ZONING BY-LAW NO. 2017-70

SCHEDULE B – MINIMUM DISTANCE SEPARATION (MDS I, MDS II) FORMULAE

3. DEFINITIONS

Except for references to legislation and other document titles which are traditionally in italics, italicized terms in this MDS Document are defined below. For other terms, the normal meaning of the word applies. Terms may be italicized only in specific Implementation Guidelines; for these terms, the defined meaning applies where they are italicized and the normal meaning applies where they are not italicized. The following defined terms are intended to capture both singular and plural forms of these terms throughout this MDS Document.

Agricultural uses: The growing of crops, including nursery, biomass and horticultural crops; raising of *livestock*; raising of other animals for food, fur or fibre, including poultry and fish; aquaculture; apiaries; agro-forestry; maple syrup production; associated on-farm buildings and structures, including but not limited to *livestock facilities*, *manure storage*s, value-retaining facilities and accommodation for full-time farm labour when the size and nature of the operation requires additional employment.

Agri-tourism uses: Those farm-related tourism uses, including limited accommodation such as a bed and breakfast, that promote the enjoyment, education or activities related to the farm operation.

Agriculture-related uses: Those farm-related commercial and farm-related industrial uses that are directly related to farm operations in the area, support agriculture, benefit from being in close proximity to farm operations and provide direct products and/or services to farm operations as a primary activity.

Altered livestock facility: Any building activity occurring on, or in, an *existing livestock facility* that requires a building permit issued under the *Building Code Act, 1992*, and results in a change in *design capacity*. This also includes the alteration of earthen *manure storage*s.

Anaerobic digester: A permanent structure designed for the decomposition of organic matter by bacteria in an oxygen-limiting environment. For the purposes of this MDS Document, *anaerobic digester*s include, but are not limited to, associated components, which may produce nuisance odours such as: digestion vessels, storages for *anaerobic digestion materials*, storages for *anaerobic digestion output (digestate)*, loading and unloading areas, gas flares and solid/liquid material separators. *Anaerobic digester*s also include the *anaerobic digester* vessels and components that do not currently operate, but have operated in the past and continue to be structurally sound and reasonably capable of operating.

Anaerobic digestion materials: Solid or liquid organic input materials that are intended for treatment in an *anaerobic digester*, whether the materials are generated at the agricultural operation or received at the agricultural operation from an outside source.

Anaerobic digestion output (digestate): Any solid or liquid materials that result from the treatment of *anaerobic digestion materials* in an *anaerobic digester*.

Design capacity: The maximum number of *livestock* that can be reasonably housed in ALL of the *livestock barns* on a *lot*, and/or the maximum volume of manure that can reasonably be stored in ALL of the *manure storage*s on a *lot*. For *livestock barns*, this is measured in number of *livestock*, area of *livestock* housing or *Nutrient Unit*s. For *manure storage*s, this is measured in volume or *Nutrient Unit*s. For the purposes of this MDS Document, this term does not apply to *anaerobic digester*s.

Development: The creation of a new *lot*, or a change in land use to permit a *non-agricultural use* or *residential use* which required or requires approval under the *Planning Act, 1990*. However, this does not include the construction of a *dwelling* accessory to an *agricultural use*.

Dwelling: Any permanent building that is used, or intended to be used, continuously or seasonally, as a domicile by one or more persons and usually containing cooking, eating, living, sleeping and sanitary facilities.

Existing livestock facility: A *livestock facility*, or a portion of a *livestock facility*, which has already been constructed, or for which a building permit has been issued under the *Building Code Act, 1992*.

First livestock facility: Any building activity to construct a new *livestock facility* on a *lot* that requires a building permit issued under the *Building Code Act, 1992*, where there is currently no *existing livestock facility* on that *lot*. This also includes the construction of earthen *manure storage*s.

Infrastructure: Physical structures (facilities and corridors) that form the foundation for development. *Infrastructure* includes: sewage and water systems, septage treatment systems, stormwater management systems, waste management systems, electricity generation facilities, electricity transmission and distribution systems, communications/telecommunications, transit and transportation corridors and facilities, and oil and gas pipelines and associated facilities.

Livestock: Includes beef cattle, birds, dairy cattle, deer and elk, fur-bearing animals, game animals, goats, horses, poultry, ratites, sheep, swine and other animals as identified in Table 1.

Livestock barns: One or more permanent buildings located on a *lot* which are intended for housing *livestock*, and are structurally sound and reasonably capable of housing *livestock*.

Livestock facilities: All *livestock barns* and *manure storage*s on a *lot*, as well as all *unoccupied livestock barns* and *unused manure storage*s on a *lot*.

Livestock occupied portion: Areas of a *livestock barn* where *livestock* spend the majority of their time, allowing substantial amounts of manure to accumulate. This DOES NOT include areas such as: alleys, equipment storages, feed bins, feed storage/preparation areas, field shade shelters, assembly areas, loading chutes, machinery sheds, milking centres, milking parlour holding areas, offices, pastures, riding arenas, silos, tack rooms, utility rooms and washrooms.

Lot: A parcel or tract of land, within a registered plan of subdivision or described in a deed or other legal document, that is capable of being legally conveyed.

Manure storage: A permanent storage which is structurally sound and reasonably capable of storing manure and which typically contains liquid manure (<18% dry matter) or solid manure (≥18% dry matter), and may exist in a variety of:

- locations (under, within, nearby, or remote from barn);
- materials (concrete, earthen, steel, wood);
- coverings (open top, roof, tarp, or other materials);
- configurations (rectangle, circular); and,
- elevations (above, below or partially above-grade).

Minimum Distance Separation Formulae: Formulae and guidelines developed by the province, as amended from time to time, to separate uses so as to reduce incompatibility concerns about odour from livestock facilities.

Non-agricultural uses: Buildings designed or intended for a purpose other than an *agricultural use*; as well as land, vacant or otherwise not yet fully developed, which is zoned or designated such that the principal or long-term use is not intended to be an *agricultural use*, including, but not limited to: commercial, future urban development, industrial, institutional, *open space uses*, *recreational uses*, *settlement area*, urban reserve, etc. However, this does not include *agriculture-related uses*, *on-farm diversified uses* and *residential uses*.

Normal farm practices: A practice, as defined in the *Farming and Food Production Protection Act, 1998*, that is conducted in a manner consistent with proper and acceptable customs and standards as established and followed by similar agricultural operations under similar circumstances; or makes use of innovative technology in a manner consistent with proper advanced farm management practices. *Normal farm practices* shall be consistent with the *Nutrient Management Act, 2002*, and regulations made under that Act.

Nutrient Unit: The amount of nutrients that give a fertilizer replacement value of the lower of 43 kg of nitrogen or 55 kg of phosphate as nutrient (as defined in O. Reg. 267/03 made under the *Nutrient Management Act, 2002*).

On-farm diversified uses: Uses that are secondary to the principal agricultural use of the property and are limited in area. *On-farm diversified uses* include, but are not limited to: home occupations, home industries, *agri-tourism uses* and uses that produce value-added agricultural products.

Open space uses: Environmental areas and parks that have limited public visitation and usually do not require buildings or alter the natural topography, such as conservation areas and parks typically without buildings and infrastructure.

Prime agricultural area: Areas where *prime agricultural land*s predominate. This includes areas of *prime agricultural land*s and associated Canada Land Inventory Class 4 through 7 lands, and additional areas where there is a local concentration of farms which exhibit characteristics of ongoing agriculture. *Prime agricultural area*s may be identified by the Ontario Ministry of Agriculture, Food and Rural Affairs using guidelines developed by the Province as amended from time to time. A *prime agricultural area* may also be identified through an alternative agricultural land evaluation system approved by the Province.

Prime agricultural land: *Specialty crop area*s and/or Canada Land Inventory Class 1, 2, and 3 lands, as amended from time to time, in this order of priority for protection.

Recreational uses: Uses that generate frequent or regular public visitation and usually require buildings or infrastructure, such as campgrounds, golf courses, sports fields and trailer parks.

Residence surplus to a farming operation: An existing habitable farm residence that is rendered surplus as a result of farm consolidation (the acquisition of additional farm parcels to be operated as one farm operation).

Residential uses: Land, vacant or otherwise not yet fully developed, for which the zoning or designation permits *dwelling*s for human habitation as the principal use, including, but not limited to: estate residential, low-density residential, rural residential, etc. However, this does not include *dwelling*s accessory to an *agricultural use*.

Rural areas: A system of lands within municipalities that may include rural *settlement areas*, *rural lands*, *prime agricultural area*s, natural heritage features and areas, and resource areas.

Rural lands: Lands which are located outside *settlement areas* and which are outside *prime agricultural area*s.

Settlement areas: Urban areas and rural *settlement areas* within municipalities (such as cities, towns, villages and hamlets) that are:

a) built-up areas where development is concentrated and which have a mix of land uses; and
b) lands which have been designated in an official plan for development over the long-term planning horizon.

Specialty crop area: Areas designated using guidelines developed by the Province, as amended from time to time. In these areas, specialty crops are predominantly grown such as tender fruits (i.e., peaches, cherries, plums), grapes, other fruit crops, vegetable crops, greenhouse crops and crops from agriculturally-developed organic soil, usually resulting from:

a) soils that have suitability to produce specialty crops, or lands that are subject to special climatic conditions, or a combination of both;
b) farmers skilled in the production of specialty crops; and
c) a long-term investment of capital in areas such as crops, drainage, *infrastructure* and related facilities and services to produce, store or process specialty crops.

Unoccupied livestock barn: A *livestock barn* that does not currently house any *livestock*, but that housed *livestock* in the past and continues to be structurally sound and reasonably capable of housing *livestock*.

Unused manure storage: A *manure storage* that does not currently store any manure, but that stored manure in the past and continues to be structurally sound and reasonably capable of storing manure.

4. IMPLEMENTATION GUIDELINES

The following outlines the specific Implementation Guidelines which shall be executed during the application of the *Minimum Distance Separation (MDS) Formulae* to calculate setbacks.

MDS I	MDS II
#1. Referencing MDS in Municipal Planning Documents	
In accordance with the Provincial Policy Statement, 2014, this MDS Document shall apply in *prime agricultural areas* and on *rural lands*. Consequently, the appropriate parts of this MDS Document shall be referenced in municipal official plans, and detailed provisions included in municipal comprehensive zoning by-laws such that, at the very least, MDS setbacks are required in all designations and zones where *livestock facilities* and *anaerobic digesters* are permitted. Sections 1, 2, 6, 7 and 8 of this document are primarily provided for information purposes, and are not required for inclusion in municipal planning documents; however, Sections 3, 4 and 5 comprise the *Minimum Distance Separation Formulae* as referenced in the PPS, and as such shall form the basis for MDS provisions enshrined in local land use planning documents. To exercise the various options available to municipalities under Implementation Guidelines #7, #9, #35 and #38, appropriate references must be included in the appropriate implementing land use planning document (official plan and/or comprehensive zoning by-law depending on the trigger for MDS); otherwise, the default approaches outlined in Implementation Guidelines #7, #9, #35 and #38 shall apply as written in this MDS Document.	
#2. For What, and When, is an MDS Setback Required?	
The MDS I setback distances shall be met prior to the approval of: proposed *lot* creation in accordance with Implementation Guidelines #8 and #9; rezonings or re-designations in accordance with Implementation Guideline #10; *building permits* on a *lot* which exists prior to March 1, 2017 in accordance with Implementation Guideline #7; and as directed by municipalities for local approvals for a*griculture-related uses* or *on-farm diversified uses* in accordance with Implementation Guideline #35. The information used to carry out an MDS I calculation must reflect the circumstances at the time that the municipality deems the planning or building permit application to be complete.	The MDS II setback distances shall be met prior to the approval of the building permit application for a *first* or *altered livestock facility* occupying an area greater than 10 m^2 or any *anaerobic digester*. The information used to carry out an MDS II calculation must reflect the circumstances at the time that the municipality deems the building permit application to be complete.

#3. For What, and When, is an MDS Setback NOT Required?

MDS I

Certain proposed uses are not reasonably expected to be impacted by *existing livestock facilities* or *anaerobic digesters* and as a result, do NOT require an MDS I setback. Such uses may include, but are not limited to:

- extraction of minerals, petroleum resources and mineral aggregate resources;
- *infrastructure;* and
- landfills.

However, if one of the uses exempted from MDS I by this Implementation Guideline is later proposed to be rehabilitated or redeveloped to a use that is not an *agricultural use*, then MDS I setbacks shall be met prior to the approval of any required planning or building permit application.

In addition, MDS I setbacks are NOT required from:

- *livestock barns* occupying an area less than 10 m^2;
- certain *unoccupied livestock barns* in accordance with Implementation Guideline #20;
- certain *unused manure storages* in accordance with Implementation Guideline #21;
- apiaries;
- aquaculture facilities;
- deadstock handling facilities;
- fairground buildings;
- feed storages;
- field shade shelters;
- greenhouses;
- kennels;
- machinery sheds;
- meat plants (including abattoirs and slaughterhouses);
- mushroom facilities;
- pastures;
- poultry hatcheries;
- stockyards;
- temporary field nutrient storage sites (as defined under the *Nutrient Management Act, 2002*);
- veterinary clinics with housing for *livestock;* and
- zoos.

MDS II

Certain things that may or may not be associated with agriculture do NOT require MDS II setbacks. Such things may include, but are not limited to:

- apiaries;
- aquaculture facilities;
- deadstock handling facilities;
- fairground buildings;
- feed storages;
- field shade shelters;
- greenhouses;
- kennels;
- machinery sheds;
- meat plants (including abattoirs and slaughterhouses);
- mushroom facilities;
- pastures;
- poultry hatcheries;
- stockyards;
- temporary field nutrient storage sites (as defined under the *Nutrient Management Act, 2002*);
- veterinary clinics with housing for *livestock;* and
- zoos.

In addition, MDS II setbacks are NOT required from:

- extraction of minerals, petroleum resources and mineral aggregate resources;
- *infrastructure;* and
- landfills.

MDS I	MDS II
#4. MDS Setbacks for Manure Transfer Facilities	
Some *livestock facilities* and *anaerobic digesters* require transfer facilities that store manure for less than 14 days before transfer to a longer-term permanent storage, or transfer to field spreading areas, or transfer off the farm. Transfer facilities include, but are not limited to: areas for settling sand out of liquid manure, small sumps for collection or mixing of liquid manure from several areas of a *livestock barn*, or outside concrete pads where solid manure is temporarily stored awaiting pickup by a custom manure broker. Manure transfer facilities are not considered permanent *manure storages* and instead will receive the same MDS setbacks as the *livestock barn*. In other words, the MDS setback for a transfer facility is the same as Building Base Distance 'F', and shall not generate its own separate Storage Base Distance 'S'.	
#5. MDS Setbacks for Earthen *Manure Storages*	
MDS setbacks are applied to *first* or *altered livestock facilities* (MDS II) and, reciprocally, from *existing livestock facilities* (MDS I), which in both cases includes earthen *manure storages*, despite these storages not being considered 'buildings' and, consequently, not requiring building permits at the time of construction. Simply because earthen *manure storages* do not require building permits does not exclude them from MDS setbacks, as these *livestock facilities* are permanent *manure storages* with defined boundaries and represent an odour source with the highest odour potential according to Table 5.	
#6. Required Investigation Distances for MDS	
A separate MDS I setback shall be required to be measured from all *existing livestock facilities* and *anaerobic digesters* on *lots* in the surrounding area that are reasonably expected by an approval authority to be impacted by the proposed application. As part of municipal consideration of planning or building permit applications, all *existing livestock facilities* or *anaerobic digesters* within a 750 m distance of a proposed Type A land use and within a 1,500 m distance of a proposed Type B land use shall be investigated and MDS I setback calculations undertaken where warranted. In circumstances where large *livestock facilities* (e.g., >1,200 *Nutrient Units*) exist beyond the 750 m or 1,500 m study area, MDS I setbacks from these facilities should also be calculated.	When investigating the surrounding area for applications to permit a *first* or *altered livestock facility* or *anaerobic digester*, MDS II setbacks shall be required to be measured from all existing and approved sensitive receptors reasonably expected by an approval authority to be impacted by the proposed *first* or *altered livestock facility* or *anaerobic digester*, including all existing and approved *development* and all *dwellings* on *lots* in the surrounding area.

MDS I	MDS II
#7. MDS I Setbacks for Building Permits on Existing *Lots*	
MDS I setbacks are not required for *dwelling* additions and renovations proposed on existing *lots*, even where an addition results in the existing *dwelling* being closer to a surrounding *livestock facility* or *anaerobic digester*. However, MDS I setbacks are required for all other building permit applications for *dwellings* on *lots* that existed prior to March 1, 2017, unless otherwise specified in a municipality's zoning by-law or where otherwise not required by this MDS Document. For *lots* created after March 1, 2017, MDS I setbacks shall be required for building permit applications for *dwellings* unless otherwise not required by this MDS Document. Where a setback is required, MDS I measurements shall be taken as the shortest distance between the proposed building to be constructed and either the *manure storages*, or *anaerobic digesters*, or the *livestock occupied portions* of the *livestock barns*. While municipalities have the option to exempt buildings proposed through building permit applications on *lots* which exist prior to March 1, 2017, they are strongly discouraged from exempting these applications. If local exemptions are supported for building permits on existing *lots*, a municipality shall adopt provisions in their comprehensive zoning by-law which clearly state the details for such exemptions. Examples of such provisions may include, but are not limited to, those which only require an MDS I setback for building permit applications: • on existing *lots* that are in a particular land use zone or designation (e.g., rural residential, estate residential); • on existing *lots* that are above or below a certain size threshold (e.g., 4 ha);	Not applicable

MDS I	MDS II
• on existing *lots* which are vacant (e.g., no existing *dwellings* or other buildings); • on existing *lots*, but where the MDS I setback cannot be met, then through a planning application, allow a *dwelling* provided that it be located as far as possible from the *existing livestock facility* from which the setback cannot be met; • on *lots* which exist prior to a specific date (e.g., March 1, 2017 or the date of adoption of comprehensive zoning by-law); or, • for certain types of buildings (e.g., *dwellings*).	
#8. MDS I Setbacks for *Lot* Creation	
Where *lot* creation is proposed, including new *lots* for *agricultural uses*, an MDS I setback is required for both the severed and retained *lot*. However, an MDS I setback is not required: • for a severed or retained *lot* for an *agricultural use* when that *lot* already has an existing *dwelling* on it; • for purposes such as easements, corrections of deeds, quit claims and minor boundary adjustments which do not result in the creation of a new *lot;* • for a severed or retained *lot* for *infrastructure* in accordance with Implementation Guideline #3; • for a severed or retained *lot* for an existing *non-agricultural use;* • for a severed or retained *lot* for *agriculture-related uses*, except where required by a municipality in accordance with Implementation Guideline #35; or • where noted in Implementation Guideline #9. NOTE: The *lot* creation policies contained in the PPS, provincial plans and other local *lot* creation policies continue to apply despite any exemptions from MDS I setbacks.	Not applicable

MDS I	MDS II
#9. MDS I Setbacks and *Lot* Creation for a *Residence Surplus to a Farming Operation*	
For a proposed severance of a *residence surplus to a farming operation*: 1. Where the existing *dwelling* to be severed and the nearby *livestock facility* or *anaerobic digester* are located on separate *lots* prior to the consent, an MDS I setback is not required for the consent application (or associated rezoning) unless otherwise required by a municipal official plan policy. This is because a potential odour conflict may already exist between those surrounding *livestock facilities* or *anaerobic digesters* and the existing *dwelling*. 2. An MDS I setback is always required for a proposed *lot* with an existing *dwelling* when prior to the consent, that *dwelling* is located on the same *lot* as an *existing livestock facility* or *anaerobic digester* and after the consent, the *dwelling* would be on a *lot* separate from that same *existing livestock facility* or *anaerobic digester*. This is because such a proposal could create a potential odour conflict as the *dwelling* and the *livestock facility* or *anaerobic digester* will be on separate conveyable *lots* if the severance is approved. This is the case regardless of how a municipality chooses to treat *existing livestock facility* on *lots* separate from the *dwelling* prior to the consent. 3. Where a new *lot* is proposed with an existing *dwelling* AND an *existing livestock facility* or *anaerobic digester* on it, an MDS I setback is not required for that *livestock facility* or *anaerobic digester* in accordance with Implementation Guideline #14. Refer to Figure 3 in Section 7 of this MDS Document for a drawing illustrating these three scenarios. NOTE: For severances of a *residence surplus to a farming operation*, an MDS I setback shall only be required for the newly created surplus *dwelling lot* and shall not be required for the remnant farm parcel nor for any associated rezonings of the severed or retained parcels.	Not applicable

MDS I	MDS II
#10. MDS I Setbacks for Zoning By-Law Amendments and Official Plan Amendments	
An MDS I setback is required for all proposed amendments to rezone or redesignate land to permit *development* in *prime agricultural areas* and *rural lands* presently zoned or designated for *agricultural use*. This shall include amendments to allow site-specific exceptions which add *non-agricultural uses* or *residential uses* to the list of *agricultural uses* already permitted on a *lot*, but shall exclude applications to rezone a *lot* for a *residence surplus to a farming operation* (e.g., to a rural residential zone) in accordance with Implementation Guideline #9 above. Amendments to rezone or redesignate land already zoned or designated for a *non-agricultural use*, shall only need to meet the MDS I setbacks if the amendment(s) will permit a more sensitive land use than existed before. In other words, if the proposal is to change an existing Type A land use (e.g., industrial use outside of a *settlement area*) to a Type B land use (e.g., commercial) in accordance with Implementation Guidelines #33 and #34, then an MDS I setback shall be required.	Not applicable
#11. MDS Setbacks for Reconstruction	
Where a municipality explicitly requires MDS I setbacks for building permit applications on *lots* which exist prior to March 1, 2017, in accordance with Implementation Guideline #7, an MDS I setback is NOT required for building reconstruction provided ALL of the following conditions are met: • the building which existed before the application was habitable; • the proposed building is for the same or less sensitive land use type (i.e., Type A or Type B in accordance with Implementation Guidelines #33 and #34) than the former building; and	MDS II setbacks are NOT required for *livestock facility* reconstruction provided the resulting *livestock facility* is built no closer to the surrounding existing or approved *development* or *dwelling* than the *livestock facility* which existed before the building permit application. However, MDS II setbacks shall be required if the proposed reconstruction includes an *anaerobic digester* or a *livestock facility* that meets at least ONE of the following conditions: • will house a different *livestock* type(s) which is more odorous than existed before reconstruction (resulting in a greater value for Factor A); or

MDS I	MDS II
• the proposed building is built no closer to the surrounding *livestock facilities* or *anaerobic digesters* than the former building.	• will house a greater number or area of *livestock* or store a greater volume of imported manure than existed before reconstruction (resulting in a greater value for Factor B); or • will change from a solid to a liquid manure system (resulting in a greater value for Factor D); or • will have a new *manure storage* with an increased relative odour potential (based on Table 5) than existed before reconstruction (e.g., going from a 'Very Low' to a 'Low' odour potential).
#12. Existing Uses that Do Not Conform to MDS	
An MDS I setback is required for proposed *development* or *dwellings*, even though there may be existing or approved *development* or dwellings nearby that do not conform to MDS I requirements. However, a reduced MDS I setback may be permitted provided there are four, or more, *non-agricultural uses*, *residential uses* and/or *dwellings* closer to the subject *livestock facility* than the proposed *development* or *dwellings* and those four or more *non-agricultural uses*, *residential uses* and/or *dwellings* are: • located within the intervening area (120° field of view shown in Figure 4 in Section 7 of this MDS Document) between the closest part of the proposed *development* or *dwelling* and the nearest *livestock facility* or *anaerobic digester*; • located on separate *lots*; and • of the same or greater sensitivity (i.e., Type A or Type B in accordance with Implementation Guidelines #33 and #34) as the proposed *development* or *dwelling*.	Even though there may be a portion of the existing *livestock facility* or existing *anaerobic digester* that does not conform to the MDS II setbacks, building permit applications for any *altered livestock facility* or *anaerobic digester* are still required to meet the MDS II setbacks.

MDS I	MDS II
If ALL of the above conditions are met, the MDS I setback for the proposed *development* or *dwelling* may be reduced such that it is located no closer to the *livestock facility* or *anaerobic digester* than the furthest of the four *non-agricultural uses*, *residential uses* and/or *dwellings* as shown in Figure 4.	
#13. Non-Application of MDS to Accessory Structures	
When an MDS I setback is required by a municipality for building permit applications on a *lot* which existed prior to March 1, 2017, in accordance with Implementation Guideline #7, an MDS I setback shall NOT be required for proposed structures accessory to a *dwelling*, including, but not limited to: decks, garages, gazebos, greenhouses, outbuildings, patios, picnic areas and sheds.	MDS II setbacks shall NOT be required from existing structures accessory to a *dwelling*, including, but not limited to: decks, garages, gazebos, greenhouses, outbuildings, patios, picnic areas and sheds.
#14. Uses Located on the Same *Lot*	
An MDS I setback is NOT required to be met for proposed *development*, *dwelling*, *agriculture-related use*, or *on-farm diversified use* from an *existing livestock facility* or *anaerobic digester* located on the same *lot* as the proposal.	MDS II setbacks are NOT required to be met for the *first* or *altered livestock facility* or *anaerobic digester* to any existing or approved *development*, *dwelling*, *agriculture-related use*, or *on-farm diversified use* located on the same *lot*.
#15. Same Ownership	
An MDS I setback is required for proposed *development* or *dwellings* even if the *lot* on which they are proposed is held by the same owner as the *existing livestock facility* or *anaerobic digester* nearby. This recognizes that a *lot* may be sold to a new owner, possibly resulting in a potential future land use conflict.	MDS II setbacks are required for a proposed *first* or *altered livestock facility* or *anaerobic digester* even if the *lot* on which they are proposed is held by the same owner as the existing or approved *development* or *dwellings* nearby. This recognizes that a *lot* may be sold to a new owner, possibly resulting in a potential future land use conflict.

MDS I	MDS II
#16. Obtaining Required Information to Calculate MDS Setbacks	
The preferred method for obtaining information (e.g., *livestock* and manure type as well as *design capacity*) to be used in MDS I calculations for a complete planning application is visiting the site and getting information directly from the farm operator(s) or owner(s) of the property where the *livestock facilities* or *anaerobic digesters* are located. If cooperation is not forthcoming, or there is concern about the accuracy of the information available, it may be helpful to obtain independent information by consulting other sources, including, but not limited to: • aerial photography; • best professional judgement about the past/most recent use of building(s); • current farm owner or operator (if different than the original information source); • existing municipal building permits on record; • Municipal Property Assessment Corporation (MPAC) records; • neighbouring landowners; • qualified consultant(s) knowledgeable about *livestock facilities;* or • OMAFRA staff. NOTE: Even though information may be provided by the applicant or their agent, ultimately, it is the responsibility of the municipality to determine if information used for an MDS I calculation is reasonably accurate and reflects existing conditions.	The only method for obtaining information (e.g., *livestock* and manure type as well as *design capacity*) to be used in MDS II calculations for the *first* or *altered livestock facility* is from the owner(s) or their agent with the application for the proposed construction. In some circumstances where information is missing, or there is a concern about the accuracy of the information available, it may be helpful to obtain independent information by carrying out a site visit or consulting other sources, including, but not limited to: • aerial photography; • best professional judgement about the past/most recent use of building(s); • current farm operator (if different than the owner/agent); • existing municipal building permits on record; • Municipal Property Assessment Corporation (MPAC) records; • neighbouring landowners; • qualified consultant(s) knowledgeable about *livestock facilities;* or • OMAFRA staff. NOTE: Even though information may be provided by the applicant or their agent, ultimately, it is the responsibility of the municipality to determine if information used for an MDS II calculation is reasonably accurate and reflects the proposed construction.

MDS I	MDS II
#17. Fewest Number of *Nutrient Units* Used when Calculating MDS	
The fewest number of *Nutrient Unit*s used in calculating MDS I setbacks is 5 *Nutrient Unit*s, even if the actual *design capacity* is fewer than 5 *Nutrient Unit*s. Accordingly, the MDS software will automatically round-up to the minimum of 5 *Nutrient Unit*s.	MDS II setbacks are required for all *first* or *altered livestock facilities*; however, the fewest number of *Nutrient Unit*s used in calculating MDS II setbacks is 5 *Nutrient Unit*s, even if the actual *design capacity* is fewer than 5 *Nutrient Unit*s. Accordingly, the MDS software will automatically round-up to the minimum of 5 *Nutrient Unit*s.
#18. MDS II for Building Permit Applications to Renovate Existing *Livestock Facilities*	
Not applicable	An MDS II setback is required prior to the approval of a building permit application to renovate *existing livestock facilities* that would result in an *altered livestock facility*. This is true even if the renovation results in the same *design capacity*, or a lower *design capacity* than what existed before. For example, an *existing livestock facility* to be renovated is more than 3 years old and has a *design capacity* of 150 *Nutrient Unit*s for swine feeders on a liquid manure system with an outside, uncovered, straight-walled liquid *manure storage* (M1 storage in Table 5). After the proposed renovation, the *altered livestock facility* will instead have a *design capacity* of 50 *Nutrient Unit*s for chicken broilers on a solid manure system with an outside, uncovered, solid *manure storage* (V3 storage in Table 6). NOTE: This would result in fewer *Nutrient Unit*s than before the renovation. • Factor A = 0.7 for chicken broilers (just for those *livestock* being added) • Factor B = 260 for 50 *Nutrient Unit*s • Factor C = 0.5 for a -66.7% increase (or 66.7% decrease), but Factor C always equals 0.5 for any decrease in *Nutrient Unit*s • Factor D = 0.7 for solid manure (just for those *livestock* being added)

MDS I	MDS II
Not applicable	• Building Base Distance ('F') = 0.7 x 260 x 0.5 x 0.7 = 63.7 m • Storage Base Distance ('S') = 63.7 m (for a V3 storage) Likewise, an MDS II setback is also required prior to the approval of a building permit application to renovate existing *anaerobic digesters* in accordance with Implementation Guideline #22.
#19. Cumulative *Design Capacity* of *Livestock Facilities* on a *Lot*	
MDS calculations shall be based on the combined *design capacity* for all *livestock barns* on a *lot*, even if they are *unoccupied livestock barns* or separated by a substantial distance on the *lot*. Where there are no *livestock barns* on a *lot*, MDS calculations shall be based on the combined *design capacity* for all *manure storages* on a *lot*, even if they are *unused manure storages* or separated by a substantial distance on the *lot*.	
#20. MDS Setbacks for *Unoccupied Livestock Barns*	
Design capacity for an MDS I calculation shall include all *unoccupied livestock barns* on a *lot* in accordance with this Implementation Guideline. First and foremost, the number of *livestock* or the area of *livestock* housing of *unoccupied livestock barns* should be based on information supplied by the farm operator(s) and/or owner(s). Only after concerted, documented effort has been made to obtain information from the farm operator(s) and/or owner(s), but obtaining information was not possible, then the following default Factors apply for *unoccupied livestock barns*: • Factor A = 1.0 • Factor B is based on 1 *Nutrient Unit*/ 20 m^2 of area of *livestock* housing (NOTE: Assume the barn is only one-story high if using aerial photography.) • Factor D = 0.7	*Design capacity* for an MDS II calculation shall include all *unoccupied livestock barns* on a *lot*. However, buildings deemed by a municipal building official, with input from a professional engineer or a consultant knowledgeable about *livestock facilities* where appropriate, as no longer being structurally sound, or reasonably capable of housing *livestock* shall not be included in an MDS II calculation.

MDS I	MDS II
However, an MDS I setback is not required when: • the building has been deemed by a municipal building official, with input from a professional engineer or a consultant knowledgeable about *livestock facilities* where appropriate, as no longer being structurally sound or reasonably capable of housing *livestock*; or • the portion of the *lot* on which the *unoccupied livestock barn* is located is zoned such that the building shall not be used for housing *livestock; or* • the floor area of the *unoccupied livestock barn* is <100 m^2.	
#21. MDS Setbacks for *Unused Manure Storages*	
Design capacity for an MDS I calculation shall include all *manure storages* on a *lot* in accordance with this Implementation Guideline, even if those storages are unused and not storing manure at the time of the MDS I application. First and foremost, the volume of *unused manure storages* should be based on information supplied by the farm operator(s) and/or owner(s). *Unused manure storages* for SOLIDS: Only after concerted, documented effort has been made to obtain information from the farm operator(s) and/or owner(s), but obtaining information was not possible, then the following Factors apply for *unused manure storages* for SOLIDS: • Factor A = 1.0 • Factor B is based on 1 *Nutrient Unit*/19.8 m^3 of volume for storages with two or more walls (NOTE: Assume manure is stored 1 m deep over the area enclosed by the two or more walls if using aerial photography). • Factor D = 0.7	*Design capacity* for an MDS II calculation shall include all *manure storages* on a *lot*, even if those storages are unused and not storing manure at the time of an MDS II application. However, structures deemed by a municipal building official, with input from a professional engineer or a consultant knowledgeable about *livestock facilities* where appropriate, as no longer being structurally sound, or reasonably capable of storing manure, shall not be included in an MDS II calculation.

MDS I	MDS II
However, an MDS I setback is not required when: • there is only one, or no, walls; or, • the structure has been deemed by a municipal building official, with input from a professional engineer or a consultant knowledgeable about *livestock facilities* where appropriate, as no longer being structurally sound or reasonably capable of storing manure; or, • the portion of the *lot* on which the *unused manure storage* is located is zoned such that the structure shall not be used for storing manure; or, • the floor area of the *unused manure storage* is <100 m^2. *Unused manure storage*s for LIQUIDS: Only after concerted, documented effort has been made to obtain information from the farm operator(s) and/or owner(s), but obtaining information was not possible, then the following Factors apply for *unused manure storage*s for LIQUIDS: • Factor A = 1.0 • Factor B is based on 1 *Nutrient Unit*/19.8 m^3 of *design capacity* (NOTE: Assume manure is stored 2.5 m deep and level over the area enclosed by storage walls if using aerial photography). • Factor D = 0.8 However, an MDS I setback is not required when: • the structure has been deemed by a municipal building official, with input from a professional engineer or a consultant knowledgeable about *livestock facilities* where appropriate, as no longer being structurally sound or reasonably capable of storing manure; or, • the portion of the *lot* on which the *unused manure storage* is located is zoned such the structure shall not be used for storing manure; or, • the floor area of the *unused manure storage* is <40 m^2.	

MDS I	MDS II
#22. MDS Setbacks for *Anaerobic Digesters*	
There is no calculation for an MDS I setback from an *anaerobic digester*. Instead, the required MDS I setbacks are fixed as follows: • 200 m to proposed Type A land uses • 450 m to proposed Type B land uses • 200 m to proposed *dwellings* Refer to Figure 5 in Section 7 of this MDS Document. Secondary elements related to the *anaerobic digester* such as gas and water pipes and electrical generator buildings or wires are not subject to MDS I setbacks. MDS I setbacks are measured from the closest associated component of the existing *anaerobic digester*.	There is no calculation for an MDS II setback for an *anaerobic digester*. Instead the required MDS II setbacks are fixed as follows: • 200 m from existing Type A land uses • 450 m from existing Type B land uses • 200 m from existing *dwellings* on a separate *lot* • 20 m from a rear and side *lot* line • 40 m from the edge of a road allowance Refer to Figure 6 in Section 7 of this MDS Document. Secondary elements related to the *anaerobic digester* such as gas and water pipes and electrical generator buildings or wires are not subject to MDS II setbacks. MDS II setbacks are measured to the closest associated component of the proposed *anaerobic digester*. MDS II setbacks for *anaerobic digesters* cannot be reduced through Implementation Guideline #43.
#23. Calculating Building Base Distance ('F')	
The MDS I formula for calculating Building Base Distance ('F') is: 'F' = Factor A x B x D x E. NOTE: Factor C is NOT used in MDS I.	The MDS II formula for calculating Building Base Distance ('F') is: 'F' = Factor A x B x C x D. NOTE: Factor E is NOT used in MDS II.
#24. Determining Storage Base Distance ('S')	
Storage Base Distance ('S') is NOT calculated, but read directly from Table 6. First calculate the Building Base Distance ('F') in accordance with Implementation Guideline #23, then select the *manure storage* type from Table 5 that best matches the *manure storage* type on the *lot* and use this information to determine the corresponding value on Table 6. If there are multiple *manure storage* types on the *lot*, the storage type with the highest relative Storage Odour Potential is selected from Table 5.	

MDS I	MDS II
#25. Factor A: Odour Potential Factor (Table 1)	
Factor A is determined by selecting the value aligned with the applicable *livestock*/manure description on Table 1. Factor A is based on the relative potential for emanating offensive odours. The greater the value of Factor A, the higher the odour potential and the further the resulting MDS setbacks, all other things being equal.	
#26. Factor B: *Nutrient Units* Factor (Table 2)	
Factor B used in MDS I setbacks for *settlement area* expansions shall only be based on the *design capacity* for all *livestock facilities* on a *lot*. In addition, for other MDS I setbacks where the *livestock facilities* are located on *lots* ≤5 ha, Factor B is also only based on the *design capacity* for all *livestock facilities* on the *lot*. For all other MDS I setbacks where the *livestock facilities* are located on *lots* >5 ha, Factor B is based on the possible future expansion of the existing *livestock facilities* on the *lot*, known as the 'potential' *design capacity*. More specifically, the potential *design capacity* for MDS I is determined by knowing the *design capacity* for all *livestock facilities* on the *lot*, and the total area of the *lot*. With both of these pieces of information, use the table below to determine the appropriate potential *design capacity.* This value should then be used to find the value of Factor B for the purposes of calculating an MDS I setback where the *livestock facilities* are located on a *lot* >5 ha.	For MDS II, Factor B is based on the *design capacity* for all *livestock facilities* on a *lot*. In accordance with Table 2, the more *Nutrient Units*, the greater the value for Factor B and the further the resulting MDS II setbacks, all other things being equal. While using Table 2, it may be necessary to interpolate a value for Factor B. When interpolating, do not include more than two decimal places, rounded accordingly.

MDS I

Design Capacity (NU)	Total *Lot* Size ≤5 ha	Total *Lot* Size >5 ha, but ≤25 ha	Total *Lot* Size >25 ha, but ≤50 ha	Total *Lot* Size >50 ha
≤5 NU	Factor B based on *design capacity* only	Factor B based on *design capacity* only	Factor B based on *design capacity* only	Factor B based on *design capacity* only
>5 NU, but ≤25 NU	Factor B based on *design capacity* only	Factor B based on 2 x *design capacity*	Factor B based on 2 x *design capacity*	Factor B based on 2 x *design capacity*
>25 NU, but ≤125 NU	Factor B based on *design capacity* only	Factor B based on 2 x *design capacity*	Factor B based on 3 x *design capacity*	Factor B based on 3 x *design capacity*
>125 NU	Factor B based on *design capacity* only	Factor B based on 2 x *design capacity*, to max of 300 NU	Factor B based on 3 x *design capacity*, to max of 450 NU	Factor B based on 3 x *design capacity*, to max of 600 NU

NOTE: To determine *design capacity* for *unoccupied livestock barns* or *unused manure storages*, see Implementation Guidelines #20 and #21 respectively.

In accordance with Table 2, the more *Nutrient Units*, the greater the value for Factor B and the further the resulting MDS I setbacks, all other things being equal.

While using Table 2, it may be necessary to interpolate a value for Factor B. When interpolating, do not include more than two decimal places, rounded accordingly.

MDS II

MDS I	MDS II
#27. Factor C: Expansion Factor (Table 3)	
Not applicable	Factor C only applies for MDS II, and is based on the percentage increase in the number of *Nutrient Unit*s for the proposed construction of a *first* or *altered livestock facility*, compared to the *Nutrient Unit*s of all *existing livestock facilities* on the *lot*. The greater the percentage increase, the greater the value for Factor C and the further the resulting MDS II setbacks, all things being equal. Expansion of a *livestock* facility is a necessary and typical process for most farm operations, and can reasonably be expected over time. Factor C is 1.14 (Table 3) for the *first livestock facility* on a *lot*, resulting in a building location that will allow for future expansion of most subsequent *livestock facilities* within a reasonable building envelope. Factor C is 0.5 (Table 3) for no increase in *Nutrient Unit*s (0% increase) and for decreases in *Nutrient Unit*s. Where an *existing livestock facility* is to be expanded, the percentage increase shall be calculated using the total additional *Nutrient Unit*s proposed as the numerator and the total existing *Nutrient Unit*s as the denominator, with the result multiplied by 100. For example, if an *existing livestock facility* currently has a *design capacity* of 200 *Nutrient Unit*s and proposes to increase *design capacity* by 100 additional *Nutrient Unit*s, the percentage increase is calculated as 100 *Nutrient Unit*s (numerator) divided by 200 *Nutrient Unit*s (denominator) and multiplied by 100 for a value of 50% (100/200) x 100 = 50%. From Table 3, Factor C = 0.8100. Where a *livestock* facility is to be expanded, and one or more building permits to establish or expand that *livestock* facility were already issued within the previous 3 years, the percentage increase shall be calculated using the total additional *Nutrient Unit*s established or added by building permit(s) issued during the previous 3-year period, plus the proposed expansion, as the numerator, and the total existing

MDS I	MDS II
	*Nutrient Unit*s prior to the previous 3-year period as the denominator. For example, an *existing livestock facility* currently has a *design capacity* of 200 *Nutrient Unit*s and proposes to increase *design capacity* by 100 additional *Nutrient Unit*s. A building permit for this *livestock* facility was issued 2 years ago which increased the size of the operation at that time from 100 *Nutrient Unit*s to 200 *Nutrients Unit*s. In this case, the percentage increase is calculated as 200 *Nutrient Unit*s (numerator) (100 *Nutrient Unit*s for this expansion plus 100 *Nutrient Unit*s for expansion 2 years ago) divided by 100 *Nutrient Unit*s (denominator) (the *design capacity* of the *livestock* facility 3 years ago) and then multiplied by 100 for a value of 200% [(100+100)/100] x 100 = 200%. From Table 3, Factor C = 1.0000. In using Table 3, it may be necessary to interpolate a value for Factor C. When interpolating, do not include more than four decimal places, rounded accordingly.
#28. Factor D: Manure Type (Table 1)	
Factor D is determined by selecting the value aligned with the applicable manure type (liquid manure or solid manure) in Table 1. Factor D is based on the physical state of manure (liquid or solid) on the *lot* and its relative potential for emanating offensive odours. The greater the value for Factor D, the higher the odour potential and the further the resulting MDS setbacks, all other things being equal.	
#29. Factor E: Encroaching Land Use Factor (Table 4)	
Factor E is determined by selecting the encroaching land use factor in Table 4 (Type A Land Use or Type B Land Use) that best matches the descriptions in Implementation Guidelines #33 and #34. Factor E is based on the relative sensitivity of an encroaching land use as it relates to odour from an *existing livestock facility*. The more sensitive the land use (based on an anticipated higher density of human occupancy, habitation or activity), the greater the value (1.1 or 2.2) of the encroaching land use factor and the further the resulting MDS I setbacks, all other things being equal.	Not applicable

MDS I	MDS II
#30. Determining Factor A When More Than One Type of *Livestock* are Housed and/or More Than One Type of Manure are Stored, With Differing Values for Factor A	
In MDS I, Factor A will require a weighted average when there is more than one type of *livestock* housed and/or more than one type of manure stored on a *lot* with differing values for Factor A. For example, if a *livestock* facility on a *lot* has 50 *Nutrient Unit*s of chicken broilers (Factor A = 0.7), as well as 100 *Nutrient Unit*s of swine feeders (Factor A = 1.2), then the weighted average Factor A is: [(50 x 0.7) + (100 x 1.2)] ÷ (50 + 100) = 1.03 When calculating a weighted average, the value of Factor A should not include more than two decimal places, rounded accordingly.	In MDS II, Factor A will require a weighted average when there is more than one type of *livestock* proposed to be added and/or more than one type of manure proposed to be added at the same time with differing values for Factor A. For example, if a farmer proposes to expand a *livestock facility* by adding 50 *Nutrient Unit*s of chicken broilers (Factor A = 0.7), as well as adding 100 *Nutrient Unit*s of swine feeders (Factor A = 1.2) at the same time, then the weighted average Factor A is: [(50 x 0.7) + (100 x 1.2)] ÷ (50 + 100) = 1.03 When calculating a weighted average, the value of Factor A should not include more than two decimal places, rounded accordingly.
#31. Determining Factor D When <u>BOTH</u> Solid and Liquid Manure are Stored on a *Lot*	
In MDS I, Factor D will require a weighted average when <u>BOTH</u> solid and liquid manure are being stored on a *lot*. For example, if a *livestock facility* has 50 *Nutrient Unit*s of chicken broilers with a solid manure system (Factor D = 0.7) <u>AND</u> 100 *Nutrient Unit*s of swine feeders with a liquid manure system (Factor D = 0.8) then the weighted average Factor D is: [(50 x 0.7) + (100 x 0.8)] ÷ (50 +100) = 0.77 When calculating a weighted average, the value of Factor D should not include more than two decimal places, rounded accordingly.	In MDS II, Factor D will require a weighted average when <u>BOTH</u> solid and liquid *manure storage*s are being proposed as part of the same building permit application. For example, if a farmer proposes to add 50 *Nutrient Unit*s of chicken broilers with a solid manure system (Factor D = 0.7) <u>AND</u> 100 *Nutrient Unit*s of swine feeders with a liquid manure system (Factor D = 0.8) then the weighted average Factor D is: [(50 x 0.7) + (100 x 0.8)] ÷ (50 + 100) = 0.77 When calculating a weighted average, the value of Factor D should not include more than two decimal places, rounded accordingly.

MDS I	MDS II
#32. Rounding of MDS Calculations	
All resulting calculated separation distances are rounded UP to the nearest metre. For example, if the final MDS setback is 364.72 m, round up to 365 m.	
#33. Type A Land Uses (Less Sensitive)	
For the purposes of MDS I, proposed Type A land uses are characterized by a lower density of human occupancy, habitation or activity including, but not limited to: • industrial uses outside a *settlement area*; • *open space uses;* • building permit applications on existing *lots* outside a *settlement area* for *dwellings*, unless otherwise specified in a municipality's zoning by-law in accordance with Implementation Guideline #7; • the creation of *lots* for *agricultural uses*, in accordance with Implementation Guideline #8; and • the creation of one or more *lots* for *development* on land outside of a *settlement area* that would NOT result in four or more *lots* for *development* in immediate proximity to one another (e.g., sharing a common contiguous boundary, across the road from one another, etc.), regardless of whether any of the *lots* are vacant.	For the purposes of MDS II, existing Type A land uses are characterized by a lower density of human occupancy, habitation or activity including, but not limited to: • industrial uses outside a *settlement area;* • *open space uses;* and, • *dwellings* on *lots* which are located outside of a *settlement area* and are not recognized through an official plan designation for *development*; includes *dwellings* that are located on *lots* zoned for *agriculture uses*, *residential uses* or *non-agricultural uses* (such as zones for general agriculture, rural residential, estate residential, etc.), provided the *lot* remains in a *prime agricultural area* or *rural lands* type designation.
#34. Type B Land Uses (More Sensitive)	
For the purposes of MDS I, proposed Type B land uses are characterized by a higher density of human occupancy, habitation or activity including, but not limited to: • new or expanded *settlement area* boundaries;	For the purposes of MDS II, existing Type B land uses are characterized by a higher density of human occupancy, habitation or activity including, but not limited to: • *settlement area* boundaries; and • existing *development* outside of a *settlement area* which is recognized through an official plan designation.

MDS I	MDS II
• an official plan amendment to permit *development*, excluding industrial uses, on land outside a *settlement area;* • a zoning by-law amendment to permit *development*, excluding industrial uses or *dwelling*s, on land outside a *settlement area;* and • the creation of one or more *lot*s for *development* on land outside a *settlement area*, that results in four or more *lot*s for *development*, which are in immediate proximity to one another (e.g., sharing a common contiguous boundary, across the road from one another, etc.), regardless of whether any of the *lot*s are vacant. Because of the increased sensitivity of these uses, a new or expanding Type B land use will generate an MDS I setback that is twice the distance as the MDS I setback for a Type A land use. This is reflected in the value of Factor E which is 2.2 for Type B versus 1.1 for Type A.	Because of the increased sensitivity of these uses, an MDS II setback from existing Type B land uses is twice the distance from existing Type A land uses.
#35. MDS Setbacks for *Agriculture-Related Uses* and *On-Farm Diversified Uses*	
MDS I setbacks from *existing livestock facilities* and *anaerobic digester*s will generally not be needed for land use planning applications which propose *agriculture-related uses* and *on-farm diversified uses*. However, some proposed *agriculture-related uses* and *on-farm diversified uses* may exhibit characteristics that could lead to potential conflicts with surrounding *livestock facilities* or *anaerobic digester*s. Therefore, it may be appropriate for municipalities to require an MDS I setback to permit certain types of these uses. Typically, this subset of uses may be characterized by a higher density of human occupancy or activity or will be uses that may generate significant visitation by the broader public to an agricultural area. Examples include, but are not limited to: food service, accommodation, *agri-tourism uses* and retail operations.	MDS II setbacks to existing *agriculture-related uses* and *on-farm diversified uses* will generally not be needed for building permit applications for *first* or *altered livestock facilities* and *anaerobic digester*s. However, some existing *agriculture-related uses* and *on-farm diversified uses* may exhibit characteristics that could lead to potential conflicts with *first* or *altered livestock facilities* or *anaerobic digester*s. Therefore, it may be appropriate for municipalities to require MDS II setbacks to certain types of these uses. Typically, this subset of uses may be characterized by a higher density of human occupancy or activity, or are uses that generate significant visitation by the broader public to an agricultural area. Examples include, but are not limited to: food service, accommodation, *agri-tourism uses* and retail operations. Surrounding land uses and geographic context can also play a role in determining the

MDS I	MDS II
Surrounding land uses and geographic context can also play a role in determining the suitability of applying MDS I setbacks to proposed *agriculture-related uses*, *on-farm diversified uses* and *agricultural uses*. For these reasons, and in keeping with the intent of this MDS Document, municipalities may choose to require an MDS I setback for proposals, including *lot* creation, to permit certain types of *agriculture-related uses* or *on-farm diversified uses*. In these circumstances, *agriculture-related uses* and *on-farm diversified uses* shall be considered as Type A land uses. Municipalities shall include specific provisions in their comprehensive zoning by-law to clearly indicate the types of *agriculture-related uses* and *on-farm diversified uses* that will be required to meet MDS I setbacks, including provisions related to the measurement of MDS I setbacks from *existing livestock facilities* and *anaerobic digesters*. Otherwise, MDS I setbacks will NOT be required for these types of uses. Municipalities are strongly encouraged to develop policies in their official plans and provisions in their comprehensive zoning by-law to provide consistent direction on this issue.	suitability of applying MDS II setbacks from existing *agriculture-related uses*, *on-farm diversified uses* and *agricultural uses*. For these reasons, and in keeping with the intent of this MDS Document, municipalities may choose to require MDS II setbacks for *new* or *altered livestock facilities* and *anaerobic digesters* to certain types of existing *agriculture-related uses* or *on-farm diversified uses*. In these circumstances, *agriculture-related uses* and *on-farm diversified uses* shall be considered as Type A land uses. Municipalities shall include specific provisions in their comprehensive zoning by-law to clearly indicate the types of *agriculture-related uses* and *on-farm diversified uses* that MDS II setbacks are applied to and how they are measured. Otherwise, MDS II setbacks will NOT be required to these types of uses. Municipalities are strongly encouraged to develop policies in their official plans and provisions in their comprehensive zoning by-law to provide consistent direction on this issue.
#36. Non-Application of MDS Within *Settlement Areas*	
MDS I setbacks are NOT required for proposed land use changes (e.g., consents, rezonings, redesignations, etc.) within approved *settlement areas*, as it is generally understood that the long-term use of the land is intended to be for non-agricultural purposes.	MDS II setbacks are NOT required where municipalities permit *first* or *altered livestock facilities* (e.g., urban agriculture) or *anaerobic digesters* within approved *settlement area* designations, as MDS II was not designed to be used in an urban setting. However, because other issues could be considered when raising *livestock* in *settlement areas*, municipalities may choose to establish local approaches governing urban agriculture.

MDS I	MDS II
#37. MDS Setbacks for Churches, Schools and Cemeteries Used Primarily by a Community Reliant on Horse-Drawn Transportation	
Normally churches, schools and cemeteries are considered Type B land uses as they are institutional uses; however, existing, new and expanding churches, schools and cemeteries intended to primarily serve a community which relies on horse-drawn vehicles as a predominate mode of transportation, shall be considered as Type A land uses for the purposes of both MDS I and MDS II.	
#38. MDS Setbacks for Cemeteries	
Except where noted in Implementation Guideline #37, for the purposes of MDS I, new cemeteries and expansion to existing cemeteries are considered Type B land uses, as they are institutional uses.	For the purposes of MDS II, existing cemeteries are considered Type B land uses, as they are institutional uses. However, certain cemeteries may be treated as Type A land uses at the discretion of the municipality. For example, those cemeteries which are closed, or receive low levels of visitation, or where no place of worship is present, in addition to where noted in Implementation Guideline #37. NOTE: Cemeteries meeting the above criteria shall be clearly identified in the municipality's planning documents on a comprehensive basis in order to be treated as Type A land uses. Otherwise all cemeteries will continue to be treated as Type B land uses, except where noted in Implementation Guideline #37.
#39. MDS II Setbacks for Rear *Lot* Lines, Side *Lot* Lines and Road Allowances	
Not applicable	In addition to setbacks from surrounding Type A and Type B land uses, *first* or *altered livestock facilities* shall also meet the following MDS II setbacks: • Rear and side *lot* line MDS II setbacks are calculated as 0.1 multiplied by the Building Base Distance 'F' and Storage Base Distance 'S' to a maximum of 30 m.

MDS I	MDS II
Not applicable	For example, if an MDS II calculation yields values of 100 m for Building Base Distance 'F' and 123 m for Storage Base Distance 'S', the MDS II setback for the *livestock barn* from the ear and side *lot* lines would be 10 m (100 m x 0.1 = 10 m). The MDS II setback for the *manure storage* from the rear and side *lot* lines would be 12.3 m (123 m x 0.1 = 12.3 m). This value is rounded to the nearest whole number, so in this instance, the setback for the *manure storage* would be 12 m. As another example, if an MDS II calculation yields values of 350 m for Building Base Distance 'F' and 400 m for Storage Base Distance 'S', the MDS II setback for the *livestock barn* from the rear and side *lot* lines would be 30 m (350 m x 0.1 = 35 m, but reduced to the maximum of 30 m). The MDS II setback for the *manure storage* from the rear and side *lot* lines would be 30 m (400 m x 0.1 = 40 m, but reduced to the maximum of 30 m). • Road allowance MDS II setbacks are calculated as 0.2 multiplied by the Building Base Distance 'F' and Storage Base Distance 'S' to a maximum of 60 m. For example, if an MDS II calculation yields values of 100 m for Building Base Distance 'F' and 123 m for Storage Base Distance 'S','the MDS II setback for the *livestock barn* from the edge of the road allowance would be 20 m (100 m x 0.2 = 20 m). The MDS II setback for the *manure storage* from the edge of the road allowance would be 24.6 m (123 m x 0.2 = 24.6 m). This value is rounded to the nearest whole number, so in this instance, the setback for the *manure storage* would be 25 m. As another example, if an MDS II calculation yields values of 350 m for Building Base Distance 'F' and 400 m for Storage Base Distance 'S', the MDS II setback for the *livestock barn* from the edge of the road allowance would be 60 m (350 m x 0.2 = 70 m, but reduced to the maximum of

MDS I	MDS II
	60 m). The MDS II setback for the *manure storage* from the edge of the road allowance would be 60 m (400 m x 0.2 = 80 m, but reduced to the maximum of 60 m). Rear and side *lot* line and road allowance MDS II setbacks for *anaerobic digesters* are found in Implementation Guideline #22. These MDS II setbacks are measured as the shortest distance between the point of new construction for the *manure storages*, or the *anaerobic digester*, or the *livestock occupied portions* of each of the surrounding *livestock barns* and the side and rear *lot* lines, as well as the edge of the road allowance.
#40. Measurement of MDS Setbacks for *Development* and *Dwellings*	
For proposed *development*, MDS I setbacks are measured as the shortest distance between the area proposed to be rezoned or redesignated to permit *development* and either: the surrounding *livestock occupied portions* of *livestock barns*, *manure storages* or *anaerobic digesters*. Refer to Figure 7 in Section 7 of this MDS Document. This shall include areas proposed to be rezoned or redesignated with site-specific exceptions that add *non-agricultural uses* or *residential uses* to the list of *agricultural uses* already permitted on a *lot*. For building permit applications for proposed *dwellings*, where required in accordance with Implementation Guideline #7, MDS I setbacks are measured as the shortest distance between the proposed *dwelling* and either the surrounding *manure storages*, *anaerobic digesters* or the *livestock occupied portions* of the *livestock barns*.	For existing *development*, MDS II setbacks are measured as the shortest distance between the point of new construction for the *livestock occupied portions* of the *livestock barns*, *manure storages*, *anaerobic digesters* and the surrounding area that is zoned or designated to permit *non-agricultural uses* or *residential uses* in a zoning by-law or official plan respectively, even if there are portions of the *existing livestock facility* or existing *anaerobic digester* that do not conform to the MDS II setbacks. For existing *dwellings*, MDS II setbacks are measured as the shortest distance between the point of new construction for the *livestock occupied portions* of the *livestock barns*, *manure storages* or *anaerobic digesters*, and the surrounding *dwellings*, even if there are portions of the *existing livestock facility* or existing *anaerobic digester* that do not conform to the MDS II setbacks. Refer to Figure 8 in Section 7 of this MDS Document. NOTE: Where there are two *dwellings* on the same *lot*, the MDS II setback shall be measured to both.

MDS I	MDS II
#41. Measurement of MDS I Setbacks for the Creation of *Lots*	
Where an MDS I setback is required for the creation of a *lot*, in accordance with Implementation Guideline #8 or #9, measurement of the MDS I setback should be undertaken as follows: 1. For proposed *lots* with an existing *dwelling* that are ≤1 ha, MDS I setbacks are measured as the shortest distance between the proposed *lot* line and either the surrounding *livestock occupied portions* of the *livestock barns*, *manure storages* or *anaerobic digesters*. 2. For proposed *lots* with an existing *dwelling* that are >1 ha, MDS I setbacks are measured as the shortest distance between the existing *dwelling* and either the surrounding *livestock occupied portions* of the *livestock barns*, *manure storages* or *anaerobic digesters*. 3. For proposed *lots* without an existing *dwelling* that are ≤1 ha, MDS I setbacks are measured as the shortest distance between the proposed *lot* line and either the surrounding *livestock occupied portions* of the *livestock barns*, *manure storages* or *anaerobic digesters*. 4. For proposed *lots* without an existing *dwelling* that are >1 ha, MDS I setbacks are measured as the shortest distance between a 0.5 ha or larger building envelope (for a potential *dwelling*) and either the surrounding *livestock occupied portions* of the *livestock barns*, *manure storages* or *anaerobic digesters*. For *lots* created after March 1, 2017, MDS I setbacks shall be required for all building permit applications for *non-agricultural uses* and *dwellings* in accordance with Implementation Guideline #7.	Not applicable

<table>
<tr><th>MDS I</th><th>MDS II</th></tr>
<tr><td colspan="2">#42. Non-Effect of Wind Direction, etc. on MDS Setbacks</td></tr>
<tr><td colspan="2">The direction of prevailing wind, surrounding topography, and presence of trees, berms or other screening are not part of, and are not intended to affect, the calculation of MDS setbacks. However, these or other similar elements could be considered in applications to vary or reduce MDS setbacks, where appropriate, and in accordance with Implementation Guideline #43.</td></tr>
<tr><td colspan="2">#43. Reducing MDS Setbacks</td></tr>
<tr><td>MDS I setbacks should not be reduced except in limited site specific circumstances that meet the intent of this MDS Document. Examples include circumstances that mitigate environmental or public health and safety impacts, or avoid natural or human-made hazards.

If deemed appropriate by a municipality, the processes by which a reduction to MDS I may be considered could include a minor variance to the local zoning by-law provisions, a site specific zoning by-law amendment or an official plan amendment introducing a site specific policy area.</td><td>MDS II setbacks should not be reduced except in limited site specific circumstances that meet the intent of this MDS Document. Examples include circumstances that mitigate environmental or public health and safety impacts, or avoid natural or human-made hazards.

If deemed appropriate by a municipality, the process by which a reduction to MDS II may be considered would typically be through a minor variance to the local zoning by-law provisions. To a lesser extent a site specific zoning by-law amendment may also be appropriate.</td></tr>
</table>

Table 1. Factor A (odour potential) and Factor D (manure type)

Livestock/ Manure Type	*Livestock*/Manure Description	Number per *Nutrient Unit*	Factor A	Manure Type and Storage Description	
				Liquid Manure (<18% dry matter) Factor D = 0.8	Solid Manure (≥18% dry matter) Factor D = 0.7
Swine	Sows with litter, dry sows or boars	3.5	1.0	Most systems have liquid manure stored under the barn slats for short or long periods or in storages located outside	Systems with solid manure inside on deep bedded packs or with scraped alleys
	Breeder gilts (entire barn designed specifically for this purpose)	5			
	Weaners (7–27 kg)	20	1.1		
	Feeders (27–136 kg)	5.25	1.2		
Dairy cattle[a] milking-age cows (dry or milking)	Large-framed; 545–658 kg (e.g., Holsteins)	0.7	0.7	Free-stall barns with minimal bedding or sand bedding, or tie-stall barns with minimal bedding and milking centre washwater added	Tie-stall barns with lots of bedding or loose housing with deep bedded pack and with or without outside yard access
	Medium-framed; 455–545 kg (e.g., Guernseys)	0.85			
	Small-framed; 364–455 kg (e.g., Jerseys)	1			
Dairy cattle[a] heifers (5 months to freshening)	Large-framed; 182–545 kg (e.g., Holsteins)	2	0.7		
	Medium-framed; 148–455 kg (e.g., Guernseys)	2.4			
	Small-framed; 125–364 kg (e.g., Jerseys)	2.9			
Dairy cattle[a] calves (0–5 months)	Large-framed; 45–182 kg (e.g., Holsteins)	6	0.7	Free-stall barns with minimal bedding, or sand bedding, or tie-stall barns with minimal bedding and milking centre washwater added	Bedded pens or stalls or heavily bedded calf hutches that are outside
	Medium-framed; 39–148 kg (e.g., Guernseys)	7			
	Small-framed; 30–125 kg (e.g., Jerseys)	8.5			
Beef cattle	Cows, including calves to weaning (all breeds)	1	0.7	Not applicable	Bedded pack barns with or without outside yard access
	Feeders (7–16 months)	3	0.8	Slatted floor systems, or barns with minimal bedding and yard scraped to a liquid storage	
	Backgrounders (7–12.5 months)	3			
	Shortkeepers (12.5–17.5 months)	2			
Veal	Milk-fed	6	1.1	Slatted floor or slatted stall systems	Heavily bedded pack barns
	Grain-fed	6	0.8		
Goats	Does and bucks (for meat; includes unweaned offspring and replacements)	8	0.7	Not applicable	All goat systems
	Does and bucks (for dairy; includes unweaned offspring and replacements)	8			
	Kids (dairy or feeder kids)	32			

Livestock/ Manure Type	*Livestock*/Manure Description	Number per *Nutrient Unit*	Factor A	Manure Type and Storage Description	
				Liquid Manure (<18% dry matter) Factor D = 0.8	Solid Manure (≥18% dry matter) Factor D = 0.7
Sheep	Ewes and rams (for meat; includes unweaned offspring and replacements)	8	0.7	Not applicable	All sheep systems
	Ewes and rams (dairy operation; includes unweaned offspring and replacements)	6			
	Lambs (dairy or feeder lambs)	20			
Horses	Large-framed, mature; >681 kg (e.g., draft or draft cross breeds including unweaned offspring)	0.7	0.7	Not applicable	All horse systems
	Medium-framed, mature; 227–680 kg (e.g., saddle, riding and racing breeds including unweaned offspring)	1			
	Small-framed, mature; <227 kg (e.g., ponies and miniatures including unweaned offspring)	2			
Chickens	Layer hens (for eating eggs; after transfer from pullet barn)	150	1.0	Birds in cages, manure belts, no drying of manure, water added	Birds in cages, manure belts and drying, or floor systems
	Layer pullets (day-olds until transferred into layer barn)	500	0.7		
	Broiler breeder growers (males/females transferred out to layer barn)	300		Not applicable	Bedded floors
	Broiler breeder layers (males/females transferred in from grower barn)	100			Cage or slatted floor systems
	Broilers on any length of cycle	24.8 m^2 (267 ft^2) floor area			Bedded floor systems

Livestock/ Manure Type	*Livestock*/Manure Description	Number per *Nutrient Unit*	Factor A	Manure Type and Storage Description	
				Liquid Manure (<18% dry matter) Factor D = 0.8	Solid Manure (≥18% dry matter) Factor D = 0.7
Turkeys	Turkey poults (day-old until transferred to grow-out turkey barn)	267	0.7	Not applicable	Bedded floor systems
	Turkey breeder layers (males/females transferred in from grower barn)	67			
	Breeder toms	45			
	Broilers (day-olds to 6.2 kg)	133			
	Hens (day-olds up to 6.2–10.8 kg; 7.5 kg is typical)	105			
	Toms (day-olds to over 10.8–20 kg; 14.5 kg is typical)	75			
	Turkeys at any other weights, or if unknown	24.8 m^2 (267 ft^2) floor area			
Quail	All quail	24.8 m^2 (267 ft^2) floor area	0.7	Not applicable	Bedded floor systems
Partridge	All partridge	24.8 m^2 (267 ft^2) floor area			
Pheasants	All pheasants	24.8 m^2 (267 ft^2) floor area			
Squab	All squab	24.8 m^2 (267 ft^2) floor area			

Livestock/ Manure Type	*Livestock*/Manure Description	Number per *Nutrient Unit*	Factor A	Manure Type and Storage Description	
				Liquid Manure (<18% dry matter) Factor D = 0.8	Solid Manure (≥18% dry matter) Factor D = 0.7
Rheas	Adults (includes replacements and market birds)	13	0.7	Not applicable	Bedded floor systems
Emus	Adults (includes replacements and market birds)	12			
Ostriches	Adults (includes replacements and market birds)	4			
Donkeys	Jacks, jennies, mules, hinnies (includes unweaned foals)	2	0.7	Not applicable	All donkey systems
Ducks	Peking	105	0.8	Wire mesh flooring systems	Bedded floor systems
	Muscovy	24.8 m^2 (267 ft^2) floor area			
Geese	All geese	24.8 m^2 (267 ft^2) floor area			
Rabbits	Breeding females (including males, replacements and market animals)	40	0.8	Not applicable	Cage or floor systems
Chinchillas	Breeding females (including males, replacements and market animals)	320			
Fox	Breeding females (including males, replacements and market animals)	25	1.0	Not applicable	Cage system — manure accumulates underneath
Mink	Breeding females (including males, replacements and market animals)	60		Cage system with trough system underneath	
Bison	Adults (includes unweaned calves and replacements)	1.3	0.7	Not applicable	Bedded pack barns with outside access OR outside confinement areas
	Feeders (170–477 kg)	4			
Llama	Adults (includes unweaned young and replacements)	5			
	Feeders (45–86 kg)	16			
Alpaca	Adults (includes unweaned young and replacements)	8			
	Feeders (23–48 kg)	26			

Livestock/ Manure Type	*Livestock*/Manure Description	Number per *Nutrient Unit*	Factor A	Manure Type and Storage Description	
				Liquid Manure (<18% dry matter) Factor D = 0.8	Solid Manure (≥18% dry matter) Factor D = 0.7
Wild boar	Breeding age sows (includes boars, replacements and weaned piglets to 27 kg)	5	0.7	Not applicable	Bedded pack barns with outside access OR outside confinement areas
	Finishing boars (27–86 kg)	7			
White tailed deer	Adults >24 months (including unweaned offspring)	11			
	Feeders	21			
Red deer	Adults >24 months (including unweaned offspring)	7			
	Feeders	14			
Elk	Adults >24 months (including unweaned offspring)	2			
	Feeders	6			
Elk/Deer hybrids	Adults >24 months (including unweaned offspring)	4			
	Feeders	10			
Fallow deer	Adults >24 months (including unweaned offspring)	13	0.7	Not applicable	Bedded pack barns with outside access OR outside confinement areas
	Feeders	23			
Other animals	All other animals	Total live weight of animals divided by 453.6 kg (1,000 lbs)	0.8	All storages with liquid manure	All storages with solid manure
Imported manure	Use the volume of the *manure storage*(s)	19.8 m^3 (700 ft^3)	1.0[b]		
Unoccupied livestock barns	A *livestock barn* that does not currently house any *livestock*, but that housed *livestock* in the past and continues to be structurally sound and reasonably capable of housing *livestock.* NOTE: This should only be used where obtaining information from the farm operator(s) and/or owner(s) was not possible (see Implementation Guideline #20 for more information).	20 m^2 (215 ft^2) of area of *livestock* housing	1.0	Not applicable	All *unoccupied livestock barns*

Livestock/ Manure Type	*Livestock*/Manure Description	Number per *Nutrient Unit*	Factor A	Manure Type and Storage Description	
				Liquid Manure (<18% dry matter) Factor D = 0.8	Solid Manure (≥18% dry matter) Factor D = 0.7
***Unused manures storage* for solids**	A *manure storage* that does not currently store any solid manure, but that stored solid manure in the past and continues to be structurally sound and reasonably capable of storing solid manure NOTE: This should only be used where obtaining information from the farm operator(s) and/or owner(s) was not possible (see Implementation Guideline #20 for more information).	19.8 m^3 (700 ft^3) of volume for storages with two or more walls	1.0	Not applicable	All *unused manure storages* for solids
***Unused manures storage* for liquids**	A *manure storage* that does not currently store any liquid manure, but that stored liquid manure in the past and continues to be structurally sound and reasonably capable of storing liquid manure. NOTE: This should only be used where obtaining information from the farm operator(s) and/or owner(s) was not possible (see Implementation Guideline #20 for more information).	19.8 m^3 (700 ft^3) of volume		All *unused manure storages* for liquids	Not applicable

a. On farms with 100 milking-age cows (dry and milking), there are usually about 20 replacement calves and 80 replacement heifers.
b. Average value for typical types of manures that might be imported to a *lot*, such as poultry, dairy, beef, swine or horse.

Table 2. Factor B (*Nutrient Units* factor)

When using Table 2 to determine Factor B, it may be necessary to determine a value for Factor B, which is not listed in the table. For example, if you determine the total number of *Nutrient Unit*s on a *lot* to be 255 *Nutrient Unit*s, Table 2 only provides a value for Factor B for 250 *Nutrient Unit*s and for 260 *Nutrient Unit*s, but not for 255 *Nutrient Unit*s. The value of Factor B for 250 *Nutrient Unit*s is 435 and the value of Factor B for 260 *Nutrient Unit*s is 441. Therefore, to determine Factor B for 255 *Nutrient Unit*s select a number between the numbers 435 and 441. In this example, the value of Factor B for 255 *Nutrient Unit*s is 438.

NOTE: When selecting a value for Factor B, do not include more than two decimal places. Interpolated values with more than two decimal places are rounded accordingly. For example, if an interpolated value for Factor B is calculated as 499.238, then use a value of 499.24 for Factor B in the MDS calculation.

For operations with fewer than 5 *Nutrient Unit*s, do not interpolate, but use a Factor B of 150. For operations with >5,000 *Nutrient Unit*s, refer to the MDS software (AgriSuite) to determine Factor B.

Nutrient Units	Factor B
5 or less	150
6	153
7	157
8	160
9	163
10	167
11	170
12	173
13	177
14	180
15	183
16	187
17	190
18	193
19	197
20	200
21	202
22	204
23	206
24	208
25	210
26	212
27	214
28	216
29	218

Nutrient Units	Factor B
30	220
31	222
32	224
33	226
34	228
35	230
36	232
37	234
38	236
39	238
40	240
41	242
42	244
43	246
44	248
45	250
46	252
47	254
48	256
49	258
50	260
52	264
54	268
56	272
58	276
60	280

Nutrient Units	Factor B
62	282
64	284
66	285
68	287
70	289
72	291
74	293
76	294
78	296
80	298
82	300
84	301
86	303
88	305
90	307
92	309
94	310
96	312
98	314
100	316
102	318
104	320
106	322
108	324
110	326
112	329

Nutrient Units	Factor B
114	331
116	333
118	335
120	337
122	339
124	340
126	342
128	344
130	346
135	351
140	355
145	360
150	364
155	368
160	372
165	376
170	380
175	384
180	388
185	392
190	395
195	399
200	402
205	406
210	409
215	413

Nutrient Units	Factor B
220	416
225	419
230	423
235	426
240	429
245	432
250	435
260	441
270	447
280	453
290	458
300	464
310	469
320	474
330	480
340	485
350	490
360	494
370	499
380	504

Nutrient Units	Factor B
390	508
400	513
410	517
420	522
430	526
440	530
450	535
460	539
470	543
480	547
490	551
500	555
520	562
540	570
560	577
580	584
600	591
620	598
640	605
660	611

Nutrient Units	Factor B
680	618
700	624
750	639
800	654
850	668
900	681
950	694
1,000	707
1,100	731
1,200	753
1,300	775
1,400	795
1,500	815
2,000	870
3,000	980
4,000	1,090
5,000	1,200
>5,000 *Nutrient Units*	Refer to the MDS software (AgriSuite)

Table 3. Factor C (expansion factor)

When using Table 3 to determine Factor C, it may be necessary to determine a value for Factor C, which is not listed in the table. For example, the percentage increase at a *livestock facility* is 155%. Table 3 provides a value for Factor C for a 150% increase and for a 160% increase, but not for a 155% increase. The value of Factor C for a 150% increase is 0.9371 and the value of Factor C for a 160% increase is 0.9497. To determine Factor C for a 155% increase, interpolate between the numbers 0.9371 and 0.9497. In this example, the value of Factor C for a 155% increase is 0.9434.

NOTE: When selecting a value for Factor C, do not include more than four decimal places. Interpolated values with more than four decimal places are rounded accordingly. For example, if an interpolated value for Factor C is calculated as 0.977643, then use a value of 0.9776 for Factor C in the MDS calculation.

For operations with a 0% increase, or a decrease in *Nutrient Unit*s, use a value of 0.5000 for Factor C. Do not interpolate below a value of 0.5000. For operations with a 700% increase or greater, or for a *first livestock facility*, use a value of 1.1400 for Factor C. Do not interpolate above a value of 1.1400.

Percent Increase in *Nutrient Units*	Factor C
0% increase OR decrease	0.5000
1%	0.5062
2%	0.5124
3%	0.5186
4%	0.5248
5%	0.5310
6%	0.5372
7%	0.5434
8%	0.5496
9%	0.5558
10%	0.5620
11%	0.5682
12%	0.5744
13%	0.5806
14%	0.5868
15%	0.5930
16%	0.5992
17%	0.6054
18%	0.6116
19%	0.6178
20%	0.6240
21%	0.6302
22%	0.6364
23%	0.6426

Percent Increase in *Nutrient Units*	Factor C
24%	0.6488
25%	0.6550
26%	0.6612
27%	0.6674
28%	0.6736
29%	0.6798
30%	0.6860
31%	0.6922
32%	0.6984
33%	0.7046
34%	0.7108
35%	0.7170
36%	0.7232
37%	0.7294
38%	0.7356
39%	0.7418
40%	0.7480
41%	0.7542
42%	0.7604
43%	0.7666
44%	0.7728
45%	0.7790
46%	0.7852
47%	0.7914
48%	0.7976

Percent Increase in *Nutrient Units*	Factor C
49%	0.8038
50%	0.8100
55%	0.8167
60%	0.8230
65%	0.8294
70%	0.8357
75%	0.8420
80%	0.8484
85%	0.8547
90%	0.8610
95%	0.8674
100%	0.8737
105%	0.8800
110%	0.8864
115%	0.8927
120%	0.8990
125%	0.9054

Percent Increase in *Nutrient Units*	Factor C
130%	0.9117
135%	0.9180
140%	0.9244
145%	0.9307
150%	0.9371
160%	0.9497
170%	0.9624
180%	0.9751
190%	0.9877
200%	1.0000
300%	1.0280
400%	1.0560
500%	1.0840
600%	1.1120
700% or greater increase or the *first livestock facility* on a *lot*	1.1400

Table 4. Factor E (encroaching land use factor)

Encroaching Land Use	Factor E
Type A land use (less sensitive; see Implementation Guideline #33)	1.1
Type B land use (more sensitive; see Implementation Guideline #34)	2.2

Table 5. *Manure Storage* Types

Solid manure: 18% dry matter, or more
Liquid manure: <18% dry matter

Storage Odour Potential	Manure Type	Inside or Outside *Livestock* Barn	Storage Type (to use in Table 6)	Description of *Manure Storages*
Very low	Solid	Inside	V1	Solid, inside, bedded pack (manure accumulates under *livestock* over time)
		Outside	V2	Solid, outside, covered (cover keeps off precipitation to prevent runoff)
			V3	Solid, outside, no cover, ≥30% dry matter (manure is dry enough that a flowpath option can be used for runoff control (*Nutrient Management Act, 2002*))
			V4	Solid, outside, no cover, 18%–<30% dry matter, with covered liquid runoff storage (manure not dry enough to soak up precipitation, so a liquid runoff storage is needed; storage has a permanent, tight-fitting cover)
	Liquid	Inside	V5	Liquid, inside, underneath slatted floor (manure is stored under the animals in the barn)
		Outside	V6	Liquid, outside, with a permanent, tight-fitting cover (negative pressure tarp, concrete lid, inflatable dome, etc.)
Low	Solid	Outside	L1	Solid, outside, no cover, 18%–<30% dry matter, with uncovered liquid runoff storage (manure not dry enough to soak up precipitation, so a liquid runoff storage needed; it is uncovered, producing more odour than a V4 storage)
	Liquid		L2	Liquid, outside, with a permanent floating cover (tarps, foam panels, plastic hexagon discs, etc.)
Medium	Liquid	Outside	M1	Liquid, outside, no cover, straight-walled storage (usually circular or rectangular concrete or steel storages)
			M2	Liquid, outside, roof, but with open sides (roof keeps off precipitation, but the open sides allow wind to travel over the manure and carry odours)
High	Liquid	Outside	H1	Liquid, outside, no cover, sloped-sided storage (earthen *manure storages*, but NOT earthen runoff storages associated with a solid *manure storage* which are L1)

Table 6. MDS I and MDS II Setbacks for *Manure Storage(s)*

When using this table to determine a value for Storage Base Distance 'S', it may be necessary to interpolate a value. For example, if you determine the value for Building Base Distance 'F' is 106 m, and from Table 5 the *livestock* facility has a *manure storage* with an odour potential that is considered medium (M1), note that Table 6 provides a value for Storage Base Distance 'S' for an M1 Storage with a Building Base Distance 'F' of 100 m and for an Building Base Distance 'F' of 110 m, but not for a Building Base Distance 'F' of 106 m. The value of Storage Base Distance 'S' for an M1 Storage with a Building Base Distance 'F' of 100 m, is 190 m. The value of Storage Base Distance 'S' for an M1 Storage with a Building Base Distance 'F' of 110 m, is 199 m. Therefore, to determine the value of Storage Base Distance 'S' for an M1 Storage, with an Building Base Distance 'F' of 106 m, interpolate between the numbers 190 and 199. In this example, the value of Storage Base Distance 'S' for an M1 Storage, with a Building Base Distance 'F' of 106 m is 195.4 m. This value is rounded to the nearest whole number — 195 m.

NOTE: When selecting a value for Storage Base Distance 'S' do not include any decimal places. Interpolated values with decimal places are rounded accordingly. For example, if an interpolated value for Storage Base Distance 'S' is calculated as 202.83 m, then use a value of 203 m for Storage Base Distance 'S'.

In all instances, where Building Base Distance 'F' exceeds 1,000 m, then the Storage Base Distance 'S' will be the same value as 'F'.

Building Base Distance 'F' (metres)	Storage Base Distance 'S' (metres)			
	Very Low Odour Storages V1 to V6	Low Odour Storages L1 to L2	Medium Odour Storages M1 to M2	High Odour Storages H1
40	40	64	136	232
50	50	74	145	240
60	60	84	154	248
70	70	93	163	256
80	80	103	172	264
90	90	113	181	272
100	100	123	190	280
110	110	132	199	288
120	120	142	208	296
130	130	152	217	304
140	140	162	226	312
150	150	171	235	320
160	160	181	244	328
170	170	191	253	336
180	180	201	262	344
190	190	210	271	352
200	200	220	280	360
210	210	230	289	368
220	220	240	298	376
230	230	249	307	384

Building Base Distance 'F' (metres)	Storage Base Distance 'S' (metres)			
	Very Low Odour Storages V1 to V6	Low Odour Storages L1 to L2	Medium Odour Storages M1 to M2	High Odour Storages H1
240	240	259	316	392
250	250	269	325	400
260	260	279	334	408
270	270	288	343	416
280	280	298	352	424
290	290	308	361	432
300	300	318	370	440
310	310	327	379	448
320	320	337	388	456
330	330	347	397	464
340	340	357	406	472
350	350	366	415	480
360	360	376	424	488
370	370	386	433	496
380	380	396	442	504
390	390	405	451	512
400	400	415	460	520
420	420	435	478	536
440	440	454	496	552
460	460	474	514	568
480	480	493	532	584
500	500	513	550	600
600	600	610	640	680
800	800	805	820	840
1,000	1,000	1,000	1,000	1,000
>1,000 m	Storage Base Distance 'S' is the same as Building Base Distance 'F'			