

DRINKING WATER SOURCE PROTECTION

Trent Conservation Coalition Source Protection Region



Drinking Water Threats 8 Southern Groundwater Sites

Trent Conservation Coalition (TCC)

Source Protection Region (SPR)

Source Protection Committee Meeting – February 16, 2010

Peterborough, Ontario



Expert People. Better Decisions.



Agenda



- Threats Methodology: Activities & Conditions
- 1 planned GW site (Fraserville) - Threats
- 7 Southern GW sites – Threats
- Questions

Prescribed Drinking Water Threats



1	The establishment, operation or maintenance of a waste disposal site within the meaning of Part V of the <i>Environmental Protection Act</i> .
2	The establishment, operation or maintenance of a system that collects, stores, transmits, treats or disposes of sewage.
3	The application of agricultural source material to land.
4	The storage of agricultural source material.
5	The management of agricultural source material.
6	The application of non-agricultural source material to land.
7	The handling and storage of non-agricultural source material.
8	The application of commercial fertilizer to land.
9	The handling and storage of commercial fertilizer.
10	The application of pesticide to land.
11	The handling and storage of pesticide.
12	The application of road salt.
13	The handling and storage of road salt.
14	The storage of snow.
15	The handling and storage of fuel.
16	The handling and storage of a dense non-aqueous phase liquid.
17	The handling and storage of an organic solvent.
18	The management of runoff that contains chemicals used in the de-icing of aircraft.
19*	An activity that takes water from an aquifer or a surface water body without returning the water taken to the same aquifer or surface water body.
20*	An activity that reduces the recharge of an aquifer.
21	The use of land as livestock grazing or pasturing land, an outdoor confinement area or a farm-animal yard. O. Reg. 385/08, s. 3.

Note: * indicates that threat is not water quality threat.

Tables of Threats



DRINKING WATER THREATS:	Reference Number	Under the following CIRCUMSTANCES:	Area Within Vulnerable Area	Threat is Significant in Areas with a Vulnerability Score of:	Threat is Moderate in Areas with a Vulnerability Score of:	Threat is Low in Areas with a Vulnerability Score of:		
Column 1		Column 2	Column 3	Column 4	Column 5	Column 6		
The handling and storage of fuel.	1358	1. The storage of liquid fuel in a tank at or above grade at a facility as defined in section 1 of O. Reg. 213/01 (Fuel Oil) made under the <i>Technical Standards and Safety Act, 2000</i> or a facility as defined in section 1 of O. Reg. 217/01 (Liquid Fuels) made under the <i>Technical Standards and Safety Act, 2000</i> , but not including a bulk plant. 2. The fuel is stored in a quantity that is more than 250, but not more than 2,500 litres. 3. A spill of the fuel may result in the presence of Petroleum Hydrocarbons F3 (>nC16-nC34) in groundwater or surface water.	IPZ-1, IPZ-2, IPZ-3, WHPA-E		9 - 10	6 - 8.1		
			WHPA-A, WHPA-B, WHPA-C, WHPA-C1, WHPA-D		10	6 - 8		
			HVA			6		
			SGRA			6		
			1359	1. The storage of liquid fuel in a tank below grade and at a facility as defined in section 1 of O. Reg. 213/01 (Fuel Oil) made under the <i>Technical Standards and Safety Act, 2000</i> or a facility as defined in section 1 of O. Reg. 217/01 (Liquid Fuels) made under the <i>Technical Standards and Safety Act, 2000</i> , but not including a bulk plant. 2. The fuel is stored in a quantity that is more than 250, but not more than 2,500 litres. 3. A spill of the fuel may result in the presence of BTEX in groundwater or surface water.	IPZ-1, IPZ-2, IPZ-3, WHPA-E		10	7 - 9
					WHPA-A, WHPA-B, WHPA-C, WHPA-C1, WHPA-D	10	8	6
	HVA					6		
	SGRA					6		
	1360	1. The storage of liquid fuel in a tank below grade and at a facility as defined in section 1 of O. Reg. 213/01 (Fuel Oil) made under the <i>Technical Standards and Safety Act, 2000</i> or a facility as defined in section 1 of O. Reg. 217/01 (Liquid Fuels) made under the <i>Technical Standards and Safety Act, 2000</i> , but not including a bulk plant. 2. The fuel is stored in a quantity that is more than 250, but not more than 2,500 litres. 3. A spill of the fuel may result in the presence of Petroleum Hydrocarbons F1 (nC6-nC10) in groundwater or surface water.			IPZ-1, IPZ-2, IPZ-3, WHPA-E			7.2 - 10
					WHPA-A, WHPA-B, WHPA-C, WHPA-C1, WHPA-D	10	8	6
			HVA			6		
			SGRA			6		
1361			1. The storage of liquid fuel in a tank below grade and at a facility as defined in section 1 of O. Reg. 213/01 (Fuel Oil) made under the <i>Technical Standards and Safety Act, 2000</i> or a facility as defined in section 1 of O. Reg. 217/01 (Liquid Fuels) made under the <i>Technical Standards and Safety Act, 2000</i> , but not including a bulk plant. 2. The fuel is stored in a quantity that is more than 250, but not more than 2,500 litres. 3. A spill of the fuel may result in the presence of Petroleum Hydrocarbons F4 (>nC34) in groundwater or surface water.	IPZ-1, IPZ-2, IPZ-3, WHPA-E			8 - 10	
				WHPA-A, WHPA-B, WHPA-C, WHPA-C1, WHPA-D		8 - 10	6	
	HVA				6			
	SGRA				6			

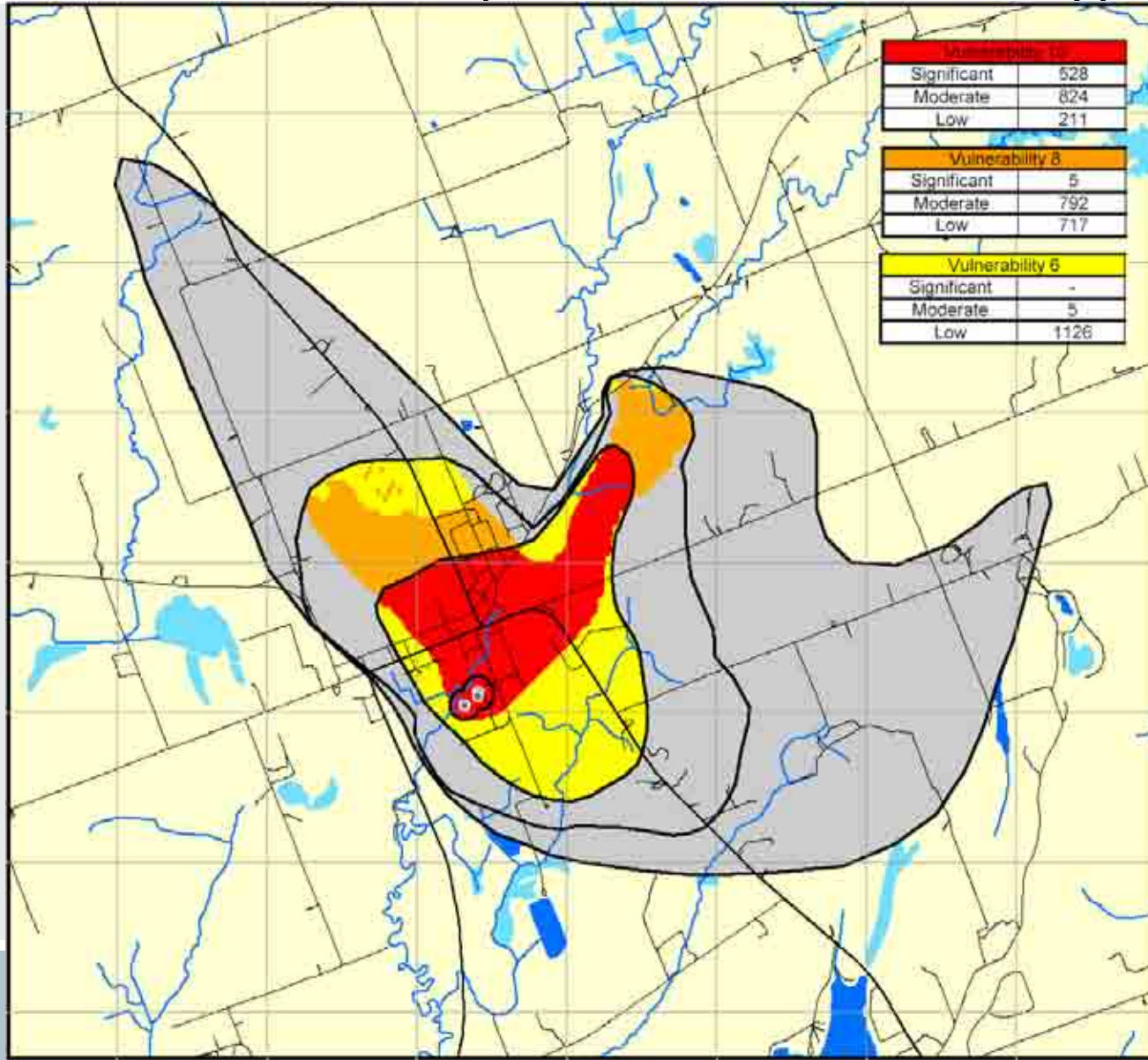
Threats Methodology – 9 Steps

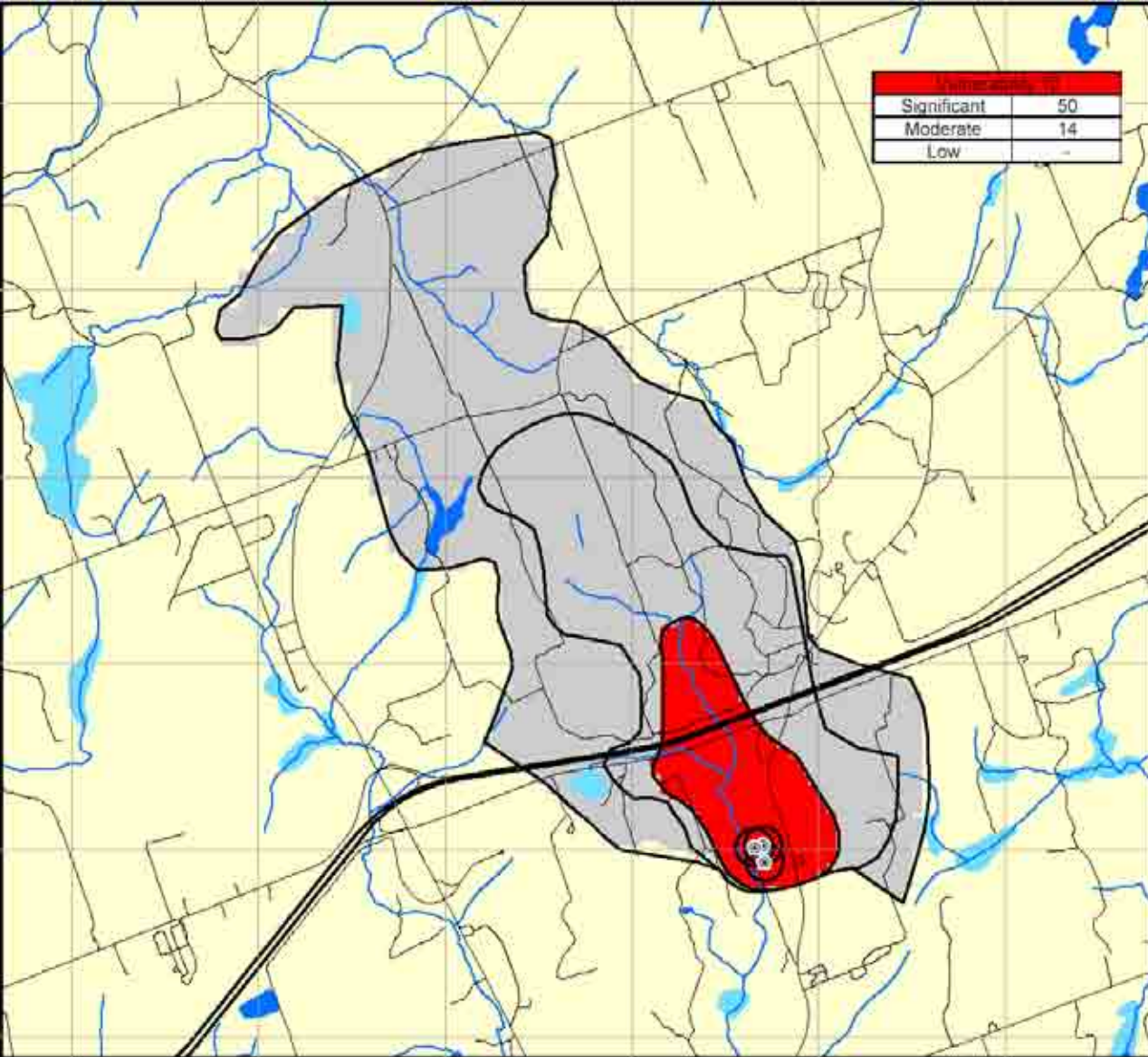


- Step 1: Review Vulnerable Area Delineation
 - Including mapping of areas for specific types of threats:
 - Chemicals
 - Pathogens
 - DNAPLs

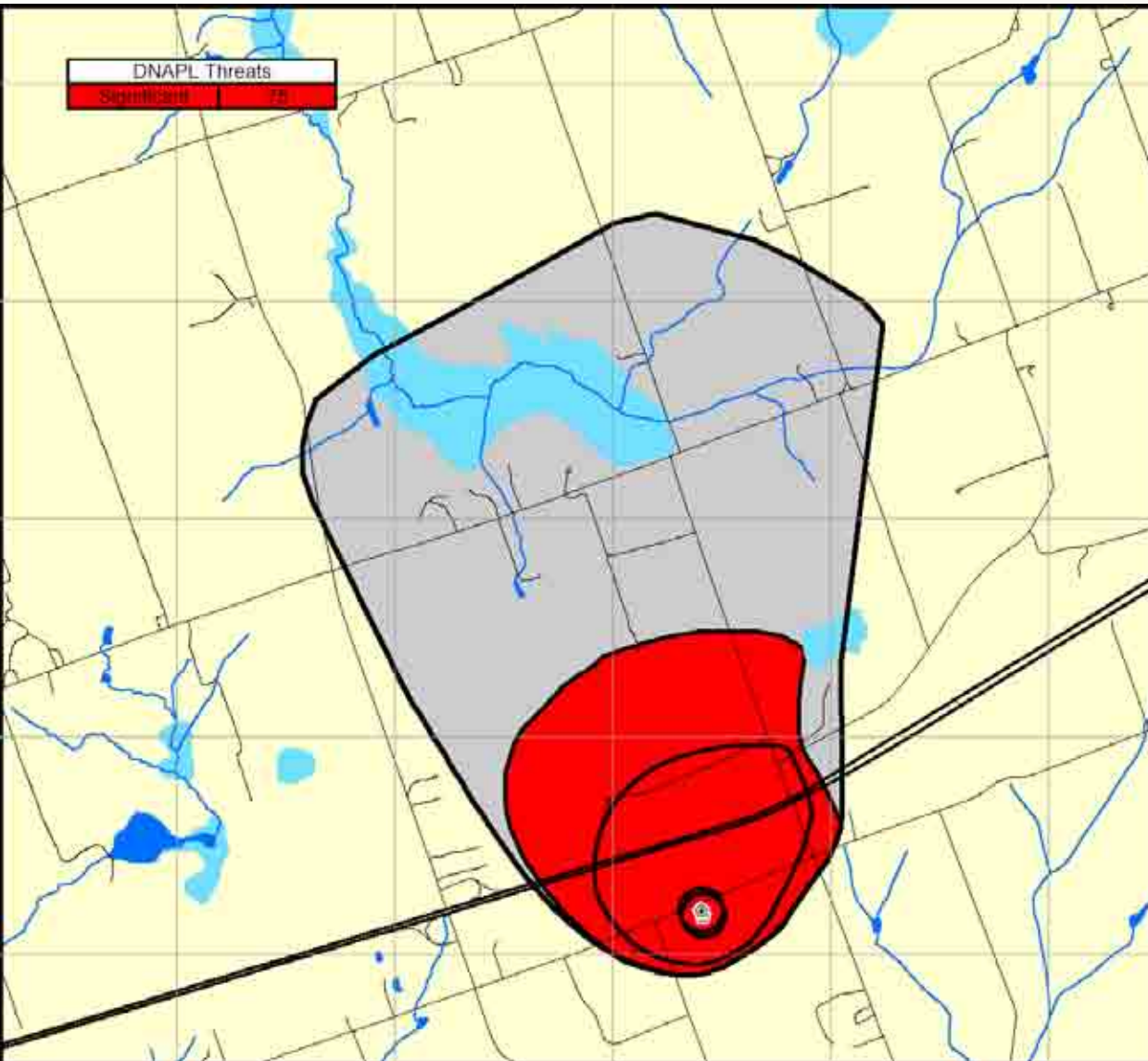


Step 1: Review Potential Threat Zones for Different Parameters – Chemicals (based on vulnerability)





Step 1: Review Potential Threat Zones for Different Parameters – Pathogens
(based on vulnerability in WHPA-A & B only)

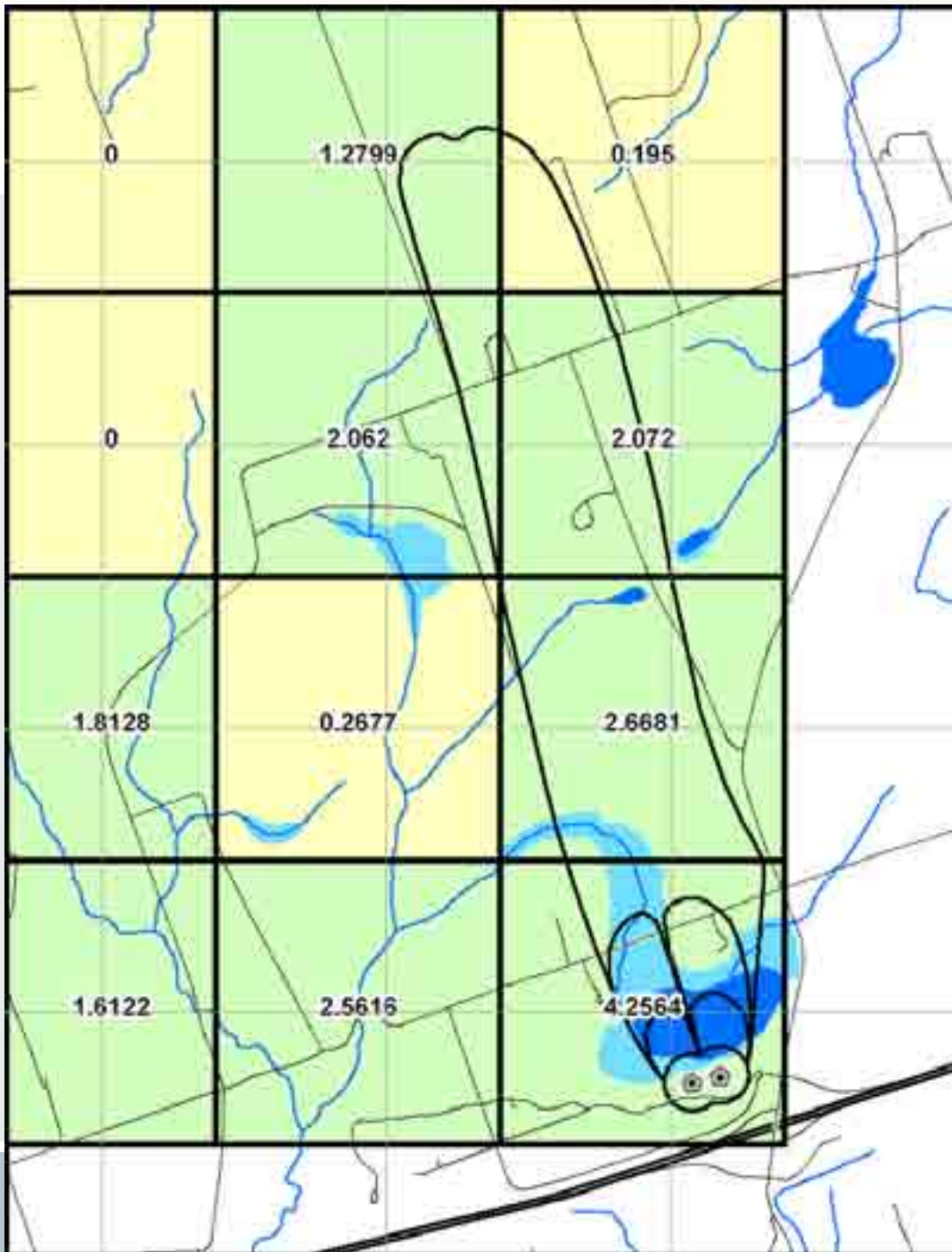


**Step 1: Review
Potential Threat
Zones for
Different
Parameters –
DNAPLs (based
on zone and
vulnerability
(D only))**

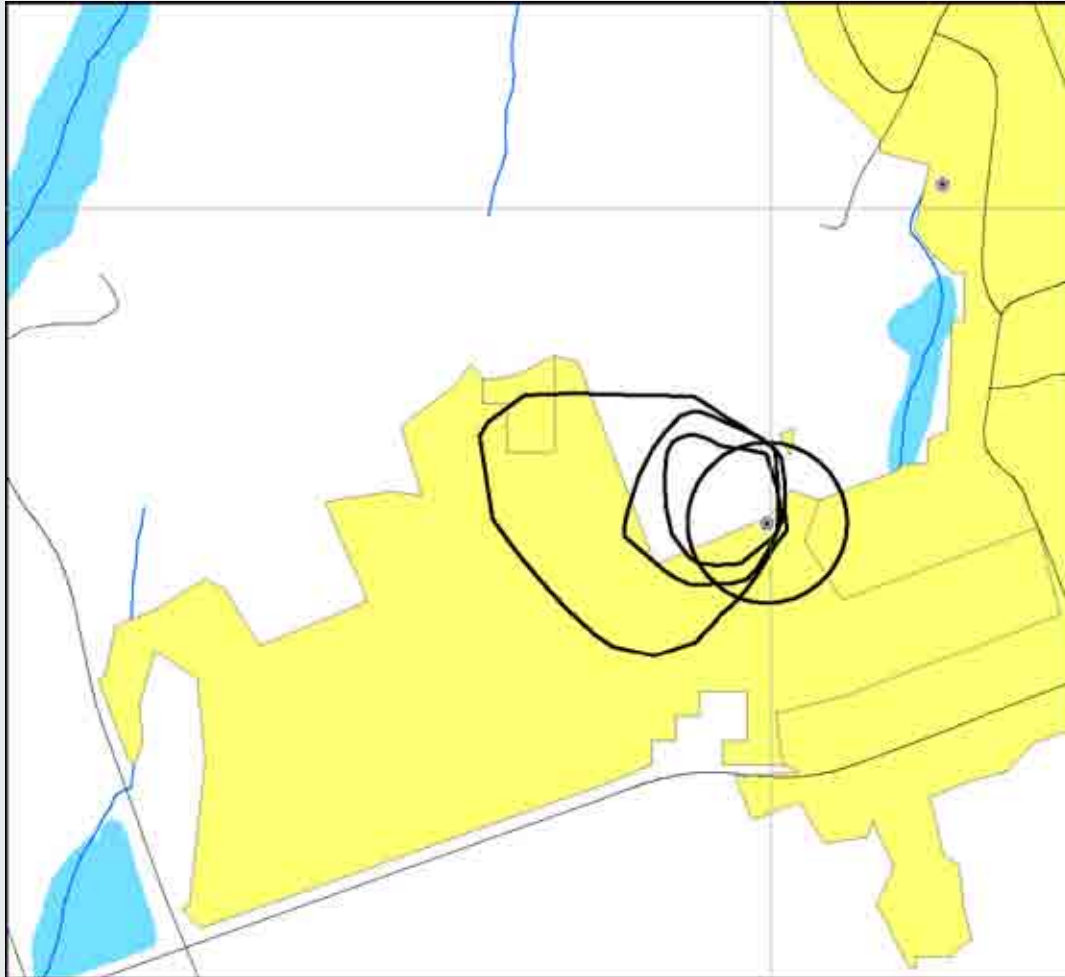
Threats Methodology – 9 Steps



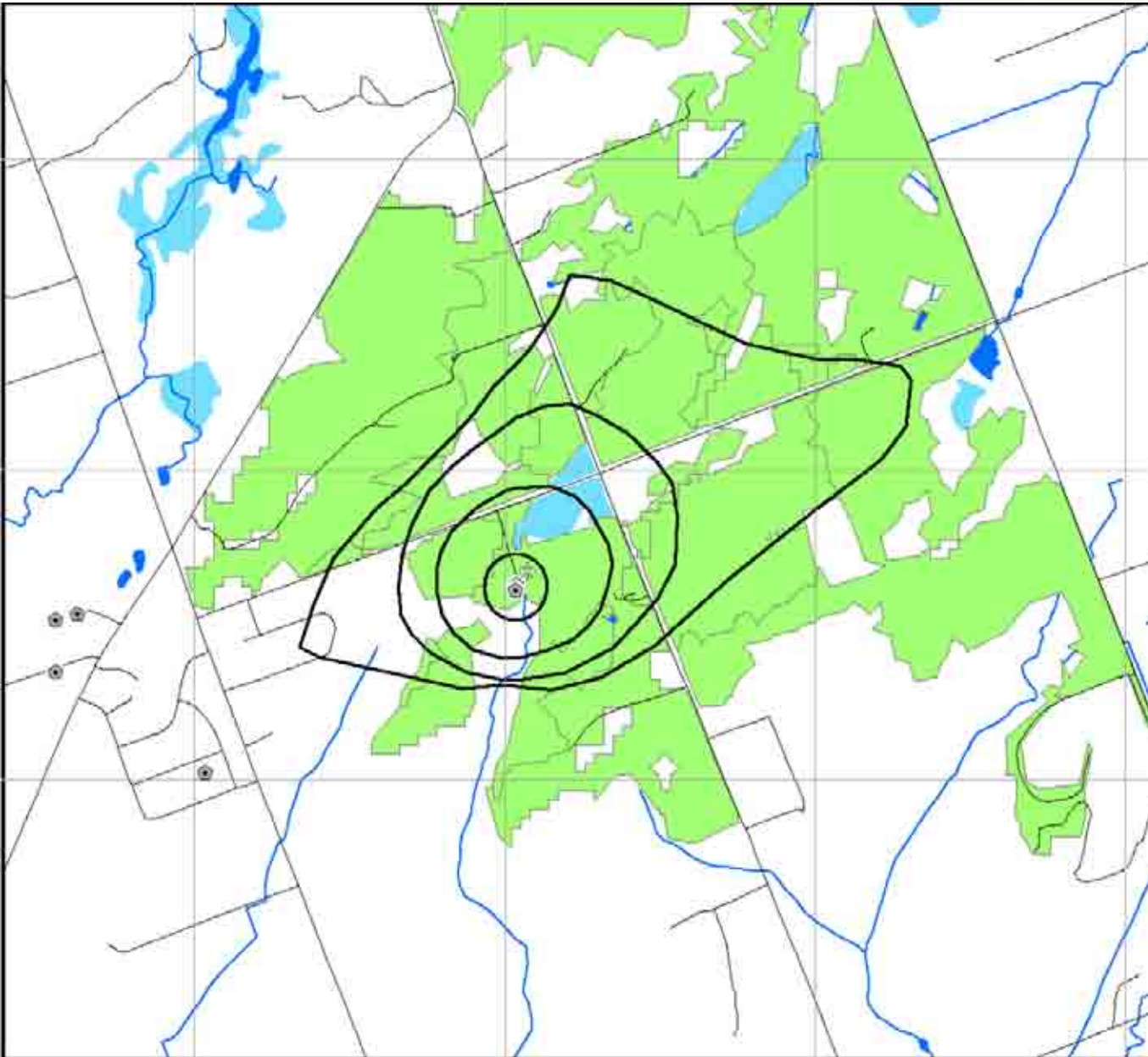
- Step 2: Review background information:
 - Morrison Reports (interviews, EcoLog ERIS 2002)
 - XCG updated EcoLog ERIS (2006/2007)
 - MOE Datahound files
 - Mapping from Watershed Characterization
 - Managed Lands
 - Agricultural Density
 - Imperviousness



Step 2: Review Additional Background Mapping: % Impervious Surface



**Step 2:
Review
Additional
Background
Mapping: %
Managed
Lands**



**Step 2:
Review
Additional
Background
Mapping:
Agricultural
Density**

Threats Methodology – 9 Steps



- Step 3: Conduct field reconnaissance survey
- Step 4: Overlay parcel fabric
- Step 5: Evaluate POTENTIALLY Significant Threats
- Step 6: Enumerate Potentially Significant Threats
- Step 7: Send out letters to land owners of potentially significant parcels
- Step 8: Conduct interviews/site visits to determine circumstances on site
- Step 9: Enumerate Significant Threats

Provincial Threat Categories with Circumstances That Could Pose a Significant Threat in a Wellhead Protection Area

		Wellhead Protection Area Vulnerability Scoring									
		Contaminant released:									
		Chemical					Pathogen				
Prescribed Drinking Water Threats (Ontario Regulation 287/07)		10	8	6	4	2	10	8	6	4	2
1	The establishment, operation or maintenance of a waste disposal site within the meaning of Part V of the <i>Environmental Protection Act</i> .	✓	✓				✓				
2	The establishment, operation or maintenance of a system that collects, stores, transmits, treats or disposes of sewage.	✓	✓				✓				
3	The application of agricultural source material to land.	✓					✓				
4	The storage of agricultural source material.	✓					✓				
5	The management of agricultural source material.										
6	The application of non-agricultural source material to land.	✓					✓				
7	The handling and storage of non-agricultural source material.	✓					✓				
8	The application of commercial fertilizer to land.	✓									
9	The handling and storage of commercial fertilizer.	✓									
10	The application of pesticide to land.	✓									
11	The handling and storage of pesticide.	✓									
12	The application of road salt.	✓									
13	The handling and storage of road salt.	✓									
14	The storage of snow.	✓									
15	The handling and storage of fuel.	✓									
16	The handling and storage of a dense non-aqueous phase liquid (DNAPLs)*.	Anywhere in 5 year time of travel									
17	The handling and storage of an organic solvent.	✓									
18	The management of runoff that contains chemicals used in the de-icing of aircraft.	✓									
19	An activity that takes water from an aquifer or a surface water body without returning the water taken to the same aquifer or surface water body.**										
20	An activity that reduces the recharge of an aquifer.**										
21	The use of land as livestock grazing or pasturing land, an outdoor confinement area or a farm-animal yard.	✓					✓				

*DNAPLs are chemicals that are heavy and sink in water (e.g. trichloroethylene)

**Water quantity threats will be evaluated as a part of the Water Budget studies

What is a Condition?



- Technical Rules 138-140
 - Condition is contamination as a result of past activities
 - Must be documented – based on O.Reg. 153/04
 - Hazard Rating given to condition based on proximity to well/intake, off-site impacts (10 or 6)
 - Risk Score = Hazard Score X Vulnerability Score
 - If Risk Score is > 80 – Condition is significant

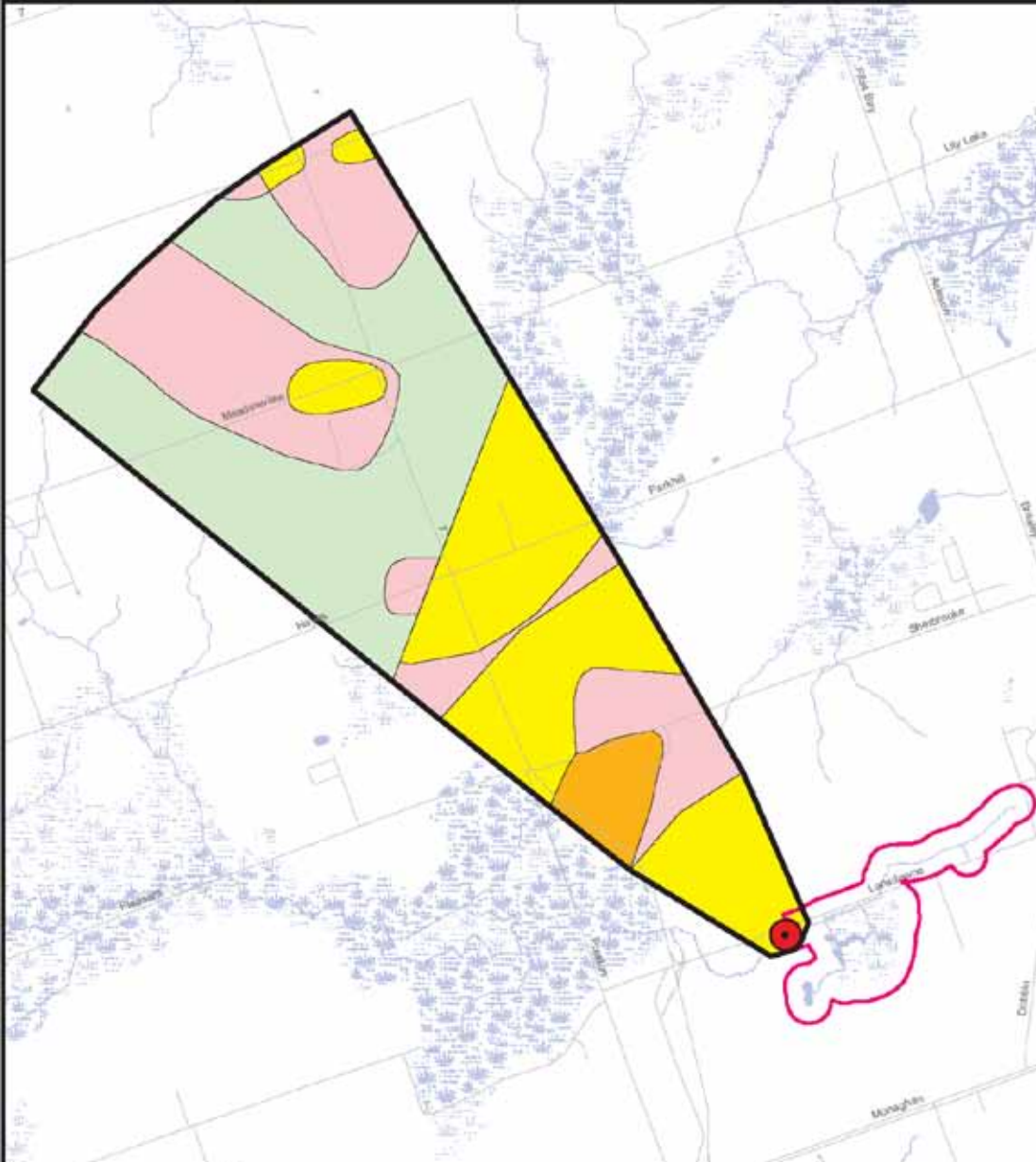
Condition Methodology



- Step 1: Review available background data
- Step 2: Calculate risk score
- Step 3: Enumerate significant threats



Step 1: Review Fraserville Vulnerability Scores



Fraserville
Vulnerability
Scores

WHPA	Vulnerability Scores 2
Well Site	4
Roads	6
Waterbodies	8
Wetland Areas	10
Streams	7.2

0 400 800
Meters



Step 2: Review Background Information & Site Visits

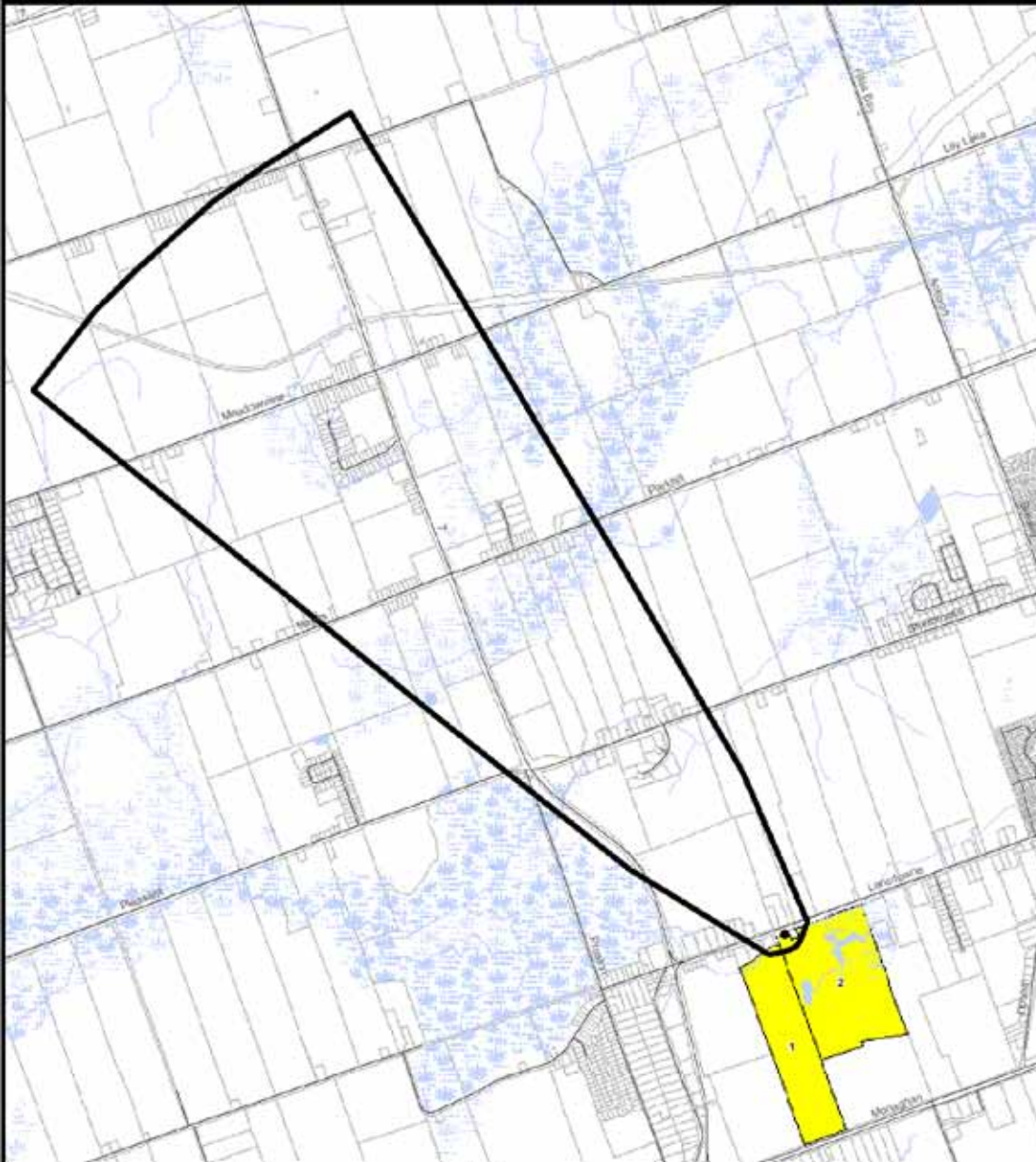


- Previous MEL work (threats database)
- XCG EcoLog ERIS report: Sept 2009
- Review Additional Mapping: Managed Lands, Agricultural Density, Imperviousness
- MOE Datahound Information
- Field Reconnaissance:
 - August 2007
 - August 2009
 - February 2010



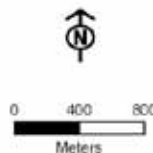
Steps 4 & 5:

Overlay Parcel Fabric & Evaluate Potentially Significant Threats



Fraserville Threats

- WPA
- Roads
- Waterbodies
- Wetland Areas
- wetlands
- Streams
- Final Parcel Threats
- Parcels





Step 6: Enumerate Potentially Significant Threats

Prescribed Drinking Water Threat (PDWT)*	Score to Trigger a Significant Threat	
	Vulnerability Score = 10	
	Affected Parcels**	No. of PDWT
1. The establishment, operation or maintenance of a waste disposal site within the meaning of Part V of the <i>Environmental Protection Act</i> .	1	1
2. The establishment, operation or maintenance of a system that collects, stores, transmits, treats or disposes of sewage.	3	3
3. The application of agricultural source material to land.	1	1
6. The application of non-agricultural source material to land.	1	1
9. The handling and storage of commercial fertilizer.	1	1
10. The application of pesticide to land.	1	1
11. The handling and storage of pesticide.	1	1
15. The handling and storage of fuel.	4	4
17. The handling and storage of an organic solvent.	1	1
21. The use of land as livestock grazing or pasturing land, an outdoor confinement area or a farm-animal yard. O. Reg. 385/08, s. 3.	1	1
Total Number of Affected Parcels	5	15

Steps 7 & 8: Send out letters & Additional Information Gathering



- 2 parcels originally identified
- Letters sent out to 2 parcels (Nov 5 2009)
- Was not able to contact one land owner
- Additional windshield survey for heating oil tanks in residential properties in WHPA-A (vulnerability 10)
- XCG confirmed that there was no municipal servicing for water/sewer in area.
- XCG added 3 more parcels for private septic systems

Step 9: Enumerate Significant Threats



Prescribed Drinking Water Threat (PDWT)*	Score to Trigger a Significant Threat	
	Vulnerability Score = 10	
	Affected Parcels**	No. of PDWT
2. The establishment, operation or maintenance of a system that collects, stores, transmits, treats or disposes of sewage.	3(3)	3(3)
3. The application of agricultural source material to land.	1(1)	1(1)
21. The use of land as livestock grazing or pasturing land, an outdoor confinement area or a farm-animal yard. O. Reg. 385/08, s. 3.	1(1)	1(1)
Total Number of Affected Parcels	4	5

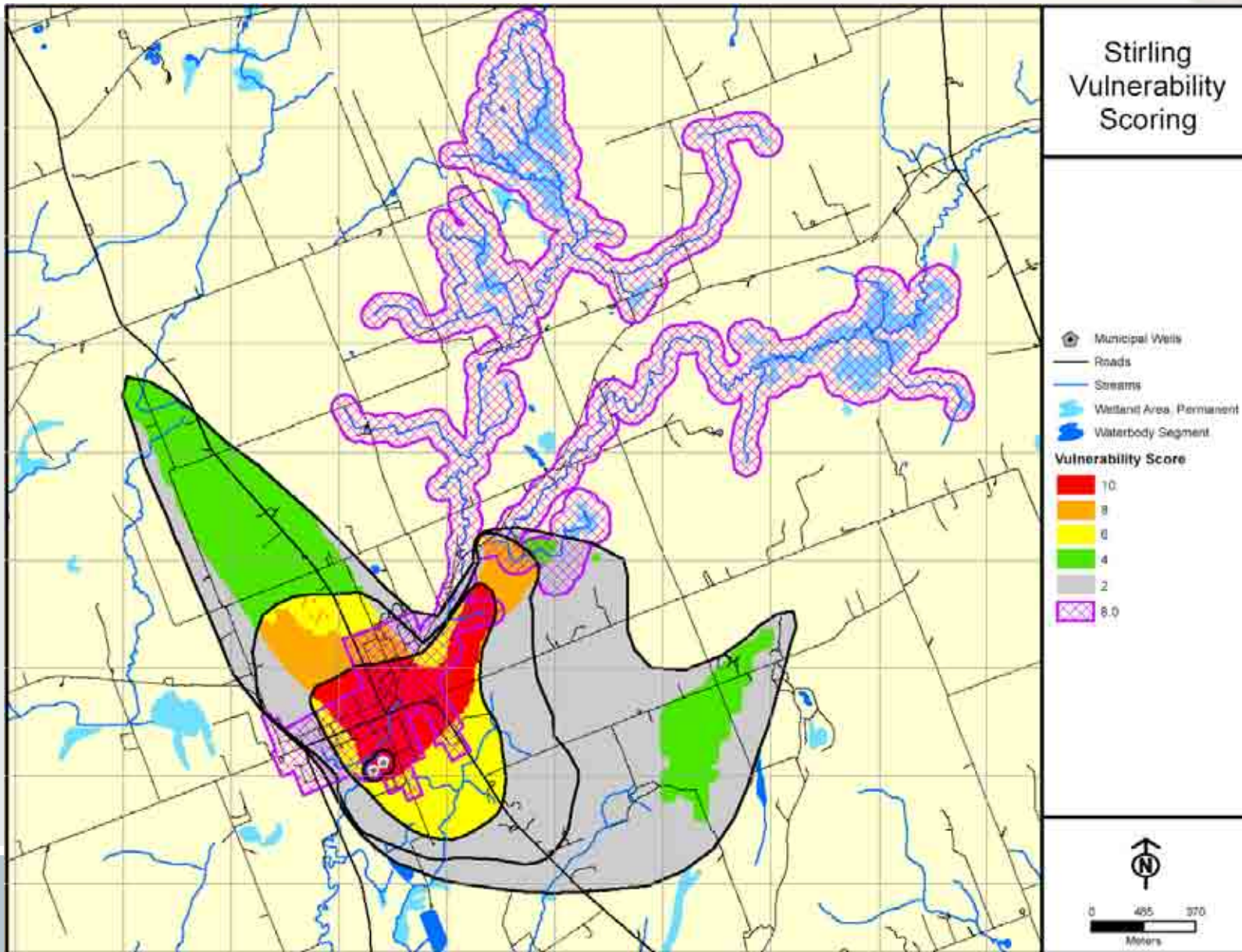


Summary of Significant Threats

- Frasersville

- 1 parcel with application of ASM and livestock grazing / pasturing (pathogenic)
- 3 parcels with private septic systems (pathogenic)
- No Conditions

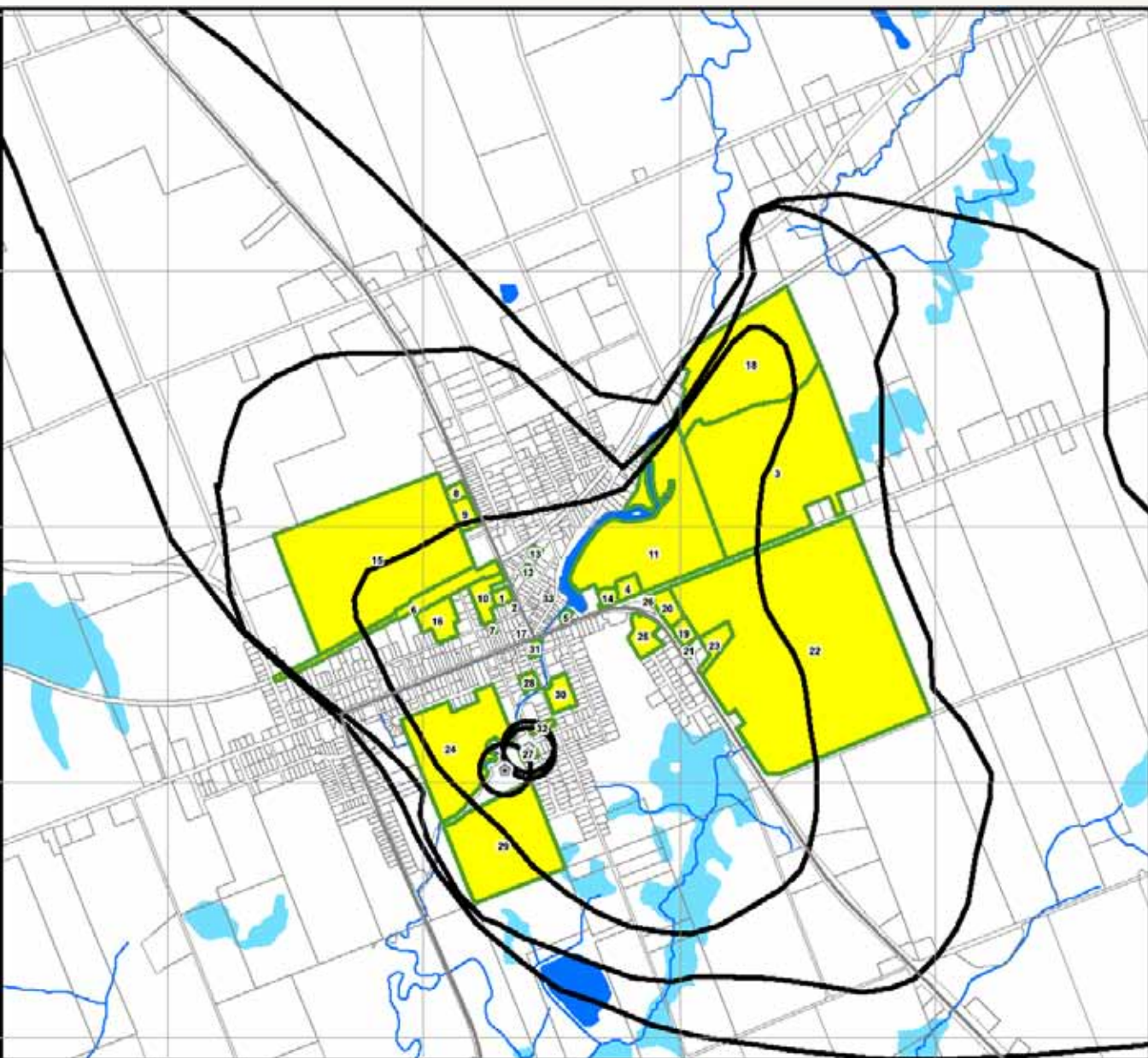
Step 1: Review Stirling Vulnerability Scores



Step 2 & 3: Review Background Information & Windshield Survey



- Morrison Report: April 2004
- Included EcoLog ERIS report: Feb 2003
- XCG EcoLog ERIS report: March 2008
- Review Additional Mapping: Managed Lands, Agricultural Density, Imperviousness
- MOE Datahound files
- Field Reconnaissance:
 - August 2007
 - May 2008
 - February 2010



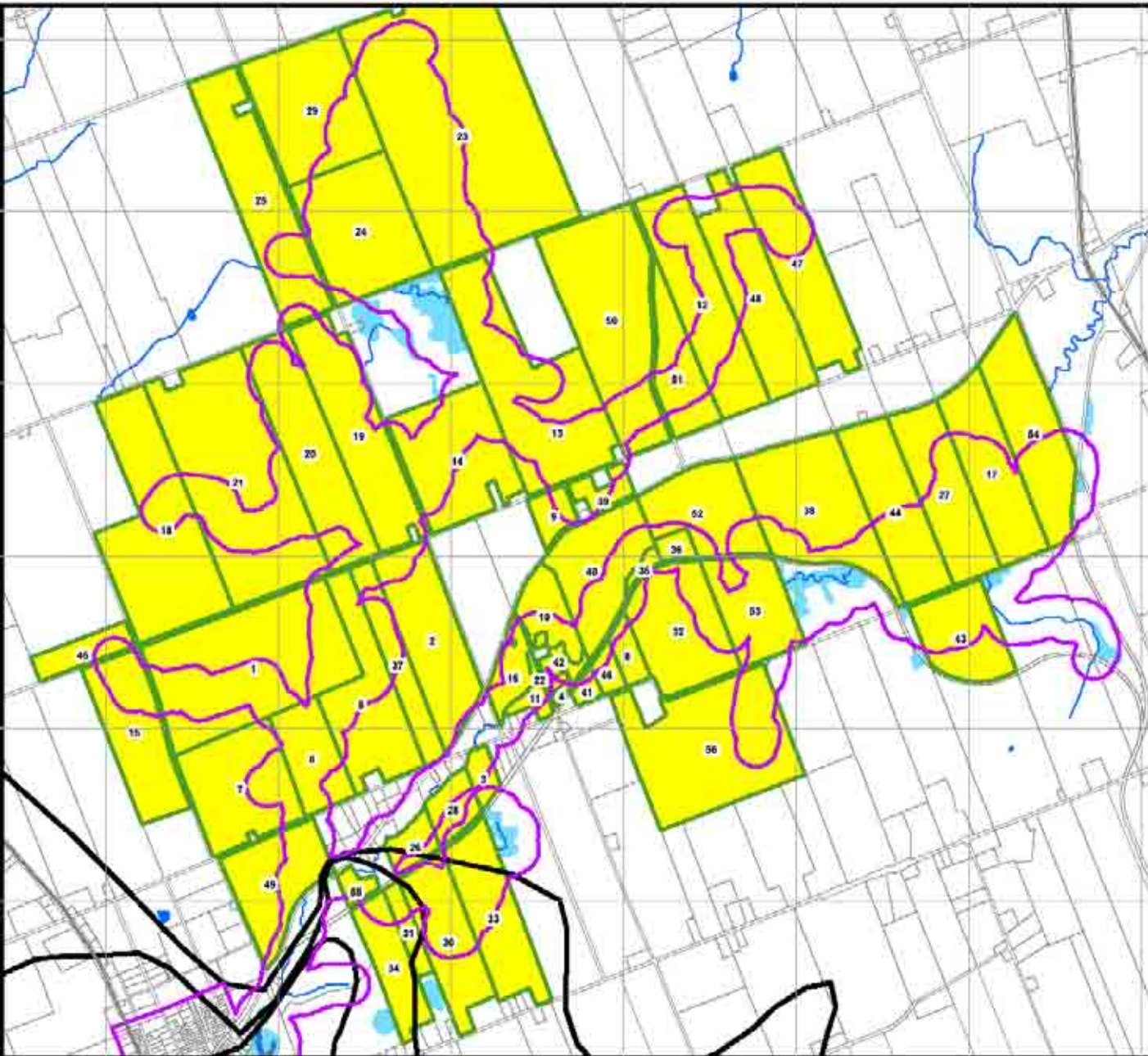
Steps 4 & 5:

**Overlay Parcel
Fabric &
Evaluate
Potentially
Significant
Threats**



Steps 4 & 5:

**Overlay
Parcel Fabric
& Evaluate
Potentially
Significant
Threats**





Step 6: Enumerate Potentially Significant Threats

Prescribed Drinking Water Threat (PDWT)*	Score to Trigger a Significant Threat			
	Vulnerability Score = 10		Vulnerability Score = 8	
	Affected Parcels**	No. of PDWT	Affected Parcels**	No. of PDWT
1. The establishment, operation or maintenance of a waste disposal site within the meaning of Part V of the <i>Environmental Protection Act</i> .	24	24	1	1
2. The establishment, operation or maintenance of a system that collects, stores, transmits, treats or disposes of sewage.	3	3	-	-
3. The application of agricultural source material to land.	6	6	56	56
4. The storage of agricultural source material.	1	1	35	35
6. The application of non-agricultural source material to land.	6	6	56	56
7. The storage of non-agricultural source material.	1	1	56	35
9. The handling and storage of commercial fertilizer.	5	5	-	-
10. The application of pesticide to land.	11	11	-	-
11. The handling and storage of pesticide.	5	5	-	-
14. The storage of snow.	1	1	-	-
15. The handling and storage of fuel.	28	28	-	-
16. The handling and storage of a dense non-aqueous phase liquid.	2	2	1	1
17. The handling and storage of an organic solvent.	23	23	-	-
21. The use of land as livestock grazing or pasturing land, an outdoor confinement area or a farm-animal yard. O. Reg. 385/08, s. 3.	6	6	56	56
Total Number of Affected Parcels	34	122	57	241

Steps 7 & 8: Send out letters & Additional Information Gathering



- 91 parcels originally identified
- Letters sent out to land owners (Oct 2009 & Dec 2009)
- No listings for 5 properties, 1 refusal, 32 assumptions
- XCG returned to Stirling in Feb 2010 to inventory below grade heating oil tanks.
- Added 80 parcels for below grade H.O.T.

Step 9: Enumerate Significant Threats



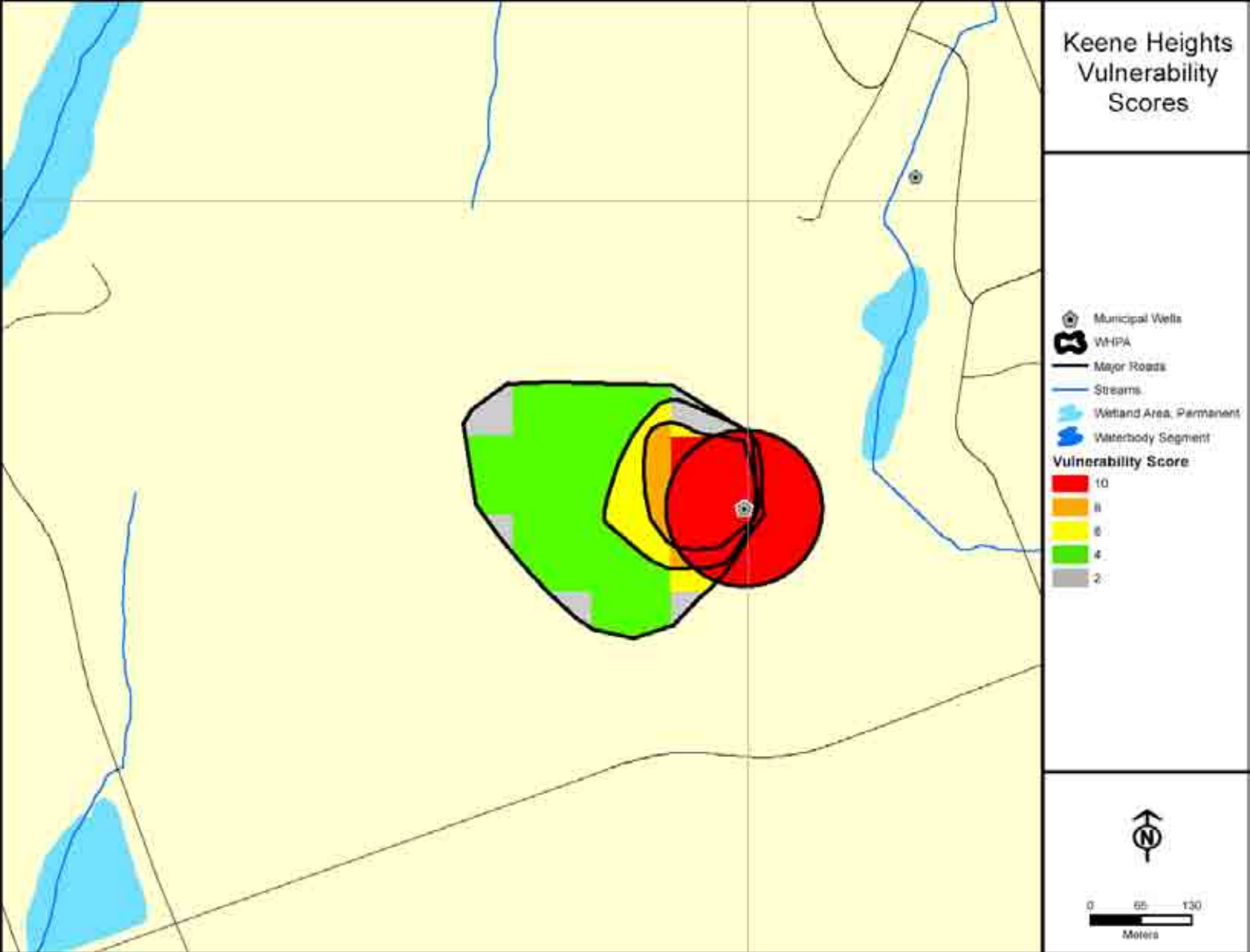
Prescribed Drinking Water Threat (PDWT)*	Score to Trigger a Significant Threat			
	Vulnerability Score = 10		Vulnerability Score = 8	
	Affected Parcels**	No. of PDWT	Affected Parcels**	No. of PDWT
1. The establishment, operation or maintenance of a waste disposal site within the meaning of Part V of the <i>Environmental Protection Act</i> .	7(6)	7(6)	-	-
2. The establishment, operation or maintenance of a system that collects, stores, transmits, treats or disposes of sewage.	1	1	-	-
3. The application of agricultural source material to land.	3(3)	3(3)	41(32)	41(32)
4. The storage of agricultural source material.	1(1)	1(1)	7(5)	7(5)
10. The application of pesticide to land.	4(3)	4(3)	-	-
15. The handling and storage of fuel.	88(39)	88(39)	-	-
16. The handling and storage of a dense non-aqueous phase liquid.	1(1)	1(1)	-	-
17. The handling and storage of an organic solvent.	2(2)	2(2)	-	-
21. The use of land as livestock grazing or pasturing land, an outdoor confinement area or a farm-animal yard. O. Reg. 385/08, s. 3.	3(3)	3(3)	38(30)	38(30)
Total Number of Affected Parcels	94	110	46	86

Summary of Significant Threats – Stirling



- 1 parcel with storage of diesel fuel below grade
- 1 parcel with handling and storage of waste oil below grade
- 1 parcel with handling and storage of fuel, storage of hazardous waste, organic solvents and DNAPLs
- 1 parcel with storage of hazardous waste and organic solvents
- 81 parcels with heating oil storage below grade
- 3 parcels with fuel handling and storage and storage of hazardous waste
- 1 parcel with application of pesticides
- 1 parcel with storage of hazardous waste and application of pesticides
- 1 parcel with storage of hazardous waste, application and storage of ASM, application of pesticides, handling and storage of fuel and livestock grazing/pasturing lands or an outdoor confinement area or farm animal-yard
- 26 parcels with application of ASM and livestock grazing/pasturing lands or an outdoor confinement area or farm animal-yard
- 2 parcels with application of ASM and pesticides and livestock grazing/pasturing lands or an outdoor confinement area or farm animal-yard
- 7 parcels with application and storage of ASM and livestock grazing/pasturing lands or an outdoor confinement area or farm animal-yard
- 8 parcels with application of ASM
- 5 parcels with livestock grazing/pasturing lands or an outdoor confinement area or farm animal-yard
- 1 combined parcel (roadways) with sanitary sewer lines for pathogenic threats
- No Conditions

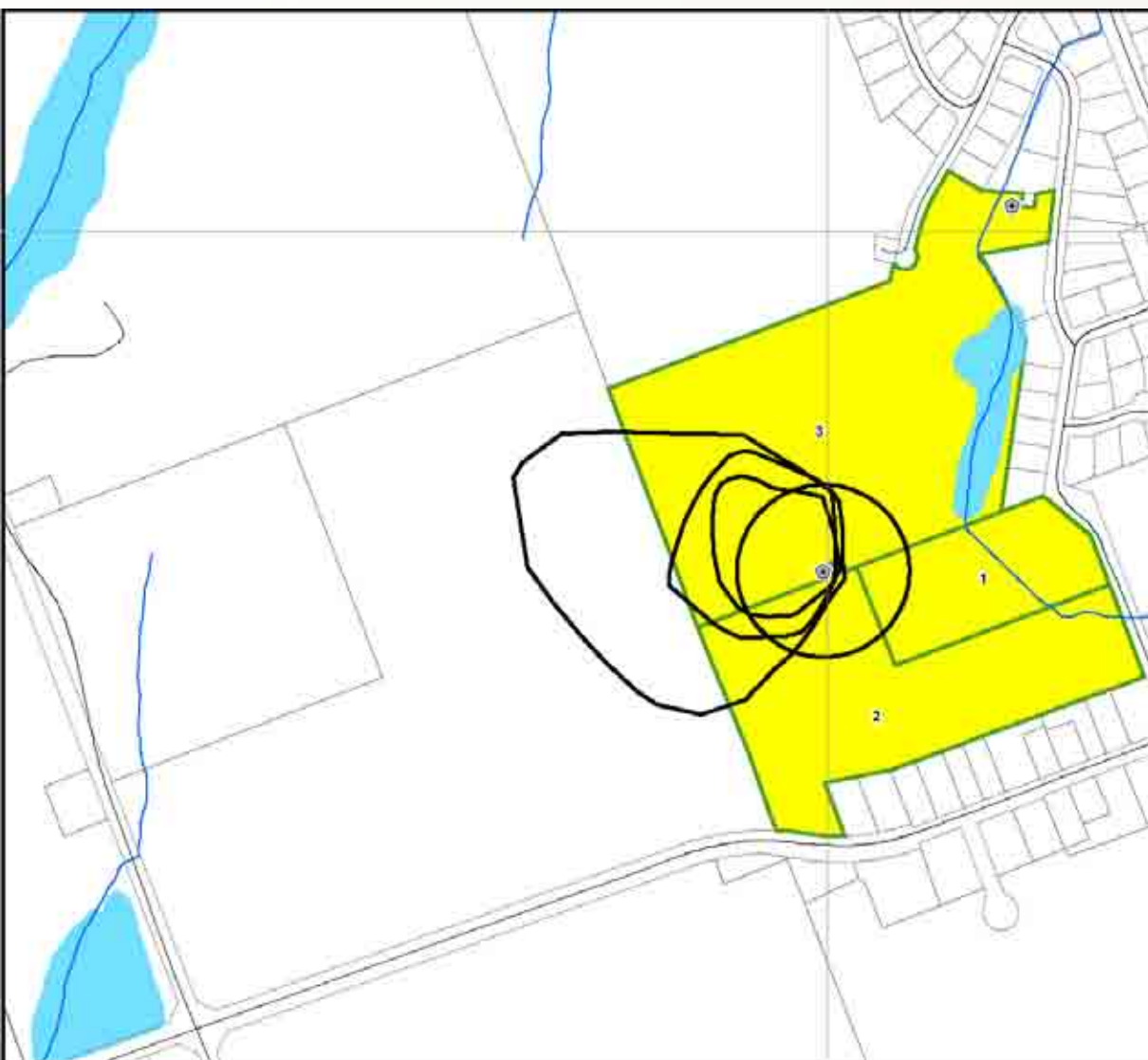
Step 1: Review Keene Heights Vulnerability Scores



Step 2 & 3: Review Background Information & Windshield Survey



- Morrison Report: April 2004
- Included EcoLog ERIS report: Feb 2003
- XCG EcoLog ERIS report: March 2008
- Review Additional Mapping: Managed Lands, Agricultural Density, Imperviousness
- MOE Datahound files
- Field Reconnaissance:
 - August 2007
 - April 2008



Steps 4 & 5:

**Overlay Parcel
Fabric &
Evaluate
Potentially
Significant
Threats**



Step 6: Enumerate Potentially Significant Threats

Prescribed Drinking Water Threat (PDWT)*	Score to Trigger a Significant Threat	
	Vulnerability Score = 10	
	Affected Parcels**	No. of PDWT
1. The establishment, operation or maintenance of a waste disposal site within the meaning of Part V of the Environmental Protection Act.	1	1
2. The establishment, operation or maintenance of a system that collects, stores, transmits, treats or disposes of sewage.	1	1
3. The application of agricultural source material to land.	2	2
6. The application of non-agricultural source material to land.	2	2
10. The application of pesticide to land.	3	3
15. The handling and storage of fuel.	1	1
17. The handling and storage of an organic solvent.	1	1
21. The use of land as livestock grazing or pasturing land, an outdoor confinement area or a farm-animal yard. O. Reg. 385, s. 3.	2	2
Total Number of Affected Parcels	3	13

Steps 7 & 8: Send out letters & Additional Information Gathering



- 3 parcels identified
- Letters sent out to land owners (Oct 2009)
- All land owners were contacted
- No site visits required

Step 9: Enumerate Significant Threats



Prescribed Drinking Water Threat (PDWT)*	Score to Trigger a Significant Threat	
	Vulnerability Score = 10	
	Affected Parcels**	No. of PDWT
2. The establishment, operation or maintenance of a system that collects, stores, transmits, treats or disposes of sewage.	1	1
Total Number of Affected Parcels	1	1

Summary of Significant Threats

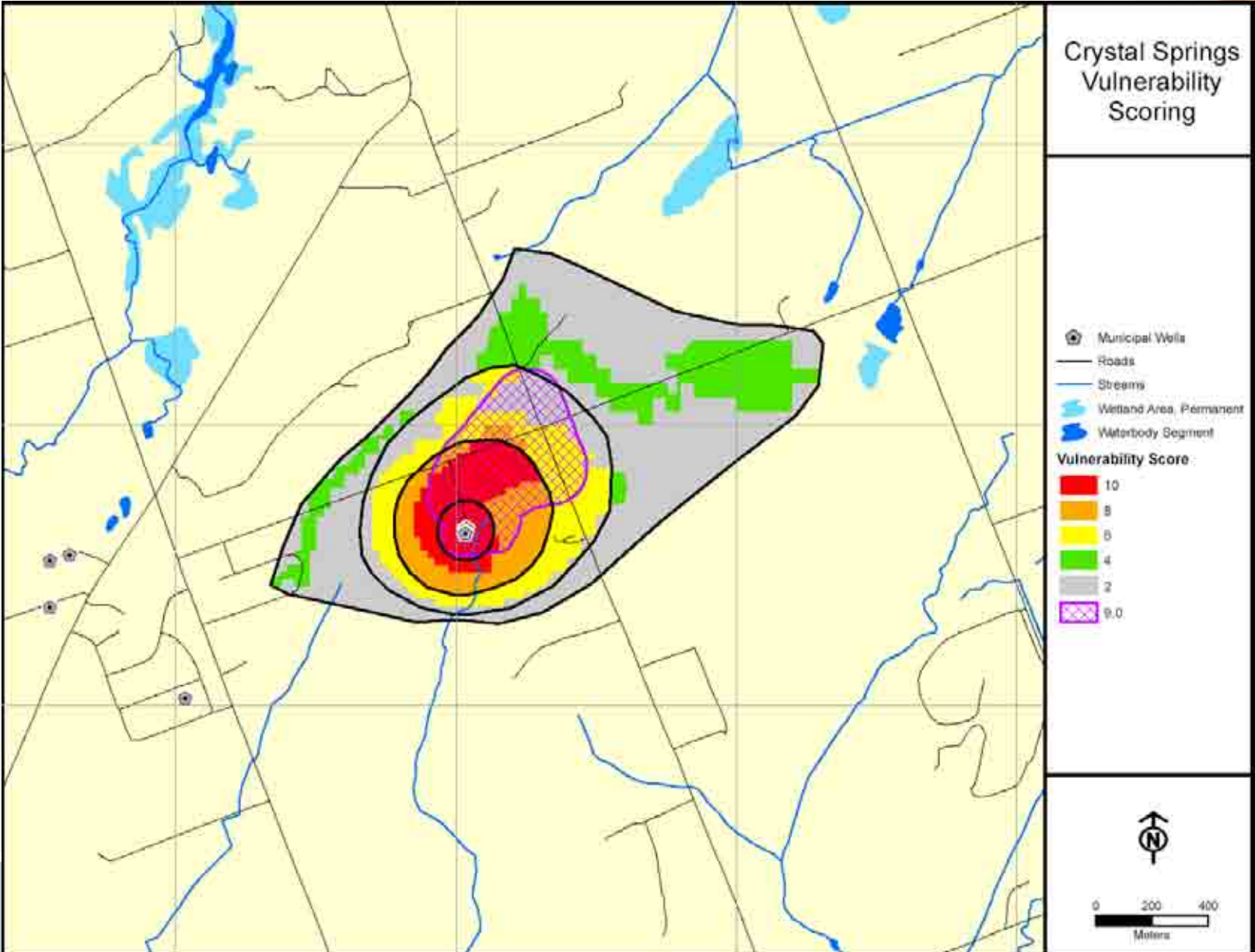
– Keene Heights



- 1 parcel with a large septic system.
- No Conditions



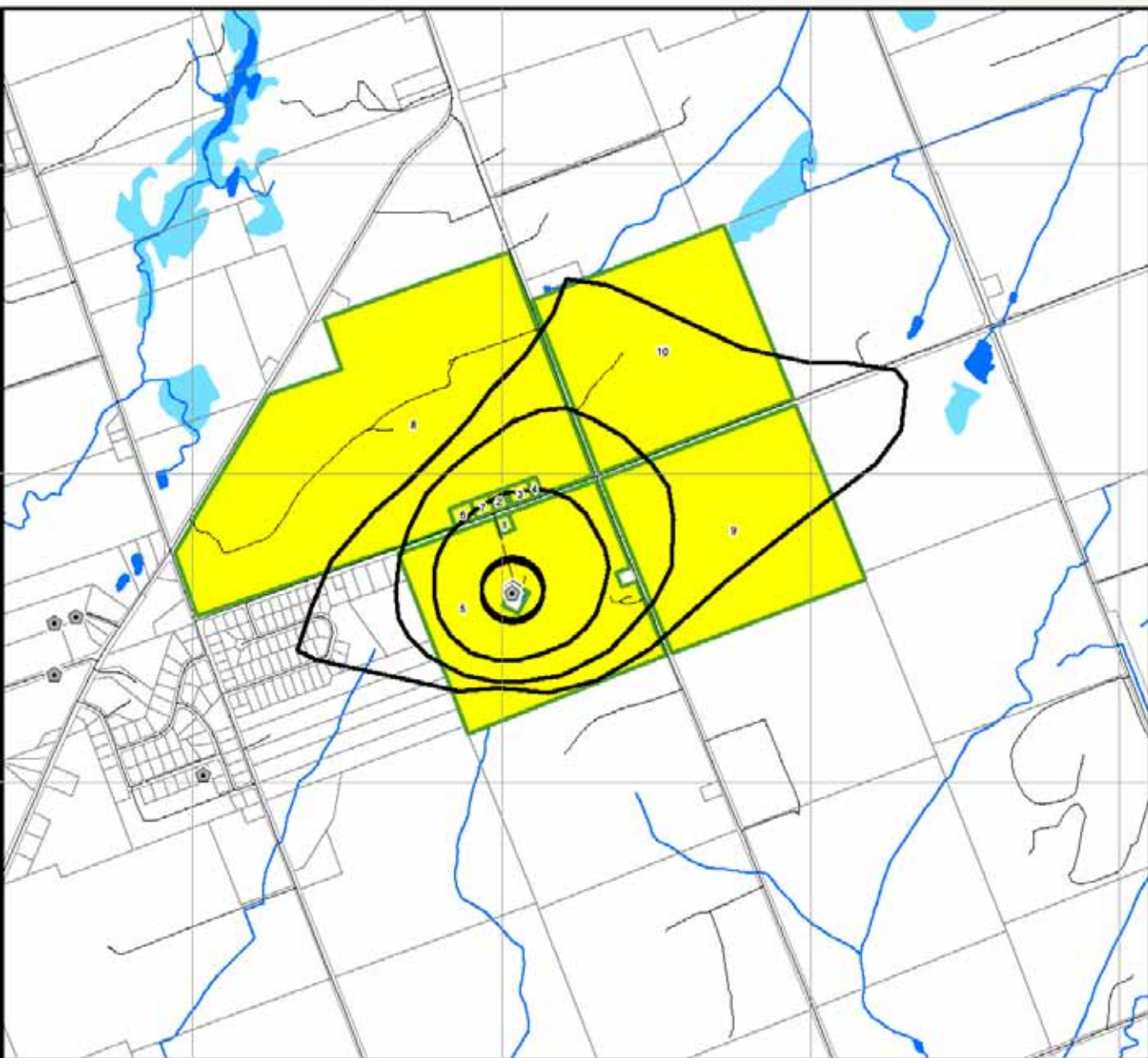
Step 1: Review Crystal Springs Vulnerability Scores



Step 2 & 3: Review Background Information & Windshield Survey



- Morrison Report: April 2004
- Included EcoLog ERIS report: Feb 2003
- XCG EcoLog ERIS report: August 2007
- Review Additional Mapping: Managed Lands, Agricultural Density, Imperviousness
- MOE Datahound files
- Field Reconnaissance:
 - August 2007
 - April 2008



Steps 4 & 5:

**Overlay Parcel
Fabric &
Evaluate
Potentially
Significant
Threats**



Step 6: Enumerate Potentially Significant Threats

Prescribed Drinking Water Threat (PDWT)*	Score to Trigger a Significant Threat			
	Vulnerability Score = 10		Vulnerability Score = 9	
	Affected Parcels	No. of PDWT	Affected Parcels	No. of PDWT
1. The establishment, operation or maintenance of a waste disposal site within the meaning of Part V of the <i>Environmental Protection Act</i> .	1	1	2	2
2. The establishment, operation or maintenance of a system that collects, stores, transmits, treats or disposes of sewage.	5	5	-	-
3. The application of agricultural source material to land.	1	1	3	3
4. The storage of agricultural source material to land.	1	1	2	2
6. The application of non-agricultural source material to land.	1	1	3	3
7. The storage of non-agricultural source material to land.	1	1	2	2
9. The handling and storage of commercial fertilizer.	1	1	-	-
10. The application of pesticide to land.	1	1	3	3
11. The handling and storage of pesticide.	1	1	2	2
15. The handling and storage of fuel.	5	5	-	-
17. The handling and storage of an organic solvent.	1	1	-	-
21. The use of land as livestock grazing or pasturing land, an outdoor confinement area or a farm-animal yard. O. Reg. 385/08, s. 3.	1	1	3	3
Total Number of Affected Parcels	5	20	3	20

Steps 7 & 8: Send out letters & Additional Information Gathering



- 8 parcels originally identified
- Letters sent out to all land owners (Oct 2009 & Jan 2010)
- 2 parcels added for WHPA-E threats
- Assumptions for 7 parcels
- No site visits required

Step 9: Enumerate Significant Threats



Prescribed Drinking Water Threat (PDWT)*	Score to Trigger a Significant Threat			
	Vulnerability Score = 10		Vulnerability Score = 9	
	Affected Parcels	No. of PDWT	Affected Parcels	No. of PDWT
2. The establishment, operation or maintenance of a system that collects, stores, transmits, treats or disposes of sewage.	4(3)	4(3)	-	-
3. The application of agricultural source material to land.	1(1)	1(1)	1(1)	1(1)
4. The storage of agricultural source material.	-	-	1(1)	1(1)
10. The application of pesticide to land.	1(1)	1(1)	2(1)	2(1)
15. The handling and storage of fuel.	4(3)	4(3)	-	-
21. The use of land as livestock grazing or pasturing land, an outdoor confinement area or a farm confinement area or a farm-animal yard. O. Reg. 385/08, s. 3.	1(1)	1(1)	1(1)	1(1)
Total Number of Affected Parcels	5	11	2	5

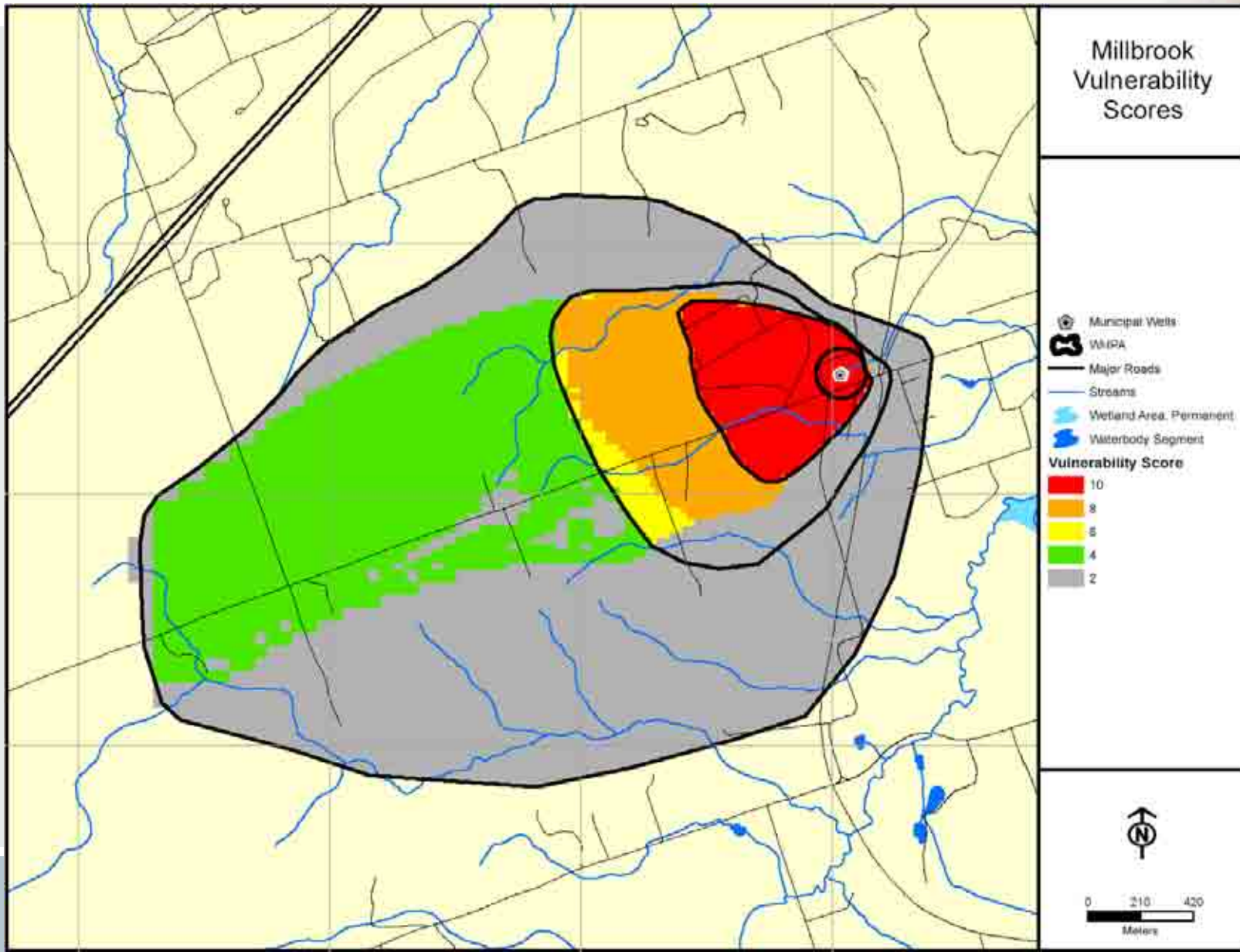
Summary of Significant Threats

– Crystal Springs



- 1 parcel with application and storage of ASM, application of pesticides and livestock grazing/pasturing lands or an outdoor confinement area or farm animal-yard.
- 1 parcel with application of ASM and pesticides and livestock grazing/pasturing lands or an outdoor confinement area or farm animal-yard.
- 1 parcel with application of pesticides
- 4 parcels with below grade home heating oil tanks and septic holding tanks
- No Conditions

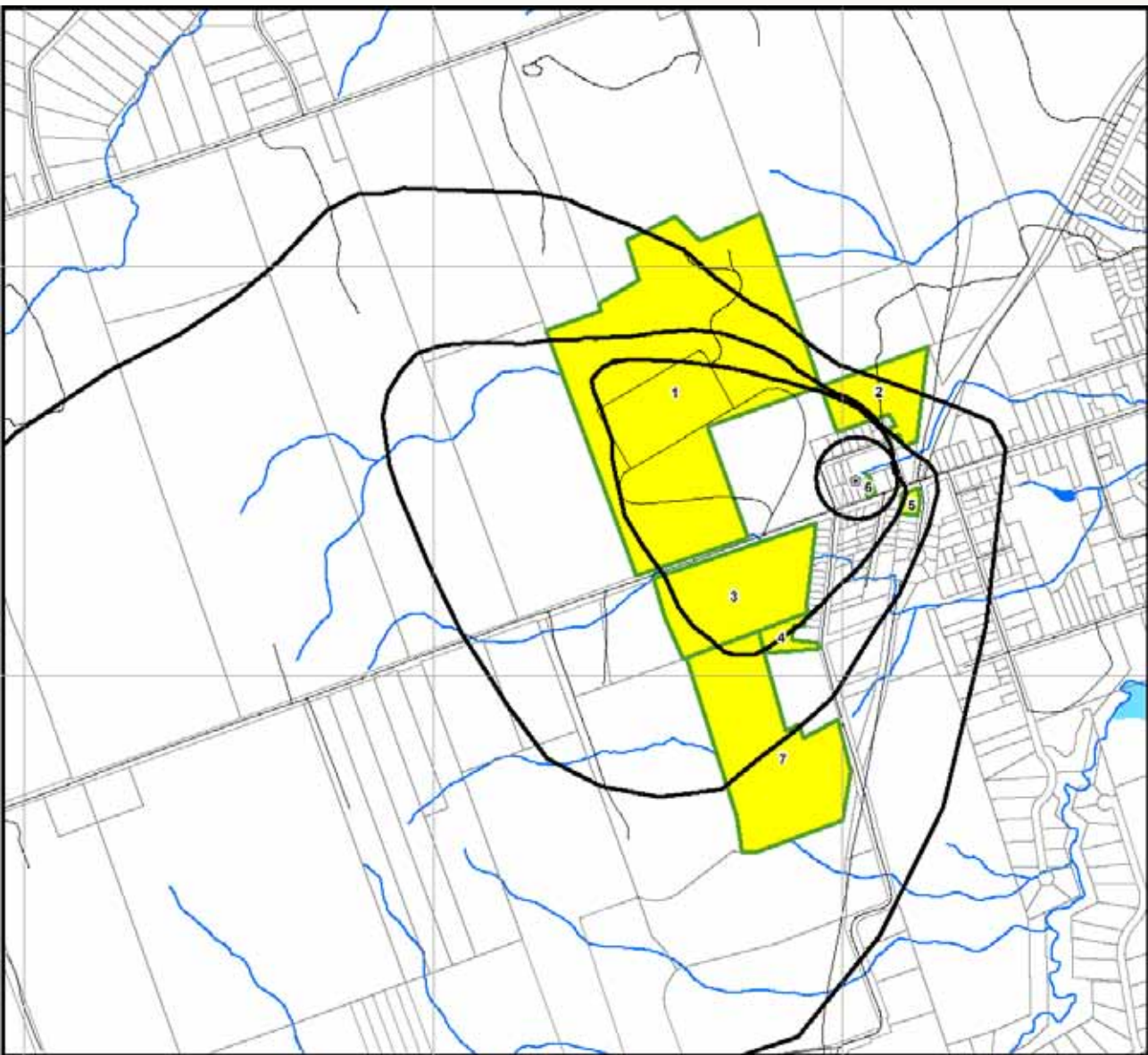
Step 1: Review Millbrook Vulnerability Scores



Step 2 & 3: Review Background Information & Windshield Survey



- Morrison Report: April 2004
- Included EcoLog ERIS report: Feb 2003
- XCG EcoLog ERIS report: March 2008
- Review Additional Mapping: Managed Lands, Agricultural Density, Imperviousness
- MOE Datahound files
- Field Reconnaissance:
 - August 2007
 - April 2008
 - February 2010



Steps 4 & 5:

**Overlay Parcel
Fabric &
Evaluate
Potentially
Significant
Threats**



Step 6: Enumerate Potentially Significant Threats

Prescribed Drinking Water Threat (PDWT)*	Score to Trigger a Significant Threat	
	Vulnerability Score = 10	
	Affected Parcels**	No. of PDWT
1. The establishment, operation or maintenance of a waste disposal site within the meaning of Part V of the <i>Environmental Protection Act</i> .	3	3
2. The establishment, operation or maintenance of a system that collects, stores, transmits, treats or disposes of sewage.	6	6
3. The application of agricultural source material.	3	3
4. The storage of agricultural source material.	1	1
6. The application of non-agricultural source material.	3	3
7. The handling and storage of non-agricultural source material.	1	1
9. The handling and storage of commercial fertilizer.	1	1
10. The application of pesticide to land.	4	4
11. The handling and storage of pesticide.	1	1
15. The handling and storage of fuel.	7	7
17. The handling and storage of an organic solvent.	3	3
21. The use of land as livestock grazing or pasturing land, an outdoor confinement area or a farm-animal yard. O. Reg. 385/08, s. 3.	4	4
Total Number of Affected Parcels	7	37

Steps 7 & 8: Send out letters & Additional Information Gathering



- 7 parcels originally identified
- Letters sent out to all land owners (Oct 2009)
- One refusal
- Residential properties were added later for below grade heating oil tanks
- XCG did walking tour for HOT survey in February
- 10 properties added as a result
- No site visits required

Step 9: Enumerate Significant Threats



Prescribed Drinking Water Threat (PDWT)*	Score to Trigger a Significant Threat	
	Vulnerability Score = 10	
	Affected Parcels**	No. of PDWT
2. The establishment, operation or maintenance of a system that collects, stores, transmits, treats or disposes of sewage.	1	1
15. The handling and storage of fuel.	11(6)	11(6)
Total Number of Affected Parcels	12	12

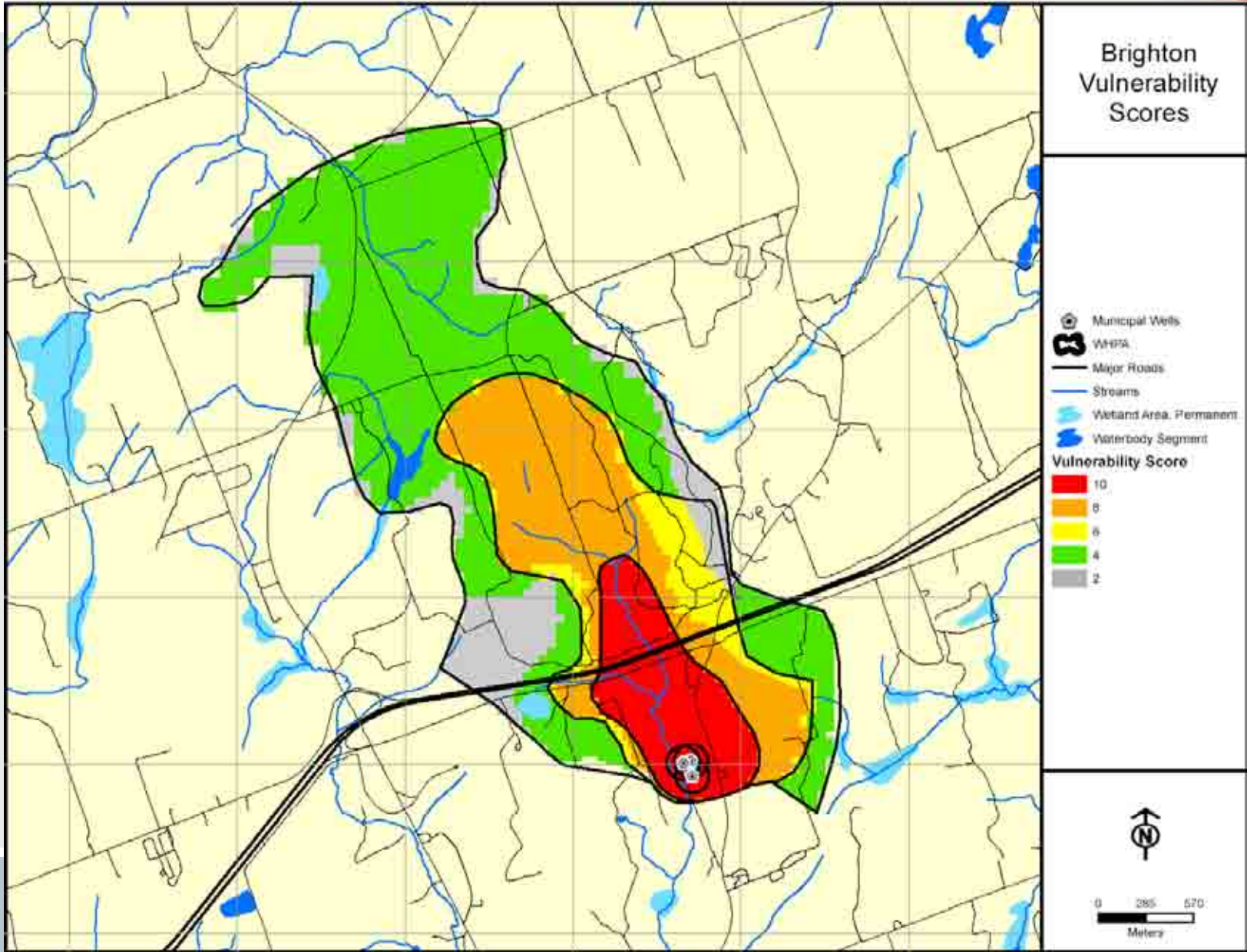
Summary of Significant Threats – Millbrook



- 10 parcels with storage home heating oil fuel
- 1 parcel with diesel UST
- 1 combined parcel (roadways) with sanitary sewer lines for pathogenic threats
- No Conditions



Step 1: Review Brighton Vulnerability Scores



Step 2 & 3: Review Background Information & Windshield Survey



- Morrison Report: April 2004
- Included EcoLog ERIS report: Feb 2003
- XCG EcoLog ERIS report: March 2008
- Review Additional Mapping: Managed Lands, Agricultural Density, Imperviousness
- MOE Datahound files
- Field Reconnaissance:
 - August 2007
 - April 2008



Steps 4 & 5:

**Overlay Parcel Fabric & Evaluate
Potentially Significant Threats**



Step 6: Enumerate Potentially Significant Threats

Prescribed Drinking Water Threat (PDWT)*	Score to Trigger a Significant Threat			
	Vulnerability Score = 10		Vulnerability Score = 8	
	Affected Parcels	No. of PDWT	Affected Parcels	No. of PDWT
1. The establishment, operation or maintenance of a waste disposal site within the meaning of Part V of the <i>Environmental Protection Act</i> .	4	4	1	1
2. The establishment, operation or maintenance of a system that collects, stores, transmits, treats or disposes of sewage.	5	5	-	-
3. The application of agricultural source material.	3	3	-	-
4. The storage of agricultural source material.	2	2	-	-
6. The application of non-agricultural source material.	3	3	-	-
7. The handling and storage of non-agricultural source material.	2	2	-	-
9. The handling and storage of commercial fertilizer.	4	4	-	-
10. The application of pesticide to land.	5	5	-	-
11. The handling and storage of pesticide.	4	4	-	-
15. The handling and storage of fuel.	5	5	-	-
21. The use of land as livestock grazing or pasturing land, an outdoor confinement area or a farm-animal yard. O. Reg. 385/08, s. 3.	5	5	-	-
Total Number of Affected Parcels	6	42	1	1

Steps 7 & 8: Send out letters & Additional Information Gathering



- 7 parcels identified
- Letters sent out to all land owners (Oct 2009)
- 1 parcel had been severed into 4 parcels
- 1 parcel with no listing; 1 refusal; assumptions on 4 parcels
- No site visits required

Step 9: Enumerate Significant Threats



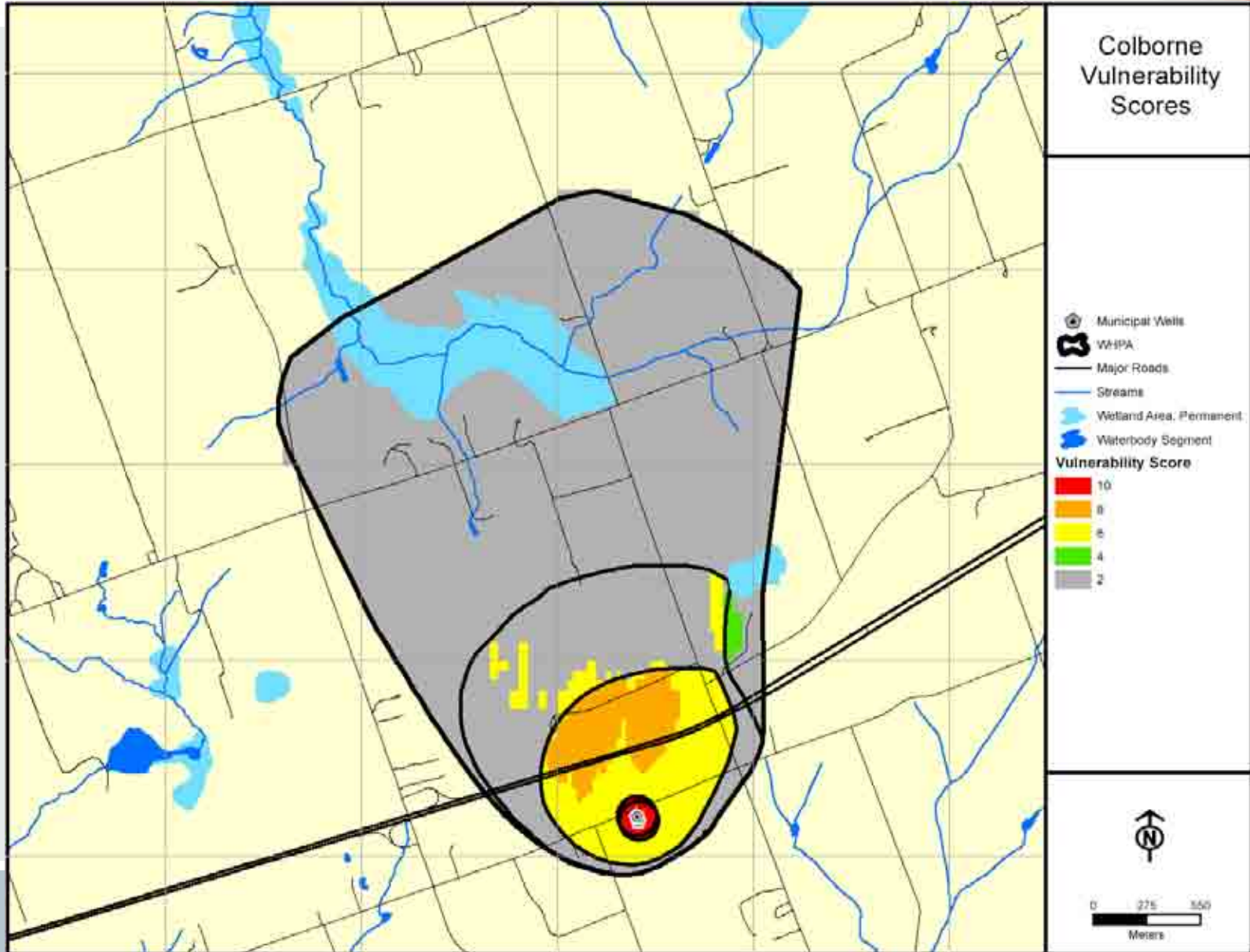
Prescribed Drinking Water Threat (PDWT)*	Score to Trigger a Significant Threat			
	Vulnerability Score = 10		Vulnerability Score = 8	
	Affected Parcels**	No. of PDWT	Affected Parcels**	No. of PDWT
2. The establishment, operation or maintenance of a system that collects, stores, transmits, treats or disposes of sewage.	4	4	-	-
3. The application of agricultural source material.	3(3)	3(3)	-	-
10. The application of pesticide to land.	4(4)	4(4)	-	-
Total Number of Affected Parcels	5	11	-	-

Summary of Significant Threats – Brighton



- 3 parcels with application of ASM and pesticides
- 1 parcel with application of pesticides
- 4 parcels with septic systems
- No Conditions

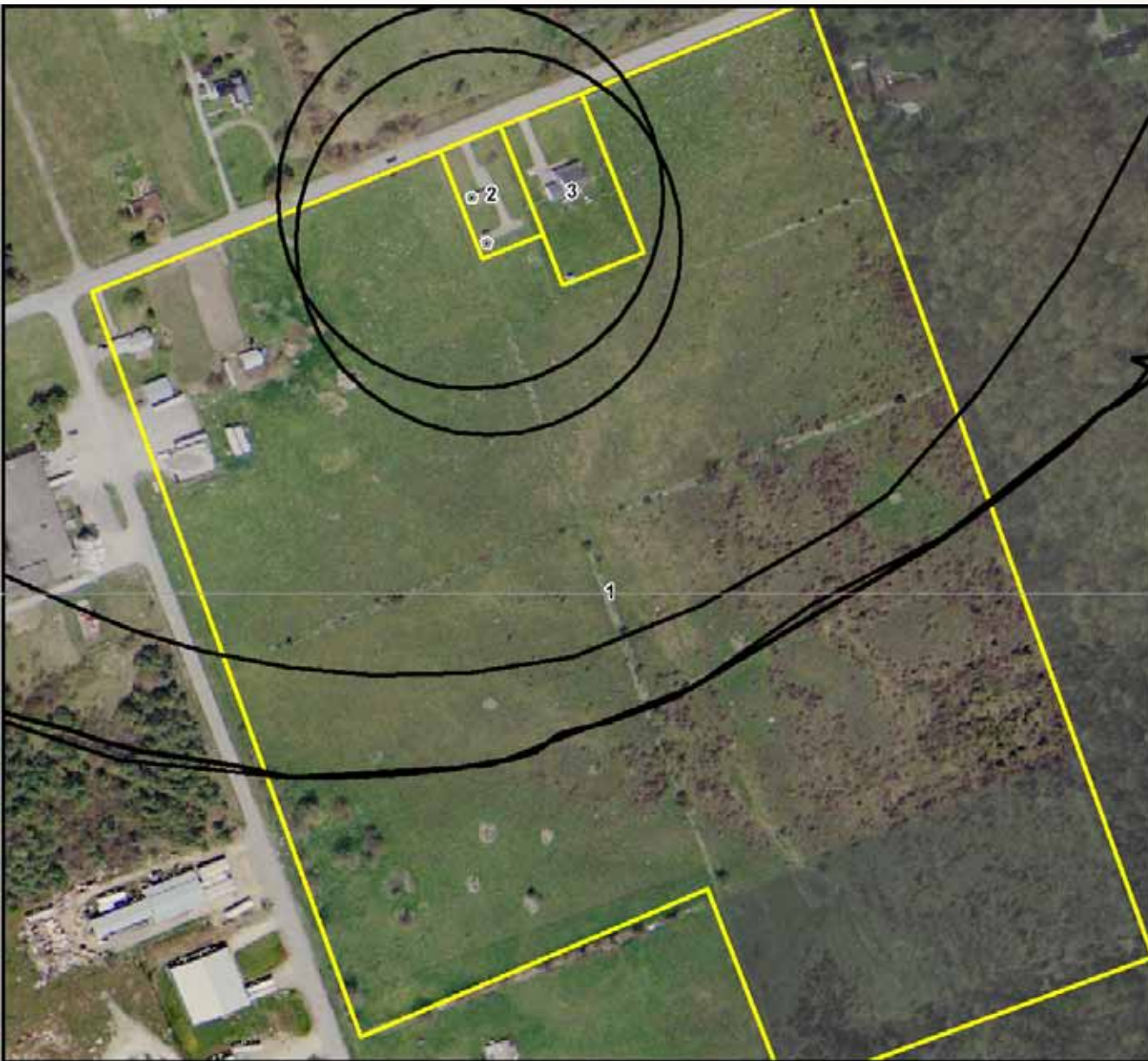
Step 1: Review Colborne Vulnerability Scores



Step 2 & 3: Review Background Information & Windshield Survey



- Morrison Report: April 2004
- Included EcoLog ERIS report: Feb 2003
- XCG EcoLog ERIS report: March 2008
- Review Additional Mapping: Managed Lands, Agricultural Density, Imperviousness
- MOE Datahound files
- Field Reconnaissance:
 - August 2007
 - April 2008



Steps 4 & 5:

**Overlay Parcel
Fabric &
Evaluate
Potentially
Significant
Threats**



Step 6: Enumerate Potentially Significant Threats

Prescribed Drinking Water Threat (PDWT)*	Score to Trigger a Significant Threat			
	Vulnerability Score = 10		Vulnerability Score = 6	
	Affected Parcels	No. of PDWT	Affected Parcels	No. of PDWT
1. The establishment, operation or maintenance of a waste disposal site within the meaning of Part V of the <i>Environmental Protection Act</i> .	2	2	-	-
2. The establishment, operation or maintenance of a system that collects, stores, transmits, treats or disposes of sewage.	3	3	-	-
3. The application of agricultural source material.	1	1	-	-
4. The storage of agricultural source material.	1	1	-	-
6. The application of non-agricultural source material.	1	1	-	-
7. The handling and storage of non-agricultural source material.	1	1	-	-
8. The application of commercial fertilizer to land.	1	1	-	-
9. The handling and storage of commercial fertilizer.	1	1	-	-
10. The application of pesticide to land.	1	1	-	-
11. The handling and storage of pesticide.	1	1	-	-
15. The handling and storage of fuel.	3	3	-	-
16. The handling and storage of a dense non-aqueous phase liquid.	-	-	1	1
17. The handling and storage of an organic solvent.	1	1	-	-
21. The use of land as livestock grazing or pasturing land, an outdoor confinement area or a farm-animal yard. O. Reg. 385/08, s. 3.	1	1	-	-
Total Number of Affected Parcels	3	18	1	1

Steps 7 & 8: Send out letters & Additional Information Gathering



- 4 parcels originally identified
- Letters sent out to all land owners (Oct 2009)
- Contacted all property owners
- No site visits required

Step 9: Enumerate Significant Threats



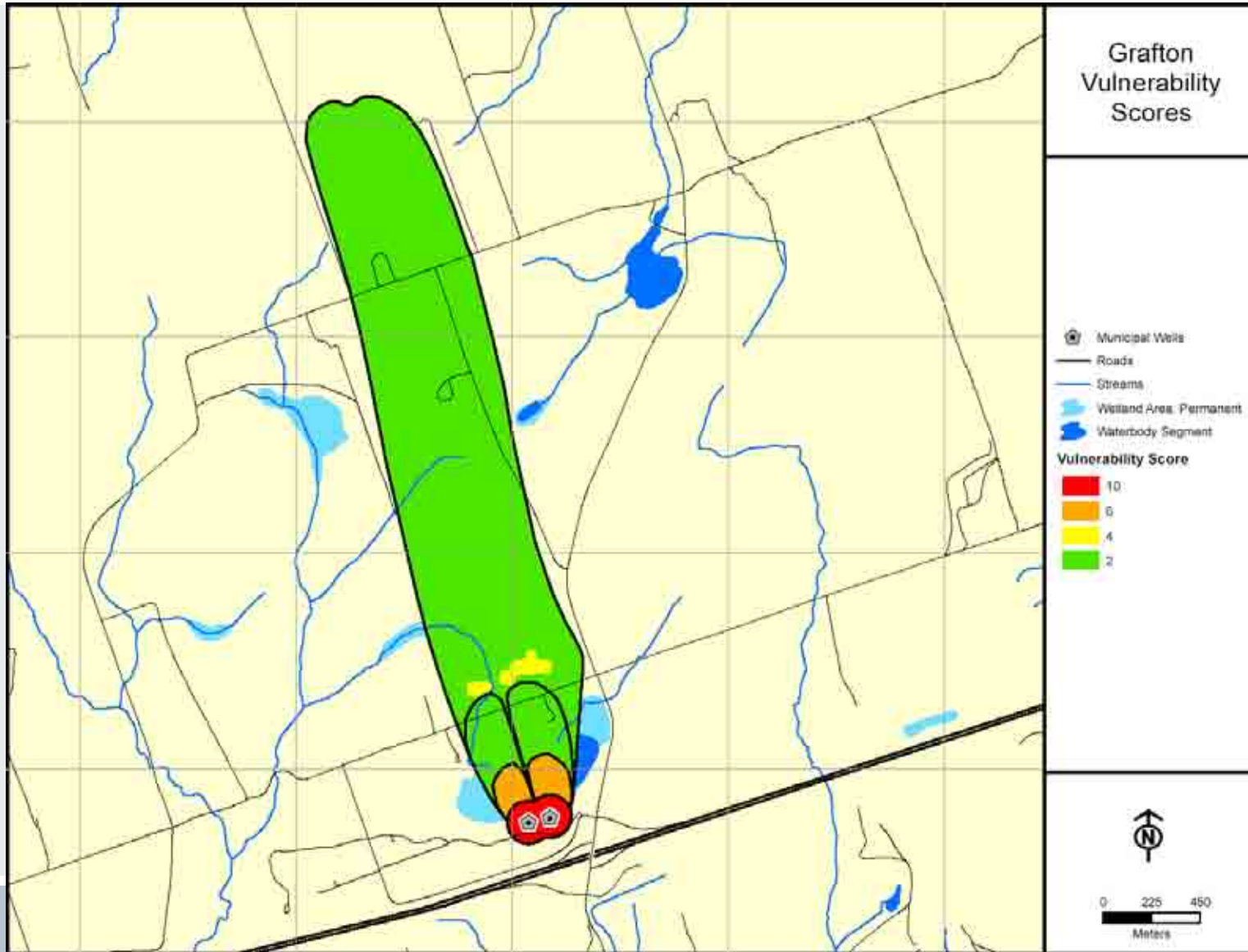
Prescribed Drinking Water Threat (PDWT)*	Score to Trigger a Significant Threat			
	Vulnerability Score = 10		Vulnerability Score = 6	
	Affected Parcels* *	No. of PDWT	Affected Parcels* *	No. of PDWT
2. The establishment, operation or maintenance of a system that collects, stores, transmits, treats or disposes of sewage.	2	2	-	-
21. The use of land as livestock grazing or pasturing land, an outdoor confinement area or a farm-animal yard. O. Reg. 385/08, s. 3.	1	1	-	-
Total Number of Affected Parcels	2	3	-	-

Summary of Significant Threats – Colborne



- 1 parcel with a septic system and livestock grazing / pasturing land
- 1 parcel with a septic system
- No Conditions

Step 1: Review Grafton Vulnerability Scores



Step 2 & 3: Review Background Information & Windshield Survey



- Morrison Report: April 2004
- Included EcoLog ERIS report: Feb 2003
- XCG EcoLog ERIS report: March 2008
- Review Additional Mapping: Managed Lands, Agricultural Density, Imperviousness
- MOE Datahound files
- Field Reconnaissance:
 - August 2007
 - April 2008



Steps 4 & 5:

**Overlay Parcel
Fabric &
Evaluate
Potentially
Significant
Threats**



Step 6: Enumerate Potentially Significant Threats

Prescribed Drinking Water Threat (PDWT)*	Score to Trigger a Significant Threat	
	Vulnerability Score = 10	
	Affected Parcels**	No. of PDWT
1. The establishment, operation or maintenance of a waste disposal site within the meaning of Part V of the <i>Environmental Protection Act</i> .	2	3
2. The establishment, operation or maintenance of a system that collects, stores, transmits, treats or disposes of sewage.	3	2
15. The handling and storage of fuel.	3	3
16. The handling and storage of a dense non-aqueous phase liquid.	1	1
17. The handling and storage of an organic solvent.	2	3
Total Number of Affected Parcels	3	11

Steps 7 & 8: Send out letters & Additional Information Gathering



- 3 parcels originally identified
- Letters sent out to all land owners (Oct 2009)
- No site visits required

Step 9: Enumerate Significant Threats



Prescribed Drinking Water Threat (PDWT)*	Score to Trigger a Significant Threat	
	Vulnerability Score = 10	
	Affected Parcels**	No. of PDWT
2. The establishment, operation or maintenance of a system that collects, stores, transmits, treats or disposes of sewage.	1	1
Total Number of Affected Parcels	1	1

Summary of Significant Threats – Grafton



- 1 parcel with a septic holding tank
- No Conditions

Summary of Significant Threats



Prescribed Drinking Water Threat (Reference Number)	Stirling	Keene Heights	Crystal Springs	Millbrook	Brighton	Colborne	Grafton
Storage of hazardous/liquid industrial waste –registered (1884-1893)	1						
Storage of hazardous/liquid industrial waste including PCBs-registered (1879, 1881-1913)	1						
Storage of hazardous/liquid industrial waste –not registered (1914, 1917,1924-1943)	5						
On-site septic systems (1956)			4		4	5	1
Large On-site septic system (701-704, 706, 1956)		1					
Sanitary sewer lines (1958)	1			1			
Application of ASM (1944)	44		2		3		
Handling & Storage of ASM (1962-1964)	8		1				
Application of pesticides (71, 73) 1-10 ha	2		1		4		
Application of pesticides (77-80, 82-86) >10ha	2		2				
Below grade home heating oil tanks (1359, 1360)	81		4	10			
Other fuel storage (177, 178, 187, 188, 1359, 1360, 1364, 1365, 1369, 1370, 1374, 1375, 1384, 1385, 1389-1408)	7			1			
Storage of DNAPLs (107-111, 1098-1102)	1						
Storage of organic solvents <2500 L (1241, 1245, 1249, 1253-1255, 1257-1259)	2						
Pasture /Confinement Yard (1945, 1946)	41		2			1	
Total Number of Affected Parcels	140	1	7	12	5	2	1