Module

7

Soil Conservation Act

In applying sections of the Soil Conservation Act to issues in local municipalities, you will:

- ✓ *describe the intent of the Soil Conservation Act by understanding the history of soil conservation in Alberta;*
- ✓ *describe the powers of the inspector and distinguish between the duties of the individual and local authorities;*
- ✓ *describe the procedure for issuance and delivery of notices, orders or other documents;*
- ✓ *describe options for dealing with non-compliance;*
- ✓ *describe options and process for appeals;*
- ✓ *describe the rules and procedures governing the hearing of appeals;*
- ✓ *describe the possible decisions of the appeal committee;*
- ✓ *identify the need for bylaws under the Soil Conservation Act.*

The intent of the *Soil Conservation Act* is to provide a framework for encouraging sound soil conservation practices, to preserve Alberta's agricultural land base, and to ensure the long-term productivity of the farming sector. An Agricultural Fieldman plays a key role in dealing with issues associated with soil quality and productivity.

History of Soil Conservation

* Describe the intent of the *Soil Conservation Act* by understanding the history of soil conservation in Alberta.

Soil conservation became an important concern in the early 1930s, as wind erosion problems became more severe. High velocity winds swept across the province creating "black blizzards" hence the name "dirty thirties". The *Prairie Farm Rehabilitation Act* was passed in 1935, which initiated the development of the Prairie Farm Rehabilitation Administration (PFRA). Research centers under the PFRA were assigned the task of saving the soil by demonstrating good soil conservation practices throughout the Brown and Dark Brown soil zones where more than 10,000 farmsteads had been abandoned in south-eastern Alberta (Dumanski *et al.*, 1986). This work led to procedures and practices still used today such as re-establishing grass cover, extending crop rotations, growing winter cover

crops, organization of community pastures, strip cropping, residue management, establishment of shelterbelts, conservation tillage, grassed waterways, and construction of dams and dugouts. According to the 2001 Census of Agriculture in Alberta (AAFRD, 2001), crop rotation and permanent grass cover were the two most widely used soil conservation practices across the province.

"*The Control of Soil Drifting Act*" was also passed in 1935 and confirmed the responsibility of the "occupier" of the land to prevent soil drifting. This Act was then replaced by the *Soil Conservation Act* in 1962 at the request of the rural municipalities who were seeking a broader definition of soil conservation. The Act was then amended in 1988 in response to a request from the Agricultural Service Boards (ASBs) to strengthen and clarify the legislation. In this same year, despite the strengthening of legislation, a "black blizzard" occurred a few miles east of Edmonton. The Act was most recently revised effective January 1, 2002 and is scheduled for revision in 2010.

Canada is the second largest country in the world (at approximately 10 million km^2), but only 5% or approximately 50 million hectares of its land can be used for crop production. The following table provides a summary of the use of farmland in Canada from 1981 to 2001.

Table 7.1
Use of farmland in Canada from 1981 to 2001 (Eilers and Huffman, 2005).

Land Use	1981	1991	2001
	(area in millions of hectares)		
Total farmland	**65.9**	**67.8**	**67.5**
Cultivated farmland[1]	40.69	41.4	41.2
Pasture[2]	20.4	20.3	20.3
Other Land[3]	4.6	6.1	6.1
Summerfallow[4]	9.9	8.1	4.7
Row Crops[5]	2.0	1.4	2.0

1. Includes all forms of cultivated farmland.
2. Area includes improved and native pasture.
3. Area of farmland devoted to other uses (i.e. farm buildings, barnyards, greenhouses, woodlots, windbreaks, marshes, etc.).
4. Includes tillage and chemical fallow (+ their combinations).
5. Area in row crops including corn for grain/silage, vegetables, potatoes, etc.

Total farmland includes all land for crops, grazing and pasture, summer fallow, buildings, barnyards, bush, marshes etc. The trend seems to suggest that we are approaching the upper limits of farmland development in Canada, and in fact the current area is somewhat less than the 68.7 million hectares identified in 1971 (data not shown). Year to year variations tend to be attributable to changes in land use. Focusing on the Prairie Provinces, only about 1/3 of the total land of the Prairie Provinces meets the minimum soil and climatic requirements for

agriculture, and about ¼ has the potential for annual cropping. The following table provides the 2001 distribution of land resources of the Prairie Provinces.

Table 7.2
Land resources of the Prairie Provinces as of 2001(Eilers and Huffman, 2005).

	Manitoba		**Saskatchewan**		**Alberta**		**Prairies**	
	(area in million hectares; percentage of farm area in brackets)							
Total Land Area	55.4		59.2		64.2		178.8	
Total Farm Area[1]	7.6	(14)	26.3	(44)	21.1	(33)	55	(31)
Cultivated[2]	5	(65)	18	(70)	11	(52)	34	(62)
Pasture[3]	2	(26	7	(25)	9	(42)	17	(32)
Other[4]	0.7	(9)	1.3	(5)	1.3	(6)	3	(6)
Average Farm Area	361		519		393		Avg. = 424	

1. Includes all forms of cultivated farmland.
2. Area includes improved and native pasture.
3. Area of farmland devoted to other uses (i.e. farm buildings, barnyards, greenhouses, woodlots, windbreaks, marshes, etc.).
4. Includes tillage and chemical fallow (+ their combinations).

Focusing specifically on Alberta, the 2001 Census of Agriculture for Alberta provides data on the actual area of farmland and land uses. The total number of farms in Alberta in 2001 was 54,039. Despite the larger total land area of farms in the South Region (8.6 million hectares in the southern grassland ecoregions), they have only 24.5% of the farms in Alberta, compared with approximately 34% in each of the Aspen Parkland and Boreal Transition/Peace Lowlands. The remaining potential agricultural lands in Alberta (1.4 million hectares) are represented by only 7% of the number of farms, province wide. The following table (4.3) provides areas of land use for the 8 major ecoregions in Alberta. A visual representation of the ecoregions is provided in Figure 4.1. Ecoregions represent zones of similar abiotic/biotic environments, such as similar rainfall patterns and temperature regimes, soil types and natural vegetation (Ecological Stratification Working Group, 1995).

Table 7.3
Land use classification of farmland by provincial ecoregion in 2001.

Region	Total Area of Farms (# farms)	Land in Crops	Summer fallow	Tame/ Seeded Pasture	Natural Land for Pasture
	(area in million hectares)				
Mixed Grassland	4.0 (4,428)	1.1	0.47	0.26	2.1
Moist Mixed Grassland	2.9 (4,841)	1.5	0.27	0.22	0.83
Fescue Grassland /Cypress Hills	1.7 (3,961)	0.8	0.05	0.13	0.65
Aspen Parkland	5.5 (18,509)	3.1	0.19	0.64	1.2
Boreal Transition /Peace Lowland	5.7 (18,295)	2.9	0.23	0.78	1.21
Mid Boreal Uplands /Slave River Lowland /Wabasca Lowland	0.43 (1,190)	0.14	0.01	0.08	0.13
Subalpine/Alpine	0.28 (351)	0.02	0.00	0.01	0.23
Western Alberta Uplands /Clear Hills Upland	0.69 (2,465)	0.18	0.01	0.11	0.31
Alberta	21.1 (54,039)	9.7	1.2	2.2	6.7

(The difference between the total area of farms and all of the agricultural areas combined is due to area for buildings, barnyards, etc. not being included in this table. Also the regional numbers may not match the provincial numbers exactly due to rounding.)

The same data set used for comparing ecoregions across Alberta can also be used to compare farmland using regional jurisdictions. The following table (4.4) provides a breakdown of the area of land use for the 5 ASB regions in Alberta.

Table 7.4
Farmland area classified by use of land, 2001 (AAFRD, 2001).

Region	Total Area of Farms (# farms)	Land in Crops	Summer fallow	Tame/ Seeded Pasture	Natural Land for Pasture
	(area in million hectares)				
South	6.0	2.4	0.53	0.39	2.6
Central	5.4	2.3	0.31	0.61	2.0
North East	4.1	2.2	0.17	0.50	1.0
North West	2.7	1.4	0.06	0.47	0.5
Peace	2.8	1.5	0.17	0.27	0.5
Alberta	21.1	9.7	1.2	2.2	6.7

(The difference between the total area of farms and all of the agricultural areas combined is due to area for buildings, barnyards, etc. not being included in this table. Also the regional numbers may not match the provincial numbers exactly due to rounding.)

Erosion and Soil Degradation

Erosion is a natural process often accelerated by farming activities that leave the soil surface bare and susceptible to the forces of wind and water. Erosion moves topsoil, reduces both the level of soil organic matter and available crop nutrients and contributes to the breakdown of soil structure. Soil erosion can be expressed in five classes: very low (<6 t ha^{-1} yr^{-1}), low (6 to 11 t ha^{-1} yr^{-1}), moderate (11 to 22 t ha^{-1} yr^{-1}), high (22 to 33 t ha^{-1} yr^{-1}) and very high (>33 t ha^{-1} yr^{-1}). In general, implementation of soil conservation practices throughout the early 1990s has resulted in approximately a 7% decrease in the risk of wind erosion and an 11% decrease in the risk of water erosion across the Prairie Provinces (Acton & Gregorich, 1995).

Wind Erosion. The risk of soil erosion by wind is extensive in the Prairie Provinces where the climate is dry and large expanses of open fields are unprotected. Table 7.5 provides data comparing the risk of wind erosion (based on the five different classes) on cropland in the three Prairie Provinces.

Table 7.5
Risk of wind erosion on cropland in the Prairie Provinces from 1991 to 2001 (Rostad and Padbury, 2005).

	Cropland (%)					
	Alberta		Saskatchewan		Manitoba	
Risk class	**1991**	**2001**	**1991**	**2001**	**1991**	**2001**
Very Low	90	94	74	81	81	82
Low	5	2	11	7	8	7
Moderate	3	2	8	7	6	6
High	1	<1	2	2	2	2
Very High	2	1	4	3	3	3

The risk of wind erosion has declined across the Prairie Provinces since 1981 (data not shown) as a result of improved cropland management by producers, such as the widespread adoption of conservation tillage practices, and through the maintenance of ground cover on annually cropped fields (i.e. a reduction in the amount of summer fallow). Unfortunately, wind erosion can still occur during winters with minimal to no snow cover and strong Chinook winds, as has been seen in central and southern Alberta during the winter of 2006-2007.

Water Erosion. The risk of soil erosion by water is also a concern, but is generally greatest only on land under intensive cultivation or on steeper landscapes. Table 4.6 provides data comparing the risk of water erosion on of cropland in the Prairie Provinces.

Table 7.6
Risk of water erosion on cropland in the Prairie Provinces from 1991 to 2001 (van Vliet et al., 2005).

	Cropland (%)					
	Alberta		Saskatchewan		Manitoba	
Risk class	**1991**	**2001**	**1991**	**2001**	**1991**	**2001**
Very Low	83	90	89	92	87	95
Low	9	4	5	4	10	4
Moderate	3	4	3	3	2	<1
High	3	1	2	2	<1	<1
Very High	2	1	2	1	1	1

Owing to the adoption of conservation tillage techniques, reduced summerfallow and improved crop rotations, the percentage of cropland susceptible to water erosion has decreased across the Prairie Provinces since 1981 (data not shown). As illustrated in Table 4.6, the percentage of land in the very low risk class (i.e. <6 t ha^{-1} yr^{-1}) has generally increased, whereas the percentage in the high (22 to 33 t ha^{-1} yr^{-1}) and very high (> 33 t ha^{-1} yr^{-1}) risk classes have remained relatively constant or decreased somewhat across the Prairie Provinces. Areas that remain

prone to water erosion tend only to exists on cultivated steeper landscapes (van Vliet et al. 2005).

Although water erosion is a problem across the province it has generally received much less attention than wind erosion, as it does not produce the visually impressive "black blizzards" or "dust bowls". However, over time, fairly impressive physical changes are apparent in the form of eroded gullies and flooding. The lack of frequent rains often causes producers to establish a false sense of security resulting in management mistakes that will ultimately result in severe erosion. The following are some management practices that lead to erosion problems (Toogood, 1989):

- Cultivation of water courses
- Cultivation of steep slopes
- Summer fallowing fields when it is not necessary for conservation of soil moisture
- Cultivation of fields up and down slopes instead of with the contour
- Burying crop residue

Soil Conservation Research on Wind and Water Erosion

Research continues on the following aspects of wind and water erosion identified by Toogood in 1989:

- Straw/grain ratios of various crops and effect of weather on this ration
- Amount of plant residue left on the surface by various tillage implements;
- Seeding equipment for residue covered fields
- Width of strips for strip cropping to control erosion on soils of various texture
- Tillage procedures, including minimum and zero tillage
- Topsoil losses and their effects on productivity
- Management practices to restore productivity
- Cover crops for erosion control
- Emergency wind erosion control measures
- Soil drifting or irrigated land

In 2007, work continues in both of these areas through the Alberta Environmentally Sustainable Agriculture (AESA) Soil Resource Monitoring Program. To identify soils at potential risk to either wind and water erosion, both the WEPS (Wind Erosion Prediction System) and WEPP (Water Erosion Prediction Program) models are being investigated. These models use data from

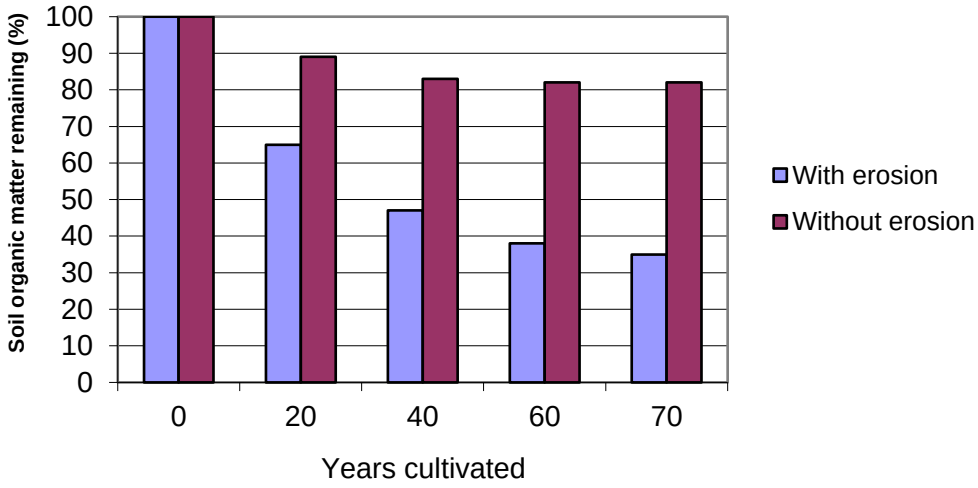
the provincial soils database (i.e. AGRASID – Agricultural Regions of Alberta Soil Inventory Database) and the provincial weather station records.

Other Forms of Soil Degradation

In addition to wind and water erosion, there are other forms of soil degradation that are somewhat less visually impressive yet also destructive to soil quality. Two examples of this form of degradation are loss of organic matter and salinization.

Organic Matter Loss. Prior to groundbreaking over 100 years ago, the grassland soils of Alberta (i.e. Chernozems) contained approximately 2% organic matter in the Brown Soil zones of southern Alberta to 10% organic matter in the Black Soil zones of the north. These soils are now reported to contain only 1 to 1.3% and 5 to 6.5% organic matter, respectively (Toogood, 1989), which represents a loss of approximately 50% over this time period! Loss of organic matter can occur through soil erosion and result in poor structure and tilth, reduced water holding capacity and ultimately poor crop growth. Poor crop growth exacerbates the situation by returning fewer residues to the field, thus furthering the loss potential. Figure 4.2 illustrates the effects of erosion on soil organic matter after 70 years of conventional tillage cultivation.

Figure 7.1
Effect of erosion on soil organic matter.



Soil organic matter is also lost from the soil as carbon dioxide (CO_2) as a result of its decomposition by soil micro-faunal communities. This is enhanced through continued soil tillage and a failure to maintain adequate crop residue on the soil surface to balance potential losses as a result of this decomposition. Conservation tillage systems, such as minimum tillage or no-till, go a long way towards maintaining soil organic matter, and are a primary focus with respect to improving

carbon sequestration in order to meet international environmental requirements, such as those described under the Kyoto Agreement.

Salinization. Salinization, responsible for the development of 'alkali soils', has been estimated to affect extensive areas of dryland agriculture in Alberta with an average crop yield reduction of 25% (Toogood, 1989). The problem is caused by the redistribution of soluble salts onto the soil surface as result of groundwater movement and evaporation. The exact area under which this occurs throughout the prairies is quite difficult to establish owing to the ability of salts to move both to the soil surface and to deeper parts of the soil profile, often simultaneously. The approximate extent of salinization in the Prairie Provinces is illustrated in Table 7.7, with the share of agricultural and adjacent land in each of the five risk classes being identified in Table 7.8. With respect to soil salinity, the five risk classes are described as: very low (risk is negligible), low (risk is acceptable), moderate (awareness of the situation is important), high (heightened concern is warranted), and very high (immediate attention is needed). It is worthy to note that after several recent years of wet weather, the extent and severity of soil salinization is at risk of increasing, unless proper management has been put in place.

Table 7.7
Extent of saline soils in the Prairie Provinces 1991 (Goddard, 2004).

	Hectares
Prairies	2.2 million
Alberta	647,000
Saskatchewan	1.3 million
Manitoba	243,000

Table 7.8
Share of agricultural and adjacent lands that are at risk of soil salinization in the Prairie Provinces from 1991 to 2001 (Wiebe *et al.*, 2005).

	Share of Land (%)					
	Alberta		Saskatchewan		Manitoba	
Risk class	1991	2001	1991	2001	1991	2001
Very Low	82	86	48	58	66	65
Low	12	10	29	28	10	12
Moderate	4	3	15	8	17	17
High	1	1	3	3	6	5
Very High	1	1	5	4	1	1

There are a number of cost effective agricultural practices available to help producers prevent and control the extent of salinization on their farms. As salts are often endemic to the soils in which they are found (i.e. historical salinity which

will always be present), many of these management practices are geared at reducing the amount of excess water in the recharge area thus reducing salt movement to the discharge zone (i.e. a saline seep). Management examples include:

- Salt tolerant grasses in the saline seep, and alfalfa in the recharge area (alfalfa is a crop with a high water demand)
- Relief wells connected to suitable drainage outlets (for artesian systems)
- Appropriate water management and irrigation timings (e.g. trenching, tiling)
- Lining of irrigation canals to prevent losses through leaks

The Soil Conservation Act

There is a long and impressive history of soil and water conservation research in Alberta. This has resulted in the development of numerous on-farm initiatives, federal and provincial programs and large inputs of funds to support efforts in conservation, however, work is ongoing to address this real threat to agriculture.

To address the problems and costs associated with soil degradation at a municipal level, the *Soil Conservation Act* provides municipalities with the authority to take action and/or impose penalties if soil is deteriorating through wind and water erosion or other means. We strongly recommend, however, that efforts first be made to work with the person farming the land and/or the landowner before action is taken under the Act. The Act should be read and referenced directly before any action is taken.

Although there have been some minor changes over the years, the intent of the Act has remained the same:

- To provide a framework for encouraging sound soil conservation practices
- To preserve Alberta's agricultural land base
- To ensure the long-term productivity of the farming sector

Powers of the Inspector, Individuals and Government

* Describe the powers of the inspector and distinguish between the duties of the individual and local authorities.

In the application of the *Soil Conservation Act*, all parties involved have specific powers and responsibilities. Although these powers and responsibilities differ between the inspector, the landowner, the municipality, Alberta Agriculture and Forestry (AF) and the Minister of Agriculture and Forestry, the goal is the same – to prevent the loss of soil and soil productivity through misuse and negligence.

An inspector may be appointed by a local authority or by the Minister. An Agricultural Fieldman under the *Agricultural Service Board Act* is by virtue of that office an inspector under the *Soil Conservation Act*. The **INSPECTOR** has the following powers and responsibilities under the *Soil Conservation Act*:

- Power to invoke action to prevent or stop the loss or deterioration of soil.
- Power to enter onto land without permission of landowner. An inspector can enter on any land at any reasonable hour to inspect the land for violations under the *Soil Conservation Act* or to carry out any remedial measures set out in a notice. However, the right to enter buildings or structures situated on the land is not allowed without permission of the landholder.
- Power to issue notices. When an inspector is of the opinion that appropriate measures are not being taken to prevent or stop soil loss or deterioration from taking place, an inspector shall issue a notice to the landholder directing the action to be taken.
- Power to issue permits.
- Responsibility to investigate and document observed and reported cases of soil deterioration.
- Responsibility to communicate with ASB to keep them informed of observed and reported cases of soil deterioration and related investigations.
- Responsibility to follow proper procedures when issuing notices to landowners under the *Soil Conservation Act*.
- Responsibility to become familiar with current recommended soil erosion control measures.
- Responsibility to understand local conditions in your municipality and how they may modify or alter standard recommended soil erosion control measures.
- Responsibility to enforce the *Soil Conservation Act*.

As the goal is to work toward compliance, the first approach should be awareness and cooperation. Sample letters of concern to landowners who have soil deterioration problems with respect to wind or water erosion are included in the appendix. Formal letters may often take the place of notices issued under the *Soil Conservation Act*.

The role of the landowner/occupant is to protect the productivity of land through the prevention or minimization of soil erosion. As a land steward, the **LANDOWNER/OCCUPANT** has the following powers and responsibilities under the *Soil Conservation Act*:

- Power to appeal a notice.
- Right to refuse entry to buildings or structures at an unreasonable hour.
- Responsibility to prevent or minimize soil loss or deterioration from soil erosion.
- Responsibility to comply with notices given.
- Responsibility to pay for expenses incurred for carrying out remedial measures.
- Responsibility to allow inspectors to carry out their duties.
- Responsibility to hold valid permits and comply with the terms and conditions under which a permit is issued.

The Municipality has been empowered by the Minister to administer the *Soil Conservation Act*. In carrying out this role, the **MUNICIPALITY** has the following powers and responsibilities under the *Soil Conservation Act*:

- Power and responsibility to appoint at least one soil conservation officer for the municipality.
- Power to pass bylaws dealing with burning of stubble and removal of topsoil.
- Power to develop permits that prescribe the terms and conditions required for stubble burning and topsoil removal.
- Responsibility to set municipal policy by which the inspectors/officers should approach problems and identify problem areas.
- Responsibility to provide proper identification to the soil conservation officer.
- Responsibility to make provision to hear appeals by aggrieved landowners.

The role of Alberta Agriculture and Forestry is to provide the overall administration of the Act. This includes providing interpretative and consultative advice regarding the administration of the Act. In carrying out this role, **ALBERTA AGRICULTURE AND FORESTRY** has the following powers and responsibilities under the *Soil Conservation Act*:

- Powers and responsibilities of a government department.
- Power to suggest amendments to the *Soil Conservation Act*.
- Responsibility to ensure that administrators of the Act are trained.
- Responsibility to ensure Act is enforced fairly.

The role of the Minister of Agriculture and Forestry is to provide the overall authority of the Act. In carrying out this role, the **MINISTER OF ALBERTA AGRICULTURE AND FORESTRY** has the following powers and responsibilities under the *Soil Conservation Act*:

- Powers granted to the Minister by the Crown.
- Power to introduce Legislation and amendments.
- Power to appoint inspectors/officers should local authority not do so, or if officer requires assistance in carrying out the duties under the Act, or if local authority is not carrying out responsibilities under the Act.
- Power to appoint provincial soil conservation officers under the *Public Service Act*. Provincial officers may exercise their power anywhere in the Province.
- Power to recover costs from the local authority to debt due to the Crown including expenses and remuneration of a provincial officer performing the duties of a municipal officer.
- Responsibility to ensure Act is enforced fairly.

Assignment 7.1

Graded Assignment

Total Question Value = 20 pts
Complete Notice = 8 pts
Process/steps = 8 pts
Issues = 4 pts

DUE DATE: April 14, 2017

In the appendix are 2 examples of letters of concern that have been used to work in a cooperative manner with a landowner. Assume that cooperation has not worked and it has been decided that a notice will be issued. Using the scenario in either sample letter (1. Wind Erosion or 2. Water Erosion) and the template for a notice, complete the notice with all the necessary information.

Describe the process/steps you would take in issuing the notice through to enforcement of the notice. Discuss issues or things you might consider during this process.

Issuance and Delivery of Notices, Orders or Other Documents

* Describe the procedure for issuance and delivery of notices, order or other documents.

A notice is issued when an inspector is satisfied that appropriate measures are not being taken;

- to prevent soil loss or deterioration from taking place, or
- to stop the loss or deterioration from continuing in situations where soil loss or deterioration is already occurring.

A notice is in writing and is issued against the landholder. If the landholder is not the owner of the land, a copy of the notice shall also be served to the landowner. The notice shall be served in one of the following ways:

- Delivered in person to the violator. This is the preferred method in which to deliver a notice.
- By registered mail to the last known address of the person to whom the notice is issued. A notice sent by registered mail is considered to be received by the person to whom it is addressed 10 days after it is sent.
- By leaving the notice with a person over the age of 18 years at the dwelling place or place of business of the person to whom the notice is issued.

If the notice cannot be served by one of the methods above, the notice may be served by posting a copy of the notice in a conspicuous place on the land identified in the notice.

A notice must include the following information:

- Name and address of the violator / landholder.
- Legal description or GPS coordinates of the land subjected to soil loss or deterioration.
- General location on the land where the remedial measures are required.
- Cause of the soil loss or deterioration, if known.
- Specify a time in which active measures shall be carried out.
- Description of active measures required to prevent or stop soil loss or deterioration.
- Name and address of the owner of the land that is subject to the notice.
- Summary of appeal procedures.
- Date, signature of soil conservation officer, phone number and address
- Name of the municipality.

A sample notice with the summary of appeal procedure, which is often printed on the back, is included in the appendix at the end of this section.

Within five days of serving a notice under the *Soil Conservation Act*, the officer shall provide copies of the notice to;

- the local authority for the municipality in which the land is located, and
- to the ASB appointed for the municipality in which the land is located.

Dealing with Non-compliance

* Describe options for dealing with non-compliance.

When a landholder does not comply with a notice within the period of time specified in the notice, an officer or authorized person shall enter onto the land specified in the notice and carry out remedial measures that were specified in the notice. Expenses incurred in carrying out the remedial measures are ultimately the responsibility of the landowner. The local authority shall notify the landowner of the expenses and demand payment within 30 days of notification. If the landowner does not pay within 30 days, the local authority has the following options to recover the expenses:

- Add the unpaid expenses to the tax roll as an additional tax against the land for which the expenses were incurred.
- Recover the unpaid expenses as a debt due to the local authority by court action against the landowner.

Offences:

There are five general types of offences that can be committed. Each offence has a fine associated with it. The following are the offences that can be committed under the *Soil Conservation Act*.

1. Failure to comply with a notice.
2. Contravention of the *Soil Conservation Act* or the regulations.
3. Contravention of a bylaw or order.
4. Failure to comply with the terms or conditions under which a permit was issued.
5. Failure to comply with the duties of the landholder which require that appropriate measures are taken to prevent soil loss or deterioration from taking place, or if soil loss or deterioration is taking place, to stop the loss or deterioration from continuing.

If a person is found to be guilty of any of the first four offences, the violator is liable to a fine of not more than $5000.00. If a person is found to be guilty of the fifth offence listed above, the violator is liable to a fine of not more than $500.00 for each day or part of a day that the offence continues, to a maximum fine of not more than $10,000.00.

Court Order:

In dealing with non-compliance issues, another option for a soil conservation officer to consider is to apply for the issuance of a Court Order by the Court of Queen's Bench. Two situations for which the issuance of a court order may be used are:

1. When a landholder refuses entry of a person authorized under the *Soil Conservation Act* to enter onto land.
2. When a landholder refuses to comply with a notice.

Action Prohibited:

Landholders/owners generally do not want to be told how to manage their land or agricultural operation. Your ultimate role as a soil conservation officer is to protect the land and farmer's livelihood. By exercising good public relations before executing enforcement measures, it is possible to achieve your goal, and perhaps without issuing a notice. Unfortunately, this is not always the case, and sometimes there are many difficult situations and people to deal with. Therefore, despite the outcome it is important to know that no action can be taken against the following people or boards for an act done or performed in good faith under the *Soil Conservation Act* and the regulations:

- the Minister,
- the Minister responsible for the *Municipal Government Act*,

- the Minister responsible for the *Special Areas Act*,
- a local authority or an official of a local authority,
- a member of the ASB,
- a member of an appeal committee, or
- a soil conservation officer or other person.

Options and Process for Appeals

* Describe the options and process for appeals.

A person receiving a notice under the *Soil Conservation Act* has the right to appeal the notice. However, the appeal is not effective unless it is served on the local authority within the time period specified on the notice for the commencement of remedial measures, or at least before the officer has begun to implement any remedial measures. In another situation where a notice has been served that requires remedial measures be carried out within 72 hours or less of receiving the notice, and even if an officer has begun to implement remedial measures, a person still has 72 hours after receiving the notice to serve a notice of appeal on the local authority.

A notice of appeal must be in writing and shall include the following information:

- Name of the appellant (person who is appealing the notice)
- Address of the appellant
- Legal description of the land for which the appeal is being taken
- Reason for the appeal

An appeal must also be accompanied with a deposit of $50.00, which will be refunded if an appellant is successful in their appeal.

Rules and Procedures Governing Hearing of Appeals

* Describe the rules and procedures governing the hearing of appeals.

During an appeal, no actions or remedial measures can be implemented. If remedial measures have already been initiated as a result of a notice requiring action within 70 hours or less, these activities must be halted and not continued pending the determination of the appeal.

Once an appeal has been received by the local authority, the appeal committee shall as soon as conveniently possible, hear the appeal. An appeal committee shall consist of the ASB members. As there are very few situations where an ASB has not been formed the composition of the appeal committee is generally consistent across the province. However, there is legislation in place to provide for the rare situation where an ASB does not exist. For example:

- Municipal district without an ASB – the appeal committee will consist of either the council or at least three members of council appointed by a resolution at council.
- Improvement district without an ASB – the appeal committee will consist of at least three persons appointed by the Minister responsible for the *Municipal Government Act*.
- Special Area without an ASB – the appeal committee will consist of at least three persons appointed by the Minister responsible for the *Special Areas Act*.

In addition to the composition of the appeal committee, there are several rules governing the hearing of appeals.

- Require 48 hours notice in writing be given to the appellant and any other person who is affected by the appeal. The notice shall include the time, place and purpose of the hearing and shall be served on the appellant at the address indicated in the notice of appeal.
- The appeal committee shall receive evidence relevant to the matter being heard.
- Rules of evidence applicable to judicial proceedings do not apply.
- Oral evidence received shall be taken down in writing or recorded electronically. This evidence may be destroyed at any time after six months has elapsed from the conclusion of the appeal.
- All evidence received shall form the record of the proceedings.
- A member of the appeal committee may administer an oath to any person giving evidence before the appeal committee.
- Any person appearing at a hearing may be represented by counsel.
- If a person served with a written notice to attend a hearing does not attend in person or by counsel, the appeal committee may proceed with the hearing.
- The appeal committee may adjourn the hearing from time to time.
- A hearing is open to the public unless the person presiding over the hearing considers it in the best interest of the public to order a closed hearing.
- A copy of the order of the appeal committee, including written reasons for the decision shall be served within 30 days from the conclusion of the hearing. The order shall be served on the appellant at the address

indicated in the notice of appeal. A copy of the order shall also be served to any person who is affected by the appeal.

- Provisions of the Alberta Rules of Court relating to payment of conduct money or witness fees apply to applications or other matters heard before the appeal committee.

With the consent of all parties to the appeal, the appeal committee may consider the matter without a hearing being held. Also, with consent of all parties, all matters concerning the appeal may be submitted in writing or otherwise to the appeal committee.

Decision of the Appeal Committee

* Describe the possible decisions of the appeal committee.

After hearing the appeal, the appeal committee is required to render a decision. If the notice is a general notice and the time specified for taking active measures was greater than 72 hours there are four general decisions that can be made by an order.

1. Agree with and confirm the directions and time specified in the original notice made by the soil conservation officer.
2. Rescind or revoke the original notice made by the soil conservation officer.
3. Agree with the original notice, but vary the directions or time period, or both specified in the original notice made by the soil conservation officer.
4. Set aside the original notice made by the soil conservation officer, and substitute a new notice. The new notice will set specific remedial measures to be taken by the landholder within a specified time.

In addition to making an order for one of the four decisions above, the appeal committee has other options to consider if the original notice required remedial measures to be implemented within 72 hours of receiving the notice, and these measures have already been carried out in whole or in part. If the appeal committee finds, in whole or in part, in favour of the appellant with respect to the remedial measures carried out, they may by order consider one or more of the following three options.

1. Direct that the local authority be liable for the expenses incurred in carrying out the remedial measures. The amount of the expenses may be in whole or in part, and is to be determined by the appeal committee.
2. Direct the local authority to restore the land to a state that the appeal committee considers appropriate under the circumstances.

3. Direct that the local authority be liable for the expenses incurred in restoring the land to a state that the appeal committee considers appropriate under the circumstances. The amount of the expenses may be in whole or in part, and is to be determined by the appeal committee.

The appeal committee also has the authority to return the deposit that accompanied the notice of appeal to the appellant at the conclusion of the appeal.

Bylaws Under the Soil Conservation Act

* Identify the need for bylaws under the *Soil Conservation Act*.

The *Soil Conservation Act* provides for the passing of municipal bylaws to

- control the burning of stubble, and
- control the removal of topsoil.

The Minister responsible for the *Municipal Government Act* or the Minister responsible for the *Special Areas Act* may also, by order control stubble burning and removal of topsoil. Municipal bylaws may provide for any or all of the following:

- A system of permits controlling the removal of topsoil from land
- A system of permits controlling the burning of stubble on land
- Prescribe and govern the terms and conditions under which a permit may be issued, suspended, reinstated or cancelled
- Prohibit the removal of topsoil or the burning of stubble on land

Soil conservation bylaws are not mandatory for a municipality to develop. They should be considered where control of soil conservation issues is deemed necessary. Bylaws may be passed or rescinded by municipalities at any time. However, it is recommended that soil conservation bylaws be posted or advertised prior to implementing. Final decision on and passage of a bylaw is under the authority of the municipal council.

Copies of bylaws under the *Soil Conservation Act* shall be provided to the Minister. If a bylaw conflicts with the *Soil Conservation Act* or the regulations, the Act or regulation will prevail.

A sample bylaw is included in the appendix at the end of this section.

Soil Conservation Act Questionnaire Results

The Environmental Stewardship Branch of Alberta Agriculture and Forestry distributed a *Soil Conservation Act* questionnaire to ASBs in 2002. Several questions were asked ranging from passing of bylaws to issuance of notices and

appointment of soil conservation officers. Seventy-three to eighty percent of the ASBs responded depending on the question asked. Agricultural Fieldmen submitted the majority of the responses. The following table provides a summary of the questionnaire.

Table 7.9
Soil Conservation Act Questionnaire Results (AAFRD, 2002).

Question	% ASB Responded	% Yes	% No
1. Do you have a copy of the *Soil Conservation Act*, 2000, Chapter S-15?	80	41	59
2. Do you have a copy of the Soil Conservation Notice Regulation 272/98?	77	44	56
3. Have you been appointed as the Soil Conservation Officer for your municipality?	80	88	12
4. Has your municipality passed bylaws related to stubble burning or topsoil removal?	80	30	70
5. Has a notice been served under the *Soil Conservation Act* in your municipality in the last 5 years?	79	7	93
6. Have soil conservation issues in your municipality been expressed to you in the past 12 months?	73	53	47

A few interesting points that can be drawn from the survey are:

- 12% of the ASBs that responded indicated that the Agricultural Fieldman was not appointed as a soil conservation officer. Under both the *Soil Conservation Act* and the *ASB Act*, it indicates that an Agricultural Fieldman is, in the municipality employing that fieldman, a soil conservation officer of the municipality under the *Soil Conservation Act*.
- 88% of the ASBs that responded indicated that the Agricultural Fieldman had been officially appointed as a Soil Conservation officer, however, less than 50% of the ASBs had the most recent copies of the *Soil Conservation Act* and Regulations.
- A fairly low percent (30%) of the ASBs that responded have passed bylaws related to the *Soil Conservation Act* although more than 50% of the ASBs have had soil conservation issues brought to their attention in the past year. As mentioned previously, bylaws are not mandatory, however they may assist in dealing with soil conservation issues.
- A very low percent (7%) of the ASBs that responded have issued notices under the *Soil Conservation Act* within the past 5 years, which amounts to 12 notices in total. Hopefully this low percent indicates that either erosion is not a problem, or more likely that issues are being dealt with in a cooperative manner.

Sample letters of concern to landowners who have soil deterioration problems related to wind and water erosion are included in the appendix at the end of this section.

Something to think about!

Extensive research has provided us with ways to measure and predict the risk of soil degradation in the province. However, a survey conducted in 1991-92 indicated that although many Alberta farm operators found existing information relating to soil conservation technologies to be adequate, it is often poorly understood (Haigh *et al.*, 1992). In fact, the overall data further indicated that farm operators view the adoption of soil conservation practices in terms of economic cost and social benefit rather than an increase on their return to investment. If a producer is asked to describe healthy soil, the words chosen are often subjective, but relate directly to their farming experiences. In order to promote sustainable agriculture and maintain healthy soils, we have to communicate in this same manner. For example, producers will generally describe soil based on how it looks, feels, and smells. Healthy soils are (Acton and Gregorich, 1995);

- deeper and darker,
- easier to plow,
- work up more easily in the spring,
- sponge up and hold more water,
- dry out sooner,
- break down crop residues more rapidly in the fall,
- have higher organic matter and less erosion,
- have greater numbers and more varieties of earthworms, and
- have a sweet, fresh-air smell.

Other comments on healthy soils include (Acton and Gregorich, 1995):

- fuel costs are way down,
- there is less wear and tear on machinery,
- the tractor pulls more easily,
- less fertilizer is required,
- crop yields are higher,
- there is a greater variety of weeds,
- there are fewer problems with insects and disease, and
- feed crops produced are of better quality, and veterinary bills of animals eating this feed are lower.

Formation of soil is a very slow process. The development of 2.5 cm (1 inch) of topsoil, which is approximately equivalent to 150 tons/ac, takes more than 30 years to form under the *very best* natural conditions (CAST, 1982), which are often quite rare. Therefore, the 12.5 cm to 25 cm (5 – 10 in) of topsoil needed for efficient growth of ordinary field crops will take *at the very least* 150 to 300 years to form. Also consider that the estimate average annual soil loss from erosion on typical cropland is approximately 5 tons/ac/year with losses several times greater being common throughout the Prairie Provinces (CAST, 1982). Therefore, preserving the capability of soil and water resources for the future should be a matter of serious concern for everyone.

Selected Web Links

Soil Conservation and Quality (general):

- Alberta Agriculture, Food and Rural Development. AESA Soil Quality Program. http://www.agric.gov.ab.ca/soilquality
- Alberta Agriculture, Food and Rural Development. Ropin' the Web. http://www.agric.gov.ab.ca/
- Alberta Reduced Tillage Linkages. http://www.reducedtillage.ca/
- Alberta Soil Information Centre. http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/sag6903
- Agriculture and Agri-Food Canada. 2000. Environmental Sustainability of Canadian Agriculture: Report of the Agri-Environmental Indicator Project. Agriculture and Agri-Food Canada. http://www.agr.gc.ca/policy/environment/pubs_aei_e.phtml
- CAESA Soil Quality Research Factsheets. Factsheets include information on monitoring benchmark sites, wind erosion, water erosion and soil salinity. http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/sag3363?opendocument
- Conservation Tillage Information Factsheets. Factsheets include information on various topics in Direct Seeding Systems. http://www.agric.gov.ab.ca/app21/selcat?cat1=Soil%2FWater%2FAir&cat2=Integrated+Cropping&subj=206&head=Conservation+Tillage&page=true

Wind and Water Erosion:

- Agriculture and Agri-Food Canada. Planning Farm Shelterbelts and Planning Field Shelterbelts (modified 2003). Agriculture and Agri-Food Canada, Prairie Farm Rehabilitation Administration. http://www.agr.gc.ca/pfra/shelterbelt/shbpub24.htm (farm) http://www.agr.gc.ca/pfra/shelterbelt/shbpub1.htm (field)
- Alberta Agriculture, Food and Rural Development. 1998. Emergency Measures for Control of Wind Erosion. Alberta Agriculture, Food and Rural Development, Agdex FS572-1. http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/agdex3961?opendocument
- Alberta Agriculture, Food and Rural Development. 2000. Shelterbelt Varieties for Alberta. Alberta Agriculture, Food and Rural Development and Prairie Farm Rehabilitation Administration. Adgex 277/33-1. http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/agdex24?opendocument
- Timmermans, J. and Larney, F. 1998. An Introduction to Wind Erosion Control. Alberta Agriculture, Food and Rural Development. Agdex 572-2. http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/agdex3524?opendocument

- Timmermans, J. and Casement, B. 1994. Field Shelterbelts for Soil Conservation. Alberta Agriculture, Food and Rural Development. Agdex 277/20-3. http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/agdex2073?opendocument
- Vanderwel, D. and Abday, S. 1996. Grassed Waterway Construction. Alberta Agriculture, Food and Rural Development, Agdex 573-6. http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/agdex795?opendocument
- Vanderwel, D. and Abday, S. 1997. An Introduction to Water Erosion Control. Agriculture, Food and Rural Development, Agdex 572-3. http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/agdex2074?opendocument
- Vanderwel, D. 1997. Watercourse Improvement and Gully Restoration. Alberta Agriculture, Food and Rural Development, Agdex 573-5. http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/agdex1344?opendocument

Organic Matter and Residue Cover:

- Alberta Agriculture, Food and Rural Development. 1993. Legume Green Manuring. Alberta Agriculture, Food and Rural Development, Agdex 123/20-2. http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/agdex133?opendocument
- Hartman, M. 1999. Estimating the Value of Crop Residues. Alberta Agriculture, Food and Rural Development, Agdex 519-25. http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/agdex2512?opendocument
- Lickacz, J. and D. Penny, D. 1985. Soil Organic Matter. Agriculture, Food and Rural Development, Agdex 536-1. http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/agdex890?opendocument

Salinity:

- Goddard, T. 2004. Salinity Classification, Mapping and Management in Alberta. Agriculture, Food and Rural Development. http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/sag3267
- Wentz, D. 2000. Dryland Saline Seeps: Types and Causes. Agriculture, Food and Rural Development, Agdex FS518-12. http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/agdex167
- Wentz, D. 1999. Structural Controls for Dryland Saline Seeps. Alberta Agriculture, Food and Rural Development, Agdex 518-16. http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/agdex171?opendocument

❖ Wentz, D. 2001. Salt Tolerance of Plants. Alberta Agriculture, Food and Rural Development, Agdex FS518-17. http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/agdex3303?opendocument

Other Resources

❖ Acton, D.F. and L.J. Gregorich (eds.). 1995. The Health of Our Soils: Toward sustainable agriculture in Canada. Agriculture and Agri-Food Canada. Publication 1906/E.

❖ Dakers, S. 1996. Agricultural Soil Conservation: Federal Policy. Library of Parliament. 87-8E.

❖ Lefebvre, A., W. Eilers and B. Chunn (eds.). 2005. Environmental Sustainability of Canadian Agriculture: Agri-Environmental Indicator Report Series – Report #2. Agriculture and Agri-Food Canada, Ottawa, Ontario.

❖ McRae, T., C. A. S. Smith, and L. J. Gregorich (eds.). 2000.Environmental Sustainability of Canadian Agriculture: Report of the Agri-Environmental Indicator Project. Agriculture and Agri-Food Canada. Ottawa, Ontario.

❖ PFRA. Prairie Farm Rehabilitation Administration. 2000. Prairie Agricultural Landscapes: A Land Resource Review. Agriculture and Agri-Food Canada. Regina, Saskatchewan.

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AAFRD, 2001. 2001 Census of Agriculture for Alberta. Agdex 852-1.

AAFRD, 2002. Soil Conservation Act Questionnaire Results. Conservation and Development Branch (unpublished)

Acton, D.F. and L.J. Gregorich. 1995. The Health of Our Soils Toward sustainable agriculture in Canada. Agriculture and Agri-Food Canada. Publication 1906/E.

CAST. 1982. Soil Erosion: Its Agricultural, Environmental, and Socio-economic Implications. Report No. 92, January 1982.

Dumanski, J., D.R. Coote, G. Luciuk and C. Lok. 1986. Soil Conservation in Canada. Reprinted from the *Journal of Soil and Water Conservation* Vol. 41, No. 4. Soil Conservation Society of America, July – August 1986.

Ecological Stratification Working Group. 1995. A National Ecological Framework for Canada – Report and National Map. Agriculture and Agri-Food Canada, Ottawa, Ontario.

Eilers, W. and T. Huffman. 2005. Agricultural Land Use Change. Pages 42 - 48 in Lefebvre, A., W. Eilers and B. Chunn (eds.). 2005. Environmental Sustainability of Canadian Agriculture: Agri-Environmental Indicator Report Series – Report #2. Agriculture and Agri-Food Canada, Ottawa, Ontario.

Goddard, T. 2004. Salinity Classification, Mapping and management in Alberta. Alberta Agriculture, Food and Rural Development. http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/sag3267

Haigh, R.J., A.L. Kisko and C.M. Haigh. 1992. Approaches to Soil Conservation Among Alberta Farm Operators. Department of Rural Economy, University of Alberta.

Rostad, H. and G. A. Padbury. 2005. Soil Erosion: B) Wind Erosion. Pages 97 - 100 in Lefebvre, A., W. Eilers and B. Chunn (eds.). 2005. Environmental Sustainability of Canadian Agriculture: Agri-Environmental Indicator Report Series – Report #2. Agriculture and Agri-Food Canada, Ottawa, Ontario.

Toogood, J.A. 1989. The Story of Soil and Water Conservation in Alberta. Alberta Agriculture, Food and Rural Development. Agdex 570-2.

van Vliet, L.J.P., G. A. Padbury, H. W. Rees, and M. A. Martin. 2005. Soil Erosion: A) Water Erosion. Pages 90 - 96 in Lefebvre, A., W. Eilers and B. Chunn (eds.). 2005. Environmental Sustainability of Canadian Agriculture: Agri-

Environmental Indicator Report Series – Report #2. Agriculture and Agri-Food Canada, Ottawa, Ontario.

Wiebe, B. H., R. G. Eilers, W. D. Eilers, and J. A. Brierly. 2005. Soil Salinity. Pages 114 – 118 in Lefebvre, A., W. Eilers and B. Chunn (eds.). 2005. Environmental Sustainability of Canadian Agriculture: Agri-Environmental Indicator Report Series – Report #2. Agriculture and Agri-Food Canada, Ottawa, Ontario.

APPENDIX

Government of Alberta

NOTICE
Under Section 4 of the Soil Conservation Act

File No. _____
Revised Jan 2011

To _____(name of Landholder) of

_____, Alberta (address of Landholder)

You are hereby notified that part or the entire field, as designated by the legal land location: the _____ quarter(s) of Section _____

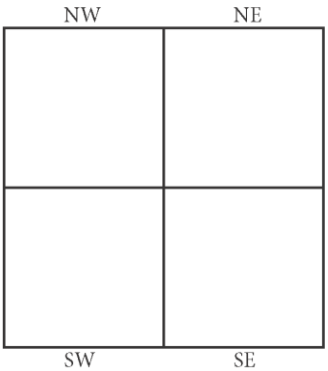
Township _____Range _____West of the _____Meridian or by the approximate location as expressed by the GPS latitude and longitude coordinates: _____

as indicated on the accompanying diagram is deteriorating due to

And you are hereby directed to take active measures to prevent this deterioration

on or before the _____ hour _____ day of _____

The following measures are required:



Location on Property (approximate)

Name and address of land owner (if different than Landholder above):

Date _____

_____
(Soil Conservation Officer)

_____
(Municipality)

_____
(Address) (Phone)

See Appeal Procedures Below

TO WHOM NOTICE ISSUED - If this notice is not complied with, action may be taken in accordance with the provisions of the Soil Conservation Act.

SUMMARY OF APPEAL PROCEDURE

7 (1) Where a notice is served on a person under Section 4, that person may appeal the notice to the appeal committee appointed for the municipality in which the land is located by service on the local authority for the municipality a notice of appeal.

(2) A notice of appeal is not effective unless it is served on the local authority

(a) within the period of time specified in the notice given under Section 4 for the commencement of the remedial measures set out in the notice, or

(b) before any remedial measures are commenced under Section 6,

whichever is the later.

(3) Notwithstanding Subsection (2), where

(a) a notice is served on a person under Section 4 and the notice requires that the remedial measures set out in the notice be carried out within 72 hours or a shorter period of time after the notice is served on the person, and

(b) the remedial measures referred to in that notice were commenced under Section 6, that person may not later than 72 hours after the notice is served on the person serve a notice of appeal on the local authority.

8 A notice of appeal must be in writing and shall

(a) set out

(i) the name of the appellant,

(ii) an address for service on the appellant,

(iii) the legal description of the land in respect of which the appeal is being taken, and

(iv) the grounds of the appeal,

(b) be accompanied by a deposit in the amount of $50.

For more details on the appeal procedures, consult the Soil Conservation Act. A copy will be available for viewing at your local Agricultural Service Board Office or could be purchased from Publication Services in Edmonton at (780) 427-4952 and Calgary at (403) 297-6251.

Print Form

Print 4 copies: (1) Landholder (2) Landowner (if different from Landholder) (3) Local Authority where land Is located (County or Community (4) Ag Service Board

SAMPLE BYLAW

Bylaw No. _____ to establish a system of permits to control the burning of stubble on land.

Whereas it is deemed expedient and advisable in the best interests of soil conservation the Council be authorized to establish a system of permits controlling the burning of stubble on land within the municipality of_____.

And Whereas the *Soil Conservation Act*, being Chapter S-15, Revised Statutes of Alberta, 2000, and in particular Section 21 thereof, gives authority for a Council, by Bylaw, to establish a system of permits controlling the burning of stubble on land.

Therefore the Council of the _____ of _____.

Hereby enacts as follows:

1) Except as otherwise provided in this bylaw, no person shall burn stubble on any land within the jurisdiction of the _____of _____ without first obtaining a permit issued pursuant to this bylaw.

2) The Council, through its Soil Conservation Officer may issue a permit or permits for the burning of stubble on land, provided certain conditions, as outlined by Council are complied with by the applicant.

3) The Council may authorize the issuance of a permit or permits for the burning of stubble for a period of time, which shall be established by the Council on recommendation of the Agricultural Service Board.

4) Any permit may be suspended, revoked, or altered if found in error or if it is found that false information was given by the applicant.

5) The granting of a permit under this Bylaw in no way relieves an applicant of his responsibility to contain any fire in the area described in the permit.

6) Any decision of a Soil Conservation Officer may be appealed in writing through him to the Agricultural Service Board. If an appeal is received, the Soil Conservation Officer must call a meeting of the Agricultural Service Board to consider the appeal and the meeting must be held and decision made within five days of receipt of the notice of appeal. A decision of the Agricultural Service Board is final and binding.

7) Any person who contravenes a provision of the Bylaw is guilty of an offense and is liable on summary conviction to a fine of not less than twenty dollars and not more than two hundred dollars and in default of payment thereof to imprisonment for a term of not more than thirty days.

This Bylaw comes into force on the day upon which it is passed.

First reading on _____ A.D. 20 _____
Second reading on _____ A.D. 20 _____
Third reading on _____ A.D. 20 _____
And finally passed this _____ day of _____ A.D. 20 _____

_____ _____
Mayor Date:

_____ _____
Secretary-Treasurer Date:

SAMPLE LETTERS OF CONCERN TO LANDOWNERS WHO HAVE SOIL DETERIORATION PROBLEMS

1. Wind Erosion

Date File #

Mr. I.M.A. Farmer
RR 1
Anytown AB T0C 0J0

Dear Mr Farmer:

Several times this year I have observed soil blowing on your 100 acre cultivated summerfallow field on NW 30-62-27-W6M. During the strong windstorm of last week, the soil blowing was severe with visibility reduced to 100 yards or less. Of particular concern are the patches of almost total topsoil loss on the exposed field crest and upper slope.

The soil erosion by wind on your field is in part due to natural factors, including the granular, non-cloddy soil structure and the long unsheltered distance across the field parallel to the prevailing wind. With proper management you can minimize soil losses. Some recommended management options to reduce soil erosion by wind on your field are as follows:

1) A rough surface is less prone to erosion. Clods may be produced when firmer subsoil is brought to the surface by tillage. Tillage ridges should be perpendicular to the prevailing wind direction.
2) Tillage equipment is available that conserves the crop residue cover (e.g. wide blade cultivator, rod weeder); avoid equipment that buries the crop residue excessively (e.g. mouldboard plough, tandem or offset disc cultivator).
3) Crop residue cover on the soil surface to reduce surface wind velocity and trap moving soil particles. An upright standing residue is more effective than flattened residue. Approximately 1500 pounds/acre of standing residue will protect medium textured soils. Larger quantities are required to protect coarse and fine textured soils.
4) Manure application of 0.25-2.00 inches to problem areas protect the soil surface, and improve soil structure, organic matter content and productivity.
5) Forage rotations or continuous cropping protect the soil surface, and increase soil organic matter and productivity.
6) Strip cropping to reduce wind velocity across exposed soil when adjacent strips are covered with tall stubble or crops. Strips should be perpendicular to the prevailing wind direction.
7) Minimize or zero tillage to protect the soil surface by maintaining a crop residue cover.

I would like to meet with you as soon as possible to discuss these recommendations and develop a management plan that will provide a practical and effective solution to your problem.

The County is committed to the adoption of proper soil conservation practices on farmland within the municipality, and the prevention of the loss of soil and soil productivity through negligence and misuse. The Soil Conservation Act empowers the County Council to direct landowners to take action to prevent soil deterioration on the land (*Soil Conservation Act*, Chapter S-15, Revised Statutes of Alberta 2000).

Sincerely,

I.C. Erosion
Soil Conservation Officer
County #9

SAMPLE LETTERS OF CONCERN TO LANDOWNERS WHO HAVE SOIL DETERIORATION PROBLEMS

2. Water Erosion

Date File #

Mr. I.M.A. Farmer
RR 1
Anytown AB T0C 0J0

Dear Mr Farmer:

After each heavy rainstorm this year I have observed that there have been numerous rills forming on you 100 acre cultivated summerfallow field on NW 30-62-27-W6M. After the very heavy rainstorm of last week, some of these rills developed into gullies. Of particular concern is the large gully running the length of the field from north to south. This represents an approximate soil loss of 200 cubic yards or 225 tons. Unless remedial measures are taken immediately, the gully will enlarge and the soil loss will increase.

The soil erosion by water on your field is in part due to natural factors, including the fine textured silty clay soils and the long field slope from north to south. With proper management, you can minimize soil losses. Some recommended management options to reduce soil erosion by water on your field are:

1) Maintaining a crop residue cover to protect the soil surface.
2) Forage rotation or continuous cropping to add new fibre to the soil after breaking. This will improve soil structure, permeability, organic matter content, nutrient content and productivity.
3) Manure application (20 tons/acre/year to problem areas) to improve soil structure, organic matter content and productivity.
4) Seeding cover crops (e.g. grass, forages) to erosion prone areas such as waterways and steep slopes, to reduce soil loss and arrest gully formation. With proper fertilization, the grassed waterways can be very productive.
5) Slopes up to 10% grade can be protected by contour farming and/or strip cropping. Cultivation ridges or crop rows perpendicular to the field slope retard water flow down the slope.
6) Effective chemical fertilization to increase crop yield, crop residue and root mass to improve soil structure.

I would like to meet with you as soon as possible to discuss these recommendations and develop a management plan that will provide a practical and effective solution to your problem.

The County is committed to the adoption of proper soil conservation practices on farmland within the municipality, and the prevention of the loss of soil and soil productivity through negligence and misuse. The Soil Conservation Act empowers the County Council to direct landowners to take action to prevent soil deterioration on the land (Soil Conservation Act, Chapter S-15, Revised Statutes of Alberta 2000).

Sincerely,

I.C. Erosion
Soil Conservation Officer
County #99