

1.0 DEFINITIONS

The following definitions shall apply for the purposes of applying the Minimum Distance Separation (MDS) formulae:

1.1 Agricultural Use

shall mean the growing of crops, including nursery 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; and associated on-farm buildings and structures, including accommodation for full-time farm labour when the size and nature of the operation requires additional employment.

1.2 Agricultural-Related Uses

shall mean farm-related commercial and farm-related industrial uses that are small scale and directly related to the farm operation and are required in close proximity to the farm operation. Examples of this use include animal husbandry services, produce or grain storage facilities, and seed dealers.

1.3 Anaerobic Digester

shall mean an enclosed vessel in which micro-organisms break down organic materials (e.g. manure and other organic materials), in the absence of oxygen, resulting in the production of biogases, consisting primarily of methane and carbon dioxide. The Minimum Distance Separation Formulae is to be applied to on-farm anaerobic digesters, which utilize manure as an input. An on-farm anaerobic digester may include a *co-substrate input tank* fitted with a tight cover, in which permitted off-farm non-agricultural source materials are temporarily stored before feeding into the anaerobic digester.

1.4 Catastrophe

shall mean an unanticipated, disastrous loss of part, or all, of a *livestock facility* due to fire, collapse, flood, wind, or other such event.

1.5 Commercial Use

shall mean the use of land, building or structure for the purpose of buying and/or selling commodities and supplying services, such as automotive service stations, car washes, convenience retail shops, hotels or motels, shopping centres and supermarkets.

1.6 Co-substrate Input Tank (CSIT)

shall mean a vessel for the storage of containing permitted non-agricultural wastes that will be blended with manure in an on-farm *anaerobic digester* in order to increase biogas production.

1.7 Digestate

shall mean the end product from the anaerobic digestion of manure (and possibly permitted *co-substrate input tank* materials) that has a significant reduction in pathogens and odour.

1.8 Dwelling

shall mean any building that is used or designed for use as a domestic establishment in which one or more persons may sleep and prepare and serve meals.

1.9 Empty Facility

shall mean a *livestock facility* that does not currently contain any manure, house any *livestock*, or contain organic material used for *anaerobic digesters*.

1.10 Existing Livestock Facility

shall mean a *livestock facility*, or a portion of a *livestock facility*, intended for keeping or housing of *livestock* and containing one or more barns or structures. Includes *manure or material storages*, whether associated with a *livestock facility* or not, and *anaerobic digesters*, which have already been constructed.

1.11 Expanded Livestock Facility

shall mean any building activity to construct or expand a *livestock facility* that requires a building permit and results in an increase, or decrease, in *Nutrient Unit* capacity on a *lot*, where there already was some existing *Nutrient Unit* capacity.

1.12 First Livestock Facility

shall mean any building activity to construct a *livestock facility* that requires a building permit and results in an increase in *Nutrient Unit* capacity on a *lot*, where there was no existing *Nutrient Unit* capacity.

1.13 Housing Capacity

shall mean the maximum *livestock* capacity for all facilities on a *lot* at any time, even if currently empty but able to house *livestock*.

1.14 Industrial Use

shall mean the use of land, buildings or structures for the purpose of manufacturing, processing, fabricating or assembly of raw materials or goods, warehousing or bulk storage of goods, and related accessory uses.

1.15 Institutional Use

shall mean the use of land, buildings or structures for public or social purposes, including religious, governmental, educational, charitable, health, or other non-*commercial* uses, and may include cemeteries, places of worship, municipal buildings, police and fire stations, schools, hospitals, and seniors complexes.

1.16 Livestock

shall mean dairy, beef, swine, poultry, horses, goats, sheep, ratites, fur-bearing animals, deer and elk, game animals, birds, and other animals identified in Table 1 to this schedule.

1.17 Livestock Facility

shall mean one or more barns or permanent structures with *livestock occupied portions*, intended for keeping or housing of *livestock*, and includes all *manure* or *material storages* and *anaerobic digesters*.

1.18 Livestock Occupied Portion

shall mean areas of *livestock facilities* where *livestock* spend the majority of their time, allowing substantial amounts of manure to accumulate, but not including feed preparation rooms, milking centres, offices, washrooms, riding arenas, *livestock* loading chutes, or *livestock* assembly areas.

1.19 Lot(s)

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

1.20 Manure or Material Storage

shall mean permanent storage, which may or may not be associated with a *livestock facility*, containing liquid manure (< 18% dry matter), solid manure (> 18% dry matter), or digestate (< 18% dry matter). Permanent storage may come 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 and shapes;
- elevations (above, below or partially above grade).

1.21 Multiple Residential

shall mean three or more *residential* units in the same structure.

1.22 Nutrient Unit (NU)

shall mean an amount of nutrients that give a fertilizer replacement value of the lower of 43 kilograms of nitrogen, or 55 kilograms of phosphate as nutrient.

1.23 Recreational Use – High Intensity

shall mean recreational use that usually includes buildings and/or a higher density or concentration of human activity such as golf courses, sports fields, trailer parks, campgrounds and conservation areas with facilities.

1.24 Recreational Use – Low Intensity

shall mean a recreational use that usually does not require buildings, does not alter the soil or topography, and/or has a lower density or concentration of human activity such as open space and environmental areas.

1.25 Residential Use

shall mean the use of land, buildings or structures for human habitation.

1.26 Rural Residential Cluster

shall mean four, or more, adjacent rural *lots*, generally one hectare or less in size, sharing a common contiguous boundary. *Lots* located directly across a road from one another shall be considered as having a common boundary.

1.27 Settlement Area

shall mean areas identified in the Municipality's Official Plan as settlement areas namely the Village Area of Rodney, the Village Area of West Lorne and the Hamlet Areas of Clachan, Eagle and New Glasgow and the Specific Policy Area of Port Glasgow as delineated on Figure 1 through Figure 6 inclusive of the Official Plan of the Municipality of West Elgin .

1.28 Storage Capacity

shall mean the maximum storage volume (measured as cubic feet or cubic metres) of all storages for *manure*, or *digestate* treated through an *anaerobic digester*, on a *lot* at any time, even if currently empty but able to store these materials.

1.29 Tillable Hectares

shall mean land, including pasture that can be worked or cultivated to grow crops.

1.30 Type A Land Use

shall mean land uses that are typically characterized by uses that have lower density of human occupancy, habitation or activity without limiting the generality of the forgoing, shall include single unit dwellings and converted dwellings located outside settlement areas, inactive (i.e. closed or abandoned) cemeteries and lands zoned Farm Industrial (M2).

1.31 Type B Land Use

Shall mean land uses that are typically characterized by uses that have a higher density of human occupancy, habitation or activity without limiting the generality of the forgoing shall include lands zoned Highway Commercial (C3), Rural Commercial (RC), Rural Industrial (M3), Institutional (I).

2.0 CALCULATIONS

2.1 MDS I

Animal Type or Material	Description	Number per NU	Manure Form	Existing Maximum Housing Capacity	Existing NU	Factor A	Factor D
Total Number of NU							
Factor A (Odour Potential Factor)...a weighted average may be necessary							
Factor D (Manure Form Factor)...a weighted average may be necessary							
Factor B (Nutrient Units Factor)							
Factor E (Encroaching Land Use Factor)							
Maximum tillable hectares on the lot with the livestock facilities				X		=	(Maximum 300 NU)
F (Building Base Distance, m) = Factor A x Factor D x Factor B x Factor E							
S (Manure Storage Base Distance, m)							
Notes							

2.2 MDS II

Animal Type or Material	Description	Number per NU	Manure Form	Existing Maximum Housing Capacity	Existing NU	Proposed Maximum Housing Capacity	Factor D	Added NU	Total NU	Factor A	Factor AD
Totals											
Factor A (Odour Potential Factor)...a weighted average may be necessary											
Factor D (Manure Form Factor)...a weighted average may be necessary											
Factor B (Nutrient Units Factor)											
Has a building permit been issued for the livestock facility on this property, in the last 3 years that has increased its livestock capacity? No? Yes? If No, proceed to Approach (i); if Yes, proceed to Approach (ii)											
Approach (i) - No Building Permits in Last 3 Years						Approach (ii) - Building Permit(s) issued in Last 3 Years					
Calculation of Percentage Increase						Calculation of Percentage Increase					
Total 2 - Total Added NU (From Above)						Total 2 - Total Added NU (From Above) + Total Added NU from building permit(s) issued in the last 3 Years					
Total 1 - Total Existing NU (From Above)						Total 1 - Total Existing NU at Livestock Facility - 3 Years Ago					
If Total 1 = Zero - Treat as a First Livestock Facility						If Total 1 = Zero - Treat as a First Livestock Facility					
% Increase: (Total 2/Total 1) x 100						% Increase: (Total 2/Total 1) x 100					
Factor C (Orderly Expansion Factor)											
F (Building Base Distance, m) = Factor A x Factor D x Factor B x Factor C											
S (Manure Storage Base Distance, m)											
Note	Apply MDS calculation to building permit application as appropriate. For Type A land uses, the values of Building Base Distance 'F' and Storage Base Distance 'S' should be multiplied by 1.0 to determine the required MDS setback. For Type B land uses, the values of Building Base Distance 'F' and Storage Base Distance 'S' should be multiplied by 2.0 to determine the required MDS setback. Implementation Guideline #40 provides direction around setbacks from rear lot lines, side lot lines and road allowances. For rear and side lot lines, the values of Building Base Distance 'F' and Storage Base Distance 'S' should be multiplied by 0.1 to determine the required MDS setback. In accordance with Implementation Guideline #44, the required MDS setback from a rear or side lot line should never exceed 30 metres. For road allowances, the values of Building Base Distance 'F' and Storage Base Distance 'S' should be multiplied by 0.2 to determine the required MDS setback.										

3.0 TABLES

TABLE 1

Factor A - Odour Potential and Factor D - Manure or Material Form in Storage Facility

Animal Type or Material	Description	Number per NU	Factor A	Manure or Material Form in Permanent Storage	
				Liquid Manure: Factor D = 0.8 < 18% Dry Matter	Solid Manure: Factor D = 0.7 18 - 100% Dry Matter
Swine	Sows with litter, dry sows/boars Segregated Early Weaning (SEW)	3.33	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
	Sows with litter, dry sows or boars (non-SEW)	3.5			
	Breeder gilts (entire barn designed specifically for this purpose)	5			
	Weaners (7 kg – 27 kg)	20	1.1		
	Feeders (27 – 105 kg)	6	1.2		
Dairy Cattle	Milking-age cows (dry or milking) Large-framed; 545 kg – 636 kg (e.g. Holsteins)	0.7	0.7	Free-stall barns with minimal bedding, or sand bedding, or tie-stall barns with minimal bedding & milking centre wash water 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 kg – 545 kg (e.g. Guernseys)	0.85			
	Small-framed; 364 kg – 455 kg (e.g. Jerseys)	1			
	Heifers (5 months to freshening)				
	Large-framed; 182 kg – 545 kg (e.g. Holsteins)	2			
	Medium-framed; 148 kg – 455 kg (e.g. Guernseys)	2.4			
	Small-framed; 125 kg – 364 kg (e.g. Jerseys)	2.9			
	Calves (0 – 5 months)		0.7		Bedded pens or stalls or heavily bedded calf hutches that are outside
	Large-framed; 45 kg – 182 kg (e.g. Holsteins)	6			
	Medium-framed; 39 kg – 148 kg (e.g. Guernseys)	7			
	Small-framed; 30 kg – 125 kg (e.g. Jerseys)	8.5			
Beef Cattle	Cows, including calves to weaning (all breeds)	1	0.7	N/A	Bedded pack barns with or without outside yard access
	Feeders (7 - 16 months)	3	0.8	Slatted floor systems, or barns with minimal bedding & 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 floors or slatted stall system	Heavily bedded pack barns
	Grain Fed	6	0.8		
Goats	Does & bucks (for meat kids; includes unweaned offspring & replacements)	8	0.7	N/A	Heavily bedded pack barns
	Does & bucks (for dairy; includes unweaned offspring and replacements)	8			
	Kids (dairy or feeder kids)	20			
Sheep	Ewes & rams (for meat lambs; includes unweaned offspring & replacements)	8	0.7	N/A	All sheep systems
	Ewes & rams (for dairy operation; includes unweaned offspring and replacements)	6			
	Lambs (dairy or feeder lambs)	20			
Horses	Large-framed, mature; > 681 kg (including unweaned offspring)	0.7	0.7	N/A	All horse systems
	Medium-framed, mature; 227 kg - 680 kg (including unweaned offspring)	1			
	Small-framed, mature; < 227 kg (including unweaned offspring)	2			

Table 1 continued...

Animal Type or Material	Description	Number per NU	Factor A	Manure or Material Form in Permanent Storage			
				Liquid Manure: Factor D = 0.8 < 18% Dry Matter	Solid Manure: Factor D = 0.7 18 - 100% Dry Matter		
Chickens	Layer hens (for eating eggs; after transfer from pullet barn)	150	1.0	N/A	Birds in cages, manure belts, no drying of manure, water added	Birds in cages, manure belts & drying, or floor systems	
	Layer pullets (day olds until transferred into layer barn)	500	0.7				
	Broiler breeder growers (males/females transferred into layer barn)	500					Bedded floors
	Broiler breeder layers (males/females transferred in from grower barn)	100					
	Broilers on a 8 week cycle	350					Bedded floor systems
	Broilers on a 9 week cycle	300					
	Broilers on a 10 week cycle	250					
	Broilers on a 12 week cycle	200					
Broilers on any other cycle, or if unknown, use 24.8 m ² /NU	24.8 m ²						
Turkeys	Turkey pullets (day olds until transferred into layer barn)	267	0.7	N/A	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 kg to 10.8 kg; 7.5 kg is typical)	105					
	Toms (day olds to over 10.8 kg to 20 kg; 14.5 kg is typical)	75					
	Turkeys at any other weights, or if unknown, use 24.8 m ² /NU	24.8 m ²					
Quail	Use 24.8 m ² /NU	24.8 m ²	0.7	N/A	Bedded floor systems		
Partridge	Use 24.8 m ² /NU	24.8 m ²					
Pheasants	Use 24.8 m ² /NU	24.8 m ²					
Squab	Use 24.8 m ² /NU	24.8 m ²					
Rheas	Adults (includes replacements & market birds)	13					
Emus	Adults (includes replacements & market birds)	12					
Ostriches	Adults (includes replacements & market birds)	4					
Ducks	Peking	105	0.8	Wire mesh flooring system	Bedded floor system		
	Muscovy, use 24.8 m ² /NU	24.8 m ²					
Geese	Use 24.8 m ² /NU	24.8 m ²					
Rabbits	Breeding females (including males, replacements & market animals)	40	0.8	N/A	Cage or floor systems		
Chinchillas	Breeding females (including males, replacements & market animals)	320					
Fox	Breeding females (including males, replacements & market animals)	25	1.0				
Mink	Breeding females (including males, replacements & market animals)	90					
Bison	Adults (includes unweaned calves & replacements)	1.3	0.7	N/A	Bedded pack barns with outside access or outside confinement areas		
	Feeders (170 kg - 477 kg)	4					
Llama	Adults (includes unweaned young & replacements)	5					
	Feeders (45 kg - 86 kg)	16					
Alpaca	Adults (includes unweaned young & replacements)	8					
	Feeders (23 kg - 48 kg)	26					
Wild Boar	Breeding age sows (includes boars, replacements & weaned piglets to 27 kg)	5					
	Feeders (27 kg - 86 kg)	7					
Deer	White Tailed Deer		0.7	N/A	Bedded pack barns with outside access <u>OR</u> outside confinement areas		
	Adults > 24 mo (including unweaned offspring)	11					
	Feeders	21					
	Red Deer						
	Adults > 24 mo (including unweaned offspring)	7					
Feeders	14						

Table 1 continued...

Animal Type or Material	Description	Number per NU	Factor A	Manure or Material Form in Permanent Storage	
				Liquid Manure: Factor D = 0.8 < 18% Dry Matter	Solid Manure: Factor D = 0.7 18 - 100% Dry Matter
Deer	Elk		0.7	N/A	Bedded pack barns with outside access <u>OR</u> outside confinement areas
	Adults > 24 mo (including unweaned offspring)	2			
	Feeders	6			
	Elk/Deer Hybrids				
	Adults > 24 mo (including unweaned offspring)	4			
	Feeders	10			
	Fallow Deer				
Adults > 24 mo (including unweaned offspring)	13				
Feeders	23				
Other <i>livestock</i> not listed in this table	To determine the number per NU, add up the total maximum live weight of animals and divide by the weight of animals per NU in the next column	453.6 kg (1000 lbs)	0.8	All storages with liquid manure	All storages with solid manure
Manure imported to a lot not generating manure	Maximum capacity of permanent storages at any time: solid or liquid capacity	19.8 m ³ (700 ft ³)	1.2	All storages with liquid manure	All storages with solid manure
Storages for <i>digestate</i> from an <i>Anaerobic Digester</i> (odours reduced during this process)	Maximum capacity of permanent storages at any time: solid or liquid capacity	19.8 m ³ (700 ft ³)	0.5	All storages with liquid manure	All storages with solid manure
<p>1. On farms with 100 milking-age cows (dry & milking), there are usually about 20 replacement calves and 80 replacement heifers.</p> <p>2. Average value for typical types of manures that might be imported to a lot, such as poultry, dairy, beef, swine, horse or other manure.</p> <p>N/A = Not Applicable</p>					

TABLE 2

FACTOR B - Nutrient Units Factor

Final NU	Factor B	Final NU	Factor B	Final NU	Factor B	Final NU	Factor B	Final NU	Factor B	Final NU	Factor B
Up to 5	150	32	224	68	287	122	339	245	432	520	562
6	153	33	226	70	289	124	340	250	435	540	570
7	157	34	228	72	291	126	342	260	441	560	577
8	160	35	230	74	293	128	344	270	447	580	584
9	163	36	232	75	294	130	346	280	453	600	591
10	167	37	234	78	296	135	351	290	458	620	598
11	170	38	236	80	298	140	355	300	464	640	605
12	173	39	238	82	300	145	360	310	469	660	611
13	177	40	240	84	301	150	364	320	474	680	618
14	180	41	242	86	303	155	368	330	480	700	624
15	183	42	244	88	305	160	372	340	485	750	639
16	187	43	246	90	307	165	376	350	490	800	654
17	190	44	248	92	309	170	380	360	494	850	668
18	193	45	250	94	310	175	384	370	499	900	681
19	197	46	252	96	312	180	388	380	504	950	694
20	200	47	254	98	314	185	392	390	508	1000	707
21	202	48	256	100	316	190	395	400	513	1100	731
22	204	49	258	102	318	195	399	410	517	1200	753
23	206	50	260	104	320	200	402	420	522	1300	775
24	208	52	264	106	322	205	406	430	526	1400	795
25	210	54	268	108	324	210	409	440	530	1500	815
26	212	56	272	110	326	215	413	450	535	2000	870
27	214	58	276	112	329	220	416	460	539	3000	980
28	216	60	280	114	331	225	419	470	543	4000	1090
29	218	62	282	116	333	230	423	480	547	5000	1200
30	220	64	284	118	335	235	426	490	551		
31	222	66	285	120	337	240	429	500	555		

In using Table 2 to determine Factor B, it may be necessary to interpolate a value for Factor B. For example, you determine the total number of *nutrient units* at a *livestock facility* to be 255 NU. Table 2 provides a value for Factor B for 250 NU and for 260 NU, but not for 255 NU. The value of Factor B for 250 NU is 435 and the value of Factor B for 260 NU is 441. To determine Factor B for 255 NU interpolate between the numbers 435 and 441. In this example, the value of Factor B for 255 NU is 438.

When interpolating a value for Factor B do not include more than two decimal places. Interpolated values with more than two decimal places should be 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 less than 5 NU in size, do not interpolate, but use a Factor B of 150. For operations greater than 5000 NU in size, contact OMAFRA staff to determine Factor B.

TABLE 3

FACTOR C - Orderly Expansion Factor

% Increase in Nutrient Units	Factor C	% Increase in Nutrient Units	Factor C	% Increase in Nutrient Units	Factor C
0% increase or decreases ('negative' increase)	0.5000	27%	0.6674	75%	0.8420
		28%	0.6736	80%	0.8484
1%	0.5062	29%	0.6798	85%	0.8547
2%	0.5124	30%	0.6860	90%	0.8610
3%	0.5186	31%	0.6922	95%	0.8674
4%	0.5248	32%	0.6984	100%	0.8737
5%	0.5310	33%	0.7046	105%	0.8800
6%	0.5372	34%	0.7108	110%	0.8864
7%	0.5434	35%	0.7170	115%	0.8927
8%	0.5496	36%	0.7232	120%	0.8990
9%	0.5558	37%	0.7294	125%	0.9054
10%	0.5620	38%	0.7356	130%	0.9117
11%	0.5682	39%	0.7418	135%	0.9180
12%	0.5744	40%	0.7480	140%	0.9244
13%	0.5806	41%	0.7542	145%	0.9307
14%	0.5868	42%	0.7604	150%	0.9371
15%	0.5930	43%	0.7666	160%	0.9497
16%	0.5992	44%	0.7728	170%	0.9624
17%	0.6054	45%	0.7790	180%	0.9751
18%	0.6116	46%	0.7852	190%	0.9877
19%	0.6178	47%	0.7914	200%	1.0000
20%	0.6240	48%	0.7976	300%	1.0280
21%	0.6302	49%	0.8038	400%	1.0560
22%	0.6364	50%	0.8100	500%	1.0840
23%	0.6426	55%	0.8167	600%	1.1120
24%	0.6488	60%	0.8230	700% increase, or more, or First Livestock Facility on lot of record.	1.1400
25%	0.6550	65%	0.8294		
26%	0.6612	70%	0.8357		

In using Table 3 to determine Factor C, it may be necessary to interpolate a value for Factor C. For example, you determine the percentage increase at a *livestock facility* to be 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.

When interpolating a value for Factor C do not include more than four decimal places. Interpolated values with more than four decimal places should be 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, i.e. 'negative' percentage increase, 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.

TABLE 4

FACTOR E - Encroaching Land Use Factor

Encroaching Land Use	Factor E
Type A Land Use	1.1
Type B Land Use	2.2

TABLE 5

PERMANENT MANURE OR MATERIAL STORAGE TYPES

Solid Manure: 18% dry matter, or more

Liquid Manure: Less than 18% dry matter

Digestate: Less than 18% dry matter

Storage Odour Potential	Solid or Liquid System	Inside or Outside Livestock Facility	Number referred to in Table 6 (view descriptions in section 3.0)	Description of permanent manure storages being sited by MDS II, or encroached upon through MDS I application
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, greater than or equal 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% to less than 30% dry matter, with covered liquid runoff storage (manure not dry enough to soak up precipitation, so a liquid runoff storage needed, but it has a permanent, tight 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.)
			V7	Liquid, (digestate), outside, no cover (all manure has been treated through anaerobic digestion, or a similar process that reduces odours)
	Solid	Outside	L1	Solid, outside, no cover, 18% to less than 30% dry matter, with uncovered liquid runoff storage (manure not dry enough to soak up precipitation, so a liquid Low runoff storage needed, but it is uncovered, producing more odour than in V4 above)
	Liquid	Outside	L2	Liquid, outside, with a permanent floating cover (tarps, foam panels, 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 above)

TABLE 6

MDS I / MDS II FOR PERMANENT MANURE

Building base Distance (m) for MDS II ('F') or Encroachment Base Distance for MDS I ('F')	Storage Separation Distances Based on Relative Odour Potential - Storage Based Distance, 'S' (m)			
	Very Low Odour Storages V1 to V7	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
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
1000	1000	1000	1000	1000
Greater than 1000 m	Storage Base Distance, 'S', should be the same as Building Base Distance or Encroachment Base Distance – 'F'			

4.0 MANURE OR MATERIAL STORAGE TYPES

Type	Description
V1	Solid, inside, bedded pack (manure accumulates under livestock over time)
V2	Solid, outside, covered (cover keeps off precipitation to prevent runoff)
V3	Solid, outside, no cover, greater than or equal 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% to less than 30% dry matter, with covered liquid runoff storage (manure not dry enough to soak up precipitation, so a liquid runoff storage needed, but it has a permanent, tight cover)
V5	Liquid, inside, underneath slatted floor (manure is stored under the animals in the barn)
V6	Liquid, outside, with a permanent, tight fitting cover (negative pressure tarp, concrete lid, inflatable dome, etc.)
V7	Liquid, (digestate), outside, no cover (all manure has been treated through anaerobic digestion, or a similar process that reduces odours)
L1	Solid, outside, no cover, 18% to less than 30% dry matter, with uncovered liquid runoff storage (manure not dry enough to soak up precipitation, so a liquid runoff storage needed, but it is uncovered, producing more odour than in V4 above)
L2	Liquid, outside, with a permanent floating cover (tarps, foam panels, etc.)
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)
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 above)