

WESTERN UPPER PENINSULA HEALTH DEPARTMENT
RESIDENTIAL ON-SITE SEWAGE PROGRAM
ALTERNATIVE TECHNOLOGY POLICY

Subject:	Residential On-Site Sewage Program Alternative Technology Policy	Date: June 15, 2001
Scope:	Environmental Health Division Staff and Western Upper Peninsula Community	Effective Date: July 1, 2001

Purpose:

To establish an Alternative Technology Policy for the agency's residential on-site sewage program assuring that the agency's staff, clients, and sewage system designers and installers have information defining the agency's requirements for alternative sewage systems proposed for sites not meeting the minimum requirements of the Superior Environmental Health Code. The policy also defines the requirements for operation, maintenance, and monitoring of systems installed in accordance with the policy.

Policy:

It is the policy of the Western Upper Peninsula District Health Department to assess each residential building site requiring on-site sewage treatment and disposal for compliance with the requirements of the Superior Environmental Health Code. When the department determines that a site does not meet the minimum requirements of the code, Article 5.3.2(9) allows the health officer to issue a construction permit for an alternative sewage system. In order to safeguard groundwater and surface water, and to prevent imminent public health hazards caused by surface discharge of untreated sewage, the Alternative Technology Policy is to be used for alternative sewage systems installed on sites with limited treatment capability.

This policy does not apply to commercial building sites regulated by the Michigan Criteria for Subsurface Sewage Disposal, or to residential subdivisions, or to land divisions with lots less than one acre in size.

Approvals:

Western Upper Peninsula District Health Department Board of Health Date: 06-25-01

M. Gail Shebuski, MD, Health Officer Date: 07-02-01

Guy St. Germain, Administrator Date: 07-02-01

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1.0 SOIL AND SITE EVALUATIONS FOR ALTERNATIVE WASTEWATER TREATMENT SYSTEMS CONSISTING IN PART OF IN-SITU SOIL

- 1.01 **Purpose.** The purpose of this Section is to establish the minimum requirements for evaluating and reporting soil and site characteristics that may affect treatment or dispersal of wastewater, treated wastewater, or final effluent.
- 1.02 **Scope. (a)** This Section applies to soil and site evaluations for proposed building sites not meeting the minimum sewage system suitability standards set forth in the *Superior Environmental Health Code*.
(b) This Section applies only to sites containing the minimum required six (6) inches or greater of in-situ soil types for which soil treatment capability has been credited, as described in Section 2.0 *Minimum Criteria for Alternative Wastewater Treatment Systems Consisting in Part of In-Situ Soil*, Subsection 2.08 *Infiltrative Surface*.
- 1.03 **Qualifications.** A soil and site evaluation for the dispersal of wastewater, treated wastewater, or final effluent from an alternative wastewater treatment system shall be performed by: a licensed or degreed soil tester; a professional engineer; a degreed or registered sanitarian; or other individual properly trained to evaluate soils and site features for the purposes of on-site wastewater treatment and dispersal.
- 1.04 **Soil Evaluations. (1) General.** Maximum soil application rates shall be determined relative to the soil texture, structure, and consistence for each soil horizon or layer.
(2) Number and Depth of Soil Evaluations. The number, type, depth, and location of soil profile evaluations shall be sufficient to delineate the area under investigation and to assure consistency of the data within that area.
(a) Number of Soil Evaluations. A minimum of three (3) soil profile evaluation excavations shall be used to delineate a site within which a sewage treatment or dispersal component consisting in part of in-situ soil are to be located. For estimated daily flows of less than 1,000 gallons per day, at least one (1) of the soil profile evaluation excavations must be in the form of a soil pit, the remaining two (2) may be in the form of a soil boring.
(b) Depth of Soil Evaluations. Soil profile evaluations shall extend an adequate depth below the land surface to identify soil properties critical to soil treatment or dispersal of wastewater, treated wastewater, or final effluent. Sewage system design considerations should be taken into account prior to evaluating the soil.
(3) Evaluation Excavation Methods. (a) Soil Borings. Soil borings shall be created by means of a soil bucket auger, soil probe, split-spoon sampler or Shelby tube having at least a two (2) inch diameter. A soil boring shall not be created by means of a power auger.
(b) Soil Pits. A soil pit shall be of adequate size, depth and construction to enable a person to safely enter and exit the pit and to complete a morphological soil profile description. Occupational Safety and Health Administration (OSHA) regulations may apply.
(4) Site Preservation. Special precautions shall be maintained to prevent destruction of the natural soil conditions of the site when creating a soil pit with the use of heavy equipment.
(5) Soil Pit Waiver. In the event that a proposed building site does not contain soils that can be classified by conventional means, or a site that does not contain soils of a thickness justifying the

construction of a soil pit, a waiver to the requirements of this Section may be petitioned per Subsection 1.10 *Waivers*.

- 1.05 Soil Profile Description and Interpretations. (1) General. (a)** A soil profile description shall be prepared for each soil profile excavation (soil boring or pit) constructed.
- (b)** Soil profile descriptions shall be written in accordance with the descriptive procedures, terminology and interpretations found in Chapter 3 of the *Soil Survey Manual*, USDA, October, 1993, except where modified by, or in conflict with this guideline.
- (c)** A soil profile description to substantiate soil application rates shall include at least all of the following morphological information for each soil horizon or layer:
1. Thickness in inches or decimal feet
 2. Munsell soil color notation
 3. Soil mottle or redoximorphic feature color, abundance, size, and contrast
 4. United States Department of Agriculture, USDA, soil textural class with rock fragment modifiers
 5. Soil structural grade, size and shape
 6. Soil consistence
 7. Root abundance and size
 8. Soil boundary
 9. Occurrence of saturated soil, groundwater, bedrock or disturbed soil
- (2) Soil Interpretations. (a)** Redoximorphic features or mottles shall be interpreted as zones of seasonal or periodic soil saturation or groundwater, except as provided under the following subpart
- (3) Soil Color Pattern Exemptions.**
- (b)** Unless determined otherwise, the highest elevation of seasonal soil saturation shall be the ground surface where redoximorphic features are present within four (4) inches of the bottom of the A horizon.
- (3) Soil Color Pattern Exemptions. (a)** A qualified soil evaluator may discount the following conditions, not limited by enumeration, as indicators of seasonally saturated soil:
1. Fossilized soil color patterns formed by historic periodic soil saturation.
 2. A soil profile that has an abrupt textural change, consisting of silt loam or finer textures overlying at least four (4) feet of unsaturated loamy sand or coarser textured soil and two (2) feet or less of periodically saturated soil immediately above the coarser material.
 3. Redoximorphic features orientated along old or decayed root channels
 4. Residual sandstone colors
 5. Unevenly weathered glacially deposited material, glacially deposited material naturally gray in color, or concretionary material in various stages of decomposition
 6. Deposits of lime
 7. Light colored silt or fine sand coatings on soil ped surfaces
- (4) Soil Color Pattern Reports.** The qualified soil evaluator shall report and describe any soil color pattern exemptions encountered.
- (5) Determination Requests.** A qualified soil evaluator may request a determination by the department staff on the significance of unusual soil color patterns usually indicating soil saturation when other evidence of soil saturation is not present. The department may decline to make such

determinations, and defer to the use of soil saturation determinations pursuant to Subsection 1.08 *Soil Saturation Determinations/Disputes*, or some other method to make a determination.

1.06 Soil and Site Evaluation Reports. (1) General. A soil and site evaluation report shall be prepared and submitted to the department having jurisdiction upon completion of the evaluation and associated report form.

(2) Evaluation Report Format. Soil and site evaluation reports shall be prepared in a format specified by the department and as specified below.

(3) Report Contents. (a) Site Evaluation Report. A site evaluation report shall include at least all of the following:

1. The client's name, address and phone number
2. The site's legal description to within 40 acres
3. The parcel size
4. The property tax identification number
5. The name, title, address and phone number of the qualified site evaluator
6. The date the site evaluation was conducted
7. A legible permanent site plan that:
 - a. Is presented on paper no smaller than 8 2 inches by 11 inches in size
 - b. Is drawn to scale or fully dimensioned.
 - c. Shows the extent of the site evaluated for soil dispersal or treatment.
8. Location information for all points under investigation including structures, property lines and other encumbrances to the treatment or dispersal component placement on the site
9. Pertinent elevation data, such as:
 - a. A reference to, and description of, a permanent vertical and horizontal reference point or bench mark from which all distances and elevations are delineated on the site plan;
 - b. The natural, undisturbed surface grade elevation for all soil profile excavations;
 - c. The percent and direction of land slope for the site under evaluation;
 - d. Ground surface contour lines at an interval appropriate for the conditions present;
 - e. The floodplain elevation, if established, and current surface elevation of any adjacent navigable waters, reservoirs, or other pertinent surface water bodies; and
 - f. The existing grade adjacent to a groundwater elevation observation pipe, the top of an observation pipe, and the bottom of an observation pipe (if applicable)
10. Other observations as appropriate

(b) Soil Evaluation Report. A soil evaluation report shall include at least all of the following:

1. A site evaluation report attached as described in part 3(a) above
2. The client's name, address and phone number
3. The site's legal description to within 40 acres
4. The name, title, address and phone number of the qualified soil evaluator
5. The date the soil evaluation(s) were conducted
6. Soil profile descriptions pursuant to Subsection 1.05 *Soil Profile Description and Interpretations* for all soil profile evaluation excavations

- 1.07 Departmental Review. (1) General. (a)** The department shall review all soil evaluation and site evaluation reports within 30 days of receipt.
- (b)** Upon completing the review of an evaluation report the department shall accept the report, reject the report, request additional information or clarification, or require verification.
- (c)** When a report is deemed acceptable, the department shall so indicate on the report and file the report for future reference.
- (d)** If the report is not acceptable, the department shall notify the submitter, in writing, and shall state the deficiencies or actions, or both, necessary to bring the report into compliance with the requirements of this guideline.
- (2) Verification. (a) Soil.** The department may require the property owner or the qualified soil tester to provide soil pits for verification of soil profile evaluation data. The qualified soil evaluator who is responsible for the soil evaluation report shall be present at the site during the verification of soil profile evaluation data if so requested by the department.
- (b) Site.** The department may require the property owner or the qualified individual who prepared the site evaluation report to provide assistance and equipment to verify site conditions. The qualified individual who is responsible for the site evaluation report shall be present at the site during verification of site conditions if so requested by the department.
- (c) Report.** The department shall complete a written report for each soil or site verification completed, and the results or findings of the report shall be filed with the appropriate evaluation report for future reference.
- 1.08 Soil Saturation Determinations/Disputes. (1) General. (a)** A property owner, or their agent, may submit documentation to the department to prove that redoximorphic features, or other soil color patterns, at a particular site are not indicative of periodically saturated soil conditions or high groundwater elevation.
- (b)** Documentation shall be in the form of an interpretative determination, soil saturation determination, or hydrograph procedure.
- (c)** The department highly recommends the qualified soil evaluator consult with the department staff regarding the required data collection prior to compiling an interpretative determination, soil saturation determination, or hydrograph procedure.
- (d)** The department must be given the opportunity to observe site activities related to a soil saturation determination/dispute in order to collect and verify information for subsequent decision making.
- 1.09 Other Soil and Site Evaluation Guidelines (1) General.** The Western U.P. Health Department refers to the Wisconsin Department of Commerce and Wisconsin Department of Natural Resources regulations and guidelines applicable to innovative, alternative and experimental on-site wastewater data collection, on-site wastewater system design and decision making processes.
- (2) Chapter Comm 85.** Wisconsin Administrative Code, Chapter Comm 85 *Soil and Site Evaluations* was utilized as a reference for parts 1.01 through 1.08 of this Section, and in many instances, practices were directly adopted from Comm 85. A qualified soil evaluator is encouraged to follow Comm 85 rules when preparing soil and site evaluation reports for submittal to the department.
- (3) Other Guidelines.** A qualified soil evaluator may elect to utilize another guideline when collecting and reporting soil and site evaluation information. In the event a qualified soil evaluator

elects to utilize another guideline, the evaluator must ensure that all information required by this Section is included as part of the evaluation(s) and evaluation report submittal(s).

- 1.10 Waivers.** All proposed building sites present unique situations, and not all components of this Section may pertain. In the event that a qualified soil evaluator, or other qualified professional, wishes to contest the components of this Section, the following shall be followed:
1. A written application must be submitted to the department indicating the reason for waiver request (i.e. unique site conditions, minimal soil depths, absence of soil, remoteness of location, obstructed access, undue hardship etc.).
 2. The written request must include the site's legal description to within 40 acres, parcel size and the property tax identification number.
 3. The written request must include a legible permanent site plan that:
 - a. Is presented on paper no smaller than 8 2 inches by 11 inches in size;
 - b. Is drawn to scale or fully dimensioned;
 - c. Shows the intended site(s) for soil dispersal or treatment;
 - d. Shows the proposed or existing well location;
 - e. Shows nearest property lines;
 - f. Shows neighboring property site features potentially impacted by proposed development; and
 - g. Shows surface water and floodplain features if applicable.
 4. The written request must describe intended use of property.
 5. The written request must include a discussion of soil features as interpreted by review of a United States Department of Agriculture, Soil Conservation Service, *Soil Survey*, or other reputable source.
 6. A geological/hydrogeological/hydrological etc. discussion if appropriate.
 7. Any other relative scientific literature or site information that may assist in the decision making process.
 8. The department will provide a written response to the waiver request within 15 department working days from date of receipt.

2.0 MINIMUM CRITERIA FOR ALTERNATIVE WASTEWATER TREATMENT SYSTEMS CONSISTING IN PART OF IN-SITU SOIL

- 2.01 Purpose.** The purpose of this Section is to provide minimum soil, site, and design criteria for the treatment and dispersal of treated wastewater or final effluent from an alternative secondary on-site wastewater treatment system consisting in part of in-situ soil.
- 2.02 Scope.** This Section applies to proposed building sites not meeting the minimum sewage system suitability standards set forth in the *Superior Environmental Health Code*.
- 2.03 Soil and Site Evaluations.** Soil and site evaluations for alternative sewage systems, consisting in part of in-situ soil, shall be evaluated in accordance with the guidelines provided in Section 1.0 *Soil and Site Evaluations for Alternative Wastewater Treatment Systems Consisting in Part of In-Situ Soil*.
- 2.04 Secondary On-site Wastewater Treatment System Performance Standards/Effluent Quality**
(a) The quality of effluent discharged from an alternative secondary on-site wastewater treatment system to in-situ soil, shall be equal to or less than all of the following:
 1. A monthly average of 30 mg/L Biological Oxygen Demand (BOD₅)
 2. A monthly average of 30 mg/L Total Suspended Solids (TSS)
 3. A monthly geometric mean of 10⁴ Fecal Coliform (FC) Colony Forming Units (cfu) per 100 ml
 4. Other chemical or biological standards that may be set at the discretion of the department as a result of a risk assessment
- 2.05 Secondary On-site Wastewater Treatment System Designs. (1) General. (a)** Alternative secondary on-site wastewater treatment systems shall be designed to hold wastewater and reduce the contaminant load of wastewater for dispersal to in-situ soil.
(b) Alternative secondary on-site wastewater treatment systems shall be designed to have sufficient capacity to accommodate the anticipated quantities of wastewater that will be discharged into the system.
(c) Alternative secondary on-site wastewater treatment systems intended to treat and disperse wastewater shall be designed to have sufficient ability to treat or separate out the anticipated types, quantities and concentrations of wastewater contaminants to be discharged into the system so that the dispersed wastewater will not create a human health hazard.
(2) Design Basis. It is recommended that alternative secondary on-site wastewater treatment systems be designed in accordance with Wisconsin Administrative Code, Chapter Comm 83, *Private Onsite Wastewater Treatment Systems*, and Chapter Comm 84, *Plumbing Products*.
- 2.06 Recognized Secondary On-site Wastewater Treatment System Methods and Technologies. (1) General. (a)** Alternative secondary on-site wastewater treatment system methods and technologies that are recognized by Wisconsin Administrative Code, Chapter Comm 84, *Plumbing Products*, under the voluntary product approval process, may be utilized in a design for a specific project.
(b) The level of effluent quality shall be demonstrated to the department by means of standard institute approvals, third party scientifically reviewed papers, detailed research papers or other

proven methods for determining the consistent performance of an alternative secondary on-site wastewater treatment system. The data must clearly document the manufacturer's claims as to the performance of a product.

(c) The performance data of an alternative secondary on-site wastewater treatment system shall have relevancy to the conditions encountered within the states of Michigan and Wisconsin.

(2) **Deviations.** (a) In lieu of recognized methods and technologies, a designer may opt to use another proven design for secondary wastewater treatment. Requests for alternate treatment system designs shall be accompanied by detailed system design and construction plans by a professional engineer, certification of the performance capabilities of the product submitted by a professional engineer, research supporting the proposed system materials, design and sizing, and empirical data showing the results of system use in other states with similar conditions.

(b) The detailed plans and information submitted with the approval request shall be reviewed by the department to determine whether or not there is a reasonable certainty that the information submitted provides evidence of the effectiveness and reliability of the proposed alternate secondary treatment method.

(c) If the department is not satisfied that the information submitted provides reasonable evidence of the effectiveness and reliability of the alternate method, the department shall deny the approval.

2.07 Distribution/Dispersal System Design. (1) General. (a) It is recommended that components for the dispersal of wastewater, treated wastewater or final effluent from an alternative secondary on-site wastewater treatment system be designed in accordance with Wisconsin Administrative Code, Chapter Comm 83, *Private Onsite Wastewater Treatment Systems*, Chapter Comm 84, *Plumbing Products*,

State of Wisconsin, Department of Commerce, Division of Safety and Buildings *Component Manuals*, and design manuals and research provided by the University of Wisconsin-Madison, Biological Systems Engineering Division.

(2) **Deviations.** (a) In lieu of the above referenced design guidelines, a designer may opt to use another proven method for designing a dispersal component. Requests for alternate dispersal system designs shall be accompanied by detailed system design and construction plans by a professional engineer, certification of the performance capabilities of the product submitted by professional engineer, research supporting the proposed system materials, design and sizing, and empirical data showing the results of system use in other states with similar soil conditions.

(b) The detailed plans and information submitted with the approval request shall be reviewed by the department to determine whether or not there is a reasonable certainty that the information submitted provides evidence of the effectiveness and reliability of the proposed alternate dispersal method.

(c) If the department is not satisfied that the information submitted provides reasonable evidence of the effectiveness and reliability of the alternate method, the department shall deny the approval.

2.08 Infiltrative Surface. (a) The infiltrative surface of unsaturated soil to which treated effluent is discharged shall be located at least 24 inches above the estimated highest groundwater elevation, bedrock, or other restrictive feature.

(b) At least six (6) inches of the 24-inch soil separation required shall be an in-situ soil type for which soil treatment capability has been credited in accordance with the Wisconsin Administrative

Code, Chapter Comm 83, Table 83.44-3 *Minimum Depth of Unsaturated Soil for Treatment Purposes*.

- 2.09 Dispersal Capabilities.** (a) The dispersal capability of an on-site wastewater treatment system dispersal component consisting in-part of unsaturated in-situ soil, shall be limited to that specified in Wisconsin Administrative Code, Chapter Comm 83, Table 83.44-1 *Maximum Soil Application Rates Based Upon Percolation Rates*, and/or Table 83.44-2 *Maximum Soil Application Rates Based Upon Morphological Soil Evaluations*.
- (b) The effluent parameter with the highest concentration shall determine the maximum application rate.
- (c) The soil conditions at the infiltrative surface of unsaturated soil to which effluent is to be discharged shall be used to establish the maximum application rate for dispersal design.
- (d) The moist soil consistence of the soil horizon, in which the infiltrative surface of an on-site wastewater treatment system dispersal component will be located, may not be stronger than firm or any cemented classification.
- (e) The maximum soil application for soil with moderate to strong platy structure shall not exceed 0.2 gals/sq. ft./day for effluent concentrations of \leq 30 mg/L BOD₅ and TSS and shall be 0.0 gals/sq. ft./day for effluent concentrations of $>$ 30 mg/L BOD₅ and TSS.
- (f) The design of a treatment or dispersal component consisting in part of in-situ soil shall reflect restrictive soil horizons that affect treatment or dispersal.
- 2.10 Effluent Distribution.** (a) The distribution of treated effluent to a treatment or dispersal component consisting of silt loam or finer soil material with weak platy or massive structure shall be accomplished by means of pressurized distribution.
- (b) The distribution of treated effluent to a dispersal component requiring fill material to achieve the required 24-inch soil separation to estimated highest groundwater elevation, bedrock, or other restrictive feature shall be accomplished by means of pressurized distribution.
- (c) Each dose of effluent by means of pressurized distribution into a dispersal component consisting in part of in-situ soil may not be less than five (5) times the void volume of the dispersal system distribution laterals.
- 2.11 Dispersal Component Orientation.** (a) The infiltrative surface of a dispersal component consisting in part of in-situ soil and located in fill material above original natural grade shall be level.
- (b) The longest dimension of a dispersal component consisting in part of in-situ soil shall be oriented along the surface contour of the component site location unless otherwise approved by the department.
- (c) Dispersal components consisting in part of in-situ soil shall be located as to minimize the infiltration of storm water into the component.
- 2.12 Dispersal Component Geometry.** The geometry of a dispersal component consisting in part of in-situ soil shall take into account the loading rates that are based on soil texture, structure, consistence and distance to seasonal soil saturation and restrictive soil horizons.
- 2.13 Isolation Distances.** (a) Standard minimum isolation distance requirements set forth in the *Superior Environmental Health Code* shall be observed.

(b) Justification for reductions in the standard minimum isolation distance requirements may be demonstrated for sites applying alternative, innovative or experimental on-site wastewater treatment systems.

(c) A variance from the standard minimum isolation distance requirements set forth in the *Superior Environmental Health Code* may be granted by the health officer when all of the following conditions exist:

1. No substantial health hazard or nuisance is likely to occur
2. Strict compliance with the code requirements would result in unnecessary or unreasonable hardship to the petitioner
3. No state, local statute, or other applicable laws would be violated
4. The protection of the environment, health, safety and general welfare of the public is demonstrated and assured
5. The variance is applied for in writing

(d) The department may decline a request for a variance when the protection of health, safety, and general welfare of the public is not demonstrated and assured.

2.14 Technology Selection. Technology selection for the treatment and dispersal of treated wastewater from an alternative secondary on-site wastewater treatment system consisting in part of in-situ soil, may be based on methods and limitations outlined Wisconsin Administrative Code, Chapter Comm 83, *Private Onsite Wastewater Treatment Systems*, or other documented data acceptable to the department.

2.15 Design Plans. (a) Design plans for alternative secondary on-site wastewater treatment systems and dispersal components, meeting the minimum design criteria outlined in this Section, shall be submitted to the department for review.

(b) The procedures and elements of a complete permit application and design plan submittal are outlined in Section 6.0 *Permit Applications and Design Plan Submittals*.

2.16 Unsuitable Building Sites. Proposed building sites not meeting the minimum soil and site criteria presented in this Section may be evaluated and assessed by alternate methods set forth in Section 3.0 *Addressing Building Sites Not Meeting Minimum Criteria for Alternative Wastewater Treatment Systems Consisting in Part of In-Situ Soil*, Section 4.0 *Risk-Based Analyses*, and Section 5.0 *Preliminary Plan Approvals*.

- 3.0 ADDRESSING BUILDING SITES NOT MEETING MINIMUM CRITERIA FOR ALTERNATIVE WASTEWATER TREATMENT SYSTEMS CONSISTING IN PART OF IN-SITU SOIL**
- 3.01 Purpose.** The purpose of this Section is to establish the minimum requirements for evaluating and reporting soil and site characteristics that may affect the treatment or dispersal of wastewater, treated wastewater, or final effluent from an alternative secondary on-site wastewater treatment system.
- 3.02 Scope.** (a) This Section applies to soil and site evaluations for proposed building sites not meeting the minimum sewage system suitability standards set forth in the *Superior Environmental Health Code*; and not meeting the minimum soil and/or site criteria described in Section 2.0 *Minimum Criteria for Alternative Wastewater Treatment Systems Consisting in Part of In-Situ Soil*. (b) This Section does not apply to building sites containing the minimum required six (6) inches or greater of in-situ soil types for which soil treatment capability has been credited as described in Section 2.0 *Minimum Criteria for Alternative Wastewater Treatment Systems Consisting in Part of In-Situ Soil*; and meeting the minimum isolation distance requirements set forth in the *Superior Environmental Health Code*.
- 3.03 Qualifications.** (1) **Soil and Site Evaluations.** A soil and site evaluation for the treatment or dispersal of wastewater, treated wastewater, or final effluent from an alternative technology treatment system shall be performed by; a licensed or degreed soil tester; a professional engineer; a degreed or registered sanitarian; or an individual properly trained to evaluate soils and site features for the purposes of on-site wastewater treatment and dispersal. (2) **System Design.** A design for the treatment or dispersal of wastewater, treated wastewater, or final effluent for a building site not meeting the minimum soil and/or site criteria described in Section 2.0 *Minimum Criteria for Alternative Wastewater Treatment Systems Consisting in Part of In-Situ Soil*, shall be endorsed and officially stamped by a professional engineer.
- 3.04 Soil Evaluations for Denied Sites.** (1) **General.** Proposed building sites not meeting the minimum soil criteria described in Section 2.0 *Minimum Criteria for Alternative Wastewater Treatment Systems Consisting in Part of In-Situ Soil*, may be evaluated by methods described in this Section. (2) **Number and Depth of Soil Evaluations.** The number, type, depth, and location of in-situ material profile evaluations shall be sufficient to delineate the area under investigation and to assure the consistency of the data within that area. (a) *Number of Soil Evaluations.* A minimum of three (3) in-situ material profile evaluation excavations shall be used to delineate a site within which a sewage treatment or dispersal component is to be located. (b) *Depth of Soil Evaluations.* In-situ material profile evaluations shall extend an adequate depth below the land surface to identify properties critical to treatment or dispersal of wastewater, treated wastewater, or final effluent. Sewage system design considerations should be taken into account prior to evaluating the site. (c) *Analytical Samples.* Collection of samples for analytical testing is highly recommended when the inherent treatment capabilities or hydraulic assimilative capacities of the in-situ material are to be used as a parameter in the design of the treatment or dispersal component.

(3) Evaluation Excavation Method. Due to the limited soil characteristics expected at building sites addressed under this Section, the excavation technique chosen is at the discretion of the qualified soil evaluator. The excavation method chosen shall provide all pertinent in-situ material properties critical to wastewater treatment or dispersal.

(4) Site Preservation. Special precautions shall be maintained to prevent the destruction of the natural soil conditions of the site when creating a soil pit with the use of heavy equipment.

3.05 Soil Profile Description and Interpretations. (1) General. (a) An in-situ material description shall be prepared for each profile excavation constructed.

(b) In-situ material descriptions shall be written in accordance with the descriptive procedures, terminology and interpretations found in Chapter 3 of the *Soil Survey Manual*, USDA, October, 1993, except where modified by or in conflict with this Section. Due to the limited soil characteristics expected at building sites addressed under this Section, alternate methods of material descriptions may be utilized at the discretion of the qualified soil evaluator.

(c) An in-situ material profile description to substantiate application rates or treatment capabilities shall include, when applicable, the following morphological information for each horizon or layer observed:

1. Thickness in inches or decimal feet
2. Munsell color notation
3. Soil mottle or redoximorphic feature color, abundance, size, and contrast if applicable
4. United States Department of Agriculture, USDA, soil textural class with rock fragment modifiers
5. Soil structural grade, size and shape if applicable
6. Soil consistence if applicable
7. Root abundance and size if applicable
8. Soil boundary if applicable
9. Occurrence of saturated soil, groundwater, bedrock, or disturbed soil if applicable

(2) Soil Interpretations. (a) Redoximorphic features or mottles shall be interpreted as zones of seasonal or periodic soil saturation or groundwater, except as provided under the following subpart **(3) Soil Color Pattern Exemptions.**

(b) Unless determined otherwise, the highest elevation of seasonal soil saturation shall be the ground surface where redoximorphic features are present within four (4) inches of the bottom of the A horizon.

(3) Soil Color Pattern Exemptions. (a) A qualified soil evaluator may discount the following conditions, not limited by enumeration, as indicators of seasonally saturated soil:

1. Fossilized soil color patterns formed by historic periodic soil saturation
2. A soil profile that has an abrupt textural change, consisting of silt loam or finer textures overlying at least four (4) feet of unsaturated loamy sand or coarser textured soil and two (2) feet or less of periodically saturated soil immediately above the coarser material
3. Redoximorphic features orientated along old or decayed root channels
4. Residual sandstone colors
5. Unevenly weathered glacially deposited material, glacially deposited material naturally gray in color, or concretionary material in various stages of decomposition.
6. Deposits of lime
7. Light colored silt or fine sand coatings on soil ped surfaces

(4) Soil Color Pattern Reports. The qualified soil evaluator shall report and describe any soil color pattern exemptions encountered.

(5) Determination Requests. A qualified soil evaluator may request a determination by the department staff on the significance of unusual soil color patterns usually indicating soil saturation when other evidence suggests the soils are not saturated. The department may decline to make such determinations, and defer to the use of soil saturation determinations discussed in Section 1.0 *Soil and Site Evaluations for Alternative Wastewater Treatment Systems Consisting in Part of In-Situ Soil*, Subsection 1.08 *Soil Saturation Determinations/Disputes*.

3.06 Evaluation Reports. (1) General. A soil and site evaluation report shall be prepared and submitted to the department having jurisdiction upon completion of the evaluation and associated report form.

(2) Evaluation Report Format. Soil and site evaluation reports shall be prepared in a format specified by the department and this Section.

(3) Report Contents. (a) Site Evaluation Report. A site evaluation report shall include at least all of the following:

1. The client's name, address and phone number
2. The site's legal description to within 40 acres
3. The parcel size
4. The property tax identification number
5. The name, title, address and phone number of the qualified site evaluator
6. The date the site evaluation was conducted
7. A legible permanent site plan that:
 - a. Is presented on paper no smaller than 8 1/2 inches by 11 inches in size.
 - b. Is drawn to scale or fully dimensioned.
 - c. Shows the extent of the site evaluated for soil dispersal or treatment.
8. Location information for all points under investigation including structures, property lines and other encumbrances to the treatment or dispersal component placement on the site.
9. Pertinent elevation data, such as:
 - a. A reference to, and description of, a permanent vertical and horizontal reference point or bench mark from which all distances and elevations are delineated on the site plan;
 - b. The natural, undisturbed surface grade elevation for all soil profile excavations;
 - c. The percent and direction of land slope for the site under evaluation;
 - d. Ground surface contour lines at an interval appropriate for the conditions present;
 - e. The floodplain elevation, if established, and current surface elevation of any adjacent navigable waters, reservoirs, or other pertinent surface water bodies; and
 - f. The existing grade adjacent to a groundwater elevation observation pipe, the top of an observation pipe, and the bottom of an observation pipe (if applicable).
10. Other observations as appropriate.

(b) Soil/In-Situ Material Evaluation Report. A soil evaluation report shall include at least all of the following:

1. A site evaluation report attached as described in part 3(a) above
2. The client's name, address and phone number
3. The site's legal description to within 40 acres
4. The name, title, address and phone number of the qualified soil evaluator
5. The date the evaluation(s) were conducted
6. Profile descriptions pursuant to Subsection 3.05 *Soil Profile Description and Interpretations* for all profile evaluation excavations

- 3.07 Departmental Review. (1) General. (a)** The department shall review all soil evaluation and site evaluation reports within 30 days of receipt.
- (b)** Upon completing the review of an evaluation report the department shall accept the report, reject the report, request additional information or clarification, or require verification.
- (c)** When a report is deemed acceptable, the department shall so indicate on the report and file the report for future reference.
- (d)** If the report is not acceptable, the department shall notify the submitter in writing and shall state the deficiencies or actions, or both, necessary to bring the report into compliance with the requirements of this Section.
- (2) Verification. (a) Soil.** The department may require the property owner or the qualified soil tester to provide excavations for verification of soil profile evaluation data. The qualified soil evaluator who is responsible for the soil evaluation report shall be present at the site during the verification of soil profile evaluation data if so requested by the department.
- (b) Site.** The department may require the property owner or the qualified individual who prepared the site evaluation report to provide assistance and equipment to verify site conditions. The qualified individual who is responsible for the site evaluation report shall be present at the site during verification of site conditions if so requested by the department.
- (c) Report.** The department shall complete a written report for each soil or site verification completed, and the results or findings of the report shall be filed with the appropriate evaluation report for future reference.
- 3.08 Other Soil and Site Evaluation Guidelines.** Refer to Section 1.0 *Soil and Site Evaluations for Alternative Wastewater Treatment Systems Consisting in Part of In-Situ Soil*, Subsection 1.09 *Other Soil and Site Evaluation Guidelines*.
- 3.09 Waivers.** All proposed building sites present unique situations, and not all components of this Section may pertain. In the event that a qualified soil evaluator, or other qualified professional, wishes to contest the components of this Section the following procedure shall be followed:
1. A written application must be submitted to the department indicating the reason for waiver request
 2. The written request must include the site's legal description to within 40 acres, the parcel size and the property tax identification number
 3. The written request must include a legible permanent site plan that:
 - a. Is presented on paper no smaller than 8 2 inches by 11 inches in size;
 - b. Is drawn to scale or fully dimensioned;
 - c. Shows the intended site(s) for effluent dispersal or treatment;
 - d. Shows the proposed or existing well location;
 - e. Shows nearest property lines;

- f. Shows potential neighboring property site features potentially impacted by proposed development; and
- g. Shows surface water and floodplain features if applicable;
- 4. The written request must describe intended use of property
- 5. The written request must include a discussion of soil features as interpreted by review of a United States Department of Agriculture Soil Survey, or other reputable source
- 6. A geological/hydrogeological/hydrological etc. discussion if appropriate
- 7. Any other relative scientific literature or site information that may assist in the decision making process
- 8. The department will provide a written response to the waiver request within 15 department working days from date of receipt

3.10 Supplemental Site Information. (1) General. (a) Proposed building sites not meeting the minimum soil and/or site criteria described in the previous Section 2.0 *Minimum Criteria for Alternative Wastewater Treatment Systems Consisting in Part of In-Situ Soil*, require supplemental information to aide the department in assessing the proposed development's impact to environment, health, safety and general welfare of the public.

(b) Supplemental Site Information Examples. Examples of supplemental information that may be required to assess a site's developability include:

- 1. A geological study or interpretation
- 2. A hydrogeological study or interpretation
- 3. A hydrological study or interpretation
- 4. A wetlands, high risk erosion, or other Michigan Department of Environmental Quality (MDEQ) required determination
- 5. A *Land Division Act* determination
- 6. Other investigations required by federal, state or local law to determine potential impact to environment, health, safety and general welfare of the public
- 7. Other information required to perform a risk assessment

(2) Supplemental Data Collection Responsibility. It is the responsibility of the professional engineer/system designer to provide adequate supplemental information to the department to aide the decision making process. The department will not accept unsubstantiated assertions about the performance of alternative on-site wastewater treatment and dispersal systems, and will not accept unverifiable interpretations of a proposed building site.

3.11 Special Considerations. All design plans for the treatment or dispersal of wastewater, treated wastewater, or final effluent for building sites not meeting the minimum soil and/or site criteria described in Section 2.0 *Minimum Criteria for Alternative Wastewater Treatment Systems Consisting in Part of In-Situ Soil*, shall require an endorsement and official stamp of a professional engineer.

3.12 Risk-Based Analysis. A *Risk-Based Analysis* of a proposed project shall be required in order to aide the department in assessing a proposed development's impact to environment, health, safety and general welfare of the public. The components of a *risk-based analysis* are outlined in the next section, Section 4.0 *Risk-Based Analyses*.

4.0 RISK-BASED ANALYSES

4.01 **Purpose.** The purpose of this Section is to establish the minimum expected components of a *risk-based analysis*.

4.02 **Scope. (a)** This Section applies to proposed building sites not meeting the minimum sewage system suitability standards set forth in the *Superior Environmental Health Code*; and not meeting the minimum soil and/or site criteria described in Section 2.0 *Minimum Criteria for Alternative Wastewater Treatment Systems Consisting in Part of In-Situ Soil*.

(b) Under certain circumstances, and at the discretion and direction of the department, this Section may apply to other building sites influencing fragile environments, health, safety and general welfare of the public.

4.03 **Qualifications.** A *risk-based analysis* relating to the treatment or dispersal of wastewater, treated wastewater, or final effluent shall be performed by: a qualified licensed or degreed soil tester; a professional engineer; a degreed or registered sanitarian; or other individual properly trained to evaluate soils and site features for the purposes of on-site wastewater treatment and dispersal.

4.04 **Risk-Based Analysis. (1) General.** For proposed building sites described in Subsection 4.02 *Scope*, all potential impacts of a proposed alternative secondary on-site wastewater treatment and associated dispersal system shall be assessed and presented to the department by a qualified professional. The assessment shall be referred to as a *Risk-Based Analysis*, and shall address a proposed development's impact to environment, health, safety and general welfare of the public. The *risk-based analysis* is essential to the technology selection and decision making process for fragile environments.

(2) Components. (a) The minimum components of a *risk-based analysis* shall include the following:

1. Complete site and soil evaluation reports as described in Section 3.0 *Addressing Building Sites Not Meeting Minimum Criteria for Alternative Wastewater Treatment Systems Consisting In Part of In-Site Soil*
2. Identification and summarization of a proposed dispersal area's natural hydraulic assimilative capacity; microbial assimilative capacity; and nutrient assimilative capacity
3. The identification of the direction of groundwater flow, a narrative description of local hydrogeology, and a description of local potable aquifer usage
4. A site map and narrative description depicting the expected zone of influence, or area of impact, resulting from the dispersal of treated wastewater or final effluent to the environment
5. The characterization of target receptors located within the anticipated zone of influence
6. The characterization of target receptors located immediately outside of the anticipated zone of influence
7. A discussion of the proposed (or existing) well location(s), neighboring well location(s) and construction, and an assessment of the local potable aquifer's vulnerability to effluent discharge(s)
8. A discussion of expected groundwater usage and effluent flow rates, and potential impact to local hydrogeology

9. Geological and hydrological interpretations and discussions as appropriate
10. Other observations, interpretations and discussions as appropriate

(3) Methods. (a) General. The methods of data collection and interpretation are at the discretion of the qualified professional. Standard methods shall be used when site conditions are exceptionally fragile.

(b) Statement of Accuracy. Methods of data collection and interpretation shall be endorsed by the qualified professional. A signed statement of accuracy shall be required with a *risk-based analysis* submittal.

4.05 Risk-Based Analysis Report. (1) General. A *risk-based analysis report* shall be prepared and submitted to the department having jurisdiction upon full completion of the soil and site evaluation report(s), and associated risk investigation(s).

(2) Report Format. A *risk-based analysis report* shall be prepared in a format chosen by the qualified professional performing the investigation. The final report shall be itemized and include all the required information outlined in Subsection 4.04 *Risk Based Analysis*.

4.06 Departmental Review. (1) General. (a) The department shall review all *risk-based analysis reports* within 30 days of receipt.

(b) Upon completing the review of a report the department shall accept the report, reject the report, request additional information or clarification, or require verification.

(c) When a report is deemed acceptable, the department shall so indicate on the report and file the report for future reference.

(d) If the report is not acceptable, the department shall notify the submitter in writing and shall state the deficiencies or actions, or both, necessary to bring the report into compliance with the requirements of this guideline.

(2) Verification. The department may require the property owner or designated qualified professional to provide additional information for verification of *risk-based analysis* observations, interpretations and discussions. The qualified professional responsible for the *risk-based analysis* shall be present for any scheduled field related activities. The department shall complete a written report for each verification completed, and the results or findings of the report shall be filed with the appropriate evaluation report for future reference.

4.07 Waivers. All proposed building sites present unique situations, and not all components of this Section may pertain. In the event that a qualified soil evaluator, or other qualified professional, wishes to contest the components of this guideline, the contestant is encouraged to meet and resolve the dispute with the Director of Environmental Health or Health Officer. Requests for waivers from the components of this Section will be reviewed on a case-by-case basis. The contestant shall have all the information pertinent to the waiver, and supporting documentation, available for the scheduled meeting.

4.08 Technology Selection/Preliminary Plan Approval. Once the completed site evaluation reports, soil evaluation reports, and *risk-based analysis reports* have been completed, the owner's authorized professional engineer shall generate a preliminary proposal for review by the department. The purpose of the preliminary proposal shall be to attempt to determine mutually

agreeable wastewater treatment and dispersal technologies for the proposed development, prior to incurring the cost of a complete design plan that may ultimately be refused by the department. Technology selection and preliminary plan approvals process is described in the following Section *5.0 Preliminary Plan Approvals*.

5.0 PRELIMINARY PLAN APPROVALS

- 5.01 Purpose.** The purpose of this Section is to provide guidance in obtaining preliminary plan approvals for alternative secondary on-site wastewater treatment and associated dispersal components which have been matched to site-specific conditions by a professional engineer.
- 5.02 Scope. (a)** Preliminary plan approvals apply to proposed building sites not meeting the minimum sewage system suitability standards set forth in the *Superior Environmental Health Code*; and not meeting the minimum soil and/or site criteria described in Section 2.0 *Minimum Criteria for Alternative Wastewater Treatment Systems Consisting in Part of In-Situ Soil*.
(b) Under certain circumstances, at the discretion and direction of the department, preliminary plan approvals may apply to other proposed building sites influencing fragile environments, health, safety and general welfare of the public.
- 5.03 Qualifications.** Preliminary plan submittals for the treatment and dispersal of wastewater, treated wastewater, or final effluent for building sites not meeting the minimum soil and/or site criteria described in Section 2.0 *Minimum Criteria for Alternative Wastewater Treatment Systems Consisting in Part of In-Situ Soil*, shall be submitted by the owner's authorized professional engineer.
- 5.04 Technology Selection. (1) General.** Technology selection is the process by which an alternative secondary on-site wastewater treatment system and associated dispersal component is matched with a proposed building site's most limiting site feature(s).
(2) Technology Selection Process. (a) Technology selection for a specific site shall be based on soil and site evaluations conducted pursuant to Section 3.0 *Addressing Building Sites Not Meeting Minimum Criteria for Alternative Wastewater Treatment Systems Consisting in Part of In-Situ Soil*, and an appropriate risk-based assessments described Section 4.0 *Risk-Based Analyses*.
(b) The methods and technologies of wastewater treatment and dispersal selected for a site shall be conceived and proposed by the owner's authorized professional engineer.
(c) The methods and technologies of wastewater treatment and dispersal selected for a site shall be based on site-specific data and proven scientific design methods and criteria.
(d) The methods and technologies of wastewater treatment and dispersal selected for a site shall be of sufficient design to protect the environment, and health, safety, and general welfare of the public.
(e) The methods and technologies of wastewater treatment and dispersal selected shall be substantiated and verifiable.
- 5.05 Preliminary Proposals. (a)** The owner's authorized professional engineer shall provide the department with a preliminary proposal for the selected methods and technologies of wastewater treatment and dispersal for a specific site.
(b) Preliminary proposals shall be in writing and include, at a minimum, the following elements:
 1. Soil and site evaluations conducted pursuant to Section 3.0 *Addressing Building Sites Not Meeting Minimum Criteria for Alternative Wastewater Treatment Systems Consisting in Part of In-Situ Soil*
 2. A risk-based assessment described Section 4.0 *Risk-Based Analyses*.

3. A concept plan outlining the design and performance standards of the proposed alternative secondary on-site wastewater treatment system
4. A concept plan outlining the design and performance standards of the proposed dispersal component
5. A discussion, presented by the owner's authorized professional engineer, outlining how the proposed system(s) will protect the environment, health, safety, and general welfare of the public
6. A legible proposed site plan that:
 - a. Is presented on paper no smaller than 8 1/2 by 11 inches in size;
 - b. Is drawn to scale or fully dimensioned;
 - c. Shows the intended building location and building details;
 - d. Shows the intended site(s) for septic tanks;
 - e. Shows the intended site(s) for the alternative secondary on-site wastewater treatment system;
 - f. Shows the intended site(s) for soil dispersal;
 - g. Shows the proposed or existing well locations;
 - h. Shows the nearest property lines;
 - i. Shows surface water and floodplain features if applicable;
 - j. Shows neighboring property site features potentially impacted by the proposed development
7. Any other relative scientific literature or site information that may assist in the decision making process

5.06 Formal Meeting. (a) When an owner's authorized professional engineer has completed the technology selection process as outlined in Subsection 5.03 *Technology Selection*, and has developed a complete preliminary proposal according to Subsection 5.04 *Preliminary Proposals*, a formal meeting to discuss the preliminary proposal may be scheduled by the department with the owner's authorized professional engineer.

(b) The intent of the formal meeting shall be to review and discuss the preliminary proposal to determine if the methods proposed are mutually agreeable.

(c) Upon completion of the formal meeting and a preliminary proposal review process, the department shall accept the proposal, reject the proposal, require additional information or clarification, or require verification.

5.07 Preliminary Approvals. (a) When the department and property owner's authorized professional engineer have come to a mutually acceptable agreement as a result of a formal meeting and preliminary proposal review process, the department shall issue a letter of provisional approval.

(b) The letter of provisional approval shall address construction requirements and any additional measures required for the site development.

(c) The letter of provisional approval shall direct the applicant to continue the permit application process as outlined in Section 6.0 *Permit Applications and Design Plan Submittals*.

5.08 Preliminary Denials. (a) When the department and property owner's authorized professional engineer cannot come to a mutually acceptable agreement, the department shall issue a letter of denial.

(b) The letter of denial shall state the deficiencies noted, the public health concerns of the department, and suggestions, if any, to accomplish a mutually acceptable agreement.

5.09 Limitation of Responsibility. Preliminary plan approval by the department may not be construed as an assumption by the department of any responsibility for the design of the alternative on-site wastewater treatment system and associated dispersal component(s). The department does not hold itself liable for any defects in design and/or construction, or for any damages that may result from a specific installation.

5.10 Appeals. In the event an applicant disagrees with a decision of the department, the applicant will be directed to the appeals process set forth in Article 9.0 *Appeals* of the *Superior Environmental Health Code*.

6.0 PERMIT APPLICATIONS AND DESIGN PLAN SUBMITTALS

- 6.01 Purpose.** The purpose of this Section is to establish the minimum requirements for permit applications and associated design plan submittals for the treatment and dispersal of wastewater, treated wastewater or final effluent from an alternative secondary on-site wastewater treatment system(s)
- 6.02 Scope.** This Section applies to all proposed building sites not meeting the minimum sewage system suitability standards set forth in the *Superior Environmental Health Code*, and where alternative secondary on-site wastewater treatment systems are proposed.
- 6.03 Qualifications. (1) Suitable Building Sites.** Permit applications and associated design plan submittals for proposed building sites meeting the minimum soil and site requirements of Section 2.0 *Minimum Criteria For Alternative Wastewater Treatment Systems Consisting In Part of In-Situ Soil*, may be submitted by: a licensed or degreed soil tester; a professional engineer; a degreed or registered sanitarian; or other individual properly trained to evaluate soils and site features for the purposes of on-site wastewater treatment and dispersal design.
- (2) Unsuitable Building Sites.** Permit applications and associated design plan submittals for proposed building sites not meeting the minimum soil and/or site criteria described in Section 2.0 *Minimum Criteria for Alternative Wastewater Treatment Systems Consisting in Part of In-Situ Soil*, must be endorsed and officially stamped by a professional engineer.
- 6.04 Permit Applications. (1)** No person shall construct, alter, extend, or replace a sewage system without first having been issued a construction permit from the department. A construction permit application form provided by the department shall be used for recording permit application information.
- (2)** A permit application shall be completed in full, signed by the owner or the owner's authorized representative, and shall be accompanied by all required design plans, exhibits and fees. If the owner of a property uses an authorized representative to obtain a new system construction permit, a signed statement from the owner of the property assigning authority for the representative to act on the owner's behalf shall accompany the application. This statement shall include specific information allowing the representative to act on the owner's behalf in all aspects of an application for an on-site sewage treatment and dispersal system.
- (3)** The applicant shall be held responsible for all information supplied to the department. The signed permit application and all required exhibits serve as the basis by which the department determines the issuance of a construction permit.
- 6.05 Permit Application and Design Plan Review Process. (1)** Permit applications and associated design plan submittals for the treatment and dispersal of wastewater, treated wastewater or final effluent from an alternative secondary on-site wastewater treatment system shall be submitted to the department for review.
- (2)** The department shall conduct a review of all permit applications/design plan submittals within 30 days of receipt.
- (3)** Upon completion of the permit application/design plan review, the department shall accept the design, reject the design, require additional information of clarification, or require verification.

(4) If the permit application/design plan is not acceptable, the department shall notify the submitter in writing and shall state the deficiencies or actions, or both, necessary to bring the design into compliance with the requirements of this guideline.

(5) When a completed permit application and associated design plan are deemed acceptable, the department shall issue a construction permit in accordance with requirements of the *Superior Environmental Health Code*.

6.06 Design Plans for Alternative Secondary On-site Wastewater Treatment Systems and Associated Dispersal Components. (1) General.

When design plans are submitted to the department for review, at least two (2) sets of plans and one (1) set of specifications shall be provided. Plans and specifications submitted for review shall be clear, legible and permanent copies.

(2) Design Plan Elements. The following are the minimum required elements of a complete design plan submittal for an alternative secondary on-site wastewater treatment system and associated dispersal component(s):

- (a) Completed soil and site evaluation reports following the formats outlined in Section 1.0 *Soil and Site Evaluations for Alternative Wastewater Treatment Systems Consisting in Part of In-Situ Soil*; or Section 3.0 *Addressing Building Sites Not Meeting Minimum Criteria for Alternative Wastewater Treatment Systems Consisting in Part of In-Situ Soil*, whichever is applicable
- (b) A written Variance request completed in accordance with *Article 8* of the *Superior Environmental Health Code*, on a form provided by the department
- (c) Details and configuration layouts depicting how the design is to be constructed and how the design is to accomplish the treatment and dispersal that is claimed. Cross-sections are required
- (d) Inclusion of all system sizing calculations, dynamic head calculations, pump selection details, and any other calculations performed for the design of the system(s)
- (e) Specifications including a description of the materials for the project and the installation or construction practices and methods to be employed
- (f) A site plan with a bench mark, either scaled or dimensioned, delineating and detailing all treatment and dispersal components, and their relationship to minimum isolation distance requirements set forth in the *Superior Environmental Health Code*
- (g) A description of a contingency plan in the event that the proposed project fails and cannot be repaired
- (h) Proposed dates of construction and identification of the licensed and certified installer(s)

6.07 Construction/Installation Requirements. (1) General. (a) It is recommended that all alternative secondary on-site wastewater treatment technologies and associated dispersal components are to be constructed/installed in accordance with: Wisconsin Administrative Code, Chapter Comm 83, *Private Onsite Wastewater Treatment Systems*; Wisconsin Administrative Code, Chapter Comm 83, recognized *Component Manuals*; applicable manufacture's specifications; and applicable construction requirements set forth in the *Superior Environmental Health Code*.

(b) Prior to approval of the construction permit, the property owner or the owner's authorized representative, must sign a form provided by the department, which lists specific construction

permit requirements, acknowledging future installation, operation and maintenance requirements of the system.

(2) Deviations. In lieu of the aforementioned recognized construction/installation methods, a designer/installer may opt to use another proven method for installing an alternative secondary on-site wastewater treatment technologies and/or dispersal component. Requests for alternate installation methods shall be submitted in writing during the permit application process, and shall be accompanied by detailed system design and construction plans by the qualified system designer.

6.08 Affidavits. (1) Prior to installation of the system(s), an Affidavit shall be recorded with the deed of the property at the appropriate County Courthouse Register of Deeds. The Affidavit provided by the department, shall contain information on the technology used, maintenance contract requirements, and location of the system.

(2) A copy of the recorded Affidavit shall be provided to the department prior to installation.

6.09 Revocation of Approval. (a) The department may revoke any plan approval issued under this Section when one (1) or more of the following conditions exist:

1. The location of the system(s) specified in the design is altered
2. There is an increase in the scope of the project prior to, during, or following construction of the system
3. The department acquires new information indicating that any department rules or regulations are violated before, during, or after construction
4. The health officer has reasonable cause to believe that an intentional misrepresentation has occurred

(b) The revocation of a plan approval and the reasons for revocation shall be conveyed in writing to the submitter of the plans as noted in the application.

(c) If a plan approval is revoked, the installation or alteration of a system may not continue until another plan approval is obtained.

6.10 Limitation of Responsibility. An approval of a plan by the department may not be construed as an assumption by the department of any responsibility for the design of the alternative on-site wastewater treatment system and associated dispersal component(s). The department does not hold itself liable for any defects in design and/or construction, or for any damages that may result from a specific installation.

6.11 Appeals. In the event an applicant disagrees with a decision of the department, the applicant will be directed to the appeals process set forth in Article 9.0 *Appeals* set forth in the *Superior Environmental Health Code*.

7.0 PRE-STARTUP REQUIREMENTS

- 7.01 **Purpose.** The purpose of this Section is to establish the actions required prior to startup of an alternative secondary on-site wastewater treatment system and/or dispersal component.
- 7.02 **Scope.** This Section applies to all building sites for which an alternative secondary on-site wastewater treatment system and/or dispersal component construction permit has been conditionally approved.
- 7.03 **Final Inspection.** (a) Before any portion of the system has been covered, the installer shall notify the department. This notification shall occur at least one (1) department working day prior to the completion of the system. The department shall inspect the installation within three (3) working days to determine if it is in compliance with the conditional permit approval. The department shall reserve the right to extend the notification period for weekends and legal holidays.
(b) It shall be unlawful to backfill and/or operate any portion of the system installation until authorization has been granted by the department.
(c) The department may deny final approval of any installation which does not comply with the conditions stipulated in the conditional permit approval.
- 7.04 **Affidavits.** (a) The alternative secondary on-site wastewater treatment system manufacturer's representative shall provide an Affidavit stating that the system was installed according to the approved plans and the manufacturer's specifications.
(b) The installer of the dispersal component shall provide an Affidavit stating that the system was installed according to the approved plans.
(c) At the discretion of the department, an Affidavit stating that the system was installed according to the approved plans may be required from the professional engineer or designer of the system.
(d) At the discretion of the department, as-built drawings, photographs or other documentation may be required with an Affidavit submittal.
- 7.05 **Operation and Maintenance Program.** (a) An operation and maintenance (O&M) program shall be submitted to and approved by the department prior to startup of a system.
(b) The O&M program shall establish the monitoring and maintenance requirements for a system in order to ensure that the system will operate as designed.
(c) An O&M contract shall be maintained between the property owner and an approved maintenance provider for the life of the system.
(d) The signed copy of the O&M contract shall indicate the approved maintenance provider and the specifications of the agreement.
(e) If not included with the permit application, an O&M handbook, system manual, or other guideline must be submitted to the department with the copy of the signed O&M contract.
(f) The owner of the system shall be responsible for ensuring that the maintenance of the system occurs in accordance with the approved O&M program.
(g) At the discretion of the department, additional maintenance, above and beyond that suggested by the system designer or manufacturer may be required. Any additional maintenance issues will be identified in the conditional approval of a permit.

(h) The homeowner shall notify the department in the event a contract is canceled, expired, or not renewed.

7.06 Sampling Protocol. (a) A sampling regimen shall be developed and incorporated into the O&M program.

(b) At a minimum, effluent samples shall be collected from the discharge of the alternative secondary on-site wastewater treatment system by August 1 of each year.

(c) Sample parameters shall include, but may not be limited to: Five-Day Biological Oxygen Demand (BOD₅); Total Suspended Solids (TSS); and Fecal Coliforms (FC). The quality of effluent, to be analyzed by a qualified laboratory, shall be equal to or less than all of the following:

1. A monthly average of 30 mg/L BOD
2. A monthly average of 30 mg/L TSS
3. A monthly geometric mean of 10⁴ Fecal Coliform-colony forming units (cfu) per 100 ml

(d) At the discretion of the department additional sampling, above and beyond that suggested by the system designer or manufacturer may be required in order to further assess system performance. Examples of additional sample parameters may include:

1. Total Nitrogen
2. Nitrate-nitrogen (NO₃-N)
3. Ammonia-Nitrogen (NH₃-N)
4. Chemical Oxygen Demand (COD)
5. Total Phosphorus
6. Phosphates
7. pH
8. Dissolved Oxygen (DO)
9. Conductivity

(e) At the discretion of the department, annual bacteriological sampling of the on-site drinking water supply may be required. Any additional sampling issues will be identified in the conditional approval of a permit.

(f) Effluent sampling shall be required for the life of the system.

(g) Sampling results shall be submitted to the department prior to September 1 of the operating year.

7.07 System Component Verification. (a) Prior to startup, verification of the components utilized for a given installation shall be provided to the department in the form of a receipt or bill of sale.

(b) When applicable, actual sieve analyses for sand, aggregate or other materials, along with the bills of sale, shall be provided to the department prior to startup.

8.0 POST-STARTUP REQUIREMENTS

- 8.01 Purpose.** The purpose of this Section is to establish those actions required after the startup of an alternative secondary wastewater treatment system and/or dispersal component.
- 8.02 Scope.** This Section applies to all building sites for which an alternative secondary on-site wastewater treatment system and/or dispersal component has been installed and is in operation.
- 8.03 Operation and Maintenance Reporting.** (a) The owner of an alternative secondary on-site wastewater treatment system shall report to the department at the completion of each inspection, maintenance or servicing event specified in the approved O&M program.
(b) The inspection, maintenance or servicing reports shall be submitted to the department within 30 days from the date of inspection.
(c) The department may require verification of any information contained in an inspection, maintenance or servicing report.
(d) The homeowner shall notify the department in the event a contract is canceled, expired, or not renewed.
- 8.04 Sample Reporting.** (a) The owner of an alternative secondary on-site wastewater treatment system shall report to the department at the completion of each sampling event specified in the approved O&M program.
(b) Required samples shall be collected by August 1 of each year.
(c) The sample results shall be submitted to the department within 30 days from the date of sample collection.
(d) The department may require verification of any information contained in a sampling report.
- 8.05 Noncompliance. (1) General.** (a) The owner of an alternative secondary on-site wastewater treatment system and associated dispersal component is responsible for the proper operation and performance of the system.
(b) In the event that an alternative secondary on-site wastewater treatment system or associated dispersal component is found to be in noncompliance with the requirements of the permit, the following actions must be taken:
1. The approved maintenance provider shall inspect the system and correct any deficiencies noted
 2. The approved maintenance provider shall report to the department at the completion of inspection and/or servicing
 3. Subsequent samples shall be taken to determine system compliance
 4. If compliance cannot be achieved, the contingency plan included in the permit shall be initiated
 5. Use of the system may need to be discontinued if the system malfunctions and is found to be non-repairable, or if non-compliance with the permit results in an imminent health hazard
 6. Within a reasonable time-frame, the system shall be repaired/replaced to perform as outlined in the permit

(2) Enforcement. **(a)** If compliance with the conditions of the permit cannot be achieved, or if the health officer determines that the health code has been violated, he/she shall issue a notice of violation to the owner. The health officer shall issue this notice no later than 90 days after the discovery of the alleged violation.

(b) A person failing to comply with the permit requirements or the provisions of the health code is subject to the enforcement provisions of *Article 7* of the *Superior Environmental Health Code*.

8.06 Department Access. **(a)** The department shall have access to an on-site wastewater treatment system during regular business hours in order to conduct surveillance monitoring.

(b) Surveillance monitoring resulting from noncompliance with the permit may be charged a monitoring fee in accordance with the department fee schedule.

(c) The department shall be allowed to initiate required maintenance at the responsible person's expense if non-compliance with the permit or health code results in an imminent health hazard.