

SCOPE OF WORK

**Region 3 Program Specific Construction Management, Inspection and Testing
General Scope Terms for Project:**

Contract Administration

The Contract Administrator for this Contract will be:

For CDOT: Peter Lombardi, Resident Engineer
Region 3
Bridge Enterprise and Special Projects Residency
Phone: 920 328-9962 Fax: NA
E-mail: peter.lombardi@state.co.us

Active Day-to-Day administration and monitoring of this contract will be delegated to the following CDOT employee:

As designated by the Program Engineer

Definitions: The following definitions are in addition to the base contract. Other definitions used herein are as defined by the Project Standards.

CDOT Resident Engineer(RE) – The CDOT Resident Engineer is responsible to the Region Program Engineer for the quality and successful completion of a transportation project. The Resident Engineer authorizes interim and final payments and all changes to Contracts for all Consultants and Contractors.

CDOT Project Engineer – The CDOT employee, assigned by the Resident Engineer, who is the Chief Engineer’s duly authorized representative. The CDOT Project Engineer is in direct charge of the work and is responsible for the administration and satisfactory completion of the project under contract. A CDOT Project Engineer may, or may not, be provided by CDOT. Unless specifically designated, in writing, by the RE the consultant Project Engineer and ERIC responsibilities will be designated to the Consultant, as part of this contract.

CDOT Project Manager – The CDOT Employee that will act as the primary contact for the Project. The PM will facilitate coordination between the Consultant and the Resident Engineer for CMOs, field issues and inquiries from the Consultant. The PM signs the Consultant form 10s, reviews invoices and attends weekly meetings hosted by the Consultant for project updates. The PM is not a substitute for the ERIC which the Consultant is obligated to provide.

Consultant Principal Engineer - The Consultant Principal Engineer administers the Consultant contract. The Consultant Principal Engineer shall be available during construction and will be utilized as needed to provide engineering guidance and

EXHIBIT A

oversight of the Consultant's employees. The number and types of personnel may be adjusted up or down to meet project workload and Contractor's schedule. The Consultant Principal Engineer shall meet with the CDOT Resident Engineer if it is anticipated that Consultant services may not be required for a period exceeding one week. A procedure shall be agreed upon at the Initial Project meeting to address this issue.

Consultant Engineer in Responsible Charge - The Consultant Engineer in Responsible Charge (ERIC) is the licensed engineer (PE) in responsible charge of Consultant services performed as described in this Contract. The ERIC shall exert the degree of control an engineer is required to maintain over engineering decisions made personally or by others over which the engineer exercises supervisory direction and control authority, as per Section 12-25-102(14) C.R.S.

Consultant Project Engineer – The Consultant Project Engineer is licensed professional engineer with direct responsibilities for observing construction to evaluate compliance with plans and specifications, or supervises staff with such responsibilities, and is the Consultant Engineer in Responsible Charge (EIRC).

The Consultant Project Engineer is in direct charge of the work and is responsible for the administration and satisfactory completion of the project. The Consultant Project Engineer's duties are delegated by the CDOT Resident Engineer in accordance with the scope of work in the consultant's contract with CDOT. The Consultant Project Engineer is not authorized to sign or approve Contract Modification Orders.

Consultant Testing Supervisor – The Consultant employee in responsible charge of the Consultant Project Tester. See additional requirements in Colorado Procedure 10 in the Field Materials Manual.

Construction Management, Construction Inspection, and Construction Testing - The activities associated with the roles assigned for the monitoring, testing, documentation and other administrative project-related services under the responsible charge of the Consultant Professional Engineer, and at the direction of the Project Engineer to ensure conformance with the Project Standards.

Consultant Inspector - The Consultant's employee(s) who perform(s) inspection services under the responsible charge of the Consultant's Professional/Project Engineer and at the direction of the CDOT Resident Engineer.

Consultant Tester - The Consultant's employee(s) who perform(s) materials testing and inspection services under the responsible charge of the Consultant's Professional/Project Engineer and at the direction of the CDOT Resident Engineer.

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Laboratory Tester – The Consultant employee who provides testing services to the region laboratory and works under the direct supervision of the Region Material Engineer or designee (Lab Manager). The Consultant Laboratory Tester shall possess valid certifications and demonstrable testing experience as stipulated in the contract.

Region I.A.T. Staff – Individual assigned by the State to be responsible for administering the Independent Assurance Program and the Independent Assurance Sampling-Testing and Witnessing of Testing Sampling as defined in Appendix D of the Field Materials Manual.

Region Material Engineer (RME) – The CDOT Employee that provides project support in areas relating to construction and materials issues. The RME is in responsible charge of the region laboratory units, and is required to review the Form 1324 (Consultant Tester Evaluation).

Region Head Tester – The CDOT Employee that is assigned to assist the Project Engineer with oversight of project testing, and testing and materials documentation.

Consultant Schedule Reviewer - The Consultant Schedule Reviewer shall be qualified in reviewing transportation construction schedules, and shall be capable of reviewing construction schedules submitted in Microsoft Project scheduling software format.

Work – The engineering and materials testing services that are the subject of this contract.

Work Duration and Project Staffing

Actual staff required during the projects may be modified by the Resident Engineer as required by the work load. Concurrent projects within the same proximity may be staffed with the same personnel as approved by CDOT Region 3.

The Consultant's staff shall be composed of personnel experienced in Highway and Tunnel intelligent transportation systems (ITS) and lighting is desirable. Specifically variable message sign installation, lighting and replacement along with the testing and integration. Including electrical system experience with wiring and pulling electrical and communications cabling, CDOT project procedures and methods, materials testing and inspection as well as concrete and HMA construction, schedule review and analysis, environmental compliance, and all types of roadway construction, as defined by the Project Scope (See Exhibit A-1 through A- 5)

All support construction staff will be either CDOT or Consultant personnel and shall remain assigned to the project site during the duration of the construction, unless otherwise directed by the Resident Engineer. CDOT reserves the right to replace consultant personnel with available CDOT personnel, or others.

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Work may be required night and/or day, on weekends, holidays and/or on a split shift basis. Work weeks may be in excess of or less than the standard 40-hour week.

The consultant shall contact CDOT OIT to ensure access to all applicable software applications (LIMS, Site Manager, ProjectWise etc.) 4 weeks prior to commencement of work.

Personnel Qualifications

TABLE 1

Class/Certification	Consultant Project Engineer	Consultant Inspector	Consultant Tester
Basic Highway Math	NA	X	X
Basic Highway Surveying	X	X	X
Basic Highway Plan Reading	X	X	X
Erosion Control Supervisor	X	X	X
Traffic Control Supervisor/Flagging Certifications	X	X	
Specialty Certifications	To be determined by the Resident Engineer and Consultant		
CAPA Asphalt Inspection	X	X	X
American Concrete Institute (ACI) Grade I Field Technician			X
ACI Concrete Strength Technician			
CRMCA PCCP Inspection Level I	X	X	
CAPA Level A			X
CAPA Level B			X
CAPA Level C			
CAPA Level E			X
WAQTC Embankment Base Testing Technician Certification			X
WAQTC Inspection		X	
Major Structures (NHI)	X	X	
Site Manager Materials and LIMS	X		X
Site Manager	X	X	
Other Certifications as defined by the Resident Engineer or CP 10	X	X	X

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The consultant staff must be certified by the CDOT Construction Inspector Qualification Program in the areas of inspection to be performed. A copy of work experience, references and/or proof of Licensing shall be provided before work begins to the Project Engineer, placed in the project file, and made available to the CDOT Resident Engineer. Personnel provided by the Consultant who do not meet 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 Resident Engineer.

Project Meetings

The Consultant and CDOT project personnel shall meet weekly to coordinate and schedule the required work. The Consultant shall submit a schedule of the Consultant's required scope of work for the project to CDOT for approval. The Consultant shall complete all Consultant's work in accordance with the approved schedule or as approved by the CDOT Program Engineer or the CDOT Resident Engineer.

Routine Billing and Reporting

The Consultant shall submit the following on a regular basis:

- All field and laboratory personnel shall submit a completed Form 10 on a weekly basis to CDOT for approval and supply a copy of the approved Form 10 for the Consultant's Professional Engineer file, as directed. Billings shall accurately reflect the hours and mileage on the approved Form 10's.
- Billing for vehicle mileage shall accurately represent vehicle miles driven in the performance of work on the project, or for travel authorized for reimbursement by the Engineer. A mileage log shall be kept for all travel subject to reimbursement.

Consultant is, or shall provide, the engineer in responsible charge (See Consultant ERIC definition). Consultant is responsible for the management and workmanship of the sub-consultants. The ERIC, or experienced designee, shall complete a minimum of one monthly site visit to review project documentation for quality and conformance (See Project Standards). The ERIC, or experienced designee, shall also complete and document a monthly traffic control review (See appendix B of the Construction Manual). Findings of the review shall be provided to the CDOT Project Manager and CDOT Resident Engineer.

Status of Contract

The consultant shall monitor the financial status of the Contract and advise the CDOT Resident Engineer on a weekly basis of any need for supplementing their contract or negotiating an additional Modification. Failure to monitor contract status and provide timely notification may result in discontinuation of the consultant's services on the project until a supplemental agreement can be affected.

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The Consultant Contract Administrator shall report the status of the contract to the CDOT Contract Manager and CDOT Resident Engineer monthly on contract expenditure and time progress. Summary may include multiple tasks or may be project specific, but should include all relevant Contracts for the project (i.e. if Multiple Contracts written for the same project). Reporting shall include but shall not be limited to

- Expiration date
- Percent complete / percent remaining
- Contract duration used / remaining
- Contract schedule – work completed / work remaining
- Work completed to date / Work remaining (descriptive summary)
- Contract balance relative to expenditures
- Assessment of Contract status/condition

Project Standards

Construction Management, Construction Inspection and testing shall be in accordance with the Colorado Department of Transportation's Procedures. All work shall be in accordance with the CDOT Construction Manual, Field Materials Manual (as stipulated on the Project Form 250), applicable AASHTO test procedures, Colorado Department of Transportation Inspector's Checklist, Standard Specifications for Road & Bridge Construction, applicable Project and Standard Special Provisions currently in use when a construction project is advertised, applicable M&S Standards, and the project plans. 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, MUTCD, and National Electric Code. Proposed work procedures shall be coordinated with the Project Engineer prior to the start of work. All activities performed shall be as directed and authorized by the Project Engineer, as described herein, and as approved by the CDOT Resident Engineer.

Consultant is responsible for documentation that is free from error. Failure to submit final documentation as required may result in withholding any and all consultant payments. Further, no payment shall be made for the correction of any final documentation for noted deficiencies.

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Travel Reimbursement

- Travel reimbursement shall follow the guidelines set forth in the Consultant Agreement. All costs anticipated for reimbursement must be approved by the CDOT Project Manager and CDOT Resident Engineer prior to commencement. All time and mileage shall be approved by the CDOT Engineer on the Form 10 for the same period in which the travel occurred.

Mileage

Daily Commuting– Mileage shall commence from the closest equivalent distance from either the home office of the CDOT Residency, listed herein, the consultant staff’s residence, or the consultant home office for consultant staff that intends to commute to the project on a daily basis. Actual mileage over 35 miles, one way, can be compensated (ex: 37 miles – 35 miles = 2 miles of compensation).

Out of Town Projects (Lodging paid) – As indicted in guidance, mileage is not paid for travel from main office or temporary residence to Project site.

No reimbursement for personal travel

Time

Daily Commuting– Chargeable time shall commence from the closest equivalent distance from either the home office of the CDOT Residency, listed herein, the consultant staff’s residence or the consultant home office for consultant staff that intends to commute to the project on a daily basis. Chargeable time shall be reduced by the time staff is not actively involved in a project function (e.g. lunch, breaks, etc).

Out of Town Projects (Lodging paid) – Allowed time to be charged includes one round trip to the staff’s home office per week at a maximum of 4 hours per round trip.

Consultant Project Engineer

In addition to the provisions found in the Consultant Agreement, the following requirements apply:

Consultant Project Engineer shall submit all project final documentation, including as-constructed plans, not included in the Form 250 and the final materials documentation file, to the CDOT Resident Engineer, CDOT Project Manager or CDOT Contract Manager within 30 Calendar days after the date of project acceptance.

Consultant Project Engineer shall be responsible for overseeing and ensuring the completion of the Final Materials Documentation.

Consultant Inspector

In addition to the provisions found in the Consultant Agreement, the following requirements apply:

No Amendment to base contract.

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Consultant Tester

In addition to the provisions found in the Consultant Agreement, the following requirements apply:

Consultant Testing Supervisor shall maintain a 3-ring binder in the field testing lab that documents the supervisor's project visits. The visit may be documented on a Consultant or CDOT Diary Form and should note the purpose of the visit and any issues that were discussed, plan of action and resolution by the Consultant Tester.

Successfully complete LIMS training and maintain project documentation using LIMS in SiteManager and other CDOT software as needed. Paperwork for access to LIMS shall be submitted no later than 2 weeks prior to construction NTP.

The Project Engineer 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 shall use CDOT worksheets/forms unless otherwise approved by the Resident Engineer (Through the RME or Head Tester). The consultant testers shall use the CDOT Form 211 to notify the Project Engineer of outstanding documentation.

The consultant shall coordinate the schedule for Independent Assurance Tests for the project in accordance with CDOT Form 379, with the Region Head Tester, or directly with the Region IAT Staff. The Consultant Tester shall maintain a field lab copy of the CDOT Form 379 that shall be updated after each Independent Assurance Test.

Tester shall utilize the CDOT Field Materials Manual stipulated on the Project Form 250. The final materials documentation file, including the 473 draft, 1199, and the completed Form 250 shall be submitted to the Project Engineer within 30 Calendar days after the date of project acceptance.

The Form 1199 (Project Closure) is required to be completed, signed and submitted by the Consultant, unless otherwise approved.

Labor, Materials, Vehicles & Equipment

The Consultant shall furnish all personnel, equipment and transportation required to perform the work. Consultant personnel shall have appropriate vehicles (equipped with flashing amber beacon), smart phone, computers, scanner/color printers, digital cameras, calculators, manuals, office supplies, and personal protective equipment (PPE) required for performing the work. PPE shall be in accordance with CDOT Procedural Directive PD 80.1.

Each Consultant staff shall be supplied with a state of the art computer with internet connectivity that operates off their own internet service provider that is available through wireless, air cards, smart phone enabled hot spots, or similar. Consultant computers shall be able to operate CDOT's web based Trns*Port application, ProjectWise, and have current Microsoft Word and Excel software. The Consultant schedule reviewer shall have a computer equipped with Microsoft Project scheduling software and be able to run a monthly "Digger Report".

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Each consultant staff shall also be supplied with a state of the art smart phone and tablet that operates on both wireless internet connectivity and a data plan. These phones and tablet shall be used in the field for project documentation, email, taking photos, reference materials, daily diaries, and other useful field functions. Additional three tablets, with the same options as above, will be supplied to CDOT for the project for the same purpose.

Personnel qualifications, staffing level, and number and types of vehicles shall be subject to the approval of the CDOT Resident Engineer. The Consultant shall assign personnel for the duration of the project unless otherwise approved by the Resident Engineer.

Engineer's Certification

The CDOT Resident Engineer shall be the final authority regarding acceptance of work performed by the Consultant. The Consultant Firm will review, provide a PE stamp, and sign the CDOT Form 250 as it relates to the testing and acceptance of materials. The CDOT Resident Engineer shall be the final authority regarding acceptance of Contractor's work not conforming to the plans and specifications.

EXHIBIT A-1

Project Name: 20437 I-70 Hanging Lake Tunnel (HLT) Garage Door Replacement

Date: September 15, 2016

Project No.: NHPP 0702-351

Project Code: 20437

Project Location: I-70 MP 124

Project Description / Scope of Work for:

This Scope of Work will provide construction management services in the form of Half time Consultant Project Engineer, Consultant Inspector, Part time Tester and Part Time Consultant Scheduler Reviewer for the HLT Garage Door Replacement located in CDOT Region 3. Project is located at I-70 MP 124. Project Scope includes removal and replacement of cross passage seven garage doors with new TL-3 crash barrier, standard rollup door and fire door. Project will also include traffic control.

The estimated time period for the work described in this scope of work covers the period from 3/2017 through 12/31/2017. The Consultant shall provide the following staff. Resumes and three references are required for all personnel proposed for the project.

It is anticipated that the required consultant project staffing will be:

Quantity	Position	Duration
1	Consultant Project Engineer (CPE)	Half Time
1	Consultant Inspector	Full Time
1	Consultant Tester	Part Time
1	Consultant Scheduler Reviewer	Part Time

EXHIBIT A-2

Project Name: HLT VMS CMS LUS

Date: September 15, 2016

Project No.: HNPP 0702-352

Project Code: 20547

Project Location: I-70 MP 124

Project Description / Scope of Work for:

This Scope of Work will provide construction management services in the form of half time consultant project engineer, two inspectors, part time consultant tester and part time consultant scheduler reviewer located in CDOT Region 3. Project is located at I-70 MP 124. Project Scope includes Removal and replacement of lane use signs in hanging lake tunnel complex. Work included electrical system installation with wiring and pulling electrical and communications cabling and traffic control.

The estimated time period for the work described in this scope of work covers the period from 4/2017 through 4/1/2018. The Consultant shall provide the following staff. Resumes and three references are required for all personnel proposed for the project.

It is anticipated that the required consultant project staffing will be:

Quantity	Position	Duration
1	Consultant Project Engineer (CPE)	Half Time
2	Consultant Inspector	Full Time
1	Consultant Tester	Part Time
1	Consultant Scheduler Reviewer	Part Time

EXHIBIT A-3

Project Name: I-70 Beavertail Lighting Replacement Illumination

Date: September 15, 2016

Project No.: NHPP 0701-230

Project Code: 20882

Project Location: I-70 MP 50

Project Description / Scope of Work for:

This Scope of Work will provide construction management services in the form of two consultant inspectors, part time consultant tester and part time consultant scheduler reviewer for the Beavertail Lighting Replacement project located in CDOT Region 3. Project is located at I-70 MP 50. Project Scope includes removal and replacement of the tunnel lighting system. Work included electrical system installation with wiring and pulling electrical and communications cabling, traffic control, detour HMA and painting.

The estimated time period for the work described in this scope of work covers the period from 3/2017 through 4/1/2018. The Consultant shall provide the following staff. Resumes and three references are required for all personnel proposed for the project.

It is anticipated that the required consultant project staffing will be:

Quantity	Position	Duration
2	Consultant Inspector	Full Time
1	Consultant Tester	Part Time
1	Consultant Scheduler Reviewer	Part Time

OPTION A (EXHIBIT A-X)

Project Name: HLT Generator Upgrade

Date: September 15, 2016

Project No.: NHPP 0702-364

Project Code: 19715

Project Location: I-70 MP 124

Project Description / Scope of Work for:

This Scope of Work will provide construction management services in the form of one Consultant Project Engineer, one consultant inspector, part time consultant tester and part time consultant scheduler reviewer for the HLT Generator Upgrade project located in CDOT Region 3. Project is located at I-70 MP 124. Project Scope includes removal and replacement of the emergency generator. Work included concrete removal, removal of existing generator, and installation of new generator.

The construction is currently not funded. CM services will not be needed until funding is identified. If funding is identified the Consultant shall provide the following staff. Resumes and three references are required for all personnel proposed for the project.

It is anticipated that the required consultant project staffing will be:

Quantity	Position	Duration
1	Consultant Project Engineer (CPE)	Full Time
1	Consultant Inspector	Full Time
1	Consultant Tester	Part Time
1	Consultant Scheduler Reviewer	Part Time

OPTION 2 (EXHIBIT A-X)

Project Name: I-70 No Name Tunnel Lighting Replace Illumination

Date: September 15, 2016

Project No.: NHPP 0702-359

Project Code: 20934

Project Location: I-70 MP 118

Project Description / Scope of Work for:

This Scope of Work will provide construction management services in the form of one Consultant Project Engineer, one consultant inspector, part time consultant tester and part time consultant scheduler reviewer for No Name Tunnel Lighting Replacement located in CDOT Region 3. Project is located at I-70 MP 118. Project Scope includes removal and replacement of the tunnel lighting system. Work included electrical system installation with wiring and pulling electrical and communications cabling, traffic control, detour HMA and painting.

The construction is currently not funded. CM services will not be needed until funding is identified. If funding is identified the Consultant shall provide the following staff. Resumes and three references are required for all personnel proposed for the project.

It is anticipated that the required consultant project staffing will be:

Quantity	Position	Duration
1	Consultant Project Engineer (CPE)	Full Time
1	Consultant Inspector	Full Time
1	Consultant Tester	Part Time
1	Consultant Scheduler Reviewer	Part Time