Background Information
STRUCTURAL EROSION CONTROL

THE PROJECT JUSTIFICATION AND ASSURANCES FORM (also enclosed) must be completed and signed accordingly before being returned directly to OSCIA Guelph. Final approval for the proposed project will not be issued without the submission and acceptance of this form.

I. BACKGROUND INFORMATION FOR EROSION CONTROL STRUCTURE PROJECTS

• Project Justification and Assurances Forms on sizing and safety features must be completed for the items eligible in this section. These forms will be attached to your “Conditional Approval” letter you receive from OSCIA for the proposed project.

• Some projects may need approval from municipalities or other government agencies prior to acceptance by OSCIA.

• Eligible projects involve constructed works in riparian and upland areas respectively: contour terraces, gully stabilization, bank stabilization, drop inlets, enhanced infiltration systems, in-channel controls, and retention ponds for sediment removal and erosion control.

Purpose
NOTE: The primary objective of funding erosion control projects is to reduce nutrient runoff and control soil erosion problems on farmland. The program is not intended to fund tile drainage and outlet drainage systems. Although some projects will enhance drainage systems, the primary purpose for funding will be to control erosion problems.

Project Approvals

a) Multiple Landowner Projects. Where two or more landowners are participating on a similar project, each landowner must apply for the portion of the project on their farm. Some erosion control structures can involve a large watershed and complex design which requires careful construction so that affected landowners are adequately protected. Design of these systems by trained professionals is required.

b) Design by professional engineers may be advisable on complex and/or large projects. The private sector is expected to fill these requirements. Supervision of Construction is not mandatory, yet may be specified as required on large and/or complex projects.

Note: Any professional fees for design and construction supervision are eligible costs for approved projects, but they will only be considered eligible upon completion of the project.

c) Owner’s Responsibilities include:
• ensuring that any required justification and data sheets are supplied to OSCIA in response to Conditional Approval of the proposed project.
• ensuring that those contracted to design an construct the project are qualified to carry out the work.
• negotiating the terms and conditions of the contract for construction, selecting a qualified contractor and ensuring that all work is completed according to the plan.
• ensuring that all projects take collected water to a sufficient and legal outlet. The applicant must secure permission in written form from any adjacent landowner when legally required to outlet collected water from a government-funded erosion control structure. Refer to OMAF Factsheet, Common Law Aspects of Water, Agdex 557.
d) **Project Justification and Assurances Forms** when required for erosion control structure projects will be supplied to the applicant by OSCIA. These sheets must be completed by someone familiar with recognized hydrologic and hydraulic engineering principles related to that project, e.g. qualified contractor, professional engineering consultant or Conservation Authority professional engineer. All projects must be properly designed in accordance with the specifications included in the OMAF Erosion Control Manual (OMAFRA publication #832, Agricultural Erosion Control Structures (2008)). The manual may be acquired through the Northumberland County OMAFRA office in Brighton, Tel. 613-475-1630.

e) Funding is not allocated for structures until the Project Justification and Assurances Forms are completed and final approval for the proposed project is granted by OSCIA Guelph.

f) **The Intent of OSCIA Acceptance.** Verification of projects by OSCIA and subsequent issuing of incentive funds does not imply professional engineering endorsement of the project. All program participants are advised that OMAFRA, AAFC or OSCIA are in no way commenting on the structural adequacy of projects under this program.

g) Projects must be complete and operational prior to submitting a claim to OSCIA.

II. GENERAL CONSTRUCTION GUIDELINES FOR EROSION CONTROL STRUCTURE PROJECTS

*Please note the mitigation measures stated below apply to most, but not necessarily all projects.*

*Program participants are responsible for applying appropriate mitigation.*

**Project Design and Planning**

- Participants must refer to the appropriate Worksheets in the Canada-Ontario Environmental Farm Plan, Fourth Edition Workbook, 2013 (or earlier version) for guidance.
- Program participants are responsible for obtaining licenses, permits, approvals or authorizations and complying with all applicable municipal, provincial and federal legislation. Projects near water may require approval from the Department of Fisheries and Oceans. Please contact your local Conservation Authority.
- All projects are to be designed and constructed so as not to damage or obstruct municipal drains and other drainage works in the system. Permission from the municipality is mandatory if the work involves municipal drainage. Compliance with existing legislation must be met (e.g. *Lakes and Rivers Improvement Act*, *Fisheries Act*, *Navigable Waters Act* and the fill-line regulations of the local Conservation Authority).
- Where tile drains are an integral part of the erosion control structure, only the calculated volume of overland flow will dictate tile size.
- Project Justification and Assurances Forms for the proposed project (as applicable) must be submitted upon request to OSCIA prior to receiving full approval to proceed with the proposed project.
- Program participants should take measures to ensure that prescribed substances (manure, pesticides, fertilizers, other chemicals, soil, mulch, etc.) do not enter water bodies.
- Program participants should follow the appropriate **Best Management Practice (BMP)** guidelines for the activity being undertaken.
- Authorities must be notified. Ensure emergency contact numbers are available on site.
## Environmental Effects and Mitigation Measures: Erosion Control Projects

<table>
<thead>
<tr>
<th>Project Component</th>
<th>Description of Effect Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Air Quality</strong></td>
<td>Decreased ambient air quality due to dust and other particulate matter.</td>
</tr>
<tr>
<td></td>
<td>• Avoid site preparation or construction during windy and prolonged dry periods.</td>
</tr>
<tr>
<td></td>
<td>• Cover and contain fine particulate materials during transportation to and from the site.</td>
</tr>
<tr>
<td></td>
<td>• Instruct workers and equipment operators on dust control methods.</td>
</tr>
<tr>
<td></td>
<td>• Minimize cutting of vegetation and maintain windbreaks.</td>
</tr>
<tr>
<td></td>
<td>• Restore disturbed areas as soon as possible to minimize duration of soil exposure.</td>
</tr>
<tr>
<td></td>
<td>• Spray water to minimize dust off paved areas or exposed. Use dust suppressants if necessary.</td>
</tr>
<tr>
<td></td>
<td>• Stabilize high traffic areas with a clean gravel surface layer or other suitable composites.</td>
</tr>
<tr>
<td></td>
<td>• Stabilize stored and stockpiled construction materials, debris and excavated soil.</td>
</tr>
<tr>
<td></td>
<td>• Minimize operation and idling of vehicles and gas-powered equipment.</td>
</tr>
<tr>
<td></td>
<td>• Use well-maintained equipment and machinery within operating specifications.</td>
</tr>
</tbody>
</table>

| **Fauna**         | Disruption to wildlife migration and movement patterns, breeding, nesting or hibernation. |
|                   | • Avoid activities during sensitive periods of wildlife migration, staging, nesting, breeding, hibernation or nursing. |
|                   | • Avoid creating major obstructions at important wildlife crossing and movement points. |
|                   | • Establish vegetated buffer strips between construction zones and areas containing sensitive vegetation and wildlife. |
|                   | Possible disease, mortality or decline in populations of wildlife due to exposure to disease bearing organisms (e.g. mosquitoes carrying West Nile Virus). |
|                   | • Avoid creating still water or stagnant wet areas that may attract and/or propagate disease bearing organisms that may negatively affect wildlife. (Note: If the project involves natural wetlands, once established, the wetland ecosystem will likely mitigate potential effects of disease bearing organisms.) |
|                   | Wildlife injury or mortality from entanglement in silt fences. |
|                   | • Avoid using heavy-duty silt fences, particularly those reinforced with wide mesh, in areas where large-bodied amphibians and reptiles (e.g. large snakes) are found. |
|                   | • Survey the area for active nests, dens, burrows, etc. and avoid disturbing them. |

| **Flora**         | Introduction of non-native species, including opportunistic species. |
|                   | • Clean heavy machinery and equipment prior to transporting to new location. |

| **Surface Water Quality** | • Operate heavy machinery from above the top of the stream bank or on the shore above the normal water level. |
|                         | • Ensure that refueling and handling of contaminants is conducted off-site, where possible, and away from any water body or from ditches and drains connecting to a water body. |
|                         | • Minimize use and discharge of chemicals and cleaning agents. |
|                         | • Refuel equipment off slopes and well away from water bodies. |
|                         | • Securely contain and store all oils, lubricants, fuels and chemicals. If necessary, use impermeable pads or provide berms. |

| **Groundwater Quality and Quantity** | • Where possible, conduct activities in the dry, above the actual water level and above any expected rises in water level that may occur during a rainfall or snow melt event. |

| **Humans**          | Personal injuries to public and workers during construction activities due to exposure to disease bearing organisms (e.g. mosquitoes carrying West Nile Virus). |
|                    | • Remove standing water from equipment and containers. |
|                    | • Wear protective clothing and insect repellent if working in areas where mosquitoes are breeding. |
### Environmental Effects and Mitigation Measures: Erosion Control Projects

<table>
<thead>
<tr>
<th>Project Component</th>
<th>Description of Effect Mitigation</th>
</tr>
</thead>
</table>
| **Soil Quality**  | Disturbance to microscopic organisms in the soil.  
|                   | • Limit size of stockpiles to avoid anaerobic conditions.  
|                   | • Protect stockpiled soils from exposure to and sterilization by solar radiation (or stockpile in an uncovered shaded area).  
|                   | Reduced soil capability through compaction and rutting, and mixing of topsoil and layers below.  
|                   | • Avoid working during wet conditions and/or confine operation to paved or gravel surfaces.  
|                   | • Whenever possible, strip and store topsoil separately from the layers below and return to excavation in sequence. |
| **Surface Water Hydrology** | Adverse modifications to surface drainage patterns, affecting storm water runoff rates and volumes.  
|                   | • Ensure that earthworks do not exacerbate flood hazards nor create undesired obstructions to drainage into natural water bodies.  
|                   | • Maintain effective surface drainage upon completion of the project, which may include re-establishment of, or improvement to, the original site drainage.  
|                   | • Minimize changes to the ground surface and vegetation cover that would affect infiltration and runoff characteristics.  
|                   | • Whenever possible, limit construction time in flood prone areas and any low-lying shoreline areas to 72 hours or less. |
| **Surface Water Quality** | Reduced water quality and clarity due to increased erosion and sedimentation, and transport of debris.  
|                   | • Apply wet weather restrictions to construction activity.  
|                   | • Backfill and compact excavations as soon as possible. Optimize degree of compaction to minimize erosion and allow for revegetation.  
|                   | • Comply with any local regulations, policies and guidelines that stipulate a minimum acceptable buffer width (the allowable distance from a water body).  
|                   | • Maximum buffer widths are desirable.  
|                   | • Create interceptor swales to divert runoff from the top of slopes that are susceptible to erosion.  
|                   | • Ensure that all materials placed below the high water mark of the water body are clean and free of silt and clay-sized particles. All materials must meet the applicable regulations governing the placement of fill in water bodies.  
|                   | • If possible, direct surface drainage away from working areas and areas of exposed soils. The maximum extent possible, promote overland sheet flow to well-vegetated areas.  
|                   | • Install and maintain silt curtains, sedimentation ponds, check dams, coffer dams or drainage swales, and silt fences around storage sites and elsewhere, as required.  
|                   | • Securely contain and store all oils, lubricants, fuels and chemicals. If necessary, use impermeable pads or provide berms.  
|                   | • Stabilize slopes as appropriate for local site conditions. Possible methods include hard and soft designs or combinations of designs using crib walls, revetments, gabions, erosion control blankets, live fascines, or brush bundles. |
## Environmental Effects and Mitigation Measures: Erosion Control Projects

<table>
<thead>
<tr>
<th>Project Component</th>
<th>Description of Effect Mitigation</th>
</tr>
</thead>
</table>
| Terrain and Topography     | Ground subsidence from soil thaw and poor excavation and backfilling practices; ground surface mounding or structure movement due to frost heave from inappropriate backfill material or shallow foundation depth.  
  • Ensure that backfilling is undertaken using suitable materials free of ice and frozen soils, and that adequate soil compaction is conducted to avoid ground subsidence. Provide additional backfill where subsidence has occurred.  
  • In areas with high groundwater levels, ensure that soils susceptible to frost heave (generally fine sands and silty soils) are not used for backfill.  
  Increased soil exposure resulting in erosion, sedimentation, slope instability and risk of mudslides, slumping, rockfalls, etc.  
  • Create interceptor swales to divert runoff from the top of slopes that are susceptible to erosion.  
  • Direct runoff and overland flow away from working areas and areas of exposed soils. Promote overland sheet flow to the maximum extent possible.  
  • On steep slopes that do not require grading, hand clear, without grubbing.  
  • If necessary, install sediment and erosion controls prior to commencing the work and maintain them until the site has been stabilized.  
  • If slope stabilization is not a project objective, avoid high risk areas with unstable slopes (e.g. steep slopes, soil liquefaction risk areas).  
  • Keep site clearing to a minimum to maintain sufficient vegetated cover and windbreaks.  
  • Phase work to minimize duration of exposure of disturbed areas at risk.  
  • Stabilize slopes as appropriate for local site conditions. Possible methods include hard and soft designs or combinations of designs using crib walls, revetments, gabions, erosion control blankets, live fascines, or brush bundles. |
| Species at Risk - Terrestrial | Disturbance to terrestrial species at risk and/or their critical habitat.  
  • If any species at risk are known or expected to be present at any time within or adjacent to the project area, consult with Environment Canada specialists or the relevant provincial authority regarding measures to avoid harmful disturbance to these species. |
| Wildlife Habitat (terrestrial and aquatic) | Physical damage and loss of habitat (terrestrial, riparian and/or wetland).  
  • Avoid or minimize trampling vegetation with equipment.  
  • Minimize physical damage to vegetation by avoiding push-outs and avoiding the placement of slash onto living vegetation. |

### Wastes

- Storage, handling and disposal of wastes and hazardous waste materials, will be done properly and in accordance with all relevant municipal, provincial and federal legislation.

### Site Preparation

- Prepare the site according to the project plan including the erosion and sediment controls.
- Keep site clearing to a minimum and minimize disturbance to ground surface and vegetation, especially those that affect infiltration and runoff characteristics.
- All topsoil stripped and disturbed during the project should be salvaged and replaced as quickly as possible to encourage revegetation.
- Stabilize slopes as appropriate for local site conditions.
Construction

- Avoid work activities during excessively wet site conditions.
- Reduce vehicle emissions from heavy equipment by reducing/eliminating idling and also by properly maintaining/servicing the heavy equipment.
- Fueling and/or servicing of mobile construction equipment and the storage of fuel and hazardous materials are not to occur within 330 feet (100 m.) of a surface water body.
- In the event that any cultural or heritage resources (bones, pottery) are discovered, construction must cease and the Ministry of Tourism, Culture and Sport should be notified immediately. (Please contact the Ministry of Tourism, Culture and Sport for assistance: www.mtc.gov.on.ca; 1-888-997-9015; email: internet.feedback.mtour@ontario.ca. They will direct you to the responsible Heritage Planner for the area.

After Construction

- Restore or revegetate all disturbed areas, including riparian areas, to pre-construction conditions, as soon as possible and to the fullest extent possible. All revegetation should be done with species that existed prior to construction or suitable species as planned (preferably native).
- Remove and dispose of wastes and hazardous waste materials from site properly and in accordance with all relevant municipal, provincial, and federal legislation as planned.

Wildlife and Species at Risk

- Minimize disturbance to fish and wildlife by scheduling work to avoid sensitive periods (i.e. spawning, nesting, migration, staging, breeding, hibernation or nursing) and areas (i.e. residence, wildlife movement corridors). Comply with any applicable "no construction" timing windows.
- May need to consult COSEWIC (Committee on the Status of Endangered Wildlife in Canada) species list (federal) and the provincial list on rare and endangered species.
  Federal: www.cosewic.gc.ca
  Provincial: www.rom.on.ca/ontario/risk.php
  (Please contact the Ontario Ministry of Natural Resources and Forestry for assistance: www.ontario.ca/ministry-natural-resources-and-forestry; 1-800-667-1940)
- Survey the area for active nests, burrows or dens prior to clearing, and avoid disturbing them.
- If migratory birds are breeding in the project area, contact Environment Canada regarding appropriate measures to protect them.
  (Please contact Environment Canada for assistance: www.ec.gc.ca; 1-416-739-4826; Email: enviroinfo@ec.gc.ca)
- If any aquatic species at risk are known or expected to be present at any time within or adjacent to the project area, consult with Fisheries and Oceans Canada specialists (1-866-290-3731) or the relevant provincial authority regarding measures to avoid harmful disturbance. Contact your local Conservation Authority.
- Use existing roads and trails for site access where possible.

Appropriate PROJECT JUSTIFICATION AND ASSURANCES FORM is also enclosed.