PIPELINES, POWER LINES, AND ORGANIC FARMS

Paula Goodman Maccabee[*]

SUMMARY

Pipelines and power lines have impinged upon agricultural land for decades. In fact, state laws often recognize the risk of this encroachment in statutes and rules providing that mitigation of impacts on agricultural land should be considered in certifying and routing of energy infrastructure. However, organic farms present a new and unique conflict with pipeline and power line land use. Not only can construction and soil compaction activities seriously impair production in farming systems dependent on soil characteristics for fertility, but the use of fuels, herbicides and other chemicals in the process of construction or right-of-way maintenance can result in decertification of organic farms.[1] A recent Minnesota case concerning the proposed routing of a crude oil pipeline across a premier

* Principal and attorney of Just Change Consulting/Public Interest Law, a private firm specializing in public interest advocacy, land use, environmental, sustainable energy and organic agricultural practice.

1. Affidavit of Atina Diffley at ¶¶ 8, 9, *In re* Application of Minn. Pipe Line Co. for a Routing Permit for a Crude Oil Pipeline, Minn. Pub. Utils. Co. No. PL-5/PPL-05-2003 (2006), *available at* http://www.frontiernet.net/~atinagoe/Affidavit%20A%20DiffleyFinal.pdf.

organic vegetable farm has set a new standard of practice for the protection of organic farm land.[2] In a case involving the Minnesota Pipeline Company (MPL) and the Gardens of Eagan organic farm, not only was the individual farm avoided, but state regulators included requirements for agricultural impact mitigation specific to organic farms along the full length of the pipeline.[3] Other states are beginning to recognize the need for additional agricultural impact mitigation for organic farms. This note describes a legal and scientific basis for the protection of organic farms and it details specific agricultural impact mitigation provisions for organic farms that should be incorporated into siting and routing decisions. This developing standard of mitigation to reduce impacts on organic farms should assist farmers and legal counsel in reducing potential harm from pipelines and power lines.

I. INTRODUCTION – LAND USE CONFLICT WITH ENERGY INFRASTRUCTURE

Many of the threats to organic farms and organic clients are not new issues for agricultural land use. Power lines, pipelines and other elements of energy infrastructure have encroached upon agricultural land for decades. As energy resources ranging from crude oil shale and natural gas, to wind turbines and mine mouth coal continue to develop at locations remote to the communities requiring use of the energy, it becomes more rather than less likely that there will be land use conflicts between agriculture and energy infrastructure.

State law often recognizes the risk of this encroachment in statutes and rules providing that mitigation of impacts on agricultural land should be considered in certifying and routing of energy infrastructure. For example, Minnesota statutes pertaining to certification of large energy facilities, including power lines as well as generators, state that the applicant for a Certificate of Need (CON) must notify the commissioner of agriculture if the proposed project will impact cultivated agricultural land.[4] The commissioner and department may play a role in determining need and in developing a plan for mitigation:

> The commissioner may participate in any proceeding on the application and advise the commission as to whether to grant the certificate of need, and the best options for mitigating adverse impacts to agricultural lands if the certificate is granted. The

2. *In re* Application of Minn. Pipe Line Co. for a Certificate of Need for a Crude Oil Pipeline, No. PL-5/CN-06-2 (Minn. Ct. App. June 10, 2008) [hereinafter Certificate of Need].

3. Exhibit 56, Stipulation between Minnesota Pipe Line Company and Gardans of Eagan, *In re* Application of Minn. Pipe Line Co. for a Routing Permit for a Crude Oil Pipeline, Minn. Pub. Utils. Comm'n, No. PL-5/PPL-05-2003 (2006).

4. MINN. STAT. § 216B.243(7)(b) (2008).

> Department of Agriculture shall be the lead agency on the development of any agricultural mitigation plan required for the project.[5]

Minnesota statutes pertaining to pipelines require burial at a specific depth and authorize county boards to establish by ordinance "reasonable standards and conditions for pipeline construction which are necessary to protect and restore cultivated agricultural land crossed by a pipeline and to mitigate the adverse impact of pipeline construction on the productive use of that land."[6]

Minnesota rules provide that power generation plants may not be sited on more than 0.5 acres of prime farmland, unless there is "no feasible and prudent alternative," although there are exclusions for water storage reservoirs and cooling ponds and for farms located in or near statutory cities.[7] The impacts on agricultural lands must be considered in permitting a power plant or power line,[8] and the impact on agricultural economies is also among the criteria for pipeline route selection.[9]

Farmers and practitioners in the area of energy and agricultural law recognize that these statutes and rules have not prevented the routing and siting of energy infrastructure on prime agricultural land, although it is arguable that agricultural impact mitigation plans (AIMPs) have to some degree reduced the level of damage to farms caused by this infrastructure. In fact, often pipeline and power line projects have been located predominantly on agricultural lands.[10]

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5. *Id*.
6. *Id*. at § 216G.07(5).
7. MINN. R. 7849.5940(3), (4) (2008). The relevant rule reads:

> Prime farmland exclusion. No large electric power generating plant site may be permitted where the developed portion of the plant site, excluding water storage reservoirs and cooling ponds, includes more than 0.5 acres of prime farmland per megawatt of net generating capacity, or where makeup water storage reservoir or cooling pond facilities include more than 0.5 acres of prime farmland per megawatt of net generating capacity, unless there is no feasible and prudent alternative. Economic considerations alone do not justify the use of more prime farmland. 'Prime farmland' means those soils that meet the specifications of Code of Federal Regulations 1980, title 7, section 657.5, paragraph (a). These provisions do not apply to areas located within home rule charter or statutory cities; areas located within two miles of home rule charter or statutory cities of the first, second, and third class; or areas designated for orderly annexation under Minnesota Statutes, section 414.0325.

8. *Id*. at 7849.5910(C).
9. *Id*. at 7852.1900 (3)(D).
10. Pipeline Routing Permit Application §4415.0140, p. 2, Minn. Pub. Utils. Comm'n No. PL5/PPL-05-2003 (2006), *available at* http://energyfacilities.puc.state.mn.us/documents/18339/PUC%20Application%20Text%2001-26-06.pdf.

Two salient features of the underlying laws support this outcome. First, the consideration given to agricultural land is exclusively economic. Relevant sections of Minnesota rules refer to agricultural impacts as effects on land-based economies:

> Permits for Energy Facilities: In determining whether to issue a permit for a large electric power generating plant or a high voltage transmission line, the commission shall consider the following . . .
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> C. effects on *land-based economies*, including, but not limited to, *agriculture*, forestry, tourism, and mining;[11]
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> Pipeline Route Selection: In selecting a route for designation and issuance of a pipeline routing permit, the commission shall consider the impact on the pipeline of the following:
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> D. *economies* within the route, including *agricultural*, commercial or industrial, forestry, recreational, and mining operations[.][12]

The implication of these laws is that when economic consequences from locating infrastructure on farmland are less costly than routing onto other property, agricultural interests will suffer.

In practice there is also an implicit assumption that mitigation measures are sufficient to protect agricultural production. In Minnesota, rules specify that precautions shall be taken to protect topsoil, minimize compaction, clean up litter, protect trees and shelterbelts, and repair and replace damaged drainage tiles, fences, gates and roads.[13] AIMPs for conventional agriculture under these rules have included commitments to prevent "excessive erosion," restore land contours, and use deep tillage to alleviate compaction among other measures.[14] These mitigation practices, which certainly represent an advance over historical construction practices, may well be insufficient to protect organic farms.

II. ORGANIC AGRICULTURE—DIFFERENT PRODUCTION AND IMPACTS

Recognizing that energy infrastructure conflicts are not unique to organic agriculture, it is important to identify what is unique about organic farms. Appli-

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11. MINN. R. 7849.5910(C) (2008) (emphasis added).
12. MINN. R. 7852.1900(3)(D) (2008) (emphasis added).
13. *Id*. at 7852.3600(D),(E),(H)-(M).
14. *See* Environmental Assessment Supplement to the Pipeline Routing Permit Application at 9, 10, Minn. Pub. Utils. Comm'n, No. PL-5/PPL-05-2003 (2006), *available at* http://energyfacilities.puc.state.mn.us/documents/18339/Environmental%20Assessment%20Supplement_revised.pdf.

cable law and expert evidence suggests that there are four key variables which may potentially distinguish organic agriculture:

- An organic farm may constitute a "natural environment" under applicable law;
- An organic farm may suffer irreparable harm due to the characteristics of organic production;
- An organic farm may lose organic certification;
- Economic valuation of products may be higher due to the value-added nature of organic crops.

The environmental characteristics of organic crop production may provide grounds to argue that minimization of impacts of energy infrastructure should result in particular care, if not complete avoidance, of organic farms. Laws pertaining to siting and routing of energy infrastructure may contain provisions requiring minimization of the effects of energy infrastructure on the "natural environment."[15] As in Minnesota, state statutes modeled on the National Environmental Policy Act,[16] may prevent state regulatory approval of a project that impairs the quality of the environment where "there is a feasible and prudent alternative."[17]

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15. *See*, *e.g.*, MINN. R. 7849.5910(E) (2008)("effects on the natural environment, including effects on air and water quality resources and flora and fauna"); *Id*. at § 7849.5910(M) (2008) ("adverse human and natural environmental effects which cannot be avoided…"); *Id.* at § 7852.1900(3)(B) (2008)("the natural environment, public and designated lands, including but not limited to natural areas, wildlife habitat, water, and recreational lands"), *Id.* at § 7852.1900(3)(H) (2008)("the extent to which human or environmental effects are subject to mitigation by regulatory control and by application of permit conditions in part 7852.3400 for pipeline right-of-way preparation, construction, cleanup, and restoration practices").

16. National Environmental Policy Act of 1969, 42 U.S.C. §§ 4321-47 (2000).

17. The Minnesota Environmental Policy Act, MINN. STAT. § 116D.04(6) (2008). The relevant section reads:

> No state action significantly affecting the quality of the environment shall be allowed, nor shall any permit for natural resources management and development be granted, where such action or permit has caused or is likely to cause pollution, impairment, or destruction of the air, water, land or other natural resources located within the state, so long as there is a feasible and prudent alternative consistent with the reasonable requirements of the public health, safety, and welfare and the state's paramount concern for the protection of its air, water, land and other natural resources from pollution, impairment, or destruction. Economic considerations alone shall not justify such conduct.

The nature of organic production supports an argument implicating statutes and rules requiring that harm to the "natural environment" be minimized. National Organic Program (NOP) standards exclude production methods that are "not possible under natural conditions" and "organic production" is defined as a production system managed by "integrating cultural, biological, and mechanical practices that foster cycling of resources, promote ecological balance and conserve biodiversity."[18]

Expert evidence in an individual case can support the assertion that an organic farm operates as an integrated natural system. Testimony filed in the Gardens of Eagan's case contesting routing of the MPL's MinnCan pipeline[19] across their farm, excerpted in the next section, explained the ecology of an organic vegetable farm. Unused land in an organic system provides a habitat for beneficial insects, birds and rodents while healthy soils have their own ecology.[20] This type of evidence supports the argument that an organic farm functions as a natural environment, as well as a food production land use.

The operation of an organic farm as an integrated natural system may also support the claim that a partial taking of land for infrastructure would result in more substantial damage than for conventional agriculture. Construction of infrastructure across the portion of organic lands that are used for beneficial habitat or for drainage to prevent chemicals on neighboring lands from entering fields may, for example, impact production or maintenance of organic quality throughout the entire farm, rather than just across the acreage where the facility is proposed to be located.

In addition to explaining the way in which an organic farm operates as a natural system, expert evidence supports the argument that construction and operation of energy infrastructure would result in irreparable harm to organic production.[21] In the case of organic vegetables, crop production depends on healthy soil structure, rather than application of chemicals, to control pests or provide nutrients.[22] Disruption of topsoil horizons, or compaction, caused by construction or maintenance of pipelines and power lines may result in irreparable harm to production of organic crops.[23]

The potential for loss of certification is a significant factor supporting the need for additional protection of organic farms from the adverse impacts of ener-

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18. National Organic Program, 7 C.F.R. § 205.2 (2008).

19. *See* Direct Testimony of James A. Riddle, *In re* Application of Minn. Pipe Line Co. for a Routing Permit for a Crude Oil Pipeline, Minn. Pub. Utils. Comm'n, No. PL-5/PPL-05-2003 (2006), *available at* http://www.frontiernet.net/~atinagoe/FinalTestJamesRIDDLE.html.

20. *See id.*

21. *See id.*

22. *See id.*

23. *Id*.

gy infrastructure. National Organic Program standards preclude prohibited substances for a period of three years immediately preceding harvest of an organic crop.[24] Contamination with prohibited plant nutrients, heavy metals, or residues of prohibited substances is specifically proscribed.[25]

Equipment brought on site for construction and maintenance, refueling and servicing of vehicles, leaks and spills, fertilizers, pesticides, and herbicides may all pose risks to certification.[26] The analogy to industrial use in the middle of an organic farm is fitting.[27] In addition, the potential for future loss of certification provides grounds for conditions related to maintenance on easements in proximity to organic lands.

Legal precedent from pesticide contamination cases supports the claim that the risk of loss of certification for an organic farm impacted by a pipeline or power line jeopardizes an entire crop.[28] In the leading Washington state case of *Langan v. Valicopters, Inc.*, the court held that damages for total crop loss of organic crops could be claimed whether or not the yield or physical condition of the crops had been affected by contamination.[29] In *Langan*, organic food growers had been certified by the Northwest Organic Food Producers Association (NOFPA), which set specific limits on maximum pesticide tolerances.[30] After their crops were contaminated with pesticides, the growers had laboratory tests performed identifying residues in excess of NOFPA tolerances.[31] They pulled the crops and claimed a total loss.[32] The court upheld jury findings of a total crop loss, despite appellants' claims that the growers should have challenged decertification.[33] The economic consequences of decertification and total crop loss may distinguish organic farms from other agricultural production.

Finally, economic information based on the value-added nature of organic agriculture can be significant in asserting that organic farms should be avoided in the siting of energy infrastructure or that additional mitigation should be required. Valuation of the costs entailed in route selection is not only based on assumptions regarding the restoration of productivity, but on valuation of crops. Farm production budgets for agriculture tend to assume conventional pricing and

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24. National Organic Program, 7 C.F.R. §§ 205.105, 205.202(b) (2008).
25. *Id*. at § 205.203(c).
26. Affidavit of Atina Diffley at ¶ 8, *supra* note 2.
27. *Id*. at ¶¶ 8, 9.
28. *See* Langan v. Valicopters, Inc., 567 P.2d 218, 218 (Wash. 1977).
29. *See id*. at 222-23. In general, case law on pesticide contamination of organic farms is outside the scope of this note.
30. *Id*. at 219.
31. *Id*. at 219-20.
32. *Id*. at 220.
33. *See id*. at 224.

expenditures for chemical fertilizers and pesticides. An important distinction between organic agriculture and conventional agriculture may be the value added of premium pricing.[34] Soil preparation for organic agriculture may also result in higher yields. The cycle of crop rotation in organic agriculture may explain variation in gross and net returns for various years, as certain crops with a higher economic return may only be planted after nutrients in soil have recovered.[35]

III. CASE STUDY: MINNCAN PIPELINE PROPOSED ACROSS GARDENS OF EAGAN ORGANIC FARM

A. *Parties and Proceedings*

The routing and siting of MPL's MinnCan crude oil pipeline project provides a case study to assist in protecting organic farms from energy infrastructure.[36]

As part of a 300-mile project to bring crude oil from Canada to be refined at Twin Cities refineries, MPL proposed construction of a pipeline operating at an initial capacity of 165,000 barrels of petroleum crude oil per day, with an ultimate capacity of 350,000 barrels per day.[37] The proposed pipeline would require a 100-foot to 125-foot construction easement and a fifty foot permanent easement.[38] MPL acknowledged in its Routing Permit Application that crude oil and its chemical constituents are highly toxic chemicals[39] and disclosed in its CON application that its operator, Koch Pipeline, had 176 reportable spills since 2000, reflecting 425,628 gallons of petroleum releases.[40]

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34. *See* Rick L. Hirschi, Organic Row Crops in a Diversified Form Portfolio 5 (June 29-July 1, 2000) (unpublished manuscript), *available at* http://ageconsearch.umn.edu/bitstream/36478/1/sp00hi01.pdf.

35. *See* ENV'T & NATURAL RES. SERV., FOOD & AGRIC. ORG. OF THE U.N., EVALUATING THE POTENTIAL CONTRIBUTION OF ORGANIC AGRICULTURE TO SUSTAINABILITY GOALS 15 (1998), ftp://ftb.fao.org/docrep/fao/003/ac116e/ac116e00.pdf.

36. *See* Certificate of Need, *supra* note 3; *In re* Application of Minn. Pipe Line Co. for a Routing Permit for a Crude Oil Pipeline, No. PL-5/PPL-05-2003 (Minn. Ct. App. June 10, 2008) (Proceedings pertaining to the MPL's MinnCan crude oil pipeline project were contained in two dockets, both initiated by MPL in January 2006.).

37. Pipeline Routing Permit Application, *supra* note 11, at §§ 4415.0120, p. 3, 4415.0130, p. 1.

38. *Id*. at § 4415.0145, p.2.

39. *Id.* at § 4415.0120(6), p. 9-10.

40. Gardens of Eagan Proposal for Alternative Route Alignment to Avoid Organic Farm, *In re* Application of Minn. Pipe Line Co. for a Routing Permit for a Crude Oil Pipeline, Minn. Pub. Utils. Comm'n., No. PL-5/PPL-05-2003 (2006), *available at* http://www.frontiernet.net/~atinagoe/RoutingMemoFinal.pdf.

The route proposed for the MinnCan crude oil pipeline made a diagonal line through the center of the Gardens of Eagan organic farm in Farmington, Minnesota.[41] The Gardens of Eagan is a federally registered, certified organic farm in Dakota County.[42] This 100-acre organic farm first received organic certification in 1974, and supplies brand name vegetables and fruit to groceries and cooperatives in the Minneapolis-Saint Paul area.[43] The crude oil pipeline proposed by MPL would have crossed several small vegetable fields and the area of a small stream used for habitat and other aspects of farm ecology impacting pest and disease control on the entire farm.[44]

The Gardens of Eagan formally intervened in the routing proceeding for MPL's MinnCan pipeline and obtained party status under Minnesota rules.[45] Party status would permit the Gardens of Eagan to make discovery requests, file expert evidence and conduct cross-examination in a contested administrative hearing on route selection.[46] A decision was made early in the investigation that neither evidence nor resources were sufficient to challenge certification of the MinnCan pipeline. The objectives of the Gardens of Eagan were as follows:

- Change the MinnCan crude oil pipeline route to avoid crossing of Gardens of Eagan organic farm;
- Require the MinnCan pipeline to avoid other organic farms, if such avoidance was feasible;
- Provide specific agricultural impact plan protections for other organic farms to minimize production loss and loss of organic certification.[47]

In addition to formal intervention in routing proceedings to offer expert evidence and propose an alternative route, the Gardens of Eagan also worked with a network of consumers and other stakeholders to provide support for achievement of its objectives. The Wedge Community Co-op and other organic grocery stores provided information and circulated drafts of letters which consumers could send to the Administrative Law Judge (ALJ) hearing the routing

41. Affidavit of Atina Diffley at ¶ 1, *supra* note 2.
42. *Id.*
43. *Id.*
44. *Id.*
45. Second Prehearing Order at 2, *In re* Application of Minn. Pipe Line Co. for a Certificate of Need for a Crude Oil Pipeline & *In re* Application of Minn. Pipe Line Co. for a Routing Permit for a Crude Oil Pipeline, Office of Admin. Hearings No. 15-2500-17136-2 (June 9, 2006).
46. MINN. R. 1400.6200, 1400.7100 (2008).
47. Gardens of Eagan Proposal for Alternative Route Alignment, *supra* note 41.

case. The Organic Consumers Association and the website and blog developed by the Gardens of Eagan organic farmers, Atina and Martin Diffley, also played a key role in grassroots information and communication. As a result of outreach and organizing, over 3,000 public comments were received supporting protection of the Gardens of Eagan organic farm and protection of organic farms from the impacts of the proposed crude oil pipeline.[48]

The Land Stewardship Project provided a supporting affidavit and the Organic Advisory Task Force for the state of Minnesota provided recommendations favoring additional protection for organic agriculture.[49] Although the Minnesota Department of Agriculture did not take a position recommending avoidance of organic farms, the Department played an important role in supporting additional mitigation practices designed to address the unique characteristics of organic farms.

Prehearing evidence filed in the routing proceedings established both the unique vulnerability of the Gardens of Eagan vegetable farm to the harms resulting from a crude oil pipeline and the nature of organic production.[50]

Affidavits and a highly detailed organic management plan established that the Gardens of Eagan had had fifteen years of careful soil building to develop fertility and explicit plans for the use of non-crop producing areas of the farm for water drainage and beneficial habitat for birds, insects and mammals.[51] Records documented premium pricing as well as the shipping of approximately 650,000 pounds per year of organic produce to grocers including Whole Foods, Lunds and Byerly's and a network of cooperative grocers, such as the Wedge Community Co-op and Mississippi Market Natural Foods Co-op.[52]

In addition to the affidavit of organic farmer Atina Diffley, which was filed with memoranda seeking the requested relief, the Gardens of Eagan sponsored expert testimony from Deborah L. Allan, a Professor in the Department of

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48. Findings of Fact, Conclusions and Recommendations at 50, *In re* Application of Minn. Pipe Line Co. for a Certificate of Need for a Crude Oil Pipeline & *In re* Application of Minn. Pipe Line Co. for a Routing Permit for a Crude Oil Pipeline, Office of Admin. Hearings No. 15-2500-17136-2 (2006), *available at* http://energyfacilities.puc.state.mn.us/documents/18339/ALJ_BJH_Rpt_MinnCan.pdf.

49. *See* Affidavit of Dana Jackson, *In re* Application of Minn. Pipe Line Co. for a Routing Permit for a Crude Oil Pipeline, Minn. Pub. Utils. Comm'n No. PL-5/PPL-05-2003 (2006), *available at* http://www.frontiernet.net/~atinagoe/LSP%20Dana%20Jackson%20affidavit.pdf.

50. *See* Gardens of Eagan Proposed Findings of Fact and Conclusions, *In re* Application of Minn. Pipe Line Co. for a Routing Permit for a Crude Oil Pipeline, Minn. Pub. Utils. Comm'n No. PL-5/PPL-05-2003 (2006), *available at* http://www.frontiernet.net/~atinagoe/GOEProposed Findings10.13.06.

51. *See id*.

52. *Id*.

Soil, Water and Climate at the University of Minnesota in St. Paul, Minnesota and James A. Riddle, Coordinator for Organic Outreach at the University of Minnesota Southwest Research and Outreach Center in Lamberton, Minnesota and Founding Chair and Lead Trainer for the Independent Organic Inspectors Association.[53] This expert evidence was critical both to distinguish the Gardens of Eagan organic farm and to provide a basis to change construction and maintenance practices to mitigate harms to other organic farms.

B. *Selected Evidence*

These experts provided specific explanations of the unique characteristics of organic farms, highlighting the vulnerability of organic vegetables to impairment of soil qualities and the holistic nature of organic production were highlighted in pre-filed testimony.[54]

According to Deborah Allen:

> The most important feature to remember about organic crop production is that an organic farmer relies almost entirely upon the soil's properties for crop production. The quality of the soil determines whether crops will be healthy and free from disease and building soil quality is the primary strategy that the organic crop farmer uses to protect crops from pests and disease.
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> Organic field crops are more vulnerable to degradation of soil quality than are conventional field crops, since they do not use synthetic fertilizers, insecticides, fungicides and herbicides to stimulate plant growth and prevent vulnerability to pests and weeds. Conventional row crops are less sensitive to stress because chemical inputs can compensate for poorer soil conditions. Thus these crops will show less loss of health, quality and yield when soil quality is poor.
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> Among organic crops, organic vegetable growth is the most sensitive to soil quality. For example, organic sweet corn is even more vulnerable to soil quality variation than organic field corn. Conventional vegetable seeds are often coated with fungicides and pesticides when they are planted. Organic vegetable seeds, which can use none of these chemical defenses, need optimal soil conditions to germinate and grow.[55]

According to James A. Riddle:

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53. Direct Testimony of James A. Riddle, *supra* note 20; Direct Testimony of Deborah L. Allan, *In re* Application of Minn. Pipe Line Co. for a Routing Permit for a Crude Oil Pipeline, Minn. Pub. Utils. Comm'n, No. PL-5/PPL-05-2003 (2006), *available at* http://www.frontiernet.net/~atinagoe/FinalTestDeborahALLAN.html; Affidavit of Atina Diffley, *supra* note 2.

54. Direct Testimony of Deborah L. Allan, *supra* note 54; Direct Testimony of James A. Riddle, *supra* note 20.

55. Direct Testimony of Deborah L. Allan, *supra* note 54.

> On a conventional farm, destruction of vegetation on parts of the farm that do not produce crops is unlikely to cause significant harm. On a certified organic farm, chemical fungicides and pesticides are prohibited. To prevent pests and disease, organic farmers use waterways, hedgerows and other areas reserved for habitat to create a delicate balance of beneficial insects, birds and mammals as well as soil biological life. Destruction of vegetation on non-crop producing habitat reserve areas would affect farm ecology, impacting pest and disease control on the entire farm, placing all crops at risk. An organic farm is a system that is greater than the sum of its parts.[56]

Expert evidence also explained the effect that pipeline construction and maintenance practices could have on organic certification:

> Pipeline construction and maintenance practices that may not be significant for conventional commodity agriculture may contaminate organic soils and threaten organic certification. . . .Equipment brought on site for construction and maintenance of the crude oil pipeline, refueling or servicing of vehicles and other activities of workers as well as leaks and spills may bring fertilizers, pesticides, herbicides, tobacco, heavy metal, toxic petrochemicals and other contaminants onto an organic farm. The pipeline itself is treated with chemicals that may not be permitted on a certified farm. . . . For the organic farmer, either a spill or a slow leak of crude oil would almost certainly result in revocation of organic certification. It is not clear that such organic certification could ever be restored, if the oil permeated the soil from below.[57]

Addressing the issue of economic impacts pertinent to routing matters, expert testimony also focused on the differential impacts of a pipeline on an organic vegetable farm as compared to construction across a conventional commodity farm.[58]

> Organic crop systems and, particularly organic vegetable crops are highly vulnerable to the impacts of pipeline construction and maintenance. Constructing a crude oil pipeline on an organic vegetable farm like the Gardens of Eagan would be far more detrimental and costly than routing the pipeline on other agricultural land. . . . Based on my research on developing sustainable agriculture and my work with farmers throughout the Midwest, I believe that the losses to an organic vegetable farm from diminished soil quality are of a different character and order of magnitude than on a conventional crop farm. To start with, the value on a per acre basis of conventional field crops is only in the range of two to three hundred dollars per acre. The average value on a per acre basis of organic vegetables is about $10,000. . . . [T]he market for premium organic products is unforgiving. Sub-standard organic vegeta-

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56. Direct Testimony of James A. Riddle, *supra* note 20.
57. *Id*. (internal citations omitted).
58. *Id*.

> ble products cannot be marketed without damaging the relationships and reputations needed with suppliers.[59]

Expert witnesses also focused on specific potential adverse impacts to Gardens of Eagan to recommend avoidance of this organic vegetable farm.

> Gardens of Eagan reserves 35 percent of the 120 total farm acres for ecological set aside. The crude oil pipeline route proposed by MPL would disrupt an intermittent waterway that was improved, graded and planted with grasses to prevent run-off from neighboring conventional farms from spilling onto fields in the event of a large rain. Trenching in this location could allow run-off containing prohibited substances from neighboring farms to contaminate large segments of the Gardens of Eagan's organic fields. The MPL proposal would also disrupt habitat for beneficial insects and birds that keep insect pests in check and the habitat for mice that eat weed seeds left on surface soils.[60]
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> The MPL proposal would also disrupt habitat for beneficial insects and birds that keep insect pests in check and the habitat for mice that eat weed seeds left on surface soils. As the Organic Management Plan documents, Gardens of Eagan practices to control weeds including leaving seeds on surface for consumption by rodents and birds and practices to combat pests include maintaining habitat to support biodiversity of soil, insects, birds, and wildlife.
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> . . .
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> Gardens of Eagan has had 15 years of soil building in its current location. This is the key to their productivity, quality and resistance to weeds and pests in a fully organic system. If MPL were permitted to build a crude oil pipeline across the Gardens of Eagan, it is unknown how long it would take to restore the soil to current productive levels or even whether such restoration would be possible[.][61]
>
> In my opinion, it is likely that Gardens of Eagan would have total crop loss from several organic vegetable fields for a period that could be many years in duration. If the crude oil pipeline were to be constructed where the Minnesota Pipe Line Company proposed, the viability of the Gardens of Eagan farm itself would be placed in jeopardy.[62]

Professor Deborah Allan and Organic Outreach Coordinator James Riddle made specific recommendations to avoid pipeline routing across the Gardens of Eagan organic farm.[63] Their expertise also contributed substantially to development of protections for organic farms proposed as modifications to MPL's

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59. Direct Testimony of Deborah L. Allan, *supra* note 54.
60. Direct Testimony of James A. Riddle, *supra* note 20.
61. *Id.*
62. Direct Testimony of Deborah L. Allan, *supra* note 54.
63. Direct Testimony of James A. Riddle, *supra* note 20.

proposed AIMP. Expert recommendations to the Administrative Law Judge included the following:

> [I]f a pipeline is approved, the Public Utilities Commission should designate a route that avoids the Gardens of Eagan organic farm.[64]
>
> Route alignments selected by the Commission for the MinnCan crude oil pipeline as a whole should be selected to minimize impacts on organic farms and organic certification. Where there are feasible alternatives, organic farms should be avoided to reduce risks of soil destruction, contamination and decertification.
>
> . . .
>
> The Commission should require that the Minnesota Pipe Line Company amend its Agricultural Impact Mitigation Plan to protect organic farming and certification.[65]
>
> Because of the differences between organic and conventional farming, the Agricultural Impact Mitigation Plan for this project should distinguish between organic and non-organic agricultural lands and require specific practices to minimize the harm to organic soils, restore soil horizons and qualities, scientifically verify soil restoration and provide appropriate compensation when soils and productivity are impaired.[66]

C. *Outcome – Protection of Gardens of Eagan and other Organic Farms*

After the above-described expert testimony was filed, MPL entered into negotiations to resolve issues raised by the Gardens of Eagan. MPL agreed to an alternative route that would not cross the Gardens of Eagan farm at any point.[67] Although MPL would not agree to the policy of avoiding all organic farms unless there was no feasible alternative, it agreed to a number of protections of organic farms that may serve as an incentive for avoidance of organic lands. The Minnesota Department of Agriculture participated in these negotiations and gave its support to including protections for organic agriculture in an appendix to the AIMP applicable to the MinnCan pipeline project.[68]

MPL agreed to implement what they believe was the first organic agriculture mitigation plan in the country applicable to pipeline infrastructure. This agreement was made part of the record of the MinnCan pipeline routing proceed-

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64. Direct Testimony of Deborah L. Allan, *supra* note 54.
65. Direct Testimony of James A. Riddle, *supra* note 20.
66. Direct Testimony of Deborah L. Allan, *supra* note 54.
67. *See* Exhibit 56, *supra* note 4.
68. *See id*; Exhibit 59, Letters to Minn. Dep't of Commerce, *In re* Application of Minn. Pipe Line Co. for a Routing Permit for a Crude Oil Pipeline, Minn. Pub. Utils. Comm'n No. PL-5/PPL-05-2003 (2006).

ing on September 5, 2006.[69] The following requirements of the *Organic Appendix to the AIMP* were incorporated in the routing permit and made legally enforceable along the entire permitted route:

- MPL will treat organic farms with the same level of care as other sensitive environmental features.[70]

- Work with the farmer's certifying agent or an organic consultant to identify ways to minimize impacts to organic farms.[71]

- Take specific actions to minimize the potential for decertification, such as equipment cleaning, using drop cloths, planting a deep-rooted cover crop instead of mechanical decompaction, applying composted manure or rock phosphate, preventing tobacco use, replacing beneficial bird or insect habitat, maintaining organic buffer zones and using organic seeds for cover crops.[72]

- No prohibited substances will be applied on organic land or adjacent to organic land so as to enter organic land. Do not use prohibited herbicides, pesticides, fertilizers or seeds. No refueling, fuel or lubricant storage or maintenance will be done on organic land and equipment will be checked to prevent leaks.[73]

- Remove and store organic topsoil and subsoil separately and replace them in proper sequence. Organic soils will not be removed from organic land and non-organic soils will not be brought onto organic land. [74]

- Use erosion control methods consistent with the Organic System Plan. Do not use prohibited materials, like treated lumber or non-organic hay bales, for erosion control on organic land. Prevent sediment from adjacent land from being deposited on organic farms.[75]

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69. Gardens of Eagan Proposed Findings of Fact and Conclusions, *supra* note 51 at ¶ 18.
70. *See infra* Appendix A, Introduction.
71. *See infra* Appendix A, Organic System Plan.
72. *See infra* Appendix A, Organic System Plan.
73. *See infra* Appenidx A, Prohibited Substances.
74. *See infra* Appendix A, Soil Handling.
75. *See infra* Appendix A, Erosion Control.

- Do not allow trench water from adjacent land to flow or be pumped onto organic land.[76]

- Implement weed control methods consistent with the Organic System Plan. Do not use prohibited substances in weed control on or adjacent to organic land in such a way as to allow drift onto organic land.[77]

- Compensation will be based on crop yield and/or crop quality determinations and the need for additional restoration activities. MPL will pay for a professional agronomist and any needed soil sampling, testing and additional restoration.[78]

- Damages will include losses from decertification of any portion of organic agricultural land so long as a good faith effort is made to regain certification.[79]

The *Organic Appendix to the AIMP* suggested that MPL hire an agricultural monitor or organic certifier to monitor construction and restoration on organic farms for compliance with organic mitigation measures.[80] The Minnesota Public Utilities Commission (PUC) clarified this requirement so that MPL must retain a "qualified organic consultant" at its expense to assist any landowner with a farm that is organic or is in active transition to become organic in identifying site-specific construction practices to minimize damage during construction or loss or delay of organic certification.[81]

IV. STANDARD OF PRACTICE TO MITIGATE HARM TO ORGANIC FARMS

Since the implementation of the *Organic Appendix to the AIMP* in the MPL case, other jurisdictions have begun to require that agricultural impact mitigation plans provide additional protection to organic agriculture. The Federal Energy Regulatory Commission (FERC) required mitigation specific to organic

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76. *See infra* Appendix A, Water in Trenches.
77. *See infra* Appendix A, Weed Control.
78. *See infra* Appendix A, Compensation for Construction Damages.
79. *See infra* Appendix A, Compensation for Construction Damages.
80. *See infra* Appendix A, Monitoring.
81. Pipeline Routing Permit for a Crude Oil Pipeline at 9, *In re* Application of Minn. Pipe Line Co. for a Routing Permit for a Crude Oil Pipeline, Minn. Pub. Utils. Comm'n No. PL-5/PPL-05-2003 (2007).

farms in Wisconsin proceedings certifying the Guardian natural gas pipeline.[82] In this case, which involved approximately 119.2 miles of 12-30 inch diameter natural gas pipeline extending from Ixonia to Green Bay, Wisconsin, the Wisconsin Department of Agriculture, Trade and Consumer Protection developed best practices to address impacts on farmland, including "construction procedures across and in the vicinity of Certified Organic Farms."[83] These practices and recommendations in the Final Environmental Impact Statement (Final EIS), to reduce the environmental impact resulting from construction and operation of the pipeline, were required in the FERC certification order.[84]

The Final EIS for the Guardian Project noted that two organic farms were located in the vicinity of the project and cited potential impacts on organic farms due to soil contamination with prohibited substances and loss of fertility due to impacts to healthy organic soil structure.[85] Best management practices for organic farms were summarized as follows:

> Guardian recognizes that organic agricultural land is a unique feature of the landscape and will treat this land with the same level of care as other sensitive environmental features.[86]
>
> To minimize impacts on certified organic farms, Guardian would implement site-specific construction techniques based on a Best Management Practice (BMP) for organic agricultural land which have been incorporated in Guardian's AMP Agricultural Management Plan (AMP).[87]
>
> Guardian's BMP for organic agricultural land would identify mitigation measures that apply specifically to farms that are Certified Organic or farms that are in active transition to become Certified Organic, and will address the unique management and certification requirements of these operations. . . . As part of this BMP, Guardian would request a copy of the Organic System Plan for the farm and will work with each producer, landowner or tenant to develop a site-specific plan to cross the farm in a manner that would minimize the risk of losing certification.[88]

In addition to mitigating impacts on organic farms, decision-makers may also include the presence of organic farms as a factor in determining route selec-

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82. Guardian Pipeline, L.L.C., 121 Fed. Energy Reg. Comm'n Rep. (CCH) ¶¶ 61,259, 62,295 (Dec. 14, 2007).

83. *Id.*

84. *Id.* at ¶ 62,297.

85. FED. ENERGY REG. COMM'N, FINAL ENVIRONMENTAL IMPACT STATEMENT ON GUARDIAN EXPANSION AND EXTENSION PROJECT 2-24 (2007), *available at* http://www.ferc.gov/industries/gas/enviro/eis/2007/10-26-07.asp.

86. *Id.*

87. *Id.*

88. *Id.*

tion. In state proceedings regarding routing of the Guardian Pipeline, two route alternatives were rejected by the Wisconsin Public Service Commission for a portion of the pipeline, based in part on the concern that "the initial evaluation of these alternatives identified significant unknown issues with construction through an organic farm, which questioned their viability as options."[89] The Wisconsin Commission specifically noted that, "[t]he organic farm crossing could raise issues that make these alternatives not practicable."[90]

V. CONCLUSION

There is an evolving standard of practice in siting and routing of energy infrastructure that provides additional protection for organic farms. From the perspective of legal practice, counsel should be aware of timing issues to protect the interests of organic farms located on or adjacent to a proposed route for a pipeline, power line or other element of energy infrastructure. The time to propose alternative routes to avoid a specific organic farm is specified in rules and, often in pre-hearing orders for a particular contested case. Missing this deadline creates additional obstacles to avoidance or an organic farm. Important advice for organic farmers is not to agree to easement terms proposed by a utility or company until they have discussed the potential of route avoidance, consulted with their certifier and addressed any issues that might impair production or certification on their specific organic farm.

Expert testimony was critical in developing the standard of best management practices reflected in the Gardens of Eagan case study. Additional expert evidence pertaining to organic farms and adverse impacts of infrastructure may be needed to address issues beyond the scope of this case study. For example, as new high voltage power lines are proposed, impacts of electromagnetic fields on livestock and field workers in organic farming may become more salient.

It is strongly suggested, based on precedent and factual differences between organic and conventional farms, that farmers and their counsel proactively seek protection of production and certification interests through avoidance of the organic farm or through specific practices designed to mitigate adverse impacts to organic agriculture. Government officials, at a local, state and federal level, should also recognize the distinctive nature of organic agriculture and the contin-

89. Final Decision at 13, Application of Wisc. Gas LLC, as a Gas Public Utility, for Authority to Construct Natural Gas Lines in Dodge and Washington Counties, Wisc. for the Purpose of Connecting its Existing Natural Gas Distrib. Sys. in the Hartford and West Bend Areas to a Proposed Expansion of the Guardian Pipeline, Wisc. Pub. Serv. Comm'n No. 6650-CG-220 (2007).

90. *Id*.

ued appropriateness of requiring specific best management practices to protect production and certification of organic farms.

APPENDIX A
Appendix to Agricultural Impact Mitigation Plan for Organic Agricultural Land[91]

Introduction

This appendix identifies mitigation measures that apply specifically to farms that are Organic Certified or farms that are in active transition to become Organic Certified, and is intended to address the unique management and certification requirements of these operations. All protections provided in the Agricultural Impact Mitigation Plan must also be provided to Organic Agricultural Land in addition to the provisions of this appendix. The provisions of this appendix will apply to Organic Agricultural Land for which the Landowner or Tenant has provided to MPL a true, correct and current version of the Organic System Plan within 60 days after the signing of the easement for such land or 60 days after the issuance of a Routing Permit to MPL by the PUC, whichever is sooner, or, in the event the easement is signed later than 60 days after the issuance of the Routing Permit, the provisions of this appendix are applicable when the Organic System Plan is provided to MPL at the time of the signing of the easement. MPL recognizes that Organic Agricultural Land is a unique feature of the landscape and will treat this land with the same level of care as other sensitive environmental features.[92]

Definitions

Unless otherwise provided to the contrary in this Appendix, capitalized terms used in this Appendix shall have the meanings provided below and in the AIMP. In the event of a conflict between this Appendix and the AIMP with respect to definitions, the definition provided in this Appendix will prevail, but only to the extent such conflicting terms are used in this Appendix. The definition provided for the defined words used herein shall apply to all forms of the words.

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91. Exhibit 56, Stipulation Between Minn. Pipe Line Co. & Gardens of Eagan, Appendix to Agric. Impact Mitigation Plan For Organic Agric. Land, *In re* Application of Minn. Pipe Line Co. for a Routing Permit for a Crude Oil Pipeline, Minn. Pub. Utils. Comm'n No. PL-5/PPL-05-2003 (2006), *available at* http://frontiernet.net/~atinagoe/organic%20appendix.html.

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Apply:	To intentionally or inadvertently spread or distribute any substance onto the exposed surface of the soil.
Certifying Agent:	As defined by the National Organic Program Standards, Federal Regulations 7 CFR Part 205.2.
Decertified or Decertification:	Loss of Organic Certification.
Organic Agricultural Land:	Farms or portions thereof described in 7 CFR Parts 205.100, 205.202, and 205.101.
Organic Buffer Zone:	As defined by the National Organic Program Standards, Federal Regulations 7 CFR Part 205.2.
Organic Certification or Organic Certified:	As defined by the National Organic Program Standards, Federal Regulations 7 CFR Part 205.100 and 7CFR Part 205.101.
Organic System Plan:	As defined by the National Organic Program Standards, Federal Regulations 7 CFR Part 205.2.
Prohibited Substance:	As defined by the National Organic Program Standards, Federal Regulations 7 CFR Part 205. 600 through 7 CFR Part 205.605 using the Regulations 7 CFR Part 205. 600 through 7 CFR Part 205.605 using the criteria provided in 7 USC 6517 and 7 USC 6518.

Organic System Plan

MPL recognizes the importance of the individualized Organic System Plan (OSP) to the Organic Certification process. MPL will work with the Landowner or Tenant, the Landowner or Tenant's Certifying Agent, and/or a mutually acceptable third-party Organic consultant to identify site specific construction practices that will minimize the potential for Decertification as a result of construction activities. Possible practices may include, but are not limited to: equipment cleaning, use of drop cloths during welding and coating activities; removal and storage of topsoil; planting a deep-rooted cover crop in lieu of mechanical decompaction; applications of composted manure or rock phosphate; preventing the introduction of disease vectors from tobacco use; restoration and replacement of beneficial bird and insect habitat; maintenance of organic buffer zones; use of organic seeds for any cover crop; or similar measures. MPL recognizes that Organic System Plans are proprietary in nature and will respect the need for confidentiality.

Prohibited Substances

MPL will avoid the Application of Prohibited Substances onto Organic Agricultural Land. No herbicides, pesticides, fertilizers or seed will be applied unless requested and approved by the Landowner. Likewise, no refueling, fuel or lubricant storage or routine equipment maintenance will be allowed on Organic Agricultural Land. Equipment will be checked prior to entry to make sure that fuel, hydraulic and lubrication systems are in good working order before working on Organic Agricultural Land. If Prohibited Substances are used on land adjacent to Organic Agricultural Land, these substances will be used in such a way as to prevent them from entering Organic Agricultural Land.

Soil Handling

Topsoil and subsoil layers that are removed during construction on Organic Agricultural Land will be stored separately and replaced in the proper sequence after the pipeline is installed. Unless otherwise specified in the site-specific plan described above, MPL will not use this soil for other purposes, including creating access ramps at road crossings. No topsoil or subsoil (other than incidental amounts) may be removed from Organic Agricultural Land. Likewise, Organic Agricultural Land will not be used for storage of soil from non-Organic Agricultural Land.

Erosion Control

On Organic Agricultural Land, MPL will, to the extent feasible, implement erosion control methods consistent with the Landowner or Tenant's Organic System Plan. On land adjacent to Organic Agricultural Land, MPL's erosion control procedures will be designed so that sediment from adjacent non-Organic Agricultural Land will not flow along the right-of-way and be deposited on Organic Agricultural Land. Treated lumber, non-organic hay bales, non-approved metal fence posts, etc. will not be used in erosion control on Organic Agricultural Land.

Water in Trenches

During construction, MPL will leave an earthen plug in the trench at the boundary of Organic Agricultural Land to prevent trench water from adjacent land from flowing into the trench on Organic Agricultural Land. Likewise, MPL will not allow trench water from adjacent land to be pumped onto Organic Agricultural Land.

Weed Control

On Organic Agricultural Land, MPL will, to the extent feasible, implement weed control methods consistent with the Landowner or Tenant's Organic System Plan. Prohibited Substances will not be used in weed control on Organic Agricultural Land. In addition, MPL will not use Prohibited Substances in weed control on land adjacent to Organic Agricultural Land in such a way as to allow these materials to drift onto Organic Agricultural Land.

Mitigation of Natural Resource Impacts

MPL will not use Organic Agricultural Land for the purpose of required compensatory mitigation of impacts to natural resources such as wetlands or woodlands unless approved by the Landowner.

Monitoring

In addition to the responsibilities of the Agricultural Monitor described in the AIMP, the following will apply:

- The Agricultural Monitor or a USDA-approved Organic Certifier retained by MPL will monitor construction and restoration activities on Organic

Agricultural Land for compliance with the provisions of this appendix and will document activities that could result in Decertification.

- Instances of non-compliance will be documented according to Independent Organic Inspectors Association protocol consistent with the Landowner's OSP, and will be made available to the MDA, the Landowner, the Tenant, the Landowner's or Tenant's Certifying Agent, and to MPL.

If the Agricultural Monitor is responsible for monitoring activities on Organic Agricultural Land, he/she will be trained, at MPL's expense, in organic inspection, by the Independent Organic Inspectors Association, unless the Agricultural Monitor received such training during the previous three years.

Compensation for Construction Damages

The settlement of damages will be based on crop yield and/or crop quality determination and the need for additional restoration measures. Unless the Landowner or Tenant of Organic Agricultural Land and Company agree otherwise, at the Company's expense, a mutually agreed upon professional agronomist will make crop yield determinations, and the Minnesota Department of Agriculture Fruit and Vegetable Inspection Unit will make crop quality determinations. If the crop Agriculture Fruit and Vegetable Inspection Unit will make crop quality determinations. If the crop yield and/or crop quality determinations indicate the need for soil testing, the testing will be conducted by a commercial laboratory that is properly certified to conduct the necessary tests and is mutually agreeable to MPL and the Landowner or Tenant. Field work for soil testing will be conducted by a Professional Soil Scientist or Professional Engineer licensed by the State of Minnesota. MPL will be responsible for the cost of sampling, testing and additional restoration activities, if needed. Landowners or Tenants may elect to settle damages with MPL in advance of construction on a mutually acceptable basis or to settle after construction based on a mutually agreeable determination of actual damages.

Compensation for Damages Due to Decertification

Should any portion of Organic Agricultural Land be Decertified as a result of construction activities, the settlement of damages will be based on the difference between revenue generated from the land affected before Decertification and after Decertification so long as a good faith effort is made by the Landowner or Tenant to regain Certification.