection techniques.

Field Forester/Botanist/Ecologist 2 – Category A2

Functional Responsibility: Assists in the collection of training data. Implements and monitors data collection methods in support of remote sensing/image processing data collection needs. Participates in field data collection activities for the development of ground truth. Knowledgeable about GIS, GPS, and field data collection techniques. Operates hand-held data collection and GPS devices. Provides guidance and support to Field Technicians. Runs QA/QC routines and resolved field data inconsistencies. Some knowledge of “local” plant species required. Participates in field data collection training exercises and workshops and provides support of these activities.

Minimum Education and Experience:

High School diploma or GED and 5 years of experience, or
Associates’ degree in Natural Resource Sciences-related field and 2 years of experience, or
Bachelor’s or Master’s degree in Natural Resource Sciences-related field and 0 years of
experience. Experience must include plant identification and field data collection techniques.

Field Forester/Botanist/Ecologist 4 – Category A4

Functional Responsibility: Organizes and administers the collection of training data. Implements and monitors data collection methods in support of remote sensing/image processing data collection needs. Participates in field data collection activities for the development of ground truth. Knowledgeable about GIS, GPS, and field data collection techniques. Operates hand-held data collection and GPS devices. Provides training, guidance, and support to Field Technicians. Runs QA/QC routines and resolved field data inconsistencies. Knowledge of “local” plant species required. Participates in field data collection training exercises and workshops and provides support of these activities.

Minimum Education and Experience:

Bachelor’s degree in Natural Resource Sciences-related field and 4 years of experience, or
Master’s degree in Natural Resource Sciences-related field and 2 years of experience.
Experience must include plant identification and field data collection techniques.



Field Forester/Botanist/Ecologist 6 – Category A6

Functional Responsibility: Organizes and administers the collection of training data. Implements and monitors data collection methods in support of remote sensing/image processing data collection needs. Participates in field data collection activities for the development of ground truth. Knowledgeable about GIS, GPS, and field data collection techniques. Operates hand-held data collection and GPS devices. Provides training, guidance, and support to Field Technicians. Runs QA/QC routines and resolved field data inconsistencies. Develops QA/QC routines to assure the collection of accurate data. Responsible for the development of Accuracy Assessment statistics and related information. Participates in the development of ecological rules and other Remote Sensing/Image Processing rules and relationships concerning land cover/vegetation information. Knowledge of “local” plant species and ecology required. Participates in field data collection training exercises and workshops and provides support of these activities.

Minimum Education and Experience:

Bachelor’s degree in Natural Resource Sciences-related field and 10 years of experience, or
Master’s degree in Natural Resource Sciences-related field and 5 years of experience.
Experience must include plant identification and field data collection techniques.

Forester/Botanist/Ecologist Field Project Manager/Consultant 2 – Category C2

Functional Responsibility: Develops field data collection/Accuracy Assessment methods and strategies. Organizes and administers the collection of training data. Implements and monitors data collection methods in support of remote sensing/image processing data collection needs. Participates in field data collection activities for the development of ground truth. Knowledgeable about GIS, GPS, and field data collection techniques. Operates hand-held data collection and GPS devices. Provides training, guidance, and support to Field Technicians. Runs QA/QC routines and resolved field data inconsistencies. Develops QA/QC routines to assure the collection of accurate data. Responsible for the development of Accuracy Assessment statistics and related information. Participates in the development of ecological rules and other Remote Sensing/Image Processing rules and relationships concerning land cover/vegetation information. Develops and implement pixel map aggregation methodologies. Some knowledge of “local” plant species and ecology required. Develops, presents, and participates in field data collection training exercises and workshops and provides support of these activities.

Minimum Education and Experience:

Bachelor’s degree in Natural Resource Sciences-related field and 5 years of experience, or
Master’s degree in Natural Resource Sciences-related field and 3 years of experience.
Experience must include plant identification and field data collection techniques.



Forester/Botanist/Ecologist Field Project Manager/Consultant 3 – Category C3

Functional Responsibility: Develops field data collection/Accuracy Assessment methods and strategies. Organizes and administers the collection of training data. Implements and monitors data collection methods in support of remote sensing/image processing data collection needs. Participates in field data collection activities for the development of ground truth. Knowledgeable about GIS, GPS, and field data collection techniques. Operates hand-held data collection and GPS devices. Provides training, guidance, and support to Field Technicians. Runs QA/QC routines and resolved field data inconsistencies. Develops QA/QC routines to assure the collection of accurate data. Responsible for the development of Accuracy Assessment statistics and related information. Participates in the development of ecological rules and other Remote Sensing/Image Processing rules and relationships concerning land cover/vegetation information. Develops and implement pixel map aggregation methodologies. Some knowledge of “local” plant species and ecology required.

Develops, presents, and participates in field data collection training exercises and workshops and provides support of these activities.

Minimum Education and Experience:

Bachelor’s degree in Natural Resource Sciences-related field and 10 years of experience, or
Master’s degree in Natural Resource Sciences-related field and 5 years of experience.
Experience must include plant identification and field data collection techniques.

Forester/Botanist/Ecologist Field Project Manager/Consultant 4 – Category C4

Functional Responsibility: Develops field data collection/Accuracy Assessment methods and strategies. Organizes and administers the collection of training data. Implements and monitors data collection methods in support of remote sensing/image processing data collection needs. Participates in field data collection activities for the development of ground truth. Knowledgeable about GIS, GPS, and field data collection techniques. Operates hand-held data collection and GPS devices. Provides training, guidance, and support to Field Technicians. Runs QA/QC routines and resolved field data inconsistencies. Develops QA/QC routines to assure the collection of accurate data. Responsible for the development of Accuracy Assessment statistics and related information. Participates in the development of ecological rules and other Remote Sensing/Image Processing rules and relationships concerning land cover/vegetation information. Develops and implement pixel map aggregation methodologies. Some knowledge of “local” plant species and ecology required.

Develops, presents, and participates in field data collection training exercises and workshops and provides support of these activities.

Minimum Education and Experience:

Bachelor’s degree in Natural Resource Sciences-related field and 15 years of experience, or
Master’s degree in Natural Resource Sciences-related field and 10 years of experience.
Experience must include plant identification and field data collection techniques.



Pricing - GSA Schedule Rates

Hourly and daily rates for all Environmental Services performed by GRS under SINs **899-1, 899-1RC, 899-3, 899-3RC, 899-7, and 899-7RC** are provided below in Table 1. These hourly and daily rates are for the GSA Contract period 2013-2018.

Table 1: GRS Hourly and Daily GSA Rates

SIN Number(s)	Category Name/Title	On-Site	Off-Site	Location	2013-18 \$/hour	2013-18 \$/Day
899-7 & 899-7RC	T1	X	X	All	\$27.59	N/A
899-1 & -1RC; 899-3 & -3RC; and 899-7 & -7RC	T2**	X	X	All	\$34.86	N/A
899-7 & 899-7RC	A1	X	X	All	\$37.96	N/A
899-1 & -1RC; 899-3 & -3RC; and 899-7 & -7RC	A2	X	X	All	\$40.89	N/A
899-7 & 899-7RC	A3**	X	X	All	\$45.00	N/A
899-1 & -1RC; 899-3 & -3RC; and 899-7 & -7RC	A4	X	X	All	\$49.17	N/A
899-7 & 899-7RC	A5	X	X	All	\$52.73	N/A
899-1 & -1RC; 899-3 & -3RC; and 899-7 & -7RC	A6**	X	X	All	\$59.84	N/A
899-7 & 899-7RC	C1	X	X	All	\$66.96	N/A
899-1 & -1RC; 899-3 & -3RC; and 899-7 & -7RC	C2**	X	X	All	\$78.53	N/A
899-1 & -1RC; 899-3 & -3RC; and 899-7 & -7RC	C3**	X	X	All	\$89.32	N/A
899-1 & -1RC; 899-3 & -3RC; and 899-7 & -7RC	C4	X	X	All	\$98.56	N/A

**** Indicates SCA eligible category. See the SCA Matrix below for additional information regarding these labor categories.**

Time is charged to the nearest 0.25 hour.

The minimum charge is 0.25 hours

Overtime hours are charged at the hourly rates listed above.

Double Overtime hours are charged at 133% of the hourly rates listed above.



SCA Matrix

SCA Matrix		
SCA Eligible Contract Labor Category (GRS)	SCA Equivalent Code - Title	WD Number
Field Forestry/Botany/Ecology Tech 2	08190 - Forestry Technician	77-0727
Software Programmer/Analyst 3	14071 – Computer Programmer I	05-2055
Software Programmer/Analyst 6	14072 – Computer Programmer II	05-2055
Software Developer/Programmer 2	14073 - Computer Programmer III	05-2055
Software Developer/Programmer 3	14074 - Computer Programmer IV	05-2055
GIS Analyst 3	14101 – Computer Systems Analyst I	05-2055
GIS Analyst 6	14102 – Computer Systems Analyst II	05-2055
GIS Consultant 3	14103 – Computer Systems Analyst III	05-2055