# SECTION 12

## ENVIRONMENTAL ENGINEERING

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SECTION 12
ENVIRONMENTAL ENGINEERING

12.1 INTRODUCTION

The presence of environmental contamination can impact project feasibility, cost, schedules, human health & safety and environmental quality. It is therefore important to identify the presence of contamination early during project development to avoid or minimize involvement and produce predictable schedules and budgets. Any testing for and management of contamination within the project site must be performed in accordance with current NJDEP Site Remediation regulations under N.J.A.C.7:26E, as well as, the NJDEP’s Field Sampling Procedures Manual.

This Section provides the Engineer with guidance for conducting environmental investigations during the design process to determine the presence/absence of contamination (Areas of Concern (AOC)), and if contamination is present, to appropriately address AOCs in the construction contract documents.

The extent of the environmental investigation to be undertaken is dependent upon the scope of the project. Projects that do not involve ground intrusive activities will require little, if any, environmental investigation.

12.2 COORDINATING SUBMISSION REQUIREMENTS AND ENVIRONMENTAL INVESTIGATIONS

12.2.1 General

The Phase Design Submission requirements pertaining to environmental matters are dependent on the results and availability of information produced by progressive stages of the environmental investigation. Initial environmental screening/Preliminary Assessment investigations can help prevent the Authority from impacting or purchasing sites with potential contamination. If acquisition or impact to contaminated property is unavoidable, the results of the environmental investigations will be used to support the right-of-way acquisition process described in Section 8 of this Manual.

This Section provides the Engineer with a framework for undertaking due diligence and satisfying NJDEP requirements as well as integrating environmental issues into the Authority’s design process. This is not intended to be a rigid procedure. The Engineer will develop a cost effective, flexible plan to address NJDEP requirements within the specific context of each project. The Engineer and/or the Environmental Subconsultant must determine the most appropriate approach (i.e., report combinations, combining field investigative requirements, etc.) to maximize the efficiency of project schedules and costs.

It is incumbent upon the Engineer to be fully aware of NJDEP’s Licensed Site Remediation Professional (LSRP) Program and its potential implications for design submissions, construction schedules and construction requirements. The
Engineer must comply with the LSRP Program requirements as well as any other applicable NJDEP procedural/guidance requirements.

Historic Fill
The Engineer must be aware of the potential presence of historic fill (as defined in accordance with N.J.A.C. 7:26E 1.8) on project sites. Associated NJDEP requirements and health & safety issues must be addressed during design phases. The initial environmental screening/Preliminary Assessment will provide preliminary information regarding the presence of onsite historic fill. Additionally, geotechnical investigations can provide valuable data for the presence of in-situ historic fill.

Historic fill is presumed contaminated by NJDEP and is potentially present on existing/proposed NJTA Right of Ways. If encountered, the Engineer may be required to design engineering/institutional controls during the design phases to be implemented during construction. All historic fill sampling/requirements must be undertaken in accordance with N.J.A.C. 7:26E Technical Requirements for Site Remediation and NJDEP’s Field Sampling Procedures Manual.

12.2.2 Environmental Screening / Limited Preliminary Assessment (PA)
An Environmental Screening/Limited Preliminary Assessment must be conducted to support Preliminary Design. For major projects, the environmental screening is to be performed during preliminary engineering. For projects that do not include a preliminary engineering phase, the environmental screening is to be performed during Phase A of the design process. The investigation is intended to identify AOCs within the project site. At a minimum it should include:

- Review of Federal and State environmental databases (i.e. Environmental Data Report)
- NJDEP Environmental Information Inventory reviews
- NJDEP GIS database searches and NJDEP file reviews
- Review of historic land use information consisting of:
  - aerial photographs
  - city directories
  - Sanborn Fire Insurance Maps (earliest available)
- Review of local municipal files (i.e. health department, tax assessor’s office, construction department, etc.)
- Agency Coordination (i.e. NJDEP, USEPA, etc) and OPRA Request
- Review of existing As-Builts and environmental reports
- Site reconnaissance and assessment of risks associated with excavation or other construction related surface/subsurface activities.

Unless directed otherwise by the Authority, soil sampling is not to be undertaken at this phase. The results of the Environmental Screening (ES)/Limited Preliminary Assessment must be provided to the Authority in the form of an Environmental Screening Report (ESR).
Exhibit 12-1

ENVIRONMENTAL INVESTIGATION STAGES

DESIGN PHASES

Prelim. Design or Phase A

Phase A

Phase B

Phase C

Phase D

Construction

Environmental Screening

No AOC Present

Preliminary Assessment

Environmental Permit Applications
(Exhibit 3-7 of Procedures Manual)

Site Investigation

Remedial Investigation

Results below Soil/Groundwater Remediation Standards

Remedial Action Selection/Workplan

Remedial Action

Notes

1. AOC - Area of Concern.
2. Field activities and/or reporting requirements may be combined where appropriate.
3. The Engineer is strongly encouraged to use this diagram in conjunction with the full text of the regulation as published in the New Jersey Administrative Code (N.J.A.C.) 7:26E. The diagram is not a suitable substitute for referring to the regulation directly and interpretations of regulations made on the basis of this diagram are the sole responsibility of the Engineer.
4. It is the Engineer’s responsibility to determine whether there have been any changes in applicability of this regulation since the date of publication.
Results of the environmental screening investigation shall be documented in the ESR, which includes the following:

- Introduction
- Project description
- Summation/Review of resources utilized
- AOCs identified and justification
- Constraints to surface/subsurface activities
- Conclusions/Sampling recommendations
- Engineer’s recommendation for additional investigative action
- Appendix of all resources utilized

The results/findings of the ESR process shall also be reflected in the E.O. 215 Document prepared for the project, if applicable.

12.3 ENVIRONMENTAL INVESTIGATIONS SUPPORTING DESIGN SUBMISSIONS

Depending on the results (identification of AOCs) of the ES conducted during Preliminary Design or Phase A, the Engineer will conduct an appropriate Preliminary Assessment (PA); Site Investigation (SI) and/ or Remedial Investigation (RI) in consultation with the Authority. Should an AOC be identified during the ES, the Engineer must conduct a PA/SI and submit the report to the NJTA. Findings outlined in the PA/SI report will determine whether an SI/RI investigation is required.

The results of investigations described below will be used to support design submissions, as appropriate. The Authority will review and comment on environmental submittals (i.e. sampling plans, reports, etc.) associated with SI/RI investigations and if acceptable, authorize environmental investigations to proceed. All documents must be reviewed and approved by the Authority before submittal to the NJDEP.

12.3.1 Preliminary Assessment

If necessary, the Engineer will complete a PA as described under N.J.A.C. 7:26E-3.1 and 3.2.

12.3.2 Site Investigation

If necessary, the Engineer will conduct a SI described under N.J.A.C. 7:26E-3.3 through 3.13. The Engineer will submit a sampling plan to the Authority for review and comment. Soil/groundwater sampling will not be initiated until authorization is given by the Authority to proceed. A SI Report (SIR) will be submitted to the Authority for review and comment prior to NJDEP submission. The Engineer will reflect information contained in the SIR in the Design Submission if applicable.
12.3.3 Remedial Investigation/Remedial Investigation Workplan (RI/RIW)

If necessary, the Engineer will conduct a RI described under N.J.A.C. 7:26E-4.1 through 4.8. The Engineer will submit a Remedial Investigation Workplan (RIW) to the Authority for review and comment prior to NJDEP submission. Soil/groundwater sampling shall not be initiated until authorization is given by the Authority to proceed. The Engineer will incorporate information contained in the RIR within the Design Submission if applicable.

12.4 ENVIRONMENTAL INVESTIGATIONS SUPPORTING DESIGN PHASE C and PHASE D

If necessary and depending upon the results of the RI/RIW/Remedial Investigation Report (RIR), the Engineer will conduct an appropriate Remedial Action Selection (RAS) and/or Remedial Action Workplan (RAW) in consultation with the Authority. The RAS/RAW will be used to support Phase C and Phase D submissions.

12.4.1 Remedial Action Selection (RAS)

If necessary, the Engineer will coordinate with the Authority to develop, recommend the most appropriate RAS. The RAS process will include a written document outlining potential remedial options and recommendations for review and evaluation by the Authority prior to completion of a RAW, if applicable.

12.4.2 Remedial Action Workplan (RAW)

If necessary, the Engineer will prepare a RAW in accordance with N.J.A.C. 7:26E-5.1 through 5.8. The RAW schedule of activities and reporting requirements will be integrated into and coordinated with the Critical Path Method Progress Schedule for Construction Activities.

12.5 REMEDIAL ACTION

Depending on the circumstances of a particular project and the specifics of any remedial action determined to be necessary, it may be appropriate to undertake the remedial action in advance of the construction of the project in the form of a separate remedial action contract. The Engineer should discuss the possibility of an advance remedial action contract with the Authority where feasible and appropriate. Otherwise, the remedial action requirements may need to be incorporated into the construction contract documents for the project.

If the Design Consultant is functioning as the LSRP during environmental investigations and design efforts it may be appropriate for the Design Consultant/LSRP to continue functioning in that role during construction. If such a continuation of LSRP services is considered appropriate and/or beneficial to the Authority, the Design Consultant shall so notify the Authority’s Project Manager of this recommendation.