



CITY of NOVI CITY COUNCIL

**Agenda Item 1
November 10, 2008**

SUBJECT: Approval of Resolution regarding Soil Erosion and Sedimentation Control (SESC) Procedures submitted to the DEQ by the Department of Public Works.

SUBMITTING DEPARTMENT: Public Works

CITY MANAGER APPROVAL: *pwa for CJP*

BACKGROUND INFORMATION:

These procedures have been reviewed by the Department of Environmental Quality (DEQ) and the Water Bureau; they meet all of the minimum requirements of Part 91, SESC of the Natural Resources and Environmental Protection Act 1994, PA 451. The Water Bureau will formally adopt these procedures upon City Council approval.

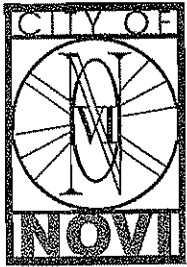
This document serves as guidance for all earth work (erosion control and off-site sedimentation for all routine maintenance and new construction projects) undertaken by the DPW. Seven DPW staff members have completed the MDEQ's SESC training, passed the final exam, and are certified to make decisions regarding the design, inspection and implementation of SESC measures.

After adoption, the City will be approved as an Authorized Public Agency (APA) and will not have to obtain MDEQ soil erosion and sedimentation permits for DPW projects.

RECOMMENDED ACTION: Approval of Resolution regarding Soil Erosion and Sedimentation Control (SESC) Procedures submitted to the DEQ by the Department of Public Works.

	1	2	Y	N
Mayor Landry				
Mayor Pro Tem Capello				
Council Member Crawford				
Council Member Gatt				

	1	2	Y	N
Council Member Margolis				
Council Member Mutch				
Council Member Staudt				



RESOLUTION OF APPROVAL

SOIL EROSION AND SEDIMENTATION CONTROL (SESC) PROCEDURES

CITY COUNCIL

Mayor
David B. Landry

Mayor Pro Tem
Kim Capello

Bob Gatt

Terry K. Margolis

Andrew Mutch

Kathy Crawford

Dave Staudt

City Manager
Clay J. Pearson

City Clerk
Maryanne Cornelius

WHEREAS, the Department of Public Works has submitted soil erosion and sedimentation control procedures to the Department of Environmental Quality (DEQ), and,

WHEREAS, the DEQ has reviewed these procedures and declared that they meet the minimum requirements of Part 91, SESC, of the Natural Resources and Environmental Protections Act, 1994 PA 451, as amended, and,

WHEREAS, the City will be an approved Authorized Public Agency (APA) and will not have to obtain DEQ soil erosion and sedimentation permits for Public Works projects.

NOW, THEREFORE, BE IT RESOLVED that the Mayor and Council of the City of Novi adopt the Soil Erosion and Sedimentation Control Procedures for the Department of Public Works.

CERTIFICATION

I, Maryanne Cornelius, duly appointed Clerk of the City of Novi, do hereby certify that the foregoing is a true and complete copy of a resolution adopted by the City Council of the City of Novi at a Regular meeting held this 10th day of November, 2008.

Maryanne Cornelius
City Clerk

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Novi, Michigan 48375
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cityofnovi.org



JENNIFER M. GRANHOLM
GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
SOUTHEAST MICHIGAN DISTRICT OFFICE



STEVEN E. CHESTER
DIRECTOR

October 14, 2008

Mr. William McCusker
City of Novi
Department of Public Works
45175 West Ten Mile Road
Novi, Michigan 48375

Dear Mr. McCusker:

The draft Soil Erosion and Sedimentation Control (SESC) Procedures (Procedures) submitted by the City of Novi, Department of Public Works (DPW), on October 13, 2008, has been reviewed by the Department of Environmental Quality (DEQ), Water Bureau (WB). The Procedures meets the minimum requirements of Part 91, SESC, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

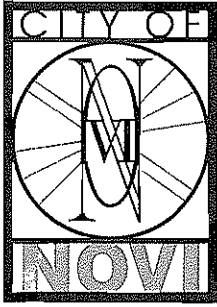
The WB will formally approve the Procedures pursuant to Section 9110 of Part 91 upon receiving a copy of the adopted Procedures as submitted on October 13, 2008, and proof of adoption by the governing entity that has authority to adopt such Procedures for the DPW. Please forward a copy of the adopted Procedures and proof of adoption to me at the address below.

If you have any questions, please contact me.

Sincerely,

Cheryl Petroski
Southeast Michigan District Office
Water Bureau
586-753-3718

cc: Mr. Dick Mikula, DEQ
Ms. Hae-Jin Yoon, DEQ



cityofnovi.org

DEPARTMENT OF PUBLIC WORKS
AUTHORIZED PUBLIC AGENCY (A.P.A.)
SOIL EROSION AND SEDIMENTATION CONTROL
(SESC) PROCEDURES

APA Contact: William McCusker, Director
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Novi, MI 48375
(248) 735-5640
bmccusker@cityofnovi.org

INTRODUCTION

All requirements of Part 91, Soil Erosion and Sedimentation Control (SESC), Natural Protection Resources and Environmental Protection Act, 1994 PA 451 as amended (Part 91), and the administrative rules promulgated under the authority of Part 91 are included in this procedure by reference.

This procedure is adopted as a working document; its contents are intended to serve as guidance for all earth work undertaken by the DPW of the City of Novi (hereafter referred to as the Agency), falling under the jurisdiction of Part 91. A copy of this procedure is provided to the Agency engaged in any aspect of SESC. Those personnel are expected to understand and implement the contents of this procedure.

The goal of the Agency is to have an effective and economical SESC program to protect the soil, water, and other natural resources of the State and the City of Novi. Controlling erosion and off-site sedimentation is a high priority for all maintenance and new construction projects undertaken by the Agency.

The Agency will anticipate and plan for potential SESC problems associated with all project phases (clearing, rough grading, construction, final grading, restoration, and continuing site maintenance). All earth work will be performed in accordance with a comprehensive SESC plan which meets the requirements of Rule 1703 (Attachment 1). Routine maintenance projects will be done in accordance with a comprehensive SESC plan or with established maintenance guideline referenced in this Procedure.

SESC procedures are to be reviewed and approved by the Michigan Department of Environmental Quality (MDEQ) and the DPW Director. Revisions to the approved procedures shall be reviewed and approved by the MDEQ prior to adoption.

All Agency personnel who make decisions regarding the design, inspection, or implementation of SESC measures must complete the MDEQ's SESC training and pass the final exam. This includes personnel in the following positions:

- Roads and Drains Manager - Tim Wright
- Work Leader/Inspector - Gary Reinwand
- Heavy Equipment Operator - Jerry Tremblay
- Laborer - Jim Paulk, Chris Stanley, Drew Gariepy

STANDARDS AND SPECIFICATIONS

The following documents guide the implementation of SESC measures and are available at the DPW:

- Michigan Department of Environmental Quality, *Guidebook of Best Management Practices for Michigan Watershed*
- The manufacturer's standards and specifications for SESC products
- Michigan Department of Management and Budget, *Soil Erosion and Sedimentation Control Guidebook*

THE SOIL EROSION AND SEDIMENTATION PROCESS

Soil Erosion is classified as either natural or accelerated. Natural erosion is a geological process facilitated by time, climate, and other environmental site conditions, which proceeds relatively independently of human activity. Accelerated soil erosion is a result of human activity. After soil has been exposed or topography altered, wind or moving water can rapidly move sediments into water bodies or onto adjacent property. Accelerated erosion and off-site sedimentation must be prevented during and after construction and maintenance activities.

Base erosion potential is the amount of erosion expected from a site after vegetation has been removed. Whenever and wherever possible, avoid construction or soil disturbance in locations with a high base erosion potential or a pre-existing natural erosion condition. Such sites logically possess high-accelerated erosion potential; seek viable sites with lower erosion potential as alternatives.

The Agency will utilize slope and soil information to estimate the base erosion potential of the site. Information will be obtained from the county soil survey, topographic maps, and on-site analysis. The Revised Universal Soil Loss Equation (RUSLE) or other commonly accepted methods will be used in determining the project route and prescribing SESC measures.

The scheduling of a project, with respect to the growing season and accepted seeding dates, will be considered when selecting SESC measures for a project. Liberal use of erosion control blankets, securely anchored mulch, or other erosion resistant materials will be used when a project extends beyond the growing season.

PRINCIPLES OF SESC

The Agency recognizes seven basic principles of SESC:

1. Design and construct terrain features, such as slopes and drainage ways, to minimize the erosion potential of the exposed site. Consider soil type, time of year, proximity to waterways, duration of exposure, length and steepness of the slope, and the anticipated volume and intensity of runoff.
2. Minimize the area of unstable soils are exposed to erosive forces.
3. Minimize the amount of time areas of unstable soils are exposed to erosive forces.
4. As soon as it is practical after earth disturbance, protect exposed soils with temporary or permanent vegetation, mulch, or other approved erosion resistant material.
5. Avoid concentrating runoff. If concentrated runoff is unavoidable, implement measures to reduce runoff to a non-erosive velocity.
6. Trap eroded sediments on-site with temporary and permanent barriers, basins, and other sediment retention measures and allow for the controlled discharge of runoff at a non-erosive velocity.
7. Implement a continuous inspection and maintenance procedure, which includes written documentation of the SESC actions.

The foregoing principles guide the SESC decisions of the Agency during planning, design, and installation for both construction and maintenance sites and during the performance of routine maintenance tasks.

PLANNING AND DESIGN

Effective SESC begins with planning, including locating projects to best meet each project objective while minimizing the potential for erosion.

Minimize the number of stream crossings to reduce disturbance to streams and protect water quality. When a stream crossing is necessary, locate it at a stable reach of the stream and either at a right angle to the direction of flow or so the culvert or waterway opening is aligned to accommodate the natural course of the stream.

If possible, avoid project locations which encroach on lakes, streams, floodplains, or wetlands. Structures placed below the ordinary high water mark, encroachments into floodplains, potential impediments to navigation or riparian rights, or changes to channel characteristics must have approval of local, state, or federal authorities as appropriate.

Develop a comprehensive SESC plan in accordance with Rule 1703 for incorporation into the design plans for all phases of all projects. Clearly show the scope, location, and installation details for all SESC measures on the plans, in the specifications, and in the

special guidelines for in-house construction and maintenance projects. Provide a section in the plans to list miscellaneous quantities of SESC materials to address unanticipated control requirements. In addition, include a construction sequence which specifically schedules the installation and maintenance requirements of each temporary and permanent SESC measure included in the design.

Emphasize the placement and maintenance of both temporary and permanent SESC measures on plans and guidelines. Specify that temporary SESC measures shall be installed prior to, or upon commencement of, earth change activity and shall be removed only after permanent SESC measures are in place and the site is stabilized. Temporary and permanent SESC measures shall be installed and maintained in accordance with the manufacturer's specifications and the guidelines set forth in the standards and specifications adopted by the Agency.

Install permanent SESC measures for all slopes, channels, ditches, or any disturbed land area within five (5) calendar days after final grading or completion of the final earth change. If permanent stabilization of a disturbed area is not possible upon completion of an earth change, maintain temporary SESC measures until the site is stabilized.

Select horizontal and vertical alignments of rights-of way to avoid critically erodible sites along the proposed route and minimize disturbance to surface and groundwater flows. Alignments will be consistent with safety criteria and, to the extent possible, fit into the natural landscape to reduce the number and size of cuts and fills.

Control the concentration of water on slopes with infiltration areas, intercepting ditches, diversion berms, or drop structures with stable outlets. Reduce the concentration and velocity of runoff by use of horizontal surface roughening, reduction of effective slope length, and the prompt installation of mulch, geotextile, or other appropriate surface covering.

Design ditches and channels with flattest side slopes permitted by the right-of-way (preferably 3H:1V, or flatter) and broad, flat or rounded bottoms. Channels shall be vegetated or armored with geotextile, riprap, or other suitable material as necessary to prevent erosion at anticipated flows.

Place check dams, sediment traps, or both, in combination to reduce runoff velocity and trap sediments in unstabilized ditches or channels. These devices may be either temporary or permanent, depending on the conditions at the site.

Plans must include a routine inspection and maintenance schedule. Structures designed to trap sediments shall be cleaned out to full capacity when found to be 50 percent full and the sediment removed to an approved upland disposal site. Maintain check dam integrity and contours to ensure runoff does not create erosion by undermining or traveling around the ends of the structures.

Culverts and other structures placed in channels often constrict flood flows, increase water velocity, and increase the potential for erosion. In situations with such potential, protect the culvert or structure embankment slopes and the downstream channel and banks with riprap or other erosion resistant material. Design road crossings to locate culverts, bridges, or other in-stream structures to minimize changes to channel cross-section and orientation.

CONSTRUCTION

All phases of construction and in-house maintenance, including the installation and maintenance of SESC measures, will follow the schedule prescribed in the plan or maintenance guidelines. The first step in any earth work is the placement of SESC measures around the perimeter of the proposed earth change to effectively prevent sediment from entering any lake, stream, wetland, or adjacent property. The work sequence is completed by the conversion of temporary SESC measures to permanent controls and full stabilization of soils on the site.

Schedule and perform clearing operations to permit the timely and sequential installation of SESC measures. The maximum area of erodible soils exposed at any time will be based on site characteristics and stated in the phasing, staging, and sequencing section of plans or guidelines.

If embankment slopes terminate near a lake or stream, maintain or establish a protective buffer of vegetation between the water body and the disturbed area whenever feasible. Place silt fence or an equivalent SESC treatment at the toe of the disturbed portion of the embankment; additional courses of silt fence may be required along intermediate contours of long or steep slopes.

Perform all maintenance and new construction operations in the dry by placing cofferdams or similar structures around work done below the ordinary high water mark or legally established level of a lake.

When a temporary diversion channel is used, slopes of the channel must be stabilized with vegetation or erosion resistant materials before water is released to the channel. Install sediment traps, check dams, or filters in the channel to remove sediments from runoff which may leave the site or discharge to a water body.

Locate all stockpiles, waste material, and spoils in upland areas where they can be properly contained and will not erode into water bodies or on to adjacent properties.

Conduct site restoration and stabilization in a manner that ensures adequate temporary or permanent SESC measures are in place and functioning at the end of each work day.

INSPECTIONS

DPW personnel who have successfully completed the SESC training required by Section 9123 of Part 91 and have a current SESC training certificate are responsible for inspecting and documenting the condition of the SESC measures on a daily basis and initiating changes or maintenance if required.

Violations or problems with SESC measures are corrected immediately and both the problem and the corrective action are documented in an inspection report. General oversight and ultimate responsibility for inspections and compliance of all Agency operations resides with the Agency Director.

MAINTENANCE

Routine maintenance includes implementing necessary repairs or corrections to existing temporary or permanent SESC measures. Repairs to temporary SESC measures shall be conducted daily; permanent measures in need of repair shall be corrected within five (5) days of detection of the problem, unless the scope of the work or the season prevents such action. Implement temporary measures immediately to contain sediments from failed permanent measures and maintain temporary measures until the permanent measures are repaired.

Apply seed and mulch or plant other ground stabilizing vegetation immediately following final grading on all disturbed sites where the slopes are gentle enough to allow their effective use. Vegetative treatments shall follow guidelines published in the documents referenced elsewhere in this procedure. Use staked sod, geotextiles, riprap, or other suitable erosion control materials, as necessary, on steep slopes or other areas unsuitable for standard vegetative treatments. Length of slope, soil characteristics, and access for maintenance will influence the maximum slope suitable for standard vegetative treatments. Any slope steeper than 2H:1V should have structural treatments to reinforce or replace vegetation. Slopes steeper than 3H:1V may require structural treatments depending on site conditions. Use all products in accordance with the manufacturer's specifications.

MAINTENANCE CONSTRUCTION (HEAVY MAINTENANCE)

Plans are developed and SESC measures are implemented for maintenance construction and heavy maintenance in the same manner as for new construction. Plans shall meet the requirements set forth in Rule 1703. Inspect and document site conditions and maintain SESC measures on maintenance construction and heavy maintenance projects in the same manner as for new construction.

ROUTINE MAINTENANCE

Routine maintenance is subject to the same general SESC considerations and SESC plan requirements as new construction or heavy maintenance. Typical routine maintenance tasks include, but are not limited to, the following:

- Road and shoulder grading
- Roadside ditch clean-out
- Cross drainage culvert, under drain, bridge approach, and embankment repair or replacement.
- Slope protection and washout repair
- Water main and sanitary sewer repair

In lieu of developing formal SESC plans, the Agency will undertake the above listed activities in accordance with the following guidelines:

ROAD AND SHOULDER GRADING

- a) For roads with ditches, grade to allow runoff to enter the ditch at points no closer than 100 feet from a lake or stream; this may require removal of berms formed between the road and the ditch.
- b) For roads without ditches, construct outlets to natural depressions or excavated sumps which allow runoff to leave the road at points no closer than 100 feet from a lake or stream.
- c) Conduct road grading operations adjacent to or crossing any watercourse in a manner which does not allow graded materials to enter directly or be carried by runoff into the watercourse. Direct road drainage to areas which allow runoff to filter through a vegetative buffer prior to entering any watercourse.

ROADSIDE DITCH CLEAN-OUT

- a) Conduct ditching operations in the dry or in periods of low water flow.
- b) Leave at least 50 feet of natural vegetation between the terminus of ditching and any lake, stream, or wetland.
- c) If existing vegetation is inadequate to filter sediments from runoff, install temporary or permanent check dams, sediment traps, or both.
- d) If it is necessary to remove the vegetated filter described in (b), do so only after the remainder of the ditch is revegetated and stabilized.
- e) Protect ditches with long slopes by leaving 20-foot long natural vegetation filters or constructing check dams at intervals not exceeding 2-feet of vertical drop or at lesser intervals if conditions dictate.
- f) Where possible, salvage topsoil and replace immediately upon completion of the ditching project or within five (5) days of earth disturbance on any portion of the project, whichever is less. Seed and mulch ditches within five days of final grade.

CROSS-DRAINAGE CULVERT, UNDERDRAIN, BRIDGE APPROACH, AND EMBANKMENT REPAIR OR REPLACEMENT

- a) Isolate all work from flowing water.
- b) Stabilize culvert ends and areas below annual high water levels with riprap over geotextile or other suitable erosion resistant materials
- c) Stabilize all disturbed areas above the annual high water mark with sod, seed, mulch, or other suitable erosion resistant material within five (5) days of final grade.
- d) Acquire all applicable permits from the Department of Environmental Quality under the provisions of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

SLOPE PROTECTION AND WASHOUT REPAIR

- a) Isolate all work from flowing water.
- b) Immediately stabilize all disturbed areas with sod, seed, mulch, or other erosion resistant materials.
- c) Divert water flow away from the top of the slope or convey water downslope with a properly designed downdrain with a stable outlet until the area is stabilized.

- d) Additional SESC measures may be required for work on steep slopes or slopes located near a lake or stream.

CONDUCT WATER MAIN AND SANITARY SEWER REPAIR

- a) Protect all storm drain inlets that may be impacted with silt bags or other geotextile materials
- b) Install sediment traps, silt bags, straw bails and silt fences or a combination, prior to starting the earth work, if existing vegetation is inadequate to keep sediment on site.
- c) Additional SESC measures may be required for work on steep slopes or slopes located near lakes, streams, or wetlands.
- d) After disturbed areas are stabilized, remove the temporary SESC measures.

COMPLIANCE AND ENFORCEMENT

The Agency is responsible for SESC practices undertaken by in-house staff. The Agency shall ensure that staff understands their responsibility to comply with the SESC procedure. Two Part 91 trained staff will be on-site to ensure that all SESC practices are followed in the event that a non-compliant condition may exist.