

## **ENVIRONMENTAL REQUIREMENTS**

The Contractor shall comply with all requirements of all applicable environmental laws, Regulations, and Governmental Approvals issued there under, whether obtained by CDOT or the Contractor. The Contractor shall prepare an Environmental Compliance Work Plan for the Project, specifically identifying all of the environmental compliance requirements, permits, and environmental mitigation activities for the Project and the Contractor's approach for complying with the requirements. The Environmental Compliance Work Plan shall be submitted to CDOT for Acceptance within 60 Days of NTP 1. The Environmental Compliance Work Plan shall be updated every three months, to show the status of environmental compliance Activities and shall be submitted to CDOT for Acceptance. The Contractor is advised that a *I-25 EA Re-Evaluation* of the 2003 Environmental Assessment I-25 Improvements Through the Colorado Springs Urbanized Area, and the Finding of No Significant Impact and Final 4(f) Evaluation for I-25 Improvements Through the Colorado Springs Urbanized Area has been completed and is available on the web page <http://www.coloradodot.info/projects/I25NorthCOSDB>. The items that were reevaluated in I-25 EA Re-Val take precedence over the 2003 I-25 EA.

### **Environmental, Health and Safety Management**

The Contractor shall comply with all requirements of Section 250 of the *2011 Standard Specifications for Road and Bridge Construction*, Environmental, Health and Safety Management.

The Contractor shall coordinate all remediation activities and shall not negotiate with any regulatory agencies or third parties on behalf of CDOT.

Responsibility and liability for protection of the Contractor's workers from exposure to hazardous waste and materials and compliance with safety practices and regulations, rests solely with the contractor.

The Contractor shall be responsible for removal of any facilities and equipment installed within the Project limits related to performance of the Work under this Section prior to completion of the Project.

The Contractor is advised that a Phase I Environmental Site Assessment has been completed for this project and is available in the reference documents.

### **Health and Safety Plan**

The Contractor's Health and Safety Officer shall prepare a Health and Safety Plan (HASP) for the Project according to the requirements of Section 250 of the 2011 Standard Specifications for Road and Bridge Construction, Environmental, Health and Safety Management.

Lead Paint and Asbestos Reports are available on the web page at <http://www.coloradodot.info/projects/I25NorthCOSDB> under Structure Lead Paint & Asbestos Reports under Contract Documents.

### **Asbestos and Lead Based Paint Surveys**

Asbestos and Lead Based Paint (LBP) Surveys were completed for the following structures: H-17-AI, H-17-BC, H-17-BD, H-17-J, and H-17-L. The Asbestos and LBP Reports for these structures were completed on July 13, 2012.. Results from the surveys did not reveal the presence of any asbestos containing material for any of the structures. However, structures H-17-BC, H-17-J, and H-17-L had steel components of the bridge painted with LBP and structure H-17-BD had lead containing paint (LCP) on painted steel members. Structure H-17-AI did not have any LBP or LCP.

Demolition of structures H-17-BC, H-17-BD, H-17-J, and H-17-L will require a demolition permit from the CDPHE. A requirement of the permit is a certified asbestos inspection of the structure. CDOT has a demolition permit application for each of these structures with the signature of the certified asbestos inspector that performed the asbestos inspection. These permit applications are available from the CDOT Project Engineer.

### **Construction Requirements (Lead – Based Painted Elements)**

The Contractor shall provide a method for abating the lead paint from structures H-17-BC, H-17-BD, H-17-J, and H-17-L to the CDOT Project Engineer for acceptance.

The metal bridge support beams at structures: H-17-BC, H-17-BD, H-17-J, and H-17-L shall be disposed of in accordance with Section 250 of the Standard Specifications and with the Revision of Section 250 at the end of this Environmental Section #5..

The Contractor shall comply with all requirements for containing flaked off paint material and other residue and waste materials that may be generated during removal and transportation and ultimate disposal of painted structures. Any encapsulate used to treat the lead-based paint shall render the coated paint non-leachable by not exceeding the threshold of 5 milligrams per liter Toxicity Characteristic Leaching Procedure (TCLP) for lead. The Contractor shall properly manage, transport and dispose of solvents, paints, and waste.

### **Required Personnel**

The Contractor shall designate a Health and Safety Officer (HSO) in accordance with subsection 250.03 of the Standard Specifications. The HSO shall have a thorough knowledge of all applicable OSHA, EPA, State, including but not limited to the CDPHE – Colorado Department of Public Health and Environment, and local regulations as they pertain to the protection of the environment and the safety and health of the workers.

The Contractor shall designate a monitoring technician as per Subsection 250.03. The monitoring technician will be responsible for the monitoring of hazardous substances during work on the project.

The Contractor shall provide certification indicating that the procedures, protection and work described in the method statement are in accordance with the OSHA and EPA standards and applicable federal, state and local regulations.

### **Visual Resources**

The Contractor shall coordinate with the United States Air Force Academy (USAFA) to ensure the Project is compatible with the USAFA visual goals. The Contractor shall include CDOT in all meetings with the USAFA.

### **Visual Setting**

The Contractor shall comply with the visual element requirements in the Architectural Requirements, if applicable. The Architectural Requirements are available at <http://www.coloradodot.info/projects/I25NorthCOSDB>

### **Ackerman Overlook**

CDOT is in the process acquiring the additional easement from the USAFA for the new location of the Ackerman Overlook. CDOT will design the Ackerman Overlook and then the Contractor will construct the Ackerman Overlook through a Force Account.

### **Air Quality**

The Contractor shall obtain a construction permit and develop a control plan for particulate emissions in accordance with the CDPHE, Colorado Air Quality Control Commission regulations.

The Contractor shall have water systems for street cleaning equipment capable of diminishing dust during sweeping operations.

## **Noise**

The Contractor shall use well maintained equipment. Mufflers must be in good working condition. To the extent feasible, construction noise shall be limited to daylight hours.

## **Historical Resources**

The historic sites within the Project are as follows:

United States Air Force Academy (Historical District); and  
Old Denver Highway

The Contractor shall perform the following historical mitigation requirements of the EA:

1. The Contractor shall provide a Project design compatible with the USAFA visual goals.
2. Old Denver Highway located at station 1148+00, shall not be disturbed. The Contractor shall protect the Old Denver Highway with temporary orange fencing.

## **Archaeology**

The Contractor shall be responsible for notifying the CDOT Project Engineer of any unidentified archaeological resources that are uncovered by the Work. Upon discovery of any archeological resources the Contractor shall immediately cease Work in the vicinity of the discovery, fence off the area and notify CDOT, such fencing subject to CDOT Approval. The Contractor shall not resume Work in the area until receiving notification from CDOT allowing Work to re-commence. If archaeological resources are discovered CDOT will perform the archeological resource mitigation requirements.

## **Paleontology**

The Contractor shall provide 90 % design plans to the CDOT paleontologist for review to determine if monitoring during construction is necessary.

The Contractor shall be responsible for notifying the CDOT Project Engineer of any unidentified paleontological resources that are uncovered by the Work. Upon discovery of any paleontological resources (surface bones or other possible fossils) the Contractor shall immediately cease Work in the vicinity of the discovery, notify CDOT, and fence off the area, such fencing subject to CDOT Approval. The Contractor shall not resume Work in the area until receiving notification from CDOT allowing Work to re-commence in the area. If paleontological resources are discovered CDOT will perform the paleontology resource mitigation requirements.

**CDOT and Contractor Environmental Permits**

CDOT will be responsible for obtaining Governmental Approvals and permits as indicated in the table below.

| Permits/Approvals  | Permitting Agency           |
|--|-----------------------------|
| Copy of CDOT's Municipal Separate Storm Sewer NPDES-(MS4) Permit                                   | CDPHE                       |
| SB40 Certification/Approval<br>CDOT will submit the Contractor Prepared SB40 Certification Package | Colorado Parks and Wildlife |

The Contractor shall comply with the requirements of the MS4 Permit.

**CONTRACTOR OBTAINED PERMITS:**

The Contractor shall be responsible for obtaining all governmental and agency permits required for the Work, not otherwise obtained by CDOT, including but not limited to the following environmental permits:

| Permits/Approvals   | Permitting Agency  |
|---|--|
| Construction Dewatering Permit<br>(See Section 12)                                      | CDPHE Water Quality Control Division   |
| National Pollutant Discharge Elimination System Construction General Permit (NPDES-CGP) | EPA  |
| Colorado Discharge Permit System (CDPS) Stormwater Construction Permit (SCP)            | CDPHE Water Quality Control Division   |
| 404 Permit(s)   | US Army Corps of Engineers   |
| Prepare SB 40 Certification   | Submitted to CDOT, which will review and send to Colorado Parks and Wildlife |
| 401 Certification   | CDPHE-Water Quality Control Division   |
| Wetland Finding   | CDOT/FHWA  |
| Demolition Permit   | CDPHE  |

### **404 Permit**

The Contractor is required to obtain the necessary Section 404 permits for this project. Section 404 permits will be required for all Waters of the US including jurisdictional wetlands. The US Army Corps of Engineers (USACE) has indicated that the use of Nationwide Permits will be utilized where appropriate. CDOT anticipates that the entire project can be permitted under multiple nationwide permits, but this is dependent upon final design and amount of impacts to jurisdictional waters and wetlands. The USACE is the regulatory agency and decides whether or not this project will meet the Nationwide Permit or Individual permit requirements. The Contractor shall be responsible for complying with all of the requirements of the Section 404 permit(s), including those requirements as specified in this Section.

### **Wetlands**

A wetland delineation was completed on March 9<sup>th</sup>, 2012. Wetland maps, wetland shape files and Routine Wetland Determination Forms are available in the Contract Documents on the web page at <http://www.coloradodot.info/projects/I25NorthCOSDB> and shall be used in determining wetland impacts during design and construction.

The Contractor shall replace all wetlands at a 1:1 ratio regardless if the wetland is jurisdictional or non-jurisdictional per Executive Order 11990 "Protection of Wetlands".

The impacts to wetlands within the Project are estimated as follows:

1. Wetland Impacts:
  - Jurisdictional Impact: Approximately 5.0 acres
  - Non-Jurisdictional: Approximately 3.2 acres
  - Total Approximately 8.2 acres

### **Wetland Finding Report/Mitigation**

#### **Wetland Finding Report**

A Wetland Finding Report will be required as permanent wetland impacts will exceed 500 square feet. Impact amounts in the previous section are estimates and wetland impacts shall be recalculated during design.

Guidance documents on how to prepare a Wetland Finding Report and an example of a Wetland Finding Report are included in the Contract Documents on the web page at <http://www.coloradodot.info/projects/I25NorthCOSDB>. CDOT will review the draft Wetland Finding Report within 10 working days upon receiving it from the Contractor. The Contractor shall incorporate CDOT's comments into the Final Wetland Finding Report. The Final Wetland Report will be sent to CDOT Headquarters Environmental Programs Branch personnel for review. Since impacts to wetlands are expected to be greater than 1.0 acres, FHWA will review and approve the final Wetland Finding Report. The Contractor will incorporate all comments from CDOT Headquarters Staff and from FHWA. The Contractor shall not impact any wetlands until CDOT has notified the Contractor the Final Wetland Report was Approved.

Any wetlands not impacted in the project area shall be protected with orange fencing. Impacts to wetlands shall be minimized to the greatest extent possible.

The Wetland Finding Report will include a wetland mitigation plan which will be implemented during construction. This mitigation plan shall identify how wetland impacts were avoided or minimized, identify Best Management Practices, and describe where and how permanent and temporary wetland impacts will be mitigated. CDOT's Functional Assessment of Colorado Wetlands (FACWet) Method shall be used for determining the functional values of the wetlands being impacted. Per EO 11990 all wetlands will be mitigated for at a 1:1 ratio. Since most of the wetland impacts will occur in known Preble's Meadow Jumping Mouse (PMJM) habitat (a federally listed threatened species), wetland mitigation sites shall be located, to the greatest extent possible, in drainages that have been identified as PMJM habitat. Creation of wetlands in PMJM habitat shall be done such that it benefits the species (i.e. improves degraded PMJM habitat). Wetland mitigation sites located in PMJM habitat will require additional consultation with the USFWS. CDOT will consult with the USFWS on the pre-approved Contractors wetland mitigation plan such that the Wetland Finding Report can be Approved.

### **Wetlands Inspection, Establishment, Acceptance, and Warranty Period**

Inspection, Landscape Establishment, Acceptance and the Landscape Warranty Period for wetland areas shall be subject to the applicable requirements of the Landscape Section.

Substantial Landscape Completion, Landscape Establishment Periods, and Acceptance for wetlands areas shall be subject to compliance of the requirements of all applicable permits.

The Landscape Establishment Period for wetlands areas shall commence upon receipt of a written "Notice of Substantial Landscape Completion" for wetlands areas from CDOT and is not subject to prior Final Acceptance of the Project.

The Landscape Establishment Period for wetlands areas will last for 24 months, and will begin the following spring if Substantial Landscape Completion for the wetlands areas is issued in the fall.

The Contractor shall provide CDOT with annual mitigation progress reports. The reports shall be submitted to CDOT before December 31<sup>st</sup> of each year, and shall include the following:

1. Project number, Section 404-permit number, and county where project is located.
2. Summary on the status of the wetlands.
3. Percent of ground surface area that is vegetated.
4. Percent of the vegetated area that contains wetland vegetation.
5. List of prevalent plant species and their wetland establishment status.
6. Location map.
7. Drawings as needed for illustration.
8. Photographs of mitigation area for each report.
9. Percent cover of noxious weeds.
10. Acreage determination of successful mitigation sites.
11. Areas that will need any additional improvements or remedial action.

Upon completion of the Landscape Establishment period for wetlands areas, at the Contractor's request, CDOT will inspect the wetlands to determine compliance to the requirements of the Contract Documents. Wetlands areas will not be Accepted until a minimum of 70 percent of the mitigation site consists of wetland species and noxious weeds comprise of less than 5 percent of the total cover.

Acceptance of the wetlands areas will initiate the one (1) year Landscape warranty period and maintenance period. Throughout the warranty and maintenance period the Contractor shall be responsible for remedial action and restoration of created wetlands.

Remedial action is defined action taken to correct failed wetland construction. This can include but is not limited to:

1. Re-evaluation of hydrology source.
2. Groundwater monitoring to identify and correct improper grade elevations.
3. Additional excavation or fill.
4. Replanting vegetation.

Restoration of created wetlands is defined as actions taken to improve the conditions of an existing wetland that has limited functions. Techniques can include, but are not limited to:

1. Replanting vegetation (i.e. replanting salvaged trees, shrubs, herbaceous vegetation).
2. Re-configuration of improper ground elevation
3. Enhancing hydrology.

### **Senate Bill 40/Wildlife**

The Senate Bill 40 Wildlife Certification (SB 40) will be required for construction Activities that impact stream and their associated riparian areas. The Contractor shall not perform construction Activities within the impacted riparian areas until Colorado Parks and Wildlife accepts the SB 40 Certification. The Contractor shall be responsible for preparing the SB 40 Certification on the behalf of CDOT. Submittal requirements for the SB 40 certification will include the following:

The Contractor shall comply with the Memorandum of Understanding between CDOT and Colorado Parks and Wildlife (Formerly Colorado Division of Wildlife) regarding avoiding and minimizing wetland impacts. The document is available at <http://www.coloradodot.info/projects/I25NorthCOSDB>.

### **Contractor Requirements**

1. The Contractor shall submit 90% construction plans to CDOT for all construction that impacts the riparian areas for the purpose of obtaining the SB 40 Certification. The Contractor shall prepare an Individual SB 40 Certification package on CDOTs behalf to Colorado Parks and Wildlife. Individual SB40 Requirements and an example of an Individual SB 40 Certification Package are available in the Contract Documents on the web page at <http://www.coloradodot.info/projects/I25NorthCOSDB>.

### **CDOT Requirements**

1. CDOT will coordinate directly with the Colorado Parks and Wildlife and will submit Contractor prepared SB 40 Certification documents.
2. CDOT will notify the Contractor when the SB 40 Certification is issued. Issuance of the SB 40 Certification allows the Contractor to begin Work in impacted stream and riparian areas.

### **Senate Bill 40 Permit Mitigation Requirements**

Approximately 10 acres of impacted riparian areas have been identified. The requirements of the SB 40 Certification that the Contractor shall be responsible for complying with are as specified in this Section.

The Contractor shall protect all riparian areas that are not to be impacted with orange protective fencing by the Project prior to beginning construction adjacent to the riparian areas. Location of fencing to define and protect riparian areas shall be subject to the Approval of CDOT.

Trespassing, parking, or storing equipment within riparian areas by the Contractor shall be considered an impact that requires appropriate mitigation.

Non-native riparian areas that are impacted shall be cut and sprayed to prevent future non-native plant establishment.

The locations of replacement species for mitigation of impacted riparian areas shall be subject to CDOT Approval. The Contractor shall submit a landscaping plan and vegetation establishment plan for all riparian replacement areas to CDOT for Approval prior to performing the Work.

Impacted riparian areas shall be mitigated within the same natural drainage system, and within the Project limits.

The Contractor shall install beaver guards for all new trees.

Mitigation of riparian areas shall be subject to the requirements of the Landscaping Section.

### **Mitigation of Non-Native Riparian Areas**

The Contractor shall provide 2:1 ratio of native to non-native tree replacement with native 1.5-inch or greater caliber Eastern Cottonwood Trees per acre for impacts to riparian areas that contain non-native tree species.

Non-native tree species include but not limited to the following:

1. Siberian Elm
2. Russian Olive
3. Crack Willow
4. Black Locust
5. Tamarisk (Tree Form)

Non-native shrub species shall be replaced with Coyote Willow or Sandbar Willow where proper hydrology exists to support willow species.

Tamarisk in shrub form shall be replaced with coyote and/or sandbar willow.

### **Mitigation of Native Riparian Areas**

The Contractor shall provide one to one in-kind replacement for native tree species and use native seed or other methods to restore the herbaceous cover within impacted riparian areas.

Native species include but not limited to the following:

1. Cottonwood Trees
2. Willow Trees (Peachleaf)
3. Willow Shrubs (coyote or sandbar)
4. Herbaceous riparian cover (sedges, rushes, and mesic grasses)

### **Migratory Birds**

This work shall consist of protecting migratory birds. The Contractor shall coordinate clearing and grubbing operations and work on all structures to avoid impacts to migratory birds protected by the Migratory Bird Treaty Act. Project Special Specification 240 "Protection of Migratory Birds" is included at the end of this section. The Contractor shall hire a qualified biologist to conduct migratory bird surveys. In 2012, three raptor nests were identified along the project corridor. A map of these nest locations are available in the Contract Documents on the web page at <http://www.coloradodot.info/projects/I25NorthCOSDB>. The contractor is responsible for phasing construction to avoid impacts to potentially nesting raptors or taking other precautionary measures to avoid a "take" of a migratory bird.

### Preble's Meadow Jumping Mouse (PMJM)

The Preble's Meadow Jumping Mouse (PMJM) is a federally listed threatened species and occurs in many of the drainages in the project area. CDOT submitted a Biological Assessment (BA) to the US Fish and Wildlife Service (USFWS) for this Project. Currently CDOT is awaiting a Biological Opinion (BO) from the USFWS. A BO is acceptance of CDOT's BA by the USFWS. CDOT will supply the Contractor a copy of the BO as soon as the USFWS issues a BO for this work. The Contractor is responsible for reviewing the BA and BO and following all of the commitments. A copy of the BA is available in the Contract Documents on the web page at <http://www.coloradodot.info/projects/I25NorthCOSDB>. If the Contractor cannot construct the project within the commitments contained in the BA/BO the Contractor shall re-consult, under Section 7 of the federal Endangered Species Act, with the USFWS. The Contractor will be responsible for any additional mitigation at no additional cost to the project. **Since CDOT was not able to obtain a BO from the USFWS prior to the release of the Final Request for Proposal, no construction on this I-25 project shall begin until an approved BO is obtained.**

The Contractor is advised that as long as areas that are identified as temporary impacts to PMJM habitat are disturbed during the PMJM inactive season (November 1-April 30) that work in these areas can continue during the PMJM's active season. Any area not disturbed during the PMJM's inactive season shall be considered a no-work area until November 1.

One of the commitments in the BA is to provide two physical wildlife linkages along this project corridor to improve PMJM movement across I-25. These linkages have been identified at Kettle Creek and at Jackson Creek. The BA describes these linkages and preliminary designs of the linkages are available in the Contract Documents available on the web page at <http://www.coloradodot.info/projects/I25NorthCOSDB>

The Contractor shall provide PMJM linkage at Kettle Creek across I-25 only, as shown in the I-25 EA and the new BA. The linkage across I-25 shall be compatible with eight (8) lane configuration.

The Contractor shall provide a PMJM linkage at Jackson Creek as described in the I-25 EA and the BA.

### **Gunnison's Prairie Dogs**

The Gunnison's Prairie Dog (GPD) is a federal candidate species and occurs in the "Northgate" area of the project. CDOT submitted a Biological Assessment (BA) to the US Fish and Wildlife Service (USFWS) for this Project. Currently CDOT is awaiting a Biological Opinion (BO) from the USFWS. A BO is acceptance of CDOT's BA by the USFWS. CDOT will supply the Contractor a copy of the BO as soon as the USFWS issues a BO for this work. The Contractor is responsible for reviewing the BA and BO and following all of the commitments. A copy of the BA is available in the Contract Documents on the web page at <http://www.coloradodot.info/projects/I25NorthCOSDB>. If the Contractor cannot construct the project within the commitments contained in the BA/BO the Contractor shall re-consult with the USFWS. The Contractor will be responsible for any additional mitigation at no additional cost to the project.

During design the Contractor shall first avoid impacts to GPD if possible. If GPDs are impacted, impacts should be minimized to the greatest extent possible. Impacts to GPDs is defined as any physical disturbance to GPDs or their occupied habitat. This would include disturbance to burrows, removal of vegetation, or capture of GPDs. In the event that GPD's are impacted, passive relocation as described in the BA/BO should be used if possible. Should trapping and relocation be necessary, the Contractor will need to coordinate these efforts with the USAFA, CDOT and with Colorado Parks and Wildlife.

### **Water Quality and Erosion Control**

The Work will disturb at least one acre of land within the boundaries of the USAFA. The Contractor shall obtain a National Pollutant Discharge Elimination System General Construction Permit (NPDES-GCP) prior to construction from the Environmental Protection Agency (EPA) for all Work within the USAFA boundaries.

It is anticipated the Work will disturb at least one acre of land outside the boundaries of the USAFA. If at least one acre of land outside the boundaries of the USAFA, the Contractor shall obtain a Colorado Discharge Permit System Stormwater Construction Permit (CDPS-SCP) prior to construction from the Colorado Department of Public Health and Environment (CDPHE) for all Work outside of the USAFA boundaries.

The Contractor shall comply with all the requirements of the NPDES-GCP, the CDPS-SCP, and Sections 101, 107, 208, 212, 213, and 216 regarding Water Quality of the 2011 Standard Specifications for Road and Bridge Construction.

The Contractor shall comply with the requirements of the Stormwater Compliance Order on Consent (SC-081023-1) issued by CDPHE to CDOT on January 1, 2009. The consent order is available in the Contract Documents on the project web page at <http://www.coloradodot.info/projects/I25NorthCOSDB>

The Contractor shall be responsible for maintaining erosion control documentation, identifying erosion control for temporary construction needs and for permanent stormwater management needs, installation of best management practices( BMPs), inspection and maintenance of all BMPs, and maintenance of all seeded areas.

The Contractor shall install the construction BMPs for the Project in accordance with the CDOT M & S Standards and Erosion Control and Stormwater Quality Guide. Construction BMPs for the Project shall include, but are not limited to, surface roughening, erosion bales, erosion logs, gravel bags, temporary stabilization, silt fence, temporary clean water diversions, temporary slope drains, storm drain inlet protection, outlet protection, check dams, temporary sediment traps, hazardous waste and spill containment, concrete washout and saw water disposal, vehicle tracking pads, topsoil and soil conditioning, timely reseeding and other final stabilization, mulching and soil retention blankets, and frequent pavement sweeping of the Project Roadways.

The Contractor shall continuously maintain and repair the construction BMPs for the duration of the Project. The Contractor shall make all inspections required in Section 208 of the 2011 Standard Specifications for Road and Bridge Construction, documented in writing, to assure the construction BMPs are adequate for the site conditions of the Project, and are in good working condition. The Contractor shall be responsible for implementing a program to periodically, and after any significant runoff event, remove sediment, trash, and debris from the construction BMPs and other drainage facilities within the limits of the Project. The Contractor shall have a complete supply of all necessary construction BMP Materials onsite at all times in preparation for BMP installation needs and construction water quality control emergencies.

The Contractor shall assign to the Project an employee to serve in the capacity of the Erosion Control Supervisor (ECS). The ECS shall be a person other than the Superintendent. The ECS shall be experienced in all aspects of construction and have satisfactorily completed an ECS training program authorized by CDOT. The ECS's responsibilities are included in Section 208 of the 2011 Standard Specifications for Road and Bridge Construction.

CDOT will review the Contractor's stormwater management activities throughout the duration of the Project for verification of compliance with the Project specifications, NDPES- GCP, and the CDPS-SCP.

### **Stormwater Management Plan (SWMP)**

The Contractor shall prepare a Stormwater Management Plan (SWMP) and SWMP Site Maps detailing BMPs to control erosion and sedimentation and the discharge of any pollutants that may enter stormwater and be transported to receiving waters during the construction of the Project. The current CDOT SWMP template for projects with a CDPS-SCP (with narratives in the BMP matrixes) shall be used to prepare the SWMP. All components required shall be added to the SWMP Site Maps prior to initial construction. The SWMP and SWMP Site Maps shall be submitted to the CDOT Project Engineer for acceptance, prior to applying for the NPDES-GCP and the CDPS-SCP and prior to construction.

The SWMP shall include details of the clear diversions that will be required for the low flows of any drainage ways with continuous flow during construction. The sides of the embankments of any detours through the stream area shall include hard armoring on each side to protect the embankments from erosion in the event of high flows. The Contractor shall determine the height of the hard armoring that will be required throughout the stream areas.

The Contractor shall continually update the SWMP and SWMP Site Maps as necessary based on actual construction activities throughout construction of the Project.

### **Environmental On-Site Preconstruction Conference**

Prior to construction the Contractor's Erosion Control Supervisor (ECS) shall arrange for an on-site environmental preconstruction conference to be conducted by the CDOT Region 2 Water Pollution Control Manager as required in Section 208 of the 2011 Standard Specifications for Road and Bridge Construction.

### **NPDES-GCP and CDPS - SCP Permit Inactivation**

Prior to inactivating the NPDES-GCP the Contractor shall comply with Subsection 208.10 Items to Be Accomplished Prior to Final Acceptance and the following requirements:

- The Contractor shall notify CDOT when the project final stabilization has reached a uniform perennial plant establishment density of at least 70 percent of pre-disturbance levels. CDOT and USAFA will then inspect the site(s) and pre-approve that the required density of final stabilization has been achieved. Upon CDOT and USAFA pre-approval of final stabilization the Contractor shall then remove all temporary BMP's.
- When the Contractor has removed all temporary BMPs. CDOT and USAFA will issue a final Approval that final stabilization has been achieved and all temporary BMPs have been removed.

- Upon receiving the final CDOT and USAFA Approval the Contractor shall inactivate the NPDES-GCP.

Prior to inactivating the CDPS-SCP the Contractor shall comply with Subsection 208.10 Items to Be Accomplished Prior to Final Acceptance and the following requirements:

- The Contractor shall notify CDOT when the project final stabilization has reached a uniform individual plant density of at least 70 percent of pre-disturbance levels. CDOT will then inspect the site(s) and pre-approve that the required density of final stabilization has been achieved. Upon CDOT pre-approval of final stabilization the Contractor shall then remove all temporary BMPs.
- When the Contractor has removed all temporary BMPs. CDOT will issue a final Approval that final stabilization has been achieved and all temporary BMP's have been removed.
- Upon receiving the final CDOT Approval the Contractor shall inactivate the CDPS-SCP.

#### **Municipal Separate Storm Sewer (MS4) Permit**

CDOT has obtained an MS4 Permit for the storm drainage systems that it owns and maintains. The Contractor shall be responsible for complying with the terms and conditions of the CDOT MS4 Permit that pertain to the Project, as practical. The MS4 Permit is available on the web page at

<http://www.coloradodot.info/programs/environmental/water-quality/documents>

The Contractor shall construct permanent water quality BMPs for the Project as necessary to comply with the requirements of the CDOT MS4 Permit (100% capture volume or 80% removal of Total Suspended Solids). Permanent water quality BMPs for the Project shall include, but are not limited to, such components as sediment basins and proprietary vaults, water quality ponds, grass roadside ditches, and grass buffer strips.

The Contractor shall immediately notify CDOT of any suspected illicit or improper connections or discharges into any storm sewer system discovered during construction of the Project.

CDOT will be responsible for investigation of the suspected illicit connection and implementing corrective action. The Contractor shall not maintain, reconnect, or otherwise allow discharge of improperly disposed materials into the storm sewer system within the limits of the Project.

### **Construction Dewatering Permit**

The Contractor shall obtain a Construction Dewatering Permit from the CDPHE for any temporary dewatering of groundwater during construction in accordance with Water Quality Control Division (WQCD) requirements. The Contractor shall apply for this permit at least 30 Days prior to the start of discharge.

The Contractor shall obtain a Construction Dewatering Permit from the CDHPE for any permanent groundwater dewatering in accordance with WQCD requirements. The water quality standard that governs this discharge is that of the receiving water as evaluated by the WQCD. The Contractor shall provide all information needed to assist the WQCD in their evaluation and setting of a water quality standard for this permit.

The Contractor shall monitor roadways for any settlement caused by dewatering. The Contractor shall do a preliminary survey of any private property or buildings that may be affected by dewatering to establish existing conditions. The Contractor shall repair any damage to roadways, or private property or buildings caused by his dewatering operations.

**Deliverables**

At a minimum, the Contractor shall submit the following to CDOT for review, Approval and/or Acceptance:

| <b>Deliverable</b>   | <b>Acceptance or Approval</b> | <b>Schedule</b>   |
|--|-------------------------------|---|
| Environmental Compliance Work Plan                           | Acceptance                    | Within 60 days of NTP 1   |
| Environmental Compliance Work Plan Updates                   | Acceptance                    | Every three months  |
| Environmental Permits  | Acceptance                    | Per the requirements of the permit and the Contract Requirements  |
| Wetland Mitigation Plan                                      | Acceptance                    | Prior to issuance of Released for Construction Documents  |
| Wetland Finding Report                                       | Approval                      | Prior to Construction.  |
| Annual Wetlands Mitigation Progress Reports                  | Acceptance                    | Prior to December 31 of every year  |
| Migratory Bird Nest Survey                                   | Acceptance                    | Prior to impacting existing structures that may contain active bird nests.                                  |
| 90% Construction Plans for Riparian Impact Areas             | Acceptance                    | Required for submittal of SB 40 permit that must be obtained prior to construction in riparian impact areas |
| Individual SB40 Certification Package                        | Approval                      | Required prior to impacting any streams and riparian areas  |
| Landscape and Plant Establishment Plan for Riparian Areas    | Approval                      | Prior to commencing landscaping of riparian areas   |
| Health and Safety Management Plan (HASP)                     | Approval                      | Within 60 days of NTP   |
| Sampling Analysis Plan (SAP)                                 | Acceptance                    | Within 60 days of NTP   |
| Identification of Subcontractors to Perform Remediation Work | Review                        | Prior to subcontractors Commencing Remediation Work   |
| Remediation Scope of Work                                    | Approval                      | Prior to commencing Remediation Work  |
| Monthly RHM Reports  | Review                        | Monthly   |

All deliverables shall also conform to the requirements of the Quality Management Section.

## Project Special Provisions

### REVISION OF SECTION 207 TOPSOIL AND SECTION 212 SEEDING, FERTILIZER, SOIL CONDITIONER, AND SODDING

Sections 207 and 212 of the Standard Specification are hereby revised for this project as follows:

Delete Subsection 207.01 and replace with the following:

This work includes salvaging and stockpiling on-site suitable topsoil and, or amending additional embankment material that is to be placed on disturbed areas within the project limits. It shall include placing of topsoil and or amending embankment upon constructed cut and fill slopes after grading operations are completed.

Subsection 207.02 shall include the following:

The source of topsoil for this project is undesignated. The Contractor may salvage existing on site topsoil and or prepare soil using organic amendments.

Topsoil shall not include any minerals or elements detrimental to plant growth. All rocks and debris larger than 4 inches in diameter that are visible after the Topsoil is spread shall be removed and disposed of in an appropriate manner off the project site.

Delete the first three paragraphs and the last paragraph in subsection 207.04 and replace with the following:

Topsoil will be measured in place by measuring random depths of topsoil and or additional amended embankment, and computing the volume by multiplying the area times the average depth. Measured depths greater than 4 inches will be measured as 4 inches, or maximum depth required in the plans.

Subsection 207.05 shall include the following:

At the Contractors option organic amendments at a rate of 43 cubic yards/acre, as described in subsection 212.02 (b), may be used instead of Topsoil.

The addition of soil conditioners in the form of organic amendment will not be measured and paid for separately, but shall be included in the work.

In Subsection 207.05 delete pay item "Stockpile Topsoil."

In Subsection 212.06, delete item (a) and replace with the following:

After ripping or tilling, remove all debris such as concrete, rocks (greater than 4" in diameter) and other deleterious or undesirable material from area.

Subsection 212.07 shall include the following:

If incorporating organic amendment into embankment is used instead of Topsoil, it will be measured as if topsoil were used in accordance with Section 207.05. Additional embankment material to bring the slopes up to the topsoil line shown in the typical section shall be included in the work. Payment will be full compensation for all work necessary to complete the work.

**REVISION OF SECTION 213  
MULCH TACKIFIER**

Section 213 of the Standard Specifications is hereby revised for this project as follows:

In Subsection 213.02, delete the 11<sup>th</sup> paragraph and replace with the following

Material for mulch tackifier shall consist of a free-flowing, noncorrosive powder produced either from the natural plant gum of *Plantago Insularis* (Desert Indianwheat) or pre-gelatinized 100% natural corn starch polymer. The powders shall possess the following properties:

*Plantago Insularis* (Desert Indianwheat)

|                       |                                   |
|-----------------------|-----------------------------------|
| (1) Protein content   | 1.6% ± 0.2                        |
| (2) Ash content       | 2.7% ± 0.2                        |
| (3) Fiber             | 4.0% ± 0.4                        |
| (4) PH 1% solution    | 6.5 - 8.0                         |
| (5) Mucilage content  | 75% min. as tested per ASTM D7047 |
| (6) Settleable solids | 5.0% ± 0.5                        |

Pre-gelatinized 100% natural corn starch polymer

|                                 |                                |
|---------------------------------|--------------------------------|
| (1) Organic Nitrogen as protein | <5%                            |
| (2) Ash content                 | <2%                            |
| (3) Fiber                       | <4.5%                          |
| (4) PH 1% solution              | 6.5 – 8.0                      |
| (5) Size                        | 00% thru 850 microns (20 mesh) |
| (6) Settleable solids           | <2%                            |

**REVISION OF SECTION 213  
SOIL BINDER**

Section 213 of the Standard Specifications is hereby revised for this project as follows:

Subsection 213.01 shall include the following:

This work consists of furnishing and placing soil binder over soil on roadway ditches or slopes indicated on the plans or as designated.

Subsection 213.02 shall include the following:

Material for soil binder shall consist of a dry granular formula containing anionic polyacrylamide polymer. Formulas containing neutral polyacrylamide polymers and/or cationic polyacrylamide polymers shall not be used. The molecular weight of the polymer shall be between 12 and 20 Mg/mole.

The material used for soil binder shall not contain any mineral filler, clays, or other substances which may inhibit germination or growth of plants. Water shall conform to subsection 209.02. Fiber shall conform to Subsection 213.03 (b). The wood cellulose fiber mulch (fiber) used with the soil binder application may contain recycled wood fibers.

Application of soil binder shall be done hydraulically.

Soil Binder Preparation and Application:

Application guidelines:

| Soil binder/acre | Water/acre   | Fiber/acre |
|------------------|--------------|------------|
| 20 lbs.          | 1000 gallons | 900 lbs.   |

Hydraulic application:

1. Fill tank with a minimum of one-third of the required volume of water.
2. Run agitators at high speed while the formula is SLOWLY added to the water.
3. Agitate for a minimum of ten minutes prior to application.
4. Spray onto mulch or soil using a nozzle that will disperse the spray into a mist that will uniformly cover the surface.

Subsection 213.03 shall include the following:

Soil binder shall be sprayed over soil as described in Subsection 213.03(b).

**REVISION OF SECTION 216  
SOIL RETENTION COVERING**

Section 216 of the Standard Specifications is hereby deleted for this project and replaced with the following:

**DESCRIPTION**

**216.01** This work consists of furnishing, preparing, applying, placing, and securing soil retention blankets and turf reinforcement mats for erosion control on roadway ditches, slopes, or channels as designated in the Contract or as directed.

**MATERIALS**

**216.02** Soil retention covering shall be either a soil retention blanket or a turf reinforcement mat as specified in the Contract. It shall be one of the products listed on CDOT's Approved Products List and shall conform to the following:

(a) *Soil Retention Blanket*. Soil retention blanket shall be composed of degradable natural fibers mechanically bound together between two slowly degrading synthetic or natural fiber nettings to form a continuous matrix. The blanket shall be of consistent thickness with the fiber evenly distributed over the entire area of the mat. When biodegradable blanket is specified, the thread shall be 100 percent biodegradable; polypropylene thread is not allowed.

When photodegradable netting is specified the thread shall be polyester, biodegradable or photodegradable.

Blankets and nettings shall be non-toxic to vegetation and shall not inhibit germination of seed. The materials shall not be toxic or injurious to humans. Class 1 blanket shall be an extended term blanket with a typical 24 month functional longevity. Class 2 blanket shall be a long term blanket with a typical 36 month functional longevity. The class of blanket is defined by the physical and performance characteristics.

1. *Soil Retention Blanket (Straw-Coconut)*. Soil Retention Blanket (Straw-Coconut) shall be a machine produced mat consisting of 70 percent agricultural straw and 30 percent coconut fiber. It shall be either biodegradable or photodegradable. When specified lightweight polypropylene netting shall be 1.5 pounds per 1000 square feet; heavyweight netting shall be 2.9 pounds per 1000 square feet. Blankets shall be sewn together on 1.50 inch to 2 inch centers.

Netting shall be as follows:

When biodegradable netting is specified, the top and bottom netting shall be 100 percent biodegradable organic jute fiber. Netting shall be constructed using a Leno weave which allows the strands of the net to move independently of each other.

When photodegradable netting is specified, the bottom side shall be lightweight polypropylene. The top side shall be heavyweight or lightweight polypropylene.

2. *Soil Retention Blanket (Excelsior)*. Soil retention blanket (excelsior) blanket shall consist of a machine produced mat of 100% curled wood excelsior with 80 percent, 6 inch or longer fiber length. It shall be either biodegradable or photodegradable. When specified lightweight polypropylene netting shall be on

both sides of the blanket and shall be 1.5 pounds per 1000 square feet. Blankets shall be sewn together at a maximum of 4 inch centers.

Netting shall be as follows:

When biodegradable netting is specified, the top and bottom netting shall be 100 percent biodegradable organic jute fiber. Netting shall be constructed using a Leno weave which allows the strands of the net to move independently of each other.

When photodegradable netting is specified, the bottom side shall be lightweight polypropylene. The top side shall be heavyweight or lightweight polypropylene.

3. *Soil Retention Blanket (Coconut)*. Soil Retention Blanket (Coconut) shall be a machine produced mat consisting of 100 percent coconut fiber. It shall be either biodegradable or photodegradable.

Netting shall be as follows:

When biodegradable netting is specified, the top and bottom netting shall be 100 percent biodegradable organic jute fiber. Netting shall be constructed using a Leno weave which allows the strands of the net to move independently of each other.

When photodegradable netting is specified, the bottom and top side shall be heavyweight polypropylene.

**Table 216-1  
 PHYSICAL REQUIREMENTS FOR SOIL RETENTION BLANKET –  
 PHOTODEGRADABLE OR BIODEGRADABLE BLANKETS**

| Product Class | Minimum Roll Width | Minimum Thickness<br>ASTM D 6525 | Acceptable Matrix Fill Material | Min. Mass per Unit Area<br>ASTM D 6475 | Size of Net Opening                                   |  |
|---------------|--------------------|----------------------------------|---------------------------------|--|---|--|
|               |                    |                                  |                                 |  | Photo-degradable                                      | Bio-degradable                                   |
| 1             | 6.5'               | 0.25"                            | Straw/Coconut                   | 8 oz/sy                                | Minimum:<br>0.50"x0.50"<br>Maximum:<br>0.75"x0.75"    | Minimum:<br>0.50"x0.50"<br>Maximum:<br>0.5"x1.0" |
| 1             | 6.5'               | 0.25"                            | Excelsior                       | 8 oz/sy                                | Minimum:<br>0.50"x0.50"<br>Maximum:<br>1.0"x2.0"      | NONE   |
| 2             | 6.5'               | 0.20"                            | Coconut Fibers                  | 8oz/sy                                 | Minimum:<br>0.50"<br>x0.5"<br>Maximum:<br>0.75"x0.75" | Minimum:<br>0.50"x0.50"<br>Maximum:<br>0.5"x1.0" |

**Table 216-2  
 PERFORMANCE REQUIREMENTS FOR SOIL RETENTION BLANKET –  
 PHOTODEGRADABLE OR BIODEGRADABLE BLANKETS**

| <b>Product Class</b> | <b>Slope Application "C" Factor<sup>1</sup> ASTM D 6459</b> | <b>Channel Application Permissible Shear Stress<sup>2</sup> (Un-vegetated) ASTM D 6460</b> | <b>Minimum Tensile Strength ASTM D 6818</b> |
|----------------------|---|--|---|
| 1                    | ≤ 0.10@3:1  | 2.00 lbs/sf  | 100 lbs/ft                                  |
| 2                    | ≤ 0.10@3:1  | 2.25 lbs/sf  | 125 lbs/ft                                  |

Notes:  
<sup>1</sup> "C" Factor calculated as ratio of soil loss from soil retention blanket protected slope (tested at specified or greater gradient, h:v) to ratio of soil loss from unprotected (control) plot in large-scale testing.  
<sup>2</sup> Permissible shear stress is the minimum shear stress that a product must be able to sustain without physical damage or excess soil loss when it is installed on a bare soil channel. Failure is defined as ½ inch of soil loss during a 30 minute flow event in large scale testing.

Blankets shall be tested for physical properties and have published data from a pre-approved independent testing facility.

Large scale testing of Permissible Shear Stress and Slope Erosion Protection ("C" factor) shall be performed by a pre-approved independent testing facility.

A sample of the staples and a copy of the manufacturer's product data showing that the product meets the Contract requirements shall be submitted for approval at the environmental preconstruction conference.

- (b) *Turf Reinforcement Mat.* Turf reinforcement mat (TRM) shall be a rolled mat consisting of UV stabilized, corrosion resistant, non-degradable synthetic fibers, filaments, or nets processed into a permanent three-dimensional matrix of the thickness specified in Table 216-3. TRMs shall provide sufficient thickness, strength and void space to permit soil filling and retention and the development of vegetation within the matrix. When TRM is not soil filled, the mat shall be tan in color. The class of TRM is defined by the physical and performance characteristics.

**Table 216-3**  
**PHYSICAL REQUIREMENTS<sup>1</sup> FOR TURF REINFORCEMENT MAT**

| Product Class | Minimum Roll Width | Minimum Thickness ASTM D 6525 | Acceptable Matrix Fill Material <sup>2</sup>         | Size of Net Opening <sup>2</sup>                   |
|---------------|--------------------|-------------------------------|--|--|
| 1             | 6.5'               | 0.25"                         | Excelsior, Straw/Coconut, Coconut, or Polymer fibers | Minimum:<br>0.50"x0.50"<br>Maximum:<br>0.75"x0.75" |
| 2             | 6.5'               | 0.25"                         | 100% UV Stabilized Synthetic Fibers                  | 0.50"x 0.50"                                       |
| 3             | 6.5'               | 0.25"                         | 100% UV Stabilized Synthetic Fibers                  | 0.50"x 0.50"                                       |

**Notes:**  
<sup>1</sup> For TRMs containing degradable components, all property values shall be obtained on the non-degradable portion of the matting alone.  
<sup>2</sup> For TRMs with nets and fill material. Netted TRMs shall be sewn together on 1.5 inch to 2 inch centers.

**Table 216-4**  
**PERFORMANCE REQUIREMENTS FOR TURF REINFORCEMENT MAT**

| Product Class | Tensile Strength MD ASTM D 6818 | UV Stability @ 500 Hours ASTM D 4355 | Maximum Permissible Shear Stress <sup>1</sup> (Vegetated) ASTM D 6460 |
|---------------|---------------------------------|--------------------------------------|---|
| 1             | 125 lbs/ft                      | 80%                                  | 6.0 lbs/sf  |
| 2             | 150 lbs/ft                      | 80%                                  | 8.0 lbs/sf  |
| 3             | 175 lbs/ft                      | 80%                                  | 10.0 lbs/sf   |

**Notes:**  
<sup>1</sup> Permissible shear stress is the minimum shear stress that a product must be able to sustain when placed on a fully vegetated channel without physical damage or excess soil loss. Failure is defined as ½ inch of soil loss during a 30 minute flow event in large scale testing.

TRMs shall be tested for physical properties and have published data from a pre-approved independent testing facility.

Large scale testing of Permissible Shear Stress will be performed by a pre-approved independent testing facility.

A sample of the staples and a copy of the manufacturer's product data showing that the product meets the Contract requirements shall be submitted for approval at the environmental preconstruction conference.

(c) *Staples.* Staples shall be made of wire:

For use in Channel: 0.165 inch, "U" shaped staples shall be 8 inches long and have a 1 inch crown.

For use on Slope: 0.165 inch, "U" shaped staples shall be 8 inches long and have a 1 inch crown.

"T" shaped pins shall not be used.

### **CONSTRUCTION REQUIREMENTS**

**216.03** The Contractor shall install soil retention coverings using the following procedure:

- (1) Prepare a stable and firm soil surface free of rocks, weeds, clods, roots, sticks, rivulets, gullies, and other obstructions.
- (2) Apply topsoil or soil conditioning as directed in the Contract to prepare seed bed.
- (3) Place seed in accordance with the Contract.
- (4) Unroll the covering parallel to the primary direction of flow.
- (5) Ensure that the covering maintains direct contact with the soil surface over the entirety of the installation area.
- (6) Do not stretch the material or allow it to bridge over surface inconsistencies.
- (7) Staple the covering to the soil such that each staple is flush with the underlying soil.
- (8) Ensure that staples are installed full depth to resist pull out. No bent over staples will be allowed. Install anchor trenches, seams, and terminal ends as shown on the plans.

If filling a TRM with soil, the Contractor shall:

- (1) Place 3 inches of topsoil or soil amended with soil conditioning.
- (2) Apply seed and rake into soil.
- (3) Install TRM
- (4) Place 0.5 inch to 1 inch of topsoil or soil amended with soil conditioning into the matrix to fill the product thickness.
- (5) Apply seed and rake into soil.
- (6) Install soil retention blanket (Class 1) over the seeded area and TRM.

When applicable, the covering shall be unrolled with the heavyweight polypropylene netting on top and the lightweight polypropylene netting shall be in contact with the soil.

**216.04 Slope Application.** Soil retention coverings shall be installed on slopes as follows:

The upslope end shall be buried in a trench 3 feet beyond the crest of the slope. When specified by the manufacturer, trench depth shall be increased up to 12 inches in depth. Before backfilling begins, staples shall be placed across the width of the trench. The trench shall then be backfilled to grade with soil amended with soil conditioning or topsoil, compacted by foot tamping, and seeded. Fabric shall be brought back over trench and stapled at 1 foot on center.

There shall be an overlap wherever one roll of fabric ends and another begins with the uphill covering placed on top of the downhill covering. Staples shall be installed in the overlap.

There shall be an overlap wherever two widths of covering are applied side by side. Staples shall be installed in the overlap.

Staple checks shall be applied on the slope every 35 feet. Each staple check shall consist of two rows of staggered staples.

The down slope end shall be buried in a trench 3 feet beyond the toe of slope. Before backfilling begins, staples shall be placed across the width of the trench. The trench shall then be backfilled to grade with soil amended with soil conditioning or topsoil, compacted by foot tamping, and seeded. Fabric shall be brought back over trench and stapled. If a slope runs into a receiving water or cannot be extended 3 feet beyond the toe of slope, the end of covering shall be secured using a staple check as described above.

Coverings shall be securely fastened to the soil by installing staples at the minimum rate shown on the plans. Staple spacing shall be reduced where required due to soil type or steepness of slope.

**216.05 Channel Application.** Soil retention coverings shall be installed as follows on a channel application:

Coverings shall be anchored at the beginning and end of the channel across its entire width by burying the end in a trench. When specified by the manufacturer, trench depth shall be increased up to 12 inches in depth. Before backfilling begins, staples shall be placed across the width of the trench. The trench shall then be backfilled to grade with soil amended with soil conditioning or topsoil and compacted by foot tamping, and seeded. Fabric shall be brought back over the trench and stapled.

Covering shall be unrolled in the direction of flow and placed in the bottom of the channel first. Seams shall not be placed down the center of the channel bottom or in areas of concentrated flows when placing rolls side by side.

There shall be an overlap wherever one roll of covering ends and another begins with the upstream covering placed on top of the downstream covering. Two rows of staggered staples shall be placed.

There shall be an overlap wherever two widths of covering are applied side by side. Staples shall be placed in the overlap.

The covering shall be anchored every 30 feet with a check slot. Check slots shall extend the entire width of the channel. The covering shall be buried in a trench. Before backfilling begins, staples shall be placed across the width of the trench. The trench shall then be backfilled to grade with soil amended with soil conditioning or topsoil, compacted by foot tamping, and seeded. Fabric shall be brought back over trench and continued down the channel.

Coverings shall be securely fastened to the soil by installing staples at the minimum rate shown on the plans. Staple spacing shall be reduced where needed due to soil type or high flows.

**216.06 Maintenance.** The Contractor shall maintain the soil retention coverings until all work on the Contract has been completed and accepted. Maintenance shall consist of the repair of areas where damage is due to the Contractor's operations. Maintenance shall be performed at the Contractor's expense. Repair of those areas damaged by causes not attributable to the Contractor's operations shall be repaired by the Contractor and will be paid for at the contract unit price. Areas shall be repaired to reestablish the condition and grade of the soil and seeding prior to application of the covering.

1

SECTION 240

PROTECTION OF MIGRATORY BIRDS

BIOLOGICAL WORK PERFORMED BY THE CONTRACTOR'S BIOLOGIST

Section 240 is hereby added to the Standard Specifications for this project as follows:

**DESCRIPTION**

**240.01** This work consists of protecting migratory birds during construction.

**MATERIALS AND CONSTRUCTION REQUIREMENTS**

**240.02** The Contractor shall schedule clearing and grubbing operations and work on structures to avoid taking (pursue, hunt, take, capture or kill; attempt to take, capture, kill or possess) migratory birds protected by the Migratory Bird Treaty Act (MBTA). The Contractor shall retain a qualified wildlife biologist for this project. The wildlife biologist shall have a minimum of three years experience conducting migratory bird surveys and implementing the requirements of the MBTA. The Contractor shall submit documentation of the biologist's education and experience to the Engineer for acceptance. A biologist with less experience may be used by the Contractor subject to the approval of the Engineer based on review of the biologist's qualifications.

The wildlife biologist shall record the location of each protected nest, bird species, the protection method used, and the date installed. A copy of these records shall be submitted to the Engineer.

(a) *Vegetation Removal.* When possible, vegetation shall be cleared prior to the time when active nests are present. Vegetation removal activities shall be timed to avoid the migratory bird breeding season which begins on April 1 and runs to August 31. All areas scheduled for clearing and grubbing between April 1 and August 31 shall first be surveyed within the work limits for active migratory bird nests. The Contractor's wildlife biologist shall also survey for active migratory bird nests within 50 feet outside work limits. Contractor personnel shall enter areas outside CDOT right of way only if a written, signed document granting permission to enter the property has been obtained from the property owner. The Contractor shall document all denials of permission to enter property. The Contractor shall avoid all active migratory bird nests. The Contractor shall avoid the area within 50 feet of the active nests or the area within the distance recommended by the biologist until all nests within that area have become inactive. Inactive nest removal and other necessary measures shall be incorporated into the work as follows:

1. *Tree and Shrub Removal or Trimming.* Tree and shrub removal or trimming shall occur before April 1 or after August 31 if possible. If tree and shrub removal or trimming will occur between April 1 and August 31, a survey for active nests shall be conducted by the wildlife biologist within the seven days immediately prior to

the beginning of work in each area of tree and shrub removal or trimming. The survey shall be conducted for each phase of tree and shrub removal or trimming.

If an active nest containing eggs or young birds is found, the tree or shrub containing the active nest shall remain undisturbed and protected until the nest becomes inactive. The nest shall be protected by placing fence (plastic) a minimum distance of 50 feet from each nest to be undisturbed. This buffer dimension may be changed if determined appropriate by the wildlife biologist and approved by the Engineer. Work shall not proceed within the fenced buffer area until the young have fledged or the nests have become inactive.

If the fence is knocked down or destroyed by the Contractor, the Engineer will suspend the work, wholly or in part, until the fence is satisfactorily repaired at the Contractor's expense. Time lost due to such suspension will not be considered a basis for adjustment of time charges, but will be charged as contract time.

2. *Grasses and Other Vegetation Management.* Due to the potential for encountering ground nesting birds' habitat, if work occurs between April 1 and August 31, the area shall be surveyed by a wildlife biologist within the seven days immediately prior to ground disturbing activities.

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SECTION 240

PROTECTION OF MIGRATORY BIRDS

BIOLOGICAL WORK PERFORMED BY THE CONTRACTOR'S BIOLOGIST

The undisturbed ground cover to 50 feet beyond the planned disturbance, or to the right of way line, whichever is less, shall be maintained at a height of 6 inches or less beginning April 1 and continuing until August 31 or until the end of ground disturbance work, whichever comes first.

If birds establish a nest within the survey area, an appropriate buffer of 50 feet will be established around the nest by the CDOT biologist. This buffer dimension may be changed if determined appropriate by the CDOT biologist and approved by the Engineer. The Contractor shall install fence (plastic) at the perimeter of the buffer. Work shall not proceed within the buffer until the young have fledged or the nests have become inactive.

If the fence is knocked down or destroyed by the Contractor, the Engineer will suspend the work, wholly or in part, until the fence is satisfactorily repaired at the Contractor's expense. Time lost due to such suspension will not be considered a basis for adjustment of time charges, but will be charged as contract time.

The wildlife biologist shall conduct raptor nest surveys within 0.5 mile of the construction site prior to the start of construction and prior to each construction phase. This survey can be done with binoculars. If construction activities are located within the Colorado Parks and Wildlife (CPW) recommended buffer zone for specific raptors, "NO WORK" zones shall be established around active sites during construction according to the CPW standards or as recommended by the wildlife biologist in consultation with the CDOW. The "NO WORK" zone shall be marked with either fencing or signing. Work shall not proceed within a "NO WORK" zone until the wildlife biologist has determined that the young have fledged or the nest is unoccupied.

- (b) *Work on structures.* The Contractor shall perform work on structures in a manner that does not result in a taking of migratory birds protected by the Migratory Bird Treaty Act (MBTA). The Contractor shall not prosecute the work on structures during the primary breeding season, April 1 through August 31, unless he takes the following actions:
- (1) The Contractor shall remove existing nests prior to April 1. If the Contract is not awarded prior to April 1 and CDOT has removed existing nests, then the monitoring of nest building shall become the Contractor's responsibility upon Notice to Proceed.

- (2) During the time that the birds are trying to build or occupy their nests, between April 1 and August 31, the Contractor shall monitor the structures at least once every three days for any nesting activity.
- (3) If the birds have started to build any nests, they shall be removed before the nest is completed. Water shall not be used to remove the nests if nests are located within 50 feet of any surface waters.
- (4) Installation of netting may be used to prevent nest building. The netting shall be monitored and repaired or replaced as needed. Netting shall consist of a mesh with openings that are  $\frac{3}{4}$  inch by  $\frac{3}{4}$  inch or less.

If an active nest become established, i.e., there are eggs or young in the nest, all work that could result in abandonment or destruction of the nest shall be avoided until the young have fledged or the nest is unoccupied as determined by the wildlife biologist and approved by the Engineer. The Contractor shall prevent construction activity from displacing birds after they have laid their eggs and before the young have fledged.

If the project continues into the following spring, this cycle shall be repeated. When work on the structure is complete, the Contractor shall remove and properly dispose of netting used on the structure.

- (c) *Taking of a Migratory Bird.* The taking of a migratory bird shall be reported to the Engineer. The Contractor shall be responsible for all penalties levied by the U. S. Fish and Wildlife Service (USFWS) for the taking of a migratory bird.

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SECTION 240

PROTECTION OF MIGRATORY BIRDS

BIOLOGICAL WORK PERFORMED BY THE CONTRACTOR'S BIOLOGIST

Netting will be measured by the square yard of material placed to keep birds from nesting on the structure. Square yards will be calculated using the length of netting measured where it is attached to the ground and the average height of the netting where it is attached to the structure.

**REVISION OF SECTION 250**  
**ENVIRONMENTAL, HEALTH AND SAFETY MANAGEMENT**

Section 250 is hereby revised to include the following:

Subsection 250.03 of Section 250 is hereby revised to include the following:

Lead Paint and Asbestos Reports are available on the web page at <http://www.coloradodot.info/projects/I25NorthCOSDB> under Structure Lead Paint & Asbestos Reports.

The Contractor is advised that a Phase I Environmental Site Assessment dated February 22, 2012 and an Asbestos and Lead Based Paint (LBP) Inspection and Reports dated July 13, 2012 for structures H-17-AI, H-17-BC, H-17-BD, H-17-J, and H-17-L have been completed for this project. The Contractor is advised to obtain copies of these documents from the Project Engineer or at <http://www.coloradodot.info/projects/I25NorthCOSDB>.

The Contractor is hereby notified that the removal of Structures H-17-AI, H-17-BC, H-17-BD, H-17-J, and H-17-L shall require a demolition permit from the Colorado Department of Public Health and Environment. A requirement of the permit is an inspection/sampling for asbestos and lead based paint. Based on the July 13, 2012 reports, none of the structures contain any asbestos. However, structures H-17-BC, H-17-J, and H-17-L have painted bridge members containing LBP and structure H-17-BD has painted bridge members having lead containing paint and will therefore require specialized handling and disposal.

**CONSTRUCTION REQUIREMENTS**

Section 250.04 shall include the following;

This work includes the removal of structures (H-17-BC, H-17-BD, H-17-J, and H-17-L) which have bridge members which are coated with paint that contains lead or is lead based. The project includes bridge removal work and the management of the collected paint waste debris, which will be characterized as a hazardous waste or restricted waste as specified in subsection 250.04(d). The Contractor is advised that a paint assessment analysis and report has been conducted and can be obtained from the Project Engineer.

Subsection 250.04(g) shall include the following:

The Contractor shall submit for acceptance seven days prior to beginning bridge removal a work methods statement detailing bridge removal methods and methods for capturing loose paint. This methods statement shall detail all steps from the start of removal through final disposition of the waste. Loose paint and painted bridge members will not be allowed to fall into the stream or contact the native ground below or downstream of the existing bridge.

Removal of painted structures shall be paid for under Section 202 Removal of Structures.