

**Erosion and Sediment Control,
Landscape Design Criteria**



MARCH 2018

ILLINOIS STATE TOLL HIGHWAY AUTHORITY

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The Erosion and Sediment Control, Landscape Design Criteria dated March 2018 replaces the March 2017 version.

Major Revision Highlights

- Article 2.2: Clarified that all Illinois Tollway construction projects must be conducted in a manner that minimizes erosion and offsite sedimentation, including projects which do not require an Erosion and Sediment Control Plan or an NPDES permit. Clarified that a SWPPP is to be provided for all projects in which erosion and sediment controls are required.
- Article 2.4.2: Additional data collection elements for the development of ESCPs and/or PLPs have been provided. The data analysis step has been expanded to address each data collection element.
- Article 3.1.1: Erosion and sediment control planning principles have been revised to further describe critical soil characteristics, expand the discussion of potential project-specific issues or conditions which require consideration, and clarify that the limitations associated with each BMP must be integrated into the design process.
- Articles 3.1.3 through 3.1.6: Erosion and sediment control submittal requirements have been revised to modify the timing for certain design elements, include some additional requirements, and provide further explanation of certain design element requirements.
- Article 3.2.4: Minimum widths for creek buffer strips have been provided based on resource characteristics, consistent with USACE permitting requirements. Temporary Stream Crossing and Temporary Stream Diversion BMP's have been added.
- Article 3.4.2: Clarified that coordination with the Soil and Water Conservation District is only required for projects in which the Tollway is partnering with local agencies or for projects which are outside of the Tollway ROW.
- Article 4.1.2: Added discussion of landscape design considerations.
- Article 4.2.12(E): Landscape planting notes have been revised to provide additional details on clearances and details for certain planting requirements and procedures.
- Appendix 3: Provided updated example Erosion and Sediment Control Plan Sheets.
- Appendix 4: The Erosion and Sediment Control Plan Technical Review Checklist has been revised to modify the timing for certain design elements, include some additional requirements, and provide additional explanation of certain design element requirements.
- Appendix 5: The Stabilized Construction Entrance details have been removed as they were previously incorporated into the Standard K drawings. Example Design Notes have been provided as a reference for inclusion on ESCP sheets, as appropriate.
- Appendix 10: The USDA Plant Hardiness Map has been replaced with an updated version.

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TABLE OF CONTENTS

SECTION 1.0 INTRODUCTION.....	1
1.1 Purpose and Use.....	1
1.2 Abbreviations and Acronyms	2
1.3 Definitions.....	2
SECTION 2.0 GENERAL INFORMATION	7
2.1 Primary Documents	7
2.2 Projects Not Requiring an Erosion and Sediment Control Plan.....	8
2.3 Policies and Regulations.....	8
2.3.1 Federal Statutes, Regulations and Policies.....	10
2.3.2 Illinois Statutes and Directives.....	11
2.3.3 Guidance Documents	11
2.4 Coordination and Documentation	12
2.4.1 Coordination	12
2.4.2 Documentation	13
2.4.3 Request for Design Deviation.....	15
SECTION 3.0 EROSION AND SEDIMENT CONTROL.....	17
3.1 Planning, Design Guidelines, and Submittal Requirements	17
3.1.1 Planning	17
3.1.2 Design Guidelines	18
3.1.3 Concept Design Submittal	28
3.1.4 Preliminary Design Submittal	31
3.1.5 Pre-Final Design Submittal.....	35
3.1.6 Final Design Submittal	36
3.1.7 References	37
3.2 Design Criteria.....	37
3.2.1 Runoff Control	37
3.2.2 Erosion Control.....	38
3.2.3 Sediment Control.....	40
3.2.4 Control Practices and Applications.....	42
3.2.5 Permanent Erosion and Sediment Control	69
3.3 Responsibilities.....	70
3.3.1 Illinois Tollway	70
3.3.2 Designer	70
3.3.3 Construction Manager (CM)	71
3.3.4 Contractor.....	73
3.3.5 Contractor's Erosion and Sediment Control Manager/Inspector (ESCM)	74
3.4 Permits and Approvals	74
3.4.1 National Pollutant Discharge Elimination System (NPDES).....	74
3.4.2 Soil and Water Conservation District (SWCD)	75
3.4.3 County Stormwater Management Agency (CSMA).....	75
3.4.4 Municipalities.....	75
3.5 Construction Requirements.....	75

3.5.1	General.....	75
3.5.2	Preconstruction Erosion and Sediment Control Meeting.....	77
SECTION 4.0 LANDSCAPE.....		79
4.1	Design Factors and Data Requirements	79
4.1.1	Design Approach.....	79
4.1.2	Design Considerations	80
4.1.3	Design Concept Development.....	81
4.1.4	Use of Design Factors and Data Requirements	83
4.1.5	Preliminary Plans and Special Provisions	83
4.1.6	Pre-Final Plans and Special Provisions	85
4.1.7	Final Plans and Special Provisions	86
4.1.8	Addenda, Bidding, Tagging, and Construction Observation.....	86
4.2	Design Criteria.....	86
4.2.1	Permanent Seeding/Sodding Design Requirements.....	86
4.2.2	Planting, Removal, and Care	99
4.2.3	Protection of Existing Resources.....	101
4.2.4	Grading and Alignment.....	101
4.2.5	Erosion Control.....	102
4.2.6	Drainage.....	102
4.2.7	Visual Quality	102
4.2.8	Safety	103
4.2.9	Historical Influences	103
4.2.10	Planting Treatments	104
4.2.11	Protection of Existing Plants.....	107
4.2.12	Plant Materials.....	108
4.2.13	Restoration of Staging Areas	112
4.3	Landscape Plans.....	113
4.4	Responsibilities.....	113
4.4.1	Illinois Tollway Responsibilities	113
4.4.2	Designer Responsibilities	115
4.4.3	Construction Manager (CM) Responsibilities	116
4.5	Approvals.....	116
4.5.1	Coordination with other Agencies/Municipalities	116
4.5.2	Coordination with Other Disciplines that are part of the Project Team.....	117
FIGURES		
Figure 1	– Ditch Check Spacing	24
Figure 2	– Seeding Zones	88
TABLES		
Table 1	– Influence of Environmental Conditions on Erosion.....	21
Table 2	– Applicability of Dust Control Measures.....	34
Table 3	– Landscape Materials List.....	108

APPENDICES

- Appendix 1 – NPDES Forms: NPDES Permit No. ILR10, NOI, ION, and NOT Forms
- Appendix 2 – EPA's *Stormwater Phase II Final Rule, Small Construction Program Overview*
- Appendix 3 – Illinois Tollway – Sample Erosion Control Plans
- Appendix 4 – Illinois Tollway – Erosion and Sediment Control Plan Technical Review Checklist
- Appendix 5 – Illinois Tollway – Example Erosion and Sediment Control Design Notes
- Appendix 6 – Illinois Tollway – Roadside Mowing Guide
- Appendix 7 – Illinois Tollway – Landscape Design Submittal Checklist
- Appendix 8 – Illinois Tollway – Sample Landscape Plans
- Appendix 9 – Illinois Tollway – Preservation, Removal and Replacement of Trees
- Appendix 10 – U.S. Department of Agriculture – Illinois Plant Hardiness Zone Map

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SECTION 1.0 INTRODUCTION

1.1 Purpose and Use

The Illinois State Toll Highway Authority (Illinois Tollway) strives to lead the Industry in innovative and best practices, and to support a transportation system that preserves and enhances the environment. The Illinois Tollway also endeavors to design and build a more sustainable transportation infrastructure in Illinois. In support of these goals, the Illinois Tollway is committed to ensuring the protection of existing water resources and natural areas by implementing and maintaining an erosion and sediment control and landscape program as part of all Illinois Tollway projects.

This document provides the criteria, guidance, and general policies and procedures that need to be followed by the Design Section Engineer (DSE) or Designer for implementation of the erosion and sediment control and landscape measures for any construction on Illinois Tollway right-of-way (ROW), temporary easements, and borrow sites. These criteria, guidance, and general policies and procedures are intended to prevent erosion and sediment damage to the roadway, associated ROW, and adjacent properties; and to reduce impacts to water quality, aquatic ecosystems, and sensitive environmental resources; before, during, and after construction; and to provide a landscape that is both visually and environmentally compatible and pleasing with the surrounding areas.

This manual provides general guidelines for plan preparation and for obtaining required permits for erosion and sedimentation control, as well as landscape planning and design. It is the responsibility of the Designer to be familiar with the Illinois Tollway landscape management practices and to be knowledgeable in the principles of erosion and sediment control, roadside landscape design, and of current practices and regulations as they may affect Illinois Tollway projects. The Designer shall also be knowledgeable of the most sustainable method for handling stormwater runoff. The Designer shall ensure that the proposed grading and drainage designs for any project are coordinated with the landscape design in order to minimize conflicts and take full advantage of design opportunities and efficiencies.

The Construction Manager (CM) shall be experienced in the development and implementation of erosion and sediment control plans that can be effectively applied by the Contractor during the construction phase of the project. In addition, it is the responsibility of the CM to ensure continuous monitoring of the effectiveness of the implemented erosion and sediment control measures throughout construction of the Illinois Tollway projects and that permit compliance is met. Remedial measures shall be proposed and implemented as necessary.

The criteria, guidance, and general policies and procedures documented in this manual are for use in ensuring fulfillment of commitments for erosion and sediment control associated with Section 402 and Section 404 permits of the Clean Water Act issued by the U.S. Army Corps of Engineers (USACE), on such commitments made to the Illinois Environmental Protection Agency (IEPA), and other regulatory and natural resource agencies during project development. The National Pollutant Discharge Elimination System (NPDES) program of the Federal Clean Water Act imposes erosion and sediment control requirements on construction activities that involve a disturbance of 1 acre or more of the total land area. The IEPA has issued a statewide General Construction Permit (ILR10) that details the NPDES requirements for construction projects.

1.2 Abbreviations and Acronyms

AASHTO	American Association of State Highway Transportation Officials
BMPs	Best Management Practices
CFR	Code of Federal Regulations
CM	Construction Manager
CPESC	Certified Professional in Erosion and Sediment Control
CSMA	County Stormwater Management Agency
DBH	Diameter at Breast Height
DSE	The Engineer or firm of engineers and their duly authorized employees, agents, and representatives engaged by the Illinois Tollway to prepare the Plans and Special Provisions for a Design Section.
EP	Environmental Planner
EPA	Environmental Protection Agency
ESCM	Erosion and Sediment Control Manager/Inspector
ESCP	Erosion and Sediment Control Plan
EVA	Existing Vegetative Assessment
FAA	Federal Aviation Administration
IDOT	Illinois Department of Transportation
IEPA	Illinois Environmental Protection Agency
ILCS	Illinois Compiled Statutes
Illinois Tollway	Illinois State Toll Highway Authority
Illinois Tollway DDM	Illinois Tollway <i>Drainage Design Manual</i>
IOD	Issues and Opportunities Diagram
ION	Incidence of Non-Compliance
MS4	Municipal Separate Storm Sewer System
NOI	Notice of Intent
NOT	Notice of Termination
NPDES	National Pollutant Discharge Elimination System
NRCS	Agriculture, Natural Resources Conservation Service
PM	Project Manager
PAM	Polyacrylamide
PLP	Permanent Landscape Plan
PPM	Parts Per Million
ROW	Right-of-Way
SWCD	Soil and Water Conservation District
SWPPP	Stormwater Pollution Prevention Plan
TMDL	Total Maximum Daily Loads
USACE	United States Army Corps of Engineers
WBPM	Web-Based Program Management system (e-Builder)

1.3 Definitions

Best Management Practices. Design, construction, and maintenance practices and criteria for developments that promote infiltration, minimize impacts from stormwater runoff rates and volume, prevent erosion and capture pollutants.

Community. Any municipality, or the unincorporated County, within Illinois acting as a unit of local government.

Clear Zone. The unobstructed, traversable area provided beyond the edge of the through traveled way for the recovery of errant vehicles.

Construction Manager. The Engineer or firm of engineers and their duly authorized employees, agents and representatives engaged by the Illinois Tollway to observe the project work in order to determine whether or not it is being performed and constructed in compliance with the Contract.

Contract. The written agreement executed between the Illinois Tollway and the successful Bidder and any supplemental agreements duly executed, establishing the terms and conditions for the performance and construction of the work and to furnish labor, equipment and materials, and by which the Illinois Tollway is obligated to compensate the Contractor therefore at the established rate or price. The Contract includes the Advertisement to Bidders, Instructions to Bidders, the Proposal, the Standard Specifications, Bonds, the drawings, the Special Provisions, the Plans, the Specifications and all Addenda and any Extra Work Order, Change Order or Supplemental Agreement after execution of the Agreement.

Dam. Any obstruction, wall embankment, or barrier, together with any abutments and appurtenant works, constructed to store or direct water or to create a pool (not including underground water storage tanks).

Designer. The person (or consultant team) responsible for performing a design task for an Illinois Tollway project. Although this is typically the Design Section Engineer (DSE), it can also include a person (or consultant team) hired by a Contractor to perform design as part of a Value Engineering Proposal or part of a Performance Based Design. This document will use the term "Designer" which covers anyone performing design and will only use the term "DSE" when discussing tasks specific to the DSE.

Design Section Engineer. The Engineer or firm of engineers and their duly authorized employees, agents, and representatives engaged by the Illinois Tollway to prepare the Plans and Special Provisions for a Design Section.

Detention. The storage and controlled release of stormwater following a precipitation event by means of excavated pond, enclosed depression, pipe or tank used for stormwater peak flow reduction, storage and pollutant removal. Both dry and wet detention facilities can be applied. Special conditions for wet detention ponds apply on the Illinois Tollway ROW.

Development. Any activity, excavation or fill, alteration, subdivision, change in land use, or practice, undertaken by private or public entities that affects the discharge of stormwater; or substantial improvement to any portion of a building in the flood plain. The term "development" does not include maintenance of stormwater facilities.

Drainage. The removal of excess surface or ground water from land or roadway pavement by means of surface or subsurface drains.

Drainage/Tributary Area. The area of land from which the water drains to a given point.

Erosion Control. Measures proposed and provided to prevent or reduce the displacement of soil by the running water on road embankment fills, banks, and at various drainage structures (i.e., culvert inlets and outlets, channels, detention pond overflow areas, junctions, etc.).

Filter Strip. A vegetative planting used to retard or to collect sediment or pollutants for protection of diversions, drainage basins or other drainage structures.

Floodplain. The area adjoining to the channel of a stream, which has been or may be subject to inundation by water exceeding a certain discharge.

Floodway. The channel and that portion of the flood plain adjacent to a stream or watercourse that is needed to convey the base flood.

Hydrology. The science of the behavior of water, including its dynamics, composition and distribution in the atmosphere, on the surface of the earth and underground.

Issues and Opportunities Diagram. A diagram of the site and adjacent properties that delineates the existing landscape character, features, view sheds, aesthetic opportunities, natural plant divisions, historic features, topographic features and identification of agencies and municipalities to be coordinated with.

Landscape Design Section Engineer. The landscape architect or firm of consultants and their authorized employees, agents and representatives engaged by the Illinois Tollway to prepare plans and Special Provisions for the landscape Design Section of a project.

Landscape Materials List. A list of plant material to be installed on a site. It includes the item number and the quantity and description of plant material consisting of scientific name, common name, size of plant at time of installation and delivered condition (balled and burlapped, bare rooted, containerized), and typical plant spacing.

Maintenance. The selective removal of woody material and accumulated debris from, or repairs to, a stormwater facility so that such facility will perform its natural functions or the functions for which it was designed and constructed.

Mitigation. Any action taken to permanently eliminate or reduce the negative impacts caused by natural or technological hazards.

Municipality. Any community, or the unincorporated County, within Illinois acting as a unit of local government.

National Pollutant Discharge Elimination System. A provision of the Clean Water Act that prohibits discharge of pollutants into waters of the United States unless a special permit is issued by the Environmental Protection Agency (EPA), a state or other designated regional agency.

Polyacrylamide. An anionic polyacrylamide flocculent used for sediment removal in construction site dewatering.

Runoff. The waters derived from melting snow or rain falling within a tributary drainage basin that exceeds the infiltration capacity of the soils of that basin.

Sediment. Mineral or organic soil material that was removed from the surrounding landscape and carried away by flowing water.

Sheet Flow. Storm runoff flowing in a thin layer over the ground surface.

Special Provisions. Special clauses, directions and requirements supplemental to the Standard Specifications, setting forth requirements peculiar to the work included in the Bid Documents.

Specifications. The general term comprising the directions, provisions, instructions and requirements contained in the Specifications, as well as the Special Provisions, any Supplemental Specifications and Addenda.

Structure. Unless otherwise defined in the Specifications, structures shall comprise all objects constructed of materials other than earth, required by the contract to be built or to be removed, but not including surfacings, base courses, subbases, gutters, curbs, sidewalks, and driveway pavement, buildings, bridges, culverts, headwalls, sewers, constructed channels, outfalls, retaining walls, and their appurtenances.

Subgrade. The top surface of a roadbed upon which pavement and shoulders are constructed.

Sustainability. Design, construction, operations and maintenance practices that meet the needs of the present without compromising the ability of future generations to meet their own needs.

Tree Preservation Plan. A plan delineating existing trees on-site that should be preserved and protected during the construction process.

Tree Stand Delineation. A general accounting of existing vegetation, both in quality and quantity, on any project site. It shall provide an overview of tree groupings and other natural attributes as well as limitations of the site.

Watershed. All land area drained by or contributing water to the same stream, lake or stormwater facility.

Wetlands. Areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions for growth and reproduction (i.e., swamps, marshes, sloughs, wet meadows, river overflows, mud flats and natural ponds).

Zone 1. The area of right-of-way directly adjacent to the roadway that will need special treatment due to increased salt pollutant exposure and proximity to traffic.

Zone 2. The area of right-of-way beyond Zone 1 often including the ditch bottom and back-slope.

Note:

This manual follows the traditional definitions for **shall**, **should**, and **may**. **Shall** is used to mean something that is required or mandatory; while **should** is used to mean something that is recommended, but not mandatory; and **may** is used to mean that it is optional and carries no requirement or recommendation.

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SECTION 2.0 GENERAL INFORMATION

2.1 Primary Documents

The primary documents that comprise a Stormwater Pollution Prevention Plan (SWPPP) and are developed through use of the criteria in this manual are:

- Erosion and Sediment Control SWPPP Narrative (Special Provision 111),
- Erosion and Sediment Control Plan (ESCP) plan sheets, and
- Permanent Landscape Plan (PLP) plan sheets.

The SWPPP Narrative describes all the construction site operator's activities to prevent stormwater contamination, control sedimentation and erosion, and comply with the requirements of the Clean Water Act. It defines and describes the Best Management Practices (BMPs) for erosion and sediment control, good housekeeping measures, liquid and solid waste handling, spill prevention, and spill control measures to be used to keep sediment and other pollutants from exiting the site.

The ESCP defines how properties and surface water(s) located within and outside of the project area will be protected from erosion and sediment damage by the use of temporary control measures. Erosion and sediment controls are the structural and non-structural practices used during the construction process to keep sediment in place (erosion control) and to capture any sediment that is moved by stormwater before it leaves the site (sediment control).

The PLP defines how the properties and surface water(s) located within and outside the project area will be permanently protected from erosion and sediment damage by the use of permanent ground cover and vegetation.

The temporary and permanent erosion control measures function best when proper operation and maintenance of these measures are based on implementing the following main elements:

- data collection and evaluation of the project vicinity to identify areas that are susceptible to erosion;
- assessment of the project site and determination of landscape requirements;
- review of the regulatory requirements for erosion and sediment control and landscape in the project area;
- planning and design for the most suitable and sustainable erosion and sediment control and landscape measures; and
- proper inspection, installation, and maintenance of the proposed erosion and sediment control and permanent landscape control measures coordinated with the construction schedule.

All Designer and CM personnel working on the preparation and implementation of the ESCP and PLP for a specific project shall be knowledgeable of the current Illinois Tollway design criteria in roadway Erosion and Sediment Control and Landscape Design for highways.

2.2 Projects Not Requiring an Erosion and Sediment Control Plan

Illinois Tollway projects which do not involve clearing and grubbing, excavation, stockpiling of soil and aggregate, borrow, or construction of embankment normally will not typically require a temporary ESCP. Illinois Tollway projects which involve only isolated excavation areas of less than 1 acre combined total disturbed area will not normally require an ESCP. Except in cases where total land disturbance exceeds 1 acre, the following are examples of routine construction and maintenance operations that will not require an ESCP:

- maintenance and installation of lighting fixtures, signing, traffic signals, or guardrail;
- weed spraying;
- pavement marking;
- seal coating;
- pavement patching;
- planting of woody landscaping materials; and
- pond outlet cleaning or ditch scraping if the soil is not redeposited on the site.

If a single project involves a cumulative land disturbance of 1 acre or more, such as repair/replacement of guardrail at numerous locations, an ESCP and an NPDES permit issued by the Illinois Environmental Protection Agency (IEPA) is required.

Although some Illinois Tollway construction operations do not require an ESCP or an NPDES permit, all construction operations must be conducted in a manner that minimizes erosion and offsite sedimentation pursuant to the Illinois Tollway's General NPDES Permit ILR40. For construction operations that constitute an earth disturbing activity; appropriate temporary and permanent erosion and sediment control measures must be installed and maintained. Temporary erosion and sediment control measures must be installed to minimize and/or correct erosive conditions that develop during construction, and to stabilize inactive construction areas. All necessary erosion control measures must be maintained until disturbed areas are stabilized. Accordingly, a SWPPP shall be provided for all projects in which erosion and sediment controls are required or the potential for impact to stormwater quality exists.

2.3 Policies and Regulations

SWPPPs, including the development of ESCPs and control measures, are required on all Illinois Tollway projects that will expose areas of soil to potential displacement by precipitation events, wind, or other means, such that the sediment:

- could adversely affect traffic on the Illinois Tollway or associated ROW, and

- could be conveyed into stormwater systems or receiving waters (i.e., natural streams) could affect adjacent properties or sensitive environmental areas adjacent to the project site.

The need for erosion and sediment control measures shall be evaluated in the early design stages, prior to the preparation of design plans, so that the identified needed measures can be accounted for later in the ESCP and PLP design phases. The ESCPs shall provide pre-construction/during construction drawings that include information identifying the types of erosion and sediment control practices to be used, their locations, and when they shall be installed in relation to the sequence of construction operations that will expose soil. In some cases, the Designer may recommend specific sequences of construction in order to address the protection of a sensitive area from erosion and sediment damage. Permanent landscape features, such as proposed trees and shrubs, should also be provided on the PLP post construction drawings when included in the scope of work.

The ESCP and/or PLP shall incorporate green infrastructure where appropriate and practicable, some of which may be limited to off-system locations. Potential green infrastructure practices include but are not limited to the following practices:

- bioretention facilities: including bio-swales and bio-retention basins,
- land conservation: including protecting open space, natural features and sensitive natural areas,
- vegetated swales,
- vegetated filter strips,
- habitat restoration: pollinator landscaping, prairie and wetland restoration with Illinois native plants,
- maximizing overland surface drainage,
- minimizing impervious surfaces, and
- on-site stormwater detention.

Stormwater management should mimic natural processes, such as directing stormwater over vegetated land to areas where infiltration, evapotranspiration, or water quality facilities are utilized. (Infiltration practices shall not be implemented in areas where vehicle fueling or maintenance will occur, where there is shallow bedrock, areas with contaminated soil or groundwater, or areas within 400 feet of a community drinking water supply or 200 feet of a private water supply well.) Natural buffers shall be provided or maintained adjacent to surface waters to the maximum extent practical based on actual site conditions. See Illinois Tollway Standard K sheets for minimum buffer distances. In no cases shall buffer areas be less than 30 feet wide. Soil compaction should be minimized and topsoil preserved, unless infeasible.

The ESCPs and/or PLPs shall attempt to incorporate one or more of the following strategies, in order of preference:

1. preservation of natural features of the site, including open space, natural stormwater storage, and infiltration features
2. preservation of existing natural streams, channels, and drainage ways
3. minimization of new impervious surfaces or unnecessary soil compaction
4. conveyance of stormwater in open vegetated channels
5. habitat restorative landscaping
6. development of wildlife corridors
7. construction of structures that provide both water quality and water quantity control with structures serving multiple sites is preferable to those serving individual sites.

The Designer shall collect and analyze the existing site conditions as described in Article 3.1 Planning, Design Guidelines, and Submittal Requirements. A summary of submittal requirements follows:

Design Concept Submittal includes:

- data collection and inventory development including, but not limited to, an Existing Vegetative Assessment (EVA) and an Issues and Opportunities Diagram (IOD);
- completing the Environmental Studies Inventory Sheet as described in the Illinois Tollway's Environmental Studies Manual; and
- considering Illinois Tollway environmental initiatives. The DSE should contact the Illinois Tollway Environmental Unit for input on current initiatives.

Preliminary Design Submittal includes:

- developing the preliminary SWPPP;
- interpreting, evaluating, and applying data; and
- developing a preliminary ESCP and PLP.

Pre-Final Design Submittal includes:

- finalizing the SWPPP, ESCP and PLP.

The following statutes, regulations, and references can be consulted to properly define the elements that shall be incorporated in the SWPPP, the ESCP, and the PLP.

2.3.1 Federal Statutes, Regulations and Policies

There are federal regulations overseen by numerous agencies. These agencies are the U.S. Environmental Protection Agency (EPA), USACE, the U.S. Department of Agriculture's Natural

Resources Conservation Service (NRCS), and the U.S. Fish and Wildlife Service. Key regulations and policies written by these agencies include:

- National Environmental Policy Act
- Water Quality Act (Clean Water Act Amendments) (1987)
- Clean Water Act: Sections 309, 319, 401, 402, 404
- EPA – Office of Water: “Controlling Nonpoint Source Runoff Pollution from Roads, Highways and Bridges” (EPA-841-F-95-008a / 1995)
- United States Code Title 23: Highways - Section 319: Landscaping and Scenic Enhancement
- 23 CFR 650, Subpart B Erosion and Sediment Control on Highway Construction Projects
- 23 CFR 752: Landscape and Roadside Development
- 40 CFR 450: Effluent Limitation Guidelines and Standards for the Construction and Development Point Source Category

2.3.2 Illinois Statutes and Directives

A number of Illinois statutes and directives contain guidance for landscaping, erosion and sediment control measures, not limited to the following:

- 615 ILCS 5 Rivers, Lakes, and Streams Act
- 35 Illinois Adm. Code, Subtitle C, Chapter I

2.3.3 Guidance Documents

Several guidance documents are available to assist in planning, design, and implementation of the landscaping and erosion and sediment control measures for the Illinois Tollway projects (all documents shall be the latest revision or edition), including:

- AASHTO – Guide for Transportation Landscape and Environmental Design
- AASHTO – A Guide for Achieving Flexibility in Highway Design
- AASHTO – Roadside Design Guide
- Environmental Protection Agency (EPA) – Developing Your Stormwater Pollution Prevention Plan; A Guide for Construction Sites
- Illinois Tollway – Design Section Engineers Manual
- Illinois Tollway – Drainage Design Manual

- Illinois Tollway – Environmental Studies Manual
- Illinois Tollway – Design Guidelines (Architecture, Landscape, Signage, etc.)
- Illinois Tollway – Standard K Drawings and Section M Base Sheets
- Illinois Tollway – Supplemental Specifications to the Illinois Department of Transportation (IDOT) Standard Specifications for Road and Bridge Construction
- Illinois Tollway – Criteria for Removal and Replacement of Trees
- Illinois Tollway – Roadside Mowing Policy
- IDOT – *Bureau of Design and Environmental Manual*, Chapter 41 – Construction Site Storm Water Pollution Control
- IDOT – *Bureau of Design and Environmental Manual*, Chapter 59 – Landscape Design
- IDOT – Standard Specifications for Road and Bridge Construction
- IDOT - Erosion and Sediment Control Field Guide for Construction Inspection
- NRCS/SWCD – *Illinois Urban Manual*

As manuals are updated and re-issued, please ensure that the most recent version of the document is being used for guidance.

If there is any conflict between this *Erosion and Sediment Control, Landscape Design Criteria* and any reference document or specification, the Designer shall discuss this conflict with the Illinois Tollway Project Manager (PM) before proceeding.

2.4 Coordination and Documentation

2.4.1 Coordination

Below is a discussion of coordination activities needed during the preparation of the soil erosion control and landscape plans.

- A. Coordination between technical design disciplines (e.g., engineering, landscape architecture, biology, hydrology, and others) is needed during the project's design in order to meet the proper environmental requirements. This is necessary not only for large and complex projects but also for small and simple projects. The Designer shall obtain all available inputs to ensure a coordinated, environmentally-based, integrative design approach.
- B. Coordination with state and federal regulatory agencies is necessary where transportation projects involve wetlands, endangered species, Illinois natural areas, nature preserves, historic sites, naturally or culturally sensitive areas, or where the planned facility is adjacent to public natural resources such as streams, forests, or forest preserves. The design aspect of these projects shall be identified by the Designer and coordinated by the assigned Illinois Tollway PM.

- C. The Designer shall support the Illinois Tollway PM when coordination is needed with local jurisdictional agencies or adjacent property/landowners affected by Illinois Tollway projects. Coordination at the local level includes counties, municipalities, schools, park and forest preserve districts, chambers of commerce, residential and commercial developments, and other special districts. Coordination at the general public level should include groups that could have valuable input to the project or have special requirements.
- D. The NPDES General Construction Permit to regulate the discharge of stormwater from a construction site, which is granted to the Illinois Tollway by the IEPA, requires certain documents be prepared and kept current by the CM and must be incorporated into the SWPPP. Refer to Part IV of the NPDES General Construction Permit for more details regarding the requirements for developing the SWPPP. Appendix 1 provides a summary of the various NPDES forms that may be applicable to a project.

2.4.2 Documentation

The Illinois Tollway's *Environmental Studies Manual* provides guidance on the necessary coordination and documentation for different types of projects.

Preparation of the documentation for ESCPs and/or PLPs involves the following steps and documentation.

A. Collection of data, including:

- topography,
- climate and precipitation (rainfall frequency and intensities),
- drainage patterns, hydrologic features, and surface water quality and impairments,
- soil types and characteristics,
- ground cover,
- adjacent land use(s),
- wetlands and other sensitive environmental resources,
- vegetation existing erosional features or issues,
- existing soil and groundwater contamination, and
- utilities and other similar physical constraints.

B. Analysis of the data, including:

- topography, including slope length and steepness, and areas of existing erosion;
- climate and precipitation, including rainfall frequency, intensities, and durations;
- drainage patterns, including areas where sheet or concentrated flows enter or leave Illinois Tollway property, groundwater seeps, and water from nearby construction projects;
- hydrology, including runoff calculation(s) and runoff coefficient(s);
- soil types, including characteristics such as erodibility, permeability, shrink-swell potential, texture, erodibility, water table depth, and depth to bedrock;
- vegetation and ground cover, including condition and types of existing vegetation such as trees, shrubs, grassy areas, native grasses, and existing denuded or exposed soil;
- natural features to be preserved, including trees, specimen or high-quality trees, bioswales, or other ecologically significant vegetation;
- areas of special attention, including impaired waterways, wetlands, streams and other waterways, buffer zones, wildlife corridors, threatened and endangered species habitat, and floodplains;
- land use, including areas with known/suspected environmental contamination, and
- physical site constraints, including utilities, wells, or drain fields which require protection from damage.

C. Development of project site plan, including the proposed drainage facilities.

D. Development of erosion and sediment control and landscape plans, including:

- SWPPP narrative, permit submittals, and/or ESIS;
- overview drawings and detailed plans;
- construction details;
- supporting calculations;
- preparation of the Erosion and Sedimentation Control Plan Technical Review Checklist; and
- applicable Section 4.0 requirements for PLP.

2.4.3 Request for Design Deviation

If the landscape or erosion control design submitted by the Designer deviates from the criteria specified in this manual, the Designer shall prepare and submit a Design Deviation to the Illinois Tollway in accordance with Article 10.1.5 of the DSE Manual.

The Designer shall prepare documentation to be used to obtain local permits/approval if local agency requirements for landscaping or erosion and sediment control are more stringent than the Illinois Tollway's requirements; these requirements shall be considered in the development of the ESCP and the PLP. If the proposed ESCP or the PLP does not meet or exceed the local ordinances, the Designer shall summarize for the Illinois Tollway information and consideration for the differences and explain why the more stringent requirements cannot be met.

The Illinois Tollway will review the information submitted and direct the Designer on a course of action to continue development of contract documents and permit applications.

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SECTION 3.0 EROSION AND SEDIMENT CONTROL

3.1 Planning, Design Guidelines, and Submittal Requirements

3.1.1 Planning

An effective ESCP shall minimize the amount of sediment displacement and erosion due to construction activities. The success of the ESCP depends mainly on planning, coordination, maintenance, and operation. The following outlines the main principles of planning a successful ECSP.

- A. The Designer shall coordinate with all disciplines to understand construction staging and drainage patterns tributary to and within the project limits. The Designer shall obtain delineations of drainage divides, tributary areas, and drainage flow routes from drainage reports (if available).
- B. The Designer shall understand the erosion potential of existing soils, including classifications, slopes, permeability, shrink-swell potential, texture, erodibility factor, water table depth, and depth to bedrock, and shall identify critical areas such as highly erodible soils, steep slopes, areas of existing erosion, and seepage zones.
- C. The Designer shall identify potential project-specific issues or conditions which will likely affect the implementation of erosion and sediment control measures and identify potential solutions. Considerations should include, but not be limited to, adjacent property use; distance and sensitivity of receiving waters; receiving waters with impairments [303(d) listed] or total maximum daily loads (TMDLs); watershed plans developed for constituents associated with roadways or construction; adjacent high quality natural resources/wetlands; the use of rubblized concrete for road base; special management areas, the presence of existing soil or groundwater contamination; access for construction and maintenance of erosion and sediment control measures; the need for temporary stream crossings, diversions, or dewatering; difficult-to-manage areas and construction activities that are at high risk for erosion and sediment control issues, etc.
- D. The Designer shall identify affected agencies and stakeholders that will require coordination meetings. The Designer shall prepare a listing of issues that will need to be discussed at the meetings and be prepared to present solutions to identified issues.
- E. The Designer shall plan the use of appropriate erosion and sediment control BMPs. No single BMP can address all pollutants associated with construction activities. Erosion control BMPs and sediment control BMPs should be selected and used in a complimentary manner to maximize effectiveness. Each type of BMP has certain limitations based on drainage area served, available land space, cost, pollutant removal efficiency, as well as a variety of site-specific factors (e.g., soil types, slopes, depth of groundwater table, etc.). Careful consideration of these factors is necessary in the selection of the appropriate BMP or group of BMPs for a particular location or situation.

Changes to the designed ESCP may be required during construction to prevent stormwater pollution. The Contractor may recommend changes in the ESCP, as

appropriate. The CM will accept or reject Contractor suggestions and advise Contractor of same. The CM has the authority to change the ESCP and is responsible for erosion and sediment control oversight to ensure proper measures are installed, effective, and maintained throughout all phases of construction, including shutdown periods.

- F. Throughout all phases of design, the Designer shall implement a thorough review process involving both design and construction personnel. The Designer shall include a review program of the plans and specifications to assure that local concerns are addressed and regulatory requirements are met, including a plan for temporary stormwater storage during construction.
- G. The Designer shall use and prepare the Erosion and Sediment Control Plan Technical Review Checklist for each design phase.

Illinois Tollway Supplemental Specifications Section 280, Special Provision 111-Erosion and Sediment Control, Standard K1 Drawings, and Section M Base Sheets are available to the Designer. The most current versions shall be obtained from the Illinois Tollway's website. The information is to be used to identify the erosion and sediment control items and quantities to be included in the contract documents.

For further guidance see Appendix 2 for the EPA's *Stormwater Phase II Final Rule, Small Construction Program Overview*. Also see the Illinois Urban Manual for additional practice standards for erosion and sedimentation control.

3.1.2 Design Guidelines

The Designer shall use the design guidelines provided to develop erosion and sediment control solutions for individual site conditions. Consideration shall be given to erosion and sediment control early on in the design process to properly account for it in the design process. These guidelines are included to provide the Designer with a general sense of the important factors that need to be accounted for throughout the design. The design guidelines are listed below by category:

A. General Design Considerations

1. Plan the construction to take advantage of existing topography, soils, drainage patterns, and natural vegetation.
2. Protect and minimize the impact to existing natural resources.
3. Consider the application of erosion control practices prior to construction to reduce on-site erosion and prevent off-site sediment discharge.
4. Complete coordination meetings with affected agencies and stakeholders early in the design process to solicit input and comments to be incorporated in the ESCP.
5. If the Designer determines that there is a need for additional measures not covered under Illinois Tollway guidelines, the Designer can use one of the drawings included in the *Illinois Urban Manual* or design details from *IDOT's Bureau of Design and Environmental Manual*, Chapter 41. The Designer may also provide a

custom design based upon site specific requirements. The Designer shall submit custom design drawings to Illinois Tollway for review and acceptance.

6. Design erosion control features to facilitate timely maintenance, repair, and replacement of impaired measures.
7. Use the most practical and cost-effective measures to restore and enhance the quality of the environment while considering site compatibility.
8. Evaluate the control of erosion based on changes in drainage patterns for various construction phases, time of year, and site conditions.
9. Determine if rubblized or recycled concrete will be used. If so, identify locations where Illinois Tollway stormwater leaves Tollway ROW and affects stormwater quality and/or plantings. The Illinois Tollway utilizes recycled concrete for roadway rehabilitation projects. Excavated concrete is broken up and crushed into smaller pieces, often in situ, to create an aggregate base for new pavement. The use of recycled or rubblized concrete creates unique challenges for erosion and sediment control design. The Designer shall be mindful of the fine material that is washed away during storm events, often continuing beyond the completion of construction. In addition, the presence of limestone in the rubblized concrete can significantly alter the pH of the stormwater runoff. Where rubblization is to be utilized, the Designer shall investigate the current technology and identify locations and design devices that will allow for the remediation of rubblized concrete fines prior to discharging stormwater to outside of the ROW. In many instances, the material can be removed via vegetated ditches as long as there is sufficient time and space for removal prior to the discharge of the stormwater to outside the ROW or to receiving waters.

If stormwater will discharge to sensitive ecological systems, such as creeks or wetlands, or interfere with the growth of adjacent plants and grasses, methods for neutralizing the pH shall also be assessed. In no instance shall live plants/plugs be installed near underdrain outfalls. The Designer shall identify methods for preventing impacts to stormwater discharging to outside the Illinois Tollway ROW from rubblized concrete and provide plans to the Illinois Tollway for review and acceptance. Contract documents shall incorporate appropriate BMPs into project plans to prevent these types of sediments from leaving Illinois Tollway ROW.

The Illinois Tollway Drainage Design Manual (Illinois Tollway *DDM*) has additional requirements for subsurface drainage design in areas constructed with rubblized concrete. See Article 10.7.2 of the Illinois Tollway *DDM* for additional information.

B. Basic Erosion Principles

Overview

Construction activities involving earthwork (e.g., clearing and grubbing, grading, importing fill material, utility installation) disturb the soil such that when the vegetation is removed, the soil becomes exposed and vulnerable to excessive erosion. This results in sediment being the most common pollutant associated with construction activities. Sediment can be detrimental to aquatic life by interfering with photosynthesis, respiration, growth,

reproduction, and oxygen exchange in waterways. In addition, sediment particles can transport other pollutants that are attached to them, including nutrients, trace metals, and hydrocarbons. Sediment particles (e.g., silts and clays) are the primary components of total suspended solids, a common water quality parameter.

Construction activities involving building materials, vehicular use, and landscaping have the potential to contribute pollutants to stormwater. Common pollutants related to these construction activities include vehicle fluids, curing compounds, solvents, paints, emulsions, oil and grease, metals, organics, pesticides, nutrients, trash, debris, and floatables, as well as other miscellaneous waste.

Erosion and Sedimentation Processes

Erosion is the process of soil particle detachment from the land surface by the forces of wind, water, or gravity. After the soil particles have been detached (eroded), the suspended soil particles in transport are referred to as sediment. Sedimentation occurs where suspended sediment settles out and is deposited. Note that gravels and sands tend to drop out of suspension more rapidly than finer particles (e.g., silts and clays) due to differences in size, density, and shape.

Where soil is cleared or disturbed, erosion occurs at a much higher rate due to direct exposure to erosive forces (e.g., raindrop impacts, sheet erosion, rill erosion). Land clearing disturbances can also alter the natural structure of soil and weaken the reinforcing matrix of plant roots and organic compounds. The EPA estimates that unprotected construction sites can experience erosion at over 100 times the natural rate. As a result, primary emphasis should be placed on erosion control practices as they are preventative source controls, while sediment control practices are secondary measures designed to contain sediment after it is in transport, preventing it from leaving the site. Sediment control is often more expensive than erosion control.

Types of Erosion

1. Erosion from Raindrop Impact. The dislodgement of soil particles by falling raindrops is a primary agent of erosion, particularly on soils with sparse vegetative cover. Individual soil particles can be splashed over 1.5 feet in height and 5 feet to the side.
2. Sheet Erosion. Splashed soil particles are moved in a semi-suspended layer uniformly over the land surface. The distance of sheet flow depends on slope, soil roughness, type of vegetative cover, and rainfall intensity.
3. Rill and Gully Erosion. As runoff concentrates, tiny channels form called rills. Rill erosion is the form that produces the greatest amount of soil loss worldwide. Rills are channels small enough to be smoothed by normal tillage. As the runoff accumulates in the rills, they erode further, causing gullies to form. Gullies are so large that they cannot be smoothed by normal tillage. The rate of rill erosion can easily be 100 times greater than that of sheet flow, and the rate of gully erosion can easily be 100 times greater than rill erosion. Due to the significant amount of sediment generated by rill and gully erosion, these types of erosion shall be given top priority for elimination, reduction, and control.

4. Ditch and channel erosion is produced by a concentrated flow moving within a ditch or channel without energy dissipation such as the access to a floodplain. This type of erosion can undermine channel banks and erode ditch/channel bottoms. Depending on the channel capacity, this form of erosion can do severe damage to a drainage system.

Influence of Environmental Conditions on Erosion


1. The soil erosion hazard varies with soil type, soil surface conditions, the slope of the lands (S), and the length of the slope exposed to the stormwater runoff (L). General guidelines are as follows:

Low Erosion Hazard:	for S = < 4% and L > 300 feet
Moderate Erosion Hazard:	for S = 4 to 7% and L > 150 feet
High Erosions Hazard:	for S = > 7%

2. The higher the erosion hazard, the more critical the design, practice, installation, and maintenance of the erosion and sediment control measures. Table 1 below demonstrates this principle.

Table 1:
Influence of Environmental Conditions on Erosion*

Soil Conditions vs. Erosion		
Soil Conditions vs. Erosion		
If soil is:	Erosion will be:	
Compacted and smooth	30 percent more	
Tracks across slopes	20 percent more	
Tracks up & down slopes	10 percent less	
Rough and irregular	10 percent less	
Rough & loose to 12" deep	20 percent less	

Slope Angle and Soil Type vs. Erodibility		
Slope angle	Erodibility	Soil type
50%		Silt
40%		Silty sand
30%		Clayey sand
20%		Organic soil
15%		Clays
10%		Silty gravel
5%		Sand
< 5%		Gravel
	Very Low	

*Table above used with permission, courtesy of the Kentucky Division of Water's *Kentucky Best Management Practices (BMPs) for Controlling Erosion, Sediment, and Pollutant Runoff from Construction Sites Planning and Technical Specifications Manual*, (undated), Tetra Tech, Inc.

C. Drainage and Runoff Control

1. Understand existing drainage patterns within the project limits and offsite flows tributary to the project area.
2. Where and when possible, keep off-site runoff from entering the construction site through the use of diversion dikes or temporary swales. It is critical that diversions be stabilized immediately following installation to prevent erosion of the diversion itself.
3. Keep runoff velocities low and retain sediment loaded runoff on the construction site.
4. Design any temporary facilities intended for the conveyance of stormwater to withstand the velocities of peak discharges.
5. Control peak flow and discharge rates to minimize erosion at outlets and downstream channels or streambanks.
6. Stabilize outlets as soon as possible after the start of construction and before the disturbance of surrounding areas.
7. Divert runoff from critical areas, such as highly erodible soils and steep slopes, and convey to stable areas.
8. Provide temporary bridges or culverts for construction equipment to cross natural or constructed channels. Bridge and culvert crossings shall be sized to accommodate peak discharges without causing undesirable water flow restrictions and without creating flood and scour conditions.
9. Maintain or encourage sheet flow wherever feasible; use dispersion or energy dissipation BMPs to help prevent concentrated flows from developing.
10. Provide stabilization methods adequate to minimize erosion of all conveyance systems.
11. Temporary ditch checks or rock check dams are to be used in all proposed or temporary ditches or swales to reduce velocity and to prevent excessive erosion. These devices are not considered as a substitute for sediment trapping devices, such as sediment traps or basins. Spacing between devices shall be determined from Figure 1, Ditch Check Spacing. Calculations supporting spacing shall be submitted for review.
12. Vegetated stream buffers are to be used and maintained to the maximum extent possible to retain channel capacity and stability, and to reduce the movement of pollutants into the waterway.
13. Perimeter silt fence barriers are to be used to decrease the velocity of sheet flows and detain sediment in sheet flow runoff within the project limits.

14. Super silt fence should be considered for perimeter sediment control when slope angle and/or the contributing slope results in concentrated flows, and/or the design life of the silt fence needs to exceed 6 months.

Silt fence and super silt fence barriers are not to be used in drainage ditches, swales, channels, streams, or other drainage features where concentrated flows will occur. The fences may be undercut and damaged by the impact of concentrated channel flow.

15. Utilize inlet protection measures to prevent conveyance of sediment into culverts or inlets to minimize the potential for clogging or loss of capacity in the drainage system. There are multiple types of inlet protection which have different applications depending on site conditions and inlet type.

FIGURE 1 – DITCH CHECK SPACING

% SLOPE	HEIGHT AT CENTER/ OVERFLOW POINT OF DITCH CHECK	SPACING OF DITCH CHECK IN FEET
8%	1.0'	13'
	1.5'	20'
	2.0'	26'
7%	1.0'	14'
	1.5'	21'
	2.0'	28'
6%	1.0'	17'
	1.5'	26'
	2.0'	34'
5%	1.0'	20'
	1.5'	30'
	2.0'	40'
4%	1.0'	25'
	1.5'	38'
	2.0'	50'
3%	1.0'	33'
	1.5'	50'
	2.0'	66'
2%	1.0'	50'
	1.5'	75'
	2.0'	100'
1% & BELOW	1.0'	100'
	1.5'	150'
	2.0'	200'

Notes:

1. Chart indicates recommended spacing of ditch checks, based upon the percent of slope.
2. For applications not addressed in this figure, spacing shall be equal to the height of the ditch check divided by the slope. This ensures that the base of the upstream check is at the same elevation as the crest of the downstream check.
3. The spacing distances indicated in this figure are for guidance only. The Designer shall take into consideration all variables in the design and selection of the type of ditch checks used, including but not limited to soil types, surface water flow, and other construction activities unique to the individual project which may impact erosion and sediment control structures.
4. Adapted from the Illinois Urban Manual.

D. Soils, Excavation, and Disturbed Area Considerations

1. Understand soil conditions within the project limits.
2. Minimize the extent of area exposed at any one time and the duration of the exposure. Appropriate sequencing of construction activities can be a cost-effective way to provide necessary controls and restore protective cover.
3. Endeavor to organize and coordinate clearing limits and construction phases to avoid unnecessary disturbance to existing vegetation for as long as possible.
4. Rock check dams shall be placed such that the resultant ponding will not cause flooding to adjacent areas or structures.
5. Establishing a protective vegetative lining or installation of a structural channel lining before flow is confined to a temporary ditch is preferred over installing temporary rock check dams.
6. Because well-planned sediment traps and basins are key measures to preventing off-site sedimentation, they should be installed in the initial stage of construction.
7. Sediment traps and basins require regular maintenance and shall be made readily accessible for periodic sediment removal and other necessary maintenance. Locations for sediment disposal shall be part of the selection of trap locations.
8. Use perimeter control practices to protect disturbed areas from off-site runoff and prevent sedimentation damage to areas located downslope of the disturbed areas.
9. Protect disturbed areas from erosion in a timely manner and erosion stabilization measures shall be initiated as soon as practicable in all portions of the site.

For portions of the site where construction activities have temporarily ceased and will not resume within 14 days (e.g., the total time period that construction activity is temporarily ceased will be 14 days or more), stabilization measures shall be initiated within 1 working day from the time activities have ceased. In portions of the site where construction activities have permanently ended, erosion stabilization measures shall immediately take place and final erosion measures used whenever possible.

10. Continuously maintain sediment control measures in place after construction has temporarily or permanently ended, until final erosion stabilization is complete.

11. Implement same day stabilization as outlined in the Illinois Tollway Supplemental Specification Article 280.15(c). Same day stabilization is to be used to minimize erosion and the movement of soils at those areas shown on the plans, as directed by the CM, or in erosive prone areas, or for disturbed areas within 100 feet of surface waters, wetlands, or other environmentally sensitive areas. The primary method to perform same day stabilization is through the use of Temporary Stabilization with Straw Mulch, with permanent measures installed at the earliest opportunity and on a priority basis. This item generally provides for additional labor that may be required to perform the continuous soil stabilization work in areas where there is limited space available for sediment control measures or to stabilize critical areas where there is a risk that sediment laden runoff will enter environmentally sensitive areas.
12. Reduce erosion of new embankment slopes by construction of temporary berms with temporary pipe slope drains at the end of each construction day. The size and distance between pipes are to be designed in accordance with the *Illinois Urban Manual* or *Illinois Tollway Standard Drawings*. Calculations supporting spacing shall be submitted for review.
13. Construction plans and specifications shall reflect that permanent erosion and sediment control measures will be implemented as quickly as practical.

E. Construction Practices and Issues

1. All temporary diversions, swales, ditches, etc. shall be installed in a manner that protects these areas from erosion during construction.
2. Apply and maintain the appropriate erosion and sediment control measures on the project site during all phases of construction, including construction shut down periods.

Where the initiation of stabilization measures is precluded by snow cover, stabilization measures shall be initiated as soon as practicable.

3. Clearly define wherever dewatering is expected to be needed, specifying the need to pass the sediment laden water through a sediment trapping device prior to leaving the construction site. Dewatering shall not outlet directly to sewers, wetlands or surface waters.
4. Temporary stream crossings shall be in service for the shortest practical period of time and shall be removed as soon as their function is completed. The Designer shall be aware that such structures are subject to the rules and regulations of the USACE for in-stream work (404 permit).
5. Turbidity curtains must be selected based on the flow conditions within the water body including flow direction and velocity. Turbidity curtains are designed and installed to trap sediment, not to halt the movement of water. In most situations, turbidity curtains should not be installed across channel flows. In any such cases, the plans and specifications should clearly indicate the design intent.

6. Ensure that temporary sediment traps and basins are fully stabilized prior to accepting flows to ensure maximum efficiency and avoid erosion of these measures.
7. Super Silt Fence shall be used to protect wetlands and other environmentally sensitive areas within and adjacent to the project.
8. Silt Fence and Super Silt Fence barriers are not to be used in drainage ditches, swales, channels, streams, or other drainage features where concentrated flows will occur. The fences may be undercut and damaged by the impact of concentrated channel flow.
9. Clearly define ways that the Contractor can ensure all sediment laden water originating on the site will flow through sediment control devices prior to leaving the site.
10. The effectiveness of temporary stabilized construction entrances over the duration of construction is largely dependent upon frequency of use and maintenance. Once the stone becomes clogged with mud, the practice will not serve its intended purpose until the stone is replaced. In some cases, the action of tires moving over a gravel pad may not adequately clean tires and a wash rack may be required.
11. Vegetated buffers should be protected from excessive vehicular traffic that can damage the grass cover and affect uniform sheet-flow distribution, limiting the effectiveness of this measure.
12. Clearly define the requirements for any in-stream work including access, timing of work, cofferdam construction, in-stream access, by-pass pumping, temporary crossings, dewatering, polymer treatment, and allowable discharge water quality.
13. Whenever possible, construction in a waterway shall be sequenced to begin at the most upstream point and work progressively downstream, installing required channel and grade control facilities. Work should be completed in small segments, exposing as little of the channel at a time as possible and performed only under low-flow conditions. Each segment shall be completed prior to beginning the next segment. The size of each segment shall consider the anticipated level of disturbance, quality of the water resource, physical access constraints, and hydrological characteristics of the waterway.
14. It is critical that temporary slope drains be installed properly since failure often results in severe gully erosion and sedimentation below the slope. The entrance section must be securely entrenched, all connections must be watertight, and the conduit must be staked securely.
15. Temporary concrete washout facilities must be located and maintained to provide adequate holding capacity and to protect Waters of the U.S., wetlands, and storm drainage systems.

16. Upon completion of construction and/or permanent stabilization, temporary erosion and sediment control measures shall be removed. Temporary erosion control measures may be left in place for a period of time following construction if construction included rubblized/recycled concrete. Under these circumstances, temporary erosion and sediment control measures shall be left in place until fines from the rubblized/recycled concrete are no longer being washed out from the underpavement. Temporary erosion and sediment control measures cannot be left in place on a permanent basis, however, unless consistent with standards from the Illinois Tollway *DDM*. In no instance may riprap or ditch checks be left in place unless the CM gets written acceptance from the Illinois Tollway Environmental Unit and it does not pose a hazard to the motorist.

Refer to the Illinois Tollway's Standard K1 and Section M Base Sheet Drawings for information regarding various erosion and sediment control measures and the applications to which each of them is best suited for Illinois Tollway projects. For further guidance see the EPA's *Developing Your Stormwater Pollution Prevention Plan, A Guide for Construction Sites*.

3.1.3 Concept Design Submittal

The design concept shall be developed in conjunction with the overall design team, following the guidelines provided. The primary focus of this submittal will be to understand the existing conditions, plan the overall erosion and sediment control concept, and define the permit requirements. Coordination with all project disciplines including Landscape Architect, Drainage Engineer, Environmental Planner, and governmental and regulatory agencies will be critical during this phase of the project. The Designer shall identify any special requirements that need to be met and any additional ROW needs. The following elements need to be addressed and included in the design concept narrative and plan.

A. Perform a Project Site Evaluation

1. Define project boundaries, identify adjacent land uses, and gain a basic understanding of the site topographic features.
2. Determine the erosion potential of existing soils, including classifications, slopes, permeability, shrink-swell potential, texture, erodibility factor, water table depth, and depth to bedrock, and identify critical areas such as hydric soils, soils which are highly susceptible to wind or water erosion, steep slopes, areas of existing erosion, and seepage zones.

Information on soils within the project boundaries can be found through use of the U.S. Department of Agriculture (USDA) web-based soil survey:

<http://websoilssurvey.sc.egov.usda.gov/App/HomePage.htm>

3. Determine if a TMDL allocation, listing as a 303(d)-impaired water or Watershed Management Plan is approved for any water body into which stormwater will discharge; determine if a TMDL allocation, impairment, or watershed management plan has any requirements for control of stormwater discharges or pollutants likely to be found associated with road construction or roadway use.

Information on TMDLs and impaired waters can be found at the IEPA's website, water quality page:

<http://www.epa.illinois.gov/topics/water-quality/watershed-management/tmdls/index>

4. Define the existing drainage network, including storm sewers, culverts, ditches, swales, constructed bioswales, channels, wetlands, streams, and rivers that enter, cross, or may be impacted by the construction of the project. Obtain previous delineations of drainage divides, tributary areas, and drainage flow routes from drainage reports (if available) so that the drainage plan and ESCP designs match. Identify locations where off-site drainage will enter the project area and specific locations where stormwater discharge will leave the project.
5. Identify all receiving waters and ultimate receiving waters for the project including MS4's, wetlands, creeks, and rivers. Determine whether any receiving water is listed by the IDNR as a Biologically Significant Stream. The list of IDNR Biologically Significant Streams can be found on the IDNR website at:

<https://www.dnr.illinois.gov/conservation/biologicalstreamratings/Pages/default.aspx>
6. Based on a 25-year, 24-hour storm event, determine the amount of runoff (peak flow and runoff volume) from the project area and tributary watershed areas.
7. Identify all locations where existing ditches, swales, channels, streams, and rivers will need to be diverted to facilitate construction.
8. Identify the locations of any native or mature vegetation, specimen or high-quality trees, bioswales, or other ecologically significant vegetation. Define areas where protection of existing vegetation will be required.
9. Identify the type and location of any special management areas such as floodplains, floodways, wetlands, creeks, rivers, protected habitats, nature preserves, etc.
10. Define any additional ROW or construction easements necessary to accommodate the implementation of the erosion and sediment control measures.
11. Identify areas of known environmental contamination which, when disturbed, could potentially impact stormwater quality (see the Illinois Tollway *Environmental Studies Manual* for information).
12. Estimate the total area of earth disturbing work activities.

B. Complete Governmental and Regulatory Agency Coordination

1. Evaluate project requirements for a USACE 404 Permit or other federal regulatory agencies.
2. Evaluate project requirements for an IEPA ILR10 NPDES permit. If required, begin necessary coordination related to the National Historic Preservation Act and Endangered Species Act which must be provided as part of the Notice of Intent (NOI).
3. Evaluate project requirements for a County Stormwater Management Agency (CSMA) permit and/or the need for coordination with the County Soil and Water Conservation District.
4. Evaluate project site requirements for municipal MS4's.

C. Submittal Requirements

1. Provide a narrative summarizing the project site evaluation, governmental and regulatory agency coordination, and the overall erosion and sediment control concept. The narrative shall include a thorough explanation of the conclusions reached from the project site evaluation and governmental and regulatory agency coordination, strategy for runoff control, and rationalization for the selected BMP's. All environmental permit requirements and further or pending regulatory agency coordination shall be described.
2. Provide Erosion and Sediment Control Overview drawings at a scale of 1 inch = 50 feet (or larger) with text and symbols at a size to be read clearly at 11 inches x 17 inches reduced plan size. See Appendix 3 for an example. These drawings shall:
 - show existing and conceptual proposed drainage patterns, stormwater conveyance systems, and areas of earth disturbance;
 - show project centerline, stationing, and ramp baselines as applicable;
 - show existing and proposed roadway geometry;
 - show ROW limits and areas of any planned ROW acquisition;
 - show existing contours and elevations (half tone);
 - show existing tree masses, shrub masses, constructed bioswales, and areas with trees 6-inch diameter at breast height (DBH) and greater;
 - show existing fence lines and walls;
 - show all drainage areas and label associated acreages tributary to the project and within the project limits;

- show existing drainage network and structures, including storm sewers, culverts, headwalls, swales, ditches, channels, creeks, streams, rivers, and outlets;
 - show and label floodplain and floodway limits, with elevations clearly noted; and
 - show and label the type and location of any special management areas such as floodplains, floodways, wetlands, creeks, rivers, protected habitat, nature preserves.
3. Provide ESIS Part I and supporting technical documents or reports (see the Illinois Tollway *Environmental Studies Manual* for information on ESIS).
 4. Provide cost estimates, including costs associated with any additional ROW needed for erosion and sediment control, for implementing the ESCP. This will be used in updating the initial planning cost estimate.
 5. Prepare and submit the Erosion and Sediment Control Technical Review Checklist, Section A, Design Concept Submittal, located in Appendix 4.
 6. Provide any additional information required by the Illinois Tollway Project Manager.

3.1.4 Preliminary Design Submittal

A. Perform Project Site Analysis

The preliminary design of an ESCP begins with a project site analysis. The purpose of this analysis is to take information obtained in the project site evaluation and define efficient and practical erosion and sediment control measures for the project site. At this phase in the design, sufficient information should be available to begin detailing the ESCP. The Designer shall work with all disciplines including the Landscape Architect, the Drainage Engineer, and the Environmental Planner to resolve all issues identified in the Design Concept Phase and layout the overall design concept. Plans shall be prepared showing a basic layout of all erosion and sediment control measures. The Designer shall not be required to fully detail the plans for this submittal, however, it shall be the Designer's responsibility to ensure that the measures proposed will work within the ROW and construction sequencing will work as proposed. In preparing the ESCP, erosion control shall be considered initially with sediment control designed as secondary control measures. Based on soils report information, refine soil classifications and adjust ESCP concept as necessary. Any new information revealed in the soils report that would require significant changes to the ESCP shall be discussed with the Illinois Tollway PM prior to initiating changes.

B. Prepare Preliminary Erosion and Sediment Control Drawings

1. Provide a preliminary plan sheet with Erosion and Sediment Control Supplemental General Notes. The DSE shall include and modify the notes in Appendix 5 applicable to the project and provide additional general notes as required. See Appendix 3 for an example.
2. Provide a preliminary Erosion Control Legend plan sheet. Show standard symbols, non-standard symbols, and abbreviations. See Appendix 3 for an example.
3. Provide a preliminary Erosion and Sediment Control Schedule plan sheet. The schedule should include the anticipated pay items, pay item measurement units, pay item numbers, and rows for plan sheet numbers. Include an additional row labeled "At Engineers Discretion" and a row labeled "Record Quantities" for use by the CM. Actual quantities are not expected. Multiple sheets may be required based on the number of control measures specified. See Appendix 3 for an example.
4. Provide preliminary plan sheet with Wetlands and In-Stream Notes for any projects involving work within or near wetlands and waterways. The DSE shall include and modify the notes in Appendix 5 applicable to the project and provide additional general notes as required. See Appendix 3 for an example.
5. Provide a preliminary Overview Drawing(s) reflecting any revisions called for in the previous review. The preliminary drawings shall also:
 - Based on soils report information, show any areas with hydric soil or soils with a high susceptibility to erosion.
6. Provide erosion and sediment control drawings at a scale of 1 inch = 50 feet showing a basic layout of all measures to be installed, before and during construction, with text and symbols at a size to be read clearly at 11 inches x 17 inches reduced plan size. See Appendix 3 for an example. These drawings shall:
 - Show all information provided on overview drawings, including existing contours, structures, and features at half tone and preliminary proposed contours at full tone.
 - Show construction sequences for installing control measures in relation to specific stages of construction and earth disturbance activities, and preliminary proposed contours at full tone.
 - Delineate disturbed areas and provide drainage patterns for proposed conditions. Make special note of drainage areas used to size the perimeter controls, sediment traps, or detention basins. Also include areas that will be disturbed for the Contractor to access the work area(s).
 - Show the direction of runoff flows prior to construction, during construction, after construction is completed, and stormwater outfalls. This may require duplicate drawings in situations where the flow directions are modified.

- Identify reaches that will require the use of staged construction, with temporary or permanent stabilization of slopes, before subsequent excavation or fill placement stages. Label how many stages/phases of excavation or fill will be needed, with the slope length (50 feet) and/or 15 feet fill or cut limitations shown on the Illinois Tollway Standard K1 Drawings.
- Show erosion and sediment control measures in phases designed to correspond to the project construction phasing. As a general rule, a separate set of Erosion and Sediment Control Plan sheets are needed for each phase of the construction, depending on the overall size and complexity of the project. Temporary erosion and sediment control measures are typically constructed in conjunction with maintenance of traffic (MOT) phasing, therefore for temporary erosion and sediment control plans should correspond with MOT phasing plans. Work stage drawing(s) that define the suggested sequencing of construction shall limit the size of the disturbed area to 20 acres for any given phase.
- Indicate areas with known environmental contamination. The SWPPP must describe how affected materials (e.g. solid and/or hazardous waste from construction) are to be handled to prevent stormwater pollution.
- Show recommended topsoil stockpile and on-site borrow locations with erosion and sediment control measures around the perimeter of the stockpiles.
- Identify tree protection and temporary sediment control measures that must be in place prior to initial grading. These include sediment basins, sediment traps, and silt fences. These practices shall be identified on the plan as Initial Construction.
- Identify wetlands, surface water features and other existing environmentally sensitive areas within, and adjacent to, the project limits and which portions of these (if any) may be impacted. Provide preliminary control measures for protection of these resources against sediment runoff and accidental intrusion. These measures shall be identified on the plan as Initial Construction.
- Show all locations where temporary stream diversions or cofferdams will be needed for installation or maintenance of culverts or bridges. These measures shall be identified on the plan as Initial Construction.
- Identify the permanent and temporary stormwater management measures that must be in place before grading occurs in each specific area along the route. These include stormwater detention sites, stabilized channel outlets, stabilized temporary swales or diversion dikes, and any needed stream diversions. These measures shall be identified on the Plans as Initial Construction.
- Identify reaches that will have temporary pipe slope drains and temporary berms (fill areas/embankments).
- Identify floodplain and floodway elevations.

- Layout the ESCP showing the type and location of erosion and sediment control practices to be used. Annotate as needed to clearly define design intent. Complete detailing is not required at this phase.
8. Provide a preliminary ESCP cost estimate.
 9. Provide preliminary ESCP Special Provisions.
 10. Provide any additional information required/requested by the Illinois Tollway Project Manager.
 11. Prepare and submit the Erosion and Sediment Control Technical Review Checklist, Section B, Preliminary Design Submittal, located in Appendix 4.
 12. Provide Permanent Landscape Plans at 1 inch = 50 feet showing all landscape, post construction features, and permanent seeding. Refer to Section 4.0 of this Manual for requirements.
 13. Provide ESIS Part II and supporting technical documents or reports (see the Illinois Tollway *Environmental Studies Manual* for information on ESIS).

For general design information, responsibilities, and permits refer to Article 2.3.

C. Prepare Preliminary SWPPP

1. Utilize the current S.P. 111 template provided on the Tollway's Web-Based Program Management system. The Designer shall modify Special Provision 111.2 to satisfy this requirement. It is expected that the preliminary SWPPP be fully developed based on the current project design.
2. Provide provisions for dust control watering and maintaining clean roadways inside and outside the project limits. The following table should be referenced for dust control measures (see Table 2) below.

**Table 2:
Applicability of Dust Control Measures for Various Site Conditions**

Disturbed Area No Traffic	Disturbed Area With Traffic	Soil Stockpiles	Clearing/ Excavating	Site Exit to Road
<ul style="list-style-type: none"> • Seeding • Mulching • Watering • Chemical Application 	<ul style="list-style-type: none"> • Watering • Chemical Application • Temporary Gravel or Paved Road 	<ul style="list-style-type: none"> • Seeding • Mulching • Watering • Chemical Application 	<ul style="list-style-type: none"> • Seeding • Mulching • Watering • Chemical Application 	<ul style="list-style-type: none"> • Temporary Gravel or Paved Entrance • Truck Washdown Area • Daily Roadway Sweeping

3.1.5 Pre-Final Design Submittal

The erosion and sediment control submittal for this phase shall include the plans, specifications, and cost estimate submitted at the Preliminary Design Phase developed to a 99% level of completeness. Submit permit applications and backup data, including NPDES Notice of Intent (NOI), and CSMA (if required) submittal at 100% level for use by Illinois Tollway in permit submittals. Items to be addressed or included in this submittal are:

- A.** Address, in writing, all Illinois Tollway comments from previous submittal.
- B.** Provide Pre-Final Erosion and Sediment Control Supplemental General Notes sheet and Erosion Control Legend sheet that includes any changes to the overall design since the prior submittal.
- C.** Provide Pre-Final Erosion and Sediment Control Schedule. Summarize, by drawing number, the measures to be installed, pay items, pay item numbers, and quantities. Provide additional quantities over and above the plan quantities for use “At Engineer’s Discretion”. Coordinate the discretionary quantities with Tollway Project Manager prior to submitting plans.
- D.** Provide Pre-Final Wetlands and In-Stream Notes. The DSE shall include any modifications to the preliminary notes as applicable to the project and provide additional notes as required.
- E.** Provide Erosion and Sediment Control Construction Sequence and Erosion and Sediment Control Inspection and Maintenance sheets. Show the maintenance schedule for each erosion control practice including any special measures not covered in the standard drawings and specifications. Show construction sequences for installing control measures in relation to specific stages of construction and earth disturbance activities.
- F.** Provide detailed design sheets using the 200 Series Base Sheets for any measures not covered by the Section K Standard Drawings. Provide the dimension, material and installation details.
- G.** Provide Pre-Final Erosion Control Overview Drawings reflecting any changes to the overall design. Show work stages that define the suggested sequencing of construction intended to limit the size of the disturbed area to a maximum of 20 acres for any given phase.
- H.** Provide Pre-Final ESCP Drawings reflecting any changes to the overall design.
- I.** Identify any erosion or sediment control measure that will serve as a permanent erosion or sediment control measure after construction is complete.
- J.** Include sediment traps, sediment basins, dewatering basins, temporary swales, and temporary channel diversions drawings on the cross sections. Verify that the devices will fit in the intended area.

- K.** Label the specific location(s), size(s), and length(s) of all erosion and sediment control measures shown on the drawings and not specified on the Erosion and Sediment Control Schedule.
- L.** Show the area, in acres, controlled by each temporary sediment basin, sediment trap, temporary diversion, temporary swale, or culvert inlet protection.
- M.** Show the location and label the size and I.D. number of existing wetland areas, other environmentally sensitive areas, and label which portions of these (if any) will be impacted. Labels shall include the total acreages within the project limits and any associated temporary fill or permanent impacts. Identify each feature or portion thereof to be protected as a "No Intrusion Area" and protect with Super Silt Fence.
- N.** Provide Pre-Final quantity and design calculations.
- O.** Provide a Pre-Final cost estimate.
- P.** Provide Pre-Final Special Provisions.
- Q.** Prepare Pre-Final SWPPP. The SWPPP shall not be considered complete until the Designer has fully prepared the site description, along with identification, implementation, and maintenance of BMPs to reduce pollutants in stormwater discharges. This is required to comply with the provisions of the NPDES Permit Number ILR10 issued by the IEPA for stormwater discharges from construction site activities.
- R.** Provide any additional information required/requested by the Illinois Tollway Project Manager.
- S.** Provide the NPDES NOI form.
- T.** Provide CSWCD submittal (if required).
- U.** Provide CSMA submittal (if required). Include two full size sets of Erosion and Sediment Control Plans, one reduced size set, and three sets of submittal documents.
- V.** Provide submittal information for other agencies, as required.
- W.** Prepare and submit the Erosion and Sediment Control Technical Review Checklist, Section C, Pre-Final Design Submittal, located in Appendix 4.

3.1.6 Final Design Submittal

The erosion and sediment control submittal for this phase shall include the plans, specifications, and cost estimate developed to a 100% level of completeness. Items to be addressed or included in this submittal are:

- A.** Address, in written form, all Illinois Tollway comments from previous submittal.
- B.** Provide final overview and ESCP drawings.

- C. Provide final Special Provisions and SWPPP in Special Provision 111.2.
- D. Provide final cost estimate.
- E. Provide final quantity and design calculations.
- F. Provide Professional Engineer's seal and signature on the plans.
- G. Provide any additional information required by the Illinois Tollway Project Manager.
- H. Prepare and submit the Erosion and Sediment Control Technical Review Checklist, Section D, Final Design Submittal, located in Appendix 4.

3.1.7 References

Illinois Tollway Standard K1 and applicable Section M Base Sheet Drawings and Specifications

IEPA's National Pollutant Discharge Elimination System (NPDES) Stormwater Permit No. ILR10, - General Permit for Stormwater Discharges Associated with Construction Sites

Illinois Urban Manual, AISWCD and NRCS

Illinois Department of Transportation (IDOT) – *Bureau of Design and Environmental Manual*, Chapter 41 – Construction Site Storm Water Pollution Control

Appendix 4, Illinois Tollway Erosion and Sediment Control Plan Technical Review Checklist

3.2 Design Criteria

All runoff, erosion, and sediment control measures shall be reviewed to ensure that roadside hazards are not created. In no instance shall erosion and sediment control measures be located in or near the clear zone.

3.2.1 Runoff Control

Runoff plays an important role in soil and sediment erosion, and in the collection and movement of chemicals (e.g., nutrients and pesticides) from soil and vegetative cover. Runoff control applies both to on-site and off-site runoff.

- A. On-site runoff is generally either conveyed through the site or stored on-site.
 - Runoff conveyance is generally done through temporary or permanent ditches, swales, or channels, and is intended to convey the runoff generated within the project area through the site. The conveyance facilities shall be designed according to the Illinois Tollway *DDM* and protected against erosion, using temporary and/or permanent erosion control measures.
 - Storage of on-site runoff can be done using temporary or permanent detention basins.

- B.** Off-site runoff shall generally be diverted from the construction site using diversion dikes and diversion channels. The diversion shall not cross the watershed drainage boundaries for the site. If diversion is not possible, the off-site runoff is to be conveyed through the site in such manner that untreated on-site runoff does not mix with the off-site runoff. Generally, the off-site runoff shall outlet into an undisturbed or a stabilized area, at a non-erosive velocity. The diversion channels shall be designed and constructed to withstand the expected velocity for the 25-year, 24-hour frequency storm without erosion. All constructed or modified channels shall be stabilized within 48 hours. If separation of on-site and off-site runoff is not possible, size sediment traps, basins, and other measures for both on-site and off-site runoff.
- C.** The following is a brief description of possible erosion control measures that will achieve runoff control.
- Temporary ditch checks or rock check dams shall be used in the existing, proposed, and temporary ditches to control velocity. These types of erosion control practices are not intended to trap sediment but are used as a temporary measure to control velocity. The spacing between ditch checks and rock check dams shall be determined as shown in Figure 1 (Article 3.1.2C) or according to manufacturer's requirements.
 - Diversion dikes shall be used to route off-site flows away from disturbed areas. The diverted runoff from an undisturbed area shall outlet into an undisturbed or a stabilized area at non-erosive velocities.
 - Temporary channel diversion shall be used to carry existing stream flow through or around the construction site. A dewatering discharge basin shall be provided with either a minimum storage capacity (in cubic feet) equal to the dewatering pump capacity (in gallons per minute) times 32, or a minimum size of 10 feet x 10 feet x 3 feet in depth, whichever is more stringent.

3.2.2 Erosion Control

- A.** Erosion control should apply measures that:
- limit the exposure duration of unprotected soil to erosion factors, and/or
 - ensure the proper temporary and permanent soil protection; i.e., through vegetative measures or structural measures.
- B.** The following general criteria shall be used for the design of vegetative and structural erosion control measures as part of Illinois Tollway projects.
1. All necessary erosion and sediment control measures shall be constructed and functional prior to initiating clearing, grading, stripping, excavating, or fill activities. Illinois Tollway Standard K1 and Section M Base Sheet Drawings contain the general rules that shall be followed and the standard symbols that shall be used for the erosion and sediment control measures.

2. Disturbed areas are to be protected from erosion in a timely manner. Erosion stabilization measures shall be initiated within 1 day, in portions of the site where construction activities have temporarily or permanently ceased, except portions of the construction site where activities will resume within 14 days (e.g., the total time period that construction activity is temporarily ceased will be less than 14 days). Adjacent sediment control measures shall remain continuously in place during construction.
3. Same day stabilization is to be implemented as outlined in the Illinois Tollway Supplemental Specification Article 280.15(c). Same day stabilization is typically used to minimize erosion and the movement of soils at those areas shown on the plans or as directed by the CM for erosive prone areas, or areas within 100 feet of surface waters, wetlands, or other environmentally sensitive areas. Same day stabilization is typically performed each day any soil disturbance occurs as a result of Contractor's operations. The primary method to perform same day stabilization is through the use of Temporary Stabilization with straw mulch, with permanent measures installed at the earliest opportunity and on a priority basis. This item generally provides for additional labor that may be required to perform the continuous soil stabilization work in areas where there is limited space available for sediment control measures or to stabilize critical areas where there is a risk that sediment laden runoff will enter environmentally sensitive areas.
4. Site plans shall show the existing vegetation that shall be preserved, and disturbed areas of the site that shall be stabilized. Stabilization practices shall include temporary seeding, permanent seeding, mulching, geo-textiles, sod stabilization, vegetative buffer strips, protection of trees, preservation of mature vegetation, or other appropriate non-vegetative measures.
5. Areas having slopes greater than 1:10 (V:H) shall be stabilized with erosion blankets in combination with permanent seeding as soon as possible. Provide temporary seeding and appropriate mulch or erosion control blanket control measures on all slopes if permanent seeding is not immediately installed.
6. Channel lining shall be provided where the design discharge velocity exceeds the scour velocity of the soil. See Article 4.2.10 B. Treatment of Drainage Channels and Ditches for guidance.
7. Permanent riprap protection and fabric formed concrete mats shall be avoided on Illinois Tollway drainage facilities due to maintenance difficulties. Open cell, articulated concrete block mats or other environmentally friendly methods such as turf reinforcement mats with open patterns and cost-effective products shall be considered. Refer to Illinois Tollway *DDM, Ditch and Channel Design* for permanent erosion control measures.
8. Each site shall have stabilized construction entrance(s).
9. In some cases, when there is limited space available for sediment traps or other control measures, "same day stabilization" shall apply.

3.2.3 Sediment Control

Sediment is the most common non-point source of pollutants. The design of Illinois Tollway sediment control measures shall consider the following general principles.

- A. For disturbed areas draining less than 1 acre, filter barriers (including silt fences or equivalent control measures) shall be constructed to control all runoff leaving the site. Generally, these are appropriate sediment control measures for small drainage areas where concentrated flow is not present. Vegetative filter strips, with a minimum width of 50 feet, may be used as an alternative in areas where only sheet flow runoff is expected. In areas of high environmental significance, concentrated flow, or where the ponded water depth may exceed 18 inches, a super silt fence shall be provided.
- B. For disturbed areas draining more than 1 acre but less than 5 acres, a sediment trap or sediment basin shall be constructed at the down-slope point of the disturbed area. Sediment traps will normally adequately control the sediment in areas where concentrated flow is likely to be present.
- C. For disturbed areas draining more than 5 acres, a sediment basin shall be provided at the down-slope point of the disturbed area. A maximum of 20 acres may be disturbed at a single time. The sediment traps or basins shall be designed to store 3600 cubic feet per acre for the entire on-site and off-site drainage area tributary to the basin, or as determined necessary by soil erosion calculations. Where reduced sized basins will be used, a general note needs to be added on the erosion control plans indicating that these traps/basins shall need to be cleaned out more frequently. This shall be properly reflected in the quantity estimate for "Erosion and Sediment Control – Clean-out".
- D. Design of any stormwater detention basin shall be coordinated with the need for sediment traps or basins. If properly designed, located, and maintained, the permanent detention basins can be easily modified to serve as temporary sediment basins until the project area is stabilized.
- E. Temporary pipe slope drains shall be used to convey runoff from the top of fill slopes to conveyance systems at the base of slopes as the embankments are constructed. Pipe slope drains are to remain in place until gutters or shoulders are constructed and the slopes are seeded and mulched, or otherwise stabilized.
- F. Anionic flocculent polymers (PAMs) may also be applied where extreme turbidity exists and/or as a pre-treatment for sediment laden water, before draining into sediment traps or basins.

All temporary and permanent erosion and sediment control measures shall be inspected, maintained, and repaired as needed to assure effective performance of their intended function. At a minimum, contractor shall inspect measures weekly and within 24 hours of a rainfall event with 0.5 inch or greater of precipitation (5 inches of snow).

Upon completion of construction and/or permanent stabilization, temporary erosion and sediment control measures shall be removed. (Temporary erosion control measures may be left in place for a period of time following construction if construction included rubblized/recycled concrete.) Temporary erosion and sediment control measures cannot be left in place on a permanent basis unless consistent with standards from the Illinois Tollway *DDM*. In no instance may riprap or ditch

checks be left in place unless the CM gets written acceptance from the Illinois Tollway Environmental Unit and it is not a hazard to the motorist.

3.2.4 Control Practices and Applications

For the ESCP to be implemented correctly, practices need to be applied within their intended use. The following is provided to help guide the Designer and CM.

Refer to the latest Illinois Tollway Supplemental Specifications Section 280 for detailed descriptions of control practices and pay items. Refer to Standard K1 and applicable Section M Base Sheet Drawings for control device details and construction notes. The *Illinois Urban Manual* (NRCS) and *Bureau of Design and Environmental Manual*, Chapter 41 (IDOT) may also be used for reference.

A. Dust Control

Pay items:

JS107361 - APPLY DUST SUPPRESSION AGENTS
JS107362 - SOIL STABILIZERS

Description and Purpose:

This item, discussed in Article 107.36 of the Illinois Tollway Supplemental Specifications, consists of applying water or chemical products to exposed soil surfaces to prevent the movement of dust that may be harmful to human health or the environment. Dust controls reduce the surface and air transport of dust, thereby preventing pollutants from infiltrating into stormwater.

Application:

- This item is to be used to control dust resulting from construction operations exclusively.
- The Contractor shall prepare and submit a Dust Control Plan in accordance with Article 107.36 of the Illinois Tollway Supplemental Specifications for approval by the Engineer.
- Dust Control Watering can provide onsite control of fugitive dust on haul roads and disturbed surfaces on an as-needed basis. The frequency of watering depends on several factors, including weather, soil type, and construction traffic. Water treatment is typically only effective for 0.5 hour to 12 hours. Water shall be applied at a rate so that the soil surface is wet, but not saturated or muddy. If watering is to be employed, conditions shall be monitored to prevent mud from being spread on local streets.
- Dust Control Watering shall consist of the uniform application of sprinkled water, and shall be applied only when directed and in a manner accepted by the CM.
- The Dust Control Watering pay item shall not be used in the compaction of earth embankments.

- Dust Suppression Agents are a mid to long term measure, may require multiple applications per year. They shall be applied according to manufacturers' recommendations, and according to the guidance in the IDOT *Bureau of Design and Environmental Manual*, Article 41-2.03.
- Chloride, gypsum or plaster-type sprayable mulches cannot be used without prior acceptance from the Illinois Tollway Environmental Unit.

Also see Section 4 of this Manual – Landscape, for the following items:

- Standard and Illinois Tollway Supplemental Specifications Section 250 – Seeding
- Standard and Illinois Tollway Supplemental Specification Section 251 – Mulch

B. Management of Erosion and Sediment Control

Pay Item:

JS280020 - MANAGEMENT OF EROSION AND SEDIMENT CONTROL

Description and Purpose:

This item, described in Article 280.02 of the Illinois Tollway Supplemental Specifications, consists of the management and maintenance of erosion and sediment control aspects of the project. This item includes inspections, meetings, schedule adherence, maintenance, and repair of erosion and sediment control items. It generally requires no action by the Designer, unless there are unique project conditions requiring a Special Provision.

Application:

- This item is to be used for all projects requiring erosion and sediment control measures for the duration necessary to ensure compliance with NPDES permit, contract plans, and specifications.

C. Erosion and Sediment Control – Excavation

Pay Item:

JS280030 - EROSION AND SEDIMENT CONTROL-EXCAVATION

Description and Purpose:

This item, described in Article 280.03 of the Illinois Tollway Supplemental Specifications, is comprised of earth and rock excavation associated with erosion control construction.

Application:

- This item to be used for excavation of sediment basins, sediment traps, dewatering basins, temporary swales, and temporary channel diversions.

- This item does not include excavation of permanent ditches parallel to the roadway, at the toe of embankments, or at the top of cuts.
- This item includes locating, detailing, constructing, and maintaining excavated concrete truck washout areas within the Contract Limits, as well as their removal and restoration.

D. Erosion and Sediment Control – Cleanout

Pay Item:

JS280040 - EROSION AND SEDIMENT CONTROL-CLEANOUT

Description and Purpose:

This item, described in Article 280.04 of the Illinois Tollway Supplemental Specifications, consists of the excavation required for the removal of accumulated sediment. Sediment shall be removed from devices when 50% full or when 50% of the device height is reached.

Application:

- Use this item whenever Erosion and Sediment Control – Excavation, is used.
- This item also consists of excavation required for the removal of accumulated sediment, vegetation, and debris from traps, basins, and the areas adjacent to silt fences, super silt fences, rectangular inlet protection, filter fabric inlet protection, ditch checks, and any other clean out excavation of accumulated sediment.

E. Silt Fence

Pay Item:

JS280050 - SILT FENCE

Description and Purpose:

A silt fence is a temporary, linear sediment barrier of permeable fabric designed to intercept and slow the flow of sediment-laden sheet flow runoff. Silt fences allow sediment to settle from runoff before water leaves the construction site. This item is described in Article 280.05 of the Illinois Tollway Supplemental Specifications.

Application:

- Silt fences shall be employed:
 - below the toe of exposed and erodible slopes,
 - down-slope of exposed soil areas,
 - around temporary stockpiles, and

- along streams and channels.
- Silt fences serve little purpose as perimeter fencing, unless they are emplaced to intercept off-site sediment from entering the project. In those cases, permanent sediment interception and control measures should be considered.
- Silt fences help contain water to allow sediment to deposit, they do not filter sediment from runoff water.
- This device is to be used to control sheet flow only, do not use for concentrated flows, drainage channels, or above or below drainage pipes.
- Maximum drainage area for sheet flow shall not exceed ½ acre per 100 feet of silt fence.
- To function properly, silt fences should be constructed along the contour lines to prevent concentration of flow, which increases the likelihood of silt fence failure.
- When silt fence is used to create a small containment system, the end posts shall be turned uphill to prevent water from flowing around the ends.
- Silt fence barriers shall not be used as mid-slope protection where slopes are steeper than 1:4 (V:H). Sediment rolls shall be used under those conditions.
- Silt fence barriers shall not be employed where water ponding behind the silt fence may cause flooding or fence failure, or where washout of the silt fence may cause damage.
- Silt build up against the fence is to be inspected within 24 hours of rainfall event with 0.5 inch or greater of precipitation (5 inches of snow) and removed when bulges develop in the fence, or when silt reaches 50% of fence height.
- Any silt fence constructed in an area where ponding depth may exceed 18" shall be constructed as a Super Silt Fence.
- Reference Standard Drawing K1 for additional information.
- Additional reference on silt fencing can be found in Article 41-3.01(b) of the IDOT *Bureau of Design and Environmental Manual*, Chapter 41.

F. Re-Erect Silt Fence

Pay Item:

JS280051 - RE-ERECT SILT FENCE

Description and Purpose:

This item, described in Article 280.05(b) of the Illinois Tollway Supplemental Specifications, consists of re-erecting silt fencing damaged by natural causes.

Application:

- This item to be used for replacement of the silt fence that has become damaged or ineffective as a result of natural forces.
- Silt fence damaged by the Contractor's operations or negligence shall not be re-erected under this item.
- If damage to silt fence has been caused by high flow volumes, or if damage is anticipated from heavy containment, replacement with super silt fence should be considered.

G. Temporary Swales

Pay Items:

JS280060 - TEMPORARY SWALE, TREATMENT TYPE I
JS280061 - TEMPORARY SWALE, TREATMENT TYPE II
JS280062 - TEMPORARY SWALE, TREATMENT TYPE III

Description and Purpose:

A temporary swale is an excavated drainage way designed to prevent runoff from entering disturbed areas by intercepting and diverting it to a stabilized outlet, or to intercept sediment laden water and divert it to a sediment-trapping device. This item is described in Article 280.06 of the Illinois Tollway Supplemental Specifications. This measure requires the Designer to prepare a design plan detail; reference Illinois Tollway Base Sheet in Section M.

Application:

- To intercept and divert runoff from one undisturbed area to another undisturbed stabilized area at non-erosive velocity.
- To transport off-site flows across disturbed areas such as right-of-way.
- All temporary swales shall have uninterrupted positive grade to an outlet.
- To intercept sediment laden water from a disturbed area and divert it to a sediment trapping device.
- Diverted runoff from an undisturbed area shall outlet directly into an undisturbed, stabilized area at a non-erosive velocity.
- Hydraulic design of temporary swales shall accommodate a 25-year, 24-hour storm frequency. In cases where temporary swale failure would endanger the roadway or other Illinois Tollway facilities, hydraulic design shall accommodate the 50-year event. The lining design shall accommodate a 10-year, 24-hour storm.

- For Temporary Swale, Treatment Type I, consisting of temporary ground cover and a heavy-duty erosion control blanket, the maximum channel velocity shall not exceed the manufacturer's recommended velocity for the erosion blanket. Generally, channel slope should not exceed 3%.
- For Temporary Swale, Treatment Type II, consisting of course aggregate CA3 for ditch lining, 3 inches in thickness over a geotextile filter fabric (designed for use with riprap), pressed into the soil with construction equipment, the maximum channel velocity shall not exceed 3 feet per second. Generally, channel slope should not exceed 5%.
- For Temporary Swale, Treatment Type III, consisting of gradation RR3 riprap in a layer at least 8 inches thick over a geotextile filter fabric (designed for use with riprap), pressed into the soil, the maximum channel velocity shall not exceed 4.5 feet per second. Temporary Swales may require the design of a velocity dissipation device at their outlet, to prevent localized erosion. Generally, channel slope should not exceed 8%.
- Temporary swales may require the design of a velocity dissipation device at their outlet to prevent localized erosion.
- Swales collecting runoff from disturbed areas shall be specified to remain in place until the disturbed areas are permanently stabilized.
- The use of Type II and Type III Treatments shall be approved by the Illinois Tollway Environmental Unit.
- Additional reference on drainage swales can be found in Article 41-2.04(a) of the IDOT *Bureau of Design and Environmental Manual*, Chapter 41.

H. Stabilized Construction Entrance

Pay Item:

JS280070 - STABILIZED CONSTRUCTION ENTRANCE

Description and Purpose:

A stabilized construction access, described in Article 280.07 of the Illinois Tollway Supplemental Specifications, is defined as a point of entrance/exit to a construction site that is stabilized to reduce the tracking of mud and dirt onto public roads by construction vehicles. Tire wash stations shall be considered where stabilized exits may not sufficiently remove sediment.

Application:

- Place stabilized entrance at all points of construction ingress and egress.
- Reference Standard Drawing K1 for additional information.

- Additional reference on stabilized construction entrances can be found in Article 41-3.06(a) of the IDOT *Bureau of Design and Environmental Manual*, Chapter 41.

I. Flotation Boom

Pay Item:

JS280080 - FLOTATION BOOM

Description and Purpose:

A flotation boom, described in Article 280.08 of the Illinois Tollway Supplemental Specifications, is designed specifically to contain and control the dispersion of turbidity and silt in a water body caused by marine construction, shoreline work, pile driving, dredging activities and other site work. Floating turbidity barriers consist of a top flotation boom, a fabric curtain extending downward under water, and a heavy galvanized steel chain sealed into a hem along the bottom of the curtain to provide ballast.

Application:

- This item to be used to control turbidity encountered during construction when working in a stream or waterway.
- Install and anchor floatation boom to one shoreline of stream or waterway in accordance with manufacturer's recommendations, to prevent drift towards the shore or downstream. Booms shall not be perpendicular to the flow of a flowing body of water.
- Bottom of boom shall be weighted to reach the bottom of the waterway.
- Reference Standard Drawing K1 for additional information.

J. Super Silt Fence

Pay Item:

JS280100 - SUPER SILT FENCE

Description and Purpose:

A super silt fence, described in Article 280.10 of the Illinois Tollway Supplemental Specifications, is designed to handle a higher amount of water and silt runoff or sensitive areas. It features a permeable fabric and chain link fence. Super silt fence is capable of withstanding more severe erosion conditions while providing maximum protection in critical landscapes.

Application:

- This item to be used to protect wetlands and other environmentally sensitive areas.

- This item is to be used to control high sheet flow volumes. Maximum drainage area shall not exceed 1/2 acre per 100 feet of fence. Under sheet flow conditions, Super Silt Fence should be constructed along the contour lines (as with silt fence installation).
- This item shall be used when the contributing slope is longer than 100', the slope is greater than 3%, and/or the design life of the silt fence needs to exceed 6 months.
- This item shall not be used in ditches or obstruct flow of drainage channels.
- Reference Standard Drawing K1 for additional information.

K. Temporary Pipe Slope Drain

Pay Item:

JS280110 - TEMPORARY PIPE SLOPE DRAINS

Description and Purpose:

A slope drain, described in Article 280.11 of the Illinois Tollway Supplemental Specifications, is a pipe used to intercept and direct surface runoff or groundwater down the face of unstabilized slopes in order to minimize erosion on the slope face. Slope drains discharge into a stabilized watercourse, trapping device, or stabilized area. Slope drains are used with lined ditches to intercept and direct surface flow away from slope areas to protect cut or fill slopes.

Slope drains are generally used in conjunction with earthen dikes (berms) that direct the runoff to the temporary pipe slope drain with flared end section. This measure requires the Designer to prepare a design plan detail. Reference Illinois Tollway Base Sheet in Section M.

Application:

- This item shall be used to control erosion on the embankment slope face during construction of the embankment.
- Maintain device in place until shoulders are constructed and embankment slopes are seeded and mulched.
- At the end of each day of embankment construction, temporary pipe slope drain shall be extended to the top of the embankment.
- Discharge from pipe slope drain shall release into sediment trap, into sediment basin, or to a stabilized ditch discharging to a trap or basin.
- Design criteria for capacity, dike, pipe size, spacing, inlet, and outlet shall be in accordance with the *Illinois Urban Manual*.

- Additional reference on slope drains can be found in Article 41-2.04(b) of the IDOT *Bureau of Design and Environmental Manual*, Chapter 41.

L. Tree Protection

Pay Item:

JS280120 - TREE PROTECTION

Description and Purpose:

A tree protection zone, described in Article 280.12 of the Illinois Tollway Supplemental Specifications, is established using temporary fencing in order to protect the critical root area important to the tree's health.

Application:

- This item to be used to protect trees from disturbance and from equipment traveling over the root zone. It shall be used for trees identified to be protected in the Tree Preservation Plans.
- Tree protection should be erected for single trees, or around groups of trees, according to the judgment of the Designer.
- Tree protection fence shall be high visibility plastic or other approved material that can last through the duration of the protection period.
- Tree protection shall be constructed as part of Initial Construction, prior to starting grading.
- Locate fence outside the drip line of the tree or trees to be saved, and in no case closer than 5 feet to the trunk of any tree.
- Reference Standard Drawing K1 for additional information.
- See Standard Specification Section 201 – Clearing, Tree Removal and Protection, Care and Repair of Existing Plant Material.

M. Temporary Riprap

Pay Items:

JS280140 - TEMPORARY RIPRAP

28200200 - FILTER FABRIC

Description and Purpose:

Riprap, described in Article 280.14 of the Illinois Tollway Supplemental Specifications, is a layer of large stones used to protect soil from erosion in areas of concentrated runoff. Riprap can also be used on slopes that are unstable because of seepage problems. This

item consists of placing a geotextile fabric and a protective coating of dumped or hand-laid stone for rock check dams, stone outlet structure sediment traps, dewatering basins, temporary swales, diversion dikes, and aggregate berms as shown on the Plans, and the removal of the riprap and geotextile upon completion of the need for these temporary facilities. Temporary erosion control measures cannot be left in place on a permanent basis unless consistent with standards from the Illinois Tollway *DDM* and it is not a hazard to the motorist. In addition, the CM shall obtain written acceptance from the Illinois Tollway Environmental Unit for the allowance of the use of temporary erosion control measures on a permanent basis.

Application:

- Use riprap to stabilize cut-and-fill slopes; channel side slopes and bottoms; inlets and outlets for culverts, bridges, slope drains, grade stabilization structures, storm drains; streambanks and grades; and as rock check dams.
- Temporary erosion control measures cannot be left in place on a permanent basis unless consistent with standards from the Illinois Tollway *DDM*.
- In no instance may riprap or ditch checks be left in place unless the CM gets written approval from the Illinois Tollway Environmental Unit. In no instance shall riprap be located in the clear zone.
- Riprap installations shall be designed to accommodate the flow velocity and shall be designed in accordance with Article 41-2.05(a) of the IDOT *Bureau of Design and Environmental Manual*, Chapter 41, and the IDOT *Drainage Manual*.
- Filter fabric is to be installed under all riprap.

N. Temporary Stabilization with Straw Mulch

Pay Item:

JS280150 - TEMPORARY STABILIZATION WITH STRAW MULCH

Description and Purpose:

Seed stabilization with straw mulch and tackifier, described in Article 280.15 of the Illinois Tollway Supplemental Specifications, consists of placing temporary seed followed by a uniform layer of straw and anchoring it with a stabilizing tackifier. This method is used as a temporary erosion control method to stabilize the soil and reduce erosion caused by wind and water.

Application:

- This item is for the combination of both temporary seed and temporary mulching of areas that cannot at the time be stabilized with permanent vegetative measures.
- This item shall be used for temporary erosion control where slopes are 1:3 (V:H), or flatter.

- Erosion control blanket or alternate mulch methods should be considered for temporary erosion control on steeper slopes when temporary stabilization with straw mulch are not effective.
- Gypsum or plaster-type sprayable tackifiers shall not be used without prior approval from the Illinois Tollway Environmental Unit.
- This item shall not be used in areas where concentrated flows occur. In those cases, consider the use of Erosion Blanket, Turf Reinforcement Mat (With open patterns), sodding, or sediment control devices.
- Provide if a portion of the work is to be exposed without activity for more than 14 days. (See Article 3.1.2 D. Soils, Excavation, and Disturbed Areas.)
- Additional reference on straw mulch can be found in Article 41-2.02(a) of the IDOT *Bureau of Design and Environmental Manual*, Chapter 41.

O. Same Day Stabilization

Pay Item:

JS280151 - SAME-DAY STABILIZATION

Description and Purpose:

Same day stabilization is to be implemented as outlined in the Illinois Tollway Supplemental Specification Article 280.15(c). Same day stabilization is typically used to minimize erosion and the movement of soils at those areas shown on the plans, or directed by the CM, in erosive prone areas, or areas within 100 feet of surface waters, wetlands, or other environmentally sensitive areas. Same day stabilization is typically performed each day for any area of soil disturbed as a result of Contractor's operations. The primary method to perform same day stabilization is through the use of Temporary Stabilization with Straw Mulch, with permanent measures installed at the earliest opportunity and on a priority basis. This item generally provides for the additional labor that may be required to perform the continuous soil stabilization work needed to reduce sediment loss where limited space is available for sediment control measures or to stabilize critical areas where there is a risk that sediment will enter environmentally sensitive areas due to stormwater runoff.

Application:

- Same day stabilization is to be implemented when perimeter and secondary controls are not in place due to limited available work space, in areas with high susceptibility to erosion, or in environmentally sensitive areas.
- Same day stabilization may consist of either temporary erosion control measures or the permanent landscaping indicated on the plan. The permanent landscaping shall be implemented as the same day stabilization whenever possible. This means that the Contractor shall stage his work so that portions of the slopes and

ditches can be brought to finished grade, topsoiled, and landscaped prior to the end of the workday.

- When permanent landscaping is not possible, due either to construction staging or specification constraints, same day stabilization shall consist of temporary erosion control measures. The primary erosion control method used along with same day stabilization during grading operations shall be Temporary Stabilization with straw mulch.
- The Designer shall indicate on the plans which specific items or limits are subject to Same Day Stabilization.

P. Diversion Dike

Pay Items:

JS280160 - DIVERSION DIKE, TREATMENT TYPE I
JS280161 - DIVERSION DIKE, TREATMENT TYPE II
JS280162 - DIVERSION DIKE, TREATMENT TYPE III

Description and Purpose:

A diversion dike, described in Article 280.16 of the Illinois Tollway Supplemental Specifications, is an earthen perimeter control consisting of a ridge of compacted soil, often accompanied by a ditch or swale at the top or base of a sloping disturbed area, constructed to control the velocity of or route sediment-laden stormwater runoff. This measure requires the Designer to prepare a design plan detail. Reference Illinois Tollway Base Sheet in Section M.

When on the upslope side of a site, earthen perimeter controls help to prevent surface runoff from entering a disturbed construction site. An earthen structure located upslope can improve working conditions on a construction site. It can prevent an increase in the total amount of sheet flow runoff traveling across the disturbed area and thereby lessen erosion on the site.

Earthen perimeter control structures also can be located on the downslope side of a site. They divert sediment-laden runoff created onsite to onsite sediment-trapping devices, preventing sediment from leaving the disturbed area.

Application:

- To intercept and divert runoff from an undisturbed area to an undisturbed stabilized area at non-erosive velocity.
- To intercept sediment laden water and divert it to a sediment trapping device.
- All dikes shall have positive drainage to an outlet.
- Design criteria shall be in accordance with the *Illinois Urban Manual*.

- Dike and embankment flow stabilization dimensioning to be sized for the drainage area.
- Design capacity to carry the peak runoff for a 100-year, 24-hour storm frequency.
- Earth dikes shall have an outlet that functions with a minimum of erosion. Runoff shall be conveyed to a sediment trapping device such as a sediment trap or sediment basin where either the dike channel or the drainage area above the dike is adequately stabilized.
- Diverted runoff from an undisturbed area shall outlet to an undisturbed, stabilized area at a non-erosive velocity.
- For Diversion Dike, Treatment Type I, consisting of temporary ground cover and a heavy-duty erosion control blanket, the maximum channel velocity shall not exceed the manufacturer's recommended velocity for the erosion blanket.
- For Diversion Dike, Treatment Type II, consisting of course aggregate CA3 for ditch lining, 3 inches in thickness over a geotextile filter fabric (designed for use with riprap), pressed into the soil with construction equipment, the maximum channel velocity shall not exceed 3 feet / second.
- For Diversion Dike, Treatment Type III, consisting of gradation RR3 riprap in a layer at least 8 inches thick over a geotextile filter fabric (designed for use with riprap), pressed into the soil, the maximum channel velocity shall not exceed 4.5 feet / second.
- The use of Type II and Type III Treatments shall be approved by the Illinois Tollway Environmental Unit.
- Diversion dikes may require the design of a velocity dissipation device at their outlet, to prevent localized erosion.
- Additional reference on diversion dikes can be found in Article 41-2.04(a) of the IDOT *Bureau of Design and Environmental Manual*, Chapter 41.

Q. Dewatering Basins

Pay Items:

JS280030 - EROSION AND SEDIMENT CONTROL-EXCAVATION
JS280040 - EROSION AND SEDIMENT CONTROL-CLEANOUT
JS280140 - TEMPORARY RIPRAP

Description and Purpose:

Dewatering basins, described in Article 280.17 of the Illinois Tollway Supplemental Specifications, are structures designed to settle sediment from stormwater before it enters receiving waters. This measure requires the Designer to prepare a design plan detail. Reference Illinois Tollway Base Sheet in Section M.

Application:

- A dewatering basin shall be installed wherever the Contractor is removing and discharging water from excavated areas on the construction site and the water is not being routed through an adequately sized sediment trap or sediment basin. The purpose of the basin is to temporarily store the discharged water and to release it in a manner that causes the sediment laden water to be filtered prior to release into a natural drainage way or stabilized conveyance.
- The minimum storage capacity of the Dewatering Basin in cubic feet shall be the dewatering pump capacity in gallons per minute times 32 or the minimum size: 10 feet x 10 feet x 3 feet in depth, whichever is more stringent.

R. Rectangular Inlet Protection

Pay Item:

JS280180 - RECTANGULAR INLET PROTECTION

Description and Purpose:

Rectangular Inlet Protection, described in Article 280.18 of the Illinois Tollway Supplemental Specifications, is used at storm drain inlets located in unpaved areas, and that are subject to runoff from construction activities. They are used to detain and/or filter sediment-laden runoff to allow sediment to settle and/or filter prior to discharge into storm drainage systems or watercourses.

Application:

- This device is to be used to protect existing and new inlets, catch basins, and manholes with open lids in non-paved areas.
- Maximum drainage area to each rectangular inlet protection device shall not exceed 1 acre.
- If Contractor prefers, super silt fence can be constructed around the inlet.
- Reference Standard Drawing K1 for additional information.

S. Geotextile Fabric

Pay Item:

JS280190 - GEOTEXTILE FABRIC, CLASS C

Description and Purpose:

Geotextile fabric, described in Article 280.19 of the Illinois Tollway Supplemental Specifications, is an engineered textile designed to reinforce soil structures and to separate fine grained from coarse grained materials.

Application:

- Geotextile fabric placed atop the ground surface is used to increase soil stability and provide for slope and fill erosion control.
- Geoweb is a cellular confinement structure used to stabilize infill and controls shearing, as well as lateral and vertical movement for a load support system. Acting like a semi-rigid slab, it provides a stable base for unpaved surfaces for construction equipment loading.
- Additional reference on Geotextile Fabric can be found in Standard Specifications Article 1080.02.

T. Filter Fabric Inlet Protection

Pay Item:

JS280205 - FILTER FABRIC INLET PROTECTION, COVER TYPE
JS280210 – FILTER FABRIC INLET PROTECTION, BASKET TYPE

Description and Purpose:

Fabric Filter Protection devices, described in Article 280.20 of the Illinois Tollway Supplemental Specifications, are used at storm drain inlets in paved areas that are subject to runoff from construction activities. They are used to detain and/or filter sediment-laden runoff and to allow sediment to settle, and/or to filter sediment prior to discharge into storm drainage systems or watercourses. The device consists of inlet basket and fabric insert, or inlet dam placed in front of curb inlet.

Application:

- Inlet dam shall not be used at pavement sags.
- This device shall be used to protect existing and new inlets, catch basins, and manholes with open lids in paved areas only.
- Use only within paved areas if disturbed areas drain to paved areas. Use in conjunction with additional upstream protective measures, such as silt fence.

- Sediment shall be removed from fabric inlet basket and insert when 50% of capacity is reached.
- Sediment shall be removed from the perimeter of inlet dam when 50% of dam height is reached.
- Field expedient inlet filters comprising a layer of geofabric laid under the inlet cover shall be prohibited.
- Reference Standard Drawing K1 for additional information.
- Additional reference on inlet filters can be found in Article 41-3.02(a) and (b) of the IDOT *Bureau of Design and Environmental Manual*, Chapter 41.

U. Stone Outlet Structure Sediment Trap

Pay Items:

JS280030 - EROSION AND SEDIMENT CONTROL-EXCAVATION
JS280040 - EROSION AND SEDIMENT CONTROL-CLEANOUT
JS280140 - TEMPORARY RIPRAP

Description and Purpose:

A sediment trap, described in Article 280.21 of the Illinois Tollway Supplemental Specifications, is a containment area where sediment laden runoff is temporarily detained under inactive conditions, allowing sediment to settle out before the runoff is discharged. Sediment traps are formed by excavating or constructing an earthen embankment across a low drainage area. This measure requires the Designer to prepare a design plan detail. Reference Illinois Tollway Base Sheet in Section M.

Application:

- This practice is to be used to collect sediment laden water in existing, proposed, and temporary ditches/swales of all types.
- Design criteria shall be in accordance with the *Illinois Urban Manual*.
- The detention storage shall be composed of equal volumes of “wet” and “dry” detention storage.
- The wet and dry storage areas shall each be sized according to guidance provided by the *Illinois Urban Manual* or the IDOT *Bureau of Design and Environmental Manual*.
- The minimum length to width ratio for a sediment trap shall be 2:1.
- The spillway weir length shall be determined based on drainage runoff from the contributing areas.

- Maximum drainage area allowed per trap is 5 acres, including both on-site and off-site tributary areas.
- If drainage area is over 5 acres, use a sediment basin or sediment traps in series.
- Additional reference on sediment traps can be found in Article 41-3.04 of the IDOT *Bureau of Design and Environmental Manual*, Chapter 41.

V. Sediment Basin

Pay Items:

JS280030 - EROSION AND SEDIMENT CONTROL-EXCAVATION
JS280040 - EROSION AND SEDIMENT CONTROL-CLEANOUT
JS280220 - SEDIMENTATION BASIN DEWATERING DEVICE
JS280140 - TEMPORARY RIPRAP

Description and Purpose:

A sediment basin, described in Article 280.22 of the Illinois Tollway Supplemental Specifications, is a temporary basin formed by excavating and/or constructing an embankment so that sediment-laden runoff is temporarily detained under inactive conditions, allowing sediment to settle out before the runoff is discharged. This measure requires the Designer to prepare a design plan detail. Reference Illinois Tollway Base Sheet in Section M.

Application:

- Sediment basins are to be used to collect sediment laden water while allowing sediments to settle out.
- When discharging from the sediment basin, utilize outlet structures that withdraw water from the surface in order to minimize the discharge.
- Prevent erosion of the sediment basin using stabilization controls, at the inlet and outlet using erosion controls and velocity dissipation devices.
- Sediment basins shall be designed to facilitate maintenance, including sediment removal from the basins, as necessary.
- The difference between a stone outlet structure sediment trap and a sediment basin is that the former discharges over a riprap weir, while the latter employs a floating outlet structure. The Designer shall select the appropriate type structure based on the project characteristics.
- When a sediment basin aggregate berm is used for outlet control, the detention storage shall be composed of equal volumes of “wet” and “dry” storage.
- Provide storage capacity according to guidance provided by the *Illinois Urban Manual* or the IDOT *Bureau of Design and Environmental Manual*. In restrictive

ROW areas, the trap can be designed for less storage per acre of runoff with more frequent cleanout of sediment.

- Runoff area includes both on-site and off-site tributary areas.
- Sediment basin shall be used when drainage area exceeds 5 acres.
- Sediment basin aggregate berm shall be used when existing or proposed detention basin or infield area is used for a sediment basin.
- Sediment basins may be designed as temporary basins to provide sediment control during construction, and/or may be designed as permanent sediment controls to remove sediment from stormwater before discharging to outside Illinois Tollway ROW.
- Detention basins shall have an emergency outlet designed to release water levels that exceed basin capacity. This emergency outlet shall allow sediment to be filtered from stormwater prior to release. Both temporary and Permanent Sediment basin emergency outlets shall be designed to pass the 25-year, 24-hour storm.
- Additional reference on sediment basins can be found in Article 41-3.04(b) of the IDOT *Bureau of Design and Environmental Manual*, Chapter 41.

W. Temporary Ditch Check

Pay Item:

JS280305 - TEMPORARY DITCH CHECKS

Description and Purpose:

A ditch check, described in Articles 280.23 and 280.24 of the Illinois Tollway Supplemental Specifications, is a sediment control device constructed across a swale or drainage ditch, or along the contour lines of slopes, to reduce the velocity of flowing water, thereby allowing sediment to settle.

Application:

- Ditch checks shall be used in permanent or temporary ditches.
- Ditch checks shall be used to control flow in existing, proposed, or temporary ditches. Maintain in place until seeding is established.
- Ditch checks shall be placed upstream of sediment basins or sediment traps.
- Spacing (L) between ditch checks shall be determined from the following formula:
$$L = \text{Minimum Height (Feet)} / \text{Ditch Grade (\%)} \times 100.$$
 See Figure 1 (Article 3.1.2B)
- Bottom of the ditch check on side slopes shall be a minimum of 12 inches higher than the top of the ditch check in center of the ditch.

- Note this pay item is paid per foot.
- Additional reference on pre-fabricated ditch checks can be found in Article 41-3.04(b) of the IDOT *Bureau of Design and Environmental Manual*, Chapter 41.
- Additional reference regarding rolled barrier slope checks can be found in Article 41-3.03(c) of the IDOT *Bureau of Design and Environmental Manual*, Chapter 41.

X. Temporary Rock Check Dam

Pay Item:

JS280140 - TEMPORARY RIPRAP

Description and Purpose:

Rock Check dams, described in Article 280.25 of the Illinois Tollway Supplemental Specifications, reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small structure constructed of riprap placed across a natural or man-made channel or drainage ditch.

Application:

- This item shall be used to control flow in existing, proposed, or temporary ditches. Maintain in place until permanent ground cover is established.
- Construct Temporary Rock Check Dam on a blanket of geotextile filter fabric in accordance with Article 1030.03 of the Standard Specifications. Blanket shall extend 5 feet beyond upstream and downstream toes, to facilitate cleanup of the aggregate.
- Consider using other measures if access to the area of installation is difficult, if cleanup of stone at end of construction will be difficult, or rock check dam/cleanup will cause environmental damage.
- Spacing (L) between ditch checks to be determined from the following formula:
$$L = \text{Minimum Height (Feet)} / \text{Ditch Grade (\%)} \times 100.$$
 See Figure 1 (Article 3.1.2B)
- Maximum drainage area shall not exceed 10 acres to each rock check dam.
- Top of the ditch check in the center of the ditch shall be a minimum of 6 inches lower than top of ditch check at side slope.
- Reference Standard Drawing K1 for additional information.
- Upon completion of construction and/or permanent stabilization, temporary rock check dam shall be removed. In no instance may riprap or ditch checks be left in place unless the CM gets written acceptance from the Illinois Tollway Environmental Unit and it is not a hazard to the motorist.

- Additional reference on aggregate ditch checks can be found in Article 41-3.03(a) of the IDOT *Bureau of Design and Environmental Manual*, Chapter 41.

Y. Culvert Inlet Protection Fence

Pay Item:

JS280100 - SUPER SILT FENCE

Description and Purpose:

Culvert Inlet Protection Fence, described in Article 280.26 of the Illinois Tollway Supplemental Specifications, is a protective barrier for the immediate area around the inlet of a pipe or culvert subject to erosion. It protects the inlet of the culvert from the transport and deposition of sediment. Culvert inlet protection fence is used to protect against sheet flows.

Application:

- This item to be used to protect culvert inlets from sediment carried by sheet flow.
- Do not use super silt fence in the flow channel.
- Maximum drainage area to the culvert being protected is 1 acre.
- Reference Standard Drawing K1 for additional information.
- Additional reference on inlet protection barriers can be found in Article 41-3.02(h) of the IDOT *Bureau of Design and Environmental Manual*, Chapter 41.

Z. Culvert Inlet Protection Stone

Pay Items:

JS280140 - TEMPORARY RIPRAP

28200200 - FILTER FABRIC

Description and Purpose:

Culvert Inlet Protection Stone, described in Article 280.27 of the Illinois Tollway Supplemental Specifications is a protective barrier for the immediate area around the inlet of a pipe or culvert subject to erosion. It protects the inlet of the culvert from the transport and deposition of sediment. Culvert inlet protection stone is used to protect against concentrated flows.

Application:

- This item to be used to protect culvert inlets from sediment carried by concentrated or channel flow.

- Design the structure to accommodate the 25-year, 24-hour storm.
- The maximum drainage area to the culvert being protected is 3 acres.
- Construct culvert inlet protection stone on a blanket of geotextile filter fabric blanket; it shall extend 5 feet beyond upstream and downstream toes, to facilitate cleanup of the aggregate.
- Consider using other measures if cleanup of stone at end of construction will be difficult or inlet protection stone/cleanup will cause environmental damage.
- Reference Standard Drawing K1 for additional information.
- Upon completion of construction and/or permanent stabilization, culvert inlet protection stone shall be removed. In no instance may riprap or ditch checks be left in place unless the CM gets written approval from the Illinois Tollway Environmental Unit and it is not a hazard to the motorist.

AA. Creek Buffer Strip and Silt Fence

Pay Items:

JS280100 - SUPER SILT FENCE
JS280305 - TEMPORARY DITCH CHECK

Description and Purpose:

Creek Buffer Strip and Silt Fence, described in Article 280.28 of the Illinois Tollway Supplemental Specifications is a protective strip of land along the edge of waters of the U.S., including wetlands, that is maintained in native vegetation. Buffers protect shorelines and banks from erosion, provide wildlife habitat, filter pollutants from the water, and protect environmentally sensitive areas from potential effects of development. Creek buffer strips are densely vegetated areas that collect and slow runoff, filtering out sediments and insoluble pollutants, and encourage infiltration. Stormwater flows into a buffer strip through a silt fence and is used as a device to convert concentrated flow into sheet flow. As the runoff flows through the vegetation, its velocity is reduced, resulting in its load of suspended solids being released; buffer strips also promoting infiltration. Buffer strips are uniformly graded and are located down slope from disturbed or impervious areas, or adjacent to waterways.

Application:

- This item to be used to protect streams and wetlands from sediment carried by sheet flow.
- Buffer strips should be a minimum of 30 feet wide, however, minimum widths vary based on the resource and are subject to approval of the Local Approving Agency. The minimum widths specified are to be maintained to the maximum extent practical based on actual site conditions. Any variation from the following minimum width dimensions shall be noted on the plans:

- For any waters of the U.S. determined to be a high-quality aquatic resource, the buffer shall be a minimum of 100 feet.
- For any waters of the U.S. that do not qualify as wetland (e.g. lakes, rivers, ponds, etc.), the buffer shall be a minimum of 50 feet from the Ordinary High-Water Mark (OHWM).
- For any jurisdictional wetland from 0.25 acres up to 0.50 acres in size, the buffer shall be a minimum of 30 feet.
- For any jurisdictional wetland over 0.50 acres in size, the buffer shall be a minimum of 50 feet.
- Provide super silt fence along the edge of the wetland or along the stream bank. Provide 5 feet gaps in the Super Silt Fence, with Temporary Ditch Checks. The gaps are to allow floodwater to flow into the creek without damage to the silt fence.
- Created buffers should be established on 1:6 (V:H) or gentler slopes. Grade the filter strip as uniformly as practical. Minimum slope along the fall line shall be 1%.
- Provide permanent plantings in the buffer strip.
- Reference Standard Drawing K1 for additional information.
- Additional reference on filter strip barriers can be found in Article 41-3.01(a) of the IDOT *Bureau of Design and Environmental Manual*, Chapter 41.

BB. Temporary Dewatering Filter Bag

Pay Item:

JT280500 – TEMPORARY DEWATERING FILTER BAG

Description and Purpose:

A Sediment Filter Bag is a geotextile bag fitted with a connection for a dewatering pump discharge hose. Discharge water is filtered through the bag wall, and the sediment is retained in the bag for disposal. This measure requires the Designer to prepare a design plan detail, reference Illinois Tollway Base Sheet in Section M.

Application:

- Dewatering Filter Bag to be considered an alternate for sites where sediment basin installation is problematic.
- Dewatering Filter Bag is to be sized based on volume of water being pumped, quantity and type of sediment, and permeability of the specific bag size.
- Dewatering Filter Bags are best used as sediment filters on pump discharges, where the bag can be matched to the relatively low output of a pump.

- This item should be used where dewatering pumps are employed. Multiple discharges into a single bag are not permitted.
- Locate the Dewatering Filter Bag in areas where discharge from the bag will not cause additional erosion or sediment transport.
- Dewatering Filter Bag shall be replaced when it becomes ½ full of sediment or when sediment has reduced the discharge flow rate below design requirements.
- Locate a ditch check downstream from the Dewatering Filter Bag.
- Secondary containment and/or a rock leveling pad shall be included below or around the bag. See M Base Sheets for details.
- Reference Standard Drawing K1 for additional information.

CC. Temporary Sediment Control Floc Logs for Dewatering

Pay Item:

JT280510 – FLOC LOG

JT280530 – IN-LINE FLOCCULATION SYSTEM

Description and Purpose:

A floc log is a semi-hydrated block of anionic or nonionic polyacrylamide (PAM) placed in turbid water with suspended sediment. Sediment laden water mixes with the PAM forming a flocculate that settles out of the stormwater. PAMs are manufactured in various forms to be used on specific soil types. The use of a floc log or multiple floc logs within a carefully balanced mixing system and collection area allows for the removal of sediment, thereby reducing turbidity prior to discharge. This measure requires the Designer or a Certified Professional in Erosion and Sediment Control (CPESC) in Lake County to prepare a design and details to ensure the stormwater discharge is clear. Cationic formulations of PAMs are not allowed.

Application:

- PAMs removed sediment via a chemical process, and therefore shall be considered when mechanical sediment control methods are not enough to clarify the water.
- Only anionic or nonionic PAMs shall be used.
- The manufacture's specification, including MSDS sheet and LC-50 testing, shall be submitted to the CM for approval.
- PAMs are soil specific. Soil and water samples from the project location shall be tested with different PAM formulas to ensure the most effective type is used.

- Mixing procedures and required time for mixing vary by site conditions. Follow manufacturer's directions and consult with an experienced CPESC or Designer.
- PAM system components and floc logs shall be inspected regularly and replaced when no longer effective.
- Sediment build up shall be removed when containment area becomes $\frac{1}{2}$ full of sediment or when sediment has reduced the discharge flow rate below design requirements. Material can be re-spread onsite and stabilized.
- Floc logs are typically used in conjunction with coffer dam, de-watering, or filter bag items.

DD. Temporary Stream Crossing

Pay Item:

5421A008 – 5421A108 - PIPE CULVERTS TEMPORARY, Various items

JS280140 - TEMPORARY RIPRAP

Description and Purpose:

Temporary Stream Crossing, described in Article 280.09 of the Illinois Tollway Supplemental Specifications is a culvert crossing installed across a stream or watercourse for short-term use by construction equipment and traffic. The purpose of this practice is to minimize or limit the impact of Temporary Stream Crossings that enable construction traffic to cross streams or watercourses. The intent is to minimize, to the extent practicable, the discharge of erodible soil into the waterway, the damage or alteration of the stream banks and stream channel, the adverse alteration of flood flows, and the impact to stream flora and fauna.

Application:

- Where any construction equipment must be moved from one side of a stream channel to another, and/or where construction traffic must cross the stream channel for a short period of time.
- Where an existing permanent stream crossing is not available.
- Where no endangered or threatened species are present that would be impacted by the crossing.
- Where the stream bed can support culverts.
- Where the drainage area is one square mile or less in an urban/suburban watershed, or ten (10) square miles or less in a rural watershed.
- Where riparian wetlands along the stream channel would not be impacted by the temporary crossing, otherwise compensatory mitigation or credits need be purchased and/or restoration in accordance with any permits.

- Where the temporary crossing can be removed within a year or less.
- Where crossing intermittent or flowing streams, and non-navigable waters.
- Where there are no underlying utilities.
- Professional engineering analysis and design shall be completed for all temporary stream crossings.
- Temporary stream crossings shall be designed to be overtopped by high flows or by debris or ice-laden flows.
- Design the crossing to pass the peak flow from a 2-year frequency, 24-hour duration storm event (using ISWS Bulletin 70 rainfall data and applicable local rainfall data requirements). The design shall include a designated overflow route for storm events greater than the 2-year frequency, 24-hour duration storm event and provide a protected overflow path.
- In cases where channel banks are overtopped by this design storm event, the crossing structure shall be designed and constructed such that it will not cause erosion or damage due to increases in water surface profiles to adjacent properties.
- The design capacity of the crossing structure shall not create a damaging or potentially damaging increase in flood heights (<0.10 feet) or velocities over existing conditions.
- It shall not create a threat to public health, safety and welfare, or impair the natural hydrologic functions of the floodplain or channel.
- Erosion and sediment control, structural stability, utility protection, and overall safety must all be evaluated when designing temporary stream crossings.
- Approach grades to the temporary crossing shall be less than 10%.
- The width of the crossing shall be sized to the vehicles using the crossing and to prevent spillage directly into the stream.
- Placement of temporary structures in or over a surface water will likely require permits from state, local, and/or federal regulatory agencies. Local, state or federal requirements supersede and may go beyond the criteria in this standard.
- Temporary stream crossings represent channel constrictions in most cases and thus they shall be in service for the shortest practical period of time and shall be removed as soon as their purpose is complete to avoid the potential to cause or exacerbate flooding.
- Select locations for stream crossings where erosion potential is low by evaluating channel geometry, slopes and side slope material. Evaluate the stream channel conditions, overflow areas, and surface runoff control at the site before choosing the location and type of crossing.

- Ensure that velocity at design flow at the outlet of the crossing structure is non-erosive for the receiving stream channel. This shall be accomplished by carefully evaluating the placement of the crossing, the size of the downstream opening in the crossing, and flow velocities under all conditions.
- Aggregate used for the roadway approach and crossing shall be properly sized based on expected flows and velocities. A minimum layer of stone or recycled concrete that is $\frac{1}{2}$ the diameter of the culvert pipe or 12 inches thick, whichever is greater shall be used. Riprap aggregate RR3 shall be used unless conditions warrant an alternate size. The aggregate used shall be sized to meet site specific conditions to ensure stability in the design storm event.
- The aggregate shall be placed on geotextile fabric meeting the requirements in Article 1080.03 of the Standard Specifications.
- Streams shall be crossed in a straight reach, rather than on a bend, if possible. Crossings shall be installed as close to perpendicular to the stream channel flow path as possible.
- Ensure that all necessary materials and equipment are on-site before any work is begun. Complete construction in an expedient manner so that the crossing can be removed and then any disturbed areas stabilized immediately.
- Equipment or vehicles shall not be stored on the crossing.
- Upon removal of the crossing, the portion of the side slope that is above the observed water elevation shall be stabilized as specified in the plans prior to accepting flows. The substrate and toe of slope that has been disturbed due to construction activities shall be restored to proposed or pre-construction conditions and fully stabilized prior to accepting flows.
- Limit the area of ground disturbance and implement appropriate soil erosion and sediment control measures. Alteration to the stream banks and bed shall be kept to the minimum necessary for an effective and safe crossing.
- Fish passage shall be evaluated when crossing a stream with aquatic life, which may require an assessment of what is present in the stream. Timing of crossing activities shall avoid impacting fish spawning runs. Impacts to mussel beds and endangered or threatened species shall be avoided.
- If not sized correctly, culverts can offer the greatest obstruction to flood flows and are subject to blockage and washout. Culverts shall be sized and materials specified based on site-specific conditions and meet all flow criteria described above.
- Culverts shall be installed to allow for fish passage and to maintain low flow conditions. The downstream invert of the culvert shall be lower than the upstream invert to allow for positive drainage at low flow conditions. For projects within the USACE Chicago District boundaries, the culvert inverts must be embedded 6 to 12 inches below the streambed elevation.

- Both the length and diameter of the culvert must be determined in the design. Multiple pipes shall be evaluated to provide adequate flow capacity while keeping the vertical height of the crossing at a minimum.
- Aggregate cover over the culvert pipes shall be at least $\frac{1}{2}$ the diameter of the pipe, or 12 inches thick, whichever is greater, to support anticipated loads.

EE. Temporary Stream Diversion

Pay Item:

JS280140 - TEMPORARY RIPRAP
JS280190 – GEOTEXTILE FABRIC, CLASS C

Description and Purpose:

Temporary Stream Diversion, described in Article 280.13 of the Illinois Tollway Supplemental Specifications is a temporary channel or pipe used to convey stream flow around a construction site. The purpose of this practice is to maintain stream flows and water quality while providing a dry work area.

Application:

- Work within a stream, or part of a stream is required.
- Flows are low enough and / or the watershed is small enough to be handled in a diversion channel, pipe or by a pump.
- The construction of any temporary stream diversion shall not cause a significant water level difference upstream or downstream of the project site (not to exceed 0.1 feet, or less if local ordinances are more restrictive). The velocity of the stream flow offsite shall be maintained.
- Erosion and sediment control devices shall be in place prior to starting construction to prevent sediment from entering the diversion or the main stream and shall include temporary stabilization of the inlet and outlet of the temporary stream diversion. The inlet and outlet of the temporary stream diversion shall be stabilized using proper erosion control techniques, such as riprap over geotextile.
- Discharges from dewatering of construction areas where streams are being diverted shall not alter the water quality or cause erosion or sedimentation in the stream or the temporary stream diversion.
- Types of Temporary Stream Diversions: accomplished with a channel, pipe or pumped diversion. The type of diversion shall be selected based on the site-specific conditions, the amount of time the practice will be in use and the anticipated flow rates.
- Capacity: The design capacity shall take in to account the length of time the practice will be in use. Where flood hazards exist, the capacity shall be increased

per the potential damage. The temporary pipe shall be sized to safely convey the 2-year storm at a minimum.

- Timing – The construction shall be planned to minimize the time needed for the temporary stream diversion. The temporary stream diversion shall be properly stabilized prior to accepting flows. The temporary stream diversion shall be removed as soon as practicable and only after the worksite on the existing stream has been stabilized.
- Cross section - The temporary stream diversion channel shall be trapezoidal. The side slopes shall be no steeper than 2:1 horizontal to vertical. The depth and grade of the diversion channel is variable and shall be dependent upon site conditions.
- Channel Lining – The temporary stream diversion channel shall be lined to prevent erosion of the channel and sedimentation in the stream. The process of excavation and stabilization shall be continuous.
- Pipe Material – The temporary pipe shall be constructed of durable material able to withstand the anticipated site conditions. Check local ordinances for acceptable materials.
- Pumped Diversion – When a pumped diversion is used, the water shall be pumped from upstream of the construction area to the existing downstream channel. The intake of the water pipe must be screened with openings <3/32 inch to prevent entrainment of fish in the coffered area; and fish trapped within the coffered area shall be salvaged and returned to the downstream channel. The pump outlet location shall be properly stabilized to prevent erosion.
- Removal of Water – The water within the construction area shall be removed in accordance with required dewatering practices. Dewatering from the construction area shall not be discharged directly to the stream.
- Removal – Once the work is complete and the existing stream channel has been stabilized, the dams shall be removed starting at the downstream end. Then the temporary stream diversion shall be removed. The temporary channel, if used, shall be properly filled and stabilized using appropriate erosion control practices.

3.2.5 Permanent Erosion and Sediment Control

For permanent seeding, sodding, mulching, and erosion control blanket for disturbed areas, refer to Section 4 – Landscape Design. Install permanent measures as soon as site conditions allow.

For permanent erosion control measures including riprap, ditch linings, concrete ditch checks, and open cell articulated concrete block mats, see Illinois Tollway *DDM*.

3.3 Responsibilities

3.3.1 Illinois Tollway

- A.** Will facilitate the coordination necessary with EPA, USACE, regulatory agencies, and local governments after the Designer determines and identifies the need for permits.
- B.** Will provide Illinois Tollway Supplemental Specifications, which are to be used to prepare the ESCP, if requested. (The most recent Illinois Tollway Supplemental Specifications are available on the Illinois Tollway web site.)
- C.** Will review the plans prepared by the Designer for technical adequacy and confirm that the bid schedule includes the ESCP measures.
- D.** Illinois Tollway Staff Responsibilities:

(Description of staff responsibilities can vary by contract and is presented for guidance only.)

- 1. Illinois Tollway Project Manager – The Project Manager (PM) will be the primary point of contact with the Designer. The PM will be responsible for ensuring that the Designer complies with the directives of this section and for disseminating information and submittals to the appropriate individuals. Permit submittals shall be prepared by the Designer and submitted to the PM. The PM will submit permit applications to the Illinois Tollway Environmental Planner. The CM will ensure that electronic copies of NOI, Incidents of Non-Compliance (IONs), and NOT are filed in the Illinois Tollway's Web-Based Program Management system (WBPM) e-Builder.
- 2. Illinois Tollway Environmental Planner – The Environmental Planner (EP) will be responsible for ensuring that the PM, and thus the Designer, is aware of how environmental concerns affect the project or study. The EP will review all related submittals, including permit applications, submitted to the Illinois Tollway by the Designer, and other reports and contract documents as necessary. The EP will be the primary point of contact with state and federal resource and regulatory agencies. The EP will be responsible for filing the NOI, IONs, and NOTs with the IEPA.
- 3. Illinois Tollway Landscape Architect – The Landscape Architect will primarily administer the Illinois Tollway policy and procedures for the application and planning of natural/constructed elements, vegetation impacts, and erosion/sediment control, with a concern for stewardship, green strategies, and conservation of natural resources.

- E.** Refer to Article 4.4.1 for additional responsibilities.

3.3.2 Designer

- A.** Shall review current Illinois Tollway Standard Drawings, Specifications, and Supplemental Specifications for the latest criteria.

- B. Shall define necessary control measures; design control measures utilizing Standard Specifications and Standard Drawings; and shall prepare Plans, Special Provisions, and special Drawings as required.
- C. Shall prepare preliminary ESCP by describing the control measures and maintenance of controls for the project site.
- D. Shall determine and identify the need for permits for compliance with Federal, County, or local agency requirements.
- E. Shall incorporate any special requirements by the County or local agencies into the ESCP and SWPPP.
- F. Shall prepare background documentation needed to submit permit applications and fill out the application forms that shall be submitted by Illinois Tollway. Background documentation and application forms shall be submitted to the Illinois Tollway at pre-final plan submittal for review.
- G. Shall fill out and submit to the Illinois Tollway the Soil and Erosion Control Checklist Technical Review Form. See Appendix 4 for the form.
- H. Shall attend the Erosion and Sediment Control Preconstruction Meeting and give a review of the ESCP. See the Illinois Tollway's WBPM system for the most recent A-40 form.
- I. Shall start the NOI by completing the owner, construction site, type of construction, historic preservation and endangered species compliance, and receiving waters information sections.
- J. Refer to Article 4.4.2 for additional responsibilities.

3.3.3 Construction Manager (CM)

- A. Will be responsible for scheduling and holding the Erosion and Sediment Control Preconstruction Meeting. If the project involves an USACE 404 permit, notify the County Soil and Water Conservation District or, in Lake County, the Stormwater Management Commission. Will ensure that meeting minutes and attendance sheets are uploaded to the Illinois Tollway's WBPM system. See Article 3.5.2, Preconstruction Meeting, for list of attendees. See the Illinois Tollway's WBPM system for the most recent version of form A-40.
- B. Will be responsible for providing qualified personnel to inspect installation and maintenance of the measures identified in the ESCP until the site has been stabilized with final landscaping.
- C. Will review ESCP plans and specifications for thoroughness and constructability issues, obtain the Contractor(s) signature on the SWPPP (Special Provision 111.2), and obtain credentials of the Contractor's Erosion and Sediment Control Manager at the Preconstruction Meeting.

- D.** Working in conjunction with the Contractor, will develop the finalized NOI and provide same to the Illinois Tollway Environmental Unit. The NOI will be finalized by completing the contractor information, dates of construction start/end, and any missing information from the type of construction information sections. Will ensure that NOI is uploaded to the Illinois Tollway's WBPM system and the Illinois Tollway Environmental Unit submits same to the IEPA.
- E.** Will ensure that the ESCP is installed in accordance with the plans and specifications and will consult with the Designer or other Illinois Tollway designated representative if the ESCP needs to be adjusted or modified.
- F.** Shall review any proposed changes to the ESCP against the Erosion Control Manual and the Illinois Tollway *DDM* prior to approving any changes. The proposed changes shall be consistent with Illinois Tollway standards. The CM shall not approve nor permit leaving temporary erosion control measures in place on a permanent basis, unless consistent with standards from the Illinois Tollway *DDM* and it is not a hazard to the motorist. In no instance may riprap or ditch checks be left in place unless the CM gets written acceptance from the Environmental Unit.
- G.** Will inspect (or appoint a dedicated person to act in his stead) the installed measures in cooperation with the Contractor's Erosion and Sediment Control Manager/Inspector for necessary maintenance at least once every 7 calendar days and within 24 hours of a rainfall event with 0.5 inch of precipitation or greater (5 inches of snow). The CM, in conjunction with the Contractor's Erosion and Sediment Control Manager/Inspector, will prepare an inspection report after each inspection. A photographic log of these inspections will be maintained with the inspection forms. See the Illinois Tollway's WBPM system for the most recent version of the A-38 inspection form.
- H.** Will ensure that roadway is kept clean and any trucks exiting the work zone do not have excess dirt or debris on the tires.
- I.** If the inspections determine concrete fines are discharging as a result of roadway reconstruction, the CM shall ensure that the discharge does not exit the right-of-way. Additionally, the CM shall immediately test the pH levels of the affected discharge runoff to determine the average pH levels. Where pH levels exceed 9.0, the CM shall recommend remediation strategy to reduce the alkalinity to acceptable levels before allowing it to exit the ROW or discharge to environmentally sensitive locations.
- J.** Will provide the Illinois Tollway EP with an electronic copy of the completed NOI and SWPPP. These documents will be submitted a minimum of 35 days prior to start of construction.
- K.** Will fill out any ION forms and provide to Illinois Tollway Environmental Unit for submittal to the IEPA. See Appendix 1 for forms.
- L.** Will provide the Illinois Tollway EP with a copy of the NOT when construction site has achieved 70% stabilization with permanent landscaping.
- M.** Will complete the A-40 form (Erosion and Sediment Control Preconstruction Meeting Agenda) and ensure that it is filed in the Illinois Tollway's WBPM system.

- N. Will ensure that ESCP, SWPPP, Erosion and Sediment Control schedule, signed Contractor Certification Statements, A-38s, A-40, and any IONs are filed in the Illinois Tollway WBPM system.
- O. Refer to Article 4.4.3 for additional responsibilities.

3.3.4 Contractor

- A. Shall appoint an Erosion and Sediment Control Manager/Inspector (ESCM). This employee shall be thoroughly experienced in all aspects of erosion and sediment control and construction. This employee shall have the primary responsibility and sufficient authority for the implementation of the approved erosion and sediment control schedules and methods of operation. At least 10 days prior to the beginning of work, the name and credentials of this employee shall be submitted to the CM for acceptance.
- B. If it is determined that concrete fines are discharging into the ditch, in cooperation with the CM, the Contractor's Erosion and Sediment Control Manager/Inspector shall ensure that no discharge of noted sediments occurs from the Illinois Tollway ROW. Additionally, if directed by the CM, shall take action to ensure the pH of the contaminated stormwater does not exceed 9.0.
- C. Shall attend and support the CM in coordinating a pre-construction erosion and sediment control meeting at least five business days prior to start of work.
- D. Shall finalize the preliminary ESCP provided by the Designer. Finalize the ESCP by providing missing details related to the ESC control measures and maintenance of controls for the project site. Copy of completed ESCP to be provided to the Illinois Tollway CM within 21 days of Notice of Award and prior to any ground disturbing activities.
- E. Shall provide support to the CM to finalize the NOI.
- F. Shall develop a SWPPP, Erosion and Sediment Control schedule, and sign Contractor Certification Statements. SWPPP, Erosion and Sediment Control schedule, and Contractor Certification Statement to be submitted to the Illinois Tollway CM within 21 days of Notice of Award and prior to any ground disturbing activities.
- G. Shall install all the required measures of the plan detailed ESCP and additional measures as directed by the CM.
- H. All NPDES documents are to be kept at the CM Field Office and on the Illinois Tollway's WBPM for viewing by inspectors or the public.
- I. Shall complete a A-50 form (Request Staging and Fill Sites) for any requests for Illinois Tollway's approval of borrow, use, and waste sites using the submittal process of the Illinois Tollway WBPM system.

3.3.5 Contractor's Erosion and Sediment Control Manager/Inspector (ESCM)

- A.** Shall have sufficient training and experience to carry out all aspects of erosion control during construction. This person is required to have taken an approved sediment and erosion control training course and have an approved certification on Erosion and Sediment Control. Examples of qualifications for this position include CPESC and Certified Erosion, Sediment and Stormwater Inspector (CESSWI). Reference CM manual Article 5.1.2.2.9 for approved certification sources on Erosion and Sediment Control training.
- B.** Shall attend all Erosion Control Field Meetings.
- C.** Shall attend Preconstruction Erosion and Sediment Control Meeting, prior to any soil disturbance.
- D.** Shall participate in erosion control inspections weekly and within 24 hours of a rainfall event with 0.5 inch or greater of precipitation (5 inches of snow).
- E.** Shall be responsible for identifying the need for any required maintenance or repairs. Shall be responsible for identifying the need for any changes to the erosion and sediment control plans. Shall be responsible for confirming appropriate corrective action was taken.
- F.** Shall participate in preparing A-38 weekly inspection forms for every inspection. A-38 inspection forms shall include a log of color photographs for every inspection.
- G.** Shall ensure that all A-38 forms and accompanying photographs are maintained in the project file. Electronic copies of these forms shall also be filed in the Illinois Tollway's WBPM system.

3.4 Permits and Approvals

The Designer shall prepare background documentation needed to submit permit applications and shall prepare the application forms for submittal by the Illinois Tollway.

3.4.1 National Pollutant Discharge Elimination System (NPDES)

A General NPDES Permit for Stormwater Discharges from Construction Site Activities, NOI is required for any project with a disturbance of 1 acre or more. If a single project involves a cumulative disturbance of 1 acre or more, such as a program of repair/replacement of guardrail at numerous locations, a permit is required.

The NOI shall be submitted for each individual design section project so the permit can be closed out by submittal of a NOT (by the CM) after that section is complete. For NPDES forms, refer to Appendix 1.

An electronic copy of the NOI shall be provided to the Illinois Tollway Environmental Planner a minimum of 35 days prior to the start of construction.

A NPDES permit will not be required for projects that consist of only resurfacing or patching, or ditch or pond cleanings if the soil is not redeposited on the land. Refer to Article 2.2 for projects that do not require a permit.

3.4.2 Soil and Water Conservation District (SWCD)

Coordination with the SWCD will be on a case by case basis as directed by the Illinois Tollway Environmental Unit. Coordination is generally only required for projects in which the Tollway is partnering with local agencies or for projects which are outside of the Tollway ROW. In cases where SWCD coordination is required, the SWCD submittal shall include the application form, permit review fee, site plan checklist, narrative checklist, and narrative. The application form can be obtained at the appropriate County's stormwater management web page. The Designer shall obtain current forms and fee schedule from the appropriate SWCD.

The Designer shall determine the disturbed area involved and the required permit review fee. The fee will be paid for by the Designer and reimbursed by the Illinois Tollway.

3.4.3 County Stormwater Management Agency (CSMA)

A review of the ESCP and a permit may be required from the CSMA. The Designer shall obtain the latest requirements from the County including the required permit review fee. The fee will be paid for by the Designer and reimbursed by the Illinois Tollway.

3.4.4 Municipalities

The CSMA generally handles the ESCP review. In some cases, the municipality is designated a waiver community and performs the review. The Designer shall determine which agency governs and shall obtain the requirements from that agency.

3.5 Construction Requirements

3.5.1 General

The Illinois Tollway requires that the Contractor assign an employee to the project to serve as an ESCM. This employee shall be experienced and have satisfactorily completed an Erosion and Sediment Control Training program. Proof of compliance with the above shall be provided at the Preconstruction Meeting.

- A.** Prior to construction, it is important that all parties responsible for implementing the ESCP understand why the proposed measures are needed, and how they must be installed, operated, and maintained.
- B.** If during construction, adjustments or modifications to the ESCP are necessary, the adjustments or modifications shall be reviewed and accepted by the CM or his representative. A copy of the revised ESCP shall be kept on-site during construction.
- C.** During construction, an adequate inspection, maintenance, and prompt repair program shall be implemented by the Contractor.

- D. After construction is completed, the temporary erosion control measures shall be removed, as called for in the plan, and the final permanent measures installed. Temporary erosion control measures cannot be left in place on a permanent basis unless consistent with standards, the Illinois Tollway *DDM*, and approved by the Illinois Tollway CM. In no instance may riprap or ditch checks be left in place unless the CM obtain written acceptance from the Illinois Tollway Environmental Unit and it is not a hazard to the motorist.
- E. A maximum of 20 acres is allowed to be disturbed at a single time. See Standard K1 Drawing general notes for exceptions. In addition, stabilization of cut or fill slopes is required whenever the cut or fill activity reaches 8' vertically, or the finished slope equals 50', whichever is more restrictive.
- F. All construction personnel (including the CM) shall be required to wear highly visible fluorescent orange, fluorescence yellow/green, or a combination of fluorescent orange and fluorescent yellow/green vests at all times while on the construction site. These vests shall meet the requirements of ANSI/ISEA 107-2004 for Conspicuity Class 2 garments.
- G. Projects that will disturb 1 acre or more of total land area are subject to the statewide general NPDES Stormwater Permit for Construction Site Activities. The Contractor shall complete and sign the Contractor Certification Statement in Special Provision 111.2 indicating that he understands the requirements of the NPDES Permit and the SWPPP.
- H. The Designer and CM should be aware that the permitting authority may elect to make periodic on-site inspections, especially at the main stages of the project or after completion of the following construction stages:
 - 1. upon completion of installation of sediment and runoff control measures, prior to proceeding with any other earth disturbance or grading,
 - 2. after stripping and clearing,
 - 3. after rough grading,
 - 4. after final grading,
 - 5. after seeding and landscaping, or
 - 6. after final stabilization and landscaping, prior to the removal of temporary sediment control measures.

If a permitting authority does make an on-site inspection, the CM shall notify the Illinois Tollway Environmental Unit and provide an inspection report indicating the results of the inspection.

- I. Inspection of the construction site shall be performed by qualified personnel familiar with the current Illinois Tollway erosion and sediment control practices, as well as the other regulatory agency requirements. Inspections to determine necessary maintenance shall be done by the CM in cooperation with the Contractor's ESCM at

least once every 7 calendar days and within 24 hours of a rainfall event with 0.5 inch of precipitation or greater (5 inches of snow).

The IEPA's *General NPDES Permit No. ILR10* is a required reference for completing inspections.

ESCMs shall complete an A-38 form and create a photographic log of the inspection. This log shall be attached to the A-38 form and both shall be saved as part of the project file.

See the Illinois Tollway's WBPM system for the most recent version of the A-38 inspection form.

- J. Hard copies of the A-38 form and the photographic log of the inspections shall be given to both the Contractor and the CM in writing. Electronic copies of same shall be filed in the Illinois Tollway's WBPM system.
- K. The A-50 form shall be approved for the Contractor's use of borrow, use, and waste sites prior to the placement of materials at the site. All items must be free of contaminants and all loads are to be inspected and tested prior to placement.

3.5.2 Preconstruction Erosion and Sediment Control Meeting

A Preconstruction Erosion and Sediment Control Meeting shall be held prior to any land disturbance to discuss the Erosion and Sediment Control Plan, the Landscape Plan, project permits, Contractor's schedule, installation of controls, and inspections to be performed. The Contractor's Certification Statement is to be signed at this Meeting.

- A. The Preconstruction Erosion and Sediment Control Meeting shall be attended by the DSE, Landscape DSE, CM, Illinois Tollway Coordinator, Contractor's ESCM, and the Contractor's erosion/landscape subcontractor. Minutes and the sign-in sheet shall be uploaded to the WBPM system. See the Illinois Tollway's WBPM system for the most recent version of the A-40 form.
- B. If the project involves an USACE 404 permit, notify and invite the SWCD, NRCS, and the USACE. In Lake County, contact the Stormwater Management Commission.
- C. The Preconstruction Erosion and Sediment Control Meeting shall include an onsite field review of the ESCP.

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SECTION 4.0 LANDSCAPE

4.1 Design Factors and Data Requirements

4.1.1 Design Approach

The Landscape DSE shall consider any Context Sensitive Solutions (CSS) developed in previous design phases as a basis for the design approach to a project. The Designer shall identify the need and purpose, while incorporating design standards, flexibility, safety, aesthetics, environmental stewardship, and community sensitivity with the goal of constructing safe roadways that improve mobility, while enhancing the qualities of place.

A. Inventory and Data Collection

The Landscape DSE shall work with the Illinois Tollway PM, EP, Landscape Architect, and other members of the project team to carry out an in-the-field investigation to systematically examine the site, collect data, and then analyze the existing site conditions, along with data developed during previous design or planning stages. The existing landscape character shall be examined and an Existing Vegetative Assessment (EVA) carried out, if needed. The main components of the landscape, built and natural, shall be identified and recorded on a Field Analysis Map, in a brief written narrative, and by taking photographs or making sketches. The information distilled from the field analysis shall be recorded on the Issues and Opportunities Schematic.

The EVA is typically generated in the Master planning stage for use and further evaluation in planning and design. The EVA may include a Tree Stand Delineation and/or Tree Survey map.

The Tree Stand Delineation is a general accounting of existing vegetation, both in quality and quantity. It shall provide an overview of the tree groupings, other natural attributes, and limitations of the site. General information may include groupings of similar trees, individual trees of significance, and important roles or value of the vegetative groupings.

Where more detailed and precise information is needed, a Tree Survey may be necessary. The map resulting from the tree survey shall identify and briefly describe all trees of importance, show tree species, trunk diameter, and base locations with elevations of each tree so potential impacts of grade changes can be easily determined.

B. Issues and Opportunities Schematic

The Issues and Opportunities Schematic shall delineate the following:

- the identification, by text and illustration (photograph or graphic image), of the landscape character of the project and adjacent sites and surrounding land use;
- landscape features to be preserved or that may influence the design;

- integration of maintenance and safety requirements;
- opportunities to include Illinois Tollway initiatives, such as the Pollinator Program or the Chicago Region Trees Initiative;
- any important viewsheds that are to be protected or enhanced;
- any important features, natural or built, within or outside the Illinois Tollway ROW that may influence the design shall be identified and recorded;
- aesthetic opportunities and views to or from the site that should be screened;
- natural plant divisions;
- historic features or influences;
- topographic and hydraulic features, including existing runoff patterns and erosion control deficiencies;
- the overall strengths and weaknesses of the site and potential design opportunities; and
- identification of any agencies, municipalities, community groups, or individuals that the design team will have to coordinate with to achieve a successful landscape design.

4.1.2 Design Considerations

A. Planting of Woody Plants

- No woody plantings are permitted on side slopes or around headwalls of stormwater detention basins.
- Tree Plantings along roadways shall be located well outside of the clear zone classified for each road type and roadside condition.
- Identify and avoid slopes which are too steep for planting and topographic restrictions.
- Identify drainage paths and restrictions of plantable areas.
- Offsets from structures and utilities: Comply with utility agency tree and plant offset requirements and as directed by the Illinois Tollway.
- Identify all environmental sensitive locations.

B. Seeding

- Select or specify groundcover seeding that is appropriate for the site conditions. The seed mix should remain simple and respond to topography, wet or dry

conditions, Illinois Tollway mowing criteria, channelized storm drainage facilities, and should protect sensitive native and natural areas to remain.

- Tall Fescue, or Kentucky 31 fescue, red fescue, rye and smooth brome, Bermuda grass, perennial ryegrass, and Kentucky bluegrass are identified as non-native species of grass that spread and impact beneficial native grass and forb species in Illinois and throughout the US. Avoid specifying their use near natural drainage facilities and native natural areas to remain.
- Provide station and mile post locations on the Landscape Plans for easier field reference.

C. Mowing Field Indicators

- Areas of native grass and forb mixes that are to be mowed and those areas which are to be left natural should be identified on the plans.
- Special habitat or areas of newly planted or desired volunteer woody tree and shrub plantings to remain should be identified on the plans to protect the areas during construction or maintenance.
- The use of permanent or temporary mowing stakes should be coordinated with the Illinois Tollway Landscape Architect and Illinois Tollway Maintenance prior to use.

D. Snow Fence Criteria

- Designer should coordinate with the Illinois Tollway to evaluate the project site topography, any existing areas of concern, and prevailing winter wind direction for the opportunity to provide temporary or permanent snow fence protection at appropriate locations the Tollway rights-of-way.
- Designer should refer to current best practices for design of a structural or planted snow fence systems such as the Snow Fence Guide (SHRP-W/FR-91-106) by Ronald D. Tabler, Tabler & Associates, Strategic Highway Research Program, National Research Council, Washington, DC, 1991 and the Illinois Tollway Design Guide.

4.1.3 Design Concept Development

The landscape design concept shall be developed in conjunction with the overall design team. Particular attention shall be paid to developing a single clear landscape concept that unites and uses drainage, grading, and planting to maximize functional effect. The design concept shall take into account the information obtained from the Site Analysis and the Issues and Opportunities Schematic. Additional site visits shall be carried out to evaluate preliminary concepts as they are developed by the team. Special attention shall be given to working with and reducing the impact on the existing ecological systems and areas surrounding the site, to seek out aesthetic and functional opportunities, and to maintain a high level of environmental stewardship. The design shall be as self-maintaining as possible. The Designer shall inform the Illinois Tollway PM of any agencies, municipalities, community groups, or individuals that the Landscape DSE should coordinate with to achieve a successful landscape design.

The following are the minimum requirements to be considered for the Landscape Design Concept Submittal. The submittal shall be developed to a 30% level of completeness:

- a site location map;
- a table of suggested and required agencies, municipalities, groups, or individuals with whom coordination is desirable;
- a table of potential utility conflicts;
- an Issues and Opportunities Schematic plan, and/or conceptual drawings;
- a narrative report describing the desired and agreed upon general landscape character and landscape goals for each of the project's target areas. The narrative shall explain how existing site conditions, as provided in the Issues and Opportunities Schematic, have been addressed; the project overview; the landscape concept and proposed options; how the desired landscape character will be accomplished; maintenance; suggested opportunities; any proposed changes to the drainage and grading design; and a discussion of the pros and cons of any alternates that are included in the submission;
- a plan view showing the conceptual layout of the proposed landscape design, suggested planting, and mowing pattern treatments (see Appendix 6 for Illinois Tollway's *Roadside Mowing Policy*). The plan or plans shall be coordinated with drainage and grading design concepts and any utility layouts to ensure the development of a single, clear landscape design and the avoidance of any future conflicts on-site;
- views to or from the site that should be screened, and any important viewsheds that are to be protected or enhanced, shall be indicated on the plans;
- show all sensitive environmental areas to be protected, enhanced and/or mitigated (including but not limited to wetlands). Include location, size, and I.D. number of existing wetland areas, other environmentally sensitive areas;
- cross sections or enlargements shall display the viability of the conceptual design;
- the plans shall be at a maximum 1 inch = 100 feet scale to represent the overall concept and typical landscape treatments, and at a minimum of 1 inch = 50 feet to adequately represent typical segments of the concept where additional detail is desirable;
- a list or copies of the relevant information and design criteria collected through the coordination process;
- a list of plant types intended to be used, including appropriate background information, if needed;
- a rough cost estimate;
- any additional information required by Illinois Tollway PM; and
- Prepare and submit the Landscape Design Submittal Checklist, Section A, Landscape Design Concept Submittal located in Appendix 7.

4.1.4 Use of Design Factors and Data Requirements

The Landscape Design Section Engineer (Landscape DSE) shall use an integrative approach and these Design Factors provided as a guide in developing innovative design solutions for project conditions. The Landscape DSE shall consider all design elements of the roadway landscape and create a facility that is functional in overall form and detail, while providing appropriate aesthetics. Grading, safety, visual quality, erosion control, environmental issues, materials, and maintenance practices are some of the design elements that must be considered. Every factor may not apply to all projects, nor will those described in this section cover all project situations. However, all landscape designs shall be developed in conjunction with the drainage, grading, utilities, and erosion control concepts; and with an overall commitment to protect, preserve, and enhance environmental resources, while applying green strategies and promoting environmental sustainability. Contracts including landscape disturbance or addition of trees, shrubs, environmental mitigation, or protection shall include a Registered Landscape Architect licensed in the State of Illinois with roadway experience throughout the design process. The final plans for landscape improvement contracts shall be signed and sealed by a Registered Landscape Architect, licensed in State of Illinois.

A. Application of Design Factors

The application of the criteria to projects will depend on the scope and type of proposed improvements as follows:

- Landscape improvement projects:
The design factors and data requirements in this document shall be applied.
- Rehabilitation/reconstruction, widening, or lane addition projects:
The design factors and data requirements shall be used in the design of the project section to correct any deficiencies identified in the proposed improvement and to ensure that the completed project has a coordinated design intent.

B. Illinois Tollway Publications to be Referenced

Reference shall be made to the current editions of following Illinois Tollway publications when designing any landscape installation.

- *Environmental Studies Manual,*
- Erosion and Sediment Control sections of this manual,
- *Drainage Design Manual,*
- *Design Section Engineer's Manual, and*
- Other publications as directed by Illinois Tollway.

4.1.5 Preliminary Plans and Special Provisions

The landscape design shall be developed by a Landscape Architect registered in Illinois, in conjunction with the overall design team, and shall be coordinated with and complimentary to the

proposed drainage, grading, and lighting designs. Any alternative drainage systems and grading solutions proposed shall be described in the text and displayed in plan and cross section format. All planting plans shall be coordinated with any utility drawings to eliminate potential conflicts. The background documentation maintained by the Designer shall meet the requirements in the Illinois Tollway *Environmental Studies Manual*. The documentation shall also identify any special requirements used to select specific measures.

The following are the minimum requirements for the Preliminary Landscape Design Submittal. The submittal shall contain a minimum of the following, which shall be developed to a 60% level of completeness:

- a comment disposition log that addresses each and all Illinois Tollway comments from the previous submittal;
- site location map and construction area map;
- plan views showing the layout of the overall landscape design. The overall design shall be delineated at a scale of 1 inch = 50 feet, and at 1 inch = 20 feet in areas where additional detail is required (see Appendix 8 for example). The plans shall be coordinated with and complimentary to the proposed drainage, grading, and utility drawings;
- tree preservation plan that will include existing tree locations; size; species; methods of protection, including fencing and wrapping; and a defined safe area needed to protect tree root structures of trees to be protected based on the analysis of the existing vegetative assessment;
- Show all sensitive environmental areas to be protected, enhanced and/or mitigated (including but not limited to wetlands). Include location, size, and I.D. number of existing wetland areas, other environmentally sensitive areas;
- preliminary planting and construction details needed to clarify design intent, including plans of any atypical or special areas;
- details of any hard landscape elements, such as paving or special features;
- cross sections that adequately display significant changes in grade or width of the area to be planted, and the viability of the landscape concept;
- plant quantities, types, scientific name, common name, sizes, delivery condition, and spacing between plants shall be indicated on the plan. The Landscape DSE shall determine the viability of the plant material selection with due consideration to site conditions, soils, and salt tolerance. Provide a plant name abbreviation key to be used on all plan drawings;
- utilities matrix sheet that identifies any utility interferences;
- plan drawing set, which shall typically include a cover sheet, index of drawings, general and landscape notes, suggested progress schedule, summary of quantities, schedule of quantities, maintenance of traffic, drawing key plan, required erosion control plans, plan drawings, and details;

- a preliminary cost estimate;
- proposed preliminary mowing patterns and delineations, as needed;
- Special Provisions to the Standard Specifications (J pages) and Schedule of Prices (P pages) that follow accepted Illinois Tollway standards;
- a suggested schedule for all work and inspection of the planting material shall be coordinated with all other roadway/project construction schedules that are in the vicinity;
- any additional information required by Illinois Tollway PM; and
- prepare and submit the Landscape Design Submittal Checklist, Section B, Preliminary Plans and Special Provisions, located in Appendix 7.

4.1.6 Pre-Final Plans and Special Provisions

The landscape design submittal for the Pre-Final Plan phase shall include the plans, text, and specifications submitted at the Preliminary Plans and Special Provisions Phase developed to a 99% level of completeness. This submittal shall include the following:

- Address in written comment disposition log all Illinois Tollway comments from the previous submittal. All drawings shall be coordinated with the appropriate agencies and shall include the drainage, grading, lighting, signage, and utility packages (see Appendix 7 for Landscape Design Submittal checklist).
- All drawings shall be fully annotated and show dimensions, landscape notes, general notes, references, symbols, legends, labels, cover sheet, index, suggested progress schedule, drawing key plan, maintenance of traffic, and required erosion control.
- The drawings shall be cross referenced to a fully detailed Summary of Quantities and Schedule of Quantities. The Summary of Quantities shall fully delineate the pay item number, species, type, unit of measure, and quantity of all plants selected. The Schedule of Quantities shall provide pay item numbers, key names, item names, and quantities to be found on each sheet.
- All details, hardscape, and special features shall be completed and cross referenced to the plans, suggested schedule, and drawing key plans.
- Special Provisions shall follow the Illinois Tollway format and shall be complete with all materials and ways and means specified.
- The submittal shall include a construction cost estimate to reflect adjustments to the landscape plan.
- a completed utilities matrix,
- a list of any additional information required by Illinois Tollway PM, and
- Prepare and submit the Landscape Design Submittal Checklist, Section C, Pre-Final Plans and Special Provisions, located in Appendix 7.

4.1.7 Final Plans and Special Provisions

All comments and questions received during the review of the Pre-Final Plans shall be adequately addressed and provided in writing on the comment disposition log and resolved by revisions to the final plans and Special Provisions. The final plans and Special Provisions shall be sealed by a Registered Landscape Architect licensed in Illinois.

Upon final review, if comments or changes are needed to the Final Plans or Special Provisions, the Designer shall provide a Final Advertising Submittal to include all completed plans and Special Provisions. An updated Engineer Estimate shall be provided with the submittal.

Prepare and submit the Landscape Design Submittal Checklist, Section D (Appendix 7), Final Plans and Special Provisions.

4.1.8 Addenda, Bidding, Tagging, and Construction Observation

The Landscape DSE shall, at the request of the Illinois Tollway, produce the technical information as appropriate to interpret, clarify, or expand on the Construction Documents. When addendums are required, the Designer will prepare the documents, the Illinois Tollway will issue the addenda and perform the complete bidding process. The Illinois Tollway or the CM is usually responsible for nursery tagging, as determined necessary, and concurrence of the final location of plants on-site. Reference shall be made to the Standard Specifications Sections 253 and 254 for transportation, temporary storage, and planting procedures.

The Landscape DSE shall also be responsible for attending the Preconstruction Erosion and Sediment Control Meeting.

4.2 Design Criteria

4.2.1 Permanent Seeding/Sodding Design Requirements

When planning for the use of seeding classes provided in the Standard Specifications and Illinois Tollway Supplemental Specifications, the Landscape DSE shall recognize the mowing policy and maintenance practices, and general seeding zones. Locations for each seeding class and sod type shall be clearly shown on the plans, along with a graphic legend and quantity summary for each sheet.

A. Topsoil and Compost

Pay Items:

21101505 - TOPSOIL EXCAVATION AND PLACEMENT

21101600 - 21101695 – TOPSOIL FURNISH AND PLACE, Various items

21101800 - 21101855 – COMPOST FURNISH AND PLACE, Various items

Description and Purpose:

Topsoil shall be obtained from within the limits of the ROW per Standard Specifications 211; on-site topsoil material shall comply with the materials requirements in Article

1081.05 of the Standard Specifications. When the site is prepared, the topsoil shall be spread at the specified depth in the final location.

Application:

- During pavement widening projects, a 6-foot-wide swath of the existing on-site topsoil along the existing pavement often has the highest salt concentrations and should be evaluated and considered for removal and disposal off-site at a proper location. The remainder of the existing on-site topsoil shall then be tested on-site for use and nutrient requirements.
- The Designer shall complete a visual inspection of the project area and remove topsoil locations that display signs of obvious contamination.
- Topsoil replacement should be used when there is an insufficient quantity of existing on-site topsoil that meets the requirements of Articles 211.03 and 1081.05 of the Standard Specifications.
- As appropriate, the Designer shall complete an inspection of the project area to evaluate the condition of existing slopes. If the field inspection indicates slope failure or erosion concerns, a plan shall be developed for the repair of the site.
- When compost is specified, it shall be incorporated with the topsoil at a specified blend and depth and shall meet the requirements of Article 1081.05 of the Standard Specifications.

B. Seeding

Pay Items:

25000100 through 25000350 – SEEDING, Various Classes
JS250220 through JS250350 – SEEDING, Various Classes

Description and Purpose:

The seeding classes shown in Section 250 of the Standard Specifications are typically used for bare earth seeding but some of the seeding classes may also be considered for interseeding into existing turf. The seeding can generally be broken into the following zones. See Figure 2 (Article 4.2.1, General Seeding Zones). The use of Illinois Tollway Supplemental Specifications takes precedence over Standard Specifications if both could apply.

Application:

1. Zone 1 Seeding

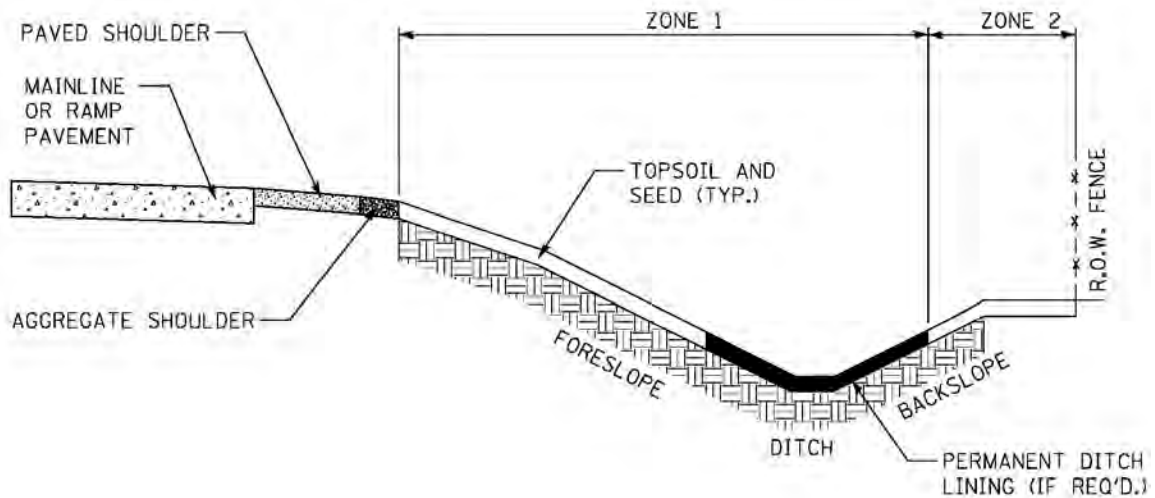
The turf immediately adjacent to the roadway is normally the most intensively managed part of the ROW (see Figure 2, General Seeding Zones). This area also receives the highest concentrations of salt laden spray. This portion of the roadway requires a seeding mixture that can tolerate salt concentrations and regular mowing while still maintaining an acceptable appearance and resistance to erosion. This area would typically extend from the edge of pavement to the bottom of the backslope of the drainage ditch, or to a minimum of 20 feet in areas with slopes 1:3 (V:H) and flatter. Seeding in this zone would typically be accompanied with erosion control blanket. The mix developed for this use is:

- CLASS 2E, SALT TOLERANT ROADSIDE MIXTURE, as shown in Article 250.07 of the Illinois Tollway Supplemental Specifications.
- Other applications for this mix may be in ditches or portions of detention ponds that receive salt laden water.

2. Zone 2 Seeding

In areas beyond the Zone 1 mowing limits, seeding is normally desired, particularly in rural areas, which will reduce routine ROW mowing cycles and contribute to the preservation of plant and wildlife environments. See Figure 2 (Article 4.2.1B, General Seeding Zones) and Appendix 6 (Roadside Mowing Guide). Seeding in Zone 2 areas must control surface erosion while maintaining an acceptable appearance both to adjacent neighbors and to motorists. Seeding classes have been developed to meet the needs for these conditions:

FIGURE 2 – GENERAL SEEDING ZONES



- CLASS 2F, IT ROADSIDE MIXTURE is commonly used in zones near residential or urban areas where more frequent mowing or manicured appearance is desirable. This mix does not include native prairie grasses or forbs.
- CLASS 3E, IT SLOPE MIXTURE also includes native prairie grasses, has reduced mowing requirements, and is formulated to assist in stabilizing slopes steeper than 1:3 (V:H).
- CLASS 4B, WETLAND GRASS AND SEDGE MIXTURE may be specified in wetlands or ponded retention or other suitable areas. The mix is suited to wet locations where no mowing is acceptable.
- CLASS 4E, IT NATIVE GRASS includes native prairie grasses to produce a natural appearance where decreased mowing frequency and reduced maintenance is acceptable, typically for limited use in rural areas, where taller grasses may be acceptable.
- CLASS 4F, IT LOW PROFILE NATIVE GRASS also includes native prairie grasses where decreased mowing frequency and reduced maintenance is acceptable, but where taller grasses are not acceptable. This mixture is generally used for most backslope conditions where native grasses are preferred.
- CLASS 4G, IT POLLINATOR MIXTURE includes low profile native grasses and flowering forbs. This mix is suited to dry, upland areas such as back slopes, basin sides, or embankments with full sun that are to be mowed infrequently. The forbs within the mix were selected to provide blooms for pollinators. It is an option for designers with the goal of providing habitat for pollinators at select and approved locations. Locations designated for use of this mix shall be reviewed and discussed with the Illinois Tollway Landscape Architect prior to use.

- CLASS 5, FORBS WITH ANNUALS MIXTURE may be specified to be added with the class 4E and/or 4F mixtures in areas where wildflowers are acceptable.
- CLASS 5A, LARGE FLOWER NATIVE FORB MIXTURE may be specified to be added with the class 4E and/or 4F mixtures typically in limited high-profile areas where larger, showier flowers are desired. Selective Mowing Stakes may be needed when adding this mix to assist the maintenance crews by directing mowing activities.
- CLASS 5B, WETLAND FORB MIXTURE may be specified in wetlands or occasionally ponded retention areas. The mix is suited to wet locations and is to be combined with Class 4B where forbs and no mowing is desirable.

Additional seed mixes may be required for detention basins, retention basins, wetlands, restoration areas, or other site-specific conditions. These mixes shall be addressed individually, reviewed with the Illinois Tollway Landscape Architect, and be included in the contract special provisions.

All seeds shall meet Article 1081.04 of the Standard Specifications requirements.

For seeding in swales, the maximum velocity for seeding is to be determined by Illinois Tollway DDM Table 7.0, *Permissible Flow Velocities for Grass Lined Channels*.

C. Bare Earth Seeding

Pay Items:

25000100 - 25000350 – SEEDING, Various Classes
JS250220 - JS250350 – SEEDING, Various Classes

Description and Purpose:

Bare earth seeding will require seed bed preparation prior to applying seed. The area to be seeded shall be cleared and prepared as detailed in Articles 250.05 and 250.06 of the Illinois Tollway Supplemental Specifications.

Application:

- No seeds shall be sown until the seed bed has been approved by the Engineer.

D. Interseeding

Pay Item:

25003110 - INTERSEEDING, Various Classes

Description and Purpose:

Interseeding in areas of existing turf shall be done in conformance with Article 250.06 of the Standard Specifications.

Application:

- Where desirable, native grasses may be interseeded into the existing turf in the process of converting previously mowed areas to reduced mowing areas. This procedure is used in selected Zone 2 seeding areas only.
- In select reduced mowing areas where added diversity is desired, CLASS 5, FORBS WITH ANNUALS MIXTURE or CLASS 5A, LARGE FLOWER NATIVE FORB may be sowed into existing native turf to highlight or further enhance the appearance of an area. Selective Mowing Stakes may be utilized to delineate the reduced mowing area and assist the maintenance crews by clearly directing future mowing activity.
- These grasses and forbs may take several years to establish and are generally implemented to reduce mowing, supplement existing turf and provide a natural meadow ground cover appearance. Wildflower seeding may need to be reseeded on a regular basis to provide long term benefit.

E. Fertilizer and Agricultural Ground Limestone Application

Pay Items:

25000400 - NITROGEN FERTILIZER NUTRIENT, POUND
25000500 - PHOSPHORUS FERTILIZER NUTRIENT, POUND
25000600 - POTASSIUM FERTILIZER NUTRIENT, POUND
25000700 - AGRICULTURAL GROUND LIMESTONE, TON

Description and Purpose:

Fertilizer should be specified for newly seeded areas. Agricultural limestone and phosphorus is typically not required for seeding on Illinois Tollway ROW. In the absence of soil testing, the application rate provided in Article 250.04 should be used.

Application:

Soil testing should be conducted during the initial stages of the design process where existing topsoil is to be re-used on the site. The soil tests should be used, along with visual inspection, to determine areas where existing topsoil is unacceptable for re-use, resulting in the need for removal from the site. The tests may then be used to more accurately

determine fertilizer application rates to supplement natural fertility levels of the re-used topsoil.

When re-use of site topsoil is considered, soil tests shall be taken from the in-place material at its natural location. Locations not acceptable for use as topsoil shall be clearly shown on the drawings and/or special provisions for removal prior to stockpiling. The Designer is responsible for initiating and directing soil testing that is to be carried out by a state laboratory, or a recognized commercial laboratory, using approved methods. Soil tests shall include the following:

1. Chemical Analysis

BIOASSAY TESTS shall be provided to determine the persistence of plant damaging chemical residue and its damage potential. Should the bioassay tests on any samples disclose the presence of chemical activity adverse to acceptable plant growth, the material represented by those samples shall be disqualified for use as topsoil.

SOLUBLE SALT TESTS indicating salt content in parts per million (ppm) shall be provided. If the tests disclose soluble salt concentrations in excess of 1000 ppm, the material represented by those samples shall either be disqualified for use as topsoil or a cost-effective reclamation process shall be recommended.

PH TESTS shall be provided to measure acidity and alkalinity levels to assist in determining the availability of nutritional material in the soil, and the consequent ability of plants to extract materials from the soil.

PHOSPHORUS, and POTASSIUM TESTS shall be provided to indicate the available nutrient levels in the soil.

2. Mechanical Analysis

PERCENT SAND, SILT, and CLAY shall be provided. Turf grown on different soils may respond differently to the same fertilizer. It is therefore important to review and understand the soil type.

3. Laboratory Recommendation

Rates for application of nitrogen, phosphorus, potassium, and agricultural ground limestone or sulfur shall be provided by the testing agency. Nutrients that are already available to the plants in adequate amounts shall not be added, and the use of phosphorus shall be minimized.

Soil samples shall be collected from a series of sub-sample points equally distributed across the area to be represented. All sub-samples representing the sample area near the shoulder shall be taken within 10 feet of the shoulder. These soil sub-samples shall be taken to a depth of 6 inches to 8 inches for each representative area. The sub-samples shall be thoroughly mixed together for each representative test area prior to testing. A minimum of 3 sub-samples shall be gathered for each soil sample area representing approximately 1 acre of in-place topsoil.

The Designer shall visually review areas such as ramp side slopes and snow disposal locations which show evidence of heavy erosion, poor turf growth, or salt saturation as possible locations for topsoil removal. A 6 feet wide strip of topsoil along the edge of the pavement shall be removed and disposed of on mainline and ramp widening improvements. This is in addition to soil in other areas identified for removal by visual inspection and/or topsoil testing.

Additional specifications for fertilizer application use on existing trees and sod can be found in:

- Care of Existing Plant Material, Section 201 of the Standard Specifications
- Ground Preparation for Sodding, Section 252 of the Standard Specifications

F. Seeding and Sodding Times

Description and Purpose:

Article 250.07 (Note 7) of the Illinois Tollway Supplemental Specifications and Article 252.04 of the Standard Specifications provide seeding and sodding dates. The Designer shall carefully consider the seasonal planting limitations for each seeding and sodding item and coordinate their timing into the construction schedule.

G. Selective Mowing Stakes

Pay Item:

25000775 – SELECTIVE MOWING STAKES, EACH

Description and Purpose:

Selective mowing stakes may be used in seeding to assist in delineating reduced or no-mow areas, in compliance with Article 250.08 of the Standard Specifications. Selective mowing stakes are installed to assist the maintenance crews by clearly directing future mowing activity at approved locations.

H. Mulch, Erosion Control Blankets

Pay Items:

25100105 - 25100135 – MULCH, Various Methods
25100630 - 25100900 – Various Erosion Control Blankets
JI251010 - EROSION CONTROL BLANKET, BIODEGRADABLE NETTING
JI251015 - HEAVY DUTY EROSION CONTROL BLANKET, BIODEGRADABLE
NETTING

Description and Purpose:

Mulch is a protective covering of organic material typically used with permanent seeding, and is laid over the soil to reduced erosion, retain moisture, retain seed, and protect plantings.

These items consist of furnishing, transporting, and placing straw and/or wood fiber mulch on seeded areas (Article 251.03 of the Standard Specifications and Illinois Tollway Supplemental Specifications). Material shall be in conformance with Article 1081.06 of the Standard Specifications. Refer to IDOT's *Bureau of Design and Environmental Manual*, Sediment Control Practices Reference Table (Figure 41-3.C) for treatments to be considered and recommended.

Article 251.04 of the Standard Specifications provides guidance on placing erosion control blankets on seeded areas. Erosion control blankets are most commonly used with permanent seeding. Limited use may also be considered for temporary erosion control on very steep slopes or other extreme conditions. Materials shall be in conformance with Article 1081.10 of the Standard Specifications.

These items can be used in conjunction with Section 250 (Seeding), Section 253 (Planting Woody Material), Section 254 (Planting Perennial Plants), and subject to Article 1081.06 requirements.

Application:

Mulch, Straw, Fiber, Compost

- Use with permanent seeding on prepared slopes up to 1:10 (V:H) unless erosion control blanket is provided; and
- Provide erosion control blanket when slopes meet or exceed 1:10 (V:H).
- Provide sod or erosion control blanket in swales.
- Unless dictated by the necessities of the project or other reasons where, in the Designer's judgment, one procedure is preferable, the Contractor should be allowed to use any or all of these procedures interchangeably.

1. Mulch Method 1

- Mulch Method 1 comprises the application of loose straw mulch by hand or machine.
- Use in flat areas where wind displacement will not carry mulch onto the roadway or off Illinois Tollway property.
- Apply at a rate of 2 tons/acre.

2. Mulch Method 2

- Mulch Method 2 comprises the application and stabilization of straw mulch by mechanical or chemical procedures. This method consists of the application of straw mulch at a rate of 2 tons/acre and the mulch is to be stabilized using on the following procedures:

- Procedure 1 consists of anchoring the straw mulch by means of mechanical stabilizer or crimper.
- Procedure 2 comprises the placement of straw mulch by blower, followed by an overspray of hydraulic mulch. This procedure is particularly suited to confined areas where access by a tractor might be difficult and on areas which have been hydroseeded. The hydraulic mulch is to be applied at a rate of 750 pounds/acre and water at a rate of 1,000 gallons/acre.
- Procedure 3 comprises the application of chemical stabilizer to blown straw mulch. The chemical binder and application rate shall be accepted by the Engineer prior to use to ensure the product is environmentally safe and acceptable. Do not use gypsum, emulsified asphalt, or plaster-like binders.

3. Mulch Method 3

- Mulch Method 3 is not used individually on the Illinois Tollway.

4. Mulch Method 4

- This method consists of applying compost combined with a performance additive designed to bind/stabilize the compost.
- The compost/performance additive mixture shall be applied to the surface of the slope to a depth of 2 inches using a pneumatic blower.
- Mulch Method 4 can only be used if approved by the Illinois Tollway Landscape Architect.

Erosion Control Blanket:

- These items are typically more effective than mulch alone and consist of furnishing and installing erosion control blankets over prepared permanent seeding beds as shown on the plans or as directed by the Engineer.
- Because of continuing new technology in erosion control, the Designer is encouraged to explore new methods and materials beyond those shown in the Standard Specifications for erosion control and turf reinforcement. The Designer shall be familiar with such products, evaluate and recommend their use when appropriate. For example, if there is a slope failure as a result of regular subsurface drainage, other methods shall be employed to correct the problem prior to application of erosion blanket surface treatments or when innovative methods and/or materials may be beneficial to prevent scour at drain outlets.
- Erosion blankets are typically used in conjunction with permanent seeding, as per Section 250 of the Illinois Tollway Supplemental Specifications and Article 1081.04 of the Standard Specifications.

1. Erosion Control Blanket, Biodegradable Netting

- This item is a single net Rolled Erosion Control Product (Erosion Blanket) intended for short term use on shallow slopes. The netting is intended to biodegrade in 90 days. This product is described in Articles 1081.10(a) and (b) of the Standard Specifications.
- Excelsior Blanket or Knitted Straw Mat can be used interchangeably.
- To be used in conjunction with permanent seeding, Section 250 of the Illinois Tollway Supplemental Specifications.
- Use in swales where the hydraulic shear is less than 2.1 pounds per square foot.
- To be used on all slopes within a 30 feet wide strip adjacent to the roadway and ramp pavements where wind and debris create a difficult environment for seed germination.
- May be used with Temporary Ground Cover, Article 280.04(f) of the Standard Specifications, for temporary erosion control in swales with a maximum velocity of 6 feet per second.

2. Heavy Duty Erosion Control Blanket, Biodegradable Netting

- This item is a double net Rolled Erosion Control Product (Erosion Blanket) intended for short term use on steeper slopes. The bottom netting is intended to remain in service as turf reinforcement. This product is described in Article 1081.10(c) of the Standard Specifications.
- To be used as a permanent, non-degradable liner primarily to stabilize channel configurations while permanent vegetation is establishing. This blanket works best when drainage can be diverted until turf is established.
- To be used as permanent lining in swales where the hydraulic shear is between 2.1 and 6.0 pounds per square foot.
- To be used with permanent seeding of specified channels or ditches with velocities between 4 feet and 6 feet per second.
- When velocities exceed 6 feet per second, line channel or ditch per Illinois Tollway *DDM*, Section 7.0 – *Ditch and Channel Design*.
- May be used for temporary erosion control in swales with velocities between 6 and 10 feet per second.

I. Sodding

Pay Items:

25200100 – SODDING

25200110 – SODDING, SALT TOLERANT

Description and Purpose:

In general, sodding is to be used in a limited basis at specifically designated areas, such as toll plazas, applicable ditches, maintenance buildings, oasis, or other support complexes. Sodding (salt tolerant) shall be used in designated areas within 30 feet from the edge of pavement. Salt tolerant sod may also be considered for use in drainage ditches where flow velocities do not exceed 4 feet per second and slope is no more than 10%. A channel lining shall be required where the flow velocity exceeds 4 feet per second and ditch slope exceeds 10%. For additional details see Section 252 of the Standard Specifications and the Illinois Tollway *DDM*, Section 7.0 *Ditch and Channel Design*. Sodding shall be done in conformance with Article 1081.03 of the Standard Specifications.

J. Perennial Plugs

Pay items:

JT250400 – Mesic Bioswale Plug Mix

JT254010, JT254015 – Bioswale Plugs

JT254100 – Wetland Plugs

Description and Purpose:

Native plugs may be used on a limited basis when standing water prevents the use of seed. In instances where shallow standing water is the norm within wet bottomed retention/detention ponds, plugs may be considered in place of seed. In all other instances, seed and erosion control blanket will be used in conformance with Article 4.2.1 of this manual. For additional details, see Section 254 of the Standard Specifications. The planting of plugs shall be done in conformance with Article 1081.02 of the Standard Specifications.

Application:

- If contract completion date is later than October 1st, plugs shall not be utilized unless written authorization from the Illinois Tollway Landscape Architect.
- Plugs may be used in project specific inclusion of bioswales or wetland mitigation.

K. Watering and Supplemental Watering

Pay Item:

25200200 – SUPPLEMENTAL WATERING

Description and Purpose:

Supplemental watering may be required for sod during periods of heat or drought, per Article 252.09 (Sodding) of the Standard Specifications.

Application:

- During the period of establishment, watering is typically incidental for woody plants (Article 253.15 of the Standard Specifications) and Perennial Plants (Article 254.09 of the Standard Specifications) and is not considered supplemental.
- If woody plant supplemental watering and seeding supplemental watering is needed, it shall be provided in the Special Provisions for each contract.
- Supplemental Watering is used in conjunction with sodding and is most critical during the initial 60-day establishment period. This item is typically used to supplement the contractors required watering during the first 30 days in the event of hot or dry periods, and/or for watering needed beyond the first 30 day growing period. This item is not required for seeding.

L. Herbicide and Weed Control

Description and Purpose:

Weed control should be used for weed management opportunities and may be needed either before planting or during the period of establishment. Weeding for woody plants shall be done during the period of establishment per Article 253.15 of the Standard Specifications and at the end of the period of establishment for perennial beds per Article 254.09 of the Standard Specifications. Additionally, weed control may be used for existing areas or as required at the direction of the Engineer.

Weed control may be accomplished through the use of Weed Barrier Fabric, as specified in Article 1081.14; mulch for woody plants, as specified in Article 253.11; or mulch for perennial beds, as specified in Article 254.07 (all of the Standard Specifications).

M. Filter Fabric

Pay Item:

28200200 - FILTER FABRIC, SQUARE YARD

Description and Purpose:

Filter fabric is used to provide a separation between fine grained and open graded materials in order to prevent intermingling of the materials. For example, it may be used

to separate planting mix from drain stone, drain stone from subgrade, or planting mix from coarse subgrade. Filter fabrics shall be in accordance with Article 1080.03 of the Standard Specifications.

4.2.2 Planting, Removal, and Care

Per Sections 253 and 254 of the Standard Specifications, all placements of plantings along the roadside shall comply with Illinois Tollway and AASHTO safety recommendations, including those for clear zones and distance from signage, and shall follow the overall guidelines to blend the facility into the surrounding areas.

When trees must be removed, opportunities for providing replacement shall be pursued (See Appendix 9). The addition of vegetation can be reviewed once all existing desirable vegetation has been protected.

The adjacent land use and topography shall provide direction for the intensity of the planting. Rural areas may require little or no planting, while more urban sites should be more heavily planted in an effort to blend into the adjacent community. A natural and sustainable landscape shall be the basis for all roadside design.

A. Clearing, Tree Removal and Protection, Care and Repair of Existing Plant Material

Pay Items:

20100110 through 20101700

Description and Purpose:

Clearing shall consist of removal and disposal of obstructions, logs, and vegetation according to Article 201.01 of the Standard Specifications. Clearing shall be used when vegetation interferes with construction activities, when dead or diseased trees are present in the work zone, or as directed by the Illinois Tollway, except when specified in the plans that the tree should be protected. The Designer and CM shall review and inventory the existing vegetation and complete site inspections to save or protect existing vegetation of value, whenever possible.

Application:

- Care of existing plant material consists of pruning, fertilizing, and watering of existing vegetation to remain, and shall be done in accordance with Articles 201.05 – 201.06 of the Standard Specifications. Repair or replacement of existing plant material consists of restoring plants damaged by the Contractor to its original condition, per Article 201.07 of the Standard Specifications. The need for protection or repair of existing plant material will be identified by the Designer during the design phase. These determinations will be made based on field inspections; project specific conditions; plant size, type, condition; and professional judgment. Plant material damaged by the Contractor shall be repaired at no additional cost to the Illinois Tollway.

- The need for the repair or replacement of existing plant material shall be evaluated during design by the DSE's Landscape Architect.

B. Planting Woody Plants and Perennial Plants

Pay Items:

A2C00G03 through B2013916 – TREES, Various
C2C00124 through C3006024 – SHRUBS, Various
D20C00412 through D2015401 – EVERGREENS, Various
E20010G1 through E20330Q1 – VINES, Various
F2001072 through H20040Y2 – SEEDLINGS, Various
K0012970 through K0013110 – PERENNIALS, Various

Description and Purpose:

Landscape within the Illinois Tollway ROW accomplishes multiple purposes, including permanent erosion control, aesthetics, and visual screening of adjacent residential or commercial properties. It is important to design this border to be aesthetically appealing and to blend in with surroundings, but it is also important to provide a landscape that is functional and easily maintained. Maintenance activities, such as mowing, can be minimized through the use of woody plants (trees, shrubs, evergreens, vines) or perennial herbaceous plants (ornamental plants or native plants, including wetland, woodland, or prairie plants). Plants shall be chosen based on general landscape design, location, growing requirements, maintenance requirements, and aesthetics. Materials for planting of woody and perennial plants shall be done in conformance with Section 1081 of the Standard Specifications.

Application:

- The Illinois Tollway may initiate adjacent landowner or municipal outreach. The adjacent entities may provide input for the Illinois Tollway to consider and may result in cost-participation by the local entity to increase quality or quantity of the landscape plan.
- All placement of plantings along the roadside shall comply with Illinois Tollway and AASHTO safety recommendations, including clear zones and distance from signage, and shall follow overall guidelines to blend the facility into the surrounding areas.
- When trees must be removed, opportunities for providing replacements shall be pursued (See Appendix 9, Preservation, Removal and Replacement of Trees). The addition of vegetation can be reviewed once all existing desirable vegetation has been protected.
- The adjacent land-use and topography should provide direction for the intensity of the planting. Rural areas may require little or no planting while more urban sites should be more heavily planted in an effort to blend into the adjacent community. A natural effect should be the basis for all roadside design.

- The Landscape DSE shall also address maintenance, such as mowing expectations. Mowing and Turf Maintenance activities should be minimized in areas of woody plants (trees, shrubs, evergreens, vines) or perennial herbaceous plants (ornamental plants or native plants, including wetland, woodland, or prairie plants). Plants shall be chosen based on general landscape design, location, growing requirements, maintenance requirements, and aesthetics.

4.2.3 Protection of Existing Resources

Certain existing landscape features, whether manmade or natural, shall be protected through a process of identification; enhancement, restoration, or preservation; avoidance; or incorporation into the design of the highway improvement. A variety of techniques may be employed to protect identified resources, including both temporary and permanent measures, as appropriate. The appropriate technique shall be determined during the design concept phase. Consider the following when protecting existing features.

A. Review Previous Commitments

Review commitments in environmental documents, ESIS, tree surveys, wetland reports, public hearing records, and other project documents for areas requiring attention or protection during project development and implementation.

B. Statute Protection

Determine which features of the project area are protected by statute. These may include wetlands, endangered species, nature preserves, natural areas, and cultural sites.

C. Cultural Environment

Establish the project's setting or cultural environment. Determine if the project is in a rural, urban, or a transitional area. The design shall be influenced by the cultural and physical environment adjacent to it. Existing features shall be protected when possible.

4.2.4 Grading and Alignment

The portion of the design process concerning alignment and grading offers the best opportunity to fit the highway into the landscape, thereby avoiding unnecessary environmental impacts and yielding a functional and aesthetically pleasing form. The basic guidelines for grading and alignment are included in the AASHTO *"Guide for Transportation Landscape and Environmental Design"*. In addition, consider the following:

A. Environmental Commitments

During Master Planning, ensure that all environmental commitments, including the EVA and tree inventories, are reviewed and noted so that these issues can appropriately influence alignment and grading decisions. These commitments will also serve as controls during Design Phase plan preparation.

B. Surrounding Landscape

Give consideration to the surrounding landscape and the best application of site cut and fill for functional use and balancing. Blend the alignment and grading to fit the existing topography with minimal visual or physical disruption. Where appropriate, screen unsightly views of industrial areas, junkyards, etc. Vegetative screens should also be provided as visual buffers for residential development.

C. Clearing and Construction Limits

Carefully plan and define the establishment of clearing and construction limits. Consider both existing landscape features and critical areas.

D. Plant Survival

Consider the survival potential of both existing plantings to be preserved and proposed plantings at the time that grading decisions are made. Existing plantings are vulnerable when there is the potential for disturbance to root zones or drainage patterns. This is especially critical in confined areas where landscape features such as screening are proposed.

4.2.5 Erosion Control

The measures incorporated in the Landscape Plans shall permanently protect the site from erosion and sediment damage to adjacent sites.

Every effort shall be made to schedule the permanent erosion control to be completed as early as practical, to minimize the cost of the temporary control measures.

All projects shall comply with current provisions of the EPA's "Clean Water Act" (see Illinois Tollway *DDM*). Erosion control plans shall clearly describe the location, type of controls, and scheduling to be implemented in each stage of construction. Special resources, such as wetlands, shall be clearly identified along with erosion protection measures. Specific project needs, problem areas, and erosion control philosophy shall be identified and discussed at the Preconstruction Erosion and Sediment Control Meeting. The Preconstruction Erosion and Sediment Control Meeting also includes a field review.

4.2.6 Drainage

Design of the highway drainage system shall be part of, and not separate from, the natural hydrology of the environment. Consider the environmental impacts of drainage, stormwater management, detention or retention basin design shapes, and the impact that water retention and/or soil saturation will have on existing or proposed plant material.

See the Illinois Tollway *DDM* for more detailed guidance.

4.2.7 Visual Quality

Encouraging a visual change that will improve or enhance the surrounding landscape ensures a project's visual quality. Define the visual environment by identifying key views, analyzing

resources, depicting the project's proposed appearance, and assessing its visual impacts. Manmade features such as buildings, bridges, retaining walls, sound walls, and other structures shall also be assessed during the project design and integrated successfully into the Illinois natural landscape.

To support the reduction of maintenance and enhance visual quality in a project, evaluate the project's relationship with regards to the following:

- natural landscape elements,
- topographical, physical characteristics, and functional use of cut and fill,
- ecological influences,
- residential areas and their character,
- historical features,
- visual and psychological values,
- existing land uses, and
- existing and proposed project profile and structures.

4.2.8 Safety

Safety shall be the highest functional goal of every Illinois Tollway design, and all landscape and environmentally based design principles shall be compatible with such criteria.

During design, consider the following:

- soil erosion/pollution control;
- the location, size, and height (mature size, height) of plantings in relation to sight distance, drainage, and clear zones;
- pedestrian safety in areas such as oasis areas, toll plazas, and bikeways;
- reduction of headlight glare;
- directional and feature delineation or screening;
- snow drifting and environmental conditions control; and
- sound abatement.

4.2.9 Historical Influences

Historical influences may affect the project by way of a nearby destination, an adjacent feature, or in some cases, as a part of the roadway or its appurtenances. Pay particular attention to such

influences and prepare the project design to be compatible or to harmonize with them. Historical markers, structures, districts, and bridges all may influence the design of a project. Required avoidance of, or mitigation of impacts to, historical resources are usually identified in early project coordination, but the Landscape DSE shall be alert for any unidentified items. Special consideration may need to be given to landscape treatment within designated National Register Historic Districts.

4.2.10 Planting Treatments

A. Treatment of Mainline ROW

1. Roadside plantings under normal conditions are viewed at high speeds. The amount, spacing, and size of planting shall be sufficient to produce a grouping that will be recognized by the passing motorists. At high speeds, the angle of a driver's vision narrows and distant views are held for a longer time. Therefore, typically, lineal and more extensive swaths of planting masses shall be used along mainline locations with decreasing plant bed size near or at plazas.
2. There should be an overall naturalistic theme for the landscape design, with groups of primarily native trees following free form lines, unless a specific localized design intent requires a more formal planting. Shrub planting beds shall follow contour lines in defined, intentional shapes. Shrubs shall be spaced close enough so plants grow together, reducing future maintenance.
3. Maintenance shall be a prime consideration of the landscape design. Integration of tree, shrub, and turf areas shall be designed to minimize mowing around individual plants. This may be achieved by using architectural mow lines to create areas where mowing is reduced and by planting predominantly in natural groupings. Trees shall be located within no mowing zones or reduced mow areas whenever possible. Selective Mowing Stakes shall be considered to delineate areas that do not require mowing.
4. All tree and shrub plantings shall be kept out of the clear zone as defined in AASHTO - *Roadside Design Guide*. The clear zone along the mainline varies based on the steepness of the slopes and design speed. Refer to the Illinois Tollway's Traffic Barrier Guidelines for more information. Typically, tree and shrub plantings shall not be located within Zone 1 as shown in Figure 2 (Article 4.2.1B, General Seeding Zones).
5. The need for salt tolerant plant material and maintenance concerns limit the Designer's choice of plant material. However, where possible in Zone 2, in areas where there is increased ROW, the Designer may expand the range of plant material to include a variety of tree and shrub material.
6. All public and Illinois Tollway utilities, including overhead wires, shall be carefully reviewed and located when determining locations for plant material during the design. Tall growing trees shall not be proposed where conflict with overhead wires is possible. Trees shall not be planted where the spread of its branches could interfere with or obstruct the lighting of any luminaries or signs.

7. Locations adjacent to wooded areas may require agency coordination and plantings to create the effect of bringing the woods onto the ROW. This design principle helps to break up the appearance of cleared linear roadway space, and better blends the project into the surroundings. Tree species shall be similar to those in the existing wooded area, if possible.
8. Trees and shrubs shall be planted in natural groupings rather than individual specimens whenever possible. Individual plantings may be considered only when accentuating a site or architectural feature is desirable.
9. The Landscape DSE shall check with the Illinois Tollway coordinator to locate any areas where experience has demonstrated the need for control of drifting snow. Proper shrub plantings shall be considered at these locations to form a snow barrier to control drifting.
10. Examine the highway alignment to determine where to maximize the visual experience and safety. Screening of undesirable views and enhancing scenic views shall be considered in order to provide less distraction to motorists. In order that natural features may be preserved, the Illinois Tollway Landscape Architect shall be consulted during the conceptual planning stage.
11. When planting is desirable near signage, the appropriate plants shall be positioned behind highway signs. This shall be done only to provide a background or frame for better visibility and shall not obstruct views to any signage. Plantings near signs shall be positioned so that there is enough space between the plantings and the sign for a mower, or the sign is to be positioned in the planting bed. Plantings shall not be placed where they may interfere with the operation of any breakaway devices.
12. Existing trees shall be conserved and protected whenever practical. When removal of existing vegetation is required, the Landscape DSE shall consider the Illinois Tollway's tree replacement policy and where appropriate, add additional plant material to help compensate for their loss. The trees to be saved, the method of protection, and any maintenance requirements shall be shown on the construction plans.
13. The design shall take into consideration salt spray and drifting from winter plowing operations. Assume winter winds will be predominantly from the north, northwest, and west. Salt drifting can carry up to approximately 150 feet, with heavy concentrations of salt spray up to 30 feet from the edge of pavement. The design shall address ramps, plazas, and other areas where concentrations of salt saturated surface runoff may affect adjacent turf.
14. Large planting projects may include a small percentage of fast growing trees to provide the immediate benefit of large plant material while slower growing plants mature.
15. Subsurface drainage on cut slopes that interferes with soil sediment control or proper vegetation establishment shall be identified and evaluated for repair.

B. Treatment of Drainage Channels and Ditches

Ditch bottom erosion, and the depositing of sediment from the erosion of side slopes, are prevailing problems with ditches. Erosion control treatment of these slopes shall be handled in accordance with Article 3.2.1 of this manual, to ensure minimum sedimentation of drainage ways during turf establishment.

A minimum of 0.3% longitudinal slope shall be maintained in any channel and ditch bottom where positive drainage is expected. Flatter minimum grades will produce pockets of standing water and cattail growth and may increase the need for future maintenance. For roadside ditches with a longitudinal slope less than 0.3% (i.e., due to some special local conditions), a ditch lining shall be provided. Consult the Illinois Tollway *DDM* for details.

The ditch cross section shall typically be trapezoidal in shape and maintain a 6-foot wide bottom whenever possible. (Per the Illinois Tollway *DDM*, ditches shall maintain a minimum 4-foot wide bottom.) The erosion control measures shall be salt tolerant sodding, erosion blanket lining with salt tolerant seed, or open cell articulated concrete block mats, depending on specific slope and hydraulic conditions. Any other available erosion control products existing on the market can be used if cost effective, upon the acceptance by the Illinois Tollway PM.

See Article 4.2.1, Paragraph H for applications of Erosion Control Blankets. When seeding is used in ditch bottoms, it is best to restrict flowing water until turf is established. When sodding is used, water velocities up to 4 feet per second may remain without being restricted during establishment. Properly placed sod is normally the preferred cover in swales because there is no time lag between installation and the time when the channel is protected by vegetation. Sod also offers more flexibility in the timing of installation than seeding. Channel lining shall be required where the design discharge velocity exceeds the scour velocity of the soil. See Illinois Tollway *DDM* Section 7.0 – *Ditch and Channel Design Section* for additional information.

Trees or shrubs shall not be planted in or near drainage ways where their presence would interfere with the flow of water or access to drainage structures.

C. Treatment of Toll Plazas

The pavement at toll facilities may receive increased salt applications during winter snow removal. The Landscape DSE shall consider salt drifting and higher concentrations of brine associated with snow plowing operations in these locations. Pavers matching the building materials, or other sustainable options, shall be considered at appropriate locations along curbs and adjacent to pavements into turf areas. The paver's width shall be approximately 24 inches wide. The Landscape DSE should consider material that compliments the building at manned toll plazas.

Plantings around manned plazas shall leave views open from the toll plaza to the adjacent mainline travel lanes. All plaza plantings shall avoid plant types and massing that people or vehicles could hide in or behind or cause visual obstructions for safety or security. These plantings shall be selected from the most salt tolerant plants on the plant schedule. Appropriately placed irrigation links shall be considered at manned toll plazas to allow easy irrigation hook-ups for plant material.

D. Treatment of Interchanges

All new interchange projects require evaluation for design opportunities of grading and landscape plantings. The actual quantity of landscape material used will vary depending on the surrounding terrain and the details of the specific interchange. Trees shall be used to blend the improvement into the surrounding area and the use of shrubs shall typically be minimal. The use of low profile native grasses is encouraged in the interior of appropriate infields to reduce mowing. Interchanges and ramps may be viewed as gateways to some local communities. The Landscape DSE shall consider any defined character developed by local municipalities when preparing design concept options.

It is important to plan for the use of salt on ramps. Damage to turf areas where pavement runoff exits the pavement shall also be addressed in the design. Erosion blanket shall be used on all slopes within 30 feet of the edge of pavement on the ramps. Curb and gutter shall be on ramp shoulders in locations shielded by guardrails or where flow concentrations require its use. Surface and subsurface drainage outlets shall be located to minimize erosion potential of concentrated water outfalling on slopes.

When additional fill is available on-site, or from nearby contracts, the Designer shall consider reducing the steepness of slopes as much as practical on crossroad embankments. This may reduce project cost and guardrail quantity, increase safety, decrease maintenance, and improve aesthetics.

E. Treatment of Maintenance Facilities

These sites may benefit from plantings and/or grading that serve to screen portions of the site from the roadway. Screening of undesirable views and enhancing scenic views shall be considered to provide less distraction to the motorists.

The runoff from these sites may contain high concentrations of salt or other material being stored at the facility. Therefore, salt-tolerant vegetation shall be used where practical. Use of a vegetative filter strip where the runoff leaves the site is recommended.

4.2.11 Protection of Existing Plants

Refer to Appendix 9 in this manual, for the Illinois Tollway policy and guidelines for the preservation, removal and replacement of trees. Preservation measures shall be evaluated whenever existing vegetation is present in the construction area or when adjacent existing vegetation may be affected by the construction operations. See Article 3.2.4 – L. Tree Protection in this manual, and the Illinois Tollway Standard K1 Drawings for the tree protection detail. The following summarizes the key points in the Illinois Tollway's policy on treatment of trees.

A. Removal of Trees

In deciding whether trees should be removed, the environmental, aesthetic, and functional value of the trees shall be considered, along with the potential hazard posed by the trees. An on-site inspection shall be made by a team which includes expertise

in roadside safety, landscape architecture, and environmental impact analysis to help evaluate these factors.

B. Replacement of Trees

A landscape inventory is typically made during the Phase 1 project planning stage. A minimum quantity of replacements shall be established based on the Illinois Tollway criteria for removal and replacement of trees. In summary, trees with a trunk size of 6 inches or more diameter at breast height (DBH) and other desirable trees planted within the previous 15 years shall be replaced. Minimum ratios for replacement of trees shall be as provided in Appendix 9 and as determined by analysis of the vegetative assessment information.

4.2.12 Plant Materials

Roadway trees often have reduced growth rates compared to their woodland counterparts. Poor soils, compacted soils, salt drifting, harsh microclimates, and low maintenance are some of the conditions that affect the roadway landscape. Generally, native or indigenous plants are most suited to meet these conditions. Only plants within the hardiness zones of the specific landscape project shall be specified (as designated in the current publication, *Plant Hardiness Zones*, by the Agricultural Research Service, U.S. Department of Agriculture). See Appendix 10 for details.

A. Size

The favored planting size for shade trees is from 1 inch to 2 ½ inches DBH in caliper (diameter), intermediate trees, evergreen trees between 4 feet and 6 feet in height, and shrubs between 18 inches and 30 inches in height. These sizes are general requirements and shall be evaluated for each individual project and plant species. Some specimen trees near plazas or other features, for example, may be larger than typical mainline plantings. Using larger sizes provides immediate visual impact but requires longer periods for the plant to become established and therefore increases maintenance.

B. Root

All deciduous trees larger than 1-inch DBH in caliper or 4 feet in height shall be specified as “balled and burlapped root type”. All evergreen trees shall be specified as “balled and burlapped” root type. Shrubs shall be specified as either “balled and burlapped” or “container grown”. Bare root material may be used for smaller plant material but shall be approved by the Illinois Tollway’s Landscape Architect prior to specifying.

C. Plans and Legend

When the scope of work includes the planting of trees and shrubs as part of the general roadway improvement plans, a separate Plant Materials List shall be included in the plans in addition to that provided in the Summary of Quantities (See Table 3). If conditions prevent the planting work from being performed concurrently, the landscape plans shall be able to be removed and function independently.

Table 3
Landscape Materials List

Pay Item	Description	Unit	Quantity	Record Quantity	Comments
20101400	Nitrogen Fertilizer Nutrient	Pound	300		30 pound/acre
20101600	Potassium Fertilizer Nutrient	Pound	1800		90 pound/acre
25200110	Sodding (Salt Tolerant)	SY YD	8,500		No fertilizer
JIA20011	Tree, <i>Gleditsia triacanthos inermis</i> 'Skyline' (Skyline Thornless Common Honeylocust), 1-1/2" Caliper, Balled and Burlapped	Each	36		Specimen qual. B&B root
JIA20020	Tree, <i>Quercus macrocarpa</i> (Bur Oak), 1-1/2" Caliper	Each	50		Specimen qual. B&B root
JIC20010	Shrub, <i>Lonicera tatarica</i> Arnold Red, (Arnold Red Tatarian Honeysuckle), 6" Height	Each	32		Specimen qual. B&B root
JIC20015	Shrub, <i>Cephalanthus occidentalis</i> (Buttonbush) Container Grown, 3-Gallon	Each	160		Full specimen
J1251010	Erosion Control Blanket, Biodegradable Netting	SQ YD	104,544		Observe stapling Requirements
JS250220	Seeding, Class 2E	Acre	21.6		Salt tolerant
JT253020	Summer Watering	Unit	102		
K0026710	Tree Care Mulch	Lump Sum	1		

The Designer should work with the Illinois Tollway when developing initial plant lists so most current developments and initiatives can be considered. The Designer shall also work with Illinois Tollway and local nurseries to determine the availability and condition of the plant types selected. If specific plant types are not available, the Designer shall work with Illinois Tollway to find suitable alternates. Consideration should be given to surrounding land use requirements, such as FAA flight zones. Below is a list of some materials that have provided satisfactory performance in roadway environments. The list is not intended to be all inclusive.

Shade Trees:

Celtis occidentalis, Common Hackberry
Gleditsia triacanthos var. *inermis*, Thornless Common Honeylocust*
Ginkgo biloba, Ginkgo*
Gymnocladus dioica, Kentucky Coffeetree*
Quercus alba, White Oak*
Quercus bi-color, Swamp White Oak
Quercus macrocarpa, Bur Oak
Salix alba var., Weeping Willow*
Ulmus, var., Elm, several varieties

Intermediate Trees:

Acer campestre, Hedge Maple*
Acer tataricum, Tatarian Maple
Crataegus crus-galli 'thornless', Cockspur Hawthorn
Malus varieties, Crabapple, several varieties
Syringa reticula, Japanese Tree Lilac*
Robina pseudoacaia, Black Locust*

Evergreen Trees:

Picea abies, Norway Spruce
Picea pungens, Colorado Spruce*

* Designates Species with some tolerance to salt drifting

Shrubs:

Cornus racemosa, Gray Dogwood
Euonymus alatus, Winged Euonymus
Forsythia x intermedia, Border Forsythia
Juniper var., Junipers, several varieties
Lonicera, non-invasive varieties
Rhus aromatica, Fragrant Sumac
Rhus typhina, Staghorn Sumac
Ribes alpinum, Alpine Currant
Spiraea bumalda 'froebeli', Froebel Spirea
Syringa vulgaris, Lilac, several varieties
Viburnum, several varieties

D. Graphic Symbols

See Appendix 8 for sample drawings used with the Landscape Plans.

E. Recurring General Planting Notes

1. Mark the locations of all underground utilities before beginning work. Report any conflicts to the Engineer immediately for resolution. The Contractor shall be responsible for the protection of all underground or surface utilities even though they may not be shown on the plans
2. Planting plans are diagrammatic. Plant locations shall be adjusted in the field to avoid utilities or any other elements prior to digging operations. The Contractor and Engineer or Illinois Tollway Landscape Architect shall review staking locations and discuss any revisions needed
3. Tree locations shall not be moved closer to pavement edges than shown on the plans or a minimum of fifty (50) feet.
4. Tree and shrub plantings shall not block access to gates in fences, hydrants on noise walls, or other service access doors.
5. Trees planted in turf areas shall be ten (10) feet minimum clear from the edge of plantings beds.
6. Trees shall be ten (10) feet minimum clear from fences, walls, bridges, and other structures. This distance shall be increased, per the projected mature tree canopy size, to prevent overhanging limbs on highways and bridges.
7. Ditches shall be kept clear of woody tree and shrub plantings. The minimum vertical distance between ditch bottoms, plantings and planting beds shall be 3 feet to maintain the rootball above the ditch bottom.
8. If during excavation, a plant hole or planting bed shows poor drainage, standing water, or an impervious stratum of soil, the contractor shall cease excavation and shall notify the engineer. The plant(s) shall be relocated as directed by the engineer and the hole(s) or bed shall be filled in and restored to match the condition and vegetation of the adjacent area.
9. Pruning shall only be done in accordance with the specifications. Improperly pruned planting will be rejected and replacements will immediately be made by the contractor.
10. Scarify the sides of planting pits prior to backfilling to loosen soil.
11. Tree wrappings, when specified, shall extend to the lowest major branch.
12. Top of rootball shall be approximately 2 inches above adjacent finished grade. Remove debris from around root collar.

13. Shrub plantings, unless otherwise noted, shall be planted in mulched beds. The edge of the mulched beds shall extend a minimum of three (3) feet beyond the centers of the peripheral plants in the bed. The edge of the mulched bed for shrub plantings adjacent to a wall, fence, guardrail, or other fixed object shall extend to the object. The peripheral plants in the bed shall be planted five (5) feet clear of the object. When a tree is located in a shrub bed, the minimum distance between the tree and the adjacent shrub shall be six (6) feet.
14. The Contractor shall restore all areas, objects, and vegetation disturbed by landscape operations to original conditions. Any turf areas outside the construction seeding limits which are disturbed shall be repaired, reseeded, and covered with erosion blanket, or sodded, to the satisfaction of and as directed by the Engineer, at the Contractor's expense.
15. All tree supports including stakes and guy wires shall be removed after one (1) year or as directed by the Engineer.
16. Remove all binding materials, containers, and marking tapes from plantings prior to backfilling. Remove burlap, twine, and wire baskets from the top half of root balls. The lower half of burlap shall be folded toward the bottom of the rootball.
17. Plantings shall be installed plumb with the best side facing the primary viewing direction.
18. Plants shall comply with current standards adopted by ANLA and the American National Standard Institute (ANSI) Section Z-60.1 *American Industry Standards for Nursery Stock*, 2014 or current issue.
19. To avoid air pockets from forming when backfilling planting pits, fill pit half full of soil and lightly tamp, water thoroughly, and then add the remaining soil and then water further until no more water is absorbed.

4.2.13 Restoration of Staging Areas

When a staging area is provided in the design, Restoration Plans shall be provided in the contract documents. When staging area restoration is not required in the contract plans, the Contractor shall provide a Restoration Plan for review and acceptance by the Illinois Tollway. The Contractor shall obtain a permit from the Illinois Tollway and post a bond for the completion of restoration work. Requirements for Use of Illinois Tollway Property to Support Construction Activities form shall be completed and provided to the Illinois Tollway. This form (which can be found on the Illinois Tollway's WBPM system) details general requirements for the use of staging areas and documents efforts needed to support this activity.

When the staging site is ready to be restored in accordance with the approved Restoration Plan, the CM will advise the Illinois Tollway's PM and Landscape Architect. At that time, any replacement trees should be tagged and inspected at the nursery prior to arriving at the site. Once the final grading and permanent seeding work is completed, inspected, and approved, the tree locations may be staked by the Illinois Tollway's Landscape Architect. The Contractor shall maintain and guarantee the trees in accordance with the Standard Specifications and Provisions.

4.3 Landscape Plans

The landscape plans, special provisions, and ESCPs that are part of the total erosion and sediment control program for the site shall identify all measures to be installed; indicate a planting schedule; and provide maintenance, care, and fertilizer requirements. Maintenance, care, and fertilizer shall be for a 2-year establishment period (Standard and Supplemental Specifications Section 253). Incorporate a tree preservation plan and define what standard drawing/specification is to be used to ensure that the correct measure is applied. See Appendix 8 of this Manual for example of Landscape Drawings developed for the Illinois Tollway and refer to Standard and Supplemental Specifications.

The background documentation maintained by the Designer shall meet the requirements in the Illinois Tollway *Environmental Studies Manual*. This documentation shall also identify any special requirements used to select specific measures.

Additional Special Provisions may be developed for payment of plant care, materials, and labor needed to encourage the proper health of the plantings over the establishment period.

4.4 Responsibilities

Below is a discussion of the responsibilities of the various entities.

4.4.1 Illinois Tollway Responsibilities

- will facilitate the coordination necessary with other agencies and local governments;
- will determine, with the assistance of the Designer, the potential impacts of the project and the need for permits and/or approvals. The impact of the project and need for permits and/or approvals shall be identified by the Landscape DSE.
- The Illinois Tollway will review the plans prepared by the Designer for technical adequacy, compliance with the Landscape Goals established for the project, and confirm that the bid schedule includes all relevant measures.
- Illinois Tollway Staff Responsibilities:
(Description of staff responsibilities can vary by contract and is for guidance only.)

A. Illinois Tollway Project Manager (PM)

The PM will be the primary point of contact with the Designer. The PM will be responsible for ensuring that the Designer complies with the directives of this manual and for disseminating information and submittals to the appropriate individuals. Permit submittals, when needed, shall be prepared by the Designer and submitted to the PM. The PM will submit permit applications to the appropriate Tollway staff or outside agencies.

B. Illinois Tollway Environmental Planner (EP)

The Environmental Planner (EP) will be responsible for ensuring that the PM, and therefore the Designer and the Landscape DSE, is aware of how environmental concerns effect the project or study. The EP will review all related submittals, including permit applications to the Illinois Tollway by the Designer, and other reports and contract documents as necessary, and will ensure that the landscape plans are in compliance with the Landscape Goals for the project. The EP will be the primary point of contact with state and federal resource and regulatory agencies.

C. Illinois Tollway Landscape Architect

The Landscape Architect will primarily administer the Illinois Tollway policy and procedures for the application and planning of natural elements, and the reduction of impacts on the landscape, including but not limited to, vegetation. The Landscape Architect will administer Illinois Tollway policies and procedures with a concern for stewardship and conservation of natural resources, aesthetics, and sensitivity to the community, with the goal of constructing roadways that improve mobility while enhancing the qualities of a place. The responsibilities of the Landscape Architect can vary by contract. The Landscape Architect, on a typical project, will guide the work as follows:

- advise the Designer, EP, Landscape DSE, and other members of the project team on in-the-field site investigations, the systematic examination of the site, the collection of site data, and analysis of existing site conditions;
- review the Issues and Opportunities Diagram and EVA to assist in establishing the Landscape Goals for the project;
- review any landscape design standards developed by County, local agencies, or municipalities with the Designer and the Landscape DSE, and determine to what extent they should be adopted for use on the project;
- assist in establishing the Landscape Goals for the project;
- advise the Designer and the Landscape DSE on the selection of plant material and on the site and landscape design direction;
- make the final assessment of the plant material selected to determine its suitability for site conditions and salt tolerance;
- approve the selection of bare root plant material where appropriate;
- review any addenda for compliance with Landscape Goals of the project; and
- work with the CM to nursery tag plant material and review placement of plant material on-site.

4.4.2 Designer Responsibilities

- ensuring that the approach to the project follows the principles of “Context Sensitive Design” as stated in Article 4.1.2. Design Approach of this manual.
- coordinating with the Illinois Tollway EP, Illinois Tollway Landscape Architect, the Landscape DSE, and other members of the project team to facilitate in-the-field investigations, systematic examination of the site, collection of site data, and the analysis of existing site conditions;
- ensuring that the finding of the data collection and analysis phase and the EVA is recorded on the Issues and Opportunities Diagram;
- verifying County or local agency requirements under the direction of the PM;
- reviewing any landscape design standards developed by County, local agencies, or municipalities with the Illinois Tollway’s Landscape Architect and the Landscape DSE, and determining to what extent they should be adopted for use on the project;
- assisting in establishing the Landscape Goals for the project;
- reviewing current Illinois Tollway Standard Drawings, Specifications, and Supplemental Specifications for the latest criteria;
- ensuring that the landscape concept design is coordinated with the grading and drainage concepts;
- ensuring that the landscape design addresses all the issues and opportunities delineated on the Issues and Opportunities Diagram;
- ensuring that the landscape plans conform to Illinois Tollway Standard Specifications and Standard Drawings and preparing or directing the preparation of Plans, Special Provisions, and Special Drawings as required;
- reviewing design submittals to ensure that the landscape concepts are coordinated and complimentary to the proposed drainage, grading, and lighting designs; as well as for technical adequacy, compliance with the Landscape Goals established for the project, and confirming that the bid schedule includes all relevant measures;
- filling out and submitting to the Illinois Tollway the Landscape Design Submittal Checklist;
- assisting the Landscape DSE in making the final assessment of the plant material selected in determining its suitability for site conditions and salt tolerance;
- ensuring that invasive, aggressive, poisonous, and high maintenance plants are not specified for use within the Illinois Tollway corridors;
- reviewing, if required, any addenda for clarity and accuracy;

- ensuring that background documentation meets the requirements of the Illinois Tollway *Environmental Studies Manual*; and
- attending the Erosion and Sediment Control Preconstruction Meeting.

4.4.3 Construction Manager (CM) Responsibilities

- scheduling and holding the Preconstruction Erosion and Sediment Control Meeting. See the Illinois Tollway's WBPM system for the most recent version of the A-40 form;
- nursery tagging, transporting, storing, and on-site locating of all plant materials in accordance with Standard Specification Sections 253 and 254 – Planting, under the guidance of the Illinois Tollway Landscape Architect;
- ensuring that the plant material and other landscape features are installed in accordance with the plans and specifications and consulting with the Illinois Tollway's Landscape Architect or other Illinois Tollway designated representatives if the landscape plans need to be changed;
- developing the A-37, Period of Establishment form, and providing copies to the Illinois Tollway PM, Illinois Tollway Landscape Architect, and Landscape Contractor (See the Illinois Tollway's WBPM system for the most recent version of the A-37 Landscape Period of Establishment form);
- ensuring that electronic copies of these forms shall be filed in the Illinois Tollway's WBPM system;
- Ensuring that the Landscape Design Submittal Checklist is filed in the Illinois Tollway's WBPM system; and
- Inspecting the installed measures, in cooperation with the Contractor's Landscape Manager, to ensure compliance with all plans, specifications, and procedures.

4.5 Approvals

4.5.1 Coordination with other Agencies/Municipalities

Illinois Tollway facilities cross and interconnect with State, Township, County, and Municipal properties and roadways. Requirements, design standards, or defined landscape character established by these agencies/municipalities should be followed, if possible, within, adjacent to, or leading to that agency's jurisdiction. Opportunities to expand local partnerships or apply innovative designs should also be explored. It is the responsibility of the Designer to obtain the requirements of all agencies within and directly adjacent to the project limits, as well as identify opportunities to expand local partnerships. The Designer, in coordination with the Illinois Tollway PM, shall evaluate these requirements and opportunities and determine their applicability to the Illinois Tollway project. The Illinois Tollway PM will be informed of all coordination efforts to be performed prior to contact being made with any agencies.

Special attention shall be paid in the coordination of the following:

- any public outreach or presentations that may be required by the municipality or agency in question;
- the potential of developing gateway treatments at the intersections, with roadways leading into towns, or other important facilities;
- the potential of developing gateway treatments at the crossing of boundaries such as county lines, or the crossing of natural features such as rivers;
- the preservation of viewsheds that are deemed important by the municipality or agency;
- the screening of views to or from the Illinois Tollway facility; and
- the blending of the Illinois Tollway facility into the landscape character of its surroundings.

4.5.2 Coordination with Other Disciplines that are part of the Project Team

The character and concept for the landscape design will be developed in conjunction with the overall design team in an integrative design approach. The drainage systems, grading, and other elements shall be part of the same overall landscape character as defined in the Landscape Goals developed for the project. Coordination with the other disciplines of the design team shall take place throughout all phases of the project. The Landscape DSE shall consider structures, site furnishings, plant materials, topography, grading, swales, and ponds in order to develop innovative design solutions and collaborative problem solving. The design, however, shall comply with the criteria as laid out in the Illinois Tollway *DDM* or other Illinois Tollway criteria, and shall also place safety as the highest concern.

Appendix 1

NPDES Forms: NPDES Permit No. ILR10, NOI, ION, and NOT Forms



Illinois Environmental Protection Agency

Page 1 of 2

Bureau of Water • 1021 N. Grand Avenue E. • P.O. Box 19276 • Springfield • Illinois • 62794-9276

Division of Water Pollution Control

Construction Site Storm Water Discharge Incidence of Non-Compliance (ION)

This fillable form may be completed online, a copy saved locally, printed and signed before it is submitted to the Compliance Assurance Section at the above address. You may email this completed form to:

epa.swnoncomp@illinois.gov

For Office Use Only

Permit No. ILR10

Permittee Information:

Name: _____

Street Address: _____ P.O. Box: _____

City: _____ State: IL Zip Code: _____ County: _____

Phone: _____ Email: _____

Construction Site Information:

Site Name: _____

Street Address: _____

City: _____ State: IL Zip Code: _____

Latitude: _____ Longitude: _____
(Deg) (Min) (Sec) (Deg) (Min) (Sec) Section Township Range

Cause of Non-Compliance

Actions Taken to Prevent Any Further Non-Compliance

Environmental Impact Resulting From the Non-Compliance

Actions Taken to Reduce the Environmental Impact Resulting From the Non-Compliance

Any person who knowingly makes a false, fictitious, or fraudulent material statement, orally or in writing, to the Illinois EPA commits a Class 4 felony. A second or subsequent offense after conviction is a Class 3 felony. (415 ILCS 5/44(h))

Owner Signature: _____

Date: _____

Printed Name: _____

Title: _____

IL 532 2105 WPC
624 Rev. 10/2011

This Agency is authorized to require this information under Section 4 and Title X of the Environmental Protection Act (415 ILCS 5/4, 5/39). Failure to disclose this information may result in: a civil penalty of not to exceed \$50,000 for the violation and an additional civil penalty of not to exceed \$10,000 for each day during which the violation continues (415 ILCS 5/42) and may also prevent this form from being processed and could result in your application being denied. This form has been approved by the Forms Management Center.

**DIVISION OF WATER POLLUTION CONTROL
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
FIELD OPERATIONS SECTION**

GUIDELINES FOR COMPLETION OF INCIDENCE OF NON-COMPLIANCE (ION) FORM

Complete and submit this form for any violation of the Storm Water Pollution Prevention Plan observed during any inspection conducted, including those not required by the SWPPP. Please adhere to the following guidelines:

Initial submission within 24 hours by email, telephone or fax (see region fax numbers) of any incidence of non-compliance for any violation. Submit email copy to: epa.swnoncomp@illinois.gov. After 24 hours notification, submit signed original ION within 5 days to the following address:

Illinois Environmental Protection Agency
Division of Water Pollution Control
Compliance Assurance #19
Post Office Box 19276
Springfield, Illinois 62794-9276

FIELD OPERATIONS HEADQUARTERS
Bruce Yurdin, Manager
Phone: 217/782-3362 Fax: 217/785-1225
EMAIL: epa.swnoncomp@illinois.gov

Region 1 - ROCKFORD
Chuck Corley, Manager
Phone: 815/987-7760 Fax: 815/987-7005

Region 2 - DESPLAINES
Jay Patel, Manager
Phone: 847/294-4000 Fax: 847/294-4058

Region 3 - PEORIA
Jim Kammueler, Manager
Phone: 309/693-5463 Fax: 309/693-5467

Region 4 - CHAMPAIGN
Joe Koronkowski, Manager
Phone: 217/278-5800 Fax: 217/278-5808

Region 5 - SPRINGFIELD
Bruce Yurdin, FOS Manager
Phone: 217/782-3362 Fax: 217/785-1225

Region 6 - COLLINSVILLE
Bruce Yurdin, FOS Manager
Phone: 217/782-3362 Fax: 217/785-1225

Region 7- MARION
Byron Marks, Manager
Phone: 618/993-7200 Fax: 618/997-5467





Illinois Environmental Protection Agency

1021 North Grand Avenue East • P.O. Box 19276 • Springfield • Illinois • 62794-9276 • (217) 782-3397

Division of Water Pollution Control Notice of Intent (NOI) for General Permit to Discharge Storm Water Associated with Construction Site Activities

This fillable form may be completed online, a copy saved locally, printed and signed before it is submitted to the Permit Section at the above address.

For Office Use Only

OWNER INFORMATION

Permit No. ILR10 _____

Company/Owner Name: _____

Mailing Address: _____ Phone: _____

City: _____ State: _____ Zip: _____ Fax: _____

Contact Person: _____ E-mail: _____

Owner Type (select one) _____

CONTRACTOR INFORMATION

MS4 Community: ☐ Yes ☐ No

Contractor Name: _____

Mailing Address: _____ Phone: _____

City: _____ State: _____ Zip: _____ Fax: _____

CONSTRUCTION SITE INFORMATION

Select One: ☐ New ☐ Change of information for: ILR10 _____

Project Name: _____ County: _____

Street Address: _____ City: _____ IL Zip: _____

Latitude: _____ Longitude: _____

(Deg) (Min) (Sec) (Deg) (Min) (Sec) Section Township Range

Approximate Construction Start Date _____ Approximate Construction End Date _____

Total size of construction site in acres: _____

If less than 1 acre, is the site part of a larger common plan of development?

☐ Yes ☐ No

Fee Schedule for Construction Sites:
Less than 5 acres - \$250
5 or more acres - \$750

STORM WATER POLLUTION PREVENTION PLAN (SWPPP)

Has the SWPPP been submitted to the Agency?

☐ Yes ☐ No

(Submit SWPPP electronically to: epa.constilr10swppp@illinois.gov)

Location of SWPPP for viewing: Address: _____ City: _____

SWPPP contact information: _____ Inspector qualifications: _____

Contact Name: _____

Phone: _____ Fax: _____ E-mail: _____

Project inspector, if different from above _____ Inspector qualifications: _____

Inspector's Name: _____

Phone: _____ Fax: _____ E-mail: _____

This Agency is authorized to require this information under Section 4 and Title X of the Environmental Protection Act (415 ILCS 5/4, 5/39). Failure to disclose this information may result in: a civil penalty of not to exceed \$50,000 for the violation and an additional civil penalty of not to exceed \$10,000 for each day during which the violation continues (415 ILCS 5/42) and may also prevent this form from being processed and could result in your application being denied. This form has been approved by the Forms Management Center.

TYPE OF CONSTRUCTION (select one)

Construction Type _____

SIC Code: _____

Type a detailed description of the project:

HISTORIC PRESERVATION AND ENDANGERED SPECIES COMPLIANCE

Has the project been submitted to the following state agencies to satisfy applicable requirements for compliance with Illinois law on:

Historic Preservation Agency ☐ Yes ☐ NoEndangered Species ☐ Yes ☐ No**RECEIVING WATER INFORMATION**Does your storm water discharge directly to: ☐ Waters of the State or ☐ Storm Sewer

Owner of storm sewer system: _____

Name of closest receiving water body to which you discharge: _____

Mail completed form to: Illinois Environmental Protection Agency
Division of Water Pollution Control
Attn: Permit Section
Post Office Box 19276
Springfield, Illinois 62794-9276
or call (217) 782-0610
FAX: (217) 782-9891

Or submit electronically to: epa.constilr10swppp@illinois.gov

I certify under penalty of law that this document and all attachments were prepared under my direction and supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage this system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. In addition, I certify that the provisions of the permit, including the development and implementation of a storm water pollution prevention plan and a monitoring program plan, will be complied with.

Any person who knowingly makes a false, fictitious, or fraudulent material statement, orally or in writing, to the Illinois EPA commits a Class 4 felony. A second or subsequent offense after conviction is a Class 3 felony. (415 ILCS 5/44(h))

Owner Signature:_____
Date:_____
Printed Name:_____
Title:

INSTRUCTIONS FOR COMPLETION OF CONSTRUCTION ACTIVITY NOTICE OF INTENT (NOI) FORM

Submit original, electronic or facsimile copies. Facsimile and/or electronic copies should be followed-up with submission of an original signature copy as soon as possible. Please write "copy" under the "For Office Use Only" box in the upper right hand corner of the first page.

This fillable form may be completed online, a copy saved locally, printed and signed before it is submitted to the Permit Section at:

Illinois Environmental Protection Agency
Division of Water Pollution Control
Permit Section
Post Office Box 19276
Springfield, Illinois 62794-9276
or call (217) 782-0610

FAX: (217) 782-9891

Or submit electronically to: epa.constilr10swppp@illinois.gov

Reports must be typed or printed legibly and signed.

Any facility that is not presently covered by the General NPDES Permit for Storm Water Discharges From Construction Site Activities is considered a new facility.

If this is a change in your facility information, renewal, etc., please fill in your permit number on the appropriate line, changes of information or permit renewal notifications do not require a fee.

NOTE: FACILITY LOCATION IS NOT NECESSARILY THE FACILITY MAILING ADDRESS, BUT SHOULD DESCRIBE WHERE THE FACILITY IS LOCATED.

Use the formats given in the following examples for correct form completion.

	Example	Format
Section	12	1 or 2 numerical digits
Township	12N	1 or 2 numerical digits followed by "N" or "S"
Range	12W	1 or 2 numerical digits followed by "E" or "W"

For the Name of Closest Receiving Waters, do not use terms such as ditch or channel. For unnamed tributaries, use terms which include at least a named main tributary such as "Unnamed Tributary to Sugar Creek to Sangamon River."

Submission of initial fee and an electronic submission of Storm Water Pollution Prevention Plan (SWPPP) for Initial Permit prior to the Notice of Intent being considered complete for coverage by the ILR10 General Permits. Please make checks payable to: Illinois EPA at the above address.

Construction sites with less than 5 acres of land disturbance - fee is \$250.

Construction sites with 5 or more acres of land disturbance - fee is \$750.

SWPPP should be submitted electronically to: epa.constilr10swppp@illinois.gov. When submitting electronically, use Project Name and City as indicated on NOI form.



Illinois Environmental Protection Agency

Bureau of Water • 1021 North Grand Avenue East • P.O. Box 19276 • Springfield • Illinois • 62794-9276

Division of Water Pollution Control NOTICE OF TERMINATION (NOT) of Coverage under the General Permit for Storm Water Discharges Associated with Construction Site Activities

This fillable form may be completed online, a copy saved locally, printed and signed before it is submitted to the Permit Section at the above address.

OWNER INFORMATION

Permit No. ILR10 _____

Owner Name: _____

Owner Type (select one) _____

Mailing Address: _____ Phone: _____

City: _____ State: _____ Zip: _____ Fax: _____

Contact Person: _____ E-mail: _____

CONTRACTOR INFORMATION

Contractor Name: _____

Mailing Address: _____ Phone: _____

City: _____ State: _____ Zip: _____ Fax: _____

CONSTRUCTION SITE INFORMATION

Facility Name: _____

Street Address: _____

City: _____ IL Zip: _____ County: _____

NPDES Storm Water General Permit Number: ILR10 _____

Latitude: _____ Longitude: _____
(Deg) (Min) (Sec) (Deg) (Min) (Sec) Section Township Range

DATE PROJECT HAS BEEN COMPLETED AND STABILIZED: _____

NOTE: Coverage under this permit cannot be terminated without the completion date.

I certify under penalty of law that disturbed soils at the identified facility have been finally stabilized or that all storm water discharges associated with industrial activity from the identified facility that are authorized by an NPDES general permit have otherwise been eliminated. I understand that by submitting this notice of termination, that I am no longer authorized to discharge storm water associated with industrial activity by the general permit, and that discharging pollutants in storm water associated with industrial activity to Waters of the State is unlawful under the Environmental Protection Act and the Clean Water Act where the discharge is not authorized by an NPDES Permit.

Any person who knowingly makes a false, fictitious, or fraudulent material statement, orally or in writing, to the Illinois EPA commits a Class 4 felony. A second or subsequent offense after conviction is a Class 3 felony. (415 ILCS 5/44(h))

Owner Signature: _____

Date: _____

Mail completed form to: Illinois Environmental Protection Agency
Division of Water Pollution Control, Attn: Permit Section
1021 North Grand Avenue East
P.O. Box 19276
Springfield, Illinois 62794-9276

(Do not submit additional documentation unless requested)

This Agency is authorized to require this information under Section 4 and Title X of the Environmental Protection Act (415 ILCS 5/4, 5/39). Failure to disclose this information may result in: a civil penalty of not to exceed \$50,000 for the violation and an additional civil penalty of not to exceed \$10,000 for each day during which the violation continues (415 ILCS 5/42) and may also prevent this form from being processed and could result in your application being denied. This form has been approved by the Forms Management Center.

GUIDELINES FOR COMPLETION OF NOTICE OF TERMINATION (NOT) FORM

Please adhere to the following guidelines:

Submit original, electronic or facsimile copies. Facsimile and/or electronic copies should be followed-up with submission of an original signature copy as soon as possible.

Submit completed forms to:

Illinois Environmental Protection Agency
 Division of Water Pollution Control, Attn: Permit Section
 1021 North Grand Avenue East
 P.O. Box 19276
 Springfield, Illinois 62794-9276
 or call (217) 782-0610
 FAX: (217) 782-9891

Or submit electronically to: epa.constilr10swppp@illinois.gov

Reports must be typed or printed legibly and signed.

NOTE: FACILITY LOCATION IS NOT NECESSARILY THE FACILITY MAILING ADDRESS, BUT SHOULD DESCRIBE WHERE THE FACILITY IS LOCATED.

Use the formats given in the following examples for correct form completion.

	Example	Format
Section	12	1 or 2 numerical digits
Township	12N	1 or 2 numerical digits followed by "N" or "S"
Range	12W	1 or 2 numerical digits followed by "E" or "W"

Final stabilization has occurred when:

- (a) all soil disturbing activities at the site have been completed;
- (b) a uniform perennial vegetative cover with a density of 70% of the native background vegetative cover for the area has been established on all unpaved areas not covered by permanent structures; or
- (c) equivalent permanent stabilization measures have been employed.

Appendix 2

EPA's *Stormwater Phase II Final Rule, Small Construction Program Overview*



Storm Water Phase II Final Rule

Small Construction Program Overview

Storm Water Phase II Final Rule Fact Sheet Series

Overview

1.0 – Storm Water Phase II
Proposed Rule: An Overview

Small MS4 Program

2.0 – Small MS4 Storm Water
Program Overview

2.1 – Who's Covered? Designation
and Waivers of Regulated Small
MS4s

2.2 – Urbanized Areas: Definition
and Description

Minimum Control Measures

2.3 – Public Education and
Outreach

2.4 – Public Participation/
Involvement

2.5 – Illicit Discharge Detection
and Elimination

2.6 – Construction Site Runoff
Control

2.7 – Post-Construction Runoff
Control

2.8 – Pollution Prevention/Good
Housekeeping

2.9 – Permitting and Reporting:
The Process and Requirements

2.10 – Federal and State-Operated
MS4s: Program Implementation

Construction Program

3.0 – Construction Program
Overview

3.1 – Construction Rainfall
Erosivity Waiver

Industrial "No Exposure"

4.0 – Conditional No Exposure
Exclusion for Industrial Activity

The 1972 amendments to the Federal Water Pollution Control Act, later referred to as the Clean Water Act (CWA), prohibit the discharge of any pollutant to navigable waters of the United States from a point source unless the discharge is authorized by a National Pollutant Discharge Elimination System (NPDES) permit. Efforts to improve water quality under the NPDES program traditionally have focused on reducing pollutants in industrial process wastewater and municipal sewage treatment plant discharges. Over time, it has become evident that more diffuse sources of water pollution, such as storm water runoff from construction sites, are also significant contributors to water quality problems.

Sediment runoff rates from construction sites are typically 10 to 20 times greater than those from agricultural lands, and 1,000 to 2,000 times greater than those of forest lands. During a short period of time, construction activity can contribute more sediment to streams than can be deposited over several decades, causing physical and biological harm to our Nation's waters.

In 1990, EPA promulgated rules establishing Phase I of the NPDES storm water program. Phase I addresses, among other discharges, discharges from large construction activities disturbing 5 acres or more of land. Phase II of the NPDES storm water program covers small construction activities disturbing between 1 and 5 acres. Phase II became final on December 8, 1999 with small construction permit applications due by March 10, 2003 (specific compliance dates will be set by the NPDES permitting authority in each State). This fact sheet outlines the construction activities covered by Phase I and Phase II, including possible waiver options from Phase II coverage, and the Phase II construction program requirements.

Who Is Covered Under the Phase I Rule?

Sites Five Acres and Greater

The Phase I NPDES storm water rule identifies eleven categories of industrial activity in the definition of "storm water discharges associated with industrial activity" that must obtain an NPDES permit. Category (x) of this definition is construction activity, commonly referred to as "large" construction activity. Under category (x), the Phase I rule requires all **operators** of construction activity **disturbing 5 acres or greater of land** to apply for an NPDES storm water permit. Operators of sites disturbing less than 5 acres are also required to obtain a permit if their activity is part of a "larger common plan of development or sale" with a planned disturbance of 5 acres or greater. "Disturbance" refers to exposed soil resulting from activities such as clearing, grading, and excavating. Construction activities can include road building, construction of residential houses, office buildings, industrial sites, or demolition.

What Is Meant by a "Larger Common Plan of Development or Sale"?

As defined in EPA's NPDES storm water general permit for large construction activity, a "larger common plan of development or sale" means a contiguous area where multiple separate and distinct construction activities are occurring under one plan (e.g., the operator is building on three half-acre lots in a 6-acre development). The "plan" in a common plan of development or sale is broadly defined as any announcement or piece of documentation

(including a sign, public notice or hearing, sales pitch, advertisement, drawing, permit application, zoning request, computer design, etc.) or physical demarcation (including boundary signs, lot stakes, surveyor markings, etc.) indicating that construction activities may occur on a specific plot.

What Is the Definition of an “Operator” of a Construction Site?

As defined in EPA’s storm water general permit for large construction activity, an “operator” is the party or parties that has:

- ❑ Operational control of construction project plans and specifications, including the ability to make modifications to those plans and specifications; *or*
- ❑ Day-to-day operational control of those activities that are necessary to ensure compliance with a storm water pollution prevention plan (SWPPP) for the site or other permit conditions (e.g., they are authorized to direct workers at a site to carry out activities required by the SWPPP or comply with other permit conditions).

There may be more than one party at a site performing the tasks related to “operational control” as defined above. Depending on the site and the relationship between the parties (e.g., owner, developer, contractor), there can either be a single party acting as site operator and consequently be responsible for obtaining permit coverage, or there can be two or more operators, all obligated to seek permit coverage. It is important to note that NPDES-authorized States may use a different definition of “operator” than the one above.

How Is the Phase II Construction Rule Related to the Phase I Construction Rule?

In 1992, the Ninth Circuit court remanded for further proceedings portions of EPA’s existing Phase I storm water regulation related to the category (x) discharges from large construction activity (NRDC v. EPA, 966 F.2d at 1292). EPA responded to the court’s decision by designating under Phase II storm water discharges from construction activity disturbing less than 5 acres as sources that should be regulated to protect water quality. The Phase II Rule designates these sources as “storm water discharges associated with *small construction* activity,” rather than as another category under “storm water associated with *industrial* activity.”

Who Is Covered Under the Phase II Construction Rule?

Sites Between One and Five Acres

The Storm Water Phase II Rule automatically designates, as small construction activity under the NPDES storm water permitting program, all operators of construction site activities that result in a *land disturbance of equal to or greater than 1 and less than 5 acres*.

Sites Less Than One Acre

Site activities disturbing less than 1 acre are also regulated as small construction activity if they are part of a larger common plan of development or sale with a planned disturbance of equal to or greater than 1 acre and less than 5 acres, or if they are designated by the NPDES permitting authority. The NPDES permitting authority or EPA Region may designate construction activities disturbing less than 1 acre based on the potential for contribution to a violation of a water quality standard or for significant contribution of pollutants to waters of the United States.

Are Waivers Available for Operators of Regulated Construction Activity?

Yes, but only for small, not large, construction activity. Under the Phase II Rule, NPDES permitting authorities have the option of providing a waiver from the requirements to operators of small construction activity who certify to either one of two conditions:

- ❶ Low predicted rainfall potential (i.e., activity occurs during a negligible rainfall period), where the rainfall erosivity factor (“R” in the Revised Universal Soil Loss Equation [RUSLE]) is less than 5 during the period of construction activity; *or*
- ❷ A determination that storm water controls are not necessary based on either:
 - (A) A “total maximum daily load” (TMDL) that address the pollutant(s) of concern for construction activities; **OR**
 - (B) An equivalent analysis that determines allocations are not needed to protect water quality based on consideration of instream concentrations, expected growth in pollutant concentrations from all sources, and a margin of safety.

Pollutants of concern include sediment or a parameter that addresses sediment (such as total suspended solids, turbidity, or siltation) and any other pollutant that has been identified as a cause of

The intent of the waiver provision is to waive only those sites that are highly unlikely to have a negative effect on water quality. Therefore, before applying for a waiver, operators of small construction activity are encouraged to consider the potential water quality impacts that may result from their project and to carefully examine such factors as proximity to water resources and sensitivity of receiving waters.

a. What is the Rainfall Erosivity Factor in Waiver ❶?

Waiver ❶ uses the Rainfall Erosivity Factor to determine whether the potential for polluted discharge is low enough to justify a waiver from the requirements. It is one of six variables used by the Revised Universal Soil Loss Equation (RUSLE)—a predictive tool originally used to measure soil loss from agricultural lands at various times of the year on a regional basis—to predict soil loss from construction sites. The Rainfall Erosivity Factor waiver is time-sensitive and is dependent on when during the year a construction activity takes place, how long it lasts, and the expected rainfall and intensity during that time. For information about the rainfall erosivity waiver, see Fact Sheet 3.1. Charts detailing the value of the Rainfall Erosivity Factor by particular regions can be found in Chapter 2 of the RUSLE user's guide, which can be downloaded at: <http://www.epa.gov/owm/sw/phase2>.

b. What is a “TMDL” in Waiver ❷?

For impaired waters where technology-based controls required by NPDES permits are not achieving State water quality standards, the CWA requires implementation of the TMDL process. The TMDL process establishes the maximum amount of pollutants a waterbody can assimilate before water quality is impaired, then requires that this maximum level not be exceeded.

A TMDL is done for each pollutant that is found to be contributing to the impairment of a waterbody or a segment of a waterbody. To allow a waiver for construction activities, a TMDL would need to address sediment, or a parameter that addresses sediment such as total suspended solids, turbidity, or siltation. Additional TMDLs addressing common pollutants from construction sites such as nitrogen, phosphorus, and oil and grease also may be necessary to ensure water quality protection and allow a waiver from the NPDES storm water program.

A TMDL assessment determines the source or sources of a pollutant of concern, considers the maximum allowable level of that pollutant for the waterbody, then allocates to each source or category of sources a set level of the pollutant that it is allowed to discharge into the waterbody. Allocations to point sources are called wasteload allocations.

How Would an Operator Qualify for, and Certify to, Waiver ❷?

EPA expects that when TMDLs, or equivalent analyses are completed, there may be a determination that certain classes of sources, such as small construction activity, would not have to control their contribution of pollutants of concern to the waterbody in order for the waterbody to be in attainment with water quality standards (i.e., these sources were not assigned wasteload allocations). In such a case, to qualify for waiver ❷, the operator of the construction site would need to certify that its construction activity will take place, and the storm water discharges will occur, within the area covered either by the TMDLs or equivalent analysis. A certification form would likely be provided by the NPDES permitting authority for this purpose.

What Does the Phase II Construction Program Require?

The Phase II Final Rule requires operators of Phase II small construction sites, nationally, to obtain an NPDES permit and implement practices to minimize pollutant runoff. It is important to note that, locally, these same sites also may be covered by State, Tribal, or local construction runoff control programs (see Fact Sheets 2.6 and 2.7 for information on the Phase II small MS4's construction program). For the Phase II small construction program, EPA has taken an approach similar to Phase I where the program requirements are not fully defined in the rule but rather in the NPDES permit issued by the NPDES permitting authority.

EPA recommends that the NPDES permitting authorities use their existing Phase I large construction general permits as a guide to developing their Phase II small construction permits. In doing so, the Phase II requirements would be similar to the three general Phase I requirements summarized below.

- ❑ Submission of a **Notice of Intent** (NOI) that includes general information and a certification that the activity will not impact endangered or threatened species. This certification is unique to EPA's NOI and is not a requirement of most NPDES-delegated State's NOIs;
- ❑ The development and implementation of a **Storm Water Pollution Prevention Plan** (SWPPP) with appropriate BMPs to minimize the discharge of pollutants from the site; and

- ☐ Submission of a *Notice of Termination* (NOT) when final stabilization of the site has been achieved as defined in the permit or when another operator has assumed control of the site.

Can the Permitting Authority Reference a Qualifying Erosion and Sediment Control Program in NPDES Construction Permits?

Yes. The Phase II Rule allows the NPDES permitting authority to include in its NPDES permits for large and for small construction activity conditions that incorporate by reference qualifying State, Tribal, or local erosion and sediment control program requirements. A qualifying program must include the following requirements:

- ☐ Requirements for construction site operators to implement appropriate erosion and sediment control best management practices;
- ☐ Requirements for construction site operators to control waste such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste that may cause adverse impacts to water quality;
- ☐ Requirements for construction site operators to develop and implement a storm water pollution prevention plan; and
- ☐ Requirements to submit a site plan for review that incorporates consideration of potential water quality impacts.

In addition to the four elements above, a qualifying program for large construction activities must also include any additional requirements necessary to achieve the applicable technology-based standards of “Best Available Technology” (BAT) and “Best Conventional Technology” (BCT) based on the best professional judgment of the permit writer.

Should a State, Tribal, or local program include one or more, but not all, of the elements listed above, the permitting authority can reference the program in the permit, provided it also lists the missing element(s) as a condition in the permit.

What are Some Recommended BMPs for Small Construction Sites?

The approach and BMPs used for controlling pollutants in storm water discharges from small construction sites may vary from those used for large sites since their characteristics can differ in many ways. For example, operators of small sites may have more limited access to qualified design personnel and technical information. Also, small sites may have less space for installing and maintaining certain BMPs.

As is the case with all construction sites, erosion and sediment control at small construction sites is best accomplished with proper planning, installation, and maintenance of controls. The following practices have shown to be efficient, cost effective, and versatile for small construction site operators to implement. The practices are divided into two categories: non-structural and structural.

☐ Non-Structural BMPs

- Minimizing Disturbance
- Preserving Natural Vegetation
- Good Housekeeping

☐ Structural BMPs

Erosion Controls

- Mulch
- Grass
- Stockpile Covers

Sediment Controls

- Silt Fence
- Inlet Protection
- Check Dams
- Stabilized Construction Entrances
- Sediment Traps

Most erosion and sediment controls require regular maintenance to operate correctly. Accumulated sediments should be removed frequently and materials should be checked periodically for wear. Regular inspections by qualified personnel, which can allow problem areas to be addressed, should be performed after major rain events.

For Additional Information

Contact

- ☞ U.S. EPA Office of Wastewater Management
 - Internet: www.epa.gov/npdes/stormwater
 - Phone: (202)-564-9545

- ☞ Your local soil conservation district office. They can provide assistance with RUSLE and other conservation related issues.
 - A list of conservation district contacts is available at: www.nacdnet.org/resources/cdsonweb.html

Reference Documents

- ☞ Storm Water Phase II Final Rule Fact Sheet Series
 - Internet: cfpub.epa.gov/npdes/stormwater/swfinal.cfm

- ☞ Storm Water Phase II Final Rule (64 FR 68722)
 - Internet: www.epa.gov/npdes/regulations/phase2.pdf

- ☞ *Agricultural Handbook Number 703, Predicting Soil Erosion by Water: A Guide to Conservation Planning With the Revised Universal Soil Loss Equation (RUSLE)*, Chapter 2, pp. 21-64, January 1997.
 - Internet: www.epa.gov/npdes/pubs/ruslech2.pdf

- ☞ *Guidance for Water Quality Based Decisions: The TMDL Process*. April 1991. U.S. EPA Office of Water. EPA 440/4-91-001.
 - Internet: www.epa.gov/OWOW/tmdl

- ☞ *NPDES General Permit for Storm Water Discharges from Construction Activities* (63 FR 7857).
 - Internet: www.epa.gov/npdes/pubs/cgp-nat.pdf
www.epa.gov/npdes/pubs/cgp-nat2.pdf
www.epa.gov/npdes/pubs/cgp-nat3.pdf
www.epa.gov/npdes/pubs/cgp-nat4.pdf

Appendix 3
Illinois Tollway – Sample Erosion Control Plans

EROSION AND SEDIMENT CONTROL SUPPLEMENTAL GENERAL NOTES

1. FOR EROSION AND SEDIMENT CONTROL GENERAL NOTES SEE STANDARD K1 DRAWINGS.
2. SHOULD IT BE NECESSARY TO REMOVE ANY EROSION OR SEDIMENT CONTROLS FOR CONSTRUCTION REASONS, THE CONTRACTOR SHALL FIRST OBTAIN PERMISSION AND SHALL REPAIR OR REPLACE THE REMOVED CONTROLS THE SAME DAY. THE COST OF REMOVING AND RE-INSTALLING THE DEVISE SHALL BE INCLUDED IN THE CONTRACT.
3. THE CONTRACTOR SHALL REFER TO SECTION 280.02 OF THE ILLINOIS TOLLWAY SUPPLEMENTAL SPECIFICATIONS FOR PENALTIES FOR NON-CONFORMANCE.
4. EROSION AND SEDIMENT CONTROL ITEMS ARE CONSIDERED TO BE HIGH PRIORITY ITEMS ON THIS CONTRACT. THE ENGINEER WILL IMPLEMENT ALL PROVISIONS OF THE SPECIFICATION NECESSARY TO ENSURE THAT SOIL EROSION AND SEDIMENT CONTROL ITEMS ARE CONSTRUCTION AND MAINTAINED TO CONTROL OFF-SITE SEDIMENT DISCHARGES.
5. TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE INSTALLED, EFFECTIVE, AND MAINTAINED THROUGHOUT ALL PHASES OF CONSTRUCTION, INCLUDING SHUTDOWN PERIODS.
6. THE CONTRACTOR SHALL CONFINE CONSTRUCTION ACTIVITIES WITHIN THE CONSTRUCTION LIMITS AS SHOWN ON THE PLANS. AREAS OUTSIDE THE SHOWN CONSTRUCTION LIMITS DISTURBED BY THE CONTRACTOR SHALL BE RESTORED AND STABILIZED AS DIRECTED BY THE ENGINEER AT THE CONTRACTOR'S EXPENSE.
7. TEMPORARY EROSION AND SEDIMENT CONTROL DEVICES SHALL BE CONSTRUCTED AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER. ANY DEVIATION FROM THE TEMPORARY EROSION CONTROL PLAN OR SCHEDULE SHALL BE AT THE DISCRETION OF THE ENGINEER.
8. IN CASE OF CONFLICT BETWEEN THE EROSION CONTROL TABLES, EROSION CONTROL PLAN AND OVERVIEW DRAWINGS, CONTRACTOR SHALL NOTIFY THE ENGINEER AND RECEIVE CLARIFICATIONS BEFORE PROCEEDING WITH THE WORK.
9. STORMWATER RUNOFF LEAVING THE PROJECT SITE MUST PASS THROUGH AN EROSION AND SEDIMENT CONTROL SYSTEM AS SHOWN ON THE PLANS OR AS AMENDED AND APPROVED BY THE ENGINEER.
10. ALL WATER REMOVED FROM EXCAVATED AREAS SHALL BE PASSED THROUGH AN APPROVED DEWATERING PRACTICE OR PUMPED TO A SEDIMENT TRAP OR BASIN PRIOR TO DISCHARGE TO A FUNCTIONAL STORM DRAIN SYSTEM OR TO STABLE GROUND SURFACE.
11. SOIL DISTURBANCE SHALL BE CONSTRUCTED IN SUCH A MANNER AS TO MINIMIZE EROSION. SOIL STABILIZATION MEASURES SHALL CONSIDER THE TIME OF YEAR, SITE CONDITIONS, AND THE USE OF TEMPORARY AND/OR PERMANENT MEASURES. TO THE MAXIMUM EXTENT POSSIBLE, EROSION SHALL BE MINIMIZED AT ITS SOURCE.
12. STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED TO REDUCE OR ELIMINATE THE TRACKING OF SEDIMENT ON PUBLIC RIGHT-OF-WAY OR STREETS. STABILIZED CONSTRUCTION ENTRANCES SHALL ONLY BE CONSTRUCTED AT LOCATIONS APPROVED BY THE ENGINEER.
13. TEMPORARY STABILIZATION WITH STRAW MULCH SHALL BE PROVIDED AT DISTURBED AREAS THAT CANNOT BE STABILIZED WITH PERMANENT VEGETATIVE MEASURES UNTIL A LATER DATE. THE ENGINEER MAY REQUIRE THAT CRITICAL LOCATIONS BE SEEDED IMMEDIATELY AND THE CONTRACTOR SHALL SEED THESE AREAS WITHIN 48 HOURS OF SUCH DIRECTIVE TO ESTABLISH TEMPORARY COVER.

14. ALL FLOWS ORIGINATING OFF THE CONSTRUCTION SITE SHALL BE DIVERTED AROUND DISTURBED AREAS OR SHALL BE CONVEYED THROUGH THE SITE IN A MANNER THAT THAT UN-TREATED ON-SITE RUNOFF SHALL BE MINIMIZED AND DOES NOT MIX WITH OFF-SITE RUNOFF ENTERING THE PROJECT.
15. THE CONTRACTOR SHALL SUBMIT AS PART OF THEIR SIGNED CONTRACTOR CERTIFICATION STATEMENT THE ITEMS SPECIFIED IN S.P. 111.2, STORM WATER POLLUTION PREVENTION PLAN.
16. THE EROSION AND SEDIMENT CONTROLS SHOWN IN THE PLANS REPRESENT THE MINIMUM REQUIREMENTS. ADDITIONAL MEASURES MAY BE REQUIRED BY THE ENGINEER OR REPRESENTATIVES OF REGULATORY OR PERMITTING AGENCIES. ANY EMERGENCY CONTROL MEASURES REQUESTED BY A REGULATORY OR PERMITTING AGENCY MUST BE INSTALLED IMMEDIATELY.
17. INITIAL TEMPORARY EROSION AND SEDIMENT CONTROLS SHALL BE INSTALLED PRIOR TO BEGINNING ANY ACTIVITIES WHICH WILL CREATE ERODIBLE CONDITIONS.
18. THE PERMANENT VEGETATION PLAN SHALL BE USED ON ALL DISTURBED AREAS WHENEVER POSSIBLE. A QUANTITY FOR TEMPORARY STABILIZATION WITH STRAW MULCH HAS ALSO BEEN PROVIDED FOR ALL ANTICIPATED DISTURBED AREAS.
19. TEMPORARY SOIL STOCKPILES SHALL NOT BE LOCATED CLOSER THAN 25 FEET TO A PAVED ROADWAY OR WITHIN 100 FEET OF A DRAINAGE CHANNEL. STOCKPILES SHALL NOT BE LOCATED IN THE FLOODPLAIN, OVERFLOW ROUTES, OR AREAS SUBJECT TO INUNDATION. SILT FENCE SHALL BE PLACED AROUND THE PERIMETER OF THE EARTH STOCKPILES. TEMPORARY STABILIZATION WITH STRAW MULCH SHALL BE PROVIDED FOR ALL TEMPORARY STOCKPILES WITHIN 7 DAYS OF FORMATION OF THE STOCKPILE IF IT IS TO REMAIN INACTIVE FOR LONGER THAN 14 DAYS.
20. STOCKPILE LOCATIONS SHALL BE APPROVED BY THE ENGINEER PRIOR TO TOPSOIL REMOVAL OR OTHER GRADING OPERATIONS BEING PERFORMED.
21. TEMPORARY STABILIZED CONSTRUCTION ENTRANCES, GRAVELED ROADS, ACCESS DRIVES, AND PARKING AREAS OF SUFFICIENT WIDTH AND LENGTH SHALL BE PROVIDED TO PREVENT THE DEPOSIT OF SOIL FROM BEING TRACKED ONTO PUBLIC OR PRIVATE ROADWAYS. ANY SOIL REACHING A PUBLIC OR PRIVATE ROADWAY SHALL BE REMOVED BEFORE THE END OF THE WORKDAY OR SOONER IF DIRECTED BY THE ENGINEER.
22. SAME DAY STABILIZATION IS TO BE IMPLEMENTED AS OUTLINED IN THE ILLINOIS TOLLWAY SUPPLEMENTAL SPECIFICATION ARTICLES 280.15(C). SAME DAY STABILIZATION SHALL BE USED TO MINIMIZE EROSION AND THE MOVEMENT OF SOILS AT THOSE AREAS SHOWN ON THE PLANS OR DIRECTED BY THE ENGINEER IN EROSION PRONE AREAS, OR AREAS WITHIN 100 FEET OF SURFACE WATERS, WETLANDS, OR OTHER ENVIRONMENTALLY SENSITIVE AREAS.
23. A NOMINAL QUANTITY FOR ITEM JS280051 RE-ERECT SILT FENCE HAS BEEN PROVIDED. RE-ERECTION OF SILT FENCE SHALL BE AS APPROVED AND DIRECTED BY THE ENGINEER.
24. REMOVING AND RE-INSTALLING INLET PROTECTION DEVICES TO ACCOMMODATE DRAINAGE STRUCTURE ADJUSTMENT IS INCLUDED IN THE COST OF THE INLET PROTECTION DEVICE.
25. THE INSTALLATION, MAINTENANCE, REMOVAL, AND RESTORATION OF THE AREA DISTURBED BY THE PLACEMENT OF SILT FENCE IS INCLUDED IN THE CONTRACTOR UNIT PRICE FOR SILT FENCE. AFTER THE REMOVAL OF SILT FENCE, THE AREAS DISTURBED BY THE FENCE INSTALLATION SHALL BE RESTORED.

26. TEMPORARY SEDIMENT BASIN(S) AND TEMPORARY SEDIMENT TRAP(S) HAVE BEEN SIZED USING 1800 CUBIC FEET/ACRE STORAGE AND MAY NEED MORE FREQUENT CLEANING THAN TRAPS SIZED TO THE STANDARD 3600 CUBIC FEET/ACRE CRITERIA.
27. THE CONTRACTOR SHALL PREPARE AND PROVIDE SKETCHES SHOWING DIMENSIONS FROM TWO ADJACENT OBJECTS TO ALL DRAINAGE STRUCTURES THAT HAVE BEEN PROTECTED. THIS IS TO ALLOW THE STRUCTURES TO BE LOCATED IN THE EVENT OF HEAVY RAINFALL AND THE STRUCTURE BECOMES BLOCKED OR FLOODED.
28. A NOMINAL QUANTITY HAS BEEN PROVIDED FOR PLACING AND MAINTAINING TEMPORARY STABILIZED CONSTRUCTION ENTRANCES SUBJECT TO APPROVAL BY THE ENGINEER.
29. THIS PROJECT REQUIRES PERMITS FROM THE UNITED STATE ARMY CORPS OF ENGINEERS (USACE 404 PERMIT) AND THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY (IEPA 401 WATER QUALITY CERTIFICATION THROUGH THE USACE REGIONAL PERMIT). THE PERMIT APPLICATION WILL BE SUBMITTED TO THE USACE AND IEPA BY THE ILLINOIS TOLLWAY. THE CONTRACTOR SHALL NOT DISTURB OR OTHERWISE IMPACT JURISDICTIONAL WETLANDS OR WATERWAYS UNTIL BOTH OF THESE PERMITS ARE RECEIVED AND PROVIDED TO THE CONTRACTOR. NO REMOVALS, TEMPORARY OR PERMANENT CONSTRUCTION ACTIVITIES, OR OTHER WORK THAT WOULD IMPACT THESE RESOURCES IS ALLOWED UNTIL THESE PERMITS ARE APPROVED BY THE USACE AND IEPA.
30. ON PROJECTS WHICH INCLUDE IN-STREAM WORK, NO WORK IS ALLOWED BEYOND THE PERMITTED AREA.
31. ALL CONTROLS NECESSARY TO MEET THE REQUIREMENTS OF THE COUNTY STORMWATER AND FLOODPLAIN ORDINANCE OR THE WAIVER COMMUNITY ORDINANCE SHALL BE KEPT OPERATIONAL AND MAINTAINED THROUGHOUT THE PERIOD OF LAND DISTURBANCE UNTIL PERMANENT SEDIMENT AND EROSION CONTROL MEASURES ARE OPERATIONAL.
32. FOR THE DURATION OF THE PROJECT, THE CONTRACTOR SHALL PROTECT ALL ON-SITE, ADJACENT AND/OR DOWNSTREAM SEWERS, DITCHES, AND WATERCOURSES FROM CONTAMINATION BY WATERBORNE SILTS, SEDIMENTS, FUELS, SOLVENTS, LUBRICANTS, OR OTHER POLLUTANTS ORIGINATING FROM ANY WORK DONE ON OR IN SUPPORT OF THE PROJECT.
33. THE CONTRACTOR SHALL BE REQUIRED TO TREAT TRAVELED AND OTHER PROJECT AREAS TO CONTROL DUST. WATER SHALL BE APPLIED TO SUCH AREAS AS DIRECTED BY THE ENGINEER, CALCIUM CHLORIDE SHALL NOT BE USED FOR THIS PURPOSE. DUST SHALL BE CONTROLLED THROUGH A UNIFORM APPLICATION OF SPRAYED WATER IN A MANNER MEETING ENGINEER APPROVAL AND IN ACCORDANCE WITH THE CONTRACTORS*32S DUST CONTROL PLAN SUBMITTED IN ACCORDANCE WITH ARTICLE 107.36 OF THE TOLLWAY SUPPLEMENTAL SPECIFICATIONS. THE NUMBER OF APPLICATIONS AND THE AMOUNT OF WATER SHALL BE BASED ON FIELD AND WEATHER CONDITIONS.
34. ALL TEMPORARY EROSION AND SEDIMENT CONTROLS SHALL BE REMOVED ONCE CONSTRUCTION IS COMPLETE AND DISTURBED AREAS ARE PERMANENTLY STABILIZED.

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IN-STREAM AND STREAMSIDE NOTES

1. NO WORK IN FLOWING WATER
- NO WORK SHALL BE PERFORMED IN FLOWING WATER. WORK IN AND NEAR CRITICAL AREAS SHALL BE ISOLATED FROM CONCENTRATED FLOWS OR STREAM FLOW. ONCE WORK IN THE AREA BEGINS, PRIORITY SHALL BE GIVEN TO COMPLETION OF THE WORK AND FINAL STABILIZATION OF ALL DISTURBED AREAS.
2. ISOLATED WORK AREA
- ALL DISTURBED AREAS AND WORK AREAS MUST BE ISOLATED FROM WATERWAY FLOWS AT ALL TIMES. THE DIVERSION/ISOLATION OF FLOW MUST BE CONSTRUCTED FROM NON-ERODIBLE MATERIALS. THE USACE MUST BE IN AGREEMENT WITH THE OVERALL METHODS OF DIVERSION/ISOLATION PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.
3. WORK IN WATERWAYS
- A. DURING WORK ON THE BANKS OF THE SWALE/RIVER/STREAM/WETLAND, WORK MUST BE TIMED TO TAKE PLACE DURING LOW OR NO FLOW CONDITIONS.
- B. CONCENTRATED FLOW MUST BE ISOLATED FROM THE WORK AREA USING A NON-ERODIBLE COFFERDAM, STEEL SHEETS, AQUA BARRIERS, JERSEY BARRIERS, ETC. THE EXACT MEANS AND METHODS SHALL BE DISCUSSED DURING A SCHEDULED PRE-CONSTRUCTION IN-STREAM WORK MEETING. EARTHEN COFFERDAMS ARE NOT PERMISSIBLE.
- C. COFFERDAMS MUST BE CONSTRUCTED FROM SHORE AND NO EQUIPMENT MAY ENTER FLOWING WATER ANY TIME. IF THE INSTALLATION OF THE COFFERDAM CANNOT BE COMPLETED FROM SHORE, CONSTRUCTION OF A CAUSEWAY WILL BE NECESSARY TO ENSURE THAT EQUIPMENT DOES NOT ENTER FLOWING WATER. EQUIPMENT MAY ENTER THE COFFERED AREA ONCE THE COFFERDAM IS IN PLACE AND THE ISOLATED AREA IS DEWATERED.
- D. IF BYPASS PUMPING IS NECESSARY, THE INLET OF THE PUMP SHALL BE PLACED IN A SUMP PIT AND THE OUTLET PLACED ON A NON-ERODIBLE ENERGY DISSIPATING SURFACE PRIOR TO REJOINING THE WATERWAY FLOW OR WETLAND. FILTERING OF BY-PASS WATER IS NOT REQUIRED UNLESS THE BYPASS WATER HAS BECOME SEDIMENT-LADEN AS A RESULT OF CONSTRUCTION ACTIVITIES.
- E. IF DEWATERING THE CONSTRUCTION AREA IS NECESSARY, ALL WATER REMOVED FROM THE WORK AREA SHALL BE FILTERED USING FILTER BAGS OR AN ALTERNATE APPROVED MEASURE. WATER MUST HAVE SEDIMENT REMOVED BEFORE BEING ALLOWED TO RETURN TO THE SOURCE CREEK/STREAM/RIVER/WETLAND. DISCHARGE FROM DEWATERING SHALL BE TO A STABLE SURFACE THAT EXTENDS TO THE POINT WHERE WATER RE-ENTERS THE WATERWAY. DISCHARGED WATER SHALL BE NO MORE TURBID THAN THE RECEIVING WATER. DISCHARGE SHALL BE IMMEDIATELY STOPPED IF RECEIVING WATERS SHOW EVIDENCE OF CLOUDY WATER, EROSION, OR SEDIMENT ACCUMULATION.
- F. THE SIDE SLOPES MUST BE RE-SEEDDED AND STABILIZED WITH APPROPRIATE EROSION CONTROL BLANKET PRIOR TO ACCEPTING FLOWS. THE BOTTOM OF THE SWALE MUST BE BROUGHT BACK TO ITS ORIGINAL GRADE AND STABLE ENOUGH TO ACCEPT FLOWS.
- G. AN IN-STREAM WORK PLAN MUST BE SUBMITTED AND APPROVED BY THE ENGINEER PRIOR TO THE START OF ANY WORK NEAR WETLANDS OR WATERS OF THE U.S. ADDITIONALLY, A PRE-ACTIVITY MEETING SHALL BE HELD WITH THE ENGINEER AND TOLLWAY ENVIRONMENTAL UNIT TO DISCUSS THE CONTRACTOR'S MEANS AND METHODS.

WETLAND AND WATERS OF THE U.S. NOTES

1. WETLAND AREAS OUTSIDE OF THE WORK ZONE ARE TO BE AVOIDED. IF THE CONTRACTOR SHOULD ENCROACH UPON ANY WETLAND AREA THAT IS NOT WITHIN THE CONSTRUCTION LIMITS AND/OR PERMITTED FOR IMPACT THROUGH THE USACE, THE CONTRACTOR IS SUBJECT TO FINES. CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY OF ANY WETLAND IMPACTS OUTSIDE OF THE WORK ZONE. IMPACTED AREAS SHALL BE REPAIRED IMMEDIATELY BY THE CONTACTOR IN COORDINATION WITH AND TO THE SATISFACTION OF THE USACE.
2. ALL WETLANDS, WATERS OF THE U.S. AND OPEN WATER DETENTION FACILITIES ARE SUBJECT TO THE REVIEW AND APPROVAL BY RESOURCE AND REGULATORY AGENCIES. THOSE AGENCIES INCLUDE BUT ARE NOT LIMITED TO THE USACE, THE ILLINOIS DEPARTMENT OF NATURAL RESOURCES, THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY, AND THE COUNTY SOIL AND WATER CONSERVATION DISTRICTS.

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THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY

2700 OGDEN AVENUE

DOWNERS GROVE, ILLINOIS 60515

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EROSION AND SEDIMENT CONTROL
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INSPECTION AND MAINTENANCE NOTES

1.

THE CONTRACTOR SHALL ASSIGN AN ESCM TO THE PROJECT. THIS PERSON IS REQUIRED TO HAVE TAKEN AN APPROVED SEDIMENT AND EROSION CONTROL TRAINING COURSE. THE ESCM WILL BE RESPONSIBLE FOR SUPERVISING THE MAINTENANCE OF EROSION & SEDIMENT CONTROL MEASURES AND IMPLEMENTATION OF THIS PLAN.
2.

A MAINTENANCE INSPECTION REPORT SHALL BE PREPARED AFTER EACH INSPECTION AND RETAINED FOR REVIEW BY THE IEPA OR OTHER REGULATORY AGENCIES. SEE NPDES GENERAL PERMIT ILRIO ISSUED BY THE IEPA.
3.

INSPECTION SHALL BE CONDUCTED AT LEAST ONCE EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS OF THE END OF A STORM THAT IS 0.5 INCHES OR GREATER OR THE EQUIVALENT SNOWFALL. INSPECTIONS MAY BE REDUCED TO ONCE PER MONTH WHEN CONSTRUCTION ACTIVITIES HAVE CEASED DUE TO FROZEN CONDITIONS. WEEKLY INSPECTIONS SHALL RECOMMENCE WHEN CONSTRUCTION ACTIVITIES ARE RESUMED.
4.

ALL CONTROLS SHALL BE MAINTAINED IN GOOD WORKING ORDER BY THE GENERAL CONTRACTOR OR SUBCONTRACTOR. IF REPAIR IS WARRANTED IT SHALL BE INITIATED WITHIN 24 HOURS.
5.

NEW CONTROL MEASURES NEEDED OR CONTROLS NEEDING MODIFICATION AS A RESULT OF AN INSPECTION SHALL BE IMPLEMENTED AS SOON AS PRACTICAL BUT NO LATER THAN 7 DAYS FOLLOWING THE INSPECTION.
6.

REQUESTS FOR REPAIRS TO EXISTING CONTROLS OR NEW CONTROL MEASURES REQUESTED BY A REGULATORY AGENCY SHALL BE INITIATED WITHIN 24 HOURS.
7.

PROTECTION OF EXISTING VEGETATION: REPLACED DAMAGED VEGETATION WITH SIMILAR SPECIES AS DIRECTED BY THE ENGINEER. RESTORE AREAS DISTURBED, DISRUPTED OR DAMAGED BY THE CONTRACTOR TO PRE-CONSTRUCTION CONDITIONS OR BETTER AT NO ADDITIONAL EXPENSE TO THE CONTRACT. TRIM ANY CUTS, SKINS, SCRAPES OR BRUISES TO THE BARK OF THE VEGETATION AND UTILIZE LOCAL NURSERY ACCEPTED PROCEDURES TO SEAL DAMAGED BARK. PRUNE ALL TREE BRANCHES BROKEN, SEVERED OR DAMAGED DURING CONSTRUCTION. CUT ALL LIMBS AND BRANCHES, ONE-HALF INCH OR GREATER IN DIAMETER, AT THE BASE OF THE DAMAGE, FLUSH WITH THE ADJACENT LIMB OR TREE TRUNK. SMOOTHLY CUT, PERPENDICULAR TO THE ROOT, ALL CUT, BROKEN, OR SEVERED, DURING CONSTRUCTION, ROOTS 1-INCH OR GREATER IN DIAMETER. COVER ROOTS EXPOSED DURING EXCAVATION WITH MOIST EARTH AND/OR BACKFILL IMMEDIATELY TO PREVENT ROOTS FROM DRYING.
8.

INLET PROTECTION: REMOVE SEDIMENT FROM INLET FILTER BASKETS WHEN BASKET IS 25% FULL OR 50% OF THE FABRIC PORES ARE COVERED WITH SILT. CLEAN FILTER IF STANDING WATER IS PRESENT LONGER THAN ONE HOUR AFTER A RAIN EVENT. CLEAN SEDIMENT OR REPLACE SILT FENCE WHEN SEDIMENT ACCUMULATES TO ONE-THIRD THE HEIGHT OF THE FABRIC. REMOVE TRASH ACCUMULATED AROUND OR ON TOP OF PRACTICE. WHEN FILTER IS REMOVED FOR CLEANING, REPLACE FABRIC IF ANY TEAR IS PRESENT.
9.

OUTLET PROTECTION/TEMPORARY RIPRAP: RESTORE DISLODGED PROTECTION AND CORRECT EROSION THAT MAY OCCUR. REMEDY DEFICIENT AREAS PRONE TO INCREASED EROSION IMMEDIATELY TO PREVENT GREATER DEFICIENCIES.
10.

TEMPORARY DITCH CHECKS: REMOVE SEDIMENT FROM UPSTREAM SIDE OF DITCH CHECKS WHEN SEDIMENT HAS REACHED 50% OF HEIGHT OF STRUCTURE. REPAIR OR REPLACE DITCH CHECKS WHENEVER TEARS, SPLITS, UNRAVELING OR COMPRESSED EXCELSIOR IS APPARENT. REPLACE TORN FABRIC MAT THAT MAY ALLOW WATER TO UNDERMINE DITCH CHECK. REMOVE DEBRIS (GARBAGE, CROP RESIDUE, ETC.) WHEN OBSERVED. REESTABLISH THE FLOW OVER THE CENTER OF THE DITCH CHECK. WATER OR SEDIMENT GOING AROUND THE DITCH CHECK INDICATES INCORRECT INSTALLATION. DEVICE NEEDS LENGTHENING OR THE SELECTED DEVICE IS INAPPROPRIATE FOR THE SITE CONDITIONS. REMOVE DITCH CHECKS ONCE ALL UPSLOPE AREAS ARE STABILIZED AND SEED OR OTHERWISE STABILIZE TEMPORARY DITCH CHECK AREAS.
11.

TEMPORARY ROCK CHECK DAMS: REMOVE SEDIMENT FROM UPSTREAM SIDE OF THE CHECK DAM WHEN SEDIMENT HAS REACHED 50% OF HEIGHT OF CHECK DAM. REPLACE THE AGGREGATE AND FABRIC WHEN SEDIMENT HAS FILLED ALL VOIDS IN THE STONE, SO THAT SEDIMENT IS FILTERED AND DISCHARGED. REPAIR OR REPLACE FABRIC WHENEVER TEARS, SPLITS OR UNRAVELING ARE APPARENT, REPEATED FAILURES NECESSITATE A DESIGN REVIEW. RESTORE OUTSIDE SLOPES TO 1V:2H. STONE PLACED FOR RESTORATION IS THE SAME SIZE AS ORIGINALLY SPECIFIED TO ALLOW PROPER INTERLOCK. RESTORE THE CENTER OF THE ROCK CHECK DAM PERIODICALLY TO ENSURE IT IS LOWER THAN THE SIDES. RETRENCH THE FABRIC IF UNDERCUTTING OCCURS. REDUCE CENTER FLOW LINE OR LENGTHEN CHECK DAM IF WATER FLOWS AROUND DEVICE.
12.

TEMPORARY EROSION CONTROL SEEDING: REAPPLY SEED IF STABILIZATION HASN'T BEEN ACHIEVED. APPLY TEMPORARY MULCH TO HOLD SEED IN PLACE IF SEED HAS BEEN WASHED AWAY OR FOUND TO BE CONCENTRATED IN DITCH BOTTOMS. RESTORE RILLS AS QUICKLY AS POSSIBLE ON SLOPES STEEPER THAN 1V:4H TO PREVENT SHEET-FLOW FROM BECOMING CONCENTRATED FLOW PATTERNS. MOW, IF NECESSARY, TO PROMOTE SEED SOIL CONTACT WHEN EXCESSIVE WEED DEVELOPMENT OCCURS (A COMMON INDICATION OF INEFFECTIVE TEMPORARY SEEDING). SUPPLEMENT SEED IF WEATHER CONDITIONS (EXTREME HEAT OR COLD) ARE NOT CONDUCIVE TO GERMINATION.
13.

ROCK OUTLET TEMPORARY SEDIMENT TRAP: CLEAN TRAP OF SILT WHEN TRAP BECOMES 50% FULL. REGRADE TO DRAIN.
14.

SILT FENCE: REPAIR TEARS, GAPS OR UNDERMINING. RESTORE LEANING SILT FENCE AND ENSURE TAUT. REPAIR OR REPLACE ANY MISSING OR BROKEN STAKES IMMEDIATELY. CLEAN FENCE LINE IF SEDIMENT REACHES ONE-THIRD HEIGHT OF BARRIER. REMOVE FENCE ONCE FINAL STABILIZATION IS ESTABLISHED. REPAIR FENCE IF UNDERMINING OCCURS ANYWHERE ALONG ITS ENTIRE LENGTH.
15.

TEMPORARY STABILIZED CONSTRUCTION ENTRANCES: REPLENISH STONE OR REPLACE EXIT IF VEHICLES CONTINUE TO TRACK SEDIMENT ONTO THE ROADWAY FROM THE CONSTRUCTION SITE. SWEEP SEDIMENT ON ROADWAY FROM CONSTRUCTION ACTIVITIES IMMEDIATELY. ENSURE CULVERTS ARE FREE FROM DAMAGE.
16.

LOCATIONS WHERE VEHICLES ENTER AND LEAVE SITE: INSPECT FOR EVIDENCE OF OFF-SITE SEDIMENT TRACKING. REMOVE SEDIMENT AS REQUIRED.
17.

MULCH: REPAIR STRAW IF BLOWN OR WASHED AWAY, OR IF HYDRAULIC MULCH WASHES AWAY. PLACE TACKIFIER OR AN EROSION CONTROL BLANKET IF MULCH DOES NOT CONTROL EROSION.
18.

SOD: LIMIT FOOT TRAFFIC TO LOW USE FOR THE FIRST TWO TO THREE WEEKS. ENSURE IRRIGATION RATE DOES NOT RESULT IN RUNOFF. INSTALL SALT-TOLERANT SOD WHERE NEEDED. REPLACE WHEN >25% OF ANY INDIVIDUAL PIECE OF SOD IS NO LONGER VIABLE. RESTORE AREAS WHERE ROLLING EDGES ARE PRESENT OR SOD IS DISPLACED.
19.

STOCKPILE MANAGEMENT: REPAIR AND/OR REPLACE PERIMETER CONTROLS AND STABILIZATION MEASURES WHEN STOCKPILE MATERIAL HAS POTENTIAL TO BE DISCHARGED OR LEAVE THE LIMITS OF THE PROTECTION. REMOVE ALL OFF-TRACKED MATERIAL BY SWEEPING OR OTHER METHODS. UPDATE THE SWPPP ANY TIME A STOCKPILE LOCATION HAS BEEN REMOVED, RELOCATED, ADDED OR REQUIRED MAINTENANCE. DURING SUMMER MONTHS, STOCKPILES SHOULD BE WATERED TO MAINTAIN THE COVER CROP.
20.

EROSION CONTROL BLANKET: REPAIR DAMAGE DUE TO WATER RUNNING BENEATH THE BLANKET AND RESTORE BLANKET WHEN DISPLACEMENT OCCURS. RESEEDING MAY BE NECESSARY. REPLACE ALL DISPLACED BLANKET AND RESTAPLE.
21.

FLOTATION BOOM: INSPECT THE FLOTATION DEVICE, THE FABRIC, LOAD LINE, ANCHORS, AND BUOYS, AS WELL AS THE LOCATION AND FUNCTIONALITY. ADDITIONALLY, THE BOTTOM OF THE SILT CURTAIN SHALL BE INSPECTED FOR FOLDS AND ACCUMULATED SILT, WHICH MAY PULL THE SILT CURTAIN UNDER THE WATER. REPAIRS OR REPLACEMENT OF THE FLOATATION BOOM SHALL OCCUR IMMEDIATELY FOLLOWING DISCOVERY. FOLLOW MANUFACTURER'S RECOMMENDATIONS FOR FABRIC AND MATERIAL REPAIR. ACCUMULATED SEDIMENT SHALL BE REMOVED PER MANUFACTURER'S DIRECTION.
22.

TEMPORARY SLOPE DRAINS: FILL ERODED AREA AT INLET WITH WELL-COMPACTED SOIL. STABILIZE OUTFALL TO ELIMINATE SCOUR. REPAIR LEAKS ALONG LENGTH OF PIPE AND RE-COMPACT SOIL TO STABILIZE PIPE. RECONNECT PIPE AT JOINTS WHEN SEPARATION OCCURS. RESTORE OR INCREASE ANCHORS ALONG LENGTH OF PIPE TO ENSURE PIPE STABILITY. IF SLOPE DRAIN WASHES OUT IT MAY BE NECESSARY TO USE AGGREGATE-LINED CHANNELS OR ADDITIONAL DRAINS.
23.

DEWATERING: ENSURE PROPER OPERATION AND COMPLIANCE WITH PERMITS OR WATER QUALITY STANDARDS. REMOVE ACCUMULATED SEDIMENT FROM THE FLOW AREA. DISPOSE OF SEDIMENT IN ACCORDANCE WITH ALL APPLICABLE LAWS AND REGULATIONS. REMOVE AND REPLACE DEWATERING BAGS WHEN HALF FULL OF SEDIMENT OR WHEN DISCHARGE RATE IS IMPRACTICAL. IMMEDIATELY STOP DISCHARGE IF RECEIVING AREAS SHOW SIGHS OF CLOUDY WATER, EROSION, OR SEDIMENT ACCUMULATION.
24.

TEMPORARY CONCRETE WASHOUT: DO NOT DISCHARGE WASTEWATER INTO THE ENVIRONMENT (NOTE: ACIDITY, NOT PARTICULATES, IS ENVIRONMENTALLY DETRIMENTAL). FACILITATE EVAPORATION OF LOW VOLUME WASHOUT WATER. CLEAN AND REMOVE ANY DISCHARGES WITHIN 24 HOURS OF DISCOVERY. IF EFFLUENT CANNOT BE REMOVED PRIOR TO ANTICIPATED RAINFALL EVENT, PLACE AND SECURE A NON-COLLAPSING, NON-WATER COLLECTING COVER OVER THE WASHOUT FACILITY TO PREVENT ACCUMULATION AND PRECIPITATION OVERFLOW. REPLACE DAMAGED LINER IMMEDIATELY. REMOVE WASHOUT WHEN NO LONGER NEEDED AND RESTORE DISTURBED AREAS TO ORIGINAL CONDITION. PROPERLY DISPOSE OF SOLIDIFIED CONCRETE WASTE.
25.

MATERIAL DELIVERY & STORAGE: DOCUMENT THE VARIOUS TYPES OF MATERIALS DELIVERED AND THEIR STORAGE LOCATIONS IN THE SWPPP. UPDATE THE SWPPP ANY TIME SIGNIFICANT CHANGES OCCUR TO MATERIAL STORAGE OR HANDLING LOCATIONS AND WHEN THEY HAVE BEEN REMOVED. CLEANUP SPILLS IMMEDIATELY. REMOVE EMPTY CONTAINERS.
26.

SOLID WASTE MANAGEMENT: DESIGNATE A WASTE COLLECTION AREA(S) AND IDENTIFY THEM IN THE SWPPP. INSPECT INLETS, OUTFALLS AND DRAINAGEWAYS FOR LITTER, DEBRIS, CONTAINERS, ETC. OBSERVE THE CONSTRUCTION SITE FOR IMPROPER WASTE DISPOSAL. UPDATE THE SWPPP ANY TIME THE TRASH MANAGEMENT PLAN SIGNIFICANTLY CHANGES. CORRECT ITEMS DISCARDED OUTSIDE OF DESIGNATED AREAS
27.

VEHICLE AND EQUIPMENT FUELING, CLEANING AND MAINTENANCE: CLEANUP SPILLS IMMEDIATELY. CONTRACTOR MUST PROVIDE DOCUMENTATION THAT SPILLS WERE CLEANED, MATERIALS DISPOSED OF, AND IMPACTS MITIGATED. UPDATE THE SWPPP WHEN DESIGNATED LOCATION HAS BEEN REMOVED, RELOCATED, ADDED OR REQUIRES MAINTENANCE. IN THE EVENT OF A SPILL INTO A STORM DRAIN, WATERWAY OR ONTO A PAVED SURFACE, THE OWNER OF THE FUEL MUST IMMEDIATELY TAKE ACTION TO CONTAIN THE SPILL. ONCE CONTAINED, CLEAN UP THE SPILL. AS AN INITIAL STEP THIS MAY INVOLVE COLLECTING ANY BULK MATERIAL AND PLACING IT IN A SECURE CONTAINER FOR LATER DISPOSAL. FOLLOW-UP CLEANING WILL ALSO BE REQUIRED TO REMOVE RESIDUES FROM PAVED OR OTHER HARD SURFACES.

USER NAME = User1
PLOT DATE = 3/13/2018
PLOT SCALE = 100.0000' / 1" FILE NAME =

DRAWN BY

XXX

DATE

X/XX/XX

CHECKED BY

XXX

DATE

X/XX/XX



THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY

2700 OGDEN AVENUE

DOWNERS GROVE, ILLINOIS 60515

REVISIONS		
NO.	DATE	DESCRIPTION

CONTRACT NO. XXXXX

EROSION AND SEDIMENT CONTROL
INSPECTION AND MAINTENANCE NOTES





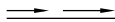
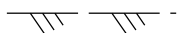
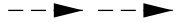


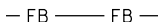

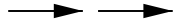



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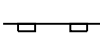
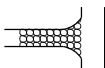




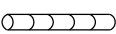







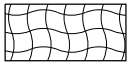
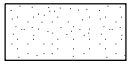
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	CLEARING & GRADING LIMITS (LIMITS OF CONSTRUCTION)
	CULVERT INLET PROTECTION-FENCE
 CIP	CULVERT INLET PROTECTION-STONE
 DB	DEWATERING BASINS
	DIVERSION DIKE
	DRAINAGE DIVIDE
	EXISTING DRAINAGE PATH
 FIPC	FILTER FABRIC INLET PROTECTION, COVER TYPE
 FIPB	FILTER FABRIC INLET PROTECTION, BASKET TYPE
 - FB - FB -	FLOTATION BOOM
 IC	INITIAL CONSTRUCTION ITEM
	PROPOSED DRAINAGE PATH
 RIP	RECTANGULAR INLET PROTECTION
	SEDIMENT BASIN AGGREGATE BERM
	SEDIMENT BASIN




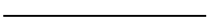


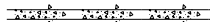
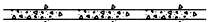
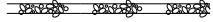
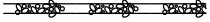


























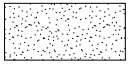
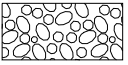

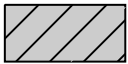


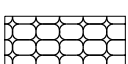
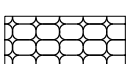


	SILT FENCE
	STABILIZED CONSTRUCTION ENTRANCE
	STONE OUTLET STRUCTURE SEDIMENT TRAP
	STREAM DIVERSION
 - SSF -	SUPER SILT FENCE
	TEMPORARY DITCH CHECK
	TEMPORARY PIPE SLOPE DRAIN
	TEMPORARY RIPRAP
	TEMPORARY ROCK CHECK DAM
	TEMPORARY STREAM CROSSING
 - TS -	TEMPORARY SWALE
 TP	TREE PROTECTION
	SHEET FLOW
	OUTLET
	EROSION CONTROL BLANKET
	TEMPORARY STABILIZATION WITH STRAW MULCH / SAME-DAY STABILIZATION

DRAINAGE ITEMS

CHANNEL OR STREAM LINE
CULVERT LINE
GRADING & SHAPING DITCHES
PAVED DITCH
AGGREGATE DITCH
PIPE UNDERDRAIN
STORM SEWER
FLOWLINE
DITCH CHECK
HEADWALL
INLET
MANHOLE
SUMMIT
ROADWAY DITCH FLOW
SWALE
CATCH BASIN
CULVERT END SECTION
WATER SURFACE INDICATOR
RIPRAP
EXISTING WETLAND/WOUS
TEMPORARY WETLAND/WOUS IMPACT
PERMANENT WETLAND/WOUS IMPACT
ARTICULATED CONCRETE BLOCK REVTMENT SYSTEM

EXISTING

PROPOSED

DRAWN BY... XXX DATE... X/XX/XX
CHECKED BY... XXX DATE... X/XX/XX



THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
2700 OGDEN AVENUE
DOWNERS GROVE, ILLINOIS 60515

REVISIONS		
NO.	DATE	DESCRIPTION

CONTRACT NO. XXXXX
EROSION AND SEDIMENT CONTROL
LEGEND

SHEET NO.
EC-X
DRAWING NO.
XX OF XXX

EROSION AND SEDIMENT CONTROL CONSTRUCTION SEQUENCE

PRESTAGE

I-290
INSTALL DITCH CHECKS AS SHOWN ON PLAN. CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE #4 WITH TEMPORARY CULVERT AND CULVERT INLET PROTECTION FENCE ALONG THE EAST SHOULDER OF WESTBOUND I-290 AT APPROXIMATELY STATION 332+00. CONSTRUCT STONE OUTLET STRUCTURE SEDIMENT TRAP #1 IN EXISTING WB I-290 DITCH AT STA. 328+70. INSTALL TEMPORARY STABILIZATION WITH STRAW MULCH ON DISTURBED AREAS.

RAMP 1
INSTALL DITCH CHECKS AS SHOWN ON PLAN. CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE #6 WITH TEMPORARY CULVERT AND CULVERT INLET PROTECTION FENCE ALONG THE EAST SHOULDER AS TEMPORARY PAVEMENT IS INSTALLED. INSTALL TEMPORARY STABILIZATION WITH STRAW MULCH ON DISTURBED AREAS.

EXISTING RAMP H
CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE #1 WITH TEMPORARY CULVERT AND CULVERT INLET PROTECTION FENCE ALONG RAMP H AT APPROXIMATELY STA. 120+00. CONSTRUCT CULVERT INLET PROTECTION #1 (STONE) AND ERECT SILT FENCE PRIOR TO GRADING AND CONSTRUCTION OF TEMPORARY RAMP H. USE SAME-DAY STABILIZATION ON EAST EMBANKMENT OF TEMPORARY RAMP H. INSTALL TEMPORARY STABILIZATION WITH STRAW MULCH.

INSTALL RECTANGULAR INLET PROTECTION AND DITCH CHECKS TO THE SOUTHWEST OF RAMP H. CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE #3.

THORNDALE AVENUE/RAMP G
INSTALL CULVERT INLET PROTECTION FENCE, ERECT SILT FENCE, AND INSTALL DITCH CHECKS. CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE #2 ALONG RAMP G AT APPROXIMATELY STA. 17+00. INSTALL TEMPORARY STABILIZATION WITH STRAW MULCH WHEN GRADING FOR TEMPORARY PAVEMENT IS COMPLETED.

STAGE 1

I-290
BEFORE REMOVING EXISTING NOISE WALL, INSTALL SILT FENCE ON BOTH SIDES FROM STA. 328+00 TO STA. 350+50. MAINTAIN BOTH SILT FENCES UNTIL CONSTRUCTION OF PROPOSED NOISE WALL IN THIS AREA IS COMPLETED.

INSTALL DITCH CHECKS AND CONSTRUCT SILT FENCE ALONG RIGHT OF WAY. INSTALL TEMPORARY STABILIZATION WITH STRAW MULCH AS SHOWN ON PLANS AS GRADING IS COMPLETED. INSTALL RECTANGULAR INLET PROTECTION AT EACH PROPOSED INLET, IN NON-PAVED AREAS, AS THEY ARE COMPLETED.

RAMP G5
AS PROPOSED DRAINAGE DITCH IS CONSTRUCTED BETWEEN STA. 509+00 AND STA. 519+00, INSTALL CULVERT INLET PROTECTION FENCES AT THE UPSTREAM END OF EACH CULVERT. INSTALL FILTER FABRIC INLET PROTECTION (FIP) AT EACH PROPOSED INLET, IN PAVED AREAS, AS THEY ARE COMPLETED. INSTALL RECTANGULAR INLET PROTECTION AT EACH PROPOSED INLET, IN NON-PAVED AREAS, AS THEY ARE COMPLETED.

USE SAME-DAY STABILIZATION ON EMBANKMENT AT STA. 619+00. INSTALL TEMPORARY STABILIZATION WITH STRAW MULCH AS DITCH GRADING IS COMPLETED.

RAMP K4/RAMP K3
CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE #5 WITH TEMPORARY CULVERT AND CULVERT INLET PROTECTION FENCE ALONG THE SOUTH SHOULDER OF THORNDALE AVENUE AT APPROXIMATELY STA. 120+75. PRIOR TO CLEARING AND GRUBBING FOR EMBANKMENT CONSTRUCTION OF RAMP K4 AND RAMP K3. CONSTRUCT SEDIMENT BASIN DEWATERING DEVICE #1 AT STA. 332+00. AS GRADING IS COMPLETED, INSTALL DITCH CHECKS, ECB & TS, AND TEMPORARY STABILIZATION WITH STRAW MULCH AS SHOWN IN PLANS.

INSTALL FIP AT EACH EXISTING INLET ALONG PARK BOULEVARD, AS SHOWN ON PLANS.

AS DRAINAGE SYSTEM IS CONSTRUCTED, INSTALL CULVERT INLET PROTECTION FENCES AT THE UPSTREAM END OF EACH CULVERT. INSTALL FIP AT EACH PROPOSED INLET, WITHIN PROPOSED ROADWAY, AS THEY ARE COMPLETED. INSTALL RECTANGULAR INLET PROTECTION AT EACH PROPOSED INLET, IN NON-PAVED AREAS, AS THEY ARE COMPLETED.

STAGE 1 (CONTINUED)

CONSTRUCTION OF PIERS NOS. 3, 4, 5, 7, AND 8
PRIOR TO CONSTRUCTION, CONSTRUCT CULVERT INLET PROTECTION #2 AND INSTALL ALL DITCH CHECKS AND SILT FENCE AS SHOWN ON PLANS.

USE TEMPORARY STABILIZATION WITH STRAW MULCH ON GROUND DISTURBED BY CONSTRUCTION.

TEMPORARY PAVEMENT FOR DETOURS
CONSTRUCT TEMPORARY PAVEMENT WITH TEMPORARY CULVERT AND CULVERT INLET PROTECITON FENCE AS SHOWN ON PLANS AT STA. 108+30 AND STA. 91+60.

STAGE 2

I-290
MAINTAIN EROSION CONTROL MEASURES PLACED PREVIOUSLY FOR AS LONG AS WORK ZONE REMAINS ACTIVE. INSTALL FIP ALONG CENTER MEDIAN BETWEEN STA. 362+50 AND STA. 380+50 AT EACH EXISTING INLET AND AT EACH PROPOSED INLET AS THEY ARE COMPLETED.

TEMPORARY CONNECTION RAMP J
INSTALL DITCH CHECKS AS SHOWN ON PLAN. INSTALL TEMPORARY STABILIZATION WITH STRAW MULCH AS GRADING IS COMPLETED. CONSTRUCT TEMPORARY PAVEMENT WITH TEMPORARY CULVERT AND CULVERT INLET PROTECTION FENCE.

CONSTRUCTION AROUND PIERS NOS. 3, 4, 5, 7, AND 8
MAINTAIN CULVERT INLET PROTECTION AND SILT FENCES. USE TEMPORARY STABILIZATION WITH STRAW MULCH ON GROUND DISTURBED BY CONSTRUCTION AND REPLACE DITCH CHECKS, AT THE DISCRETION OF THE ENGINEER.

STAGE 2B

I-290
MAINTAIN FIP'S ALONG I-290 MEDIAN UNDER RAMP G5 FLYOVER AS SHOWN ON PLANS.

BEFORE OVERHEAD SIGN TRUSS AND DYNAMIC MESSAGING SIGN FOUNDATION CONSTRUCTION ALONG I-290 THE CONTRACTOR MUST INSTALL FIP'S, DITCH CHECKS, AND SILT FENCE AS SHOWN ON EROSION CONTROL DETAIL SHEET EC-21.

RAMP G5 SOUTH EMBANKMENT
PRIOR TO CONSTRUCTION AND GRADING, CONSTRUCT CULVERT INLET PROTECTION #3 (STONE) AND INSTALL ALL DITCH CHECKS AND SILT FENCE AS SHOWN ON PLANS.

RAMP G5 SOUTH APPROACH EMBANKMENT SHALL BE CONSTRUCTED PER TOLLWAY STANDARD K1-07. TEMPORARY PIPE SLOPE DRAINS SHALL BE INSTALLED PER STANDARD. INSTALL TEMPORARY STABILIZATION WITH STRAW MULCH AS GRADING IS COMPLETED PER STANDARD.

USE TEMPORARY STABILIZATION WITH STRAW MULCH ON GROUND DISTURBED BY CONSTRUCTION, AT THE DISRECTION OF THE ENGINEER.

PARK BOULEVARD
WETLAND SITE 150 IS A PROTECTED WETLAND AND SHALL BE DISTURBED LESS THAN 0.01 ACRES BY POND GRADING AND PARK BOULEVARD CONSTRUCTION ACTIVITIES. INSTALL SUPER SILT FENCE ALONG EXISTING RIGHT OF WAY AND ALONG THE PERIMETER OF WETLAND SITE 150 AS SHOWN ON PLANS. INSTALL FLOTATION BOOM IN WETLAND SITE 149 AT THE LIMITS OF GRADING AND INSTALL CULVERT INLET PROTECTION AT THE INLET AT STA. 104+45.4 O/S +230.6' PRIOR TO CONSTRUCTION AND GRADING ACTIVITIES.

MAINTAIN FIP'S AT EXISTING INLETS TO REMAIN ALONG PARK BOULEVARD THAT WERE INSTALLED IN STAGE 1. INSTALL FIP AT EACH PROPOSED INLET AS THEY ARE COMPLETED. INSTALL TEMPORARY STABILIZATION WITH STRAW MULCH AND DITCH CHECKS AS GRADING IS COMPLETED.

CONSTRUCTION AROUND PIERS NOS. 3, 4, 5, 7, AND 8
MAINTAIN CULVERT INLET PROTECTION AND SILT FENCES. USE TEMPORARY STABILIZATION WITH STRAW MULCH ON GROUND DISTURBED BY CONSTRUCTION AND REPLACE DITCH CHECKS, AT THE DISRETION OF THE ENGINEER.

RAMP G5 NORTH EMBANKMENT
CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE #7 ALONG THE WEST SHOULDER OF RAMP G1. PRIOR TO CONSTRUCTION, CONSTRUCT SEDIMENT BASIN DEWATERING DEVICE #2 AND INSTALL ALL DITCH CHECKS AS SHOWN ON PLANS. INSTALL ALL SILT FENCE EXCEPT AT TOE OF SLOPE. INSTALL CULVERT INLET PROTECTION FENCE ON BOTH ENDS OF THE EXISTING CULVERT NEAR CONSTRUCTION ENTRANCE #7.

RAMP G5 NORTH EMBANKMENT SHALL BE CONSTRUCTED PER TOLLWAY STANDARD K1-07. TEMPORARY PIPE SLOPE DRAIN SHALL BE INSTALLED PER STANDARD. INSTALL TEMPORARY STABILIZATION WITH STRAW MULCH AS GRADING IS COMPLETED PER STANDARD.


USE TEMPORARY STABILIZATION WITH STRAW MULCHON GROUND DISTURBED BY CONSTRUCTION, AT THE DISCRETION OF THE ENGINEER. SILT FENCE AT TOES OF SLOPE SHALL BE INSTALLED WHEN EMBANKMENT REACHES 10' IN HEIGHT.

PERMANENT STABILIZATION / REMOVAL OF EROSION AND SEDIMENT CONTROL ITEMS

EROSION AND SEDIMENT CONTROL MEASURES SHALL REMAIN IN PLACE WHILE CONSTRUCTION HAS TEMPORARILY OR PERMANENTLY ENDED UNTIL FINAL EROSION STABILIZATION IS COMPLETED. FOR AREAS DISTURBED BY SEDIMENT CONTROL REMOVALS, INSTALL PERMANENT SEEDING AND EROSION CONTROL BLANKET ON DISTURBED AREAS.

USER NAME = User1
PLOT DATE = 3/13/2018
PLOT SCALE = 100.0000' / 1" FILE NAME =

DRAWN BY	XXX	DATE	X/XX/XX
CHECKED BY	XXX	DATE	X/XX/XX



THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY

2 7 0 0 O G D E N A V E N U E

D O W N E R S G R O V E , I L L I N O I S 6 0 5 1 5

REVISIONS		
NO.	DATE	DESCRIPTION

CONTRACT NO. XXXXX
EROSION AND SEDIMENT CONTROL CONSTRUCTION SEQUENCE

<i>SHEET NO.</i> EC-X
<i>DRAWING NO.</i> XXX OF XXX

USER NAME = User1
PLOT DATE = 3/15/2018
PLOT SCALE = 100.0000' / 1" FILE NAME =

MISCELLANEOUS EROSION AND SEDIMENT CONTROL ITEMS												
	25100630	JS280050	JS280051	JS280100	JS280150	JS280151	JS280180	JS280210	JS280230	JS280500	JT280510	JT280530
	EROSION CONTROL BLANKET	SILT FENCE	RE-ERECT SILT FENCE	SUPER SILT FENCE	TEMPORARY STABILIZATION WITH STRAW MULCH	SAME-DAY STABILIZATION	RECTANGULAR INLET PROTECTION	FILTER FABRIC INLET PROTECTION, BASKET TYPE	TEMPORARY DITCH CHECKS	SEDIMENT FILTER BAG	FLOC LOG	IN-LINE FLOCCULATION SYSTEM
SHEET	SQ YD	FOOT	FOOT	FOOT	ACRE	SQ YD	EACH	EACH	FOOT	EACH	EACH	EACH
EC-04	1250	1000	200	200	0.25	2000	1	8	160	1		
EC-05	1250	1250	250	125	0.25	2000	2	9	160		3	
EC-06	1250	900	180		0.25	2000	2	7	160		3	
EC-07	1500	658	132		0.25	2000	1	7	120	1		
EC-08	1500	1236	247	365	0.25	2000	1	10	120			1
EC-09	1500	1575	315	79	0.25	2000	4	11	200		3	
EC-10	1350	194	39	589	0.25	2000	4	9	200		3	
EC-11	1350	1364	273		0.25	2000	5	9	100	1		
EC-12	1350	129	26		0.25	2000	6	8	80	1		
EC-13	1500	654	131	123	0.25	2000	1	6	220		3	
FOR USE AT ENGINEER'S DISCRETION (10%)	1380	896	179	148	0.25	2000			152			
TOTAL	15180	9856	1971	1629	2.75	22000	27	84	1672	4	15	1
RECORD QUANTITY												

STABILIZED CONSTRUCTION ENTRANCE SCHEDULE					
NO.	STATION	OFFSET	LENGTH	WIDTH	QUANTITY
			FEET	FEET	SQ YD
1	1005+25	102	75	24	227
2	1006+75	98	75	24	227
3	1008+15	112	100	20	245
4	1010+35	101	125	24	361
5	1012+85	85	75	16	165
6	1014+94	79	115	20	292
TOTAL					1517
RECORD QUANTITY					

DRAWN BY...XXX... DATE...X/XX/XX...
CHECKED BY...XXX... DATE...X/XX/XX...



THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY

2700 OGDEN AVENUE

DOWNERS GROVE, ILLINOIS 60515

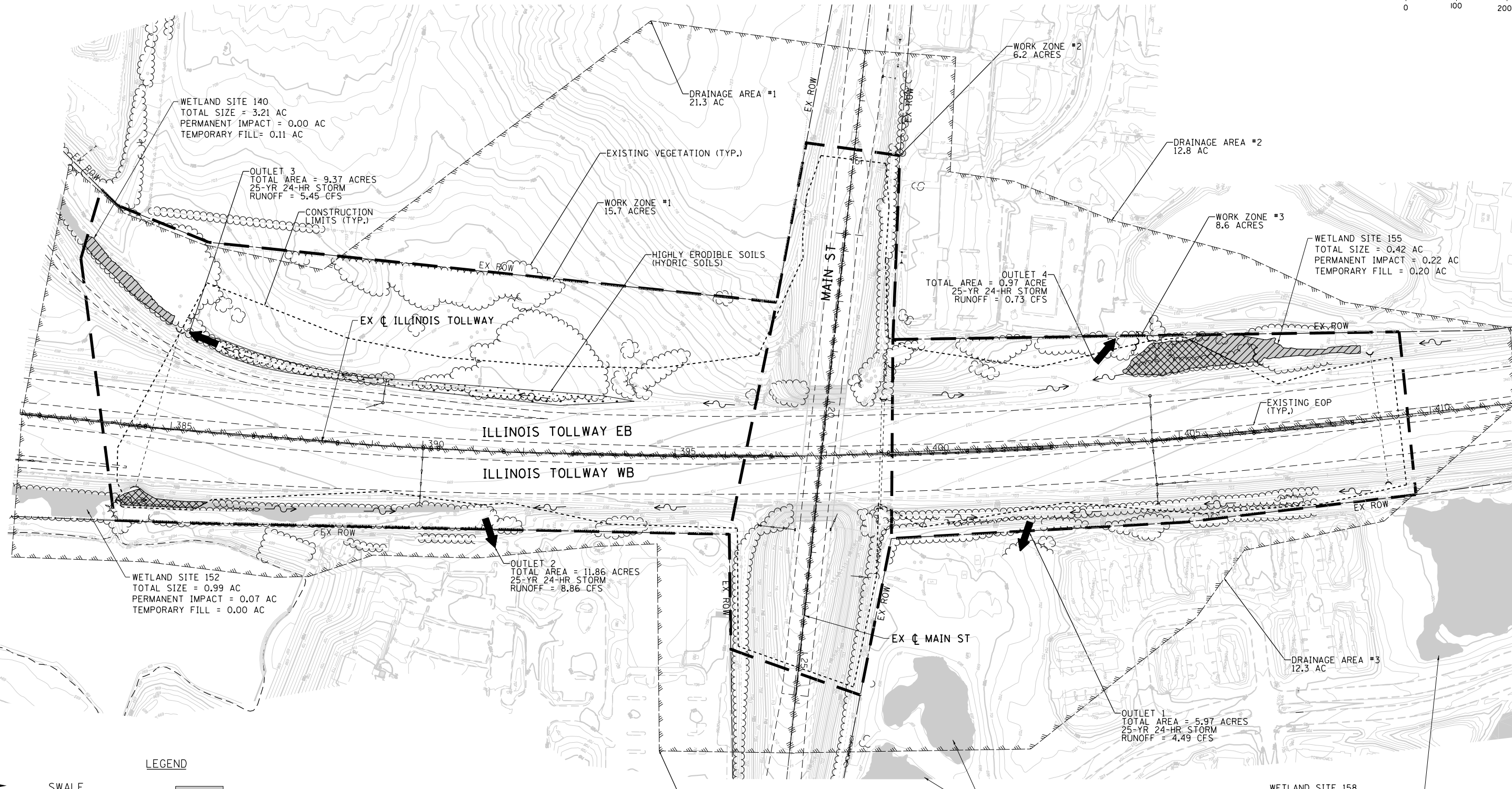
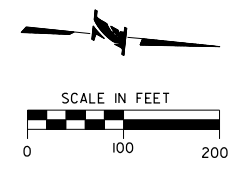
REVISIONS		
NO.	DATE	DESCRIPTION

CONTRACT NO. XXXXX

EROSION AND SEDIMENT CONTROL SCHEDULE

SHEET NO.
EC-X

DRAWING NO.
XX OF XXX



SWALE

SHEET FLOW

OUTLET

DITCH FLOW

DRAINAGE DIVIDE

EXISTING WETLAND / WOUS

TEMPORARY WETLAND / WOUS IMPACT

PERMANENT WETLAND / WOUS IMPACT

HIGHLY ERODIBLE SOIL
(HYDRIC SOIL)

USER NAME = User1
PLOT DATE = 3/15/2018
PLOT SCALE = 200.0000' / 1" FILE NAME =

DRAWN BY.....XXX	DATE X/XX/XX
CHECKED BY.....XXX	DATE X/XX/XX

THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY

2700 OGDEN AVENUE

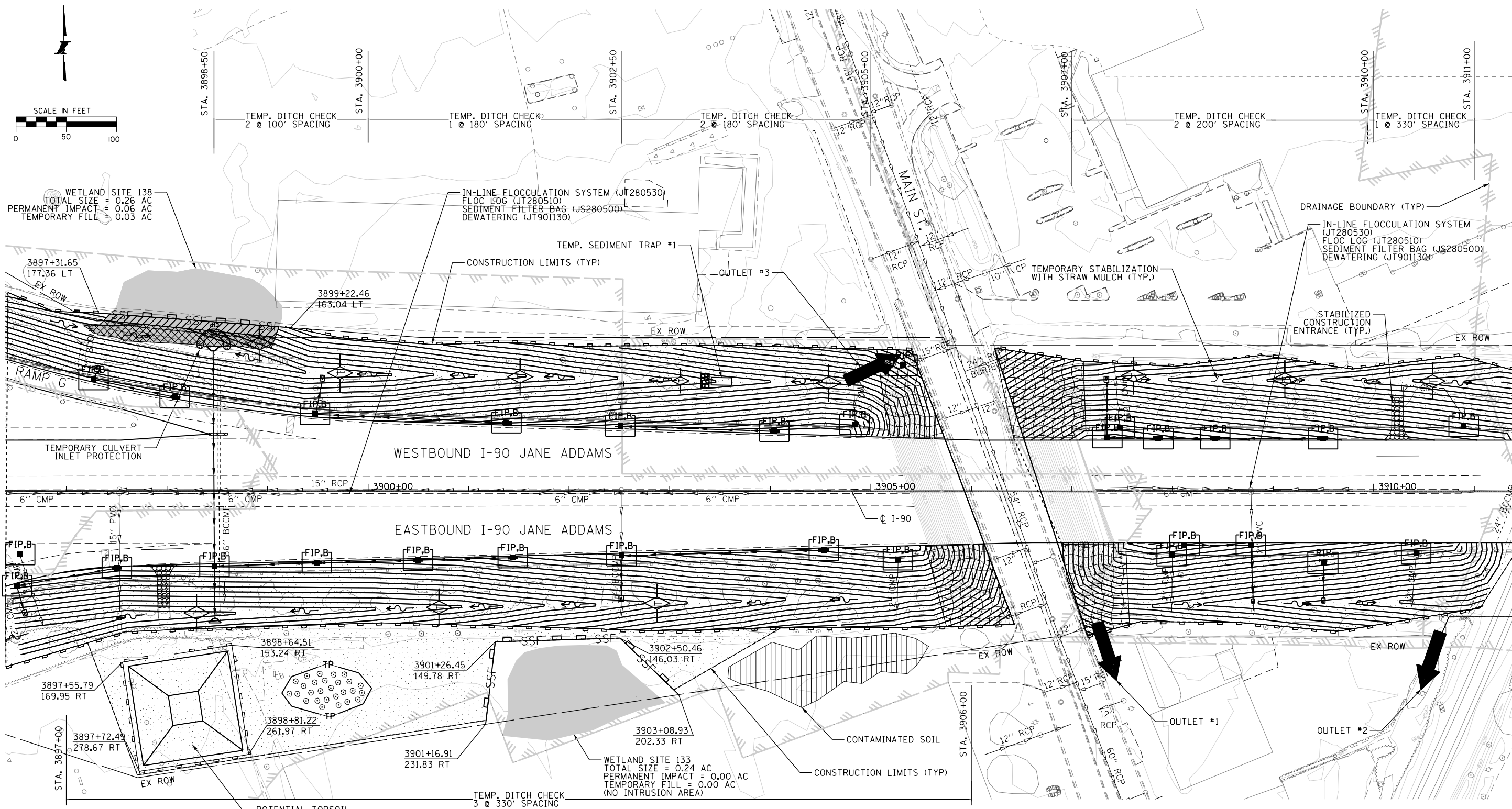
DOWNERS GROVE, ILLINOIS 60515

REVISIONS		
NO.	DATE	DESCRIPTION

CONTRACT NO. XXXXX
EROSION AND SEDIMENT CONTROL OVERVIEW

SHEET NO. EC-X
DRAWING NO. XX OF XXX

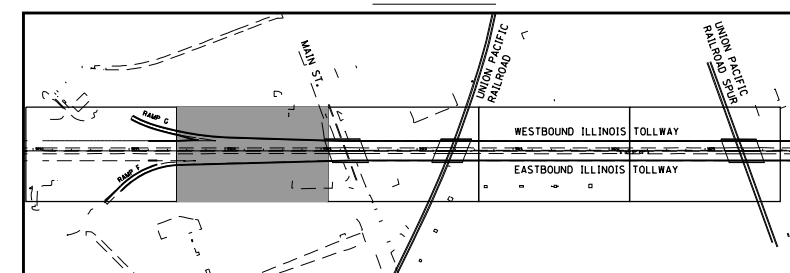
USER NAME = User-1
PLOT DATE = 3/15/2018
PLOT SCALE = 100.0000' / 1" FILE NAME =



LEGEND:

	STONE OUTLET STRUCTURE SEDIMENT TRAP (JS280030),(JS280040),(JS280140)		INITIAL CONSTRUCTION ITEM
	FILTER FABRIC INLET PROTECTION, BASKET TYPE (JS280210)		TREE PROTECTION (JS280120)
	RECTANGULAR INLET PROTECTION (JS280180)		WETLAND/WOUS TEMPORARY FILL
	TEMPORARY EROSION CONTROL BLANKET (25100630), TEMPORARY EROSION CONTROL SEEDING (28001100)		WETLAND/WOUS PERMANENT IMPACT
	CULVERT INLET PROTECTION STONE (JS280140)		
	TEMPORARY DITCH CHECKS (JS280305)		
	SILT FENCE (JS280050)		
	TEMPORARY STABILIZATION WITH STRAW MULCH (JS280150)		
	PROPOSED DITCH FLOW		
	EXISTING DITCH FLOW		
	STABILIZED CONSTRUCTION ENTRANCE (JS280070)		
	SUPER SILT FENCE (JS280100)		

KEY MAP



DRAWN BY... XXX... DATE... X/XX/XX
CHECKED BY... XXX... DATE... X/XX/XX



THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
2700 OGDEN AVENUE
DOWNERS GROVE, ILLINOIS 60515

REVISIONS		
NO.	DATE	DESCRIPTION

CONTRACT NO. XXXXX
EROSION AND SEDIMENT CONTROL
PLAN

SHEET NO.
EC-X
DRAWING NO.
XX OF XXX

Appendix 4

Illinois Tollway – Erosion and Sediment Control Plan Technical Review Checklist



Project: _____

Contract Number: _____

DSE: _____

Date: _____

Tollway Reviewer _____

Date: _____

Items are to be checked off by the DSE and the form shall be submitted to the Tollway for review.

DSE to indicate:

√ = Provided or Completed

NA = Not Applicable

Tollway reviewer to indicate:

C = Complies

D = Deficient or Incomplete

NA = Not Applicable

A. Design Concept Submittal

General

1. _____ Define the project boundaries, identify adjacent land uses, and existing and proposed topography.
2. _____ Determine the erosion potential of existing soils, including classifications, slopes, permeability, shrink-swell potential, texture, erodibility factor, water table depth, and depth to bedrock, and identify critical areas such as hydric soils, soils which are highly susceptible to wind or water erosion, steep slopes, areas of existing erosion, and seepage zones.
3. _____ Determine if a TMDL allocation, listing as a 303(d)-impaired water, or Watershed Management Plan is approved for any water body in which stormwater from the project will discharge.
4. _____ Define the existing drainage network; including storm sewers; culverts; ditches; swales; constructed bioswales, channels; wetlands, streams; and rivers that enter, cross, or may be impacted by the construction of the Project. Identify locations where off-site drainage will enter the project area and locations where stormwater discharge will leave the project.
5. _____ Identify all receiving waters including MS4's, wetlands, creeks, and rivers. Determine whether any receiving water is listed by the IDNR as a Biologically Significant Stream.
6. _____ Based on a 25-year, 24-hour storm event, determine the amount of runoff from the project area and tributary watershed areas.
7. _____ Identify all locations where existing ditches, swales, channels, streams, or rivers will need to be diverted to facilitate construction.

8. ___ Identify the locations of any native or mature vegetation, specimen or high-quality trees, bioswales, or other ecologically significant vegetation. Define areas where protection of existing vegetation will be required.
9. ___ Identify the type and location of any special management areas, such as floodplains, floodways, wetlands, creeks, rivers, protected habitat, nature preserves, etc.
10. ___ Define any additional right-of-way or construction easements necessary to accommodate the implementation of the erosion and sediment control measures.
11. ___ Identify areas of known environmental contamination which, when disturbed, could potentially impact stormwater quality.
12. ___ Estimate the total area of earth disturbing work activities.

Narrative

13. ___ Evaluate the project for the need to obtain an U.S. Army Corps of Engineers Section 404 permit. Determine if ESCP review by other agencies will be required as a result of the need for an Illinois Department of Natural Resources Floodway/Floodplain Management permit or an Illinois Environmental Protection Agency Individual Section 401 permit.
14. ___ Evaluate the project for NPDES Permit No. ILR10 – Storm Water Discharges from Construction Site Activities.
15. ___ Evaluate the project for County Stormwater Management Agency requirements and/or the need for coordination with the County Soil and Water Conservation District.
16. ___ Begin necessary coordination related to National Historic Preservation Act and Endangered Species Act compliance. Per requirements of NPDES Permit No. ILR10 – Storm Water Discharges From Construction Activities, information related to this coordination must be provided as part of the Notice of Intent (NOI). The DSE will develop draft documents suitable for submission to the Illinois Historic Preservation Agency and U.S. Fish and Wildlife Service, as necessary. Draft documents will be provided to the Tollway Environmental Unit for their submission to these agencies.
17. ___ Provide a narrative summarizing the project site evaluation, strategy for runoff control, rationalization for choice of BMPs, regulatory and resource agency coordination, and the overall erosion and sediment control concept. The narrative shall include a thorough explanation of the conclusions reached from the project site evaluation and governmental and regulatory coordination. All environmental permit requirements and further or pending regulatory agency coordination shall be described.

Overview Drawing(s) at 1" = 50' or larger

18. ___ existing and conceptual proposed drainage patterns, storm conveyance systems, and areas of earth disturbance

19. _____ project centerline, stationing and ramp baseline, as applicable
20. _____ existing and proposed roadway geometry
21. _____ ROW limits and areas of planned ROW acquisition
22. _____ existing contours and elevations (half tone)
23. _____ existing tree masses, shrub masses, constructed bioswales, and areas with trees 6-inch DBH and greater
24. _____ existing fence lines and walls
25. _____ drainage areas and associated acreages tributary to the project and within the project limits
26. _____ existing drainage network and structures, including storm sewers, culverts, headwalls, swales, ditches, channels, creeks, streams, rivers, and outlets
27. _____ floodplain and floodway limits
28. _____ type and location of any special management areas such as floodplains, floodways, wetlands, creeks, rivers, protected habitat, nature preserves, etc. and which portions, if any, may be impacted

Other

29. _____ Submit the Environmental Studies Inventory Sheet, Part I and supporting documents using the Tollway's WBPM system.
30. _____ Provide a rough cost estimate for erosion and sediment control, including any additional right-of-way costs for implementing the ESCP.
31. _____ Prepare and submit the Erosion and Sediment Control Technical Review Checklist, Section A.
32. _____ Any additional information required by the Tollway Project Manager

B. Preliminary Design Submittal

General

1. _____ Address, in writing, all Illinois Tollway comments from previous submittal.
2. _____ Provide preliminary Erosion and Sediment Control General Supplemental Notes plan sheet. See Appendix 3 of the Tollway's *Erosion and Sediment Control, Landscape Design Criteria* manual for an example sheet and Appendix 5 of the Tollway's *Erosion and Sediment Control, Landscape Design Criteria* manual for a list of example notes. The DSE shall include and modify the notes applicable to the project and provide additional general notes as required.
3. _____ Provide preliminary Erosion Control Legend plan sheet. Show standard symbols, non-standard symbols, and abbreviations. See Appendix 3 of the Tollway's *Erosion and Sediment Control, Landscape Design Criteria* manual for an example sheet. Alternatively, include a legend on each ESCP sheet with all applicable measures for the particular project.
4. _____ Provide preliminary Erosion and Sediment Control Schedule plan sheet. The schedule should include the anticipated pay items, pay item measurement units, pay item numbers, and rows for plan sheet numbers. Include an additional row labeled "At Engineers Discretion" and a row labeled "Record Quantities" for use by the CM. Actual quantities are not expected. Multiple sheets may be required based on the number of control measures specified.
5. _____ Provide preliminary Wetlands and In-Stream Notes plan sheet for any projects involving work within or near wetlands and waterways. See Appendix 3 of the Tollway's *Erosion and Sediment Control, Landscape Design Criteria* manual for an example sheet and Appendix 5 of the Tollway's *Erosion and Sediment Control, Landscape Design Criteria* manual for a list of example notes.

Overview Drawing(s) at 1" = 50' or larger

6. _____ Provide a preliminary overview drawing(s) reflecting any revisions called for in the previous review.
7. _____ Based on soils report information, refine soil classifications and adjust ESCP concept, as necessary. Show any areas with hydric soil or soils with a high susceptibility to erosion.

ESCP Drawings at 1" = 50'

8. _____ Show all information provided on the overview drawings, including existing contours, structures, and features at half tone and preliminary proposed contours at full tone.
9. _____ Delineate disturbed areas and provide drainage patterns for proposed conditions. Make special note of drainage areas used to size the perimeter controls, sediment traps, or detention basins. Include areas that will be disturbed for the Contractor to access the work area(s).

10. _____ Show the direction of runoff flow prior to construction, during construction, and after construction is completed and stormwater outfalls. This may require duplicate drawings in situations where the flow directions are modified.
11. _____ Identify reaches that will require use of staged construction with temporary or permanent stabilization of slopes before additional excavation or placement of fill. Label how many stages/phases of construction will be needed, with the slope length (50 feet) and/or 15 feet fill or cut limitations shown on Tollway Standard Drawing K1.
12. _____ Show areas with known environmental contamination. The SWPPP Narrative must describe how affected materials are to be handled to prevent stormwater pollution.
13. _____ Show recommended topsoil stockpile and on-site borrow locations with erosion and sediment control measures around the perimeter of the stockpiles.
14. _____ Identify tree protection and sediment control measures that must be in place prior to start of grading. These include sediment basins, sediment traps, and silt fences. These practices shall be identified on the plan as Initial Construction.
15. _____ Identify wetlands, surface water features and other environmentally sensitive areas within and adjacent to the project limits and which portions of these (if any) may be impacted. Provide preliminary control measures for protection of these resources against sediment runoff and accidental intrusion. These measures shall be identified on the plan as Initial Construction.
16. _____ Identify locations where temporary stream diversions or cofferdams will be needed for installation or maintenance of culverts or bridges. These measures shall be identified on the plan as Initial Construction.
17. _____ Identify the permanent and temporary storm water practices that must be in place before grading occurs in each specific area along the route. These include storm water detention sites, stabilized channel outlets, stabilized temporary swales or diversion dikes, and any needed stream diversions. These practices shall be identified as Initial Construction.
18. _____ Identify reaches that will have temporary pipe slope drains and temporary berms for fill areas and new embankments.
19. _____ Show floodplain and floodway elevations.
20. _____ Layout the ESCP showing type and location of erosion and sediment control measures to be used. Annotate as needed to convey the design intent. Complete detailing is not required at this phase.

Other

21. _____ Preliminary cost estimate
22. _____ Preliminary Special Provisions
23. _____ Any additional information required by the Illinois Tollway Project Manager

24. ___ Prepare and submit the Erosion and Sediment Control Technical Review Checklist, Section B.
25. ___ Provide Permanent Landscape Plans at 1" = 50' showing final landscape post construction features and permanent seeding. Refer to Section II Landscape for requirements.
26. ___ Submit the Environmental Studies Inventory Sheet, Part II and supporting documents using the Tollway's WBPM system.
27. ___ Provide the Preliminary SWPPP. The Designer shall modify Special Provision 111.2 to satisfy this requirement. It is expected that the preliminary SWPPP be fully developed based on the current project design. Provide provisions for dust control watering and other pollution control measures.

C. Pre-Final Design Submittal

General

1. _____ Address, in writing, all Tollway comments from previous submittal.
2. _____ Provide Pre-Final Erosion and Sediment Control Supplemental Notes
3. _____ Provide Pre-Final Erosion and Sediment Control Legend, reflecting any changes to the overall design.
4. _____ Provide Pre-Final Erosion and Sediment Control Schedule. Summarize, by drawing number, the measures to be installed, pay items, pay item numbers, and quantities. Provide additional quantities over and above the plan quantities for use "At Engineer's Discretion". Coordinate these quantities with Tollway Project Manager prior to submitting plans.
5. _____ Provide Pre-Final Wetlands and In-Stream Notes. The DSE shall include any modifications to the preliminary notes as applicable to the project and provide additional notes as required.
6. _____ Provide Erosion Control Plan Construction Sequence and Inspection and Maintenance sheets. Show the maintenance schedule for each erosion control practice, including any special measures not covered in the standard drawings and specifications. Show construction sequences for installing control measures in relation to specific stages of construction and earth disturbance activities.
7. _____ Provide detailed design sheets using the 200 Series Base Sheets for any measures not covered by the Section K Standard Drawings. Provide the dimensions, material and installation details.

Overview Drawing(s) at 1" = 50' or larger

8. _____ Provide Pre-Final Overview Drawings reflecting any changes to the overall design.
9. _____ Show work stages that define the suggested sequencing of construction to limit the size of the area disturbed at one time to a maximum of 20 acres.

ESCP Drawings at 1" = 50'

10. _____ Provide Pre-Final ESCP Drawings reflecting any changes to the overall design.
11. _____ Identify any erosion or sediment control measures that will serve as permanent erosion control measures remaining after construction is complete.
12. _____ Sediment traps, sediment basins, dewatering basins, temporary swales and temporary channel diversions shall be drawn on the cross sections. Verify that the devices fit in the intended area.
13. _____ Label the specific location(s), size(s) or length(s) of all erosion and sediment control measures shown on the drawings and not specified on the Erosion and Sediment Control Schedule.

14. _____ Label the area, in acres, controlled by each temporary sediment basin, sediment trap, temporary diversion, temporary swale, or culvert inlet protection and not specified on the Erosion and Sediment Control Schedule.
15. _____ Show the location and label the size and I.D. number of existing wetland areas, other environmentally sensitive areas, and label which portions of these (if any) will be impacted. Labels shall include the total acreages within the project limits and any associated temporary fill or permanent impacts. Identify each feature or portion thereof to be protected as a "No Intrusion Area" and protect with Super Silt Fence.

Other

16. _____ Pre-final quantity and design calculations
17. _____ Pre-final cost estimate
18. _____ Pre-final Special Provisions
19. _____ Pre-final SWPPP. The SWPPP shall not be considered complete until the Designer has fully prepared the site description, along with identification, implementation, and maintenance of BMPs to reduce pollutants in stormwater discharges.
20. _____ Any additional information required by the Tollway Project Manager
21. _____ NPDES NOI form
22. _____ County Soil and Water Conservation District submittal (if required)
23. _____ County Stormwater Management Agency submittal (if required)
24. _____ Submittal information for other agencies, as required
25. _____ Prepare and submit the Erosion and Sediment Control Technical Review Checklist, Section C.

D. Final Design Submittal

1. ___ Address, in writing, all Tollway comments from previous submittals.
2. ___ Final overview and ESCP drawings
3. ___ Final Special Provisions and SWPPP (Special Provision 111.2)
4. ___ Final cost estimate
5. ___ Final quantity and design calculations
6. ___ Professional Engineer's seal and signature on plans
7. ___ Any additional information required by the Illinois Tollway Project Manager
8. ___ Prepare and submit the Erosion and Sediment Control Technical Review Checklist, Section D.

Appendix 5

Illinois Tollway – Example Erosion and Sediment Control Design Notes

Example Erosion and Sediment Control Supplemental General Notes

1. For erosion and sediment control general notes see Standard K1 Drawings.
2. Should it be necessary to remove any erosion or sediment controls for construction reasons, the Contractor shall first obtain permission and shall repair or replace the removed controls the same day. The cost of removing and re-installing the device shall be included in the contract.
3. The Contractor shall refer to Section 280.02 of the Illinois Tollway Supplemental Specifications for penalties for non-conformance.
4. Erosion and Sediment Control items are considered to be high priority items on this contract. The Engineer will implement all provisions of the specification necessary to ensure that soil erosion and sediment control items are constructed and maintained to control off-site sediment discharges.
5. Temporary erosion and sediment control measures are to be installed, effective, and maintained throughout all phases of construction, including shutdown periods.
6. The Contractor shall confine construction activities within the construction limits as shown on the plans. Areas outside the shown construction limits disturbed by the contractor shall be restored and stabilized as directed by the Engineer at the Contractor's expense.
7. Temporary erosion and sediment control devices shall be constructed as shown on the plans or as directed by the Engineer. Any deviation from the Temporary Erosion Control Plan or schedule shall be at the discretion of the Engineer.
8. In case of conflict between the erosion control tables, erosion control plan and overview drawings, Contractor shall notify the Engineer and receive clarifications before proceeding with the work.
9. Stormwater runoff leaving the project site must pass through an erosion and sediment control system as shown on the plans or as amended and approved by the Engineer.
10. All water removed from excavated areas shall be passed through an approved dewatering practice or pumped to a sediment trap or basin prior to discharge to a functional storm drain system or to stable ground surface.
11. Soil disturbance shall be constructed in such a manner as to minimize erosion. Soil stabilization measures shall consider the time of year, site conditions, and the use of temporary and/or permanent measures. To the maximum extent possible, erosion shall be minimized at its source.
12. Stabilized construction entrances shall be installed to reduce or eliminate the tracking of sediment on public right-of-way or streets. Stabilized construction entrances shall only be constructed at locations approved by the Engineer.
13. Temporary stabilization with straw mulch shall be provided at disturbed areas that cannot be stabilized with permanent vegetative measures until a later date. The Engineer may require that critical locations be seeded immediately and the Contractor shall seed these areas within 48 hours of such directive to establish temporary cover.
14. All flows originating off the construction site shall be diverted around disturbed areas or shall be conveyed through the site in a manner that that un-treated on-site runoff shall be minimized and does not mix with off-site runoff entering the project.

15. The Contractor shall submit as part of their signed Contractor Certification Statement the items specified in S.P. 111.2, Storm Water Pollution Prevention Plan.
16. The erosion and sediment controls shown in the plans represent the minimum requirements. Additional measures may be required by the Engineer or representatives of regulatory or permitting agencies. Any emergency control measures requested by a regulatory or permitting agency must be installed immediately.
17. Initial temporary erosion and sediment controls shall be installed prior to beginning any activities which will create erodible conditions.
18. The permanent vegetation plan shall be used on all disturbed areas whenever possible. A quantity for temporary stabilization with straw mulch has also been provided for all anticipated disturbed areas.
19. Temporary soil stockpiles shall not be located closer than 25 feet to a paved roadway or within 100 feet of a drainage channel. Stockpiles shall not be located in the floodplain, overflow routes, or areas subject to inundation. Silt fence shall be placed around the perimeter of the earth stockpiles. Temporary stabilization with straw mulch shall be provided for all temporary stockpiles within 7 days of formation of the stockpile if it is to remain inactive for longer than 14 days.
20. Stockpile locations shall be approved by the Engineer prior to topsoil removal or other grading operations being performed.
21. Temporary stabilized construction entrances, graveled roads, access drives, and parking areas of sufficient width and length shall be provided to prevent the deposit of soil from being tracked onto public or private roadways. Any soil reaching a public or private roadway shall be removed before the end of the workday or sooner if directed by the Engineer.
22. Same day stabilization is to be implemented as outlined in the Illinois Tollway Supplemental Specification Articles 280.15(c). Same day stabilization shall be used to minimize erosion and the movement of soils at those areas shown on the plans or directed by the Engineer in erosive prone areas, or areas within 100 feet of surface waters, wetlands, or other environmentally sensitive areas.
23. A nominal quantity for Item JS280051 Re-Erect Silt Fence has been provided. Re-erection of silt fence shall be as approved and directed by the Engineer.
24. Removing and re-installing inlet protection devices to accommodate drainage structure adjustment is included in the cost of the inlet protection device.
25. The installation, maintenance, removal, and restoration of the area disturbed by the placement of silt fence is included in the contractor unit price for silt fence. After the removal of silt fence, the areas disturbed by the fence installation shall be restored.
26. Temporary sediment basin(s) and temporary sediment trap(s) have been sized using 1800 cubic feet/acre storage and may need more frequent cleaning than traps sized to the standard 3600 cubic feet/acre criteria.
27. The Contractor shall prepare and provide sketches showing dimensions from two adjacent objects to all drainage structures that have been protected. This is to allow the structures to be located in the event of heavy rainfall and the structure becomes blocked or flooded.
28. A nominal quantity has been provided for placing and maintaining temporary stabilized construction entrances subject to approval by the Engineer.

29. This project requires permits from the United State Army Corps of Engineers (USACE 404 Permit) and the Illinois Environmental Protection Agency (IEPA 401 Water Quality Certification through the USACE Regional Permit). The Permit Application will be submitted to the USACE and IEPA by the Illinois Tollway. The Contractor shall not disturb or otherwise impact jurisdictional wetlands or waterways until both of these permits are received and provided to the Contractor. No removals, temporary or permanent construction activities, or other work that would impact these resources is allowed until these permits are approved by the USACE and IEPA.
30. On projects which include in-stream work, no work is allowed beyond the permitted area.
31. All controls necessary to meet the requirements of the County Stormwater and Floodplain Ordinance or the Waiver Community Ordinance shall be kept operational and maintained throughout the period of land disturbance until permanent sediment and erosion control measures are operational.
32. For the duration of the project, the Contractor shall protect all on-site, adjacent and/or downstream sewers, ditches, and watercourses from contamination by waterborne silts, sediments, fuels, solvents, lubricants, or other pollutants originating from any work done on or in support of the project.
33. The Contractor shall be required to treat traveled and other project areas to control dust. Water shall be applied to such areas as directed by the Engineer, calcium chloride shall not be used for this purpose. Dust shall be controlled through a uniform application of sprayed water in a manner meeting Engineer approval and in accordance with the Contractor's Dust Control Plan submitted in accordance with Article 107.36 of the Tollway Supplemental Specifications. The number of applications and the amount of water shall be based on field and weather conditions.
34. All temporary erosion and sediment controls shall be removed once construction is complete and disturbed areas are permanently stabilized.

Example Erosion and Sediment Control In-Stream and Streamside Notes

1. No Work in Flowing Water

No work shall be performed in flowing water. Work in and near critical areas shall be isolated from concentrated flows or stream flow. Once work in the area begins, priority shall be given to completion of the work and final stabilization of all disturbed areas.

2. Isolated Work Area

All disturbed areas and work areas must be isolated from waterway flows at all times. The diversion/isolation of flow must be constructed from non-erodible materials. The USACE must be in agreement with the overall methods of diversion/isolation prior to the commencement of construction.

3. Work in Waterways

- A. During work on the banks of the swale/river/stream/wetland, work must be timed to take place during low or no flow conditions.
- B. Concentrated flow must be isolated from the work area using a non-erodible cofferdam, steel sheets, aqua barriers, jersey barriers, etc. The exact means and methods shall be discussed during a scheduled pre-construction in-stream work meeting. Earthen cofferdams are not permissible.
- C. Cofferdams must be constructed from shore and no equipment may enter flowing water any time. If the installation of the cofferdam cannot be completed from shore, construction of a causeway will be necessary to ensure that equipment does not enter flowing water. Equipment may enter the coffered area once the cofferdam is in place and the isolated area is dewatered.
- D. If bypass pumping is necessary, the inlet of the pump shall be placed in a sump pit and the outlet placed on a non-erodible energy dissipating surface prior to rejoining the waterway flow or wetland. Filtering of by-pass water is not required unless the bypass water has become sediment-laden as a result of construction activities.
- E. If dewatering the construction area is necessary, all water removed from the work area shall be filtered using filter bags or an alternate approved measure. Water must have sediment removed before being allowed to return to the source creek/stream/river/wetland. Discharge from dewatering shall be to a stable surface that extends to the point where water re-enters the waterway. Discharged water shall be no more turbid than the receiving water. Discharge shall be immediately stopped if receiving waters show evidence of cloudy water, erosion, or sediment accumulation.
- F. The side slopes must be re-seeded and stabilized with appropriate erosion control blanket prior to accepting flows. The bottom of the swale must be brought back to its original grade and stable enough to accept flows.
- G. An In-Stream Work Plan must be submitted and approved by the Engineer prior to the start of any work near wetlands or waters of the U.S. Additionally, a pre-activity meeting shall be held with the Engineer and Tollway Environmental Unit to discuss the Contractor's means and methods.

Example Erosion and Sediment Control Wetland and Waters of the U.S. Notes

1. Wetland areas outside of the work zone are to be avoided. If the Contractor should encroach upon any wetland area that is not within the construction limits and/or permitted for impact through the USACE, the Contractor is subject to fines. Contractor shall notify the Engineer immediately of any wetland impacts outside of the work zone. Impacted areas shall be repaired immediately by the Contractor in coordination with and to the satisfaction of the USACE.
2. All wetlands, Waters of the U.S. and open water detention facilities are subject to the review and approval by resource and regulatory agencies. Those agencies include but are not limited to the USACE, the Illinois Department of Natural Resources, the Illinois Environmental Protection Agency, and the County Soil and Water Conservation Districts.

Appendix 6
Illinois Tollway – Roadside Mowing Guide

Illinois Tollway

Roadside Mowing Guide

March 2010

TABLE OF CONTENTS

Section 1 - Roadside Vegetation Management

A.) General Appearance and Function.....	2
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Section 2 - Mowing Guidelines

A.) Shoulder Mowing.....	3
B.) Backslope (and Interchange) Mowing.....	3
C.) Facility Mowing.....	4
D.) Safety/Best Management Practices (BMP's).....	4-5

Section 3 - Turf Management and Weed Control

A.) Vegetation Management Maps.....	5
B.) Herbicides and Weed Control.....	5-6
C.) Marking Special Areas.....	6
D.) Mowing Equipment.....	6
Mowing Figures.....	7-9

Section 1 – Roadside Vegetation Management

The purpose of this guide is to serve as a standardized reference for systemwide mowing management by promoting a safe, economically responsible and aesthetically pleasing natural roadside turf environment. It is the intent to provide general vegetation management methods to reduce soil erosion, enhance water quality, conserve energy, manage existing turf and control invasive plants. Modifications may be necessary to allow flexibility for various roadway circumstances, equipment limitations and needs.

A.) General Appearance and Function:

For new plantings the natural roadside turf management intent generally will promote the practical use of native plants, and for existing conditions is to provide a responsible uniform maintenance practice for relevant right-of-way locations. For existing grasses this practice would generally incorporate reduced cutting frequency from that of conventionally manicured turf grass and by cutting most backslopes when turf reaches approximately 18 inches, or possibly greater in rural locations. The zone immediately along the edge of pavement would continue to maintain a standard manicured appearance through regular cuttings at approximately 6 inches height. The intended result will be a natural rather than a traditional manicured appearance.



Example: less desirable conventional backslope turf mowing practice



Example: more desirable natural turf mowing practice, taller heights on backslopes

Section 2 – Mowing Guidelines

(see figures 1, 2 and 3)

A.) Shoulder (and Median) Mowing:

Mowing Frequency: As needed, approximately 3 – 5 cycles per year
Mowing Height: Minimum 6 inches

Shoulder and median cutting cycles may be made as needed to maintain a manicured appearance and should typically begin when 50 percent of the vegetation reaches 10 inch height. Mower equipment settings shall be adjusted to maintain the vegetation height between 6 and 12 inches.

The width of the cut shall be approximately 15 feet wide from the edge of shoulder or through the ditch line and is generally intended to be one pass of the mowing equipment. This practice may require a range of mowing widths to continuously manage drainage through the ditch line.

Mowing and vegetation control should be provided on all medians less than 100 feet in width. Medians 100 feet and wider may be managed at discretion of each maintenance section and is dependent upon the terrain.

B.) Backslope (and Interchange) Mow Management-

URBAN AREAS:

Mowing Frequency: Between 1 to 3 cycles per year
Mowing Height: Minimum 6 inches

For the purposes of Tollway vegetation management, urban areas are defined as having a surrounding setting that is characteristic of city or town development. The start of rural location limits commonly begin west of the Fox River, but exact locations should be determined by each maintenance section.

Urban mowing of all accessible areas beyond the “Shoulder and Median Mowing” limits shall typically be conducted between one to three mowing cycles each year. Mower equipment settings shall be adjusted to cut vegetation once heights reach approximately 18 inches.

Mowing areas generally include, interchange infields and back-slopes to the fence line. A single mowing pass along the fence line may be provided on a more frequent basis in areas such as those adjacent to residential neighborhoods.

RURAL AREAS:

Mowing Frequency: Approximately 1 cycle every 1 – 2 years (less as practical)
Mowing Height: Minimum 6 inches (up to 15 inches)

For the purposes of Tollway vegetation management, rural areas are defined as those outside urban areas, generally with a surrounding setting characteristic of that beyond a city or town.

Rural mowing of all accessible areas beyond the “Shoulder and Median Mowing” limits shall typically be conducted in one cycle every (1) one or two (2) years or less depending on site

conditions. Mower equipment settings shall be adjusted to cut vegetation once heights reach approximately 18 inches or higher when practical and desirable.

Mowing areas generally include, interchange infields and back-slopes to the fence line. Mowing frequency should be evaluated each year and is intended to be the least possible to control weed growth and undesirable woody vegetation.

C.) Facility Mowing:

The area immediately surrounding Oasis, Toll Plazas, Maintenance Yards and other Tollway structures and facilities may be maintained with conventional lawn maintenance methods (Shoulder Mowing and/or Traditional Mowing) of increased mowing frequency for a more manicured turf appearance. Additional care and watering may also be required to turf areas with traditional mowing practices and should also to surrounding trees, shrubs and other ornamental plants during the summer months or dry periods, as needed.

D.) Safety and Best Management Practices Notes:

- a.) Operator training is provided by each maintenance section and should be completed prior to use of any mowing equipment.
- b.) Additional mowing may be performed in areas where vegetation impedes roadside drainage. If possible mowing in drainage ditches should be performed when the areas are dry to reduce turf damage and potential soil erosion.
- c.) Spot mowing may be performed for noxious weed control. Blanket mowing of larger select areas may also be provided when increase control of noxious weeds is desirable and to aesthetically blend mow areas. When cutting for weed control the timing is important and typically should be completed before the targeted plant flowers, reducing the ability to propagate, but may vary for various plant types (see Section 4).
- d.) Shoulder Mowing may also be expanded where lower grass heights are desirable, such as, delineation of message signs. This shall be performed with long, smooth approach transitions to the signage, so the mowed edge does not produce an abrupt or ragged appearance.
- e.) Medians and Interchange infields less than approximately 100 feet wide shall be completely mowed according to the regular 'Shoulder Mowing' cycle.
- f.) Slopes greater than 2.5:1 shall not be mowed with conventional mowers.
- g.) Areas with steep slopes or poor access or conditions that currently have reduced mowing restrictions may remain as such unless otherwise directed or indicated on the vegetation management maps.
- h.) All mowing should be performed in a manner to prevent scalping, equipment rutting tracks or other turf and slope damage. Whenever possible mowing should not be done when ground conditions are wet or where equipment slipping could cause turf damage or lead to potential soil erosion and sediment loss.
- i.) Designated locations behind noise walls may be considered for regular 'Shoulder Mowing' practices to maintain a manicured appearance and control debris adjacent to residential and urban locations.

- j.) Regular Shoulder Mowing practices using one pass of the tractor mower width may be permitted along the right-of-way fence in urban areas as needed to control weed growth or to maintain a manicured appearance adjacent to similar residential and urban conditions.
- k.) Urban backslopes with flatter grades and adjacent to currently groomed commercial or residential locations may be considered for more frequent mowing practices to blend with the surrounding land use. These locations should typically be determined by each Maintenance Section and identified on Vegetation Management Maps.
- l.) All areas should be patrolled for debris prior to mowing. Permanent obstructions with low visibility may be marked with appropriate stakes to more clearly identify obstacles.
- m.) When mowing must be done near, between or around trees and shrubs, care should be exercised to avoid damaging plants and their supports. Mowing equipment, such as smaller tractors, may be required when occasional mowing within groups of tree plantings is needed. Care should be taken near newly planted seedlings and the use of mowing markers may be provided to delineate mowing limits. Trees are typically located within the 'Backslope mowing zones to reduce mowing frequency and subsequent maintenance needed around plantings.
- n.) Backslope mowing should be performed during the spring or during the fall mowing cycles whenever possible. Shoulder Mowing may be performed as needed to maintain specified turf heights.

Section 3 – Management / Weed Control:

A.) Vegetation Management Maps:

The maintenance methods provided in this guide is suggested as a general reference for standardized practice, but will not include all situations or most desirable practices. Many areas throughout the system may also require variation of standardized measures to best address site specific conditions. Preparation of Vegetation Management Maps may be desirable for each maintenance section to assist in directing some of the variations of mowing and maintenance activities. Items that may be delineated include, special conditions, mowing limits, frequency and locations for monitoring weed control. Changes in the general guidance for back-slopes, interchange infields or other locations may also be provided on the mowing plans.

Areas planted in native grasses and/or wildflowers may require special mowing practices (or prescribed burning) and should be indicated on the Maps.

B.) Herbicides and Weed Control:

When noxious weeds are not able to be controlled by cutting, herbicide application may be considered as an alternative management tool. Other invasive and nuisance weed species should be controlled by mowing at proper times of the year to manage growth and spreading. Chemical treatment must be applied by registered applicators. Illinois state-listed noxious weeds (see list below) should be managed in a timely manner and during the most effective time for control. Use of specific herbicides selected for targeted plants are most effective in eradicating growth. Care should be taken to preclude damage of desirable vegetation. Spot spraying of target weeds should

be the first consideration in chemical control. Blanket spraying should only be used in areas containing high concentrations of the target weeds when other options are not effective.

Illinois Noxious weeds List (as of current printing):

1. Marihuana (*Cannabis sativa* L.)
2. Giant Ragweed (*Ambrosia trifida* L.)
3. Common Ragweed (*Ambrosia artemisiifolia* L.)
4. Canada Thistle (*Cirsium arvense*)
5. Perennial Sowthistle (*Sonchus arvensis*)
6. Musk Thistle (*Carduus nutans*)
7. Perennial sorghum types, including Johnsongrass (*Sorghum halepense*)
8. Kudzu (*Pueraria labata*)

Other common invasive or nuisance weeds include, but not limited to:

1. Leafy Spurge
2. Purple Loosestrife
3. Garlic Mustard
4. Reed Canary Grass
5. White and Yellow Sweet Clover
6. Cut-leaf and Common Teasel

Effective and safe weed management control may be developed for problem areas by contacting the USDA Midwest Area Weed Management Unit.

C.) Marking Limits for Special Mow Areas:

Selective mowing stakes (Article 250.08 of the Standard Specifications) may be used to delineate mowing lines for special mowing practices of wildflower, wetland and/or other conservation areas requiring guidance of mower operations.

When the complete right-of-way is mowed, use extra care in areas beyond the clear zone to identify and save desirable volunteer trees and shrubs.

D.) Mowing Equipment:

Large tractors with flail or rotary mowing equipment attachments are used for most roadway mowing conditions.

Smaller rotary tractors and/or hand mowing equipment should be used in locations that are not easily accessible to larger tractor units. These locations may include, between tree groupings, around culvert inlets and outlets, near building facilities or other locations that may cause unwanted damage to desirable vegetation or structures.

Slope mowers are designed for use on slopes steeper than 3 to 1. These mowers are equipped with proper center-of-gravity mechanics and can maneuver slopes safely while reducing damage to slopes. The equipment should be operated as provided by each manufacturer.

All mowing equipment should be checked to confirm the proper mowing deck heights are set prior to cutting. Adjustments to mowing equipment may be considered to achieve higher cuts if desirable and beneficial, particularly for rural backslope and interchanges. Adjustments, changes or additions to mowing equipment should be coordinated with specific manufactures to provide safe results.

Figure 1
Typical URBAN Mow Zones

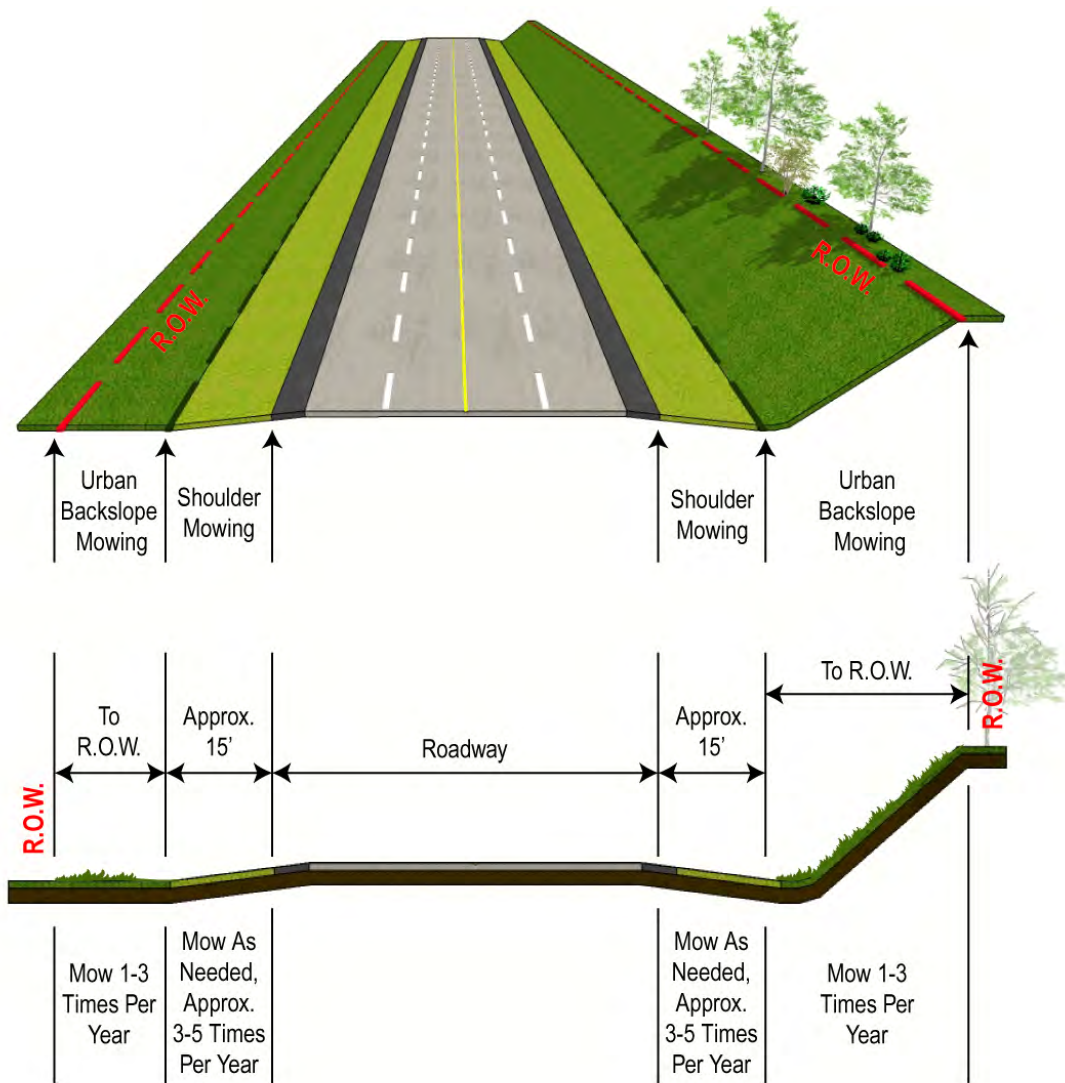


Figure 2
Typical RURAL Mow Zones

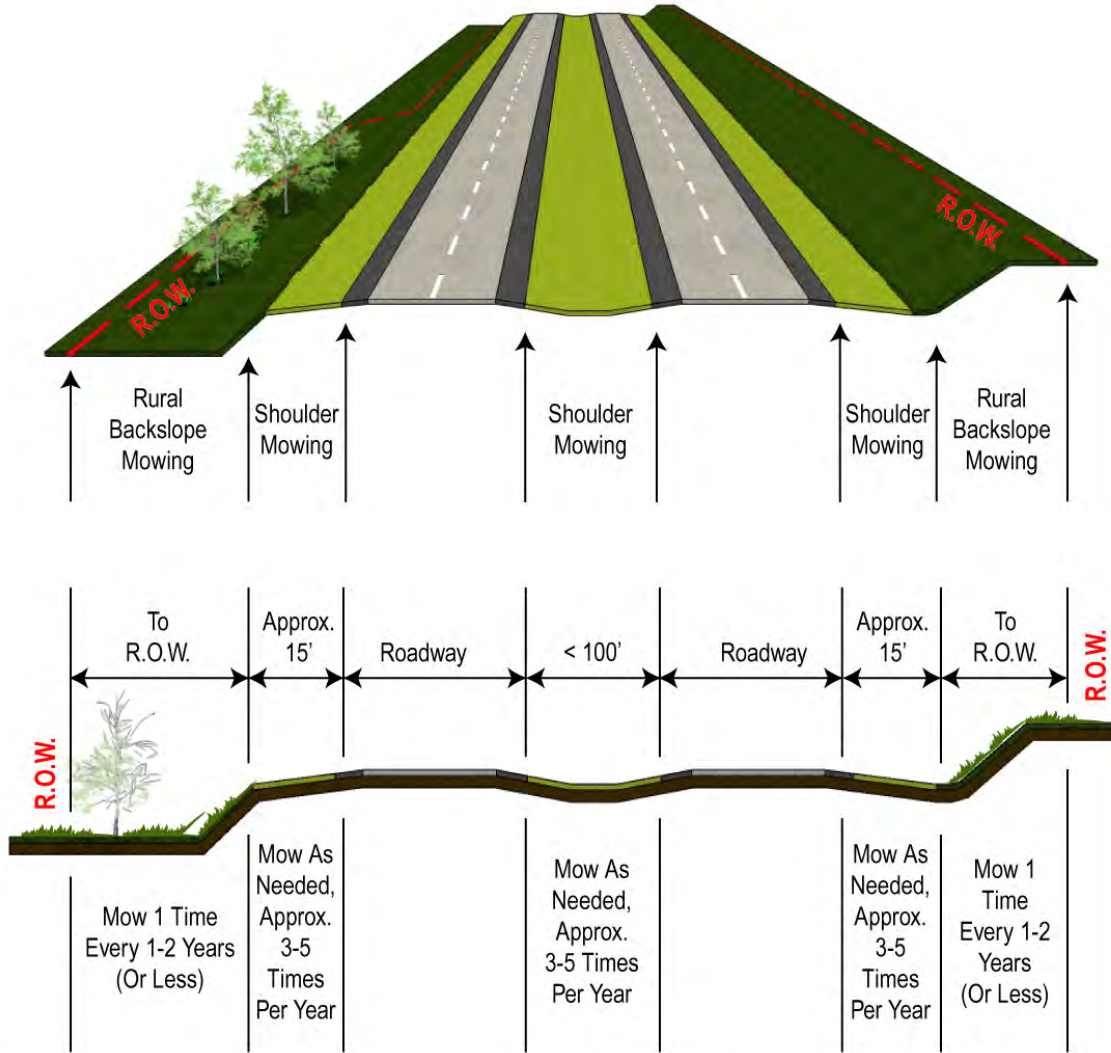
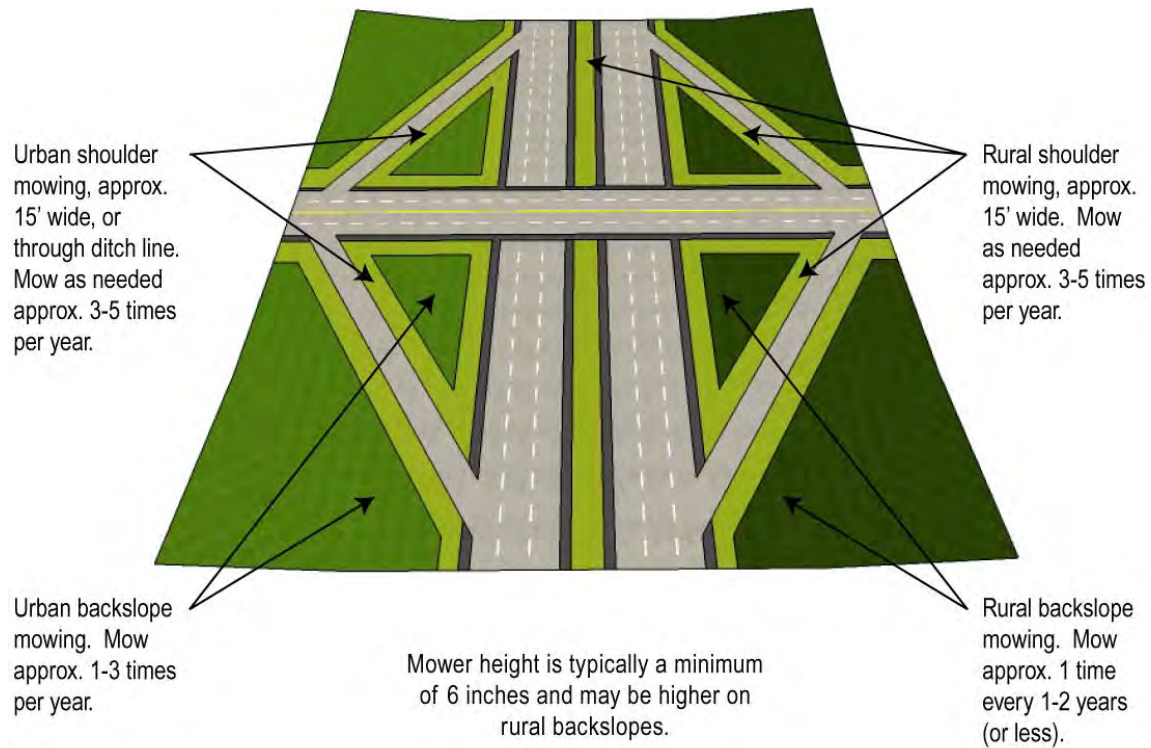


Figure 3
URBAN (Left) and RURAL (Right)
Interchange Mow Zones



Appendix 7
Illinois Tollway – Landscape Design Submittal Checklist



**Illinois State Toll
Highway Authority**

**Landscape Design Submittal
Checklist**

Project: _____

Contract Number: _____

DSE: _____

Date: _____

Tollway Reviewer _____

Date: _____

Items are to be checked off by the DSE and the form shall be submitted to the Tollway for review.

Tollway reviewer to indicate;
C = Complies
D = Deficient
NA = Not Applicable

A. Landscape Design Concept Submittal

1. _____ site location map
2. _____ an Issues and Opportunities Diagram delineating the following:
 - _____a) the identification, by text and illustration (photo or graphic image), of the landscape character of the existing and adjacent sites
 - _____b) landscape features to be preserved or that may influence the design
 - _____c) any important view sheds that are to be protected or enhanced
 - _____d) Any important features, natural or built, within or outside the Tollway ROW, that may influence the design will be identified and recorded.
 - _____e) views to or from the site that should be screened
 - _____f) historic features or influences
 - _____g) topographic and hydraulic features
 - _____h) the overall strengths and weaknesses of the site
 - _____i) identification of any agencies, municipalities, community groups or individuals that the design team will have to coordinate with to achieve a successful landscape design
3. _____ a short narrative describing the following:
 - _____a) desired landscape character and landscape goals
 - _____b) how existing site conditions/issues have been addressed
 - _____c) how the proposed landscape design compliments the proposed drainage/grading design

- _____d) a discussion of the pros and cons of any alternatives that are included in the submission
- 4. _____ concept plans
 - _____a) The plans must be coordinated with drainage/grading design and any utility and lighting layouts.
 - _____b) The plans shall be at a 1" = 100' scale to represent the overall concept and at a 1" = 50' to adequately represent typical sections of the concept where additional detail is so desired.
 - _____c) Any important view sheds that are to be protected or enhanced should be indicated on the plan/plans
 - _____d) Views to or from the site that should be screened should also be indicated.
- 5. _____ preliminary cross sections to display the viability of the conceptual design
- 6. _____ a list of plant types to be used
- 7. _____ a list or copies of the relevant information and design criteria collected through the coordination process
- 8. _____ a rough cost estimate
- 9. _____ any additional information required by the Tollway project engineer

B. Preliminary Plans and Special Provisions

- 1. _____a) The preliminary plans submittal will include plans, text, and specifications developed to a 60% level of completeness.
 - _____b) The Plans must be coordinated with, and complimentary to, the proposed drainage, grading designs, and utility drawings.
 - _____c) Any alternative drainage systems and grading solutions proposed should be described in text and also displayed in plan and cross section format.
 - _____d) The background documentation maintained by the DSE will need to meet the requirements in the Tollway Environmental Studies Manual.
 - _____e) This documentation will also need to identify any special requirements used to select specific measures.
- 2. _____ site location map
- 3. _____ plan or plan views showing the schematic layout o the overall landscape design. The overall design will be delineated at a scale of 1" = 50' and at 1" = 20' in areas where additional detail is required.
- 4. _____ a tree preservation plan that will include the following:
 - _____a) existing tree locations

- ____ b) size, species and condition
- ____ c) methods of protection, including fencing and wrapping
- ____ d) defined safe area to protect tree root structures based on the analysis of the Existing Vegetation Assessment
- 5. ____ preliminary detailed plans of any atypical or special areas
- 6. ____ preliminary planting and construction details
- 7. ____ preliminary details of any hard-landscaped elements such as paving or special features
- 8. ____ cross sections that adequately display significant changes in grade or width of the area to be planted and the viability of the landscape concept
- 9. ____ Plant names and sizes will be indicated on the plans.
 - ____ a) Tollway Project Engineer and the landscape architect will determine the viability of the plant material selection with due consideration to site conditions and salt tolerance.
- 10. ____ Landscape Materials List to include the following:
 - ____ a) preliminary schedule of quantities and construction cost estimate for plant material
 - ____ b) all measures to be installed
 - ____ c) planting schedule, indicating species (common and botanical names), sizes to be used, and quantity
 - ____ d) maintenance guidelines, provisions for care, and fertilizer requirements for a 820 day/three year establishment period for a spring planting or for two growing seasons if the plantings take place in fall
- 11. ____ outline or special provisions to the Standard Specifications that follow the accepted Tollway standards
- 12. ____ a coordination schedule for the installation and inspection of the planting material
- 13. ____ Address, in writing, all Tollway comments from the previous submittal.
- 14. ____ any additional information required by the Tollway project engineer

C. Pre-Final Plans and Special Provisions

- 1. ____ a) Pre-Final Plan phase will develop the plans, text, and specifications submitted at the Preliminary Plans and Special Provisions Phase to a 99% level of completeness.
- ____ b) All drawings will be coordinated with the drainage, grading, and utility packages.

- ____c) All drawings will be fully annotated and show dimensions, notes, references, symbols, legends, and labels
 - ____d) The drawings will be cross referenced to a fully detailed plant schedule.
 - ____e) The plant schedule will fully delineate the species (common and botanical name and size), type, spacing, and quantity of all plants selected.
 - ____f) All details for planting, hard-landscape, and special features will be complete and cross referenced to the plans.
 - ____g) The Specifications and Special Provisions will follow Tollway format and will be complete with all materials, ways, and means specified.
2. ____ a site location map
3. ____ a plan or plan views showing the schematic layout of the overall landscape design. The overall design will be delineated at no less than a scale of 1" = 50' and at 1" = 20' in areas where additional detail is required.
4. ____ a tree preservation plan, that will include the following:
- ____a) existing tree locations
 - ____b) size, species, and condition
 - ____c) methods of protection, including fencing and wrapping
 - ____d) defined safe area to protect tree root structures, based on the analysis of the Existing Vegetative Assessment
5. ____ detailed plans of any atypical or special areas
6. ____ planting and constructions details
7. ____ details of any hard-landscape elements, such as paving or special features
8. ____ cross sections that adequately display significant changes in grade or width of the area to be planted and the viability of the landscape concept.
9. ____ Plant types (common/botanical names or key codes) and sizes will be indicated on plans.
10. ____ Landscape Materials List to include the following:
- ____a) schedule of quantities and construction cost estimate for plant material
 - ____b) all measures to be installed
 - ____c) planting schedule which fully delineates the species, type, spacing, and quantity of all plants selected

- _____d) maintenance guidelines and provisions for care, and fertilizer requirements for a 820 day/three year establishment period for a spring planting or for two growing seasons if the planting takes place in the fall
- 11. _____ specifications and special provisions that follow the accepted Tollway standards
- 12. _____ a coordinated schedule for the design installation and inspection of the planting material.
- 13. _____ address, in writing, all Tollway comments from the previous submittal
- 14. _____ any additional information required by the Tollway project engineer

C. Final Plans and Special Provisions

- 1. _____ All comments and questions received during the review of Pre-Final Plans must be adequately addressed in writing or resolved by revisions to the final or Special Provisions.
- 2. _____ drawings must be at 100% completeness
- 3. _____ a site location map
- 4. _____ a plan or plan view showing the schematic layout of the overall landscape design. The overall design will be delineated at no less than a scale of 1" = 50' and 1" = 20' in areas where additional detail is required.
- 5. _____ a tree preservation plan that will include the following:
 - _____a) existing tree locations
 - _____b) size and species (common and botanical name)
 - _____c) methods of protection, including fencing and wrapping
 - _____d) defined safe areas needed to protect tree root structures, based on the analysis of the Existing Vegetative Assessment
 - _____e) The drawings will be cross referenced to a fully detailed plant schedule. The plant schedule will identify the species (common and botanical name), size, type, spacing, and quantity
- 6. _____ detailed plans of any atypical or special areas
- 7. _____ planting and construction details
- 8. _____ details of any hard-landscaped elements, such as paving or special features
- 9. _____ cross sections that adequately display significant changes in grade or width of the area to be planted and the viability of the landscape concept
- 10. _____ Plant types (common/botanical names or key codes) and sizes will be indicated on the plans.
- 11. _____ Landscape Materials List, which will include the following:

- ____a) schedule of quantities and construction cost estimate for plant material
 - ____b) all measures to be installed
 - ____c) planting schedule
 - ____d) maintenance guidelines, provisions for care, and fertilizer requirements for a 820 day/three year establishment period for a spring planting or for two growing seasons if the plantings take place in the fall
-
- 12. ____ specifications and special provisions that follow Tollway standards
 - 13. ____ registered Landscape Architect's seal and signature on plans
 - 14. ____ Address, in writing, all Tollway comments from the previous submittal.
 - 15. ____ any additional information required by the Tollway project engineer

Appendix 8
Illinois Tollway – Sample Landscape Plans

INDEX OF DRAWINGS

1. TITLE SHEET
2. INDEX OF DRAWINGS & LEGEND
3. GENERAL NOTES
4. SUMMARY OF QUANTITIES
5. SCHEDULE OF QUANTITIES
6. SCHEDULE OF QUANTITIES
7. SCHEDULE OF QUANTITIES
8. SUGGESTED PROGRESS SCHEDULE
9. LANDSCAPE PLAN - KEY MAP
10. 406+50 TO 422+00
11. 422+00 TO 437+00
12. 437+00 TO 451+00
13. 451+00 TO 465+00
14. 143RD STREET 97+67.65 TO 107+00
15. 465+00 TO 476+00
16. 476+00 TO 480+00
17. ARCHER AVENUE 110+00 TO 123+55.66
18. 480+00 TO 495+00
19. 495+00 TO 509+50
20. 509+50 TO 524+00
21. 524+00 TO 537+00
22. 537+00 TO 553+00
23. 553+00 TO 562+00
24. 562+00 TO 575+00
25. 575+00 TO 585+00
26. 583+00 TO 585+00
27. 585+00 TO 600+00
28. 600+00 TO 613+00
29. 613+00 TO 626+00
30. 626+00 TO 640+00
31. 640+00 TO 654+00
32. 654+00 TO 668+00 (NORTH)
33. 654+00 TO 668+00 (SOUTH)
34. 668+00 TO 682+00
35. 682+00 TO 696+00
36. 696+00 TO 708+00
37. 708+00 TO 720+00
38. 720+00 TO 734+00
39. 734+00 TO 748+00 (EAST)
40. 734+00 TO 748+00 (WEST)
41. 1-55 1696+92.57 TO 1708+00
42. 748+00 TO 763+00 (WEST)
43. 748+00 TO 763+00 (CENTER)
44. 748+00 TO 763+00 (EAST)
45. 763+00 TO 776+00 (EAST)
46. 763+00 TO 776+00 (WEST)
47. 776+00 TO 787+00
48. WATERFALL GLEN FOREST PRESERVE
49. BLACK PARTRIDGE FOREST PRESERVE
50. KEEPEATAW FOREST PRESERVE

ISTHA STANDARD DRAWINGS

- | STANDARD # | TITLE |
|------------|---|
| D2-00 | SYMBOLS AND PATTERNS |
| D7-00 | LANDSCAPE PLANTING DETAILS |
| E1-00 | CONSTRUCTION SIGNS |
| E3-00 | TEMPORARY GORE DETAILS AND SHOULDER CLOSURE DETAILS |
| K1-00 | TEMPORARY EROSION AND SEDIMENT CONTROLS |

LEGEND

	R.O.W.		EXISTING GAS PIPELINE
	MAJOR DECIDUOUS TREE		EXISTING ELECTRIC LINE
	MINOR DECIDUOUS TREE		EXISTING OVERHEAD SIGN
	EVERGREEN TREE		DIRECTION OF RAMP TRAFFIC
	SHRUB BEDS WITH MULCH		EXISTING ELECTRIC LINE
	EXISTING TREE LINES		FUTURE BIKE PATH LOCATION (ALONG EAST R.O.W.)
	EXISTING NOISE WALL LOCATION		
	CONTOURS		
	EXISTING FIBER OPTIC LINE		
	EXISTING FENCE LINE		



THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY

2700 OGDEN AVENUE
DOWNERS GROVE, ILLINOIS 60515

DATE

SCALE

DRAWN

CHECKED

REVISIONS

NO. DATE DESCRIPTION

INDEX OF DRAWINGS AND LEGEND

DRAWING NO.

OF

DWG.	LOCATION	QUANTITIES										SCHEDULE OF QUANTITIES		DRAWING NO.
		1	2	3	4	5	6	7	8	9	10	11	12	
10	406+50 TO 422+00	11												EVERGREEN, PINUS NIGRA (AUSTRIAN PINE), 10' HEIGHT BALLED AND BURLAPPED
11	422+00 TO 437+00													EVERGREEN, PICEA PUNGENS (COLORADO GREEN SPRUCE), 10' HEIGHT, BALLED AND BURLAPPED
12	437+00 TO 451+00													EVERGREEN, PICEA PUNGENS (BLACK HILLS SPRUCE), 12' HEIGHT, BALLED AND BURLAPPED
13	451+00 TO 465+00	150												EVERGREEN, PICEA GLAUCA DENSATA (BLACK HILLS SPRUCE), 10' HEIGHT, BALLED AND BURLAPPED
14	143RD STREET 97+67.65 TO 107+00	80												EVERGREEN, PICEA GLAUCA DENSATA (BLACK HILLS SPRUCE), 10' HEIGHT, BALLED AND BURLAPPED
15	465+00 TO 476+00													EVERGREEN, PICEA ABLIES (NORWAY SPRUCE), 10' HEIGHT, BALLED AND BURLAPPED
16	476+00 TO 480+00	50												EVERGREEN, PICEA ABLIES (NORWAY SPRUCE), 10' HEIGHT, BALLED AND BURLAPPED
17	ARCHER AVENUE 110+00 TO 123+55.66													EVERGREEN, PICEA ABLIES (NORWAY SPRUCE), 10' HEIGHT, BALLED AND BURLAPPED
18	480+00 TO 495+00	50												EVERGREEN, PICEA ABLIES (NORWAY SPRUCE), 10' HEIGHT, BALLED AND BURLAPPED
19	495+00 TO 509+50													EVERGREEN, PICEA ABLIES (NORWAY SPRUCE), 10' HEIGHT, BALLED AND BURLAPPED
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22	537+00 TO 553+00													EVERGREEN, PICEA ABLIES (NORWAY SPRUCE), 10' HEIGHT, BALLED AND BURLAPPED
23	553+00 TO 562+00													EVERGREEN, PICEA ABLIES (NORWAY SPRUCE), 10' HEIGHT, BALLED AND BURLAPPED
24	562+00 TO 575+00	45												EVERGREEN, PICEA ABLIES (NORWAY SPRUCE), 10' HEIGHT, BALLED AND BURLAPPED
25	575+00 TO 585+00													EVERGREEN, PICEA ABLIES (NORWAY SPRUCE), 10' HEIGHT, BALLED AND BURLAPPED
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35	682+00 TO 696+00													EVERGREEN, PICEA ABLIES (NORWAY SPRUCE), 10' HEIGHT, BALLED AND BURLAPPED
36	696+00 TO 708+00													EVERGREEN, PICEA ABLIES (NORWAY SPRUCE), 10' HEIGHT, BALLED AND BURLAPPED
37	708+00 TO 720+00													EVERGREEN, PICEA ABLIES (NORWAY SPRUCE), 10' HEIGHT, BALLED AND BURLAPPED
38	720+00 TO 734+00													EVERGREEN, PICEA ABLIES (NORWAY SPRUCE), 10' HEIGHT, BALLED AND BURLAPPED
39	734+00 TO 748+00 (EAST)	90												EVERGREEN, PICEA ABLIES (NORWAY SPRUCE), 10' HEIGHT, BALLED AND BURLAPPED
40	734+00 TO 748+00 (WEST)													EVERGREEN, PICEA ABLIES (NORWAY SPRUCE), 10' HEIGHT, BALLED AND BURLAPPED
41	1-55 1696+92.57 TO 1708+00													EVERGREEN, PICEA ABLIES (NORWAY SPRUCE), 10' HEIGHT, BALLED AND BURLAPPED
42	748+00 TO 763+00 (WEST)													EVERGREEN, PICEA ABLIES (NORWAY SPRUCE), 10' HEIGHT, BALLED AND BURLAPPED
43	748+00 TO 763+00 (CENTER)													EVERGREEN, PICEA ABLIES (NORWAY SPRUCE), 10' HEIGHT, BALLED AND BURLAPPED
44	748+00 TO 763+00 (EAST)													EVERGREEN, PICEA ABLIES (NORWAY SPRUCE), 10' HEIGHT, BALLED AND BURLAPPED
45	763+00 TO 776+00 (EAST)													EVERGREEN, PICEA ABLIES (NORWAY SPRUCE), 10' HEIGHT, BALLED AND BURLAPPED
46	763+00 TO 776+00 (WEST)													EVERGREEN, PICEA ABLIES (NORWAY SPRUCE), 10' HEIGHT, BALLED AND BURLAPPED
47	776+00 TO 787+00													EVERGREEN, PICEA ABLIES (NORWAY SPRUCE), 10' HEIGHT, BALLED AND BURLAPPED
ESTIMATED QUANTITY TOTALS		465	45	15	9	152	30	155	8	144	3	18	147	

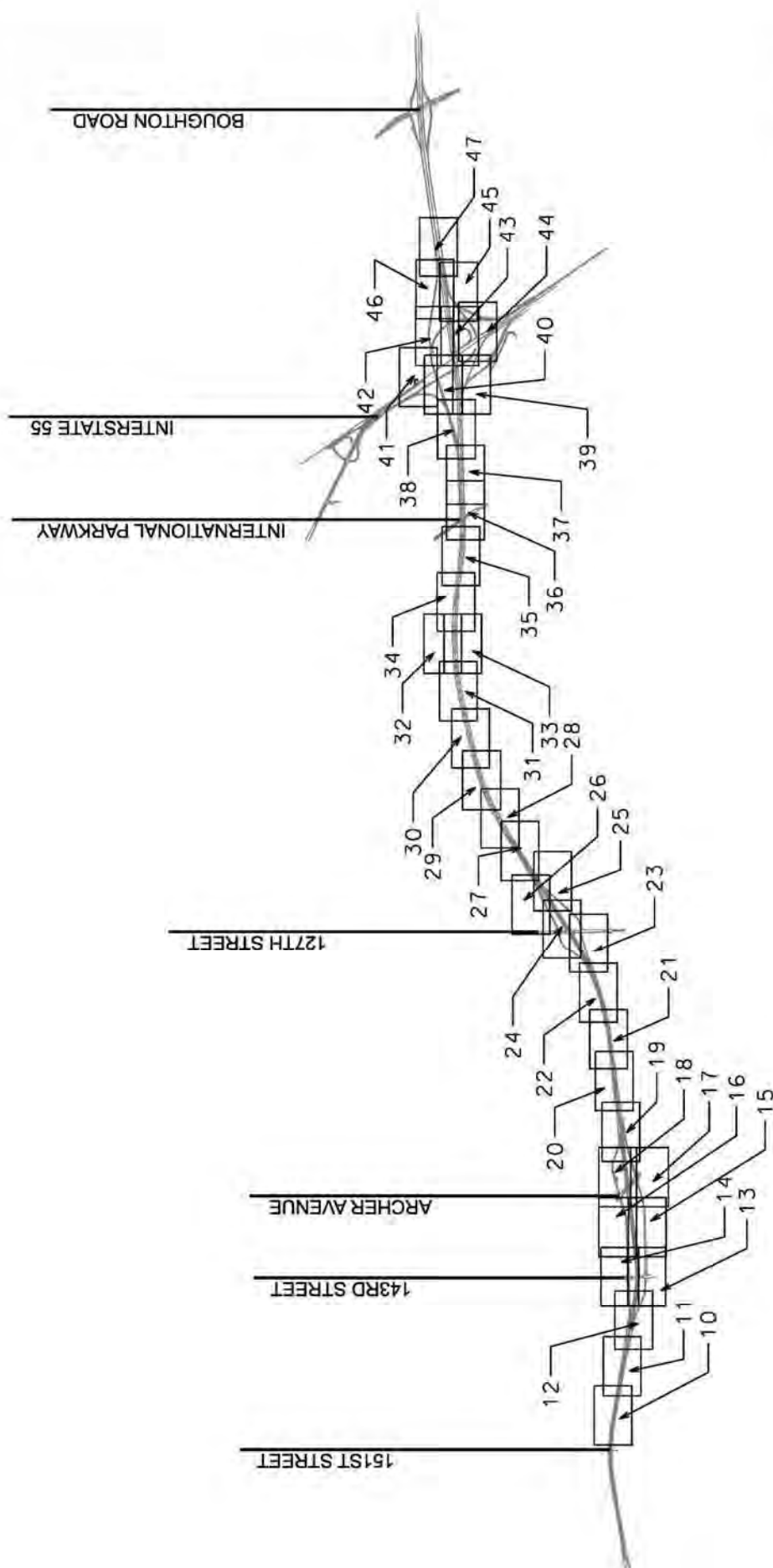


THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
2700 OGDEN AVENUE
DOWNERS GROVE, ILLINOIS 60515

DATE: 10/1/2010
SCALE: 1"=40'

REVISIONS
NO. DATE DESCRIPTION


DRAWING NO.
101 OF 101



SUGGESTED PROGRESS SCHEDULE

WORK ITEMS	2008				2009				2010				2011				2012			
	SUMMER	FALL	WINTER	SPRING	SUMMER	FALL	SPRING	SUMMER	FALL	SPRING	SUMMER	FALL	SUMMER	FALL	SPRING	SUMMER	FALL	SPRING	SUMMER	FALL
	INITIAL PLANTINGS				PERIOD OF ESTABLISHMENT				EXTENDED WOODY PLANT CARE				INTERIM COMPLETION DATE				FINAL COMPLETION DATE			
PLANT TAGGING																				
WOODY PLANTINGS																				
SPRING REPLACEMENTS																				
FALL REPLACEMENTS																				
WOODY PLANT CARE																				
INSPECTIONS																				
CLEARING, WATERFALL GLEN & BLACK PARTRIDGE																				
COVER CROP SEEDING, WATERFALL GLEN & BLACK PARTRIDGE																				
COVER CROP SEEDING, KEEPATAW																				
PERMANENT SEEDING & MULCH, KEEPATAW																				

NOTE: THIS PROGRESS SCHEDULE REPRESENTS THE DESIGN SECTION ENGINEER'S SUGGESTED SCHEDULING OF THE OVERALL CONTRACT. THE CONTRACTOR SHALL SUBMIT HIS/HER SCHEDULE IN ACCORDANCE WITH S.P. 124.

DRAWN: [] CHECKED: []	DATE: [] SCALE: []	 THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY 2700 OGDEN AVENUE DOWNERS GROVE, ILLINOIS 60515	REVISION NO. [] DATE [] DESCRIPTION []	DRAWING NO. [] SHEET [] OF []
	SUGGESTED PROGRESS SCHEDULE			

INDEX OF DRAWINGS

1. TITLE SHEET
2. INDEX OF DRAWINGS & LEGEND
3. GENERAL NOTES
4. SUMMARY OF QUANTITIES
5. SCHEDULE OF QUANTITIES
6. SCHEDULE OF QUANTITIES
7. SCHEDULE OF QUANTITIES
8. SUGGESTED PROGRESS SCHEDULE
9. LANDSCAPE PLAN - KEY MAP
10. 406+50 TO 422+00
11. 422+00 TO 437+00
12. 437+00 TO 451+00
13. 451+00 TO 465+00
14. 143RD STREET 97+67.65 TO 107+00
15. 465+00 TO 476+00
16. 476+00 TO 480+00
17. ARCHER AVENUE 110+00 TO 123+55.66
18. 480+00 TO 495+00
19. 495+00 TO 509+50
20. 509+50 TO 524+00
21. 524+00 TO 537+00
22. 537+00 TO 553+00
23. 553+00 TO 562+00
24. 562+00 TO 575+00
25. 575+00 TO 585+00
26. 583+00 TO 585+00
27. 585+00 TO 600+00
28. 600+00 TO 613+00
29. 613+00 TO 626+00
30. 626+00 TO 640+00
31. 640+00 TO 654+00
32. 654+00 TO 668+00 (NORTH)
33. 654+00 TO 668+00 (SOUTH)
34. 668+00 TO 682+00
35. 682+00 TO 696+00
36. 696+00 TO 708+00
37. 708+00 TO 720+00
38. 720+00 TO 734+00
39. 734+00 TO 748+00 (EAST)
40. 734+00 TO 748+00 (WEST)
41. 1-55 1696+92.57 TO 1708+00
42. 748+00 TO 763+00 (WEST)
43. 748+00 TO 763+00 (CENTER)
44. 748+00 TO 763+00 (EAST)
45. 763+00 TO 776+00 (EAST)
46. 763+00 TO 776+00 (WEST)
47. 776+00 TO 787+00
48. WATERFALL GLEN FOREST PRESERVE
49. BLACK PARTRIDGE FOREST PRESERVE
50. KEEPEATAW FOREST PRESERVE

ISTHA STANDARD DRAWINGS

- | STANDARD # | TITLE |
|------------|---|
| D2-00 | SYMBOLS AND PATTERNS |
| D7-00 | LANDSCAPE PLANTING DETAILS |
| E1-00 | CONSTRUCTION SIGNS |
| E3-00 | TEMPORARY GORE DETAILS AND SHOULDER CLOSURE DETAILS |
| K1-00 | TEMPORARY EROSION AND SEDIMENT CONTROLS |

LEGEND

	R.O.W.		EXISTING GAS PIPELINE
	MAJOR DECIDUOUS TREE		EXISTING ELECTRIC LINE
	MINOR DECIDUOUS TREE		EXISTING OVERHEAD SIGN
	EVERGREEN TREE		DIRECTION OF RAMP TRAFFIC
	SHRUB BEDS WITH MULCH		EXISTING ELECTRIC LINE
	EXISTING TREE LINES		FUTURE BIKE PATH LOCATION (ALONG EAST R.O.W.)
	EXISTING NOISE WALL LOCATION		
	CONTOURS		
	EXISTING FIBER OPTIC LINE		
	EXISTING FENCE LINE		



THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY

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SCALE

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CHECKED

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INDEX OF DRAWINGS
AND LEGEND

DRAWING NO.

OF

DWG.	LOCATION	QUANTITIES										SCHEDULE OF QUANTITIES		DRAWING NO.
		1	2	3	4	5	6	7	8	9	10	11	12	
10	406+50 TO 422+00	11												EVERGREEN, PINUS NIGRA (AUSTRIAN PINE), 10' HEIGHT BALLED AND BURLAPPED
11	422+00 TO 437+00													EVERGREEN, PICEA PUNGENS (COLORADO GREEN SPRUCE), 10' HEIGHT, BALLED AND BURLAPPED
12	437+00 TO 451+00													EVERGREEN, PICEA PUNGENS (BLACK HILLS SPRUCE), 12' HEIGHT, BALLED AND BURLAPPED
13	451+00 TO 465+00	150												EVERGREEN, PICEA GLAUCA DENSATA (BLACK HILLS SPRUCE), 10' HEIGHT, BALLED AND BURLAPPED
14	143RD STREET 97+67.65 TO 107+00	80												EVERGREEN, PICEA GLAUCA DENSATA (BLACK HILLS SPRUCE), 10' HEIGHT, BALLED AND BURLAPPED
15	465+00 TO 476+00													EVERGREEN, PICEA ABLIES (NORWAY SPRUCE), 10' HEIGHT, BALLED AND BURLAPPED
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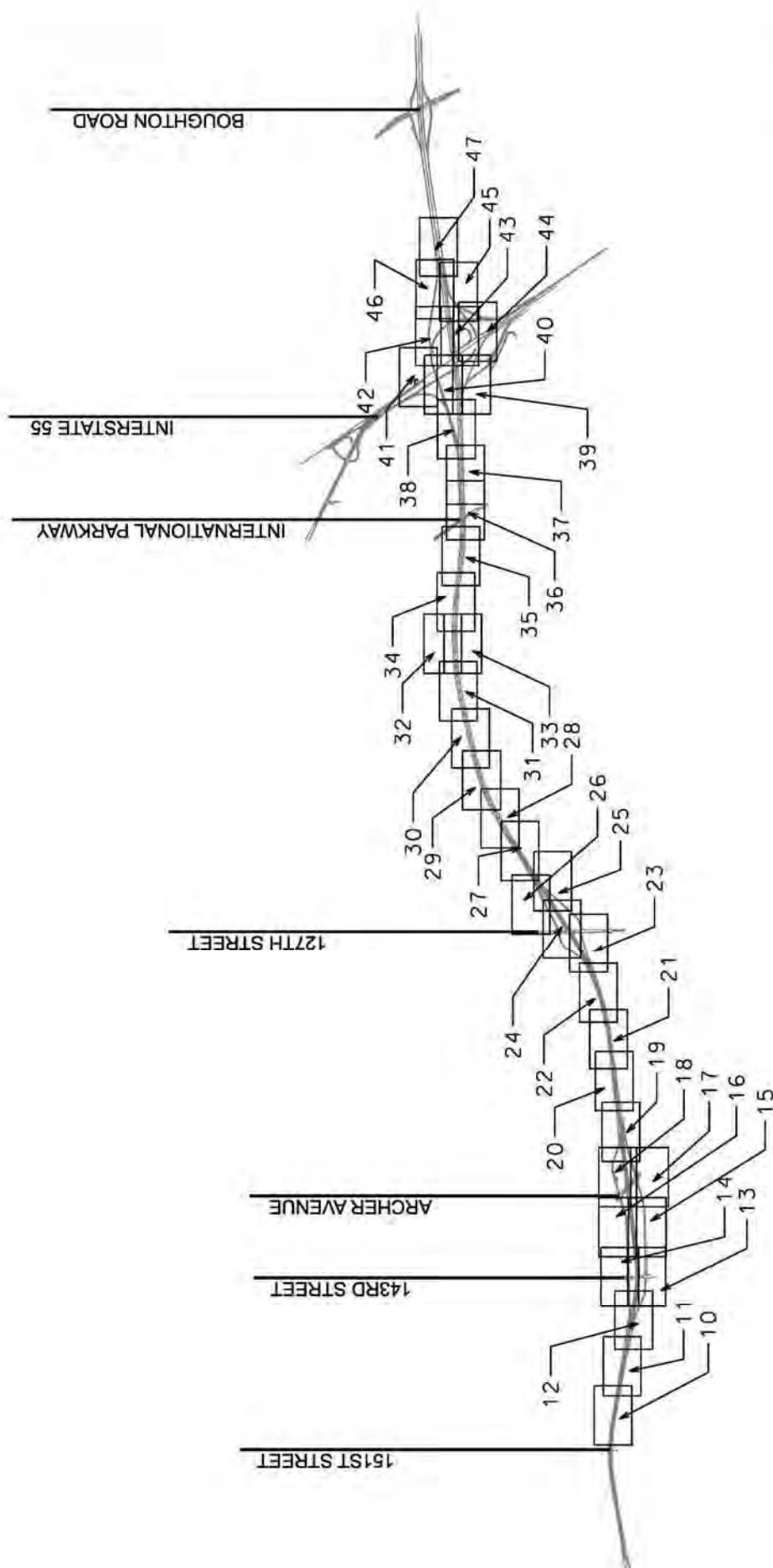


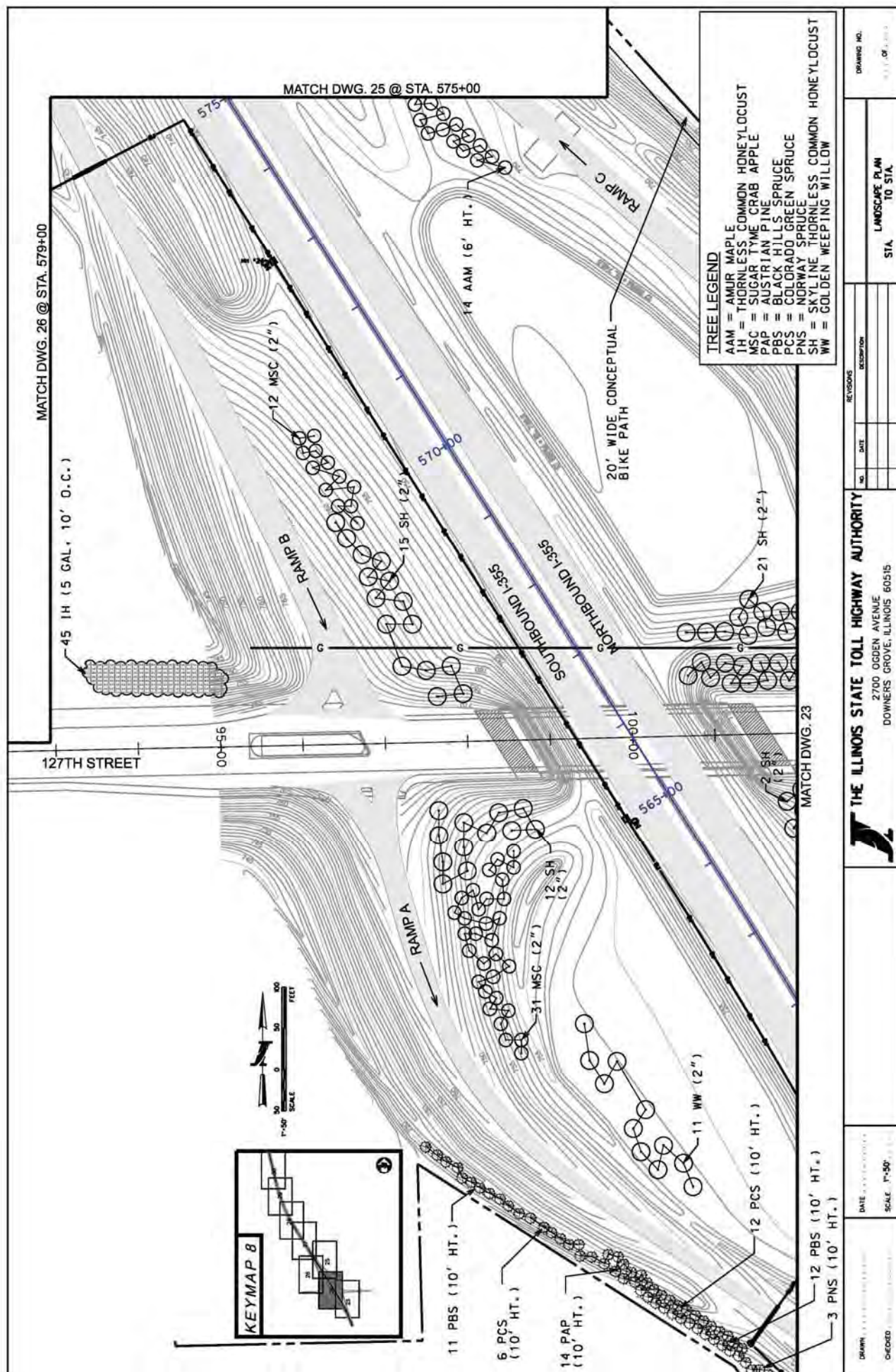
THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
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101 OF 101





SUGGESTED PROGRESS SCHEDULE

WORK ITEMS	2008				2009				2010				2011				2012			
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	INITIAL PLANTINGS				PERIOD OF ESTABLISHMENT				EXTENDED WOODY PLANT CARE				INTERIM COMPLETION DATE				FINAL COMPLETION DATE			
PLANT TAGGING																				
WOODY PLANTINGS																				
SPRING REPLACEMENTS																				
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CLEARING, WATERFALL GLEN & BLACK PARTRIDGE																				
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NOTE: THIS PROGRESS SCHEDULE REPRESENTS THE DESIGN SECTION ENGINEER'S SUGGESTED SCHEDULING OF THE OVERALL CONTRACT. THE CONTRACTOR SHALL SUBMIT HIS/HER SCHEDULE IN ACCORDANCE WITH S.P. 124.

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Appendix 9
Illinois Tollway – Preservation, Removal and Replacement of Trees

PRESERVATION, REMOVAL AND REPLACEMENT OF TREES

1. Policy:

The Illinois State Toll Highway Authority (Tollway) recognizes the essential functions and values that trees contribute to the roadside infrastructure and the environment. Accordingly, the Tollway is committed to protect and preserve existing trees within project limits consistent with the standards of highway and public safety and to the extent practical. When trees of value must be removed opportunities will be pursued to provide replacement trees.

2. Purpose:

This document provides guidance for decision making pertaining to the preservation, removal and replacement of existing roadside trees in conjunction with the planning, design and construction improvements. The intent of this guidance is to replace vegetation of value when trees cannot be preserved and require removal.

3. Guidelines for implementation:

For consideration of tree replacement the term "tree" shall mean a live woody perennial plant in good health, having a single main stem or trunk, the diameter of which is 6 inches or greater at diameter breast height (DBH) measured at a point 4.5 feet above the highest ground level at the base of the tree. The term "tree" also may include woody perennial plants having a single main stem or trunk of 4 inches or greater DBH when determination is made that such plants have been deliberately planted for specific functional landscape, environmental mitigation or habitat preservation/enhancement purposes.

Replacement does not apply to the removal of trees that are dead, dying, diseased, severely damaged or in poor health and form. Tree replacement for invasive, volunteer or undesirable woody vegetation is not typically required; however, wooded tree stands may be evaluated to determine a reduced suitable replacement rate when the invasive or undesirable tree species provides an identified environmental or functional value.

(a.) Tree Preservation and Tree Removal:

Tree preservation and protection should be explored before consideration of removal and replacement. When removal is necessary locations for on-site replacement should be pursued before considering potential off-site mitigation solutions.

An evaluation shall be conducted by the Designer with qualified personnel whenever tree removal is proposed and identified during the Phase I study or the Environmental Studies Inventory (ESIS) documents. Depending on the scale and scope of work, the evaluation may necessitate a tree survey. All evaluation methods should include an analysis report and summary of recommendations to demonstrate compliance with policy and that the necessary loss of valued

vegetation has been minimized and mitigated. The information shall be submitted to the Tollway Project Manager and Landscape/Environmental Unit for review. If any of the conditions in APPENDEX III of the Environmental Studies Manual (ESM) apply, a project submittal may also be required to the Illinois Department of Natural Resources (IDNR) for completion of the natural resource review process. Resulting documentation should accompany subsequent phases of the project's development and implementation. Tree protection areas and sensitive environmental issues should also be noted in the contract documents and discussed during the pre-construction meeting.

Alternate options for mitigation may be considered for unique specimen trees, such as those on the inventory of state record; outstanding examples possessing exceptional size and form, or of recognized historical significance.

(b.) Tree Replacement:

General replacement ratios for trees shall be:

<u>Tree(s) Removed</u> <u>Diameter Breast Height (DBH)</u>	<u>Number of</u> <u>Replacement Trees</u>
greater than 24" diameter	2
6" to 24" diameter	1

An estimated replacement ratio of 0.1 to 0.8 for invasive or undesirable tree species removed (6" diameter or greater) in wooded tree stands may be considered when environmental or functional value has been determined.

Plantings shall be accomplished in conformance with applicable sections of the most current Standard and Tollway Supplemental Specifications for Planting Woody Plants (Section 253) and the Erosion and Sediment Control, Landscape Criteria Manual. To provide the best chances of establishment, sizes for replacement trees shall typically be 1 caliper inch to 2 caliper inches for each replacement tree. Consideration may be given for other equivalent replacement material sizes and ratios when special conditions are identified and provided for review in the design evaluation report.

Suitable tree replacement locations should be provided at locations on-site, as near to the removal areas as practical and address locations identified in the Phase I report. If final tree replacement quantities result in undesirable crowding of trees at nearby right-of-way locations, consideration may be given to reduce the number of replacement trees required to be planted and/or designate other practical locations within the right-of-way.

Off-site options for tree replacement may be considered based on goals, priorities, and the particular circumstances of each project. Where trees must be removed for Tollway projects in urban areas, sensitivity should be afforded to the concerns of adjacent community and affected residents in determining appropriate replacement solutions.

Appendix 10
U.S. Department of Agriculture – Illinois Plant Hardiness Zone Map

U.S. Department of Agriculture – Illinois Plant Hardiness Zone Map

