SCOPE OF WORK – JOINT REGIONS 1, 2, 4, & 6

NON-PROJECT / NON-TASK SPECIFIC

Construction Management, Construction Inspection & Material Testing

CONTRACT ADMINISTRATION:

REGION TRANSPORTATION DIRECTOR:
TONY DEVITO
COLORADO DEPARTMENT OF TRANSPORTATION
REGION 1
18500 EAST COLFAX AVENUE
AURORA, COLORADO 80011

REGION TRANSPORTATION DIRECTOR:
TOM WRONA
COLORADO DEPARTMENT OF TRANSPORTATION
REGION 2
905 ERIE AVENUE
P.O. BOX 399
PUEBLO, COLORADO 80436

REGION TRANSPORTATION DIRECTOR:
JOHNNY OLSON
COLORADO DEPARTMENT OF TRANSPORTATION
REGION 4
1420 2ND STREET
GREELEY, COLORADO 80631

REGION TRANSPORTATION DIRECTOR:
REZA AKHAVAN
COLORADO DEPARTMENT OF TRANSPORTATION
REGION 6
2000 S. HOLLY STREET
DENVER, COLORADO 80222

General administration of this contract will be delegated to the respective Region Program Engineer involved with this consultant selection process. Active day to day administration and monitoring of contract task orders will be delegated to the Region(s) Resident Engineers responsible for the work described within each task order.

COLORADO DEPARTMENT OF TRANSPORTATION

SCOPE OF WORK FOR:

- **I. Project Materials Testing**
- **II. Region Materials Laboratory Testing**
- **III. Construction Project Management and Services**
- **IV. Project Construction Inspection**
- **V. Highway Materials Evaluation**
- **VI. Voids Acceptance Laboratory**
- **VII. Profiling**
- **VIII. Other Services**

Note: This Scope of Work has been carefully reviewed by the Department and reflects an approach based on the known goals of R1, R2, R4, & R6. The Consultant's analysis of the project goals, its evaluation of the work elements, and its formulation of the work plan, coupled with its understanding of and sensitivity to the key issues may produce new approaches or modifications to the project's work elements. Therefore, the final Scope of Work for the project may change in some details to incorporate the Consultant's input.

GENERAL REQUIREMENTS

WORK DURATION:

The time period for the work described in this scope will be 2 years from the execution of the contract with an optional third year as determined by the respective Region Program Engineer responsible for the execution of this contract. Work may be required: night or day; weekends; holidays; or on a split shift basis.

AUTHORIZATION TO PROCEED:

Work shall not commence until the consultant receives the written Notice to Proceed. Work shall be completed within the allotted contract time. Time charged shall be exclusive of time lost for:

-Reviews and approvals

-Responses/direction from CDOT

ROUTINE REPORTING AND BILLING:

The consultant shall provide the following on a routine basis:

-Coordination of all contract activities by the Consultant's Project Manager when required
-Periodic reports and billings required by CDOT Procedural Directive 400.2

STATUS OF PROJECT:

The consultant shall monitor the status of work, and advise the CDOT Project Engineer/Manager or Resident Engineer of any potential need for supplementing their contract. Failure to monitor work status and provide timely notification may result in discontinuing the consultant's services relative to the task order until a supplemental agreement can be affected.

PROJECT STANDARDS:

All sampling, testing, and documentation shall be in accordance with *the Colorado Department of Transportation (CDOT) Field Materials Manual, Construction Manual, CDOT M&S Standards and applicable Project and Standard Special Provisions in the construction project* contract and the applicable *CDOT Standard Specifications for Road and Bridge Construction.* The applicable *CDOT Field Materials Manual*, including *Colorado Procedures and Colorado Procedure-Laboratory*, shall be the one currently in use when the construction project is advertised. If the required method is not described in the *CDOT Field Materials Manual*, the required work shall be completed in accordance with the current *AASHTO Standard Specifications for Transportation Materials and Methods of Sampling and Testing* (as revised and supplemented) or the *ASTM Standards and Tentatives.* Proposed work procedures shall be coordinated with the CDOT Project Engineer prior to the start of work.

I. PROJECT MATERIALS TESTING: The consultant shall sample, test and inspect those specified materials utilized in construction. Test results and inspection observations shall be documented and approved by the Project Engineer in accordance with the references cited below under PROJECT STANDARDS. Project specific work will be defined by task order, prior to work commencing. The consultant shall direct, coordinate, supervise, monitor, manage and administer all materials sampling and testing to ensure that the required sampling, materials testing and documentation is obtained in a timely manner and maintained in accordance with the Materials Manual and Contract requirements to verify the quality of the work performed by the construction contractor.

MANAGEMENT OF CONSULTANT PROJECT MATERIALS TESTING:

The consultant shall follow the requirements of CP-16 to meet, coordinate and schedule the required work with the Project Engineer, Resident Engineer and Residency Head Tester. The consultant shall complete all work in accordance with their approved schedule. The consultant materials testing evaluation form shall be completed by the CDOT Project Engineer or Resident Engineer and head tester, and distributed as described in CP-16. The Project Engineer shall forward a copy of the completed Pre-Testing Meeting Agenda for Consultant Materials Testing to the Region Materials Engineer.

PROJECT STAFFING AUTHORITY:

The Project Engineer is in direct charge of the work and is responsible for administration of the project contract as defined in the CDOT Standard Specifications. This includes approving and setting work hours for both project construction and the materials testing. The consultant Project Engineer is not authorized to sign Contract Modification Orders or to approve Estimates in the CDOT Transport application.

LABOR, MATERIALS, AND EQUIPMENT:

The consultant shall furnish all personnel, materials, and equipment required to perform the work, including cell phones, vehicles and computers with software, capable of interfacing with CDOT software/hardware.

CDOT will provide a field laboratory for many of the construction projects and the required traffic control for all of the construction projects. The CDOT Project Engineer or Resident Engineer will advise the consultant on the availability of the field laboratory. When a field laboratory is not provided, the consultant shall use his own facilities (**Note: For Asphalt Voids Acceptance projects see VI. Voids Acceptance Laboratory**). The consultant shall follow the Laboratory Qualification Program requirements contained in the applicable CP-10.

The following equipment and supplies shall be furnished by the consultant for each project in sufficient quantity to ensure performance of all work required in a timely manner. Such equipment and supplies shall remain the property of the consultant.

1 A.C. content gauge with pans (minimum of 5) and/or extraction equipment and solvents
2 Square HMA splitting pan, square ended scoop and other small hand tools as needed
3 Nuclear Moisture/Density gauge
4 Concrete air meter, slump cone, unit weight scale, and other concrete testing equipment
5 8-inch or 12-inch Sieves for aggregates and soil gradations
6 Scales
7 Sample containers and small tools
8 Proctor equipment for soil curves and 1 point tests including a base on which to rest the mold during compaction of the soil (See AASHTO T 99 and T 180)
9 Atterberg equipment
10 Sample drying equipment
11 Miscellaneous equipment for performing the required soils, concrete and asphalt field tests
12 Concrete cylinder molds, which conform to AASHTO requirements, except that ***paper molds shall not be used, plastic molds shall not be reused, and molds with "domed" style lids (i.e. lids that do not fit entirely flush with the top of the mold) shall not be used***. The costs for plastic molds used will be reimbursed by CDOT, if included in the consultant's billing.
13 Cell Phone for each tester
14 Computer and printer for each test lab (CDOT or Consultant). This equipment needs to have capability to operate all current CDOT project software as defined in the current migration plan. This includes Site Manager and an email account.
15 Ignition Oven for determining asphalt binder content and RAP gradations meeting specifications of CPL 5120.
16 Computers and software as required for the performance of duties
17 HMA sample containers meeting the requirements of CP-41. The cost for HMA sample containers used will be reimbursed by CDOT, if included in the consultant's billing. Containers used for HMA sampling must not be re-used.
18 Asphalt Binder sample containers minimum 1qt. in size sampled as per AASHTO T-40. The cost for binder sample container used will be reimbursed by CDOT, if included in the consultant's billing.
19 All required CDOT Forms required to complete and Final the Form 250. These forms shall include, but are not limited to the Form 6, 58, 69, 82, 157, 158, 411, 427, 428, 1304, etc.
20 Colorimeter meeting the requirements of CPL-2103 for Sulfate testing.

Personnel staffing level and qualifications of testing personnel and laboratories for the project shall be subject to the approval of the CDOT Project Engineer or Resident Engineer. The CDOT Project Engineer or Resident Engineer shall receive and review the testing personnel and consultant laboratory qualifications prior to commencement of testing on the project.

Sampling and testing personnel qualifications shall be in conformance with the requirements of the applicable CP-10. Additionally the tester must possess a current and valid Colorado Driver's license. The Consultant's work shall be under the direction of, and shall be reviewed, stamped and signed by a Professional Engineer registered in the State of Colorado. The only work to be stamped will be the summary sheets; i.e., CDOT Forms 6, 9, 58, 69, 212, 250, and 554. The CDOT Project Engineer or Resident Engineer may request that additional forms be stamped. The Professional Engineer shall be available to review work, resolve problems, and make decisions in a timely manner as requested by the CDOT Project Engineer or Resident Engineer, and must be experienced and competent in road and bridge construction materials testing.

Copies of the tester's required certifications and a resume including his/her materials testing experience shall be provided to the CDOT Project Engineer or Resident Engineer.

The materials testing technician(s) shall be thoroughly familiar with CDOT testing procedures, forms and documentation requirements. If oversight is necessary, the consultant shall provide the supervision and guidance needed for completion of the work. Oversight required by the consultant will not be paid for by CDOT. The materials testing technician(s) and inspector(s) shall be thoroughly familiar with CDOT forms and documentation requirements.

The materials testing technician(s) shall be thoroughly familiar with CDOT computer programs (Asphalt 03, Voids 03, Concrete 03, and SiteManager/LIMS) and other common computer programs (MS Excel, MS Word, and MS Outlook).

The materials testing technician(s) shall have completed and passed the CDOT Finals Materials Documentation and SiteManager/LIMS training classes. If the materials testing technician(s) will also be performing inspection on the project, they must be certified in the areas of inspection to be performed by the CDOT Construction Inspector Qualification Program. Specialty certifications such as CAPA Asphalt Inspector or Concrete Pavement Inspection may be required as determined by the Resident or Project Engineer.

Personnel provided by the consultant who do not meet all of the specified requirements, or who fail to perform their work in an acceptable manner, shall be removed from the project when determined and directed by the CDOT Project Engineer or Resident Engineer. Failure to perform the testing and documentation processes may result in termination of the task order as determined by the Task Order Administrator (Project Manager).

SPECIFIC TESTING REQUIREMENTS:

The consultant shall sample, test, inspect, and document all materials generated and produced on the project. This includes: materials delivered to the project that are listed in the Summary of Approximate Quantities in accordance with the **SCHEDULE** in the Field Materials Manual; materials that may be added to the project through contract modification; and altered material quantities whether increased or decreased.

The consultant's Project Manager, field tester(s) and the Project Engineer shall be required to review project quantities on a monthly basis to ensure that sufficient tests have been performed for the material placed to date. The consultant shall also provide any other services as requested by the CDOT Project Engineer or Resident Engineer.

Testing of materials that are specifically designated to be pre-inspected or pretested by this or any other Department of Transportation shall remain the responsibility of CDOT. The consultant shall document and transport samples of any and all materials to the CDOT Central Laboratory that are required to be tested by CDOT regardless of pre-inspection or pretesting responsibilities. The items and test frequencies of Department tested materials shall be in accordance with the column titled "Central Laboratory" in the SCHEDULE.

DOCUMENTATION:

Each of the consultant's field testers shall maintain a daily diary for each day the tester performs work on the project. They may use CDOT's Form 103, Project Diary, or a form as approved by the CDOT Project Engineer or Resident Engineer. The contents of the diary shall be brief and accurate statement of progress and conditions encountered during the prosecution of the work. Editorial comments are not to be incorporated in the diaries or on any written correspondence applicable to the project. A copy of the daily diary shall be given to the Project Engineer within three working days of its date. Test results, sample submittals and inspection documentation transmitted to CDOT's Region or Central Laboratory shall be recorded on appropriate CDOT Forms. The consultant's Project Manager and field tester(s) shall be required to review project quantities on a weekly basis to ensure that sufficient tests have been performed for the material placed to date. The consultant may use CDOT worksheets or worksheets approved by the CDOT Project Engineer or Resident Engineer. CDOT Forms and worksheets are available through the Residency Head Tester, Project Manager or Region Materials at no cost to the consultant.

The consultant shall furnish the Project Engineer with copies of all worksheets on a daily basis. The consultant shall also keep the CDOT Form 626 up to date at all times and provide copies of this form to the Project Engineer and the contractor within 12 hours for any material found to be out of compliance with the specifications.

The consultant shall be required to enter all project data and samples into the required CDOT materials acceptance programs including, but not limited to Asphalt 03, Voids 03, Concrete 03, SiteManager/LIMS and any other required programs.

The consultant shall coordinate the schedule for Independent Assurance Tests for the project in accordance with CDOT Form 379, with the Residency Head Tester, or directly with the Region IAT personnel.

SUBMITTAL OF FINAL DOCUMENTATION:

Final documentation shall be submitted to the CDOT Project Engineer or Resident Engineer within 20 working days after project acceptance. A completed CDOT Form 250 shall be submitted to the CDOT Project Engineer or Resident Engineer 10 days after the consultant has been notified of final quantities. Failure to submit final documentation as required may result in withholding any and all consultant payments.

II. REGION MATERIALS LABORATORY TESTING (Including the Voids Acceptance Tester):

This work consists of materials testing at the Region Materials Laboratory, the Regions' mobile laboratories (potentially located anywhere in the Regions) or an approved laboratory furnished by consultant or contractor. Materials testing could involve a wide range of projects consisting of, but not limited to, the resurfacing, reconstruction, maintenance and new construction projects. When the consultant is required to use his own facility (**Note: For Asphalt Voids Acceptance see VI. Voids Acceptance Laboratory**), he shall follow the Laboratory Qualification Program requirements contained in the applicable CP-10.
MANAGEMENT OF CONSULTANT REGION LABORATORY MATERIALS TESTING:
The consultant, CDOT R1, R2, R4, or R6 Materials Engineer and CDOT R1, R2, R4, or R6 Materials Lab Manager shall meet, coordinate and schedule the required work. The consultant shall complete all work in accordance with their approved schedule.

PROJECT STAFFING AUTHORITY:

The CDOT Region 1, 2, 4, or 6 Materials Engineer is in direct charge of the work in the Region Materials Lab and is responsible for administration of the project contract as defined in the CDOT Standard Specifications. This includes approving and setting work hours for the materials testing.

PROJECT STANDARDS:

The consultant tester(s) must meet the requirements of Chapter 800 of the Field Materials Manual, be a minimum of 19 years of age and possess a personal monitoring device (dosimeter). Personnel staffing level and qualifications of testing personnel and laboratories for the project shall be subject to the approval of the CDOT Project Manager. The CDOT Project Manager shall receive and review the testing personnel qualifications prior to commencement of the work. When required, the consultant tester's work may be required to be under the direction of a Professional Engineer licensed in the State of Colorado. The Professional Engineer shall be available to review work, resolve problems, and make decisions in a timely manner as requested by the Region 1, 2, 4, or 6 Materials Engineer. Personnel Staffing level and qualifications of testing personnel and laboratories for this work shall be subject to the approval of the Region 1, 2, 4, or 6 Materials Engineer. The Region 1, 2, 4, or 6 Materials Engineer shall receive and review the testing personnel and consultant laboratory qualifications prior to commencement of testing.

Activities will include sampling, sample reducing, and testing materials supplied to and/or produced on the projects. This includes but is not limited to performing the following tests:

1 Rice Test (CP 51)
2 Gradations of aggregate (CP 31)
3 Bulk Specific Gravity of cores and/or compacted mix (CP 44 and CP-L 5103)
4 Fine aggregate angularity (CP-L 5113)
5 Standard Method for Preparing and Determining the Density of Bituminous Mixture Test Specimens by Means of the Superpave Gyratory Compactor (CP-L 5115)
6 Hveem Stability (CP-L 5106)
7 Lottman Testing (CP-L 5109)

8 AC Content by Nuclear Method (CP 85)
9 AC Content by Ignition Method (CP-L 5120)
10 Sand Equivalent Test (AASHTO T-176)
11 Liquid Limit and Plasticity Index of Soils (AASHTO T-89, T-90)
12 Moisture Density Relations of Soils (AASHTO T-99, T-180)
13 Determining the Sulfate Ion Content in Water or Water Soluble Sulfate Ion Content in Soil (CPL-2103)
14 Determining Water-Soluble Chloride Ion Content in Soil (CPL-2104)

Assist with documentation, general cleanup and routine laboratory equipment upkeep as needed. The consultant may enter results into a computer database. The tester(s) may assist Region 1, 2, 4, or 6 Materials lab personnel (using mobile drill rig) in the collection of soil profile data and samples.

Tests will be performed in accordance with the applicable CDOT Field Materials Manual, CDOT Laboratory Manual of Test Procedures, and/or AASHTO and ASTM Test Procedures. The Region Materials Engineer will determine testing frequency.

The contract tester(s) may be allowed the use of Region 1, 2, 4, or 6 Materials Laboratory and all equipment, except for nuclear moisture density gauges, in order to conduct the required testing, when deemed necessary by the Region 1, 2, 4, or 6 Materials Engineer. Unless designated, the consultant tester will conduct his/her testing services in the lab provided.

The Region 1, 2, 4, or 6 Materials Engineer may designate a member of his staff to represent him in the contract.

SPECIAL QUALIFICATIONS OF REGION 1, 2, 4, or 6 LABORATORY MATERIALS TESTER(S)

Tester(s) must have a working knowledge, a minimum of 320 hours relevant experience, and possess and maintain current relevant certifications in the following programs for the duration of the task order:

- *CAPA (LABCAT) asphalt technician* Certification in Levels A,B (and C if Voids Acceptance)
- *WAQTC Embankment & Base Testing Technician* Certification

Tester(s) must possess a current and valid Colorado Driver's License

III. CONSTRUCTION PROJECT MANAGEMENT AND SERVICES

The scope of work for construction services may include:

a - Provide construction management and engineering personnel including a Colorado licensed professional engineer, or other construction project staff as required to manage a CDOT construction project. This staff shall be fully knowledgeable of CDOT procedures, specifications. Procedures, manuals and construction requirements, including environmental restrictions, to successfully manage and complete the project assigned.

b - Construction inspection and testing to ensure compliance with plans and specifications. Work assignments may be for any shift in the 24-hour day. Project site may be anywhere within geographic boundaries of CDOT Regions 1, 2, 4, & 6.

c - Review of Contractor submittals including, but not limited to methods statements, CPM schedules, phasing plans, false work and shoring.

d - Provide necessary equipment including cell phones, vehicles and computer equipment with software, capable of interfacing with CDOT software/hardware.

e - Provide CDOT Resident Engineer with the following construction management and inspection support:

1.1 Construction Coordination: Regularly scheduled weekly and as-needed meetings will be conducted with the Contractor and other involved parties to review, update, and coordinate construction activities. Weekly meetings will include a review of issues that are impacting progress, the cost to complete the work, and significant situations encountered related to the construction of the project. Meeting minutes will be prepared to document items discussed, decisions reached, direction given, and actions to be taken.

1.2 Review of Contractor's Method of Handling Traffic: Review and approve the Contractor's Method(s) of Handling Traffic (MHT) submittals based on the latest approved MUTCD and CDOT M&S Standard Plans. During construction, monitor the Contractor's MHT for implementation of traffic signing, devices, barriers, and other traffic control measures in accordance with the approved plan.

1.3 Review of Construction for Conformance with Plans and Specifications: Monitor the Contractor's construction activities with respect to the contract documents and relevant schedule submittals governing the performance of the work. Resolve construction problems and/or recommend action for their resolution, as they relate to changed field conditions or conflicts in the contract documents. Coordinate with the designer during construction for implementation of revisions to the plans as may be required.

1.4 Review of Progress Schedules & Processing Shop/Working Drawings Submitted by the Contractor: Schedule submittals, method statements, and schedule narratives shall be thoroughly reviewed for completeness and accuracy. Appropriate action shall be taken when deficiencies are noted in the timeframes required by the specifications

Submittals, design drawings, shop drawings, materials, and test procedures received from the Contractor will be forwarded to appropriate CDOT or consultant design personnel for review and approval. Approved drawings will be returned to the Contractor, as well as a copy retained for use during the remainder of the project.

1.5 Daily Quality Control Inspection & Quantity Control: Perform daily quality assurance inspections of construction activities to document activities performed and assessment of conformance with the contract documents in accordance with Section 2 of this Scope. Inspection items may include but are not limited to excavation, backfill, and compaction operations; concrete placement; paving; drainage; utilities; structures; signing and striping; landscaping; milling, guardrail; and traffic control installations.

Quantities of work elements constructed will be measured and recorded to support the preparation and processing of progress pay estimates to the Contractor. Quantities will be documented in an interim quantity book for tracking of quantities constructed as compared to the original design quantities on the project. Quantities of work will be reviewed with the Contractor and then reflected in monthly progress pay estimates. Assist CDOT in resolving disputes in quantities with the Contractor prior to the preparation of the pay estimate.

1.6 Materials Testing: Direct, coordinate, supervise, monitor, manage and administer all materials sampling and testing to ensure that the required sampling, materials testing and documentation is obtained in a timely manner and maintained in accordance with the Materials Manual and Contract requirements to verify the quality of the work performed by the construction contractor.

1.7 Project Documentation: Maintain project submittal register, track project correspondence, check daily diaries, prepare inspectors progress reports or review other reports for accuracy, and complete required and as directed CDOT paperwork and forms.

1.8 Contaminated Material Notification: Monitor construction operations and notify CDOT immediately when contaminated material is encountered or developed on the project. When such material is identified, procedures developed by the Contractor to mitigate the problem will be reviewed and a recommendation provided.

1.9 Check Surveying: This work is anticipated to be included and provided by the Contractor. (If the Contract includes a Construction Surveying pay item, then the Contractor is responsible for performing all surveying required to properly layout and construct the work covered under the Contract.)

1.10 Project Safety: Monitor construction to verify work is being completed in a safe manner. Notify CDOT immediately and document all unsafe activities or situations, including accidents. If an imminent danger exists to workers or the public, contact the proper authorities, CDOT Public Relations, CDOT Resident Engineer, and impacted local entities as listed on the emergency contact list.

1.11 Scheduling analysis: Provide in depth schedule analysis in either MS Project or Primavera software (either current or past versions). Analysis to be performed for baseline schedule, monthly updates, revised schedules, or post construction with the accompanying documentation submitted by either contractor or construction personnel on the project. Provide as-built schedule after project completion as requested. Provide support to construction personnel or discussions with contractor as needed.

1.12 Dispute or Claim support: Assist CDOT in the preparation of the documentation, analysis, and process guidance for disputes or claims. This may or may not be on a project that has had consultant staff active on the project. Cost analysis or justifications may be included in this effort. Expert opinions or input may be requested depending on the nature of the dispute. Design analysis or quantity calculations as requested are included in this effort.

Post construction

2.1 Completion, Inspection and Punch List: Conduct a final inspection with the Contractor, CDOT Resident Engineer and CDOT Maintenance representative(s) upon substantial completion. The result of the inspection is the development of a punch list of remaining and/or outstanding work to be performed by the Contractor prior to final project acceptance.

2.2 As-Constructed Drawings: Verify as-constructed drawings of work completed by the Contractor, including final pay quantities, are complete and accurate.

2.3 Completion Inspection and Close-Out: Following the completion of all punch list items by the Contractor, conduct a final inspection with representatives from the Contractor and CDOT, to confirm the completion of all work. The result of this inspection will constitute final project acceptance.

2.4 Preparation of Final Pay Estimate: Determine final quantities with appropriate supporting documentation and checks to prepare final pay estimate.

2.5 Completion of Project documentation: prepare the final project documentation in a neat and organized manner for hard copy information as requested by the CDOT region. If requested, scanned electronic submittals of all the project documentation with naming conventions and filing as requested by the CDOT region. Submit the electronic documentation by CD, thumb drive or ProjectWise (deposit directly onto the server). May apply to any of the services in this contract.

Project Management

3.1 Progress Reports: Prepare monthly progress reports for the CDOT Resident Engineer documenting project progress, conformance with Contractor's schedule, status of change orders, and potential or ongoing problems.

3.2 Change Orders: Prepare project change orders and minor contract revisions with justification letters according to CDOT current standards and using current equipment blue book rates. Obtain and document CDOT Resident Engineer's and additional pre-approvals as identified in CDOT Construction Manual for all changes.

3.3 Project Coordination: Track, update and monitor project costs versus budget and notify CDOT Resident Engineer of anticipated problems in a timely manner. Coordinate project personnel including inspectors and material testers.

3.4 Certified Payroll: Review certified payroll documentation provided by the Contractor and conduct random interviews of Contractor employees to determine if the Contractor is in conformance with CDOT EEO/Labor Compliance policies.

Deliverables generated during the project will include the following and will be submitted throughout the duration of the project, or at specific dates commensurate with the deliverable's intent. The following are not all inclusive:

- Monthly Progress Reports.
- Project correspondence generated and received during the project.
- Project Materials Testing Records including all required test reports and certifications.
- Monthly progress pay estimates.
- Construction management records generated including minutes of meetings, project diary, inspection reports, item quantity and monthly payment records, contract modification orders, force account records, schedules, and other documentation as prepared during the course of construction in accordance with CDOT requirements. Submitted electronically as requested and using CDOT filing system or directly deposited into the CDOT ProjectWise system for the project.
- Complete "as-constructed" plans.
- Reviewed monthly schedules and as-built schedule at project completion.

IV. PROJECT CONSTRUCTION INSPECTION

In addition to the construction inspection tasks identified in **I. Project Materials Testing,** the construction inspector(s) shall assist the Project Engineer in performance of construction inspection activities and other project-related activities, as directed by the Project Engineer. Inspection responsibilities may include but are not limited to the following:

- Reviewing periodic reports and billings
- Participation in weekly progress meetings with contractor, subcontractors, utilities, and other interested parties;
- Anticipating project problems and suggesting solutions to the Project Engineer
- Monitoring compliance with and taking appropriate action to preserve safety on the project for all workers and traveling public in accordance with Method of Handling Traffic and the Manual of Uniform Traffic Control Devices;
- Initial, follow-up, completion, and final inspections of work in progress, including interim and final measurements;
- Notifying contractor and Project Engineer of non-compliance with the contract plan and specifications;
- Performance of special tests, investigations, or monitoring which are required to fulfill the intent of the CDOT inspection program;
- Completing inspection documentation using CDOT forms for the development of progress payments for the contractor in accordance with CDOT's prescribed procedures;
- Submittal of standard documentation reports no later than the following working day;
- Preparation of routine correspondence to the contractor, CDOT Staff, local agencies, etc;
- Providing liaison and communication to contractor field crews;
- Assisting in preparing punch lists of uncompleted work, non-conformance reports, and deficiency notices;
- Maintaining accurate field notes during construction reflecting actual construction details to be used in preparation of the as-constructed plans;
- Miscellaneous project-related duties as directed by the Project Engineer.

Inspection observations shall be documented and approved by the Project Engineer in accordance with the references cited below under PROJECT STANDARDS. Project specific work will be defined by task order, prior to work commencing.

MANAGEMENT OF CONSULTANT PROJECT CONSTRUCTION INSPECTION

The consultant, and CDOT Project Engineer or Resident Engineer shall meet, coordinate and schedule the required work. The consultant shall complete all work in accordance with their approved schedule.

PROJECT STAFFING AUTHORITY:

The Project Engineer is in direct charge of the work and is responsible for administration of the project contract as defined in the CDOT Standard Specifications. This includes approving and setting work hours for both project construction and inspection.

LABOR, MATERIALS, AND EQUIPMENT:

The consultant shall furnish all personnel, materials, and equipment required to perform the work in a timely manner:

- Clipboard, string line, 4-foot carpenter level
- Miscellaneous equipment to include calculator, office supplies, and personal safety equipment
- Cell phone
- Project transportation
- Computers and software as required

SPECIAL QUALIFICATIONS FOR CONSTRUCTION PROJECT INSPECTORS

The construction inspector(s) must possess a current and valid Colorado Driver's license. The construction inspector(s) must be certified in the areas of inspection to be performed by the CDOT Construction Inspector Qualification Program.

V. HIGHWAY MATERIALS EVALUATION:

The scope includes all necessary work to assess product performance relating to material utilization on highway projects.
The purpose of the highway materials work is to accomplish field investigation, literature review or technical evaluation to determine suitability of material for inclusion or exclusion pertaining to highway projects. This work may be accomplished in a preliminary phase, construction phase or post-project investigation. The processes necessary to conduct Materials work may include, but are not limited to, the following activities: material source investigation (aggregate pit processing methods, quality verification), recommendations on aggregate pit suitability and involvement with maintaining and concluding pit permits, material additive issues (e.g. lime), test result variance, material property correlation with test results, review of construction techniques as they affect material properties, roadway distress evaluation, value engineering proposal evaluation, selection of pavement types and determination of typical sections for the pavement structure.

MANAGEMENT OF CONSULTANT HIGHWAY MATERIALS EVALUATION

The consultant, CDOT Region Material Engineer shall meet, coordinate and schedule the required work

DOCUMENTATION:

The final product of Material work will be reports containing problem descriptions and recommendations for solutions or a synopsis of the issues. Included in reports may be appropriate test results and analysis of findings.

Project specific work will be defined by task order, prior to work commencing.

VI. VOIDS ACCEPTANCE LABORATORY

At the direction of the CDOT Project Engineer or Resident Engineer, the consultant shall furnish and equip an operable voids acceptance laboratory at a location deemed acceptable to CDOT. The purpose of the laboratory is to provide a working environment for the consultant's tester or for a CDOT tester to perform volumetric testing on asphalt samples for the purpose of Quality Assurance (QA) testing. It is expected that all equipment will be operated in the lab to generate sample results. Testing documentation will be generated and distributed from the **voids acceptance laboratory.** The traveling distance from the project site to the **voids acceptance laboratory** will be deemed to be of paramount importance in obtaining timely test results.

MINIMUM REQUIREMENT FOR VOIDS ACCEPTANCE LABORATORY

The Voids Acceptance Laboratory (Voids Lab) will be subject to the approval of the Project Engineer and must meet the requirements of CDOT Field Materials Manual CP-10 and pass inspection by a CDOT representative as provided by CDOT Field Materials Manual CP 10.

The Voids Lab must be temperature controlled to provide a suitable working environment for the testing personnel and applicable ambient temperatures for testing. Space must be adequate to provide for safe and reasonable testing conditions.
An acceptable **Voids Lab** should have a minimum of 384 Square Feet of space such as a 48 feet long by 8 feet wide trailer.

The minimum amount of operational equipment should be as follows:

- Water bath (circulating 140 F)
- Water bath (circulating 77 F)
- Forced Draft Oven 4 cu ft (minimum of 3)
- Incubator 6 cu ft
- Freezer 4.7 cu ft
- Thermometer (293 to 401 F) certified
- Thermometer (203 to 311 F) certified
- Thermometers (-8 to 30 F)
- Thermometers (daily use)
- Desiccating Crystals

- Compression Testing Machine
- Super Pave Gyratory Compactor---Troxler model 4140-B
- Accessories for Gyratory—3 molds (100 mm), Calibration Kit, printer
- Vacuum Pump
- Vibro de-aerator
- Mechanical Splitter
- Quartermaster---Gilson
- Manometer
- Fine Aggregate Voids Device CPL 5113
- Sieves—12 inch brass
- Stabilometer
- Lottman Breaking Head
- Ignition Furnace CPL 5120
- Microwave Oven—1.1 cu ft, 10 power levels
- Puck extractor
- Computer for CDOT Asphalt software (Voids03 & Millennium) and email
- Supporting equipment e.g. glassware, scoops, cooling fans, gloves etc.

VII. PROFILING

The selected Consultant will identify one or more pavement smoothness testing contractors (PSTC) to be used in the Regions.

The PSTC shall supply:
- A high speed profiler (HSP) with a current CP 78 certification
- A HSP operator with a current LabCAT Level S certification
- The ability to update to and use the latest CDOT profile specifications as they are revised

The PSTC shall be capable of mobilizing to a Project within 7 days upon notification by the Department.

The PSTC will collect pavement smoothness data on a Project following the procedures of CP 74 and in compliance with CDOT specifications.

The PSTC will submit the pavement smoothness data file to the Department within 48 hours after it was collected. All data submitted to the Department shall be reviewed by a Professional Engineer for accuracy and completeness. The data may be submitted on either a CD or thumb drive. If the PSTC utilizes a HSP manufactured by International Cybernetics Corp (ICC) the data shall be submitted in the native ICC file format. If the PSTC does not utilize an ICC HSP, the data shall be submitted in a format recognizable by ProVAL 2.7. Along with the pavement smoothness data, the PSTC shall submit a detailed log identifying the location of each exclusion area.

The Consultant shall select which PSTC will be used on a Project. The PSTC shall not perform both QC and QA work on a Project.

PSTC time will be paid hourly to include mobilization time, testing time, demobilization & processing time.

VIII. Other Services

As requested by the Regions and specified in the task orders, other services not specified above may be requested on an as-needed basis. The scope of work for these services will include the details of the needs.

Note: The CDOT Project Manager will use the cover sheet on the following page, together with the Contract Scope, in order to provide a consistent Task Order request template. The CDOT Project Manager will fill in the Task Order #, the Scope request date, and the other Project information. The CDOT Project Manager will also indicate the requested services for the Task Order by marking one or more of the listed materials services, and will also attach any additional project-specific details or information necessary to complete the Scope package for the Task Order.

Scope of Work

Task Order # _____ Region 1, 2, 4, or 6

Construction Management / Construction Inspection / Materials Testing

Services Date: _____ Project Number: _____

Project Location: _____

Scope of Work For:

- **I. Project Materials Testing**
- **II. Region Materials Laboratory Testing**
- **III. Construction Project Management and Services**
- **IV. Project Construction Inspection**
- **V. Highway Materials Evaluation**
- **VI. Voids Acceptance Laboratory**
- **VII. Profiling**
- **VIII. Other Services**

Active day – to – day administration of this contract will be delegated to:

NAME: _____

TITLE: _____

ADDRESS: _____

_____

TELEPHONE NUMBER: _____