US Army Corps
of Engineers
Pittsburgh District

PERFORMANCE BASED SERVICE CONTRACTING (PBSC)

DISTRICT OPERATING INSTRUCTION

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Chapter 1

SERVICE CONTRACTS

1.1. Terms and Definitions. Terms, as used in this manual, are defined in *Attachment 1A*.

1.2. Overview

1.2.1. The Federal Acquisition Regulation (FAR) requires that service contract specifications reflect the minimum needs of the Government, be expressed in terms of performance requirements, with associated standards of performance of these requirements, and provide the means to make sure we receive the services we pay for. FAR policy for the acquisition of services, found at FAR 37.102, as well as Department of the Army policy, is to use Performance Based Service Contracting (PBSC) to the maximum extent practicable. Categories of services exempt are: (1) Architect-Engineer services; (2) Construction; (3) Utility Services; (4) Services that are incidental to supply purchases; (5) Real Estate Title and Appraisal Services. In addition, Acquisition Reform, as mandated by Congress, requires that Market Research be conducted and services be acquired by best commercial practices, unless documentation justifies non-commercial practices. Firm-fixed price performance based service contract methods are preferred, with the burden of risk placed on the contractor. Specification requirements should be consistent throughout the District.

1.2.2. The Inspection of Services clause (FAR 52.246-4 for fixed-price contracts) provides for the Government's right to inspect and test all services called for by the contract and specifies what actions the Government may take when the services do not conform to contract requirements. Government remedies for nonconforming services are as follows:

- Require the contractor to re-perform the service at no additional cost.
- Require the contractor to take action to make sure future performance conforms and reduce the contract price to reflect the reduced value of the services performed if the service cannot be re-performed.
- If the contractor fails to re-perform after being directed to do so or does not take action to assure future performance conforms, the Government may have the

services performed by other means and charge the costs to the contractor or pursue Termination for Default. Re-performance of nonconforming services is the preferred course of action because we want the service. Because many service contracts contain tasks that cannot be re-performed (i.e. the time for conforming performance has passed), and is of no value to the Government, service contracts must contain provisions for reducing contract amounts for nonconforming services when re-performance is not possible or is impractical. For commercial services, FAR clause 52.212-4, Contract Terms and Conditions-Commercial Items, is applicable. The remedies are similar to those described above.

1.2.3 In addition to the remedies discussed under 1.2.2, the Corps of Engineers, Engineer Regulation 715-1-19, dated 5 July 1996, has implemented a performance evaluation database referred to as Service and Supply Contractor Appraisal Support System (SSCASS). At the time of award of all service contracts, the contractor is provided notice that the Government will evaluate contract performance during the life of the contract. The contractor is provided a copy of the performance evaluation form, which contains performance criteria to be evaluated. Although under normal circumstances there will be one final evaluation after completion of the contract, there are provisions for interim evaluations should the contractor demonstrate unsatisfactory performance and annual evaluations for contracts exceeding one year. SSCASS performance evaluations are used to determine responsibility prior to award and as an evaluation factor in Best Value procurements.

1.3. Commercial Services and Market Research. Congress, under the acquisition reform initiatives known as the Federal Acquisition Streamlining Act of 1994 (FASA) and the Clinger-Cohen Act of 1996, has mandated that federal agencies conduct Market Research and utilize commercial acquisition practices to the maximum extent practicable to streamline the procurement process.

1.3.1. The acquisition reform initiatives established FAR Part 10, Market Research, which mandates Market Research and FAR Part 12, Acquisition of Commercial Items, that mandates a preference for acquisition policies resembling more closely those of the commercial marketplace. Market Research and documentation is required for all acquisitions estimated over the Simplified Acquisition Procedures (SAP) threshold (currently $100,00). Market Research for less than the SAP threshold may be conducted when it is practical to do so. The extent of Market Research depends on the

complexity and dollar value of the acquisition in relation to the cost of the resources expended in conducting the research. Nearly all services required by the Government are available in the commercial marketplace. Therefore, it is the policy of the District to acquire its services using best commercial practices and FAR Part 12 to the maximum extent practicable.

1.3.2. In order to make a commerciality determination, Market Research is to be used as a tool. Market research, as discussed in FAR Part 12, should be performed soon after a need is established. It is used to collect and analyze information, review the capabilities of firms in the marketplace and to review the need. Generally, the process should be as follows:

- Establish the need.
- Conduct market research.
- Revisit the need.
- Determine commerciality.

See the decision flowchart at *ATTACHMENT 1B*.

1.3.3 When a determination has been made that the services are available commercially, provisions and clauses used must be consistent with commercial terms and conditions in accordance with the requirements of FAR Subpart 12.3. These terms and conditions are established during Market Research. In addition, FAR Part 12 allows commercial items and services to be acquired with the use of SAP, as prescribed in FAR Part 13, for acquisitions estimated less than $5 million.

1.4. Technical Specification Requirements To Be Met

1.4.1. Technical specifications for service requirements to be contracted (hereafter referred to as Performance Work Statements (PWS)), must be prepared according to this manual. A PWS should be performance based and must not specify procedures for accomplishing required tasks unless absolutely necessary. Further references to directives and publications, in whole or in part, must be minimal. The Department of the Army Acting Deputy Assistant of the Army (Procurement), in his memorandum of 27 August 1997, has established the following checklist:

PBSC Requirements:

1. (M) Statement of Work (SOW) contains objective, mission-related performance output requirements.
2. (M) SOW contains measurable, mission-related performance quality standards.
3. (H) Contract contains positive and negative incentives (i.e. deduction schedules) based on Quality Assurance (QA) measurements.
4. (H) Commercial/industry-wide performance standards are relied upon where possible.
5. (M) Contract is not a term type.
6. (M) Use experience gained from recurring requirements
to convert them to performance-based requirements.
7. (H) Contract is fixed-price.
8. (H) Marketplace and stakeholders are provided an opportunity to comment on draft performance requirements and standards, QA plan and incentives via draft solicitations and government/industry forums.
9. (M) Historic workload analysis is generated to aid in determining scope of requirement, or is estimated if not available.

Requirements that are not PBSC but impact PBSC:

1. (H) Contract award is competitive.
2. (H) Best value evaluation/selection is used.
3. (H) Informal conflict resolution methods are
4. available (e.g., ADR, ombudsman)
5. (M) Contract contains government quality assurance
6. (QA) plan to measure performance vs. standards.
7. (H) Multiyear authority is used if available.

All of the above requirements also apply to individual task orders issued under a task order contract and individual projects and/or responsibilities assigned under a major site management contract.

(M) Mandatory
(H) Highly desirable

1.4.2. Quality Assurance Surveillance Plans (QASPs) must be tailored to the PWS and set forth justifiable and defensible surveillance procedures to make sure we pay only for services that conform to the performance standards of the contract. The QASPs must be prepared in conjunction with the PWS For uniformity of requirements and followed during contract performance.

1.5. Exemptions to the Use of This Manual. This manual applies to service contracts within the district except Architect-Engineer, Construction and R&D. Exemptions must be documented and forwarded through the requesting office Division Chief to the Chief, Contracting Division, for approval. Documentation for exemption must contain, at a minimum, the following:

- The reasons why PBSC cannot be used.
- How it will ensure that the requirements are for the minimum needs of the government.
- How it will be determined that contract standards will be met if standards are not included in the specification.
- What procedures will be taken in the future to ensure PBSC is used under future contracts for the service(s).

All exemption documentation must be kept in the official contract file.

1.5.1. Provisions providing for reduction in payment for unacceptable performance are recommended in fixed price incentive or award fee contracts. Decisions regarding the use of these provisions by the Contracting Officer must be documented in the contract file.

1.6. Assigned Responsibilities.

1.6.1. Technical personnel shall prepare, maintain and disseminate to field activities standardized PWS’s and QASP’s.

1.6.2. Contracting Chiefs, Officers and Specialists shall advise and assist technical divisions in service contract matters and review PWS’s for PBSC compliance. The Chief, Contracting Division, shall ensure that PBSC reporting requirements are timely.

1.6.3. The Quality Assurance Evaluator (QAE) shall be responsible for the following:

- Maintain technical competency in the functional area surveyed.
- Obtain and maintain proficiency in contract surveillance procedures.
- Understand all contract and surveillance requirements of the specific contracts surveyed.

- Perform surveillance according to the QASP and provide documentation of surveillance observations to the Contracting Officer Representative (COR).
- Assist the COR in calculating and certifying acceptance of services in the manner prescribed by the Contracting Officer and this manual.

1.6.4. On request, legal counsel is responsible for reviewing PWS's and QASP's for legal sufficiency.

1.7 Service Contract Requirements Packages. A requirements package for a service contract consists of a PR&C, PWS (including the positive and negative incentives) and a QASP, Government cost estimate, a MIL-SPEC Free certification signed by the Chief, Engineering Division and Market Research documentation. The PWS and QASP specify the requirements for the contractor and set forth the internal procedures for government technical surveillance of contractor performance. They are interdependent and must be tailored to meet the requirements of the government as well as the surveillance and administrative capabilities.

1.7.1. The PWS describes the specific requirements that the contractor must meet in the performance of the contract. Additionally, it specifies the standard of performance for the required tasks and the quality level that the government expects the contractor to provide. It does not give specific procedures or instructions for accomplishing the work unless they are absolutely necessary. When the District specifies a given procedure, it assumes responsibility for making sure the procedure will result in the desired outcome. On the other hand, if it specifies the outcome performance and a quality standard, the contractor becomes responsible for making sure their procedures result in the specified outcome at the required quality standard.

1.7.2. The quality control of a contractor's performance is the responsibility of the contractor, not the government. Government surveillance, however, is required to make sure we receive the services for which we contracted and only pay for the services we actually receive. The QASP specifies how government quality assurance surveillance of the contract tasks, as set forth in the PWS, will occur. This plan should be based on the minimum surveillance necessary to ensure performance according to the contract terms and that payment is made only for actual services received. If the contract prescribes deduction provisions for a task, the surveillance procedures for that task must specify either random sampling or 100 percent surveillance of the lot.

QASP’s must be carefully planned to make sure surveillance is adequate to protect the government’s rights and interests but not excessive. Quality assurance surveillance should be commensurate with the criticality of the service or task and the resources available to accomplish the surveillance.

1.7.3. The Contracting Officer must approve all PWS’s and QASP’s before they are accepted for contracting action. This approval is necessary to make sure the requester has described the requirements clearly and unambiguously and that the PWS is contractually and legally enforceable.

ATTACHMENT 1A
GLOSSARY OF ABBREVIATIONS, ACRONYMS, AND TERMS

Section A – Abbreviations and Acronyms

Abbreviations And Acronyms	Definitions
CO	Contracting Officer
COR	Contracting Officer Representative
FAR	Federal Acquisition Regulations
PR&C	Purchase Request and Commitment
PRS	Performance Requirement Summary
PWS	Performance Work Statement
QA	Quality Assurance
QAE	Quality Assurance Evaluator
QASP	Quality Assurance Surveillance Plan
SSCASS	Service and Supply Contractor Appraisal Support System

Section B – Terms Explained

Acceptance Sampling– A form of sampling used to determine acceptability of a lot based on surveillance of selected samples from the lot. A procedure that gives a specified risk of accepting lots of given quality.

Acceptable Quality Level (AQL)- The AQL is a predetermined value selected and used by the Government Quality Assurance Inspector to distinguish between satisfactory and unsatisfactory performance. For evaluation by random/planned sampling, AQL's are stated in percentages (i.e. 0.65, 1.0, 1.5…15) as per Table 1-A. The AQL tables have four parts: Lot (population) size, code letter, sample size, and the reject level.

Activity– A work process. An activity uses inputs to generate outputs.

Administer- That stage of the contracting cycle in which the Contracting Officer makes sure that the total contract is being

performed according to its terms, makes necessary changes, and ensures progress toward contract completion.

Analyst– A person charged with the analysis of a function for the purpose of developing contract requirements and administration documents.

Attribute- A characteristic of a service that is used to determine the quality of performance of that service.

Attribute Sampling- A form of acceptance sampling that determines the quality of a service based on a sampling of specified attributes of that sampling.

Best Value Procurement- The preferred method of procurement for PBSC. Best value is the expected outcome of any acquisition that ensures the customer's needs are met in the most effective, economical, and timely manner. Tradeoff decisions are used when it is in the best interest of the government to consider award to other than the lowest priced offeror or other than the highest technically rated offeror. Critical evaluation factors must include price, technical competence and past performance.

Buy- That stage of the contracting cycle in which bids or proposals are analyzed, the awardee is determined, and award is made.

Chief, Contracting Division- The individual responsible for operating and managing the contracting office.

Contract Administrator- Individual within the contracting office who performs the day-to-day administration of the contract.

Contract Specialist- Individual within the contracting office responsible for preaward and award functions from the time of receipt of the PR&C in the contracting office until award of the contract.

Contracting Officer- The only duly appointed government agent authorized to obligate the government for contracts and modifications.

Contracting Officer Representative- Individuals, usually having technical expertise, designated by the Contracting having delegated authority to act for the Contracting Officer, regarding technical aspects of the contract. Except for special cases

(i.e. Resident Engineers), the individual does not have any obligation authority.

Commercial Service- A service that is performed in the commercial marketplace and can be performed to meet government requirements using best commercial practices in accordance with FAR Part 12.

Defective Service- A service output that does not meet the standard of performance specified in the contract for that service.

Error Rate- The frequency at which defective service occurs.

Incentives- contract elements that motivate contractors To perform efficiently. Incentives may be positive or negative or a combination of both. Positive incentives reward the contractor for exceptional performance. Negative incentives provide for contract deductions when performance is sub-par or unsatisfactory. Incentives must be set forth as performance requirements in the solicitation.

Job Analysis- The act of looking at a job as it is being done to determine what actually results. Job analysis looks at organization, workload, performance values, and resources.

Lot- The total number of service outputs in a surveillance period.

Lot Size- The number of service outputs in a lot.

Market Research- As required under FAR Part 10, Market Research must be conducted in accordance with FAR 10.001 to survey the commercial marketplace and to re-examine government needs.

Option- A unilateral right in a contract, which, for a specified time, the Government may elect to purchase additional services called for by the contract, or may elect to extend the term of the contract.

Organizational Analysis- The act of looking at an organization to determine what service it provides.

Output- The amount of something produced by a system or process during a given time period.

Performance Analysis- Assigns a performance requirement to each task, which involves determining how a service can be measured and what performance standards and quality levels apply.

Performance Evaluation- A listing of the service elements that are to be evaluated by the QAE at the completion of the contract period or during the performance period if the contract period is for more than a year or performance is unsatisfactory. Evaluations are to be submitted to the Contract Administrator and entered in the SSCASS database by the SSCASS Administrator. Past performance is to be used for responsibility determinations and as an evaluation factor.

Performance Indicator- A measurable characteristic of an output of a work process. Generally synonymous with attribute.

Performance Requirement or Standard- The point that divides acceptable and unacceptable performance of a task according to the performance requirement summary and the Inspection of Services clause. It is the number of defectives or maximum percent defective in the lot that is deemed acceptable. Any further defectives will require the government to effect the price computation.

Performance Work Statement- A document that accurately describes a service in terms of output requirements and the required quality level or standard acceptable performance of those outputs.

Quality Assurance- Those actions taken by the government to assure that services meet the requirements in the statement of work.

Quality Assurance Evaluator- A technically qualified person who performs quality assurance functions for a contracted service.

Quality Assurance Surveillance Plan- An organized, written document specifying the surveillance methodology to be used for surveillance of contractor performance.
Quality Control- Controls in place to prevent unsatisfactory or defective performance. For PBSC, the contractor provides quality control to ensure conformance to contract requirements.

Random Number Table- A table of numbers arranged in random fashion. This table is used to select random samples.

Random Sampling- A sampling method where each service output in a lot has an equal chance of being selected.

Recurring Services- Services that are required regularly and/or repeatedly.

Sample- A sample consists of one or more service outputs drawn from a lot. The output or outputs are used in quality assurance surveillance.

Sampling Guide- The part of a surveillance plan that contains all the information needed to perform surveillance of the service outputs.

Sampling Plan- A plan that indicates the performance requirement, the number of units from each lot that are to be inspected, and the criteria for determining the acceptability of the lot (acceptance and rejection numbers). The sampling plan is used to develop the sampling guide.

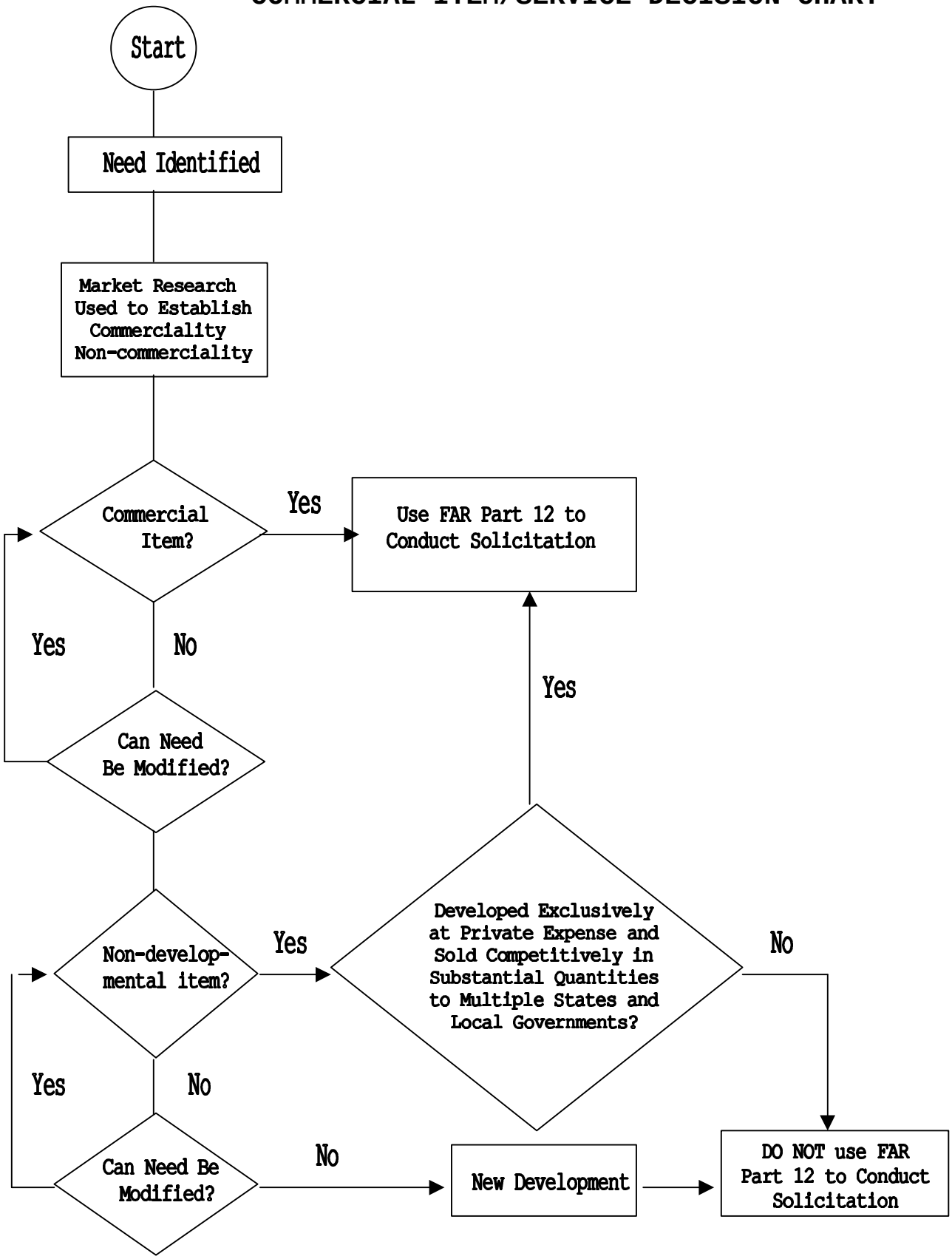
Task Order Contract- A contract for services that does not procure or specify a firm quantity of services (other than a minimum or maximum quantity) and that provides for the performance of tasks during the period of the contract. Task Order Contracts, as described under FAR 16.501-2 may be of three types: definite quantity, indefinite-quantity, and requirements.

Tree Diagram- A visual representation of the major functions performed by a system that shows its parts and subparts.

Work- A series of actions that bring about an end result.

Work Analysis- Used to further analyze the required outputs. The overall service output is broken down into its lowest task levels into parts and subparts. Tree diagrams are useful in this analysis.

ATTACHMENT 1B
COMMERCIAL ITEM/SERVICE DECISION CHART



Chapter 2

PREPARATION FOR WRITING THE PERFORMANCE WORK STATEMENT (PWS)

2.1. A Systems Approach. The design of a PWS and its accompanying Quality Assurance Surveillance Plan (QASP) is based on a systematic analysis of the function. Performance Based Service Contracting (PBSC) emphasizes that all aspects of an acquisition be structured around the purpose of the work to be performed, as opposed to the manner in which the work is to be performed, or through broad statements of work. PBSC is based on objective assessments of contractor performance. By design, PBSC ensures that the contractor is given freedom to determine how to meet the Government's performance objectives and that appropriate performance quality levels are achieved, and further, that payment is made based on achievement of those levels.

2.1.1. PBSC emphasizes objective, measurable, performance requirements and quality standards in developing statements of work, selecting source selection methods, determining contract type and incentives and performing contract administration. Performance standards/outputs should include such elements as "what, when, where, how many and how well" the work is to be performed. The Quality Assurance Plan (QAP)/(QASP) corresponds to these standards and measures contractor performance to determine if the contractor services meet the standards stated in the Performance Work Statement (PWS). The PWS performance standards, QAP/QASP and Incentives are interdependent and must be compatible in form, style, and substance and cross-referenced. All elements must be present for a procurement to be classified as a PBSC.

2.2. Jobs as Systems/Job Analysis. Job analysis involves determining what the agency's needs are, and what kinds of services and outputs are to be provided. Every service operation can be viewed as a system. A system consists of a job or a combination of jobs for a certain purpose. The parts of a system are usually called input, work, output, quality control and quality assurance. Each major system can be broken into small parts or subsystems. For example, vehicle operations can be broken into vehicle operations, vehicle maintenance, and traffic management, which can be broken down further into subsystems. Each work area has its own set of inputs and outputs. To analyze the required outputs, break down the work into its lowest task level and link tasks as a logical flow of activities. Start by the overall services to be performed (output required) from the

contractor, and then divide the job into parts and subparts, and identify the relationship between all the parts.

2.3. Team Approach: A teaming approach is suggested in coordinating the PWS, which should include, as a minimum, the following personnel: the Contracting Officer, technical representative, to include design personnel, and any other organizations as appropriate for the specific functions being analyzed.

2.4. Developing a PWS and QASP: Analyses and planning for the proposed services must be conducted for PBSC to work efficiently and effectively. The time invested in planning and analyses is of major importance and can help prevent future problems. The elements of major PBSC analyses follow.

2.4.1. Job Analysis starts with information on how the job is currently being done and ends with the performance output requirements. It involves determining what the agency's needs are, what kinds of services and outputs are required. In general, Job Analysis includes agency/activity organization, work to be performed, performance standards, directives, data gathering and cost. The analysis consists of Organizational Analysis, Workload Analysis, Performance Analysis, Criteria Analysis, data gathering and Cost/Payment Analysis.

2.4.1.1. Organizational Analysis provides a framework for determining what is required of the organization (See *Attachment 2A*). The data gathered and placed on the analysis sheet should show a complete picture of the organization. The process consists of reviewing the agency's needs and identifying the services, or outputs required from the contractor. The emphasis is on the outputs the contractor will produce but not how they will produce these outputs. The major tool used is the tree diagram (See *Attachment 2B*).

2.4.1.2. Workload Analysis is used to further analyze the required outputs, break down the work into its lowest task level and link tasks. Start with the overall service/output required, then divide the job into all its parts and subparts, then identify the relationship between all the parts (See *Attachment 2C*).

2.4.1.3. Every service task has a performance standard. Performance Criteria Analysis assigns a performance requirement to each task, which involves determining how a

service can be measured and what performance standards and quality levels apply (See *Attachment 2D*). For each service output, the analyst must determine the performance indicator, performance standard and maximum error rate of that service. The performance standard establishes the performance level required by the Government. The acceptable quality level (AQL) establishes a maximum allowable error rate or variation from the standard. To specify the performance standard, there must be a performance indicator for the service. A performance indicator is a feature of an output that can be measured, quantitatively or qualitatively. To determine the performance indicator, the analyst must determine what elements of the service will provide a measure of output quality. When possible, performance indicators must be quantitatively measurable. One performance indicator must be selected for each separate output. The analyst must find one reasonable standard that embodies the criticality of the service to be furnished and the minimum needs of the Government for the service. Selection of performance standards is critical because these standards directly affect the cost of the service. The minimum acceptable standard should rarely be 100% since the standard directly affects the cost of the service. Each standard should be necessary. If there are a number of tasks and deliverables, summarize them in a performance requirements summary (PRS). A PRS usually lists tasks, deliverables, standards and quality levels.

2.4.1.4. All directives related to the service should be identified.

2.4.1.5. Data Gathering involves collecting and analyzing historical data to determine how much of it is required to describe the job, estimate quantities, and establish how often the service or output is to be furnished.

2.4.1.6. Cost/Payment Analysis is necessary to determine what percentage of the total cost of the contract each service performed represents (See *Attachment 2E*). When deductions are used, the amount to be deducted should represent, as close as possible, the value of lost service. This amount is usually computed by determining the percentage of contract costs associated with each task. For example, if a given task represents 10 percent of the contract costs, then 10 percent will be the maximum deduction in the event of task failure. The definitions of standard performance, maximum positive incentives and the units of measurement will be established in the solicitation. They will vary from contract to contract and

are subject to discussion during source selection discussions. Incentives should be used when they will induce better quality performance and may be positive, negative or a combination of both.

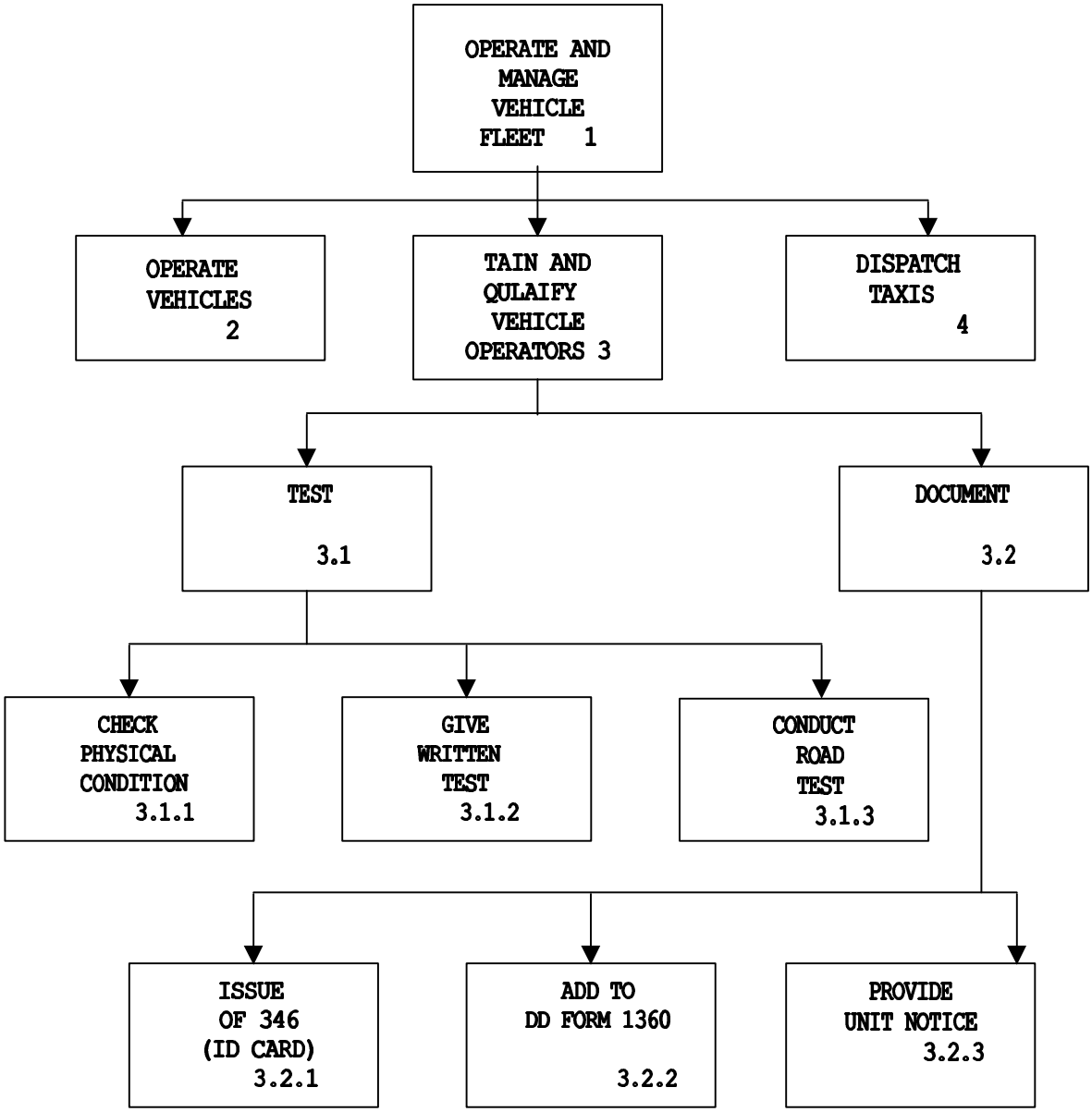
ATTACHMENT 2A

ORGANIZATIONAL ANALYSIS EXAMPLE

Name of Organization: Transportation
Mission Statement: Provides vehicle maintenance, on base vehicular transportation, shipment of household goods, etc.
Organizational Elements: Traffic Management Office Vehicle maintenance Vehicle Operations
Services Performed: - Normal Taxi service Emergency Maintenance, Outbound Personal Property Service, etc. - Contingent Vehicle support for disaster control exercises, etc.

ATTACHMENT 2B

TREE DIAGRAM EXAMPLE



ATTACHMENT 2 C

WORKLOAD ANALYSIS EXAMPLE

WORKLOAD			
SERVICE	**HISTORICAL WORKLOAD**	**KNOWN CHANGE**	**ESTIMATED WORKLOAD**
Taxi	1200/month	-10%	1080/month
U-Drive	50/month	+20%	60/month
----------	-----etc. ---	----------	------

ATTACHMENT 2D

PERFORMANCE CRITERIA ANALYSIS EXAMPLE

ACTIVITY: TAXI OPERATION		
PERFORMANCE INDICATOR	**STANDARD**	**MAXIMUM ERROR RATE**
Response Time	4 minutes	10%
Accidents Per Mile	0	0%
Operational Cost Per Mile	$0.14	20%
Taxi In-Commission Rate	90%	10%

ATTACHMENT 2E

PAYMENT ANALYSIS EXAMPLE

JOB: VEHICLE OPERATIONS			
	PERSONNEL	**PAYROLL COST PER MONTH**	**% OF TOTAL**
OPERATE VEHICLES			
Operate Taxis	5	$5000	19.2%
Operate Scheduled Bus	4	$4000	15.4%
Operate Unscheduled Bus	1	$1000	3.8%
TRAIN/QUALIFY VEHICLE OPERATORS			
Test			
Check Physical Condition	1	$1000	3.8%
Give Written Test	1	$1000	3.8%
Conduct Road Test	1	$1000	3.8%
Document			
Issue SF46	.3	$360	1.4%
Add to DD Form 1360	.3	$360	1.4%
Provide Unit Notice	.1	$100	0.4%
MANAGE CREDIT CARDS			
Issue Cards	.2	$240	0.9%
Process Receipts	.2	$240	0.9%
DISPATCH **VEHICLES**	1	$1000	3.8%
----------	----etc.-----	----------	
TOTAL	**28**	**$26,000**	**100%**

Chapter 3

WRITING THE PERFORMANCE WORK STATEMENT

3.1. The Performance Work Statement. After the data collection and job analysis are completed, the Performance Work Statement (PWS) should be written.

3.2. Writing the Performance Work Statement. The PWS should contain only that information required to specify the quality and quantity of the services to be performed. The PWS when combined with the Contract Clauses, Special Contract Requirements, and other contract requirements will form the contract documents. The Contract Clauses and Special Contract Requirements are prepared by the Contracting Division and should be prepared concurrently with, and coordinated with, the PWS so that the PWS will not contradict these portions of the document. The Contract Clauses and Special Contract Requirements take precedence over the PWS.

3.3. Service Contract Format. The Uniform Contract Format (UCF) for service contracts consists of 13 sections identified as Sections A through M (shown on *Attachment 3A*). Section B, "Supplies or Services and Prices/Costs" contains the price schedule. Section C, "Descriptions/ Specifications/Work Statement" contains the Performance Work Statement. Section J, "List of Attachments" lists all attachments to the document.

3.3.1. Price Schedule. The price schedule should be developed in conjunction with preparation of the PWS. Each item on the price schedule should have a matching item in the PWS, with measurement and payment in the same units.

3.3.2 Performance Work Statement.

3.3.2.1. General. The first step in writing the PWS is to prepare an outline of the requirements, divided into appropriate sections. In order to provide a universal PWS, which can be utilized by all projects, the PWS sections will contain only the general requirements for the services to be performed. Specific requirements related to the performance at each project or contract will be included in the Technical Exhibits.

3.3.2.2. Sections. To provide continuity with existing service contracts, the section numbers and contents should agree with previous similar contracts to the extent

possible. A separate section should be prepared for each distinct type of work, with closely related items of work contained in the same section. Each section will have a unique section number, which will consist of the UCF Section Letter "C" and a sequential numeral, i.e. C1. The general format of all sections should be the same to the maximum extent possible. *Attachment 3B* shows the outline for individual sections for a typical maintenance services contract.

3.3.3. Performance Requirements Summary Table. The Performance Requirements Summary (PRS) table is a tabular summary of the work to be performed, performance standards, and acceptable performance level. The PRS is utilized by the Quality Assurance Evaluator (QAE) and the contract administrator to determine deductions for unsatisfactory performance or nonperformance of services. The PRS should be prepared while the PWS and Quality Assurance Plan are being prepared. The PRS includes the Standard, Maximum Allowable Degree of Deviation, Method of Surveillance, and Maximum Payment Percentage for each Required Service to be performed under the contract. A sample PRS is included as Attachment 3D.

3.3.3.1. Required Service. Each service required in the PWS should be listed on the PRS. Each measurable feature of a service should be listed under the work item, with the associated standard of performance, maximum allowable defect rate and weight.

3.3.3.2. Standard. The Standard is a summary of the performance requirements contained in the technical sections. The specific PWS paragraph should be referenced for each standard.

3.3.3.3. Maximum Allowable Degree of Deviation. The Maximum Allowable Degree of Deviation is the same as the Acceptable Quality Level (AQL), which is the maximum allowable rate of defects within a population of services above which the contractor's performance is considered to be unsatisfactory. The AQL should be developed from the performance analysis and should take into consideration the criticality of the service, anticipate methods of performance, and economics. The AQL must be attainable, necessary, and reflect the <u>minimum</u> needs of the Government.

3.3.3.4. Method of Surveillance. The method of surveillance should be determined in conjunction with preparation of the Quality Assurance Surveillance Plan

(QASP). A sampling guide should be prepared for each service as part of the QASP.

3.3.3.5. Maximum Payment Percentage. The maximum payment percentage is measure of the relative importance assigned to each feature of each service to performance of the complete service. The percentages of the features for each service must total 100%.

3.3.4. Technical Exhibits. Technical exhibits will describe facilities to be serviced, site specific requirements, materials and facilities to be furnished by the Government or by the Contractor, and other information which is applicable only to specific projects or specific contracts. The technical exhibits should include location maps, schedules, and other information necessary to clearly define the scope of the work to be performed. A list of information required for each exhibit should be developed as the PWS section is written to insure that all necessary information is furnished. Attachment 3C lists the individual technical exhibits for a typical maintenance services contract.

3.4. Composition of the PWS. The PWS is the technical specification, which describes the performance required. As an integral part of the contract, it is contractually binding on both the contractor and the Government. The PWS must adequately describe the requirements for performance of the services. Words must be carefully chosen so they are not ambiguous or likely to be misinterpreted. Terms used should be those in general commercial use; where terminology is used which is specific to the Government or the type of work and is not normally used by the general public, adequate definitions must be provided. The requirements must be stated in sufficient detail and with adequate clarity that someone with little knowledge of previous performance would understand the requirements. The PWS should describe only the desired results and should not specify methods of performance. Mandatory procedures should be specified only when required for satisfactory performance. Information provided should be sufficient to ensure that all offerors/bidders understand the work involved. Levels of performance should be developed when the acceptable completion of similar type of work is different at different locations or time periods. The following rules, adapted from Air Force Manual 64-108 “Service Contracts”, are applicable to the preparation of a PWS.

3.4.1. Style of Writing. Style refers to the method of expressing ideas in phrases, sentences, and paragraphs. Technical style is the way the writer assembles the technical information into an exact statement of facts. In writing a PWS, the style must present technical accuracy while including all of the essential information in the simplest manner.

3.4.2. Use of Language. The language in a PWS must be exact and concise. Every effort must be made to use the simplest words, phrases, and sentences possible so that anyone who reads it can understand its meaning and avoid the risk of misinterpretation. Also, there are some words that have contractual meanings which must be used correctly to avoid misstating the requirement. Consult the Contracting Officer on proper wording to make sure the PWS accurately describes what is required.

3.4.3. Problems with Ambiguities. Perhaps one of the biggest causes of disagreement on PWS's results from the use of indefinite, ambiguous terms or words. If an ambiguity is present, the Armed Services Board of Contract Appeals and the courts always hold against the party that wrote the contract. Since the Corps of Engineers writes its contracts, it is legally responsible for any ambiguities in the contracts. Ambiguities often result in increases in contract price, so be extra careful to avoid ambiguities.

3.4.4. Misused Words and Phrases. In a contractual document, one word may change the entire meaning of the sentence, paragraph, section, etc., because of the way that word, or lack of a word, has been consistently interpreted in contract law. The following guidelines are provided to aid in avoiding the pitfall of inadvertently changing an intended meaning in the PWS. Consult the Contracting Officer to avoid such problems:

3.4.4.1. Use of "Shall," "Will," and "May." The term "shall," when used in a contract, is always used to specify that the requirement is binding. The term "will," on the other hand, may be interpreted to mean that the requirement is not always mandatory. The term "may" generally denotes permissiveness except when used in a phrase such as "no person may." When used in that way, it means that no one is required, authorized, or permitted to do the thing described.

3.4.4.2. Use the Emphatic Form of Verbs. It is important to clearly state that something must or must not be done.

The emphatic form of the verb will make sure that specific direction is being given, not suggestions.

3.4.4.3. Do Not Use "Any," "Either," and "And/Or." These words allow for choice. It is better to avoid them unless a choice is exactly what we intend. The word "both" can often be substituted for these words to impart a clearer meaning.

3.4.4.4. Avoid use of pronouns. The use of pronouns is not recommended in PWS's. It is better to repeat the noun and avoid misinterpretation.

3.4.4.5. Avoid use of “Direct”. The contractor is responsible for performance of the contract work to the specified standards. The Contracting Officer should not direct any of the contractor’s work.

3.4.4.6. Use Consistent Terminology. The same words and phrases must be used throughout the PWS when addressing the same thing. This is especially true when referring to technical terms.

3.4.4.7. Use Numerals. When numerals are used on any drawings, illustrations, charts, or tables, use the numerals in the PWS when referring to the drawings, etc., rather than spelling out the number.

3.4.5. Use Standardized Spelling. For words that have more than one acceptable spelling, use the standard or most widely accepted spelling to avoid any misunderstanding.

3.4.6. Punctuation in the PWS. To keep the PWS clear, use simple, short, and concise sentences so that only the minimum punctuation is needed. A general rule should be: When extreme punctuation is necessary, rewrite the sentence.

3.4.7. Abbreviations and Acronyms. The first time an abbreviation or acronym is used in the text, show the abbreviation or acronym in parentheses immediately after the spelled-out word or phrase. This readily defines the abbreviation for further use in the text. Include all abbreviations and acronyms in the text in the definitions section of the PWS.

3.4.8. Effective Sentences. Because a PWS becomes a part of a contract, many writers think that sentences must be spiced with legal phraseology and sophisticated words. Not only is this untrue, it can be dangerous because it allows for ambiguity to sneak into the PWS. Clarity is the

writer's overriding concern. Simple, well-recognized words are the goal. Rearrange them into two or three short, simple sentences with few or no adjectives and adverbs. Limit sentences to a single idea or thought. Use simple sentences in the PWS and base them on the traditional subject-verb-object order. It is better to eliminate long and involved sentences; instead, use logical sentences that are exact and concise.

3.4.9. Effective Paragraphs. Use a paragraph to state a single idea and elaborate on it. Even though it may appear anywhere in the paragraph, it is best to state the idea or topic sentence at the beginning so the reader can grasp it immediately. The topic sentence is the framework to develop and support the original idea. Although paragraph length will vary, it is generally accepted that the maximum should be between 80 and 100 words.

3.5. Reports or Data Submissions. Service contracts often require the contractor to submit various data items, forms, reports, etc. Data requirements should only be referenced in the appropriate tasking paragraph in the PWS. This reference will simply identify the technical exhibit cite immediately following the PWS paragraph or requiring task deliverable date. All reporting or data submission requirements must be listed in the appropriate Technical Exhibit. Include all data requirements (e.g. format, submission dates, addressees) to provide a ready reference of all report submittal requirements under the contract. All reports should be submitted to the Contracting Officer’s Representative instead of the Contracting Officer.

ATTACHMENT 3A

SERVICE CONTRACT FORMAT

Section	Title	Contents
A	Solicitation/Contract Form	Standard Form 33
B	Supplies or Services and Prices/Costs	Price Schedule
C	Description/Specifications/ Work Statement	Performance Work Statement (PWS)
D	Packaging and Marking	(Not Applicable)
E	Inspection and Acceptance	Standard FAR/DFARS clauses inspection requirements
F	Deliveries and Performance	Standard FAR/DFARS clauses concerning performance of the work
G	Contract Administration Data	Standard FAR/DFARS clauses concerning administration of the contract
H	Special Contract	Clauses which are unique to the specific contract
I	Contract Clauses	Standard FAR/DFARS clauses
J	List of Attachments	List of attachments to the Contractor with his bid/offer
K	Representations, Certifications, and Other Statements of Offerors	Information to be completed and submitted by the contractor with his bid/offer
L	Instructions, Conditions, And Notices to Offerors	Instructions to bidders/offerors concerning preparation of bid/offers

M	Evaluation Factors for Award	Information concerning the award selection process

ATTACHMENT 3B

TYPICAL MAINTENANCE SERVICES CONTRACT SECTION OUTLINE

1. Grass Mowing (Section C-1). This section provides general information on mowing requirements. Specific requirements such as mowing areas, mowing height and mowing hours are provided in Exhibit A. The section includes mowing, trimming and removal of clippings, and addresses equipment, safety, ordering, deficiencies, and measurement and payment.

2. Maintenance of Landscaped Areas (Section C-2). This section provides general information on maintenance requirements for landscaped areas. Specific requirements such as landscape areas, trees and shrubs to be maintained, specific plant materials, planting details and maintenance requirements for specific areas are provided in Exhibits A and B. The section includes landscaping materials, planting trees, shrubs, and plants, pruning, mulching, brush cutting, tree removal, access road clearing, trail maintenance, and application of pesticides, and addresses materials, equipment, safety, ordering, and measurement and payment.

3. Cleaning Services (Section C-3). This section provides general information on cleaning requirements for restrooms, locker rooms, washhouses, project offices, visitor centers, picnic shelters, site and recreational equipment, and policing of grounds and beaches. Specific requirements such as facilities and areas to be cleaned, cleaning hours, cleaning frequencies, and Government-furnished equipment and materials are provided in Exhibit C. Specific requirements for beach areas are provided in Exhibit I. The section includes cleaning and dusting, waxing floors, shampooing carpets, minor maintenance, pest control, emptying of waste receptacles, removal of trash in recreation areas, and inspecting and maintaining beach areas, and measurement and payment.

4. Solid Waste Removal (Section C-4). This section provides general requirements for collection and removal of trash and garbage. Specific requirements such as location of trash receptacles, size of receptacles, and collection frequencies are provided in Exhibit D. The section includes emptying receptacles and hauling and disposing of trash and garbage, ordering, and measurement and payment.

5. Raw Sewage and Sludge Removal (Section C-5). This section provides general information on removal and disposal of raw sewage from septic tanks, holding tanks, vault restrooms, and portable toilets and removal and disposal of sludge from sewage treatment facilities. Specific requirements such as facilities to be serviced and pickup frequencies are provided in Exhibit E.

6. Park Attendant (Section C-6). This section provides general information on requirements for park attendant services. Specific requirements such as areas to be served, special requirements and Government-furnished equipment and materials are provided in Exhibit F. The section includes surveillance of areas, access control, recordkeeping, visitor information, traffic control, collection of fees, uniforms and training, and measurement and payment.

7. Wildlife Management (Section C-7). This section provides general information on wildlife management requirements. Specific requirements such as wildlife management areas, seeding requirements, cutting of trees for wildlife management, and mowing of wildlife management areas are provided in Exhibit G. The section includes plowing, fertilizing and seeding, release cutting, border cuts and hinge cuts for trees, brush pile construction, mowing of vegetation, vegetative planting, construction of wildlife nesting structures, Government-furnished materials, and measurement and payment.

8. Drift, Debris and Trash Removal (Section C-8). This section provides general requirements for removal of drift and debris along shore lines. Specific requirements such as areas to be serviced are provided in Exhibit H. The section includes gathering drift, debris and trash, disposal of the materials, and measurement and payment.

9. Maintenance of Navigation Aids and Swim Areas (Section C-9). This section provides general requirements for maintenance of navigation aids and swimming areas. Specific requirements such as location of navigation aids and swim areas, types of navigation aids, swim area markers, and Government-furnished equipment and materials are provided in Exhibit I. The section includes installation, removal, and realignment of navigation buoys, maintenance and realignment of swim areas, scheduling of work, and measurement and payment.

10. Boundary (Section C-10). This section provides general requirements for boundary marking. Government-furnished

equipment and materials are provided in Exhibit J. The section includes marking corner monuments and I-beams, repainting witness trees and line trees, ordering work, and measurement and payment.

11. Environmental Protection (Section C-11). This section provides general requirements for environmental protection. The section includes protection of land resources, historical, archeological and cultural resources, water resources, fish and wildlife, and air resources, monitoring of resources, disposal of solid wastes, restoration of environmental damage, maintenance of pollution control facilities, and training of employees. No separate payment is made for Environmental Protection.

Each section is divided into paragraphs as follows:

1. Scope of Work
2. Materials
3. Work to Be Performed
4. Special Requirements
5. Schedule of Work
6. Location of Work
7. Government Furnished Equipment and Materials
8. Measurement and Payment

ATTACHMENT 3C

TECHNICAL EXHIBITS

Technical exhibits are used to provide site specific information to supplement the general requirements included in the specifications. The following technical exhibits are used for a typical maintenance services contract:

EXHIBIT A - GRASS MOWING

This exhibit includes the following information for mowing and landscaping work:

1. Maps showing location, limits, approximate areas, and classifications of mowing, landscaped, and leaf removal areas. Trimming areas are not identified specifically in the Exhibit, but are defined in general in paragraph C1-3.3. Shading, crosshatching or similar indications should be consistent throughout the exhibit.

2. Time periods for mowing.

3. Mowing height. Payment paragraphs identify mowing services as Type I or Type II based on areas and height of cut, which should be identified here.

4. Working hours for mowing. (Where hours are different for different areas, they should be clearly identified.

5. Schedule of work.

6. Access road berms to be mowed and clearances.

EXHIBIT B - MAINTENANCE OF LANDSCAPE AREAS

1. Listing of landscaped areas to be maintained.

2. Total of trees and shrubs to be maintained in each area.

3. Identify whether plants and shrubs are to be furnished by Government or Contractor.

4. Plant and Shrub Planting Details.

5. Ground cover pesticide application areas.

6. "Pesticide Application Record"

7. Mulching details.

8. Requirements for disposal of excess mulch and material removed prior to mulching.

9. Planter areas to be weeded.

10. Trail areas to be maintained.

EXHIBIT C - CLEANING SERVICES

1. Areas, equipment and facilities to be cleaned.

2. Requirements for cleaning materials.

3. Requirements for policing Dam.

4. Playground Inspection Form.

5. Beaches to be inspected.

6. Swimming Beach Inspection Checklist.

7. Sign locations.

8. Additional special requirements for cleaning services.

9. Schedule of work.

10. Cleaning materials to be furnished by the Government.

EXHIBIT D - SOLID WASTE REMOVAL

1. Trash and garbage collection areas.

2. Trash receptacle locations.

3. Trash collection schedule.

4. Road weight restrictions.

5. Trash receptacle specification.

EXHIBIT E - RAW SEWAGE REMOVAL AND SLUDGE REMOVAL

1. Sewage treatment facilities to be serviced.

2. Sewage and sludge pickup frequencies.

EXHIBIT F - PARK ATTENDANT

1. Definition of "Fee Areas".

2. Definition of "Surveillance of Area".

3. Listing and samples of forms to be used by Park Attendant.

4. Procedures for collecting and administering camping fees.

5. Special requirements for Park Attendants.

6. Work schedule for Park Attendants.

7. Location of Park Attendant work.

8. List of Government furnished equipment and materials.

EXHIBIT G - WILDLIFE MANAGEMENT

1. Location of wildlife management activities.

2. Plowing, disking, fertilizing and liming requirements.

3. Acreage, species and application rates for food plots.

4. Border cutting requirements.

5. Hinge cut requirements.

6. Mowing requirements for herbaceous vegetation.

EXHIBIT H - DRIFT, DEBRIS, AND TRASH REMOVAL

1. Method of disposal of ashes from grills, cookers and fire rings.

2. Mooring locations for Contractor's marine plant.

EXHIBIT I - MAINTENANCE OF NAVIGATION AIDS AND SWIM AREAS

1. Life Jug Locations.

2. Buoy Locations.

3. Beach Areas to be policed.

4. List of buoys to be maintained.

5. Buoy details.

6. Location and configuration of swim areas.

7. Buoy installation requirements.

8. Connection of swim area items.

EXHIBIT J - BOUNDARY

EXHIBIT K - TASK ORDER, DD1155

1. Sample form DD1155.

EXHIBIT L - CONTRACTOR WORK SCHEDULE

1. Sample Contractor Work Schedule

EXHIBIT M - ITEMS FOR PREWORK CONFERENCE

1. List of all items to be furnished at Prework Conference.

EXHIBIT N - PESTICIDE APPLICATION RECORD, ORD FORM 1013

1. Sample ORD Form 1013.

EXHIBIT O - CONTRACT DEFICIENCY REPORT

1. Sample Contract Deficiency Report.

EXHIBIT P - CONTRACTOR QUALITY CONTROL PLAN FORMAT

1. Format for Contractor Quality Control Plan.

EXHIBIT Q - QUALITY ASSURANCE SURVEILLANCE PLAN

1. Government’s Quality Assurance Surveillance Plan.

EXHIBIT R - GOVERNMENT FURNISHED FACILITIES

1. List of Government-furnished buoys, depth gages, ball floats, swim lines, anchor lines, anchors and hardware.

EXHIBIT S - DEFINITION/PROJECT MAP

1. Definitions of terms used in the specifications.

2. Project identification map.

ATTACHMENT 3D

PERFORMANCE REQUIREMENTS SUMMARY

REQUIRED SERVICE	STANDARD	MAXIMUM ALLOWABLE DEGREE OF DEVIATION FROM REQUIREMENT(AQL)	METHOD OF SURVEILLANCE	MAXIMUM PAYMENT PERCENTAGE FOR MEETING THE AQL
Mowing Services Type I (Section C-1)				
Timeliness	Within completion stated in Task Order (C1-3.1.1)	2%	Planned sampling	15% Item 1a.
Debris Removal	Collected prior to cutting, removed from site, no clippings, litter, etc. left on road, sidewalks, parking lots, etc. (C1-3.2.2)	2%	Planned sampling	5% Item 1a.
Grass Height	Uniform height as specified in Exhibit A (C1-3.1.2)	2%	Planned sampling	60% Item 1a.
Trimming	Matches height and appearance of surrounding mowed areas. (C1-3.3)	2%	Planned sampling	20% Item 1a.
Mowing Services Type II (Section C-2)				
Timeliness	Within completion stated in Task Order (C1-3.1.1)	3%	Planned sampling	15% Item 1b.

Chapter 4

THE QUALITY ASSURANCE SURVEILLANCE PLAN

4.1. Basic Approach. The purpose of a QASP is to provide a planned process for surveying the contractor's actual performance and comparing that performance against the contractual requirements to determine conformity with the technical requirements of the contract. As a beginning to the plan, it must be determined what will be surveyed and the method of surveillance to be used for each of the requirements. Once completed, the Performance Requirements Summary (PRS) must be finalized. The QASP should provide information that identifies acceptable performance and potential reasons for any nonconforming performance.

4.2. Types of Surveillance. The ability to deduct for services that do not meet contract performance requirements is directly related to the type of surveillance used. If the actual surveillance procedures are not random sampling (use of statistical criteria that allows for rejection of an entire lot when a specific number of random samples of the lot are found to be nonconforming) or 100-percent surveillance, then taking a deduction from the authorized monthly payment for that task is unallowable. Random sampling, using the statistically based indifference quality level (IQL), is the only acceptable method of surveillance where a sample of the lot is inspected instead of the entire lot, and the results of such inspections can be attributed to the entire lot. (The IQL is the point that divides acceptable from unacceptable performance.) If random sampling is not used, there is no acceptable method of determining the acceptability of the entire lot other than 100—percent inspection of the lot. For this reason, random sampling or 100—percent inspection are the methods of surveillance available. Carefully select the best surveillance method to use for each PRS listed task to ensure full compliance with the policies of this manual. The standard methods of surveillance are:

4.2.1. Random Sampling. This is the most appropriate method for frequently recurring tasks. Random sampling is done to determine whether to accept or reject the contractor's performance of the total lot of a particular task for a given period of time. The QAE evaluates randomly selected samples of the lot to determine the acceptability of the entire lot. The random sampling method used in this manual is statistically based and uses indifference quality principles to calculate IQL's or performance requirements, required samples for each level of performance requirements, and corresponding Acceptable Quality Levels (AQL's). The statistical basis for random sampling according to the

policies and procedures of this manual are complex and will not be fully explained here. The statistical concepts employed are, however, widely understood and have been used successfully for many years.

4.2.2. One Hundred-Percent Inspection. This surveillance type is preferred for those tasks that occur infrequently. This includes tasks that cannot be random sampled because the sample size for a small lot may exceed the lot size. For example, if a task is performed once a day in one location, the lot size would be less than the smallest sample size. It is also used frequently for those tasks having very stringent performance requirements. When this type of surveillance is used, the QAE must inspect and evaluate the contractor’s performance each time it is performed. The result of the contractor’s overall performance is then evaluated to determine acceptability of the lot.

4.2.3. Periodic Surveillance. This type of surveillance consists of the evaluation of samples selected on other than a 100-percent or statistically random basis. An example of periodic surveillance is weekly inspections when the QAE chooses the location and time in other than a statistically random manner. This is not a preferred method of surveillance and cannot be used as a basis of deduction from payments because it does not provide a statistical basis for deducting for nonconforming performance. Tasks shown on the PRS as having periodic surveillance will have no maximum payment percentage calculation in the fifth column of the PRS. The Contracting Officer may use the results of periodic surveillance inspections as the basis for actions (other than payment deductions) against the contractor. In such cases, the Inspection of Services clause becomes the basis for the Contracting Officer’s actions.

4.2.4. Customer Complaints. This is the least preferred method of surveillance because it cannot be used as a basis of deduction from payment since it is not a statistically valid method of surveillance. Further, customer complaints may not always relate to actual requirements of the contract, and verification of customer complaints can be extremely labor intensive. Its use, however, may be necessary for certain types of tasks that do not lend themselves to random sampling or 100-percent inspection. The Contracting Officer may use validated customer complaints as the basis for actions (other than payment deductions) against the contractor. In such cases, the Inspection of Services clause becomes the basis for the Contracting Officer’s actions. When used, customer complaints must follow a formalized procedure.

4.2.4.1. Written instructions and training should be provided to each organization receiving contractor services. Instructions and training should cover the format and content of the program and service to be surveyed; the action that may be expected from the QAE, contract administrator, and Contracting Officer as a result of the complaints; and the limitations on the customers in dealing with contractor personnel.

4.2.4.2. The QAE and the COR are the primary points of contact for and must collect all complaints. The Customer Complaint Record (*Attachment 4A*) should be used to record complaints. All complaints and any resulting resolution of such complaints must be documented with the information requested on the Customer Complaint Record. Customer complaint forms become a permanent part of the QAE surveillance records.

4.3. Sources of Information. The determination of the acceptability of contractor performance is based on comparing the quality of performance of a task to the contract task standard requirement. The quality of performance can be determined from Government or contractor Management Information Systems reports, as described below, or from Government observation of completed tasks.

4.3.1. Management Information Systems. In some instances, Management Information Systems (MIS's) may be available in the form of information on a contractor's performance against contract performance requirements; i.e., the vehicle integrated management system (VIMS) in the vehicle maintenance area. MIS's generally provide information regarding various characteristics of tasks (task attributes) and can, therefore, be used to determine acceptability of a contractor's performance. For example, with VIMS the mission capable rate of all vehicles is included in the report. The mission capable rate is an attribute of vehicle maintenance that can indicate acceptability of the contractor's performance of vehicle maintenance. As MIS's usually collect information for 100 percent of the activities for a specified period of time, use of the information provided by a MIS would constitute 100-percent inspection as the method of surveillance for vehicle maintenance if the performance requirement is specified as a mission capable rate.

4.3.2. Observation of Task Attributes. Many tasks are not included in MIS's, or are not capable of being included in any reports that would indicate the acceptability of the performed tasks. Such tasks must be determined acceptable by physical observation of the task attribute selected to indicate acceptability of the task. For example, for

shuttle bus services, the attribute for acceptable service may be the timeliness of the service. The only way to determine the on-time rate of the contractor is to actually time the bus service by catching the bus at one of the scheduled stops. When observations are used as the source of information, the most appropriate method of surveillance is random sampling.

4.3.3. Observation of Performance. In some cases, the actual procedures followed during performance are contractually specified and are assigned a standard of performance. In these instances, it is necessary to actually observe the task performance versus reviewing an attribute of the finished output.

4.4. Preparing for the QASP. Before writing the QASP, the writer must determine the performance requirement and the method of surveillance for each task in the PRS. This is needed for each task listed in the PRS, whether or not the surveillance method allows for deductions from payment for nonconforming services. Based upon the performance requirement, the contractor can determine what level of performance is needed and how the government will do surveillance, regardless of any action the Contracting Officer may take if the contractor does not meet those requirements.

4.4.1. Determining Methods of Surveillance. The method of surveillance is based on the performance analysis developed during “job analysis”. The writer enters the selected surveillance method for each task on the PRS. In selecting the appropriate surveillance method, take into consideration the criticality of the task, the lot size of the task, the surveillance period of the task, the required performance standard, the performance requirement, availability of QAE’s to do surveillance, and the value of the surveillance in relationship to the cost or criticality of the task. For example, it would not be cost effective to expend several man-hours to inspect a twenty-dollar service. A task required to be performed three times a month could be under the 100-percent inspection method with a surveillance period of monthly if the task is a critical task requiring exacting performance. If, however, it is not a critical task, it may be more appropriate to do a periodic surveillance or random sampling using a quarterly or semiannual surveillance period.

4.4.2. Determining the Performance Requirement. Once the writer determines the method of surveillance, he should then determine the performance requirement for inclusion on the PRS. Performance requirements are generally determined

based on one of the two general sampling methods: random sampling and other than random sampling methods.

4.4.2.1 The performance requirement for tasks to be surveyed by random sampling is the maximum number of defectives allowed in a sample size before the overall lot becomes unacceptable. These maximum numbers are directly related to maximum error rates (MER) shown in Figure 4.1., below. For example, the smaller the MER, the more stringent the performance requirement: a one percent MER has a performance requirement (maximum allowable defectives) of zero while a 15 percent MER has a performance requirement of 3.

4.4.2.2. The performance requirement for tasks to be by other than random sampling surveillance methods is the percentage of the total lot or a specific number of tasks if the lot size is known that may be defective and still represent acceptable performance for the lot. For this category, the performance requirement is the MER. The performance requirement may be expressed as a percentage or, when the lot size is known, as a whole number determined by multiplying the lot size by the MER.

PERFORMANCE REQUIREMENTS:

MAXIMUM ERROR RATE	PERFORMANCE REQUIREMENT
1%	0
5%	1
10%	2
15%	3

SAMPLE SIZE FOR UNKNOWN LOT SIZES OR LOTS GREATER THAN 1000

MAXIMUM ERROR RATE	SAMPLE SIZE
1%	67
5%	33
10%	27
15%	25

SAMPLE SIZE FORMULA FOR LOTS LESS THAN 1000

$$\text{SAMPLE SIZE} = \frac{\text{PERFORMANCE REQUIREMENT} + 0.67}{\text{MAXIMUM ERROR RATE} + \frac{1}{3 \text{ TIMES THE LOT SIZE}}}$$

Figure 4.1. Performance Requirement, Maximum Error Rate, and Sample Size.

4.5. QASP Documents. The following written documents are required in the QASP:

4.5.1. Sampling Guides. A sampling guide, similar to the one shown in Figure 4.2., below, is required for each task listed on the performance requirements summary (PRS) of the PWS. As a minimum, the sampling guide must contain the following sections:

JANITORIAL SAMPLING GUIDE

1. **Method of Surveillance.**
2. **Lot Size.**
3. **Sample Size.**
4. **Performance Requirement.**
5. **Sampling Procedure.**
6. **Inspection Procedure.**
7. **Phase-In Period.**

Figure 4.2. Sampling Guide.

4.5.1.1. The Method of Surveillance. Insert the method of surveillance to be used for this task; random sampling, 100-percent inspection, periodic inspection, customer complaint, etc.

4.5.1.2. The Lot Size. Express the lot size numerically if the actual number of times the task will occur during a surveillance period is known. Express the lot size descriptively if the actual number of the occurrences is unknown.

4.5.1.3. Sample Size. The sample size is the same as the lot size for a 100-percent surveillance. For random sampling, determine the sample size according to Figure 4.1., above. For all other methods except customer complaint, the QAE will determine the sample size. There is no determination of sample size in the customer complaint method surveillance.

4.5.1.4. The Performance Requirement. This section contains data on acceptable and unacceptable performance levels and the surveillance period for the task.

4.5.1.5. The Sampling Procedure. A description of the procedure or procedures to be used in determining the actual samples to be observed. When random sampling is used, follow procedures in this manual.

4.5.1.6. The Inspection Procedure. An explanation of the inspection procedure or procedures that tells what will be inspected and how.

4.5.1.7. Phase-In Period. Any variations in performance requirements or evaluation procedures allowed during any contractually authorized phase-in period.

4.5.2. Quality Assurance Evaluator Decision Table. For some or all of the performance requirements listed on the PRS, it may be desirable to create a decision table to aid the evaluator in finding the source of problems identified as a result of evaluations (*Attachment 4B)*. The decision table should list the symptoms of the problem and identify the possible sources of the problem. Established questions for each potential source to determine any contributing factors. Decision tables are helpful to both the QAE and the Contracting Officer in determining what action is appropriate when contract discrepancies are noted. They are especially helpful if the discrepancy could have resulted from Government actions and not those of the contractor.

ATTACHMENT 4A
CUSTOMER COMPLAINT RECORD

CUSTOMER COMPLAINT RECORD	**DATE/TIME OF COMPLAINT:**

SOURCE OF COMPLAINT		
ORGANIZATION:	**INDIVIDUAL:**	**PHONE:**

NATURE OF COMPLAINT	
CONTRACT REFERENCE	
VALIDATION	
DATE/TIME CONTRACTOR INFORMED OF COMPLAINT	
ACTION TAKEN BY CONTRACTOR	

RECEIVED/VALIDATED BY:

ATTACHMENT 4B
QUALITY ASSURANCE EVALUATION DECISION TABLE

QUALITY ASSURANCE EVALUATION DECISION TABLE			**CONTRACT NO.:**
IF DEFICIENCY OF CONTRACTOR IS	PROBABLE CAUSE FACTORS IMPACTING CONDITIONS ARE	WHICH WOULD RESULT FROM	SUGGESTED REVIEW PROCEDURES AND/OR PREVENTIVE MEASURES IS/ARE

ATTACHMENT 4C
PERFORMANCE REQUIREMENT SUMMARY

PERFORMANCE REQUIREMENTS SUMMARY				
REQUIRED SERVICE	**STANDARD**	**MAXIMUM ALLOWABLE DEGREE OF DEVIATION FROM REQUIREMENT (AQL)**	**METHOD OF SURVEILLANCE**	**MAXIMUM PAYMENT PERCENTAGE FOR MEETING THE AQL**

Chapter 5

CONTRACTOR QUALITY CONTROL AND RESPONSIBILITY

5.1. Contractor Quality Control. All service contracts, as outlined in FAR Subpart 46.3, contain a requirement, in the Inspection of Services contract clause, that the contractor provide and maintain an inspection system acceptable to the government. This is commonly referred to as the contractor's quality control (CQC) plan. The contractor must keep records of his quality control inspections under this system throughout the life of the contract. (NOTE: The QAE must also keep records of any inspections of the contractor's quality control procedures, including QC records, for the life of the contract.) The adequacy and efficient management (by contractor personnel) of the contractor's QC plan can have a great impact on both the performance of the contract and the Government's quality assurance surveillance of the contractor's performance. For this reason, it is imperative that each PWS contain specific requirements that detail what must be included in the contractor's QC plan. Further, the comprehensiveness of the contractor's QC plan must be commensurate with the complexities and criticality of the service to be contracted. The QAE, with the COR and Contracting Officer, should consider making the contractor's plan a PRS item and perform random sampling or periodic evaluation of same, particularly in highly complex or critical services.

5.1.1. *Attachment 5A* contains two typical PWS quality control provisions that specify the requirements of the contractor's QC plan. One of these, or a similar provision, must be included in the PWS. The determination as to the type of provision to include in the PWS must be a mutual one between the COR and the Contracting Officer. They must consider, as a minimum, the following factors:

- Size of the potential contractor workforce.
- Number, complexity, type and criticality of tasks to be performed.
- Size of potential contractor's management staff.
- Contract dollar value.
- Potential benefit of quality control requirements versus the cost of compliance.

5.1.2. For negotiated acquisitions, the proposed QC plan must be a required proposal submission, and the COR and the Contracting Officer must evaluate it for compliance with the PWS requirements. In any preaward actions, the preaward survey team must review the quality control procedures of any potential contractor.

5.2. Responsibility Determinations and Preaward Surveys.

5.2.1 Prior to the award of any contract, the Contracting Officer shall determine that the prospective contractor meets the standards for responsibility as set forth at FAR 9.104-1. In making the determination, the Contracting Officer shall possess or obtain information sufficient to ensure that the standards are satisfied. In addition to the standards at FAR 9.104-1, the Contracting Officer shall verify that the SSCASS database has been reviewed for possible performance history of the prospective contractor. When necessary, the Contracting Officer may request a preaward survey.

5.2.2 A preaward survey, as described in FAR 9.106-1(a), is an evaluation by a surveying activity (i.e. the Defense Contract Management Command (DCMC)) of a prospective contractor’s capability to perform a proposed contract. A preaward survey, according to the FAR, is normally required only when the information on hand readily available to the Contracting Officer, including commercial sources, is not sufficient to make a determination regarding responsibility. In addition, contemplated contracts with a fixed price at or below the simplified acquisition threshold (Currently $100,000), or acquisitions involving commercial items or services, the Contracting Officer should not request a preaward survey. Typically, Pittsburgh District Contracting Officers do not request that formal preaward surveys be performed by DCMC above the simplified acquisition threshold or acquisitions involving commercial items or services, unless there is reasonable cause to justify its cost. However, an in-house, abbreviated preaward survey questionnaire shall be conducted for these acquisitions and the file documented.

ATTACHMENT 5A

QUALITY CONTROL

1. In compliance with the contract clause entitled "Inspection of Services" **[SPECIFY THE FULL TITLE OF THE CLAUSE AND ITS LOCATION IN THE CONTRACT]**, the contractor shall provide a Quality Control Plan that contains, as a minimum, the items listed in Paragraph 2 to the Contracting Officer for acceptance not later than the pre-performance conference. The Contracting Officer will notify the contractor of acceptance or required modifications to the plan before the contract start date. The contractor shall make appropriate modifications and obtain acceptance of the plan by the Contracting Officer before the contract start date. **[AMEND THE TIMES FOR SUBMISSION AS APPROPRIATE FOR THE ACQUISITION. THE TIMES MUST ALLOW FOR AN ACCEPTED PLAN BEFORE CONTRACT START DATE UNLESS THE CHIEF OF THE CONTRACTING DIVISION HAS MADE A WRITTEN DETERMINATION FOR THE CONTRACT FILE THAT THE URGENCY OF CONTRACT START PRECLUDES ACCEPTANCE OF THE PLAN BEFORE THE CONTRACT START DATE.]**

2. The plan shall include:

- A description of the inspection system to cover all services listed on the performance requirements summary (PRS). Description shall include specifics as to the areas to be inspected on both a scheduled and unscheduled basis, frequency of inspections, and the title and organizational placement of the inspectors. Additionally, control procedures for any government provided keys or lock combinations shall be included.

- A description of the methods to be used for identifying and preventing defects in the quality of service performed.

- A description of the records to be kept to document inspections and corrective or preventive actions taken.

The records of inspections shall be kept and made available to the government throughout the contract performance period and for the period after contract completion until final settlement of any claims under this contract.

NOTE: ACTUAL PARAGRAPH NUMBERING SHALL BE IN PWS SEQUENCE

Chapter 6

QUALITY ASSURANCE SURVEILLANCE REQUIREMENTS

6.1. COR and QAE Qualifications. COR's and QAE's:

- Must have technical knowledge and experience in the area to be contracted that is sufficient to permit them to observe contractor performance and to determine whether the service does or does not meet the contract standards.
- Should be able to be available to perform surveillance until contract completion.
- Must know, understand, and comply with FAR Part 3, 5 C.F.R. Part 2635, and this manual.

6.2. COR and QAE Nominations and Appointments. COR's should be nominated through appropriate channels for approval by the Contracting Officer. QAE's should be appointed by the COR and should be appointed as early in the acquisition cycle as possible. This will enable them to actively participate in the requirements definitions process and the administration associated with contracting activities. Ideally, the QAE should be responsible for preparing the PWS and QASP, as well as performing surveillance. In all cases, appointment must be no later than 90 days before contract start. Nominations and appointments must be made in writing. Documentation to support nominations and appointment must contain as a minimum:

- The qualifications and retainability of the individual.
- The training provided, or to be provided, to the individual.
- Justification for nomination or appointment of an individual that does not meet the qualifications in paragraph 6.1.
- A statement that the nominee's or appointee's records have been reviewed and that he appears suitable for QAE duties.
- A statement that, although other duties may be assigned to the COR and QAE, the nominee or appointee will not be given duties that will interfere with their COR or QAE duties.
- A statement that performance of COR or QAE duties is an objective or task being included in their yearly performance evaluation.

6.3. Performing Surveillance. Actual surveillance must be done as stated in the QASP for the instant contract. Surveillance includes scheduling, observing, documenting, accepting service, and determining payment due.

6.3.1. Scheduling Surveillance

6.3.1.1. The QAE is responsible for developing a monthly schedule of surveillance activities based on the QASP's requirements. The schedule must be completed not later than 7 calendar days before the beginning of the period it covers. The QAE must give one copy of the schedule to the contract administrator before the start of the surveillance period. The COR must either be given a copy for review or must review the original and return it to the QAE not later than the last day of the month preceding the month scheduled. The Quality Assurance Evaluator Schedule (*Attachment 6A)* may be used to document scheduling. Other schedule forms may be used if they contain the same information contained on the attachment.

6.3.1.2. For tasks to be surveyed by random sampling procedures, random selection must be generated by either a statistically valid computer program; by the interval technique according to the procedures in *Attachment 6B* or a random number table as shown in *Attachment 6C*. When selecting samples, the number of selections should exceed the required sample size by at least 10 percent to allow for situations where a selected sample cannot be evaluated. For example, if the sample size is 25, select 28 samples. The QAE must make every attempt to evaluate the first 25 samples selected but, should surveillance of the 15th sample be impossible, then the QAE must evaluate the 26th selected sample instead. The QAE must evaluate only 25 samples. If the QAE does not evaluate the total number of required samples, the samples not evaluated are deemed to have been performed according to the contract requirements and are recorded as acceptable.

6.3.2. Observing Contractor Performance. The QAE must inspect task performance by either watching actual task performance, physically checking an attribute of the completed task, checking a management information report, or otherwise inspecting the task or its results to determine whether or not the performance meets the standards contained in the contract.

6.3.3. Documenting Surveillance. Documenting surveillance is a major importance to the total process of surveillance. The Contracting Officer cannot properly administer the contract without documentation of actual surveillance. All documentation resulting from surveillance must be made a permanent part of the contract file. The QAE must keep the documentation files during the surveillance period, but either monthly or at the conclusion of the contract, as directed by the Contracting Officer, the QAE must give the files to the Contracting Officer for inclusion in the official contract file.

6.3.3.1. The QAE must document each surveillance as it is done. The Inspection Checklist, CEORP Form 685, JUL 90, (*Attachment 6D*) may be used for this purpose. The QAE may tailor CEORP Form 685 to his specific needs or use existing forms A thru F. Each time the QAE documents his surveillance actions, it must contain as a minimum:

- The contract number.
- A short description of the requirement being surveyed.
- The contract paragraph number referencing the requirement.
- The method of surveillance, and the observations.
- The date, time and location of surveillance.
- The results of the surveillance and the signature and title of the individual doing the surveillance. If performance is unacceptable, the QAE must document the areas not in compliance with the contract requirements.

6.3.3.2. When performance is determined unacceptable, the QAE must inform the contractor's on-site representative that performance is unacceptable and why, and request his initials and date on the surveillance form. By initialing and dating the form, the contractor's on-site representative is acknowledging that he has been notified of the unacceptable performance. He is not necessarily agreeing that the performance is unacceptable. A copy of the signed surveillance form must be sent to the contractor. If the contractor wants to dispute the results of the surveillance, the QAE must refer them to the Contracting Officer for resolution of the matter.

6.3.3.3. For those requirements identified in the PRS as susceptible to deductions for unsatisfactory performance, the QAE must maintain the surveillance records, by surveillance period, to record all observations in that period. At any time during the surveillance period, a total of the unacceptable observations can readily be obtained to determine the acceptability of the performance of that task and, hence, the necessity for deduction. For tasks under random sampling procedures, only those records of surveillance for samples selected according to 6.3.1.2. can be used to determine acceptability of performance for payment deduction purposes.

6.3.3.4. If, at any time during the surveillance period, the results of surveillance show that the number of unacceptable observations during the period exceeds the performance requirement, and the QAE determines that it is not government caused (by use of the decision tables or other means), the QAE initiates a Contract Discrepancy Report (CDR), (*Attachment 6E)*. The QAE completes the form and turns it into the COR. The

Contracting Officer must evaluate the CDR and, if appropriate, sign and send it to the contractor. The contractor must complete the form in accordance with the requirements of the contract and return the completed form to the Contracting Officer. Upon receipt of the completed form from the contractor, the Contracting Officer must evaluate the contractor's response and take the appropriate action before payment for the month in which the CDR response was received from the contractor. The Contracting Officer must document the evaluation and action taken on the CDR. If deduction from payment is the appropriate action, the QAE computes the payment deduction based on the performance period in which the performance occurred. The deduction, however, is taken from the contractor's payment during the month in which the appropriate action was determined, not necessarily the month in which the unacceptable performance occurred. In the event that the Contracting Officer determines that issuance of the CDR to the contractor is not appropriate, the contracting officer must document the contract file as to why such action is not appropriate and notify the COR and QAE.

6.3.3.5. The COR is required to accept contractor services and recommend payments due. At the completion of each contract payment period (usually monthly), with assistance from the QAE, the COR must certify the services actually received under the contract. This certification must be in the form prescribed by the Contracting Officer. As part of certifying receipt of services, the COR must also determine the amount of payment authorized. When there is to be a payment deduction, the COR must determine the amount of deduction according to the procedures contained in the contract and as advised by the Contracting Officer, and include that information in the certification.

ATTACHMENT 6A
QUALITY ASSURANCE EVALUATOR SCHEDULE

QUALITY ASSURANCE EVALUATOR SCHEDULE									Contract No.:									Week of:				
DAY																						
Week Total																						
Month Total																						

ATTACHMENT 6B
INTERVAL TECHNIQUE FOR RANDOM SAMPLING

Random Sampling-When and How.

a. One of the rules of statistical sampling is the sample must be selected at random from the population. The definition of randomness is very specific or vague, depending upon who is giving the definition and for what purpose. Randomness will not be defined here, but will be left to the theorists. The objective of this section is to define when and how random a random sample should be used. For the purposes of this discussion, a random sample must be utilized when the population is not thoroughly mixed. For example, one might suspect that a population of travel vouchers would be batched. Closer scrutiny might reveal several hundred permanent change of station vouchers batched together in sequence, followed by 50 temporary duty vouchers, then a few dependent travel vouchers. If it is known or suspected that a population is “batched” to a great extent, then one must use a random sample to select the items from a population. In some cases, it may be difficult to determine if batching does occur, but there are several techniques one may use to determine this characteristic. General knowledge of an area is most helpful; while on the other hand; one may ask a few questions about a population from the people that are processing the documents, vouchers, etc. Through a query of this type, one may discover that all documents of the same type are processed by the same person who assigns a consecutive serial number. On another occasion, one may find that the personnel located within area process incoming documents on a rotational basis. The primary consideration is that a sampler must learn as much about population characteristics to be sampled prior to adopting any selecting procedure.

b. The best way to select a sample at random is through the use of a table of random numbers (see Attachment 6C).

Systematic Sampling-When and How.

a. In order to apply systematic sampling procedures there is also a rule that must be satisfied before systematic sampling can be utilized. One may select a sample using the interval technique if the population is thoroughly mixed. It is difficult to determine which situations in a population will allow the use of systematic selection procedures. The best advice is to determine some of the characteristics of the population. If one can establish that the ordering of the population does not follow any specific trend, with respect to the trait that is being examined, or at worst, a mild stratification, then systematic selection procedures may be utilized. One technique of determining a population mixture is to determine the order in which the records or items were initially processed. Based on this information, it becomes a judgmental item as to whether any ordering will affect the sample results. Essentially, one can be sure that if no significant batching is found in a population, then systematic sampling procedures may be utilized.

b. To select a systematic sample of n units, take a unit at random from the first k units and every kth unit thereafter. Simply stated, a systematic sample is one where the sample items are selected from a fixed interval after first determining a random start point within the first interval. For example, suppose we have determined that a systematic sample of 90 is appropriate for a population size of 1080. Divide 1080 by 90 to determine the sampling interval of 12. Selecting 1 unit out of every 12 will yield a sample of 90 items. Thus, select a number at random between 01 and 12. If the selected random number is 07, then the sample items are every 12th item, beginning 07, 19, 31, 43, 55, 67, etc. This procedure is a definite advantage over random sampling techniques due to the ease in which the items can be sampled.

ATTACHMENT 6C

RANDOM NUMBER TABLES

USE OF RANDOM NUMBER TABLES

1. To use the Random Number Tables, begin by picking at random a group of numbers on any page of the table. This is usually done by closing the eyes and pointing with a pencil or finger to some initial group.

2. To identify additional random numbers, follow a pattern. Use various patterns for selection of individual samples. For example, go along a given line to its end and then along the next line to its end and so on through the table until enough numbers have been selected or until the table ends. If the table ends and you still need more numbers, go back to the beginning of the table and continue using the same pattern. Examples of alternate patterns are to go down columns or to go diagonally across the table.

3. When the chosen pattern results in selection of a number that is outside the lot size range, do not take that number. Go on to the next number in the pattern for the next sample. For example, if you were identifying random numbers for sampling of 100 work orders numbered between 200 and 300 and the number randomly selected from the table was 199, simply go to the next number in the pattern until you get a number between 200 and 300.

4. In most cases, the sample being selected will be represented by a number of less than 5 digits; for example, 3-digit work order numbers, building numbers, or days of the month. In those cases, simply use only the number of digits from the numbers in the random number tables as are required. For example, if you were selecting days of the month as a sample, use only the last 2 digits of the numbers selected. For work orders, numbered with 3 digits, use the last three or the first three. It makes no difference which positions you use, however, once you begin selecting numbers, stay with the same sequence until all required numbers are drawn.

5. It is very important to document your selections and how they were made. Document your patterns, starting and ending points and numbers drawn and file it with the official QAE files. This information may be used at a later date to substantiate the government’s position on a contractor’s claim or protest action.

Random Number Table.

Line \ Col.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
1	10460	15011	01536	02011	81647	91646	69179	14194	62590	36207	20969	99570	91291	90700
2	22368	46573	25595	85393	30995	89198	27982	53402	93965	34095	52666	19174	39615	99505
3	24130	48360	22527	97265	76393	64809	15179	24830	49340	32081	30680	19655	63348	58629
4	42167	93093	06243	61680	07856	16376	39440	53537	71341	57004	00849	74917	97758	16379
5	37570	39975	81837	16656	06121	91782	60468	81305	49684	60672	14110	06927	01263	54613
6	77921	06907	11008	42751	27756	53498	18602	70659	90655	15053	21916	81825	44394	42880
7	99562	72905	56420	69994	98872	31016	71194	18738	44013	48840	63213	21069	10634	12952
8	96301	91977	05463	07972	18876	20922	94595	56869	69014	60045	18425	84903	42508	32307
9	89579	14342	63661	10281	17453	18103	57740	84378	25331	12566	58678	44947	05585	56941
10	85475	36857	53342	53988	53060	59533	38867	62300	08158	17983	16439	11458	18593	64952
11	28918	69578	88231	33276	70997	79936	56865	05859	90106	31595	01547	85590	91610	78188
12	63553	40961	48235	03427	49626	69445	18663	72695	52180	20847	12234	90511	33703	90322
13	09429	93969	52636	92737	88974	33488	36320	17617	30015	08272	84115	27156	30613	74952
14	10365	61129	87529	85689	48237	52267	67689	93394	01511	26358	85104	20285	29975	89868
15	07119	97336	71048	08178	77233	13916	47564	81056	97735	85677	29372	74461	28551	90707
16	51085	12765	51821	51259	77452	16308	60756	92144	49442	53900	70960	63990	75601	40719
17	02368	21382	62404	60268	89368	19885	55322	44819	01188	65255	64835	44919	05944	55157
18	01011	54092	33362	94904	31273	04146	18594	29852	71585	85030	51132	01915	92747	64951
19	52162	53916	46369	58586	23216	14513	83149	98736	23495	64350	94738	17752	35156	35749
20	07056	97628	33787	09998	42698	06691	76988	13602	51851	46104	88916	19509	25625	58104
21	48663	91245	85826	14346	09172	30168	90229	04734	59193	22178	30421	61666	99904	32812
22	54164	58492	22421	74103	47070	25306	76468	26384	58151	06646	21524	15227	96909	44592
23	32639	32363	05597	24200	13363	38005	94342	28728	35806	06912	17012	64161	18296	22851
24	29334	27001	87637	87308	58731	00256	45834	15398	46557	41135	10367	07684	36188	18510
25	02488	33062	28834	07351	19731	92420	60952	61280	50001	67658	32586	86679	50720	94953
26	81525	72295	04839	96423	24878	82651	66566	14778	76797	14780	13300	87074	79666	95725
27	29676	20591	68086	26432	46901	20849	89768	81536	86645	12659	92259	57102	80428	25280
28	00742	57392	39064	66432	84673	40027	32832	61362	98947	96067	64760	64584	96096	98253
29	05366	04213	25669	26422	44407	44048	37937	63904	45766	66134	75470	66520	34693	90449
30	91921	26418	64117	94305	26776	25940	39972	22209	71500	64568	91402	42416	07844	69618
31	00582	04711	87917	77341	42206	35126	74087	99547	81817	42607	43808	76655	62028	76630
32	00725	69884	62797	56170	86324	88072	76222	36086	84637	93161	76038	65855	77919	88006
33	69011	65795	95876	55293	18988	27354	26575	08625	40801	59920	29841	80150	12777	48501
34	25976	57948	29888	88604	67917	48708	18912	82271	65424	69774	33611	54262	85963	03547
35	09763	83473	73577	12908	30883	18317	28290	35797	05998	41688	34952	37888	38917	88050
36	91567	42595	27958	30134	04024	86385	29880	99730	55536	84855	29080	09250	79656	73211
37	17955	56349	90999	49127	20044	59931	06115	20542	18059	02008	73708	83517	36103	42791
38	46503	18584	18845	49618	02304	51038	20655	58727	28168	15475	56942	53389	20562	87338
39	92157	89634	94824	78171	84610	82834	09922	25417	44137	48413	25555	21246	35509	20468
40	14577	62765	35605	81263	39667	47358	56873	56307	61607	49518	89686	20103	77490	18062
41	98427	07523	33362	64270	01638	92477	66969	98420	04880	45585	46565	04102	46880	45709
42	34914	63976	88720	82765	34476	17032	87589	40836	32427	70002	70663	88863	77775	69348
43	70060	28277	39475	46473	23219	53416	94970	25832	69975	94884	19661	72828	00102	66794
44	53976	54914	06990	67245	68350	82948	11398	42878	80287	88267	47363	46634	06541	97809
45	76072	29515	40980	07391	58745	25774	22987	80059	39911	96189	41151	14222	60697	59583
46	90725	52210	83974	29992	65831	38857	50490	83765	55657	14361	31720	57375	56228	41546
47	64364	67412	33339	31926	14883	24413	59744	92351	97473	89286	35931	04110	23726	51900
48	08962	00358	31662	25388	61642	34072	81249	35648	56891	69352	48373	45578	78547	81788
49	95012	68379	93526	70765	10592	04542	76463	54328	02349	17247	28865	14777	62730	92277
50	15664	10493	20492	38391	91132	21999	59516	81652	27195	48223	46751	22923	32261	85653

Continued.

Line \ Col.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
51	16408	81889	04153	53381	79401	21438	83035	92350	36693	31238	59649	91754	72772	02338
52	18629	81953	05520	91962	04739	13092	97662	24822	94730	06496	38090	04822	86774	98289
53	73115	35101	47498	87637	99016	71060	88824	71013	18735	20286	23183	72924	35165	43040
54	57491	16703	23167	49323	45021	33132	12544	41035	80780	45393	44812	12515	98931	91202
55	30405	83946	23792	14422	15059	45799	22716	19792	09983	74353	68668	30429	70735	25499
56	16631	35006	85900	98275	32388	52390	16815	69298	82732	38480	73817	32523	41961	44437
57	96773	20206	42559	78985	05300	22164	24369	54224	35083	19687	11052	91491	60383	19746
58	38935	64202	14349	82674	66523	44133	00697	35552	35970	19124	63318	29686	03387	59846
59	31624	76384	17403	53363	44167	64486	64758	75366	76554	31601	12614	33072	60332	92385
60	78919	19474	23632	27889	47914	02584	37680	20801	72152	39339	34806	08930	85001	87820
61	03931	33309	57047	74211	63445	17361	62825	39908	05607	91282	68833	25570	38818	46920
62	74426	33278	43972	10119	89917	15665	52872	73823	73144	58668	88970	74492	51805	99378
63	09066	00903	20795	95452	92648	45454	09552	88815	16583	51125	79375	97596	16296	66092
64	42238	12426	87025	14267	20979	04508	64535	31355	86064	29472	47689	05974	52468	16834
65	16153	08002	26504	41744	81959	65642	74240	56302	00033	67107	77510	70625	26725	34191
66	21457	40742	29820	96783	29400	21840	15035	34537	33310	06116	95240	15957	16572	06004
67	21581	57802	02050	89728	17937	37621	47075	42080	97403	48626	68995	43805	33386	21597
68	55612	78095	83197	33732	05810	24813	86902	60397	16489	03264	88525	42786	05269	92532
69	44657	66999	99324	51281	84463	60563	79312	93454	68876	25471	93911	25650	12682	73572
70	91340	84979	46949	81973	37949	61023	43997	15263	80644	43942	89203	71795	99533	50501
71	91227	21199	31935	27022	84067	05462	35216	14486	29891	68607	41867	14951	91696	85065
72	50001	38140	66321	19924	73163	09538	12151	06878	91903	18749	34405	56087	82790	70925
73	65390	05224	72958	28609	81406	39147	25549	48542	42627	45233	57202	94617	23772	07896
74	27504	96131	83944	41575	18573	08619	64482	73923	36152	05184	94142	25299	84387	34925
75	37169	94851	39117	89632	00959	16487	65536	49071	39782	17095	02330	74301	00275	48280
76	11508	70225	51111	38351	19444	66499	71945	05422	13442	78675	84081	66938	93654	59894
77	37449	30362	06694	54690	04052	53115	62757	95348	78662	11163	81651	50245	34971	52924
78	46515	70331	85922	38329	57015	15765	97161	17869	45349	61796	66345	81073	49106	79860
79	30986	81223	42416	58353	21532	30502	32305	86482	05174	61796	54339	58861	74818	46942
80	63798	64995	46583	09785	44160	78128	83991	42865	92520	07901	80377	35909	81250	54238
81	82486	84846	99254	67632	43218	50076	21361	64816	51202	83531 88124	41870	52689	51275	83556
82	21885	32906	92431	09060	64297	51674	64126	62570	26123	05155	59194	52799	28225	85762
83	60336	98782	07408	53458	13564	59089	26445	29789	85205	41001	12535	12133	14645	23541
84	43937	46891	24010	25560	86355	33941	25786	54990	71899	15475	95434	98227	21824	19585
85	97656	63175	89303	16275	07100	92063	21942	18611	47348	20203	18534	03862	78095	50136
86	03299	01221	05418	38982	55758	92237	26759	86367	21216	98442	08303	56613	91511	75928
87	79626	06486	03574	17668	07785	76020	79924	25651	83325	88428	85076	72811	22717	50585
88	85636	68335	47539	03129	65651	11977	02510	26113	99447	68645	34327	15152	55230	93448
89	18039	14367	61337	06177	12143	46609	32989	74014	64708	00533	35398	58408	13261	47908
90	08362	15656	60627	36478	65648	16764	53412	09013	07832	41574	17639	62163	60859	75567
91	79556	29068	04142	16268	15387	12856	66227	38358	22478	73373	88732	09443	82558	05250
92	92608	82674	27072	32534	17075	27698	98204	63863	11951	34648	88022	56148	34925	57031
93	23982	25835	40055	67006	12293	02753	14827	23235	35071	99704	37543	11601	35503	85171
94	09915	96306	05908	97901	28395	14186	00821	80703	70426	75647	76310	88717	37890	40129
95	59037	33300	26695	62247	69927	76123	50842	43834	86654	70959	79725	93872	28117	19233
96	42488	78077	69888	61657	34136	79180	97526	43092	04098	73571	80799	76536	71255	64239
97	46764	86273	63003	93017	31204	36692	40202	35275	57306	55543	53203	16098	47625	88684
98	03237	45430	55417	63282	90816	17349	88298	90183	36600	78406	06216	95787	42579	90730
99	86591	81482	52667	61582	14972	90053	89534	76036	49199	43716	97548	04379	46370	28672
100	38534	01715	94964	87288	65680	43772	39560	12918	86537	62738	19636	51132	25739	56947

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102	21224	00370	30420	03883	94648	89428	41583	17564	27395	63904	41548	49197	82277	24120
103	99052	47887	81085	64933	66279	80432	65793	83287	34142	13241	30590	97760	35848	91983
104	00199	50993	98603	38452	87890	94624	69721	57484	67501	77638	44331	11257	71131	11059
105	60578	06483	28733	37867	07936	98710	98539	27186	31237	80612	44488	97819	70401	95419
106	91240	18312	17441	01929	18163	69201	31211	54288	39296	37318	65724	90401	79017	62077
107	97458	14229	12063	59611	32249	90466	33216	19358	02591	54263	88449	01912	07436	50813
108	35249	38646	34475	72417	60514	69257	12489	51924	86871	92446	36607	11458	30440	52639
109	38980	46600	11759	11900	46743	27860	77940	39298	97838	95145	32378	68038	89351	37005
110	10750	52745	38749	87365	58959	53731	89295	59062	39404	13198	59960	70408	29812	83126
111	36247	27850	73958	20673	37800	63835	71051	84724	52492	22342	78071	17456	96104	18327
112	70994	66986	99744	72438	01174	42159	11392	20724	54322	36923	70009	23233	65438	59685
113	99638	94702	11463	18148	81386	80431	90628	52506	02016	85151	88598	47821	00265	82525
114	72055	15774	43857	99805	10419	76939	25993	03544	21560	83471	43989	98770	22965	44247
115	24038	65541	85788	55835	38835	59399	13790	35112	01324	39520	76210	22467	83275	32286
116	74976	14631	35908	28221	39470	91548	12854	30166	09073	75887	36782	00268	97121	57676
117	35553	71628	70189	26436	63407	91178	90348	55359	80392	41012	36270	77786	89578	21059
118	35676	12797	51434	82976	42010	26344	92920	92155	58807	54644	58581	95331	78629	73344
119	74815	67523	72985	23183	02446	63594	98924	20633	58842	85961	07648	70164	34994	67662
120	45246	88048	65173	50989	91060	89894	36036	32819	68559	99221	49475	50558	34698	71800
121	76509	47069	86378	41797	11910	49672	88576	97966	32466	10083	54728	81972	58975	30761
122	19689	90332	04315	21358	97248	11188	39062	63312	52490	07349	79178	33692	57352	72862
123	42751	35318	97513	61537	54955	08159	00337	80778	27507	95478	21252	12746	37554	97775
124	11946	22681	45045	13964	57517	59419	58045	44067	58716	58840	45557	96345	33271	53464
125	96518	48688	20996	11090	48396	57177	83867	86464	14342	21545	46717	72364	86954	55580
126	35726	58643	76869	04622	39098	36083	72505	92265	23107	60278	05822	46760	44294	07672
127	39737	42750	48968	70536	84864	64952	38404	94317	65402	13589	01055	79044	19308	83623
128	97-25	66492	56177	04049	80312	48028	26408	43591	75528	65341	49044	95495	81256	53214
129	62814	08075	09788	56350	76787	51591	54509	49295	85830	59860	30883	89660	96142	18354
130	25578	22950	15227	83291	41737	79599	96191	71845	86899	70694	24290	01551	80092	82118
131	68763	69576	88991	49662	46704	63362	56625	00481	73321	91427	15264	06969	57048	54149
132	17900	00813	64361	60725	88974	61005	99709	30666	26451	11528	44323	34778	60342	60388
133	71944	60227	64551	71109	05624	43836	58254	26160	32116	63403	35404	57146	10909	07346
134	54684	93691	85132	64399	29182	44324	14491	55226	76793	34107	30374	48429	51376	09559
135	25946	27623	11258	65204	52832	50880	22273	05554	99521	73791	85744	29276	70326	60251
136	01353	39318	44961	44972	91766	90262	56073	06606	51826	18893	83448	31915	97764	75091
137	99083	88191	27662	99113	57174	35571	99884	13951	71057	53961	61448	74909	07322	80960
138	52021	45406	37945	75234	24327	86978	22644	87779	23753	99926	63898	54886	18051	96314
139	78755	47744	43776	83090	03225	14281	83637	55984	13300	52212	58781	14905	46502	04472
140	25282	69106	59180	16257	22810	43609	12224	25643	89884	31149	85423	32581	34374	70873
141	11959	94202	02743	86847	79725	51811	12998	76844	05320	54236	53891	70226	38632	84776
142	11644	13792	98190	01424	30078	28197	55583	05197	47714	68440	22016	79204	06862	94451
143	06307	97912	68110	59812	95448	43244	31262	88880	13040	16458	43813	89416	42482	33939
144	76285	75714	89585	99296	52640	46518	55486	90754	88932	19937	57119	23251	55619	23679
145	55322	07598	39600	60866	63007	20007	66819	84164	61131	81429	60676	42807	78286	29015
146	78017	90928	90220	92503	83375	26986	74399	30885	88567	29169	72816	53357	15428	86932
147	44768	43342	20696	26331	43140	69744	82928	24988	94237	46138	77426	39039	55596	12655
148	25100	19336	14605	86603	51680	97678	24261	02464	86563	74812	60069	71674	15478	47642
149	83612	46623	62876	85197	07824	91392	58317	37726	84628	42221	10268	20692	15699	29167
150	41347	81666	82961	60413	71020	83658	0241	33322	66036	98712	46795	16308	28413	05417

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Line \ Col.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
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152	60950	00455	73254	96067	50717	13878	03216	78274	65863	37011	91283	33914	91303	49326
153	90524	17320	29832	96118	75792	25326	22940	24904	80523	38928	91374	55597	97567	38914
154	49897	18278	67160	39408	97056	43517	84426	59650	20247	19293	02019	14790	02852	05819
155	18494	99209	81060	19488	65596	59787	47939	91225	98768	43688	00438	05548	09443	82897
156	65373	72984	30171	37741	70203	94094	87261	30056	58124	70133	18936	02138	59372	09075
157	40653	12843	04213	70925	95360	55774	76439	61768	52817	81151	52188	31940	54273	49032
158	51638	22238	56344	44587	83231	50317	74541	07719	25472	41602	77318	15145	57515	07633
159	69742	99303	62578	83575	30337	07488	51941	84316	42067	49692	28616	29101	03013	73449
160	58012	74072	67488	74580	47992	69482	58624	17106	47538	13452	22620	24260	40155	74716
161	18348	19855	42887	08279	43206	47077	42637	45606	00011	20662	14642	49984	94509	56380
162	59614	09193	58064	29086	44385	45740	70752	05663	49081	26960	57454	99264	24142	74648
163	75688	28630	39210	52897	62748	72658	98059	67202	72789	01869	13496	14663	87645	89713
164	13941	77802	69101	70061	35460	34576	15412	81304	58757	35498	94830	75521	00603	97701
165	96656	86420	96475	86458	54463	96419	55417	41375	76886	19008	66877	35934	59801	00497
166	03363	82042	15942	14549	38324	87094	19069	67590	11087	68570	22591	65232	85915	91499
167	70366	08390	69155	25496	13240	57407	91407	49160	07379	34444	94567	66035	38918	65708
168	47870	36605	12927	16043	53257	93796	52721	73120	48025	76074	95605	67422	41646	14557
169	79504	77606	22761	30518	28373	73898	30550	76684	77366	32276	04690	61667	64798	66276
170	46967	74841	50923	15339	37755	98995	40162	89561	69199	42257	11647	47603	48779	97907
171	14558	50769	38444	59030	87516	48193	02945	00922	48189	04724	21263	20892	92955	90251
172	12440	25057	01132	38611	28135	68089	10954	10097	54243	06460	50856	65435	79377	53890
173	32293	29938	68653	10497	98919	46587	77701	99119	93165	67788	17638	23097	21468	36992
174	10640	21875	72462	77981	56550	55999	87310	69643	45124	00349	25748	00844	96831	30651
175	47615	23169	39571	56972	20628	21788	51736	33133	72696	32605	41569	76148	91544	21121
176	16948	11126	71624	72754	49084	96303	27630	45817	67867	18062	87453	17226	72904	71474
177	21258	61092	66634	70335	92448	17354	83432	49608	66520	06442	59664	20420	39201	69549
178	15072	48853	15178	30730	47481	48490	41436	25015	49932	20474	53821	51015	79841	32405
179	99154	57412	09858	65671	70655	71479	63520	31357	56968	06729	34465	70685	04184	25250
180	08759	61089	23706	32994	35426	36666	63988	98844	37533	08269	27021	45886	22835	78451
181	67323	57839	61114	62192	47547	58023	64630	34886	98777	75442	95592	06141	45096	73117
182	09255	13986	84834	20764	72206	89393	34548	93438	88730	61805	78955	18952	46436	58740
183	36304	74712	00374	10107	85061	69228	81969	92216	03568	39630	81869	52824	50937	27954
184	15884	67429	86612	47367	10242	44880	12060	44309	46629	55105	66793	93173	00480	13311
185	18745	38031	35303	08134	33925	03004	59929	95418	04917	57596	24878	61733	92834	64454
186	72934	40086	88292	65728	38300	42323	64068	98373	48971	09049	59943	36538	05976	82118
187	17626	02944	20910	57662	80181	38579	24580	90529	52303	50436	29401	57824	86039	81062
188	27117	61399	50967	41399	81636	16663	15634	79717	94696	59240	25543	97989	63306	90946
189	93995	18678	90012	63645	85701	85269	62263	68331	00389	72571	15210	20769	44686	96176
190	67392	89421	09623	80725	62620	84162	87368	29560	00519	84545	08004	24526	41252	14521
191	04910	12261	37566	80016	21245	69377	50420	85658	55263	68667	78770	04533	14513	18099
192	81453	20283	79929	59839	23875	13245	46808	74124	74703	35769	95588	21014	37078	39170
193	19480	75790	48539	83703	15537	48885	02861	86587	74539	65227	90799	58789	96257	02708
194	21456	13162	74608	81011	55512	07481	93551	72189	76261	91206	89941	15138	37738	59284
195	89406	20912	46189	76376	25538	87212	20748	12831	57166	35026	16817	79121	18929	40628
196	09866	07414	55977	16419	01101	69343	13305	94302	80703	57910	36933	57771	42546	03003
197	86541	24681	23421	13521	28000	94917	07423	57523	97234	63951	42876	46829	09781	58160
198	10414	96941	06205	72222	57167	83902	07460	69507	10600	08858	07685	44472	64220	27040
199	49942	06683	41479	58982	56288	42853	92196	20532	62045	78812	35895	51851	83534	10689
200	23995	68882	42291	23374	24299	27024	67460	94703	40937	16961	26053	78749	46704	21983

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Line \ Col.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
201	78994	36244	02673	25475	84953	61793	50243	63432	69309	80308	49977	18075	43827	08266
202	04909	58485	70686	93930	34880	73059	06823	80257	44193	08337	47655	75932	29209	41954
203	46582	73570	33004	51795	86477	46736	60460	70345	37322	19987	67143	41129	89514	46892
204	29242	89792	88634	60285	07190	07795	27011	85941	01852	43096	31173	43730	48505	17958
205	68104	81339	97090	20601	78940	20228	22803	96070	10251	62711	66200	74330	13820	18966
206	17156	02182	82504	19880	93747	80910	78260	25136	62018	62919	73801	57195	83457	70597
207	50711	94789	07171	02103	99057	98775	37997	18325	88281	61091	97889	79977	04544	72963
208	39449	52409	75095	77720	39729	03205	09313	43545	43786	70443	41350	73369	42405	80516
209	75629	82729	76916	72657	58992	32756	01154	84890	04107	17469	69346	68651	97433	89491
210	01020	55151	36132	51971	32155	60735	64867	35424	25257	93844	39928	52519	34368	02114
211	08337	89989	24160	08618	66798	25889	52860	57375	52815	43539	18072	44270	27309	56535
212	76829	47229	19706	30094	69430	92399	98749	22081	52564	90431	35208	40323	87505	10227
213	39708	30641	21267	56501	95182	72442	21445	17276	90344	33199	02522	97883	09515	65930
214	89836	55817	56747	75195	06818	83043	47403	58266	52630	75573	91088	41118	27195	40650
215	25903	61370	66081	54076	67442	52964	23823	02718	28786	06121	29680	55295	67086	57574
216	71345	03422	01015	68025	19703	77313	04555	83425	46763	95315	23150	15116	18017	42730
217	61454	92263	14647	08473	34124	10740	40839	05620	62418	73374	92577	06755	21856	56272
218	80376	08909	30470	40200	46558	61742	11643	92121	22294	26648	69676	46198	00331	85186
219	45144	54373	05505	90074	24783	86299	20900	15144	26506	53770	76431	23861	71208	80694
220	12191	88527	58852	51175	11534	87218	04876	65584	78465	82182	03412	13217	14313	70593
221	62936	59120	73957	35969	21598	47287	39394	08778	38036	30140	89117	32054	44603	61849
222	31588	96798	43668	12611	01714	77266	55079	24690	84716	77732	35363	85525	17015	56344
223	20787	96048	84726	17512	39450	43618	30629	24356	05294	34236	65299	36922	46995	65765
224	45603	00745	84635	43079	52724	14262	05750	89373	79088	38088	65082	92504	80545	03090
225	31606	64782	34027	56734	09365	20008	93559	78384	99219	61747	96111	86965	33233	29812
226	10452	33074	76718	99556	16026	00013	78411	95107	10786	44886	44612	06830	27848	87597
227	37016	64633	67301	50949	91298	74968	73631	57397	08632	04762	39328	34926	07403	60916
228	66725	97865	25409	37498	00816	99262	14471	10232	19035	21695	07540	96447	20743	92472
229	07380	74438	82120	17890	40963	55757	13492	68294	87170	49468	40164	13374	23021	17006
230	71621	57688	58256	47702	74724	89419	08025	68519	95138	54788	32999	34374	05780	17506
231	03466	13263	23917	20417	11315	52805	33072	07723	87876	75258	22709	99869	11609	46666
232	12692	32931	97387	34822	53775	91674	76549	37635	91118	31062	89441	31839	88614	78168
233	52192	30941	44998	17833	94563	23062	95725	38463	03665	49189	46359	37401	73407	61817
234	56691	72529	66063	73570	86860	68125	40436	31303	79330	59083	34862	00540	31734	75535
235	74952	43041	58869	15677	78598	43520	97521	83248	52173	17636	77106	01044	22990	74874
236	18752	43693	32867	53017	22661	39610	03796	02622	78267	24503	73518	76545	99088	08369
237	61691	04944	43111	28325	82319	85589	66048	98498	46941	81427	44447	70357	18864	15525
238	49197	63948	38947	60207	70667	39843	60607	15328	09528	17277	84278	04463	12188	35359
239	19436	87291	71684	74859	76501	93456	95714	92518	10683	75617	78841	25315	74041	71554
240	39143	64893	14606	13543	09621	68301	69817	52140	03976	48795	60266	99592	68334	18790
241	82244	67549	76491	09761	74494	91307	64222	66592	67270	38593	18094	95095	08649	25047
242	55847	56155	42878	23708	97999	40131	52360	90390	73108	40475	80487	07787	35238	50990
243	94095	95970	07826	25991	37584	56966	68623	83454	49461	97707	12479	25041	40565	18313
244	11751	69469	25521	44097	07511	88976	30122	67542	54825	03274	02765	67162	40312	76127
245	69902	08995	27821	11758	64989	61902	32121	28165	21326	97375	44801	66977	08232	06807
246	21850	25352	25556	92161	23592	43294	10479	37879	21825	11453	29584	70067	09471	16319
247	75850	46992	25165	55906	62339	88958	91717	15756	78817	35541	01177	06869	10543	57652
248	29648	22086	42581	85677	20251	39641	65786	80689	49066	14456	91681	69371	18292	39377
249	82740	28443	42734	25518	82827	35825	90288	32911	79666	52959	01475	83321	24991	80102
250	36842	42092	52075	83926	42875	71500	69216	01350	92846	84792	87455	06842	22422	77379

Continued.

Line \ Col.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
251	89429	26726	15563	94972	78739	04419	60523	31022	23728	37647	16476	11170	68376	56874
252	43427	25412	25587	21276	44426	17369	29010	45337	90245	92053	41447	14897	18753	68291
253	58575	81958	51846	02676	67781	95137	88430	78260	66962	31812	12759	06427	40337	50115
254	61888	71246	24246	23487	78639	92006	63846	92263	33212	26516	93662	72399	88244	33922
255	73891	47025	40937	71907	26827	98865	38882	25757	26662	91441	89357	87803	61521	80600
256	40938	73894	40854	15997	55293	96033	31736	75068	91314	75293	04895	39355	54837	57203
257	98053	43567	17292	86908	71364	06089	92394	73691	57883	09983	35643	79309	53449	95334
258	59774	29138	46993	39836	99596	59050	25419	04130	54632	17223	94604	22973	97731	99476
259	09765	07548	63043	59782	81449	13652	94420	74460	46707	94303	85523	95244	70995	10742
260	38991	64502	24770	29209	82909	66610	84418	66214	26001	78685	69117	72446	79783	22305
261	25622	27100	56128	62145	82388	45197	97609	83942	01120	71717	32858	58679	97165	02810
262	31864	74120	66231	82306	91784	33177	17681	18963	07216	49288	43185	62797	00735	27085
263	81171	75639	60863	49562	28846	81581	10249	23190	63440	32357	16472	99013	24328	93670
264	69874	52803	28544	51569	56090	44558	42095	92311	57915	13368	13719	15833	38744	56065
265	27848	51107	05761	02159	53911	01952	59273	32250	39647	29908	49075	23061	07795	95047
266	69407	69736	75375	31488	67528	84234	76462	13628	21286	13736	67478	45218	27867	93049
267	29418	03091	06364	13151	40663	43633	87954	69800	24773	62596	52476	60631	50503	94116
268	38222	31231	79415	44558	62490	26936	49682	16307	98535	44822	99574	58487	85020	68881
269	94720	83796	93251	03568	62484	29140	14152	37044	90398	92042	35099	31640	99753	44409
270	45275	16852	02284	41361	73733	61486	33189	08907	41159	08147	15472	33250	17361	79961
271	97260	09552	82626	42915	45847	87401	13339	53850	34931	00602	75307	99708	77863	04924
272	01990	65259	60684	78175	43825	45211	86287	78190	02431	66251	74970	50246	23975	80597
273	24633	42314	81192	50253	67516	59076	92006	65676	87343	89231	15760	73706	69426	01979
274	98071	52677	74920	74461	52266	26967	68284	31612	40335	28865	98949	64492	96905	29184
275	34101	79442	88403	48541	13010	16596	72001	38546	76305	22119	82668	84017	44111	40302
276	77186	93967	25918	66403	73837	73445	86663	15929	08237	05647	15785	70444	58670	95967
277	23114	05481	42335	51396	60823	22680	50459	05429	35227	92559	24136	13126	22099	52388
278	59988	49944	41038	99977	16348	41119	51548	19511	90142	65604	16147	63445	60525	10480
279	11852	42254	82304	05588	75165	20179	94198	25700	33473	59554	30974	69973	57629	38550
280	59992	87922	56299	01700	07003	97507	69260	53349	86947	27517	80159	01899	46890	53850
281	42116	86593	22828	41422	18176	03250	06079	85467	32052	56922	96804	51060	33157	83948
282	39663	61401	21471	42702	70588	53144	27087	05591	57759	51394	98873	45625	61069	78783
283	53542	72009	96296	68908	58657	87117	21483	28879	20480	57309	95552	09826	79928	17141
284	25996	76108	98476	36397	89457	19577	65877	04802	61938	25032	09190	74932	36925	82686
285	91106	26450	14451	50328	29084	32332	08635	25192	31337	20249	95073	93800	70022	99968
286	37133	88924	27845	13024	90687	23726	11212	30414	42185	49224	46560	60447	24334	74866
287	13982	25736	10087	16762	08654	27250	79316	83848	38684	20552	44402	85153	94526	41256
288	26663	36187	81688	25005	46677	75851	73938	73044	05132	61204	90354	90296	03182	36672
289	62572	08275	16313	24936	81680	53829	40412	01479	24241	58488	65341	93414	07135	43446
290	65925	95455	08383	24643	72962	08172	37824	87587	40698	34964	50166	74756	77033	41501
291	97978	74676	08948	48919	51592	71196	48534	16955	25759	95645	03148	10646	15660	86520
292	01914	42524	67820	47986	91773	10383	89514	07557	02084	16736	39198	69697	62485	61938
293	68565	44811	39238	70394	78565	33539	56310	40809	63204	14479	19635	97299	66947	58010
294	54370	31672	03893	32423	54092	69375	63308	00016	26407	98287	22874	57545	72695	01604
295	79954	89601	23881	46951	69084	33477	87968	15639	82409	34125	36864	52112	27102	87334
296	58479	01059	44229	56975	06785	80930	26443	44892	77561	51123	34495	31376	06238	15973
297	38114	70330	42157	86699	46212	74692	92603	91306	58558	57280	50639	20563	71370	81487
298	29766	83482	66202	02488	72704	97821	70614	53616	39050	30355	18340	97298	41793	35185
299	31771	70640	34779	41831	33456	53194	19602	74194	61154	51774	76828	73794	54182	45264
300	77522	87188	83877	99067	83235	48662	31603	54829	54723	13177	15387	26073	68915	88415

Continued.

Line \ Col.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
301	64670	10396	82981	58320	71478	08143	48294	42631	45464	58092	14187	12271	98179	87812
302	25771	02205	73984	28436	88192	11470	11775	67385	66360	59884	93673	29948	66302	82227
303	27551	13537	54984	89406	88326	33993	92324	13249	35271	60400	70762	08343	76456	90068
304	91224	22417	44820	26189	57541	87558	45835	28461	54835	92411	44369	47512	49508	02811
305	75179	64320	71523	67868	38883	09674	27645	76240	47587	01677	38342	85590	12482	30749
306	64654	91085	65818	03313	39273	46384	66677	14148	87552	38383	67435	21072	63866	74644
307	98059	81123	67832	04102	66188	78200	67466	46043	65406	22834	08620	17509	51424	25187
308	38765	63585	18810	95805	11414	58096	00295	82626	42683	44518	12209	83245	53771	95469
309	01921	03564	71754	10213	80383	13473	94128	62199	59411	46782	62871	51149	87146	40129
310	16211	93671	27704	66778	96307	06732	63750	04191	40003	51653	54228	14916	05361	08884
311	70832	86076	61527	56123	48514	53935	86784	42351	67586	07432	61499	01773	97463	58815
312	22332	94265	67627	85815	00394	75271	98385	53697	56378	50592	77441	88505	89791	16331
313	81333	45965	64171	84367	15052	37965	03122	81914	69381	70034	92563	61804	58326	97895
314	39333	47453	66174	04546	10594	64271	61026	39471	55981	18628	67943	35599	37209	34061
315	29195	20825	50878	80273	26285	90070	79586	12449	77293	36577	59192	03658	90056	83145
316	74420	64037	06960	25109	08821	60143	34485	19257	29417	72713	72326	41572	41553	46946
317	22763	16508	24866	13177	07464	51730	65802	95718	28560	11332	74272	59189	53167	13133
318	72919	54618	40616	13287	51274	78491	53604	66742	97777	64468	98224	45485	17257	31561
319	92385	42402	15922	90033	21555	31647	22288	75692	20592	84620	58679	24587	83517	55327
320	85431	19857	97246	46118	71222	82744	67892	77155	10785	00344	19641	98279	18716	13895
321	40778	12451	14921	51464	45331	75822	46859	66829	35803	27645	76095	41535	25508	53066
322	88903	46592	60637	65231	08778	86813	47819	19218	46837	89671	77661	08518	85216	62664
323	29830	34899	85457	19548	83355	52479	77801	01596	48890	56104	68733	40830	58611	59181
324	22832	47422	08073	10107	46772	92299	42975	86376	27869	62954	07900	75918	51398	87598
325	75159	14809	11930	83531	51239	86298	72661	63015	98804	98491	99565	42801	71816	84000
326	99390	08217	56276	09263	82685	30451	25742	41105	74711	42007	02082	93025	86641	28952
327	68622	80897	08902	10867	91379	30068	84289	45020	92459	03831	08531	63496	98230	42884
328	92393	95901	41179	72129	72502	91-97	09488	84896	37720	68104	73817	67626	16221	63527
329	53122	66033	38229	51879	29925	45574	53938	72801	64067	76328	28941	43645	37181	95329
330	43251	11941	86631	93264	53433	70281	55000	24550	74731	32855	25399	95743	85393	20261
331	16613	24901	34866	75002	55163	68300	20070	36953	39378	71191	84510	47599	93608	24379
332	12010	60852	92603	70393	17989	95755	14672	58786	41996	02893	94163	36156	54203	94138
333	85528	97879	27814	08219	02908	71582	31439	00360	72264	87245	65903	42298	28061	81889
334	32590	55079	33556	83169	92087	77939	53792	78795	58159	86394	41749	91623	26973	81474
335	92934	30650	16449	15805	61551	38689	59179	85485	18537	70496	98694	19796	76804	03673
336	80614	10150	09389	61892	79477	14522	40270	45744	29682	29717	39590	10223	43049	78775
337	62398	12034	90764	52872	22285	50592	42505	80560	38213	18917	10016	03887	62589	15051
338	02222	46811	05145	67916	15184	02636	59078	57773	21259	86090	56705	65566	04487	95954
339	08490	31785	61664	61322	24149	21471	23328	03093	31266	14840	30703	01640	07874	16630
340	61187	73897	66168	12885	73191	89432	65414	41886	75911	35708	43208	59193	04727	31037
341	12324	61149	85643	64999	63738	46671	25408	69313	54455	04917	35047	09951	72776	84697
342	47635	42279	98620	70677	52386	50904	97403	03931	42090	28179	98028	47728	45696	74176
343	70965	00390	08878	15373	70276	71889	86953	37931	23286	20502	40100	22486	37323	35429
344	58764	15268	96814	54548	00042	19721	78869	85937	36639	29135	12633	67225	69588	74178
345	07429	05609	31207	50254	68389	07714	92268	64690	32823	60122	46213	05646	54742	98304
346	15665	28659	54952	53217	76898	88931	25786	55912	85269	29212	84976	08888	94332	58528
347	64208	53232	99459	43605	04563	48451	68154	49436	49991	66524	65133	66163	76766	26006
348	17952	73276	52567	48489	64264	24220	55498	97548	98437	26033	39026	17377	43519	27425
349	60531	43217	39999	38615	97195	76920	87688	99010	90189	12522	00675	01995	82781	95130
350	76692	39999	43254	68110	88053	88727	14187	98623	84225	78440	67082	37425	40559	16838

INSPECTION CHECKLIST

Project:	Contract No.:	Delivery Date:
Contractor:	Work Order No.:	Weather:

Service Requirement:

Rating Code: (1) Acceptable (2) Unacceptable (3) Work In Progress (4) Work Not Started

WORK AREAS

SPECIFIC TASK(S) OR ITEM(S)												
TIME												

Complete Following Only If Deficiencies Noted:

Signature of CR or QCI who Reviewed

Date Time

OR

Signature of CR or QCI who Received a Copy

Date Time

☐ See back for description of deficiency

(Inspector's Signature) (Date) (COR Signature) (Date)

CEORP FORM 685

This notice is to advise you of deficiencies found during inspection. The deficiencies found are in the performance and/or quantity of work. The deficiencies are to be corrected as specified.

Location: _____

Comments and deficiencies which shall be corrected before work will be acceptable and satisfactory are as follows:

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Comments on correction of deficiencies:

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(Inspector)

_____
(Date)

INSPECTION CHECKLIST

Project:	Contract No.:	Delivery Date:
Contractor:	Work Order No.:	Weather:

Service Requirement:

Pesticide/Herbicide Application

(circle one)

Rating Code: (1) Acceptable (2) Unacceptable (3) Work in Progress (4) Work Not Started

WORK AREAS

Pesticide Used:

SPECIFIC TASK(S) OR ITEM(S)												
Safe Work Habits/Equipment												
Application Method												
Pesticide/Herbicide Diluted Properly												
Precautions to Protect Surroundings												
Barricades or Actions to Protect Public												
ORD-1031 Completed												
Pesticide/Herbicide Applicator Certification Provided												
Presence of Certified Applicator During Work												
Condition of Application Equipment												
Condition of Desirable Vegetation/Area												
Approved Pesticide/Herbicide												
Uniformed Employees/Marked Vehicles												
TIME												

Complete Following Only If Deficiencies Noted:

Signature of CR or QCI who Reviewed

Date Time

OR

Signature of CR or QCI who Received a Copy

Date Time

☐ See back for description of deficiency

(Inspector's Signature) (Date) (COR Signature) (Date)

CEORP FORM 685A
JUL 90

CEORP-OR-R

This notice is to advise you of deficiencies found during inspection. The deficiencies found are in the performance and/or quantity of work. The deficiencies are to be corrected as specified.

Location: _____

Comments and deficiencies which shall be corrected before work will be acceptable and satisfactory are as follows:

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Comments on correction of deficiencies:

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(Inspector)

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(Date)

INSPECTION CHECKLIST

Project:	Contract No.:	Delivery Date:
Contractor:	Work Order No.:	Weather:

Service Requirement:

Rating Code: (1) Acceptable (2) Unacceptable (3) Work in Progress (4) Work Not Started

Public Use Areas

Pesticide Used:

SPECIFIC TASK(S) OR ITEM(S)	WORK AREAS											
Safe Working Habits / Equipment												
Uniformed Employees / Marked Vehicles												
Restrooms/Picnic Shelters												
Commodes, Urinals, Lavatories / Toilet Tissue												
Plumbing Fixtures-Lighting Fixtures												
Walls (In/Out), Floors, Ceilings, Roofs, Sidewalks												
Windows, Mirrors												
Cleaning Compounds/Sanitary Methods												
Insects / Insect Nests												
Grounds, Roads, Parking Lots & Paved Areas												
Creek Banks, Riprap, Shoreline												
Fishing Piers												
Receptacles												
Grills or Cookers												
Picnic Shelters, Picnic Tables & Park Benches												
Drinking Fountains												
Bulletin Boards / Signs												
Playground / Equipment & Ball Parks												
Trails												
Reporting of Damaged or Malfunctioning Equipment												
TIME												

Complete Following Only If Deficiencies Noted:

Signature of CR or QCI who Reviewed

Date Time

OR

Signature of CR or QCI who Received a Copy

Date Time

☐ See back for description of deficiency

(Inspector's Signature) (Date) (COR Signature) (Date)

CEORP FORM 685B
JUL 90

CEORP-OR-R

This notice is to advise you of deficiencies found during inspection. The deficiencies found are in the performance and/or quantity of work. The deficiencies are to be corrected as specified.

Location: _____

Comments and deficiencies which shall be corrected before work will be acceptable and satisfactory are as follows:

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Comments on correction of deficiencies:

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(Inspector)

_____
(Date)

INSPECTION CHECKLIST

Project:	Contract No.:	Delivery Date:
Contractor:	Work Order No.:	Weather:

Service Requirement:

Rating Code: (1) Acceptable (2) Unacceptable (3) Work In Progress (4) Work Not Started

Janitorial Services

WORK AREAS

Pesticide Used:

SPECIFIC TASK(S) OR ITEM(S)												
Safe Work Habits / Equipment												
Remove Trash, Replace Receptacle Liners												
Vacuum Carpet												
Sweep Floors												
Mop Floors												
Sidewalks												
Clean Mats												
Dusting and Ashtrays												
Glass Cleaning, Window Sills & Hardware												
Drinking Fountains												
Displays												
Spot Cleaning												
Clean Grounds												
Insect Nests & Cobwebs												
Parking Lots Swept												
Lights												
Restrooms												
Kitchen Area												
Parking Lots Hosed (per work schedule)												
Uniformed Employees / Marked Vehicles												
TIME												

Complete Following Only If Deficiencies Noted:

Signature of CR or QCI who Reviewed

Date Time

OR

Signature of CR or QCI who Received a Copy

Date Time

☐ See back for description of deficiency

(Inspector's Signature) (Date) (COR Signature) (Date)

CEORP FORM 685C
JUL 90

CEORP-OR-R

This notice is to advise you of deficiencies found during inspection. The deficiencies found are in the performance and/or quantity of work. The deficiencies are to be corrected as specified.

Location: _____

Comments and deficiencies which shall be corrected before work will be acceptable and satisfactory are as follows:

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Comments on correction of deficiencies:

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(Inspector)

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(Date)

INSPECTION CHECKLIST

Project:	Contract No.:	Delivery Date:
Contractor:	Work Order No.:	Weather:

Service Requirement:

Rating Code: (1) Acceptable (2) Unacceptable (3) Work in Progress (4) Work Not Started

Vehicle Cleaning

WORK AREAS

SPECIFIC TASK(S) OR ITEM(S)												
Safe Work Habits / Equipment												
Exterior: Windows & Mirrors												
Tires / Wheels												
Bed (Trucks)												
Tar & Insect Residue Removed												
Bumpers												
Wheel Wells / Undercarraige												
General Appearance (i.e. soap film, etc.)												
Door & Window Sills & Armrests												
Headlights / Taillights												
Interior: Seats & Belts												
Ashtrays												
Dashboard												
Floor												
Floor Mats												
Windows												
Trunk												
Work Area Cleaned												
TIME												

Complete Following Only If Deficiencies Noted:

Signature of CR or QCI who Reviewed

Date Time

OR

Signature of CR or QCI who Received a Copy

Date Time

☐ See back for description of deficiency

(Inspector's Signature) (Date) (COR Signature) (Date)

CEORP FORM 685D
JUL 90

CEORP-OR-R

This notice is to advise you of deficiencies found during inspection. The deficiencies found are in the performance and/or quantity of work. The deficiencies are to be corrected as specified.

Location: _____

Comments and deficiencies which shall be corrected before work will be acceptable and satisfactory are as follows:

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Comments on correction of deficiencies:

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(Inspector)

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(Date)

INSPECTION CHECKLIST

Project:	Contract No.:	Delivery Date:
Contractor:	Work Order No.:	Weather:

Service Requirement:

Grass Mowing & Maintenance of Landscaped Areas

Rating Code: (1) Acceptable (2) Unacceptable (3) Work in Progress (4) Work Not Started

Pesticide Used:

SPECIFIC TASK(S) OR ITEM(S)	WORK AREAS											
Safe Work Habits / Equipment												
Mowing: General Appearance												
Height of Cut												
Prevention of Scalping												
Tire Damage to Turf												
Raking												
Trash / Litter Removal												
Sweeping Sidewalks & Paved Areas												
Trimwork: Ditchlines & Roadways												
Riprap												
Creekbanks												
Shoreline												
Piezometers												
Plant Beds												
Lanscaped Mounds												
Tree /Shrub Condition												
Prevention of Damage to Dam Instrumentation												
Uniformed Employees / Marked Vehicles												
TIME												

Complete Following Only If Deficiencies Noted:

Signature of CR or QCI who Reviewed

Date Time

OR

Signature of CR or QCI who Received a Copy

Date Time

☐ See back for description of deficiency

(Inspector's Signature) (Date) (COR Signature) (Date)

CEORP FORM 685E
JUL 90

CEORP-OR-R

This notice is to advise you of deficiencies found during inspection. The deficiencies found are in the performance and/or quantity of work. The deficiencies are to be corrected as specified.

Location: _____

Comments and deficiencies which shall be corrected before work will be acceptable and satisfactory are as follows:

_____

_____

_____

_____

_____

Comments on correction of deficiencies:

_____

_____

_____

_____

_____

_____
(Inspector)

_____
(Date)

INSPECTION CHECKLIST

Project:	Contract No.:	Delivery Date:
Contractor:	Work Order No.:	Weather:

Service Requirement:

Park Attendant

Rating Code: (1) Acceptable (2) Unacceptable (3) Work In Progress (4) Work Not Started

WORK AREAS

SPECIFIC TASK(S) OR ITEM(S)												
Registration and Fee Processing												
Registration Forms Correct												
ENG Form 3313 Correct												
Funds Security												
Appropriate Fees Collected and Recorded												
Entrance Station Operation and Management												
Safe Work Habits / Equipment												
Attendant's Appearance (uniform, campsite)												
Entrance Station Appearance												
Loitering or Loafing												
Cooperation with Corps												
Handouts Distributed Correctly												
Gates Operated Properly												
Log Books / Visitor Register Correct												
Visitor Assistance												
Customer Care												
Park Inspection												
Campers Informed of Rules												
Reporting of Incidents												
Violations Reported / 14 Day Camping Violation												
TIME												

Complete Following Only If Deficiencies Noted:

Signature of CR or QCI who Reviewed

Date Time

OR

Signature of CR or QCI who Received a Copy

Date Time

☐ See back for description of deficiency

(Inspector's Signature) (Date) (COR Signature) (Date)

CEORP FORM 685F
JUL 90

CEORP-OR-R

This notice is to advise you of deficiencies found during inspection. The deficiencies found are in the performance and/or quantity of work. The deficiencies are to be corrected as specified.

Location: _____

Comments and deficiencies which shall be corrected before work will be acceptable and satisfactory are as follows:

_____

_____

_____

_____

_____

Comments on correction of deficiencies:

_____

_____

_____

_____

_____

_____
(Inspector)

_____
(Date)

ATTACHMENT 6E
CONTRACT DISCREPANCY REPORT

CONTRACT DISCREPANCY REPORT	
CONTRACT NO:	
REPORT NO. FOR DISCREPANCY:	
TO: (CONTRACTOR NAME AND POC)	
FROM:(NAME OF QAE)	
DATE PREPARED:	**RETURNED BY CONTRACTOR:**
DISCREPANCY OR PROBLEM:	
SIGNATURE OF CONTRACTING OFFICER:	
CONTRACTOR RESPONSE AS TO CAUSE, CORRECTIVE ACTION AND ACTIONS TO PREVENT RECURRENCE: ATTACH CONTINUATION SHEETS IF NECESSARY:	
SIGNATURE OF CONTRACTOR REPRESENTATIVE:	**DATE:**
GOVERNMENT EVALUATION:	
GOVERNMENT ACTIONS:	