

IDOT Construction Stormwater Management



SCI Engineering, Inc.

-Third Party Stormwater Consultants

PTB 150 Item 43

SCI Involvement 2008-2010

- Over 2 years assessing ESC program
- 2008-Monitored sites in Districts 2-9
- Focus on site conditions
- 2009-Monitored sites statewide
- Additions to Scope of Work included SWPPP Design Reviews



Overview



- Design
- Budget
- Contractor Performance
- IONs
- Receiving Waters
- Suggestions

SWPPP Requirements

- Intended sequence of major soil disturbing activities
- Identification of potentially erosive areas
- Site specific scheduling of BMP implementation



Illinois Department
of Transportation

Storm Water Pollution Prevention Plan

Route _____ Marked Rte. _____
Section _____ Project No. _____
County _____ Contract No. _____

This plan has been prepared to comply with the provisions of the NPDES Permit Number ILR10, issued by the Illinois Environmental Protection Agency for storm water discharges from Construction Site Activities.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the 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 for knowing violations.

Print Name

Signature

Title

Date

Agency

I. Site Description:

A. The following is a description of the project location:

B. The following is a description of the construction activity which is the subject of this plan:

C. The following is a description of the intended sequence of major activities which will disturb soils for major portions of the construction site, such as grubbing, excavation and grading:

D. The total area of the construction site is estimated to be _____ acres.

The total area of the site that is estimated will be disturbed by excavation, grading or other activities is _____ acres.

E. The following is a weighted average of the runoff coefficient for this project after construction activities are completed:

F. The following is a description of the soil types found at the project site followed by information regarding their erosivity:

ESC Design and Detail

- Include existing topography
- Erodible soils/areas
- Increase pay item quantities
- More info on phasing/sequencing
- Better protection of waterbodies

Erosion Control General Notes

Description of Stabilization Practices at the Beginning of Construction

EROSION CONTROL, GENERAL NOTES

NO.	REVISION	DATE
1		

DESCRIPTION OF STABILIZATION PRACTICES AT THE BEGINNING OF CONSTRUCTION

1. PLACE TEMPORARY EROSION CONTROL SYSTEMS AT LOCATIONS WHERE WATER LEAKS AND RETURN FROM THE CONSTRUCTION ZONE.

2. TEMPORARILY SEED HIGHLY ERODIBLE AREAS OUTSIDE THE CONSTRUCTION SLOPE LIMITS.

3. CONSTRUCT/GRADE DITCHES AND PROVIDE TEMPORARY EROSION CONTROL SYSTEMS.

4. TEMPORARILY DIVERT WATER AROUND PROPOSED INLET AND OUTLET LOCATIONS.

5. CONTINUE BUILDING UP THE EMBANKMENT TO THE PROPOSED GRADE WHILE AT THE SAME TIME PLACING PERMANENT EROSION CONTROL, SUCH AS RIPRAP DITCH LINING AND CONDUCTING FINAL SHAPING TO THE SLOPE.

6. EXCAVATED AREAS AND EMBANKMENTS SHALL BE PERMANENTLY SEEDS WHEN GRADING IS FINISHED. IF NOT, THEY SHALL BE TEMPORARILY SEEDS AT THE END OF CONSTRUCTION ACTIVITY IN THE AREA IS PLANNED FOR SEVEN DAYS.

7. CONSTRUCTION EQUIPMENT SHALL BE STORED AND FUELED ONLY AT DESIGNATED LOCATIONS. ALL NECESSARY MEASURES SHALL BE TAKEN TO CONTAIN ANY FUEL OR POLLUTION RUN-OFF IN COMPLIANCE WITH OUR WATER QUALITY REGULATIONS. LEAKING EQUIPMENT OR SUPPLIES SHALL BE IMMEDIATELY REPAIRED OR REMOVED FROM THE SITE.

8. THE RESIDENT ENGINEER SHALL INSPECT THE PROJECT DAILY DURING CONSTRUCTION ACTIVITIES. INSPECTION SHALL ALSO BE DONE WEEKLY AND MONTHLY BASED ON THE ENTERED DAILY LOGS AND OTHER EROSION CONTROL MEASURES ARE NECESSARY.

9. SEDIMENT COLLECTED DURING CONSTRUCTION BY THE VARIOUS TEMPORARY EROSION CONTROL SYSTEMS SHALL BE DISPOSED OF ON THE SITE ON A REGULAR BASIS OR WHEN ITS PRESENT FILL IS DIRECTED BY THE ENGINEER. THE COST OF THIS MAINTENANCE SHALL BE ACCORDING TO ARTICLE 100.04 OF THE STANDARD SPECIFICATIONS.

10. THE TEMPORARY EROSION CONTROL SYSTEMS SHALL BE REMOVED AS DIRECTED BY THE ENGINEER AFTER USE IS NO LONGER NEEDED OR NO LONGER FUNCTIONING. THE COST OF THIS REMOVAL SHALL BE INCLUDED IN UNIT BID PRICE FOR THE TEMPORARY EROSION CONTROL PAY ITEMS INVOLVED. NO ADDITIONAL COMPENSATION WILL BE ALLOWED.

DESCRIPTION OF STABILIZATION PRACTICES DURING CONSTRUCTION

1. DURING HIGHWAY CONSTRUCTION, AREAS OUTSIDE THE CONSTRUCTION SLOPE LIMITS TO BE PROTECTED SHALL BE PROTECTED FROM DAMAGING EFFECTS OF CONSTRUCTION. THE CONTRACTOR SHALL NOT USE THIS AREA FOR STAGING DECEPT AS DESIGNATED ON THE PLANS OR CONTROLLED BY THE ENGINEER, PARKING OF VEHICLES OR CONSTRUCTION EQUIPMENT, STORAGE OF MATERIALS, OR OTHER CONSTRUCTION RELATED ACTIVITIES.

2. WITHIN THE CONSTRUCTION ZONE, CRITICAL AREAS WHICH HAVE HIGH FLOWS OF WATER, AS DETERMINED BY THE ENGINEER, SHALL REMAIN UNDISTURBED UNTIL FULL SCALE CONSTRUCTION IS UNDERWAY TO PREVENT UNNECESSARY SOIL EROSION.

3. EARTH STRUCTURES SHALL BE TEMPORARILY SEEDS IF THEY ARE TO REMAIN UNSEED FOR MORE THAN SEVEN DAYS.

4. AS THE CONTRACTOR COMPLETES A PORTION OF HIGHWAY OR PARKING LOT IN A FULL SECTION, HE/SHE SHALL FOLLOW THE FOLLOWING STEPS AS DIRECTED BY THE ENGINEER:

DESCRIPTION OF STRUCTURAL PRACTICES AFTER FINAL GRADING

1. TEMPORARY EROSION CONTROL SYSTEMS SHALL BE LEFT IN PLACE WITH PROPER MAINTENANCE UNTIL PERMANENT EROSION CONTROL IS IN PLACE, WORKING PROPERLY, AND ALL PROPOSED FILL AREAS SEEDS AND ESTABLISHED WITH A PROPER STAND.

2. ONCE PERMANENT EROSION CONTROL SYSTEMS AS SUPPOSED IN THE PLANS ARE FUNCTIONING AND ESTABLISHED, TEMPORARY ITEMS SHALL BE REMOVED, CLEANED UP, AND DISPOSED PROPERLY.

NO.	REVISION	DATE
1		

ILLINOIS DEPARTMENT OF TRANSPORTATION
EROSION AND SEDIMENT CONTROL GENERAL NOTES
FOR HIGHWAYS TO BE BUILT BY SECTION PLANS OF ILLINOIS
SECTION 100.04

Description of Stabilization Practices During Construction

Description of Structural Practices after Final Grading

Project Phasing/Sequencing

- 45% said generally not enough phasing info
- 45% said construction conditions dictate phasing (i.e. you can't accurately plan phasing during design)
- 10% said phasing is essential and designers should make site visits to verify the suitability of proposed plans

Pre-Construction Meeting

- ESC requirements should be discussed
- BMP selection/substitutions & problem areas (Designer input?)
- Engineer and Contractor need to clearly communicate regarding assumed responsibilities and ambiguous costs
- Project Phasing
- Minutes from these meetings help document responsibilities



Pre-Construction Meetings

- Should be held at both the District Office and on project site
- 50% held at both
- 35% held only at office
- 15% had no pre-construction discussion of ESC

Construction BMPs

- Emphasis should be on temporary stabilization
- Waterbodies
- Erosion control > Sediment control



Winter Shutdown Protocol

- Critical areas often lay dormant during winter months
- ESC project phasing
- Pre-shutdown SWPPP modifications & BMP maintenance
- Erosion, Sediment, and Runoff Controls
- Active permit = monitoring required



Deficiency Deductions

- 10% Threatened its use
- 90% Not used
- 1 deficiency deduction levied
- Almost universally felt that it is an effective tool (especially on big jobs)
- Small % felt it was too significant (\$), making REs less likely to enforce for smaller issues

Suggestions for Improving Contractor Performance

- Allow another contractor to come in to correct deficiencies and charge the Prime the associated cost
- Allow sub-contractor to do initial structural BMP installation but require Prime to maintain them
- Train contractors on IDOT ESC specs

Contractor Performance

- Hand holding/baby sitting by RE
- RE must supervise proper installation
- Maintenance only as instructed
- Sub-contractor availability/performance
- Contractor complaints about maintenance costs compared to bid estimates

Non-Compliance

- Refers primarily to events or conditions that lead to the discharge of sediment beyond the site limits (Incidence of Non-Compliance (ION))



Incidence of Non-Compliance

- Filing an ION will not result in an inspection from a regulatory agency (Complaints from passers-by or adjacent land owners will)

**ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
CONSTRUCTION SITE STORM WATER DISCHARGE
INCIDENCE OF NON-COMPLIANCE (ION)**

PERMITTEE NAME:	LAST: _____ FIRST: _____ MIDDLE INITIAL: _____	AREA CODE & PHONE NUMBER:	_____
STREET:	CITY: _____	ST: _____	ZIP: _____
CONSTRUCTION SITE NAME:	_____		
COUNTY:	SECTION: _____	TOWNSHIP: _____	RANGE: _____
NPDES PERMIT NUMBER:	I L R I O	SECTION: _____	SECTION: _____
	SECTION: _____	SECTION: _____	SECTION: _____

CAUSE OF NON-COMPLIANCE:

2" precip in 12 hrs was beyond design specs for basin, ditch checks, etc.

ACTIONS TAKEN TO PREVENT ANY FURTHER NON-COMPLIANCE:

Removed and recovered as much sediment as possible & repaired all BMPs.

ENVIRONMENTAL IMPACT RESULTING FROM THE NON-COMPLIANCE:

Sediment discharge to adjacent drainage route.

ACTIONS TAKEN TO REDUCE THE ENVIRONMENTAL IMPACT RESULTING FROM THE NON-COMPLIANCE:

Reinforced the BMPs @ critical discharge points. Recovered some sediment

SIGNATURE: _____ TITLE: _____ DATE: _____

MAIL COMPLETED FORM TO:
EPA NOT SUBMIT ADDITIONAL DOCUMENTATION UNLESS REQUESTED.

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF WATER POLLUTION CONTROL
COMPLIANCE ASSURANCE SECTION #15
POST OFFICE BOX 19276
SPRINGFIELD, ILLINOIS 62764-0276

FOR OFFICE USE ONLY

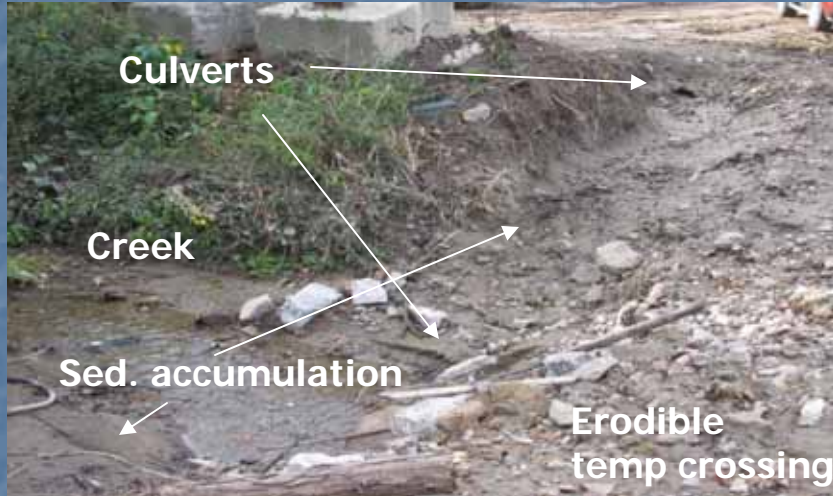
100: _____
PERMIT NO. I/R/I/C: _____
DATE: _____

Information required by this form must be provided to comply with 615 ILCS 5/301 (a)(2). Failure to do so may prevent the form from being processed and could result in your installation being deemed "Not in Compliance" by the Permit Management Center.
6/20/2010
WPC-024 Rev. 04/09

IONs

- Filed on 50% of projects
- 15% felt that more IONs could have been filed over the course of their project
- Still feel it raises a red flag
- So much rain that they quit sending them
- 85% felt that IONs were properly reported and understand the requirement

IONS?



On-site Tributary Management



Diversions



- “Temp diversion will likely be required...means and methods left to Contractor/RE... should follow specs of 404/401 permit.”
- BMPs/Stabilization

Pumps

- Pumps can create turbid environments that lead sediment drainages
- Discharge to Basin or Dirt Bag
- No IDOT instructions to field personnel to date regarding this matter



Temporary Creek Crossings



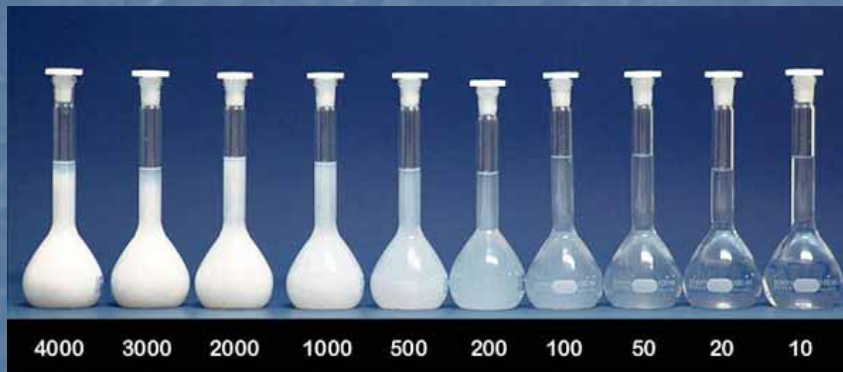
- Location left to Contractor and RE
- General specs include flow pipes and clean rock
- Sediment prohibited as fill
- Pre-Con topic

REs #1 Suggestions

(95% felt ESC has improved)

- **Increase quantities of ESC pay items**
- **Make Prime Contractor responsible for ESC maintenance**
- **Train and use qualified inspectors in each district**
- **More designer involvement**
- **Clarify project requirements/restrictions for work in streams**
- **Presentations and training to refresh and stay current on regulations and requirements**

Effluent Limitations Guidelines (ELGs)



- ≥ 10 acres at one time
- 280 NTUs
- Daily sampling at all discharge points
- Monitoring exempt from 2yr/24 hr events
- Monitoring results are an average of readings taken/day

Beyond Construction Sites (Municipal Relevance)

- Municipal construction sites
- Ordinances
 - Revenue
 - Environmental Protection
 - MS4 Overlap
- Stormwater Master Plans
 - Grant Eligibility
 - Flood Plain Management Tool



Thank You



Any Questions?
SCI Engineering, Inc.