

# CONNECTICUT DEPARTMENT OF TRANSPORTATION ENVIRONMENTAL COMPLIANCE SOIL & GROUNDWATER SCOPES

## TASK 110: CORRIDOR LAND USE EVALUATION

**OBJECTIVE:**

The objective of a Corridor Land Use Evaluation (CLUE) is to determine the relative environmental risk associated with land uses in the vicinity of transportation projects and estimate the likelihood that project activities may encounter a discharge, spillage, uncontrolled loss, seepage, and filtration of hazardous wastes, contaminated materials, or other regulated substances.

**TASK SCOPE:**

The Consulting Engineer will coordinate with ConnDOT designers to review the project concept and discuss items of concern. Following this meeting, utilizing available project materials, a corridor windshield survey, and available historical sources, the Consulting Engineer will inventory, and tabulate present and former land uses within assigned cells adjacent to the project. Each land use in the inventory shall be tabulated by local assessor’s recorded map, block, and parcel numbers.

Historical sources to be utilized include but are not limited to: town land records (including tax assessor’s and street directories), ConnDOT Sanborn Maps, Department of Energy and Environmental Protection (DEEP) aerial photographs, current and historical USGS (United States Geological Survey) quadrangle maps, and commercial data base inventories of standard federal and state environmental records (per American Society for Testing and Materials (ASTM) Standard Section 8.2.2 E – 1527-13).

The Consulting Engineer shall identify the ownership of each parcel in the inventory, and list the facilities, materials and activities typically associated with each land use. Based upon all of the information sources utilized, the Consulting Engineer shall estimate the relative environmental risk (low, moderate, or high) associated with each parcel in accordance with the criteria listed in Table 1 below:

**TABLE 1: RISK CHARACTERIZATION BY LAND USAGE**

<b>HIGH RISK</b>	<ul style="list-style-type: none"> <li>• High intensity agriculture - nurseries, arborists, dairy farms, feed lots, tobacco farms, orchards, corn, and soybeans grown as silage</li> <li>• Heavy construction</li> <li>• Salt storage facilities</li> <li>• Mining – metals, coal, oil &amp; gas extraction, nonmetallic mineral extraction (such as traprock)</li> <li>• Manufacturing – many examples, such as including metal finishers, foundries, printers, machine tool shops, chemical manufacturers, and petroleum refiners</li> <li>• Permitted and non-permitted waste treatment and disposal sites</li> <li>• Any obvious “establishment” under the Transfer Act – Resource Conservation and Recovery Act (RCRA), Small Quantity Generator (SQG) &amp; Large Quantity Generator (LQG), auto body shop, auto painting shop, furniture stripper, dry cleaner</li> <li>• Refined petroleum wholesalers and retailers – bulk terminals, retail gas stations</li> <li>• Electric power and natural gas transmission facilities</li> <li>• Motor vehicle dealers, freight transportation and warehousing</li> <li>• Transportation - airports, marinas and harbors, railroads</li> </ul>
<b>MODERATE RISK</b>	<ul style="list-style-type: none"> <li>• Hospitals and other large institutional complexes</li> <li>• Professional office buildings and banks</li> <li>• Public and private schools</li> <li>•</li> </ul>

<b>LOW RISK</b>	<ul style="list-style-type: none"> <li>• Low intensity agriculture – such as hayfields, and Christmas tree farms.</li> <li>• Undeveloped land</li> <li>• Private households</li> <li>• Residential apartments</li> <li>• Retail sales</li> <li>• Food and beverage stores</li> <li>• Restaurants</li> <li>•</li> </ul>
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**TASK PRODUCTS:**

The results of the CLUE shall be documented in a report submitted by the Consulting Engineer in the following format:

- A. Background: Including a description of the nature of the assignment, the evaluation team and key research dates;
- B. Project description: Including the location and scope of the project, and the location of the assigned cell(s);
- C. Discussion of present land uses: Including a general characterization of current uses, discussion of federal and state requirements associated with any regulated land uses identified, and discussion of any factors suggesting the presence of moderate or high-risk land uses;
- D. Discussion of past land uses: Same as above;
- E. Summary and conclusions: Including recommendations for further evaluation;
- F. Land use tabulation and property risk evaluation table;
- G. Appendices: Project Location Map, Cell Map, Commercial Data Base Inventories of Standard Federal and State Environmental Records (per ASTM Standard Section 8.2.2 E – 1527-13), and Standard Land Use Evaluation Sheets.

The Consulting Engineer shall coordinate the upload of the report with the Transportation Principal Engineer of ConnDOT’s Environmental Compliance Unit or his/her Designee into ProjectWise in accordance with the ConnDOT Digital Project Development Manual.

**BASIS OF PAYMENT:**

A CLUE shall be assigned based upon the number of properties evaluated. For the purposes of this Agreement, each assignment shall include a base budget to cover the cost of commercial data base inventories of standard federal and state environmental records (per ASTM Standard Section 8.2.2 E-1527-13 ) and report preparation, including report narrative, tabulations, appendices, and submission to ConnDOT for up to 20 properties. For each additional property (including vacant properties), a separate incremental budget shall be established to cover all costs associated with their inclusion in the Task 110 assignment. The total budget for a Task 110 assignment will include the base budget plus the incremental budget times the number of additional properties.

**TASK 120: PRELIMINARY SITE EVALUATION**

**OBJECTIVE:**

The objective of a Preliminary Site Evaluation is to determine site-specific environmental concerns on individual land parcels that shall be subject to significant takings as part of future ConnDOT projects. The results of the Preliminary Site Evaluation are intended to be the basis for Task 210 and Task 220 activities at sites identified in a previous Task 110 study.

**TASK SCOPE:**

The Consulting Engineer should utilize the DEEP’s Site Characterization Guidance Document (SCGD) in order to identify site-specific environmental concerns.

Each Preliminary Site Evaluation shall include the following items:

- A site inspection to document known or potential release areas of oil or hazardous materials
- Interview(s) with site owners or operators
- Regulatory compliance history of present and/or historical site occupants, based on state and local files

The Consulting Engineer shall be responsible for obtaining permission from private property owners to enter upon their property for the purpose of conducting the investigation. Permission shall be in a format prescribed by ConnDOT. In the event that the Consulting Engineer is unable to obtain permission for site access from one or more property owners, the Consulting Engineer shall refer the names and addresses of such property owners to ConnDOT Environmental Compliance Unit for resolution by ConnDOT.

#### **TASK PRODUCTS:**

The results of the Preliminary Site Evaluation shall be documented as described below.

**Site-Specific Reports:** A separate report for each property assigned shall be prepared by the Consulting Engineer in a format approved by ConnDOT for each site included in the preliminary evaluation. At a minimum, the report shall contain the following:

- A. Background: including the location and description of the project, the location and description of the parcel evaluated, ownership history, and a description of the research team and key research dates;
- B. Site operations, handling, and disposal of regulated materials: brief description of site operations, facilities and structures, raw material storage, handling, and processing; waste generation and disposal; documentation shall include a site sketch showing relevant features discussed in narrative, and photographs as applicable;
- C. Regulatory compliance history: results of DEEP and local file searches, in the context of documented or potential site contamination, including the following:
  - DEEP file search
    - Bureau of Materials Management and Compliance Assurance
    - Bureau of Water Protection and Land Reuse
    - Bureau of Air Management
  - Municipal file search
    - Street directories
    - Health department records
    - Fire Marshal's office
    - Engineering/Public Works documents

**Note:** A separate data base search (per ASTM Standard Section 8.2.2 E-1527-13) is not required for parcels included in a Task 120 evaluation provided this was previously completed as part of a Task 110. Only relevant site-related information obtained as part of the Task 110 study should be summarized in the Task 120 report; copies of the data base search results should not be included as an appendix.

- D. Conclusions and recommendations: Include a description of potential release areas that warrant investigation as part of Task 210 and Task 220 activities; a sketch showing proposed Task 210/220 sampling locations; and, based on site conditions, discuss whether there are any spill reporting requirements if preliminary design plans are available;
- E. Appendices: Including, but not limited to:
  - location map;
  - site sketch;
  - photographs;
  - standard inspection forms;
  - standard file review forms; and
  - copies of relevant documents obtained from agency file review

**Summary Report:** The Consulting Engineer shall prepare a separate report, to be submitted to ConnDOT, and in a format approved by the Transportation Principal Engineer of ConnDOT's Environmental Compliance Unit or his/her Designee ConnDOT, that summarizes the relevant findings on a corridor-wide basis. This report is intended to be concise and, at a minimum, shall contain the following:

- A. A corridor-wide summary of the conclusions and recommendations for all parcels studied;
- B. A table of the properties evaluated, including street address, assessor plot and parcel numbers, and risk assessment based upon the Task 110 study;
- C. A corridor-wide plan showing potential release area that warrant investigation and proposed Task 210/220 sampling locations;

The draft report shall be submitted to the Transportation Principal Engineer of ConnDOT's Environmental Compliance Unit or his/her Designee ConnDOT for review. Upon approval, the Consulting Engineer shall coordinate the upload of the report with ConnDOT into ProjectWise in accordance with the ConnDOT Digital Project Development Manual.

**BASIS OF PAYMENT:**

Preliminary Site Evaluations shall be assigned on a per property basis. For corridor-wide studies involving multiple properties, the total budget shall be determined by multiplying the base budget times the total number of properties studied.

**TASK 210: SUBSURFACE SITE INVESTIGATION REPORT**

**OBJECTIVE:**

The purpose of a Subsurface Site Investigation is to collect and review soil, ground water and other data in order to perform a characterization of a site with respect to subsurface contamination. For purposes of this Agreement, a "site" may consist of one or more individual parcels or portions thereof and may consist of a corridor comprised of multiple properties.

**TASK SCOPE:**

**Preliminary meeting & work plan**

Each Task 210 assignment will include a preliminary meeting with the project design team members to review project objectives and schedules. Following this meeting, the Consulting Engineer shall prepare a work plan (as an annotated outline and as described below) for review and approval by the Transportation Principal Engineer of ConnDOT's Environmental Compliance Unit or his/her Designee ConnDOT.

Based upon available site information (site files, inspection reports, and previous Task products) the Consulting Engineer shall prepare and submit a brief Subsurface Investigation work plan with schedule to ConnDOT prior to conducting the investigation. The plan shall include a brief description of known site conditions, an inventory of suspected sources of contamination, identify each recommended technique, and provide justification for selection of each technique based on timeliness, cost-effectiveness, and accuracy. In addition, the plan shall include a site plan that delineates the area to be investigated and the location of samples to be obtained, identify the equipment to be employed, and shall describe the duties and responsibilities of the Consulting Engineer and any subcontractors to be utilized. After approval, a site visit shall be performed to finalize and mark the locations to be investigated.

**Site Access Agreements**

The Consulting Engineer shall be responsible for obtaining permission from private property owners to enter upon their property for the purpose of conducting the investigation. Permission shall be in a format prescribed by ConnDOT. In the event that the Consulting Engineer is unable to obtain permission for site access from one or more property owners, the Consulting Engineer shall refer the names and addresses of such property owners to ConnDOT Environmental Compliance Unit for resolution by ConnDOT.

**Field Investigation**

Field activities in support of a Task 210 shall be conducted under a separate Task 211 assignment. In general, subsurface

sampling shall be accomplished using one or more of the following techniques:

- Direct-push (Geoprobe) technology
- Hand auger
- Surface sampling (such as surface waters, concrete, timbers, and sediments)
- Test borings
- Excavation of test pits
- Soil vapor surveys
- Installation and sampling of monitoring wells

In cases where local geology is not conducive to the use of Geoprobe technology, hollow stem auger borings shall be conducted. Soil/water sampling shall be supplemented with either PID/FID screening (based upon expected contaminants) and with laboratory analysis.

Where field conditions dictate that additional data collection may be warranted; to identify utilities, underground storage tanks and other potential underground infrastructure, it must be approved by ConnDOT. The Consultant shall discuss the need for geophysical surveys with the Transportation Principal Engineer or his/her designee prior to commencement of work. Compensation for costs associated with conducting additional investigations shall not be included in the base cost for completing a Task 210 assignment. These services shall be provided as a direct cost item in accordance with this Agreement. Additional investigative procedures, if required, may include:

- Geophysical Surveys
  - Electromagnetometry
  - Electroresistivity
  - Ground penetrating radar
  - Magnetometry
  - Seismic refraction

Where available, contractors and vendors shall be selected from among existing State contracts such as effective contracts under the Department of Administrative Services, and their work shall be organized, scheduled, and supervised by the Consulting Engineer. For each assignment, the Consulting Engineer shall recommend the lowest, responsible contractor that can meet schedule requirements. Contractor payment requests shall be reviewed by the Consulting Engineer and submitted to ConnDOT for final processing. In cases where State task order contractors cannot be utilized, the Consulting Engineer shall secure such services, on a competitive bid basis, in conformance with the requirements of this Agreement.

The Consulting Engineer shall employ best engineering practices in performing the investigation, including but not limited to, adherence to applicable provisions of the Consulting Engineer's Health and Safety Plan (HASP), and the Consulting Engineer's Quality Assurance and Quality Control (QA/QC) Plan. DEEP's QA/QC guidance shall be used by the Consulting Engineer to ensure that analytical data generated during investigations are of known and appropriate quality. Specifically, the Laboratory QA/QC Reasonable Confidence Protocols (RCPs) and Laboratory Quality Control Assurance and Quality Control, Data Quality Assessment and Data Usability Evaluation Guidance Document (DQA/DUE guidance) shall be utilized to ensure analytical data used are of known and sufficient level of quality. The Consulting Engineer shall maintain complete logs of all investigative activities, and record all field observations, which are pertinent to environmental conditions at the site.

### **Report Preparation**

Upon conclusion of the Field Investigation phase, the Consulting Engineer shall prepare a report of their findings and conclusions. The report shall include an evaluation of laboratory analyses conducted in conjunction with the field investigation. The report shall be prepared as described below.

### **TASK PRODUCTS:**

The Consulting Engineer shall prepare and submit a report in a format approved by ConnDOT, which documents the results of the Subsurface Site Investigation. At a minimum, the report shall contain the following:

- A. Background information: Including a site location plan, and tabulation and discussion of previous results;

- B. Local environment and receptors: Including discussion of identified contaminant sources, pathways, and receptors with reference to local groundwater and surface water classifications and uses.
- C. Investigative rationale and parameters: Including a survey or sampling location plan and a tabulation of parameters.
- D. Summary of test information: Including the field test team(s), survey dates, water and soil sampling dates, and the dates of other tests performed during the investigation.
- E. Interpretation of results: Discussion and tabulation of survey or sampling results in comparison to appropriate criteria, based on chemical data and other tests performed during the investigation. The Consulting Engineer shall assemble mapping that depicts sampling locations and tabulates laboratory analyses on base plans provided by ConnDOT Design unit.
- F. Discussion of affected resources: Including identification of identified sources, pathways, and receptors, along with a discussion of potential risks to health and the environment.
- G. Recommendations: Including discussion of recommended controls, further studies, remediation, and referral to regulatory agencies.
- H. A set of marked-up drawings indicating the preliminary areas of environmental concern (AOEC).
- I. An electronic file containing the analytical results in an electronic data deliverable format acceptable to ConnDOT. All samples shall be labelled with a unique identifier subject to the ConnDOT's standardized sampling nomenclature.

The draft report shall be submitted to the Transportation Principal Engineer of ConnDOT's Environmental Compliance Unit or his/her Designee for review. Upon approval, the Consulting Engineer shall coordinate the upload of the report with ConnDOT into ProjectWise in accordance with the ConnDOT Digital Project Development Manual.

Any required notifications to regulatory agencies or other parties shall be included.

This Task does not include the preparation of the remedial cost estimate for the purpose of devaluing the property due to the presence of contamination. This work, if required, will be done under the Task 910.

#### **BASIS OF PAYMENT:**

A Subsurface Site Investigation assignment shall include all work required to prepare the report required under this Task and shall include but not necessarily be limited to effort required for the following:

- Project management
- Meeting(s) with ConnDOT
- Preparation of a subsurface work plan
- Review of existing information
- Coordination with subcontractors
- QA/QC
- Health and safety

For the purposes of this Agreement, the base budget for this Task shall depend upon the number of samples evaluated. The base budget shall be deemed to include all effort as described above for a project that includes the management of data from up to 20 samples. For each additional 5-sample increment, a separate incremental budget shall be established to cover all costs associated with the inclusion of the additional sample points in the Task 210 assignment. The total budget for a Task 210 assignment will include the base budget plus the incremental budget times the number of additional 5-sample increments included within the study corridor. This basis of payment shall apply for corridors with up to 150 samples; for assignments with corridors containing more than 150 samples the fees shall be negotiated separately.

Please Note: Field blank samples and trip blank samples are considered incidental to the base budget and incremental budget and will not be measured for payment.

Fieldwork to collect samples in support of a Task 210 assignment will be assigned under a separate Task 211 – Field Sampling assignment. The Field Investigation description listed under the Task scope section of this Task shall apply to field sampling activities performed in support of a Task 210 assignment.

### **TASK 211: FIELD SAMPLING**

#### **OBJECTIVE:**

The purpose of a Field Sampling assignment is to gather soil, ground water and other media samples in support of Task 210, Task 220, Task 240, or Task 241 assignments.

#### **TASK SCOPE:**

The scope of the Task 211 assignment shall be based on the descriptions provided in the Scope of Services of the Task 210, Task 220, or other assignments.

The Consulting Engineer shall employ best engineering practices in performing the investigation, including but not limited to, adherence to applicable provisions of the Consulting Engineer's HASP, and the Consulting Engineer's QA/QC Plan. DEEP's QA/QC Guidance shall be used by the Consulting Engineer to ensure that analytical data generated during investigations are of known and appropriate quality. Specifically, the Laboratory QA/QC RCPs and Laboratory Quality Control Assurance and Quality Control, Data Quality Assessment and Data Usability Evaluation Guidance Document (DQA/DUE Guidance) shall be utilized to ensure analytical data used are of known and sufficient level of quality. The Consulting Engineer shall maintain complete logs of all investigative activities, and record all field observations, which are pertinent to environmental conditions at the site.

#### **BASIS OF PAYMENT:**

Field Sampling services shall be assigned on a per person-day basis. For purposes of this Agreement, a per person-day shall consist of 8 hours at the maximum billing rate for that individual's rate category.

### **TASK 220: EXPLORATORY SITE CHARACTERIZATION REPORT**

#### **OBJECTIVE:**

The purpose of an Exploratory Site Characterization is to document the nature and extent of contamination at a site, and to identify the source, pathway of migration, and receptor relationships associated with any releases suspected to have affected soil, ground water and surface water. A related goal of the Task 220 is to develop sufficient information to assess the risk posed by contaminant migration to local drinking water and environmental receptors and assess the need for remediation.

#### **TASK SCOPE:**

DEEP's Site Characterization Guidance Document (SCGD) should be used as guidance in developing the investigation work plan, conducting the investigation, and documenting areas of concern (AOC's). The SCGD describes DEEP's expectations for the standard of care to be exercised by environmental professionals in accordance with prevailing standards and guidelines.

#### **Preliminary Meeting & Work Plan**

Each Task 220 assignment will include a preliminary meeting with the project design team members to review project objectives and schedules. Following this meeting, the Consulting Engineer shall prepare a work plan (as an annotated outline and as described below) for review and approval by ConnDOT.

Based upon available site information (site files, inspection reports, and previous Task products) the Consulting Engineer shall prepare and submit a work plan with schedule to the Transportation Principal Engineer of ConnDOT's Environmental Compliance Unit or his/her Designee ConnDOT prior to conducting the investigation. The plan shall include a brief description of known site conditions, an inventory of suspected sources of contamination, identify each recommended technique, and provide justification for selection of each technique based on timeliness, cost-effectiveness, and accuracy. In

addition, the plan shall include a site plan that delineates the area to be investigated and the location of samples to be obtained, identify the equipment to be employed, and shall describe the duties and responsibilities of the Consulting Engineer and any subcontractors to be utilized. After approval, a site visit shall be performed to finalize and mark the locations to be investigated.

### **Site Access Agreements**

The Consulting Engineer shall be responsible for obtaining permission from private property owners to enter upon their property for the purpose of conducting the investigation. Permission shall be in a format prescribed by ConnDOT. In the event that the Consulting Engineer is unable to obtain permission for site access from one or more property owners, the Consulting Engineer shall refer the names and addresses of such property owners to ConnDOT Environmental Compliance Unit for resolution by ConnDOT.

### **Field Investigation**

In general, exploratory sampling shall be accomplished using one or more of the following techniques:

- Test borings, including geoprobe work to identify monitoring well locations
- Installation and sampling of monitoring wells
- Sampling of soil and ground water
- Surface water and sediment sampling
- Excavation of test pits
- Sampling of on-site and off-site water supply wells
- Soil vapor surveys

Where field conditions dictate that additional data collection may be warranted; to identify utilities, underground storage tanks and other potential underground infrastructure, it must be approved by ConnDOT. The Consultant shall discuss the need for geophysical surveys with the Transportation Principal Engineer or his/her designee prior to commencement of work. Compensation for costs associated with conducting additional investigations shall not be included in the base cost for completing a Task 220 assignment. These services shall be provided as a direct cost item in accordance with this Agreement. Additional investigative procedures, if required, may include:

- Geophysical Surveys
  - Electromagnetometry
  - Electroresistivity
  - Ground penetrating radar
  - Magnetometry
  - Seismic refraction

Where available, contractors and vendors shall be selected from among existing State contracts such as effective contracts under the Department of Administrative Services, and their work shall be organized, scheduled, and supervised by the Consulting Engineer. For each assignment, the Consulting Engineer shall recommend the lowest, responsible contractor that can meet schedule requirements. Contractor payment requests shall be reviewed by the Consulting Engineer and submitted to ConnDOT for final processing. In cases where State task-order contractors cannot be utilized, the Consulting Engineer shall secure such services, on a competitive bid basis, in conformance with the requirements of this Agreement.

The Consulting Engineer shall employ best engineering practices in performing the investigation, including but not limited to, adherence to applicable provisions of the Consulting Engineer's HASP, and the Consulting Engineer's QA/QC Plan. DEEP's QA/QC Guidance shall be used by the Consulting Engineer to ensure that analytical data generated during investigations are of known and appropriate quality. Specifically, the Laboratory QA/QCRCs and Laboratory Quality Control Assurance and Quality Control, DQA/DUE Guidance shall be utilized to ensure analytical data used are of known and sufficient level of quality. The Consulting Engineer shall maintain complete logs of all investigative activities, and record all field observations, which are pertinent to environmental conditions at the site.

### **Report Preparation**

Upon conclusion of the Field Investigation phase, the Consulting Engineer shall prepare a report of their findings and



conclusions. The report shall include an evaluation of laboratory analyses conducted in conjunction with the field investigation. The report shall be prepared as described below.

#### **TASK PRODUCTS:**

The Consulting Engineer shall prepare and submit a report, in a format approved by the Transportation Principal Engineer of ConnDOT's Environmental Compliance Unit or his/her Designee ConnDOT, which documents the results of the Exploratory Site Investigation. At a minimum, the report shall contain the following information:

- A. Background information: Including a site location plan, and tabulation and discussion of previous results.
- B. Local environment and receptors: Including discussion of identified contaminant sources, pathways, and receptors with reference to local groundwater and surface water classifications and uses.
- C. Investigative rationale and parameters: Including a survey or sampling location plan and a tabulation of parameters.
- D. Summary of test information: Including the field test team(s), survey dates, water and soil sampling dates, and the dates of other tests performed during the investigation.
- E. Interpretation of results: Discussion and tabulation of survey or sampling results in comparison to appropriate criteria, with a graphic depiction of the lateral and, where possible (due to limits of exploratory technologies), vertical limits of contamination, based on chemical data and other tests performed during the investigation. The Consulting Engineer shall assemble mapping that depicts identified areas of contamination on base plans provided by ConnDOT Design unit.
- F. Sampling locations: All sampling locations shall be depicted on base plans provided by ConnDOT Design unit. These locations shall be accurate representations that have been triangulated from site benchmarks or through Geographic Information System (GIS) coordinates.
- G. Hydrogeologic interpretation: Geologic cross-sections shall be provided, based on boring logs and test pit data. Estimates of hydraulic gradient and a ground water contour map shall also be prepared.
- H. Discussion of affected resources: Including identification of identified sources, pathways, and receptors, along with a discussion of potential risks to health and the environment.
- I. Recommendations: Including a discussion of recommended engineering or institutional controls, further studies, remediation and/or referral to regulatory agencies.
- J. A set of marked-up drawings indicating the preliminary AOEC.

The draft report shall be submitted to the Transportation Principal Engineer of ConnDOT's Environmental Compliance Unit or his/her Designee ConnDOT for review. Upon approval, the Consulting Engineer shall coordinate the upload of the report into ProjectWise in accordance with the ConnDOT Digital Project Development Manual.

Any required notifications to regulatory agencies or other parties shall be included.

This Task does not include the preparation of the remedial cost estimate for the purpose of devaluing the property due to the presence of contamination. This work, if required, will be done under the Task 910.

#### **BASIS OF PAYMENT:**

An Exploratory Site Investigation assignment shall include all work required to prepare the report required under this Task and shall include but not necessarily be limited to effort required for the following:

- Project management
- Meeting(s) with ConnDOT
- Preparation of an exploratory work plan
- Review of existing information
- Coordination with subcontractors
- QA/QC
- Health and safety

For the purposes of this Agreement, the base budget for this Task shall depend upon the number of samples evaluated. The base budget shall be deemed to include all effort as described above for a project that includes the management of data from up to 20 samples. For each additional 5-sample increment, a separate incremental budget shall be established to cover all costs associated with the inclusion of the additional sample points in the Task 220 assignment. The total budget for a Task 220 assignment will include the base budget plus the incremental budget times the number of additional 5-sample increments included within the study corridor. This Basis of Payment shall apply for sites with up to 100 samples; for assignments with sites containing more than 100 samples the fees shall be negotiated separately.

Please Note: Field blank samples and trip blank samples are considered incidental to the base budget and incremental budget and will not be measured for payment.

Fieldwork to collect samples in support of a Task 220 assignment will be assigned under a separate Task 211 – Field Sampling assignment. The Field Investigation description listed under the Task Scope section of this Task shall apply to field sampling activities performed in support of a Task 220 assignment.

### **TASK 240: WATER QUALITY MONITORING EVALUATION REPORT**

#### **OBJECTIVE:**

The purpose of a Water Quality Monitoring Evaluation Report is to provide chemical analyses of surface water, drinking water, ground water and storm water. Monitoring activities may be undertaken in support of permits, or routine regulatory requests or requirements associated with former claims, studies, and remedial activities; and may be performed at past study sites or at privately owned residences and commercial establishments. Fieldwork in support of this Task will be assigned under a separate Task 211 assignment. For sites with water treatment systems, this Task may be accompanied by the assignment of a Task 242 – Treatment System Maintenance for routine monitoring of treatment system components and oversight of system operation and maintenance by others.

#### **TASK SCOPE:**

DEEP’s QA/QC Guidance shall be used by the Consulting Engineer to ensure that analytical data generated during investigations are of known and appropriate quality. Specifically, the Laboratory QA/QC RCPs and Laboratory Quality Control Assurance and Quality Control, DQA/DUE Guidance shall be utilized to ensure analytical data used are of known and sufficient level of quality.

#### **Monitoring, Scheduling & Coordination**

The services under this Task shall include securing access agreements from private property owners; coordination with ConnDOT to identify monitoring locations, sampling parameters and schedule; arrangements with site occupants and analytical laboratories, and interpretation of chemical results. The Consulting Engineer shall maintain complete logs of all sampling activities and record all field observations that are pertinent to environmental conditions at the location being monitored.

Where available, contractors and vendors shall be selected from among existing State contracts such as effective contracts under the Department of Administrative Services, and their work shall be organized, scheduled, and supervised by the Consulting Engineer. For each assignment, the Consulting Engineer shall recommend the lowest, responsible contractor that can meet schedule requirements. Contractor payment requests shall be reviewed by the Consulting Engineer and submitted to ConnDOT for final processing. In cases where State contractors cannot be utilized, the Consulting Engineer shall secure such services, on a competitive bid basis, in conformance with the requirements of this Agreement.

In the event that repairs or significant changes to the treatment system are observed to be required under an accompanying Task 242 assignment, the Consulting Engineer shall notify ConnDOT in writing as part of this Task.

## **Report Preparation**

Upon conclusion of the Monitoring phase, the Consulting Engineer shall prepare a report of their findings. The report shall be prepared as described below.

### **TASK PRODUCTS:**

The results of the Water Quality Monitoring Evaluation shall be documented in a report submitted by the Consulting Engineer in a format approved by the Transportation Principal Engineer of ConnDOT's Environmental Compliance Unit or his/her Designee. At a minimum, the report shall provide a summary of the data obtained from the sampling event and a comparison of the data with the applicable standards. The report shall also contain a site plan showing the locations of the sampling point(s). If the assignment includes the sampling of groundwater from monitoring wells, the report shall include a table of water level measurements and monitoring well survey data. Laboratory analyses shall be appended. As part of this Task, letters summarizing test results will be transmitted to applicable property owners. Also, any required notifications to regulatory agencies shall be included.

The draft report shall be submitted to the Transportation Principal Engineer of ConnDOT's Environmental Compliance Unit or his/her Designee ConnDOT for review. Upon approval, the Consulting Engineer shall coordinate the upload of the report with the appropriate Project Engineer into ProjectWise in accordance with the ConnDOT Digital Project Development Manual.

### **BASIS OF PAYMENT:**

A Water Quality Monitoring Evaluation Report assignment shall include all work required to prepare the report required under this Task and shall include but not necessarily be limited to effort required for the following:

- Project management
- Meeting(s) with ConnDOT
- Preparation of a sampling plan
- Review of existing information
- Coordination with subcontractors
- QA/QC
- Health and safety

For the purposes of this Agreement, the base budget for this Task shall depend upon the number of samples evaluated. The base budget shall be deemed to include all effort as described above for a project that includes the management of data from up to 10 samples. For each additional 5-sample increment, a separate incremental budget shall be established to cover all costs associated with the inclusion of the additional samples in the Task 240 assignment. The total budget for a Task 240 assignment will include the base budget plus the incremental budget times the number of additional 5-sample increments included within the study corridor.

Please Note: Field blank samples and trip blank samples are considered incidental to the base budget and/or incremental budget and will not be measured for payment.

Fieldwork to collect samples in support of a Task 240 assignment will be assigned under a separate Task 211 – Field Sampling assignment.

Fieldwork to provide treatment system maintenance in support of a Task 240 assignment will be assigned under a separate Task 242 – Treatment System Maintenance and Compliance.

## **TASK 241: EXPANDED WATER QUALITY MONITORING EVALUATION REPORT**

### **OBJECTIVE:**

The purpose of an Expanded Water Quality Monitoring Evaluation Report is to provide chemical analyses of surface water, drinking water and groundwater. Monitoring activities may be undertaken in support of permits, or routine regulatory requests or requirements associated with former claims, studies and/or remedial activities; and may be performed at past

study sites or at privately owned residences and commercial establishments. Fieldwork in support of this Task will be assigned under a separate Task 211 assignment. For sites with water treatment systems, this Task may be accompanied by the assignment of a Task 242 – Treatment System Maintenance for routine monitoring of treatment system components and oversight of system operation and maintenance by others.

**TASK SCOPE:**

DEEP’s QA/QC Guidance shall be used by the Consulting Engineer to ensure that analytical data generated during investigations are of known and appropriate quality. Specifically, the Laboratory Quality Assurance Quality Control RCPs and Laboratory Quality Control Assurance and Quality Control, DQA/DUE Guidance shall be utilized to ensure analytical data used are of known and sufficient level of quality.

**Monitoring, Scheduling & Coordination**

The services under this Task shall include securing access agreements from private property owners; coordination with ConnDOT to identify monitoring locations, sampling parameters and schedule; arrangements with site occupants and analytical laboratories; and interpretation of chemical results. The Consulting Engineer shall maintain complete logs of all sampling activities and record all field observations that are pertinent to environmental conditions at the location being monitored.

Where available, contractors and vendors shall be selected from among existing State contracts such as effective contracts under the Department of Administrative Services, and their work shall be organized, scheduled, and supervised by the Consulting Engineer. For each assignment, the Consulting Engineer shall recommend the lowest, responsible contractor that can meet schedule requirements. Contractor payment requests shall be reviewed by the Consulting Engineer and submitted to ConnDOT for final processing. In cases where State contractors cannot be utilized, the Consulting Engineer shall secure such services, on a competitive bid basis, in conformance with the requirements of this Agreement.

In the event that repairs or significant changes to the treatment system are observed to be required under an accompanying Task 242, the Consulting Engineer shall notify the Transportation Principal Engineer of ConnDOT’s Environmental Compliance Unit or his/her Designee ConnDOT in writing as part of this Task.

**Report Preparation**

Upon conclusion of the Monitoring phase, the Consulting Engineer shall prepare a report of their findings. The report shall be prepared as described below.

**TASK PRODUCTS:**

The results of the Expanded Water Quality Monitoring Evaluation shall be documented in a report submitted by the Consulting Engineer in a format approved by the Transportation Principal Engineer of ConnDOT’s Environmental Compliance Unit or his/her Designee ConnDOT. At a minimum, the report shall contain the following:

- 1) Background: Including the location and descriptions of the site(s) being monitored; a description of the nature and purposes of the monitoring assignment, and a description of the monitoring team and key research dates;
- 2) Test rationale and parameters: Including a sampling location plan, a map(s) depicting the groundwater configuration, a table of water level measurements and well survey data, and a tabulation of analytical parameters;
- 3) Sampling results: Discussion of water quality results in comparison to applicable regulatory criteria, including where applicable, time series tabulations of chemical results including significant trends and/or deviations;
- 4)
- 5) Conclusions and recommendations: Discussion of recommended controls, further studies, and remediation. For sites that include a water treatment system, the report shall include a discussion of the operational status and the effectiveness of the treatment system in achieving the remediation goals of the site.

As part of this Task, letters summarizing test results will be transmitted to applicable property owners. Also, any required notifications to regulatory agencies shall be included.

The draft report shall be submitted to the Transportation Principal Engineer of ConnDOT’s Environmental Compliance Unit

or his/her Designee for review. Upon approval, the Consulting Engineer shall coordinate the upload of the report with ConnDOT into ProjectWise in accordance with the ConnDOT Digital Project Development Manual.

**BASIS OF PAYMENT:**

An Expanded Water Quality Monitoring Evaluation Report assignment shall include all work required to prepare the report required under this Task and shall include but not necessarily be limited to effort required for the following:

- Project management
- Meeting(s) with ConnDOT
- Preparation of a sampling plan
- Review of existing information
- Coordination with subcontractors
- QA/QC
- Health and safety

For the purposes of this Agreement, the base budget for this Task shall depend upon the number of samples evaluated. The base budget shall be deemed to include all effort as described above for a project that includes the management of data from up to 10 samples. For each additional 5-sample increment, a separate incremental budget shall be established to cover all costs associated with the inclusion of the additional samples in the Task 241 assignment. The total budget for a Task 241 assignment will include the base budget plus the incremental budget times the number of additional 5-sample increments included within the study.

Please Note: Field blank samples and trip blank samples are considered incidental to the base budget and incremental budget and will not be measured for payment.

Fieldwork to collect samples in support of a Task 241 assignment will be assigned under a separate Task 211 – Field Sampling assignment.

**Fieldwork to provide treatment system maintenance in support of a Task 241 assignment will be assigned under a separate Task 242 – Treatment System Maintenance and Compliance**

## **TASK 242: TREATMENT SYSTEM MAINTENANCE AND COMPLIANCE**

### **OBJECTIVE:**

The purpose of a Treatment System Maintenance and Compliance assignment is to provide routine monitoring of treatment system components, system compliance, and oversight of system operation and maintenance by others. It is expected that a Task 242 assignment may be assigned in conjunction with a Task 240 or Task 241 assignment.

### **TASK SCOPE:**

#### **Maintenance**

The services under this Task shall include periodic visits to the site to ensure that the treatment system is operating properly, compliance monitoring and reporting, and management oversight. It is intended that the Consulting Engineer shall subcontract with a specialty subcontractor for routine maintenance. In certain circumstances where it is determined to be cost effective, the Consulting Engineer may be expected to perform minor system maintenance at the direction of the Transportation Principal Engineer of ConnDOT's Environmental Compliance Unit or his/her Designee. In the event of a system failure outside of normal working hours, the Consulting Engineer shall respond as required to ensure that system malfunctions are properly resolved.

In the event that repairs or significant changes to the treatment system are required, the Consulting Engineer shall notify ConnDOT in writing as part of the accompanying Task 240 or Task 241 assignment.

### **BASIS OF PAYMENT:**

Treatment System Maintenance and Compliance services shall be assigned on an as-needed basis for system maintenance and compliance monitoring. The actual payment for services shall be at the maximum billing rate for the category at which the Consulting Engineer worked during the time period.

## **TASK 310: PLANS, SPECIFICATIONS AND ESTIMATES**

### **OBJECTIVE:**

The objectives of a Task 310 are to assess project activities in relation to environmental conditions within the project limits and to prepare all necessary plans, specifications and estimates for incorporation into the project contract bid documents.

### **TASK SCOPE:**

This Task is intended to be assigned primarily for highway corridor projects but may also apply to other projects that utilize the specifications listed below. Plans, specifications, and cost estimates for items other than those listed below will be negotiated on a case-by-case basis.

Each Task 310 assignment will include a preliminary meeting with the project design team members to review project objectives, schedules, and construction activities in relation to previous environmental investigations. The Consulting Engineer will then prepare all required plans, specifications, and cost estimates in support of ConnDOT's project. In addition, included under this Task is time spent by the Consulting Engineer responding to questions raised by bidding contractors relating to the environmental requirements of the project.

Additional effort may be required to prepare specialized environmental documents or to support project permit application activities as required by ConnDOT. Compensation for costs associated with this additional effort shall not be included in the cost for completing a Task 310 assignment.

### **TASK PRODUCTS:**

#### **Preliminary Design Summary**

Following the meeting with the project design team, the Consulting Engineer shall review the current design

documents and will provide the Transportation Principal Engineer of ConnDOT's Environmental Compliance Unit or his/her Designee in writing with a list of recommendations. The *Preliminary Design Summary* will include the following information:

- Recommended remediation methodology;
- Recommended specification sections and design drawings;
- An evaluation of the health and safety requirements for the project;
- Temporary waste stockpile area requirements; and
- A set of marked up design drawings indicating the preliminary areas of environmental concern(AOEC).

### **Plans, Specifications, and Estimates**

Following ConnDOT's review of the *Preliminary Design Summary*, the Consulting Engineer shall proceed with preparing draft plans, specifications, and estimates. For the purposes of this Agreement, it is assumed that one or more of the following specification sections will be prepared for a given assignment:

- A. **Notice to Contractors:** A brief summary of environmental conditions within the project area, a listing of environmental specifications to be incorporated into the project, and a summary of the environmental documents that are available for review.
- B. **Environmental Health and Safety:** A specification that requires the contractor to develop and implement a site-specific HASP for the project based upon known site contaminants. It identifies the individuals who will develop and implement the plan and the sections that should be included in the plan. As part of this Task, the Consulting Engineer shall prepare an estimate of the contractor's costs for developing and implementing the HASP.
- C. **Controlled Material Handling:** A specification that sets forth the procedures for the proper handling and storage of controlled materials excavated from within AOEC. The specification shall include procedures for loading, transportation, staging and management of all controlled materials at a temporary waste stockpile area (WSA). The specification shall include an estimate of the quantity of controlled material to be handled and the associated costs. The specification shall also include the preparation of one or more plan sheets that identify all AOECs and provide construction details for the WSA. Plans shall be generated using base drawings provided by ConnDOT.
- D. **Disposal of Controlled Materials:** A specification that sets forth the procedures for selecting and utilizing a facility for the disposal/treatment of controlled materials from the project. Using a list of approved facilities provided by ConnDOT and the Disposal Facility Materials Acceptance Certification, the Consulting Engineer shall investigate and identify all facilities that can accept controlled materials expected to be generated from the project. Based upon the acceptable facilities identified, the Consulting Engineer shall develop a specification that requires the contractor to load and transport-controlled materials from the WSA for treatment/disposal at the selected facility. As part of this Task, the Consulting Engineer shall prepare an estimate of all costs associated with loading, transporting, and treatment/disposal of controlled materials. The Consulting Engineer shall keep the signed Disposal Facility Materials Acceptance Certification forms returned by the disposal facilities in their project file for future reference.
- E. **Securing, Construction and Dismantling of a Waste Stockpile and Treatment Area:** A specification that sets forth the requirements governing the construction and dismantling of a WSA.
- F. **Disposal of Hazardous Waste:** A specification that sets forth the procedures for selecting and utilizing a facility for the disposal/treatment of hazardous materials from the project. Using a list of approved facilities and transporters provided by ConnDOT, and the Disposal Facility Materials Acceptance Certification, the Consulting Engineer shall investigate and identify all facilities and transporters that can accept, or transport hazardous materials expected to be generated from the project. Based upon the acceptable facilities identified, the Consulting Engineer shall develop a specification that requires the contractor to load and transport hazardous materials from the WSA for treatment/disposal at the selected facility. As part of this Task, the Consulting Engineer shall prepare an estimate of all costs associated with loading, transporting, and treatment/disposal of hazardous

materials. The Consulting Engineer shall keep the signed Disposal Facility Materials Acceptance Certification forms returned by the disposal facilities in their project file for future reference.

- G. **Management of Reusable Controlled Materials:** A specification that sets forth the procedures for loading, transporting and placement of all reusable material generated from within the project limits. The specification may include one or more plan sheets that depict acceptable areas for the reuse of controlled materials. As part of this Task, the Consulting Engineer shall prepare an estimate of the volume of controlled material suitable for reuse and the costs associated with its loading and transportation.
- H. **Environmental Work - Solidification:** A specification that sets forth the procedures for identifying and utilizing absorbent materials needed to stabilize and contain soils with excessive, free-draining liquids. As part of this Task, the Consulting Engineer shall prepare an estimate of the volume of material requiring solidification and the volume and corresponding cost of absorbent material to be used by the contractor.
- I. **Monitoring Well Abandonment/Well Abandonment:** A specification that identifies the procedures and requirements for the abandonment of monitoring or drinking water wells in accordance with Connecticut Department of Consumer Protection procedures. As part of this Task, the Consulting Engineer shall prepare an estimate of the cost of well abandonment.
- J. **Handling Contaminated Groundwater/Contaminated Water Handling:** A performance-based specification that sets forth the requirements for the treatment or collection of contaminated waters generated by project activities. The specification shall outline the procedures to be followed by the contractor for obtaining required discharge permits and, if applicable, a copy of the permit application shall be included. As part of this Task, the Consulting Engineer will be required to coordinate with the Connecticut Department of Energy and Environmental Protection and/or the local Publicly Owned Treatment Works POTW regarding discharge requirements. In addition, the Consulting Engineer shall prepare an estimate of the costs associated with the handling of contaminated groundwater or surface water. This shall include the assumptions associated with developing the cost estimate, including the method of dewatering, equipment to be used, and duration of use.

In addition, the Consulting Engineer shall prepare an estimate of the anticipated environmental services costs for the construction phase of the project including costs for Task 610/620 or 611/621 services, reimbursable expenses and laboratory costs for soil and water disposal characterization.

To the maximum extent practicable, the Consulting Engineer shall utilize base mapping prepared by ConnDOT and shall ensure that all drawings prepared by them are in a format that is compatible with ConnDOT's standards. The Consulting Engineer shall be responsible for coordinating its work with that of the project designer to ensure that required formats are adhered to and that applicable standards are met. The draft specifications plans, and cost estimates shall be submitted to ConnDOT for review. Upon approval, the Consulting Engineer shall coordinate the upload of the specifications, plans and cost estimates into ProjectWise in accordance with the ConnDOT Digital Project Development Manual.

#### **BASIS OF PAYMENT:**

This Task shall be assigned on a task-by-task basis. For the purposes of this Agreement, the budget for this work item shall include all costs associated with the preparation of the *Preliminary Design Summary*, all required coordination with ConnDOT (including review meetings), and all costs associated with the preparation of the project plans, and specifications identified in the *Preliminary Design Summary* including required revisions and preparation of a construction cost estimate.

### **TASK 610: CONSTRUCTION INSPECTION/MONITORING MANAGEMENT** (Technical Support)

#### **OBJECTIVE:**

The purpose of Construction Inspection/Monitoring Management is to provide administrative and technical support during construction projects.



## TASK SCOPE:

### Construction Inspection/Monitoring Management

The construction compliance management services provided shall include, but not be limited to, the following:

- **Attend Pre-construction meeting**
- **Attend Construction Project meetings:** Attend project meetings as directed by the Transportation Principal Engineer of ConnDOT's Environmental Compliance Unit or his/her Designee
- **Review of Contractor Submittals:** Consulting Engineer shall review the HASP to ensure it contains the elements in the Contract Specification; Shop drawings; Solidification Plan; Contaminated Groundwater Treatment/Management Plan; Contaminated Surface Water Treatment/Management Plan; Waste Profiles for conformance with the Contract Plans and Specifications. For Water Treatment submittals, the Consulting Engineer shall compare the contractor's submittal to the original Task 310 assumptions and document any differences in methods and/or costs and determine if these differences are reasonable based on-site conditions.
- **Project Compliance Planning:** Development of a HASP covering the anticipated project activities of ConnDOT personnel and Consulting Engineer personnel under 29CFR 1910.120/1926.65 (conforming with a Health Risk or Hazard Analysis as defined by Federal Occupational Health & Safety Administration) and provide permit assistance to the contractor as necessary.
- **Laboratory Coordination:** Assist in the selection of the low bid laboratory and submission of the laboratory pre-notification form. Review and recommend approval of laboratory invoices for payment by the Department. Evaluate and tabulate laboratory results and provide QA/QC on all laboratory involvement. DEEP's QA/QC guidance shall be used by the Consulting Engineer to ensure that analytical data generated during investigations are of known and appropriate quality. Specifically, the Laboratory Quality Assurance Quality Control RCPs and Laboratory Quality Control Assurance and Quality Control, DQA/DUE Guidance shall be utilized to ensure analytical data used are of known and sufficient level of quality.
- **Technical Support of Field Personnel:** Answer questions that arise in the field; interpret contract documents; resolve disputes between owner and Contractor; provide support to field personnel.
- **Preparation of Soil Staging Permit Registration:** Preparation of the DEEP Contaminated Soil/Sediment Staging Permit registration for signature by the Principal Engineer and submittal to DEEP. If an individual permit is required, this work shall not be included under a Task 610.
- **Compliance Documentation:** Maintain documentation pertaining to soil tracking for Soil Staging Permit compliance purposes and final disposal of all hazardous/contaminated materials emanating from the site; transmit manifest copies to the appropriate recipients and assist the contractor in preparing the waste characterization forms for disposal of generated wastes. Tracking shall include the volume of material reused on-site and shipped off-site for disposal for all hazardous/contaminated/impacted materials emanating from the site from both Low-Level Areas of Environmental Concern (LLAOEC) and AOEC locations.
- **Periodic Visits to the Site:** Make visits to the work site to address critical work issues. All visits to the site will require documentation regarding the reasons and activities that occurred as part of the inspector's weekly and daily reports.

Please Note: That attendance at regular project meetings should be by Field Inspector/Monitor. Attendance at meetings by staff under the Task 610 shall only be to discuss and resolve significant project issues that arise during construction.

## **TASK PRODUCTS:**

The products of the Construction Inspection/Monitoring Management Services task shall include a complete record that documents the contractor's activities with respect to environmental compliance. This shall be in the form of a Construction Compliance Surveillance Close-Out Report. This report shall include Site Description and Background; Identified Areas of Environmental Concern; AOEC Soil and/or Groundwater Excavation Activities; Quantities of Controlled Material Excavated, disposed of, and/or Re-Used; and Site Photographs. A table documenting these quantities shall be provided including the original estimated volumes. A narrative discussing the final disposal and reuse volumes as compared to the original estimates shall be provided. Specific products shall also include the submission of a Site-Specific HASP and review comments for all of the contractor's environmental submissions as required by the specifications. The Consulting Engineer shall coordinate the upload of the report into ProjectWise in accordance with the ConnDOT Digital Project Development Manual.

## **BASIS OF PAYMENT:**

Construction Inspection/Monitoring Management Services shall be assigned on a monthly basis at the billing rate for the category of the Inspector for each project. In the event that project conditions warrant, quarterly portions may be assigned where appropriate. The actual payment for services shall be at the maximum billing rate for the category at which the Consulting Engineer worked during the time period.

### **TASK 611: CONSTRUCTION INSPECTION MANAGEMENT SERVICES** **(Technical Support)**

#### **OBJECTIVE:**

The purpose of Construction Inspection Management Services is to provide administrative and technical support during construction projects that utilize the services of a Department of Administrative Services(DAS) task order contractor.

#### **TASK SCOPE:**

##### **Construction Inspection Management Services**

The construction compliance management services provided shall include, but not be limited to, the following:

- **Preconstruction Coordination:** Complete Bid Tabulation for scope of work utilizing the appropriate DAS task order contract; Issuance of contract documents to appropriate parties; Coordination with other units within ConnDOT as well as outside agencies.
- **Preconstruction Conference:** Make preliminary arrangements; notify appropriate parties; attend conference; and prepare and distribute minutes.
- **Attend Construction Project Meetings:** Attend project meetings as directed by the Transportation Principal Engineer of ConnDOT's Environmental Compliance Unit or his/her Designee
- **Review of Contractor Submittals:** HASP for to ensure it contains the elements in the Contract Specification; Shop drawings; Solidification Plan; Contaminated Groundwater Treatment/Management Plan; Contaminated Surface Water Treatment/Management Plan; Waste Profiles for conformance with the Contract Plans and Specifications. For Water Treatment submittals, the Consulting Engineer shall compare the contractor's submittal to the original Task 310 assumptions and document any differences in methods and/or costs and determine if these differences are reasonable based on-site conditions.
- **Project Compliance Planning:** Development of a HASP covering the anticipated project activities of ConnDOT personnel and Consulting Engineer personnel under 29CFR 1910.120/1926.65 (conforming with a Health Risk based Analysis); evaluation of proposed waste disposal facilities; and provide permit assistance to the contractor as directed by the Transportation Principal Engineer of ConnDOT's Environmental Compliance Unit or his/her Designee necessary.

- **Technical Support of Field Personnel:** Answer questions that arise in the field; interpret contract documents; resolve disputes between owner and contractor.
- **Preparation of Soil Staging Permit Registration:** Preparation of the DEEP Contaminated Soil/Sediment Staging Permit registration for signature by the Transportation Principal Engineer of ConnDOT's Environmental Compliance Unit and submittal to DEEP. If an individual permit is required, this work shall not be included under a Task 611.
- **Compliance Documentation:** Maintain documentation pertaining to soil tracking for Soil Staging Permit compliance purposes and final disposal of all hazardous/contaminated materials emanating from the site; transmit manifest copies to the appropriate recipients and assist the contractor in preparing the waste characterization forms for disposal of generated wastes.
- **Laboratory Coordination:** Assist in the selection of the low bid laboratory and submission of the laboratory pre-notification form. Review and recommend approval of laboratory invoices for payment by the Department. Evaluate and tabulate laboratory results and provide QA/QC on all laboratory involvement. DEEP's QA/QC Guidance shall be used by the Consulting Engineer to ensure that analytical data generated during investigations are of known and appropriate quality. Specifically, the Laboratory QA/QC RCPs and Laboratory Quality Control Assurance and Quality Control, DQA/DUE Guidance shall be utilized to ensure analytical data used are of known and sufficient level of quality.
- **Prepare and Issue Change Orders**
- **Tracking of Contractor Costs:** Review contractor invoices for payment by the Department; prepare periodic memos to ConnDOT documenting project costs relative to the Consulting Engineer's estimate.
- **Periodic Visits to the Site:** Make visits to the work site to address critical work issues. All visits to the site will require documentation regarding the reasons and activities that occurred as part of the inspector's weekly and daily reports. (Please Note: Attendance at regular project meetings should be by Field Inspector/Monitor. Attendance at meetings by staff under the Task 611 shall only be to discuss and resolve significant project issues that arise during construction.)
- **Preparation of Final Punch List:** Conduct an inspection of the completed work to verify conformance with the contract documents; prepare final punch list; track completion of punch list items.
- **Coordination and Attendance at Semi- and Final Inspections:** Notify the Transportation Principal Engineer of ConnDOT's Environmental Compliance Unit or his/her Designee when work is ready for semi-final and final inspections; attend semi-final and final inspections with representatives of ConnDOT; prepare summary memoranda following each inspection.
- **Review of Contractor Invoices:** Review for compliance with DAS contract terms (as applicable) and recommend approval of contractor invoices; prepare letter(s) of recommendation for payment.
- **Preparation of Record Drawings:** Upon completion of all work, prepare a set of record drawings, in electronic format as specified in ConnDOT's Digital Project Development Manual, that depict the as-built conditions of the work. A minimum of three dimensions shall be provided for all subsurface work to enable subsequent field location. All deviations from the original design shall be noted and all dimensions, notes, and references that no longer apply shall either be eradicated or crossed out.
- **Site Verification Record Keeping for Remediation Sites:** Maintain necessary records for site verification documentation, in accordance with the DEEP Remedial Standard Regulations, at remediation sites.

#### **TASK PRODUCTS:**

The products of the Construction Inspection Management Services Task shall include a complete record that documents the contractor's activities with respect to the construction of the recommended facilities and the remediation of contamination and preparation of record drawings. Specific products shall include preparation of a

Site-Specific HASP, preparation of weekly project status reports that discuss the work items completed during the previous work week and work items to be completed in the coming week; preparation of record drawings that depict as-built conditions, including all appropriate dimensions; and submission of a final pdf report that includes a compilation of daily inspection reports, change orders, and manifests pertaining to the work.

**BASIS OF PAYMENT:**

Construction Inspection Management Services shall be assigned on a monthly basis at the billing rate for the category of the Inspector for each project. In the event that project conditions warrant, quarterly portions may be assigned where appropriate. The actual payment for services shall be at the maximum billing rate for the category at which the Consulting Engineer worked during the time period.

**TASK 620: CONSTRUCTION COMPLIANCE SURVEILLANCE**

**OBJECTIVE:**

The purpose of Construction Compliance Surveillance is to provide an environmental monitor to support the Construction Engineer to ensure contractor compliance with the plans and specifications when working in areas of environmental concern or managing contaminated materials associated with the project.

**TASK SCOPE:**

Construction Compliance Surveillance shall include the following:

- A. **Field Monitoring:** Ensuring compliance with both the contractor's and Consulting Engineer's HASP; verifying limits of AOECs; coordinating controlled/hazardous materials handling; observing and monitoring temporary waste stockpile areas conditions; track soil for compliance with DEEP Soil/Sediment Staging Permit; communicate problems and concerns to the ConnDOT Engineer; monitor on-site soil and groundwater activities for compliance with specifications; field-analysis of samples utilizing portable monitoring instruments; and collecting samples for characterization. Monitors shall only be present when contractor's activities in AOECs warrant oversight unless otherwise directed by the ConnDOT Engineer.
- B. **Field Support Documentation:** Prepare daily inspection reports; review, record, and sign as agent of ConnDOT manifests and bills-of-lading associated with the disposal/recycling of controlled/hazardous materials; attend progress meetings as directed by the Principal Engineer or his/her designee; coordinate analytical laboratory activities; preparation of records (waste profiles, sampling data, and manifests) demonstrating compliance with state and federal waste disposal regulations.

Note: All communications from the Monitor to the contractor shall be directed through the ConnDOT Engineer. It is expected that the Monitor's field documentation and record-keeping activities shall occur within the regular 8-hour workday. **Work beyond the 8-hour workday must be pre-approved by ConnDOT.**

**TASK PRODUCTS:**

Monitors shall record all activities and observations associated with work in AOECs in a daily diary. For each day the individual is on-site, the Monitor shall transcribe this information to a daily inspection report in a format approved by ConnDOT. Copies of the inspection report shall be furnished to the ConnDOT Engineer and made available to the Environmental Compliance unit. In addition, the Monitor shall track and log all controlled/hazardous materials emanating from the site, including related documentation.

**BASIS OF PAYMENT:**

Construction Compliance Surveillance services shall be assigned on a per person-week basis at the billing rate for the category of the Inspector for each project. In the event that project conditions warrant, quarterly portions may be assigned where appropriate. The actual payment for services shall be at the maximum billing rate for the category at which the Consulting Engineer worked during the time period.

For the purpose of this Agreement, a person-week shall consist of 40 hours and a typical project shall require one Monitor. Work beyond a 40-hour work week shall require pre-approval of the Principal Engineer or his/her designee. If project demands require extended workdays, the level of effort will reflect the additional time required. Additionally, travel-time to and from the site will not be included for payment.

## **TASK 621: CONSTRUCTION INSPECTION/MONITORING**

### **OBJECTIVE:**

The purposes of Construction Inspection/Monitoring are to ensure contractor compliance with the plans and specifications, provide environmental monitoring when working in AOECs, and provide monitoring of contractor's costs on projects utilizing a DAS task order contractor.

### **TASK SCOPE:**

Construction Inspection/Monitoring shall include the following:

- A. **Field Inspection/Monitoring:** Inspection of construction activities performed by a task order contractor to ensure compliance with plans and specifications; ensuring compliance with the HASP, including protection of on-site employees; tracking soil for compliance with DEEP Soil/Sediment Staging Permit and eventual site verification; verifying limits of AOECs; coordinating controlled/hazardous materials handling; observing and monitoring temporary waste stockpile areas conditions; field-analysis of samples utilizing portable monitoring instruments; and collecting samples for delineation and characterization.
- B. **Field Support Documentation:** Maintain daily tracking of contractor's project costs versus engineer's estimate; review contractor payment estimates; prepare daily construction inspection/monitoring reports; review, record, and sign as agent of ConnDOT manifests and bills-of-lading associated with the disposal/recycling of controlled/hazardous materials; review and sign as appropriate "Daily Report on Cost Plus" tickets documenting contractor's daily costs; attend progress meetings as at the discretion of the Principal Engineer or his/her designee required; coordinate analytical laboratory activities; preparation of records (waste profiles, sampling data, and manifests) demonstrating compliance with state and federal waste disposal regulations; and collect measurements and other data to enable the preparation of record drawings for the project.

Note: It shall be the responsibility of the inspector/monitor to coordinate all contractor activities with the on-site personnel. It is expected that the inspector/monitor's field documentation, contractor invoice preparation, record keeping, and other field documentation shall occur within the regular 8-hour workday. **Work beyond the 8-hour workday must be pre-approved by ConnDOT.**

### **TASK PRODUCTS:**

Inspectors/Monitors shall record all activities and observations associated with work in AOECs in a daily diary. For each day the individual is on-site, the Monitor shall transcribe this information to a daily inspection report in a format approved by ConnDOT. Copies of the inspection report shall be made available to the Environmental Compliance unit. Inspectors/Monitors shall maintain daily tracking of contractor's costs relative to the engineer's estimate. The Inspector/Monitor shall maintain a marked up set of plans and specifications to complete the record drawings. In addition, the Monitor shall track and log all controlled/hazardous materials emanating from the site, including related documentation.

### **BASIS OF PAYMENT:**

Construction Inspection/Monitoring services shall be assigned on a per person-week basis at the billing rate for the category of the Inspector for each project. The actual payment for services shall be at the maximum billing rate for the category at which the Consulting Engineer worked during the time period.

For the purpose of this Agreement, a person-week shall consist of up to 40 hours and a typical project shall require one Inspector/Monitor. Work beyond a 40-hour work week shall require pre-approval of ConnDOT. If project demands require extended workdays, the level of effort will reflect the additional time required. Additionally, travel-time to and from the site will not be included for payment.

## **TASK 810: IDDE Screening/Sampling Report & Asset Condition Rating**

### **OBJECTIVE:**

The purpose of an Illicit Discharge Detection and Elimination (IDDE) screening and sampling assignment is to assess the presence or absence of an unauthorized, non-stormwater discharge to an outfall or interconnection within the Connecticut Department of Transportation (ConnDOT) Separate Storm Sewer System. Types of screenings and samplings consist of initial dry-weather screening and sampling; follow-up dry-weather screening and sampling; wet weather screening and sampling; and confirmatory screening and sampling (following removal of illicit discharge). The consultant shall also conduct a visual assessment and provide a condition rating of the end wall, pipe, and, where possible, the headwall associated with a screened/sampled outfall.

### **TASK SCOPE:**

#### **Preliminary Meeting and Field Work Plan**

The Consulting Engineer shall coordinate with a Transportation Principal Engineer of the ConnDOT Environmental Compliance section or his/her designee to review the outfalls and interconnections to be screened. During the preliminary meeting, access to all locations to be screened shall be reviewed. After the meeting and prior to starting field work, the Consulting Engineer shall submit a field work plan documenting:

- Outfall/interconnection accessibility
- Specify which constituents will be field tested versus laboratory tested if flow is observed
- Field sampling methods (such as portable meters and test kits)
- Laboratory to be used and plan to ensure that any bacteria samples taken will be received by the laboratory within 6 hours of taking the sample
- An anticipated schedule including approximate dates on which the Consulting Engineer will be working adjacent to various roadway section(s).

Any changes to the field schedule should be relayed to ConnDOT Environmental Compliance staff prior to field work. The field work plan shall be updated a minimum of once a month if changes occur.

#### **Field Investigation**

Field activities in support of a Task 810 shall be conducted under a separate Task 211 assignment.

#### **Dry Weather Screening**

The Consulting Engineer shall conduct an initial screening on assigned outfalls and interconnections to assess the presence or absence of an illicit discharge. At each location, the Consulting Engineer shall make observations including, but not limited to, such visual evidence as:

1. Foam: indicator of upstream vehicle washing activities, or an illicit discharge.
2. Oil sheen: result of a leak or spill.
3. Cloudiness: indicator of suspended solids such as dust, ash, powdered chemicals and ground up materials.
4. Color or odor: Indicator of raw materials, chemicals, or sewage.
5. Excessive sediment: indicator of disturbed earth of other unpaved areas lacking adequate erosion control measures.
6. Sanitary waste and optical enhancers (fluorescent dyes added to laundry detergent and some toilet paper): indicators of illicit discharge.
7. Orange staining: indicator of high mineral concentrations.

The Consulting Engineer is responsible for acquiring all field equipment needed to complete the screening. Dry weather screening shall only proceed when no more than 0.1 inches of rainfall has occurred in the previous 24-hour period. If flow is observed at the time of screening, the Consulting Engineer shall collect a sample of the discharge. Sampling protocols are described below.

If an outfall or interconnection is inaccessible or submerged, the Consulting Engineer shall proceed to the

first accessible upstream manhole or structure for the observation. The location of the screening shall be noted.

If no flow is observed but evidence of dry weather flow exists, the Consulting Engineer shall notify Transportation Principal Engineer of the ConnDOT Environmental Compliance section or his/her designee and request an assignment for a follow-up dry weather screening. The follow-up dry weather screening must be performed within one week of the initial screening or as soon as practicable to perform a second dry weather screening and sample any observed flow. If no flow is observed during the second screening but an illicit discharge appears active, the Consulting Engineer shall recommend the outfall or interconnection for wet weather sampling.

**Dry and Wet Weather Sampling**

All sampling (dry or wet weather) shall be completed as described below. Wet weather sampling is required to identify illicit discharges that only activate during rain events or that have sanitary sewer system vulnerability factors. Wet weather sampling shall only be done between the months of March and June.

A sample of the flow shall be field analyzed by the Consulting Engineer for ammonia, chlorine, conductivity, salinity, surfactants, and temperature. A field kit or portable meter shall be used for conducting this sampling.

If ammonia, surfactants, or chlorine are detected by the field kit or if there is relevant information indicating sanitary sewer inputs, then the Consulting Engineer shall conduct a sampling for E.coli (for freshwater receiving water) or enterococcus (for saline or brackish receiving water). Laboratory testing is required for analysis of E.coli and enterococcus. Bacteria samples must be received by the laboratory within 6 hours of being taken. Analytical services shall be procured by the Consulting Engineer based on competitive pricing.

If an outfall or interconnection is inaccessible or submerged, the Consulting Engineer shall proceed to the first accessible upstream manhole or structure for the observation and sampling. The location of the sampling shall be noted.

<b>Rating</b>	<b>Number</b>	<b>Descriptions</b>
Excellent	1	No defects
Good	2	Some minor defects which do not yet require repair. For Corrugated Metal Pipes: <ul style="list-style-type: none"> <li>- Minor coating loss and rust staining on invert with tight seams</li> <li>- Minor coating loss above invert</li> <li>- Minor inlet/outlet deformations</li> </ul>
Fair	3	Areas of deterioration with minor deformation / deterioration. Roadway could have some minor cracking. For Corrugated Metal Pipes: <ul style="list-style-type: none"> <li>- Slight perceptible deformation in crown of pipe.</li> <li>- Minor infiltration of soil in seam</li> <li>- Deformation in crown with evidence of joint displacement</li> <li>- Corroded but intact connections</li> <li>- Some local corrosion at seam edges and hardware</li> <li>- Scaling of invert with some surface rust and pitting</li> <li>- Open joint separation with minor infil/exfil and gasket visible</li> </ul>
Poor	4	Areas of deterioration with significant deformation / deterioration. Roadway showing cracking, potholes and settling. Headwalls are leaning and/or cracking and have the potential to fall over. For Corrugated Metal Pipes: <ul style="list-style-type: none"> <li>- Invert deterioration and perforation with deformation and cracking</li> <li>- Deformation of crown with seam damage</li> <li>- Invert perforation</li> <li>- Significant soil infiltration from open joints and deformations</li> </ul>

Failed	5	Asset has deteriorated such that it is no longer functioning as intended aka, headwall has failed and has fallen over or has severe cracking and loss of material. For Corrugated Metal Pipes: <ul style="list-style-type: none"> <li>- Significant invert section loss, voids, and roadway damage</li> <li>- Deformation and significant section loss at invert and infil/exfil.</li> <li>- Open seams with heavy corrosion, section loss and infiltration of soil</li> <li>- Significant deformation, joint displacement, voids, and sinkholes with risk of embankment and roadway failures.</li> </ul>
Obstructed	6	Asset is unable to be rated due to maintenance requirements (i.e., filled with sediment, blocked by vegetation). Comments and photographs must be provided to indicate what the maintenance requirement is.

**Asset Condition Rating**

The Consulting Engineer is responsible for assigning a condition rating on the assets where an IDDE screening, sampling, or investigation is occurring. The rating assessment shall be based solely on a visual inspection of what can be observed without confined space entry. The table below defines the condition ratings. Any asset specific information not captured by the rating categories below should be summarized with additional comments.

Wherever possible, an assessment of each asset that is part of an overall asset (such as a culvert) should be conducted including the pipe inlet, pipe outlet and the headwalls. The picture taken should capture the condition of the asset.

**Report Preparation**

Upon completion of the screening and sampling, the Consulting Engineer shall prepare a report of their findings and conclusions as described below.

**TASK PRODUCTS:**

The Consulting Engineer shall provide the task products in electronic format by coordinating the upload with the Transportation Principal Engineer of the ConnDOT Environmental Compliance section or his/her designee into ProjectWise in accordance with the ConnDOT Digital Project Development Manual. The Consulting Engineer shall provide hard copies upon request of ConnDOT.

The report shall contain the following:

- 1) The date, temperature, location, and unique identification number (provided by ConnDOT), digital picture of asset, size (diameter), shape and material of asset, weather conditions during investigations and precipitation in previous 48 hour.
- 2) Summary of field investigation broken out by categories including:
  - a. Outfalls and interconnections where no illicit discharge or evidence of an illicit discharge was observed
  - b. Outfalls and interconnections where dry weather flow was observed and sampled. The results of the field kit analysis and any laboratory samples taken shall be provided in a table and compared against the limits specified in the ConnDOT’s MS4 permit.
  - c. Outfall and interconnections where evidence of an illicit discharge was observed but no flow was present during the initial or follow up dry weather screening. The report should document the evidence and highlight the outfalls and interconnections for future wet weather sampling.
  - d. Outfalls and interconnections that were sampled during wet weather. The results of the field kit analysis and any laboratory samples taken shall be provided in a table and compared against the limits specified in the ConnDOT’s MS4 permit.
    - i. The following additional information shall be collected for wet weather sampling:



1. Time of the start of the discharge, time of sampling, and magnitude (in inches) of the rain event sampled.
  2. The duration between the rain event sampled and the end of the previous measurable (greater than 0.1-inch rainfall) rain event.
- e. Any outfalls or interconnections where the screening or sampling location was changed due to an obstruction or because the outlet was submerged.
  - f. The condition of the asset as defined in the section above.
- 3) Produce a table that categorizes each of the outfalls or interconnections screened or sampled into a problem, high or low priority catchment.

<b>Problem Catchments:</b>	Catchments with known or suspected contributions of illicit discharges based on existing information.
<b>High Priority Catchments:</b>	<p>Catchments that meet one of the following criteria:</p> <ul style="list-style-type: none"> <li>• Catchments that discharge to areas of concern for public health such as public beaches, recreational areas, drinking water supplies or shellfish beds and have not been classified as problem catchments.</li> <li>• Catchments that discharge to bacteria impaired water bodies</li> <li>• Catchments that discharge the pollutant of concern to an impaired water body</li> <li>• Screening results indicate the presence of sewer input</li> </ul>
<b>Low Priority Catchments:</b>	Catchments that do not fall into the problem or high priority catchment categories.

**BASIS OF PAYMENT:**

An 810 assignment shall include all work required to prepare the report required under this task and shall include but not necessarily be limited to effort required for the following:

- Project management
- Meeting(s) with ConnDOT
- Review of existing information
- Field screening and sampling
- Laboratory analysis
- QA/QC
- Health & Safety
- Report preparation

For the purposes of this Agreement, the base budget for this task shall depend on the number of outfalls and interconnections evaluated. The base budget shall be deemed to include all effort as described above for a project that includes 20 outfalls or interconnections. For each additional 5 outfalls or interconnections, a separate incremental budget shall be established to cover costs associated with the additional effort. The total budget for a Task 810 assignment shall include the base budget plus the incremental budget times the number of 5-outfall/interconnection increments included.

Fieldwork to survey or sample outfalls and interconnections in support of a Task 810 will be assigned under a separate Task 211 – Field Sampling assignment. The Field Investigation scope of work described under the Task Scope section above shall apply to field sampling activities performed in support of a Task 810 assignment.

**TASK 910: REGULATORY COMPLIANCE**

**OBJECTIVE:**

The purpose of a Regulatory Compliance assignment is to assist the Department with compliance with various regulations, including but not limited to:

- Underground and Above Ground Storage Tanks
- Stormwater Management
- Resource Conservation and Recovery Act (RCRA)
- Toxic Substances Control Act (TSCA)
- Occupational Safety and Health Administration (OSHA)
- Property Transfer
- National Pollutant Discharge Elimination System (NPDES)
- Air
- Drinking water

In addition, this task may be assigned to initiate an emergency response until such time as a scope can be developed under another task.

Fieldwork in support of this Task will be assigned under a separate Task 211 assignment.

**TASK SCOPE:**

The services under this Task shall include but not be limited to the following:

- Preparation of permit applications
- Preparation of various plans, such as Spill Prevention Control and Countermeasures (SPCC), Storm Water Pollution Prevention Plan (SWPPP), and other contingency plans
- Training
- Underground Storage Tank (UST) reimbursement applications
- Environmental audits
- Environmental Condition Assessment Form (ECAAF) and related property transfer documents
- Review of proposed regulations to determine their possible impact on ConnDOT activities
- Environmental consultation and advice
- Preparation of a remedial cost estimate and expert testimony in support of Right of Way (ROW) property acquisition
- Expert testimony in support of environmental permits
- Installation of monitoring wells not already included as part of a Task 210/220
- Preparation of site verification report and interim site verification report
- Preparation of Remedial Action Plan
- Preparation of individual permit for Contaminated Soil and/or Sediment Management
- Updating of project specifications
- Establishment determinations pursuant to the Connecticut Transfer Act

**BASIS OF PAYMENT:**

Regulatory Compliance Services shall be assigned on a weekly basis for each project at the billing rate for the category of the Consultant Engineering personnel for each project the actual payment for services shall be at the maximum billing rate for the category at which the Consulting Engineer worked during the time period.

Fieldwork to collect samples in support of a Task 910 assignment will be assigned under a separate Task 211 – Field Sampling assignment.