



State of Ohio Environmental Protection Agency

Construction and Demolition Debris

OAC Chapter #3745-520

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3745-520-01 Construction and demolition debris - definitions.

As used in this chapter:

(A)

- (1) "Accept" means to receive material that has been logged in at the facility and removed from the transportation vehicle or container that was used to transport the material to the facility. A facility has "accepted" material once it has been logged in at the facility and removed from the transportation vehicle or container that was used to transport the material to the facility.
- (2) "Access road" means any roadway within a construction and demolition debris facility used to transport construction and demolition debris within the construction and demolition debris facility. "Access road" includes the "main hauling road" as defined in paragraph (M) of this rule.
- (3) "Alteration" means a change other than a modification to the design of a facility as specified in the approved facility's design plan and that is at least equivalent to rule requirements.
- (4) "Applicant" has the same meaning as in rule 3745-500-01 of the Administrative Code.
- (5) "Approved board of health" has the same meaning as in rule 3745-500-01 of the Administrative Code.
- (6) "Aquifer" has the same meaning as in rule 3745-500-01 of the Administrative Code.
- (7) "Aquifer system" has the same meaning as in rule 3745-500-01 of the Administrative Code.
- (8) "Assets" has the same meaning as in rule 3745-500-01 of the Administrative Code.
- (9) "Authorizing document" has the same meaning as in rule 3745-500-01 of the Administrative Code.

(B)

- (1) "Bedrock" has the same meaning as in rule 3745-500-01 of the Administrative Code.

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(2) "Best management practices" or "BMPs" means the owner's or operator's activities, procedures, and practices that the owner or operator will use for the operation of a facility and which result in compliance with Chapter 3714. of the Revised Code and rules adopted thereunder and all authorizing documents.

(3) "Board of health" has the same meaning as in rule 3745-500-01 of the Administrative Code.

(4) "Boring" has the same meaning as in rule 3745-500-01 of the Administrative Code.

(C)

(1) "Category 3 wetland" means a wetland that supports superior habitat or hydrological or recreational functions as determined by an appropriate wetland evaluation methodology acceptable to the director. "Category 3 wetland" includes a wetland with high levels of diversity, a high proportion of native species, and high functional values and includes but is not limited to a wetland that contains or provides habitat for threatened or endangered species. "Category 3 wetland" may include high quality forested wetlands, including old growth forested wetlands, mature forested riparian wetlands, vernal pools, bogs, fens, and wetlands that are scarce regionally.

(2) "Clean hard fill" has the same meaning as in rule 3745-500-01 of the Administrative Code.

(3) "Closure" means either the time at which a construction and demolition debris facility will no longer accept construction and demolition debris for disposal or the effective date of an order revoking the license of the facility. "Closure" includes measures performed to protect public health or safety, to prevent air or water pollution, or to make the facility suitable for other uses, if any, including without limitation, the establishment and maintenance of suitable cover of soil and vegetation over areas where construction and demolition debris is buried and the minimization of erosion, the infiltration of surface water into such areas, the production of leachate, and the accumulation and runoff of contaminated surface water.

(4) "Concurring authority" means the permitting authority, or for a facility that is not required to obtain a permit to install, "concurring authority" means the licensing authority.

(5) "Consolidated stratigraphic unit" has the same meaning as in rule 3745-500-01 of the Administrative Code.

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- (6) "Construction" means any construction, reconstruction, or repair activity when such activity affects any engineered component of a facility listed in rule 3745-520-205 of the Administrative Code.
- (7) "Construction and demolition debris" or "C&DD" has the same meaning as in rule 3745-500-01 of the Administrative Code.
- (8) "Construction and demolition debris facility" or "C&DD facility" or "facility" has the same meaning as in rule 3745-500-01 of the Administrative Code.
- (9) "Construction and demolition debris facility license" or "C&DD facility license" has the same meaning as in rule 3745-500-01 of the Administrative Code.
- (10) "Construction and demolition debris transfer facility" or "C&DD transfer facility" or "transfer facility" means a site, location, tract of land, installation, or building that is primarily used or intended to be used for the purpose of transferring construction and demolition debris that was generated off the premises of the facility from vehicles or containers into other vehicles or containers for transportation to a construction and demolition debris facility.
- (11) "Current assets" has the same meaning as in rule 3745-500-01 of the Administrative Code.
- (12) "Current closure cost estimate" has the same meaning as in rule 3745-500-01 of the Administrative Code.
- (13) "Current corrective actions cost estimate" has the same meaning as in rule 3745-500-01 of the Administrative Code.
- (14) "Current liabilities" has the same meaning as in rule 3745-500-01 of the Administrative Code.
- (15) "Current post-closure care cost estimate" has the same meaning as in rule 3745-500-01 of the Administrative Code.

(D)

- (1) "Developed spring" has the same meaning as in rule 3745-500-01 of the Administrative Code.
- (2) "Director" has the same meaning as in rule 3745-500-01 of the Administrative Code.
- (3) "Disposal" has the same meaning as in rule 3745-500-01 of the Administrative Code.

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(E)

- (1) "Engineered component" means any component listed in rule 3745-520-205 of the Administrative Code.
- (2) "Establish" or "establishment" of a facility has the same meaning as in rule 3745-500-01 of the Administrative Code.
- (3) "Equivalent barrier" means a screening material with a minimum height of six feet that provides a visual barrier at all times from facility operations and may include but is not limited to a fence, wall, or vegetation.
- (4) "Execute" has the same meaning as in rule 3745-500-01 of the Administrative Code.

(F)

- (1) "Facility" means "construction and demolition debris facility."
- (2) "Final slope" has the same meaning as in rule 3745-500-01 of the Administrative Code.

(G)

- (1) "Geologic unit or formation" has the same meaning as in rule 3745-500-01 of the Administrative Code.
- (2) "Ground water" has the same meaning as in rule 3745-500-01 of the Administrative Code.

(H)

- (1) "Hazardous waste" has the same meaning as in rule 3745-500-01 of the Administrative Code.
- (2) "Health commissioner" has the same meaning as in rule 3745-500-01 of the Administrative Code.
- (3) "Health district" has the same meaning as in rule 3745-500-01 of the Administrative Code.

(I)

- (1) "Illegal disposal" means the disposal of construction and demolition debris at any place other than a construction and demolition debris facility licensed in accordance with Chapter 3714. of the Revised Code and rules adopted

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thereunder; a solid waste disposal facility licensed in accordance with Chapter 3734. of the Revised Code and rules adopted thereunder; or as otherwise authorized by this chapter. "Illegal disposal" does not include reuse, recycling, storage, or the management of clean hard fill in accordance with rule 3745-520-60 of the Administrative Code.

(2) "Independently audited" has the same meaning as in rule 3745-500-01 of the Administrative Code.

(3) "Initial license" means the first license issued by the licensing authority for a facility under Chapter 3714. of the Revised Code.

(4) "Interim slope" has the same meaning as in rule 3745-500-01 of the Administrative Code.

(5) "Internal slope" has the same meaning as in rule 3745-500-01 of the Administrative Code.

(J) Reserved.

(K)

(1) "Key employee" means an individual employed by an applicant for a permit to install for, or by the proposed transferee of a permit to install or license for, a construction and demolition debris facility in a supervisory capacity or who is empowered to make discretionary decisions with respect to the construction and demolition debris operations of the applicant or transferee, but does not include an employee who is exclusively engaged in the physical or mechanical collection, transfer, transportation, storage, or disposal of construction and demolition debris. If the applicant or transferee has entered into a contract with another person to operate the facility that is the subject of the application or transfer, "key employee" includes an employee of the contractor who acts in a supervisory capacity or is empowered to make discretionary decisions with respect to the operation of the facility.

(L)

(1) "Lateral expansion" has the same meaning as in rule 3745-500-01 of the Administrative Code.

(2) "Leachate" has the same meaning as in rule 3745-500-01 of the Administrative Code.

(3) "Liabilities" has the same meaning as in rule 3745-500-01 of the Administrative Code.

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- (4) "License" means "construction and demolition debris facility license."
- (5) "Licensing authority" has the same meaning as in rule 3745-500-01 of the Administrative Code.
- (6) "Limits of construction and demolition debris placement" or "limits of C&DD placement" has the same meaning as in rule 3745-500-01 of the Administrative Code.

(M)

- (1) "Main hauling road" means the road that starts at the boundary of a C&DD facility and ends at the limits of C&DD placement and that is used to transport construction and demolition debris to the working face at a construction and demolition debris facility.
- (2) "Modify" or "modification" means any of the following:
 - (a) As it relates to a C&DD facility, "modify" or "modification" means any of the following:
 - (i) Any horizontal or vertical increase in the limits of construction and demolition debris placement.
 - (ii) Any change to the boundary of the facility in any manner such that land not previously included within the boundary of the facility is now included.
 - (iii) Any design change to a facility that requires new slope stability or settlement analyses.
 - (iv) Removal of a screening berm or equivalent barrier that is required by paragraph (D) of rule 3745-520-310 of the Administrative Code.
 - (v) Removal, movement, or reconstruction of an access road specified in paragraph (D) of rule 3745-520-310 of the Administrative Code.
 - (vi) An addition or expansion of a leachate recirculation system at a facility.
 - (vii) Any change that Ohio EPA or the approved board of health determines may endanger public health or safety or the environment including but not limited to a change to the operation, design, or construction of a facility.
 - (b) As it relates to a permit, "modify" or "modification" means changes to the facility design plan in the permit to install or narrative necessary to

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document the modification to a facility as described in paragraph (M)(2)(a) of this rule.

(c) As it relates to a license, "modify" or "modification" means changes to the facility design plan in the license necessary to document the modification to a facility as described in paragraph (M)(2)(a) of this rule.

(3) "Municipal solid waste" has the same meaning as in rule 3745-500-01 of the Administrative Code.

(N)

(1) "Net working capital" has the same meaning as in rule 3745-500-01 of the Administrative Code.

(2) "Net worth" has the same meaning as in rule 3745-500-01 of the Administrative Code.

(3) "Nuisance" has the same meaning as in rule 3745-500-01 of the Administrative Code.

(O)

(1) "Occupied dwelling" means a residential dwelling and also includes a place of worship as defined in section 5104.01 of the Revised Code, a child day-care center as defined in that section, a hospital as defined in section 3727.01 of the Revised Code, a nursing home as defined in that section, a school, and a restaurant or other eating establishment. "Occupied dwelling" does not include a dwelling owned or controlled by the owner or operator of a construction and demolition debris facility to which the siting criteria specified in this chapter are being applied.

(2) "Operator" or "facility operator" has the same meaning as in rule 3745-500-01 of the Administrative Code.

(3) "Owner" has the same meaning as in rule 3745-500-01 of the Administrative Code.

(P)

(1) "Parameter" means has the same meaning as in rule 3745-500-01 of the Administrative Code and includes "constituent" as defined in rule 3745-500-01 of the Administrative Code.

(2) "Parent corporation" has the same meaning as in rule 3745-500-01 of the Administrative Code.

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- (3) "Permittee" means a person to whom a permit to install has been issued.
- (4) "Permitting authority" means an approved board of health; or the director in the absence of an approved board of health; or the director if the approved board of health requests that the director issue or deny the permit in accordance with division (G) of section 3714.051 of the Revised Code.
- (5) "Person" has the same meaning as in rule 3745-500-01 of the Administrative Code.
- (6) "Phase" has the same meaning as in rule 3745-500-01 of the Administrative Code.
- (7) "Phreatic surface" has the same meaning as in rule 3745-500-01 of the Administrative Code.
- (8) "Piezometric surface" has the same meaning as in rule 3745-500-01 of the Administrative Code.
- (9) "Potentiometric map" has the same meaning as in rule 3745-500-01 of the Administrative Code.
- (10) "Potentiometric surface" has the same meaning as in rule 3745-500-01 of the Administrative Code.
- (11) "Premises" has the same meaning as in rule 3745-500-01 of the Administrative Code.
- (12) "Professional engineer" has the same meaning as in rule 3745-500-01 of the Administrative Code.
- (13) "Professional surveyor" has the same meaning as in rule 3745-500-01 of the Administrative Code.
- (14) "Proposed facility" means a facility for which neither a permit nor a license has been issued previously.
- (15) "Public hearing" means a meeting held by the applicant for a permit to install for a construction and demolition debris facility as specified in rule 3745-520-450 of the Administrative Code.
- (16) "Public water supply well" has the same meaning as in rule 3745-500-01 of the Administrative Code.

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(17) "Public well field" has the same meaning as in rule 3745-500-01 of the Administrative Code.

(18) "Publicly available information" has the same meaning as in rule 3745-500-01 of the Administrative Code.

(19) "Pulverized debris" means a load of debris that, after demolition has occurred, but prior to acceptance of the load of debris for disposal, has been shredded, crushed, ground, or otherwise rendered to such an extent that the load of debris is unidentifiable as construction and demolition debris.

(Q)

(1) "Qualified ground water scientist" has the same meaning as in rule 3745-500-01 of the Administrative Code.

(R)

(1) "Recycling" has the same meaning as in rule 3745-500-01 of the Administrative Code.

(2) "Regional aquifer" has the same meaning as in rule 3745-500-01 of the Administrative Code.

(3) "Residential dwelling" means a building used or intended to be used in whole or in part as a personal residence by the owner, part-time owner, or lessee of the building or any person authorized by the owner, part-time owner, or lessee to use the building as a personal residence.

(4) "Reuse" has the same meaning as in rule 3745-500-01 of the Administrative Code.

(5) "Reviewing authority" has the same meaning as in rule 3745-500-01 of the Administrative Code.

(6) "Run-out" has the same meaning as in rule 3745-500-01 of the Administrative Code.

(S)

(1) "Significant zone of saturation" has the same meaning as in rule 3745-500-01 of the Administrative Code.

(2) "Solid waste" has the same meaning as in rule 3745-500-01 of the Administrative Code.

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(3) "Solid waste disposal facility" has the same meaning as in rule 3745-500-01 of the Administrative Code.

(4) "Storage" means the holding of construction and demolition debris or clean hard fill at a construction and demolition debris facility or other location for a temporary period in a manner that satisfies the following criteria:

(a) The construction and demolition debris or clean hard fill remains retrievable and substantially unchanged for reuse, recycling, or disposal.

(b) At the end of the temporary period the construction and demolition debris or clean hard fill is disposed of or reused or recycled in a beneficial manner.

(c) The holding of the construction and demolition debris or clean hard fill does not cause a nuisance, a fire hazard, a threat to public health or safety or the environment, does not violate Chapter 3704. or 6111. of the Revised Code, and does not cause or contribute to water pollution.

For the purpose of this definition, "temporary period" means a period of less than twelve months for construction and demolition debris and a period of less than twenty-four months for clean hard fill.

(5) "Surface water" has the same meaning as in rule 3745-500-01 of the Administrative Code.

(T)

(1) "Tangible net worth" has the same meaning as in rule 3745-500-01 of the Administrative Code.

(2) "Tie-in area" has the same meaning as in rule 3745-500-01 of the Administrative Code.

(3) "Transporter" means a person engaged in the transportation of construction and demolition debris by air, rail, roadway, or water, excluding activities within a construction and demolition debris facility.

(U)

(1) "Unconsolidated stratigraphic unit" has the same meaning as in rule 3745-500-01 of the Administrative Code.

(2) "Unloading zone" means a designated area separate from the working face and is the location where the operator removes solid waste and other unauthorized materials from construction and demolition debris prior to placing the C&DD on the working face.

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(V)

- (1) "Vertical expansion" has the same meaning as in rule 3745-500-01 of the Administrative Code.

(W)

- (1) "Water pollution" has the same meaning as in rule 3745-500-01 of the Administrative Code.
- (2) "Waters of the state" has the same meaning as in rule 3745-500-01 of the Administrative Code.
- (3) "Water supply well" has the same meaning as in rule 3745-500-01 of the Administrative Code.
- (4) "Wetland" has the same meaning as in rule 3745-500-01 of the Administrative Code.
- (5) "Working face" means that portion of a construction and demolition debris facility that is actively being used to place construction and demolition debris for final disposal at any point in time.

(X) Reserved.

(Y) Reserved.

(Z)

- (1) "Zone of saturation" or "saturated zone" has the same meaning as in rule 3745-500-01 of the Administrative Code.

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3745-520-02

General obligations for owners, operators, and applicants.

(A) The applicant for an authorizing document issued pursuant to this chapter or the owner or operator of a construction and demolition debris facility shall comply with this chapter.

(B) Establishment of a construction and demolition debris facility.

No person shall establish a proposed construction and demolition debris facility or expand a facility beyond its approved limits of construction and demolition debris placement without first requesting and obtaining a permit to install issued in accordance with rule 3745-520-400 of the Administrative Code by the appropriate permitting authority.

(C) Modification of a construction and demolition debris facility.

(1) For a construction and demolition debris facility for which a permit to install has been issued, no person shall modify the facility without first modifying the permit to install for the facility in accordance with rule 3745-520-400 of the Administrative Code.

(2) For a construction and demolition debris facility for which a permit to install has not been issued, no person shall modify the facility without first modifying the license for the facility in accordance with Chapter 3745-501 of the Administrative Code.

(D) Alteration of a construction and demolition debris facility.

(1) Except as provided in paragraph (B)(2) of rule 3745-520-501 of the Administrative Code, no person shall alter a construction and demolition debris facility without first obtaining an alteration to the approved facility design plan. An alteration requires written concurrence by Ohio EPA, the health commissioner, or environmental director of an approved board of health.

If an approved board of health concurs with an alteration to a facility, the approved board of health shall comply with the following:

(a) Not later than seven days after concurring with the alteration, the approved board of health shall send a copy of the alteration to the appropriate Ohio EPA district office.

(b) For each facility within the board's jurisdiction, the approved board of health shall maintain an index of the alterations for which concurrence has been granted.

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(2) Except as provided for in paragraph (B)(2) of rule 3745-520-501 of the Administrative Code, the approved board of health shall not concur with an alteration request from an owner or operator for an alteration that has already occurred.

(E) Licensing of a construction and demolition debris facility.

The applicant of a license for a construction and demolition debris facility, or the owner or operator of a construction and demolition debris facility shall comply with Chapter 3745-501 of the Administrative Code.

(F) Construction obligations.

The owner or operator of a construction and demolition debris facility shall conduct construction, testing, verification, and certification in accordance with rules 3745-520-500 to 3745-520-581 of the Administrative Code.

(G) Operation obligations.

(1) The owner or operator of a construction and demolition debris facility shall operate the facility in accordance with rules 3745-520-600 to 3745-520-690 of the Administrative Code.

(2) The owner or operator of a construction and demolition debris facility shall maintain strict compliance with any permit to install, license, order, alteration concurred with in writing by Ohio EPA or the approved board of health, and authorizing document issued in accordance with Chapter 3714. of the Revised Code and rules adopted thereunder.

(3) The owner or operator shall obtain, maintain, and comply with all applicable permits and authorizations required by Chapter 3704. (air pollution control) or 6111. (water pollution control) of the Revised Code.

(H) Closure, post-closure care, and financial assurance obligations.

(1) The owner or operator shall complete closure in accordance with rules 3745-520-700 to 3745-520-720 of the Administrative Code and shall conduct post-closure care in accordance with rules 3745-520-750 to 3745-520-760 of the Administrative Code.

(2) The owner or operator shall provide financial assurance for closure and post-closure care in accordance with rules 3745-520-905 to 3745-520-930 of the Administrative Code.

(I) Findings and orders. Notwithstanding the provisions of this rule, the owner or operator of a construction and demolition debris facility who is complying with

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findings and orders issued by the director, approved board of health, or court having competent jurisdiction shall continue to comply with those findings and orders until termination of those findings and orders or until the obligations under those findings and orders cease.

(J) Disclosure requirements for new key employees. An applicant for a permit to install, the owner or operator of a facility who has obtained a permit to install in accordance with rule 3745-520-400 of the Administrative Code, and a person to whom a permit to install or a license for a facility is proposed to be transferred shall comply with the disclosure requirements in rule 3745-520-05 of the Administrative Code.

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3745-520-03 **Applicability and implementation of the ground water monitoring program contained in Chapter 3745-506 of the Administrative Code.**

(A) For purposes of applying the requirements of Chapter 3745-506 of the Administrative Code, "potential sources of contamination" means at least the following:

- (1) The limits of construction and demolition debris placement.
- (2) Leachate lagoons.
- (3) Other sources as ordered by the director or approved board of health.

(B) For purposes of this rule, "implement a ground water monitoring program in accordance with Chapter 3745-506 of the Administrative Code" means doing the following:

- (1) At a minimum, complying with rules 3745-506-50 to 3745-506-450 of the Administrative Code and the following:
 - (a) Submitting a ground water detection monitoring plan in accordance with rule 3745-506-400 of the Administrative Code.
 - (b) Commencing sampling in accordance with rule 3745-506-400 of the Administrative Code.
- (2) As applicable, complying with rules 3745-506-500 to 3745-506-703 of the Administrative Code, including requirements for a ground water quality assessment monitoring program, a ground water corrective actions program, or interim corrective actions.

(C) An owner or operator of a construction and demolition debris facility shall comply with Chapter 3745-506 of the Administrative Code as follows:

- (1) The owner or operator of a construction and demolition debris facility required to obtain a permit to install in accordance with rule 3745-520-400 of the Administrative Code shall do the following:
 - (a) For the limits of C&DD placement, implement a ground water monitoring program in accordance with Chapter 3745-506 of the Administrative Code prior to placement of C&DD in the limits of C&DD placement newly approved in the permit to install and comply with Chapter 3745-506 of the Administrative Code until the end of the post-closure care period.

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- (b) For a leachate lagoon containing leachate prior to the effective date of this rule, implement a ground water monitoring program in accordance with Chapter 3745-506 of the Administrative Code prior to placement of C&DD in the limits of C&DD placement newly approved in the permit to install and comply with Chapter 3745-506 of the Administrative Code until the end of the post-closure care period.
- (c) For a leachate lagoon constructed prior to the effective date of this rule that does not contain leachate on the effective date of this rule and for a leachate lagoon constructed after the effective date of this rule, implement a ground water monitoring program in accordance with Chapter 3745-506 of the Administrative Code prior to allowing any leachate into the lagoon and comply with Chapter 3745-506 of the Administrative Code until the end of the post-closure care period.
- (2) The owner or operator of a construction and demolition debris facility that was licensed and operating and had a ground water monitoring system on December 22, 2005, shall do the following:

 - (a) For the limits of C&DD placement, implement a ground water monitoring program in accordance with Chapter 3745-506 of the Administrative Code not later than January 1, 2008, and comply with Chapter 3745-506 of the Administrative Code until the end of the post-closure care period.
 - (b) For a leachate lagoon containing leachate prior to the effective date of this rule, implement a ground water monitoring program in accordance with Chapter 3745-506 of the Administrative Code not later than January 1, 2008, and comply with Chapter 3745-506 of the Administrative Code until the end of the post-closure care period.
 - (c) For a leachate lagoon constructed prior to the effective date of this rule that does not contain leachate on the effective date of this rule and for a leachate lagoon constructed after the effective date of this rule, implement a ground water monitoring program in accordance with Chapter 3745-506 of the Administrative Code prior to allowing any leachate into the lagoon or not later than January 1, 2008, whichever is later, and comply with Chapter 3745-506 of the Administrative Code until the end of the post-closure care period.
 - (d) Notwithstanding the requirements contained in paragraphs (C)(2)(a) to (C)(2)(c) of this rule to comply with Chapter 3745-506 of the Administrative Code until the end of the post-closure care period, if the facility ceases C&DD acceptance in calendar year 2006 and meets the criteria in paragraph (C)(1) of rule 3745-520-04 of the Administrative Code, then the owner or operator shall comply with Chapter 3745-506 of the

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Administrative Code until closure is completed in accordance with rule 3745-520-700 of the Administrative Code.

(3) The owner or operator of a construction and demolition debris facility that was licensed but not operating on December 22, 2005, shall do the following:

(a) For the limits of C&DD placement, implement a ground water monitoring program in accordance with Chapter 3745-506 of the Administrative Code not later than January 1, 2008, and comply with Chapter 3745-506 of the Administrative Code until the end of the post-closure care period.

(b) For a leachate lagoon containing leachate prior to the effective date of this rule, implement a ground water monitoring program in accordance with Chapter 3745-506 of the Administrative Code not later than January 1, 2008, and comply with Chapter 3745-506 of the Administrative Code until the end of the post-closure care period.

(c) For a leachate lagoon constructed prior to the effective date of this rule that does not contain leachate on the effective date of this rule and for a leachate lagoon constructed after the effective date of this rule, implement a ground water monitoring program in accordance with Chapter 3745-506 of the Administrative Code prior to allowing any leachate into the lagoon or not later than January 1, 2008, whichever is later, and comply with Chapter 3745-506 of the Administrative Code until the end of the post-closure care period.

(d) Notwithstanding the requirements contained in paragraphs (C)(3)(a) to (C)(3)(c) of this rule to comply with Chapter 3745-506 of the Administrative Code until the end of the post-closure care period, if the facility ceases C&DD acceptance in calendar year 2006 and meets the criteria in paragraph (C)(1) of rule 3745-520-04 of the Administrative Code, then the owner or operator shall comply with Chapter 3745-506 of the Administrative Code until closure is completed in accordance with rule 3745-520-700 of the Administrative Code.

(4) The owner or operator of a construction and demolition debris facility that was licensed and did not have a ground water monitoring system on December 22, 2005, and that submitted a license application to modify the facility that was required to contain a ground water monitoring plan prior to the effective date of this rule shall do the following:

(a) For the limits of C&DD placement, implement a ground water monitoring program in accordance with Chapter 3745-506 of the Administrative Code not later than January 1, 2008, or twelve months after issuance of the license that modified the facility, whichever is later, and comply with

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Chapter 3745-506 of the Administrative Code until the end of the post-closure care period.

- (b) For a leachate lagoon containing leachate prior to the effective date of this rule, for a leachate lagoon constructed prior to the effective date of this rule that does not contain leachate on the effective date of this rule, and for a leachate lagoon constructed after the effective date of this rule, implement a ground water monitoring program in accordance with Chapter 3745-506 of the Administrative Code not later than January 1, 2008, or twelve months after issuance of the license that modified the facility, whichever is later, and comply with Chapter 3745-506 of the Administrative Code until the end of the post-closure care period.
- (c) Notwithstanding the requirements contained in paragraphs (C)(4)(a) and (C)(4)(b) of this rule to comply with Chapter 3745-506 of the Administrative Code until the end of the post-closure care period, if the facility ceases C&DD acceptance in calendar year 2006 and meets the criteria in paragraph (C)(1) of rule 3745-520-04 of the Administrative Code, then the owner or operator shall comply with Chapter 3745-506 of the Administrative Code until closure is completed in accordance with rule 3745-520-700 of the Administrative Code.
- (5) The owner or operator of a construction and demolition debris facility that was licensed and operating and did not have a ground water monitoring system on December 22, 2005, and that submits a renewal license application in calendar year 2006 that is required to contain a ground water monitoring plan shall do the following:

 - (a) For the limits of C&DD placement, implement a ground water monitoring program in accordance with Chapter 3745-506 of the Administrative Code not later than January 1, 2008, and comply with Chapter 3745-506 of the Administrative Code until the end of the post-closure care period.
 - (b) For a leachate lagoon containing leachate prior to the effective date of this rule, implement a ground water monitoring program in accordance with Chapter 3745-506 of the Administrative Code not later than January 1, 2008, and comply with Chapter 3745-506 of the Administrative Code until the end of the post-closure care period.
 - (c) For a leachate lagoon constructed prior to the effective date of this rule that does not contain leachate on the effective date of this rule and for a leachate lagoon constructed after the effective date of this rule, implement a ground water monitoring program in accordance with Chapter 3745-506 of the Administrative Code prior to allowing any leachate into the lagoon or not later than January 1, 2008, whichever is later, and comply with Chapter

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3745-506 of the Administrative Code until the end of the post-closure care period.

(6) The owner or operator that submits a license application for a proposed construction and demolition debris facility prior to the effective date of this rule shall do the following:

(a) For the limits of C&DD placement, implement a ground water monitoring program in accordance with Chapter 3745-506 of the Administrative Code not later than January 1, 2008, or twelve months after issuance of the license that authorized establishment of the facility, whichever is later, and comply with Chapter 3745-506 of the Administrative Code until the end of the post-closure care period.

(b) For a leachate lagoon containing leachate prior to the effective date of this rule, implement a ground water monitoring program in accordance with Chapter 3745-506 of the Administrative Code not later than January 1, 2008, and comply with Chapter 3745-506 of the Administrative Code until the end of the post-closure care period.

(c) For a leachate lagoon constructed prior to the effective date of this rule that does not contain leachate on the effective date of this rule and for a leachate lagoon constructed after the effective date of this rule, implement a ground water monitoring program in accordance with Chapter 3745-506 of the Administrative Code prior to allowing any leachate into the lagoon or not later than January 1, 2008, whichever is later, and comply with Chapter 3745-506 of the Administrative Code until the end of the post-closure care period.

(7) The owner or operator of a construction and demolition debris facility that is in closure on the effective date of this rule and that does not complete closure in accordance with rule 3745-520-700 of the Administrative Code prior to January 1, 2008, shall do the following:

(a) For the limits of C&DD placement, implement a ground water monitoring program in accordance with Chapter 3745-506 of the Administrative Code not later than January 1, 2008, and comply with Chapter 3745-506 of the Administrative Code until closure is completed in accordance with rule 3745-520-700 of the Administrative Code.

(b) For a leachate lagoon, implement a ground water monitoring program in accordance with Chapter 3745-506 of the Administrative Code not later than January 1, 2008, and comply with Chapter 3745-506 of the Administrative Code until closure is completed in accordance with rule 3745-520-700 of the Administrative Code.

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- (D) Unless an owner or operator is required to obtain a permit to install in accordance with rule 3745-520-400 of the Administrative Code, Chapter 3745-506 of the Administrative Code does not apply to the following:
- (1) The owner or operator of a construction and demolition debris facility that was licensed and operating and did not have a ground water monitoring system on December 22, 2005, and that does not submit a license application to modify the facility prior to the effective date of this rule.
 - (2) The owner or operator of a construction and demolition debris facility that was licensed and operating and did not have a ground water monitoring system on December 22, 2005, and that submits a license application to modify the facility that is not required to contain a ground water monitoring plan prior to the effective date of this rule.
 - (3) The owner or operator of a construction and demolition debris facility that completes closure in accordance with rule 3745-520-700 of the Administrative Code prior to January 1, 2008.
- (E) Leachate lagoons constructed after implementation of a ground water monitoring program. The owner or operator of a construction and demolition debris facility required by paragraph (C) of this rule to implement a ground water monitoring program in accordance with Chapter 3745-506 of the Administrative Code shall update the implemented ground water monitoring program in accordance with Chapter 3745-506 of the Administrative Code prior to allowing leachate into a leachate lagoon constructed after a ground water monitoring program has been implemented at the facility and shall comply with Chapter 3745-506 of the Administrative Code until the end of the post-closure care period.
- (F) Detection monitoring schedule. The owner or operator of a construction and demolition debris facility required to comply with Chapter 3745-506 of the Administrative Code shall comply with rule 3745-506-700 of the Administrative Code when required by Chapter 3745-506 of the Administrative Code.
- (G) Assessment monitoring schedule. The owner or operator of a construction and demolition debris facility required to comply with Chapter 3745-506 of the Administrative Code shall comply with rule 3745-506-701 of the Administrative Code when required by Chapter 3745-506 of the Administrative Code.
- (H) Compliance monitoring schedule. The owner or operator of a construction and demolition debris facility required to comply with Chapter 3745-506 of the Administrative Code shall comply rule 3745-506-702 of the Administrative Code when required by Chapter 3745-506 of the Administrative Code.
- (I) Corrective actions monitoring plan. The owner or operator of a construction and demolition debris facility required to comply with Chapter 3745-506 of the

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Administrative Code shall comply with rule 3745-506-703 of the Administrative Code when required by Chapter 3745-506 of the Administrative Code.

(J) Ground water monitoring pursuant to findings and orders.

- (1) The owner or operator of a construction and demolition debris facility who is conducting a ground water monitoring program pursuant to findings and orders issued by the director shall continue conducting the ground water monitoring program pursuant to those findings and orders until termination of those findings and orders or until the ground water monitoring obligations in those findings and orders cease.
- (2) The owner or operator of a facility conducting a ground water monitoring program pursuant to findings and orders issued by the director may request to comply with Chapter 3745-506 of the Administrative Code in lieu of complying with the ground water monitoring requirements contained in the findings and orders. The director may approve the request through modification of the findings and orders.
- (3) Upon termination of the finding and orders, cessation of the ground water monitoring obligations in the findings and orders, or director's modification of the findings and orders pursuant to paragraph (J)(2) of this rule, the owner or operator of a construction and demolition debris facility shall implement a ground water monitoring program for the limits of C&DD placement and leachate lagoons in accordance with Chapter 3745-506 of the Administrative Code not later than January 1, 2008, or twelve months after termination of the finding and orders, cessation of the ground water monitoring obligations in the findings and orders, or director's modification of the findings and orders, whichever is later, and shall comply with Chapter 3745-506 of the Administrative Code until the end of the post-closure care period.

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3745-520-04 License renewals for license year 2007; definitions for license year 2007; no post-closure care required for facilities permanently ceasing acceptance of C&DD in 2006; one year of post-closure care required for facilities permanently ceasing acceptance of C&DD in 2007; resolving conflicts between 2007 license and this chapter.

(A) Notwithstanding the requirements of rule 3745-520-02 of the Administrative Code, applicants and licensing authorities shall comply with the following:

- (1) The applicant for a renewal license for license year 2007 shall submit the license application in accordance with the requirements of Chapters 3745-37 and 3745-400 of the Administrative Code as they were in effect on July 1, 2005.
- (2) The licensing authority shall review, and approve or deny all applications for a renewal license for license year 2007 in accordance with the requirements of Chapters 3745-37 and 3745-400 of the Administrative Code as they were in effect on July 1, 2005.

(B) For purposes of complying with this chapter, the following terms are defined as follows:

- (1) A phase that contains the working face or in which the owner or operator is placing the select C&DD layer means the "active licensed disposal area" as identified in the license application for license year 2007.
- (2) An unfilled phase where no C&DD has been disposed means the "inactive licensed disposal area" in which no construction and demolition debris has yet been placed as identified in the license application for license year 2007.
- (3) A phase other than a phase described in paragraph (B)(1) of this rule that has disposed C&DD means the "inactive licensed disposal area" in which C&DD has been placed since September 30, 1996, and which has been capped, dense vegetation established, and certification of the completion of these activities submitted to the licensing authority; or in which C&DD has been placed prior to September 30, 1996, and where no C&DD placement has occurred after that date as identified in the license application for license year 2007.

(C) Notwithstanding the requirements of rule 3745-520-750 of the Administrative Code, the post-closure care requirements shall apply to the owner or operator as follows:

- (1) No post-closure care is required for a facility if the owner or operator permanently ceases acceptance of construction and demolition debris in calendar year 2006 provided that the owner or operator of the facility gives written notice of the date of the cessation to the approved board of health or the director, and the owner or operator of the facility does not submit a subsequent application for

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a license renewal for the facility after the cessation, and no order was issued by the applicable board of health, the director, or a court of competent jurisdiction governing the post-closure care of and post-closure financial assurance for that facility prior to the date specified in the written notice.

(2) The required period of time for post-closure care and post-closure care financial assurance shall be one year after the closure of any facility if the owner or operator permanently ceases acceptance of construction and demolition debris in calendar year 2007 provided that the owner or operator of the facility gives written notice of the date of the cessation to the approved board of health or the director, and the owner or operator of the facility does not submit a subsequent application for a license renewal for the facility after the cessation, and no order was issued by the applicable board of health, the director, or a court of competent jurisdiction governing the post-closure care of and post-closure financial assurance for that facility prior to the date specified in the written notice.

(D) Notwithstanding the requirements of this chapter, if the approved license for 2007 contains explicit requirements that conflict with the requirements in this chapter and the requirements in the approved license for 2007 complied with Chapters 3745-37 and 3745-400 of the Administrative Code as it was effective on July 1, 2005, then the owner or operator shall comply with the approved license for 2007 instead of the requirements in this chapter only in as much as is necessary to resolve the conflict.

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3745-520-05

Disclosure requirements for an applicant for a permit to install, the owner or operator of a permitted facility, and a person to whom a permit to install or a license for a facility is proposed to be transferred.

(A) Applicability. An applicant for a permit to install, the owner or operator of a facility who has obtained a permit to install in accordance with rule 3745-520-400 of the Administrative Code, and a person to whom a permit to install or a license for a facility is proposed to be transferred shall comply with the disclosure requirements in paragraph (B) of this rule.

(B) Not later than ninety days after the addition of a new key employee, the applicant, owner or operator, or proposed transferee shall submit or shall require the new key employee to submit to the approved board of health and the director any and all information required by divisions (A)(1) to (A)(4) of section 3714.052 of the Revised Code. This applies to all new key employees including but not limited to the following:

- (1) New key employees of an applicant or permittee.
- (2) New partners of the applicant or permittee, if and where the law allows the addition of a partner without dissolution of the old partnership.
- (3) New officers of a private operating corporation.
- (4) New officers of a private parent corporation.
- (5) New directors of a private operating corporation.
- (6) Any new individual who owns or controls the applicant or permittee.
- (7) Any new partner of a business concern that owns or controls the applicant or permittee.
- (8) If the applicant or permittee is a governmental entity, each new key employee of the applicant or permittee whose primary duties concern the operation of the subject facility.
- (9) If the applicant or permittee is a governmental entity but the operator of the facility is a business concern or individual who is not an employee of the governmental entity:
 - (a) Each new individual who is the operator.
 - (b) Each new key employee of the operator.

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(c) Each new partner of the operator.

(d) Each new officer of the operator.

(C) In lieu of submitting the information required by paragraph (B) of this rule, the applicant, owner or operator, or proposed transferee may choose to comply with sections 3734.41 to 3734.47 of the Revised Code in accordance with division (F) of section 3714.052 of the Revised Code.

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3745-520-10 **Authorized, limited, and prohibited construction and demolition debris disposal methods.**

(A) Construction and demolition debris shall be disposed only by one or a combination of the following:

(1) Disposal in a construction and demolition debris facility licensed in accordance with Chapter 3714. of the Revised Code and rules adopted thereunder.

(2) Disposal in a municipal solid waste disposal facility licensed in accordance with Chapter 3734. of the Revised Code and rules adopted thereunder.

(3) Disposal by means of burning as defined in Chapter 3745-19 of the Administrative Code, if permitted as provided therein.

(4) Disposal at the construction site of construction debris, trees, or brush removed in clearing the construction site if the construction debris, trees, or brush are used as fill material at the site.

(5) Disposal of clean hard fill at a site if the clean hard fill is used, either alone or in conjunction with clean soil, sand, gravel, or other clean aggregates, in legitimate fill operations for construction purposes or to bring the site up to a consistent grade. When clean hard fill is placed off the site of generation, a "Notice of Intent to Fill" is required in accordance with rule 3745-520-60 of the Administrative Code.

(B) No person shall conduct, permit, or allow illegal disposal of construction and demolition debris.

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3745-520-20 Exemptions.

(A) The director or approved board of health may by order exempt any person disposing of or proposing to dispose of construction and demolition debris in such quantities or under such circumstances that, in the determination of the director or approved board of health, are unlikely to adversely affect the public health or safety or the environment, or create a fire hazard, from any provision of Chapter 3714. of the Revised Code or any rules adopted thereunder or any order issued pursuant to Chapter 3714. of the Revised Code, except for those circumstances stated in paragraph (B) or (C) of this rule.

(B) The director or approved board of health shall not grant an exemption to paragraph (C)(1)(b) of rule 3745-520-100 of the Administrative Code or to paragraph (E) of rule 3745-520-630 of the Administrative Code.

(C) Floodplain exemption criteria. Neither the director nor approved board of health shall grant an exemption from the one-hundred-year floodplain restriction specified in paragraph (C)(1)(a) of rule 3745-520-100 if the director or approved board of health determines from the permit to install application that the establishment or expansion of a construction and demolition debris facility in the one-hundred-year floodplain would result in an increase of more than one foot in the elevation of the flood stage of the watercourse upstream or downstream from the proposed facility or proposed facility expansion.

The applicant for a permit to install shall determine the increase in the flood stage resulting from the location of the proposed facility or proposed facility expansion within the one-hundred-year flood plain of a watercourse based upon standard methodologies set forth in "Urban Hydrology for Small Watersheds" (Soil Conservation Service Technical Release Number 55) and Section 4 of the "National Engineering Hydrology Handbook" of the soil conservation service of the United States department of agriculture as described in rule 3745-500-03 of the Administrative Code.

(D) Except in the event of a natural disaster or public health emergency declared by the governor or the director of health, before an approved board of health issues an order that exempts a person disposing of or proposing to dispose of construction and demolition debris as provided in paragraph (A) of this rule, the board shall provide written notice to the director of the board's intention to grant an exemption under that paragraph. The notice shall contain a description of the facts surrounding the proposed exemption and any other information that the director may request.

Not later than thirty days after receipt of the notice, the director shall provide written comments to the board of health regarding the proposed exemption.

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After receiving written comments from the director, the approved board of health shall consider these comments prior to granting or denying the exemption.

- (E) The person to whom an exemption is issued under section 3714.04 of the Revised Code and this rule shall comply with all applicable federal, state, and local laws and rules and orders except for those requirements that have been expressly exempted in accordance with section 3714.04 of the Revised Code and this rule. A person may receive an exemption under section 3714.04 of the Revised Code and this rule only from provisions of Chapter 3714. of the Revised Code and the rules adopted thereunder or any order issued pursuant to Chapter 3714. of the Revised Code and the rules adopted thereunder.

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3745-520-50 Ground water monitoring fee.

(A) Beginning January 1, 2007, for the funding and conducting of ground water monitoring at prioritized construction and demolition debris facilities, there is hereby levied on the disposal of construction and demolition debris at a construction and demolition debris facility that is licensed pursuant to Chapter 3714. of the Revised Code a fee of five cents per cubic yard or ten cents per ton in accordance with section 3714.071 of the Revised Code.

(B) The owner or operator shall collect and remit the fee in the same manner as the fee levied under section 3714.07 of the Revised Code.

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3745-520-51 Construction and demolition debris disposal fee collected by multiple townships or municipal corporations.

For the fee levied under division (A) of section 3714.07 of the Revised Code:

(A) If a construction and demolition debris facility is located within the territorial boundaries of more than one municipal corporation or township, each municipal corporation or township may appropriate up to four cents per cubic yard or up to eight cents per ton of the disposal fee divided by the number of municipal corporations and townships within which the facility is located.

(B) The municipal corporation or township may appropriate this fee for the same purposes that a municipal corporation or township may levy a fee under division (C) of section 3734.57 of the Revised Code.

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3745-520-60 Management of clean hard fill.

(A) Clean hard fill shall be managed only by one or a combination of the following:

- (1) Reused or recycled.
- (2) Disposed in a licensed construction and demolition debris facility or a licensed municipal solid waste disposal facility.
- (3) Used on the site of generation in legitimate fill operations for construction purposes or to bring the site up to a consistent grade.
- (4) Used on a site other than the site of generation in legitimate fill operations for construction purposes or to bring the site up to a consistent grade. If clean hard fill is to be managed in this manner, a "Notice of Intent to Fill" shall be submitted in accordance with paragraph (B) of this rule.

(B) The person responsible for causing clean hard fill to be used in accordance with paragraph (A)(4) of this rule shall submit a written "Notice of Intent to Fill" to each licensing authority where the clean hard fill is to be placed. The notification shall be received by each licensing authority at least seven days prior to the first placement of any such materials as fill material at the off-site location, as required by division (F) of section 3714.13 of the Revised Code. The notifier shall provide a new "Notice of Intent to Fill" if there are any changes in the information required by this rule for notification. The "Notice of Intent to Fill" shall contain the following information:

- (1) A description of the fill material.
- (2) The location of the site to be filled.
- (3) Dates when filling will begin and end.
- (4) The telephone number of the notifier.
- (5) A signed attestation by the notifier that states:

"All applicable local, state, and federal offices and agencies, including but not limited to the army corps of engineers, Ohio EPA division of surface water, and the Ohio department of natural resources, have been contacted and all necessary permits and authorizations have been obtained."

The signature on the "Notice of Intent to Fill" shall constitute personal affirmation that all statements or assertions of fact made in the notice are true, accurate, and complete, comply fully with applicable state requirements, and

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shall subject the signatory to liability under those state laws forbidding false or misleading statements.

(6) A list of all applicable permits or authorizations that have been obtained and the dates when those permits or authorizations were received.

(C) Clean hard fill shall not be stored or used in a manner that creates a nuisance or threatens public health or safety or the environment.

(D) If the use of clean hard fill creates a nuisance or a causes a threat to public health or safety or the environment, the person responsible for causing the clean hard fill to be used shall take all actions necessary to eliminate the nuisance or threat to public health or safety or the environment, including but not limited to removing the clean hard fill.

(E) The use of clean hard fill shall not cause or contribute to air or water pollution or violate any provision of Chapter 3704., 3714., 3734., or 6111. of the Revised Code.

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3745-520-100 Siting criteria.

[Comment: For dates of non-regulatory government publications, publications of recognized organizations and associations, test methods, federal rules, and federal statutory provisions referenced in this rule, see rule 3745-500-03 of the Administrative Code titled "Incorporation by reference."]

(A) The siting criteria established in this rule shall be applied to an application for a permit to install and a license at the time the application is submitted to the director or approved board of health. Circumstances related to the siting criteria that change after the application is submitted shall not be considered in issuing the permit to install or the license or in denying the permit to install application or license application.

(B) Applicability of siting criteria.

(1) A proposed construction and demolition debris facility shall meet the siting criteria specified in this rule.

(2) Except as specified in paragraph (B)(3) of this rule, a construction and demolition debris facility that is expanding beyond its approved limits of C&DD placement shall meet the siting criteria specified in this rule.

(3) A construction and demolition debris facility that was in operation prior to December 22, 2005, that is expanding onto property within the property boundaries identified in any license issued for that facility up to and including the license issued for calendar year 2005 shall meet the siting criteria in paragraph (C)(1) of this rule.

(4) A construction and demolition debris facility that is not required to obtain a permit to install shall meet the siting criteria in paragraph (C)(1) of this rule.

(C) Siting criteria.

(1) Facility-specific siting criteria. No portion of a construction and demolition debris facility shall be in either of the following locations:

(a) Within the boundaries of a one-hundred-year floodplain, as those boundaries are shown on the applicable maps prepared under the "National Flood Insurance Act of 1968," 82 Stat. 572, 42 U.S.C.A. 4001, unless the owner or operator has obtained an exemption from the licensing authority, in accordance with rule 3745-520-20 of the Administrative Code. If no such maps have been prepared, the boundaries of a one-hundred-year flood plain shall be determined by the applicant for a permit based upon standard methodologies set forth in "Urban Hydrology for Small Watersheds" (Soil

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Conservation Service Technical Release Number 55) and Section 4 of the "National Engineering Hydrology Handbook" of the soil conservation service of the United States department of agriculture.

(b) Within the boundaries of a sole source aquifer designated by the Administrator of the United States environmental protection agency under the "Safe Drinking Water Act," 88 Stat. 1660, 42 U.S.C.A. 300f.

(2) Siting criteria specific to horizontal limits of C&DD placement. The horizontal limits of construction and demolition debris placement shall not be in the following locations:

(a) Within one hundred feet of one or a combination of the following:

(i) A perennial stream, as defined by the United States geological survey seven and one-half minute quadrangle map.

(ii) A category 3 wetland.

(iii) The facility's property line.

For the purposes of this rule, "facility's property line" has the same meaning as the "boundary of the facility" as described in paragraph (A)(5) of rule 3745-520-210 of the Administrative Code.

(b) Within five hundred feet of any of the following:

(i) Parks, as described in the following:

(a) A park created or operated pursuant to section 301.26, 511.18, 755.08, 1545.04, or 1545.041 of the Revised Code.

(b) A state park established or dedicated under Chapter 1541. of the Revised Code.

(c) A state park purchase area established under section 1541.02 of the Revised Code.

(d) A national recreation area, any unit of the national park system, or any property that lies within the boundaries of a national park or recreation area, but that has not been acquired or is not administered by the secretary of the United States department of the interior, located in this state.

(e) Any area located in this state that is recommended by the secretary of the United States department of the interior for study for

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potential inclusion in the national park system in accordance with "The Act of August 18, 1970," 84 Stat. 825, 16 U.S.C.A. 1a-5.

(ii) Natural areas, nature preserves, and wildlife areas and refuges, as described in the following:

(a) An area designated by the director of natural resources as a wild, scenic, or recreational river under section 1517.14 of the Revised Code.

(b) An area designated by the United States department of the interior as a national wild, scenic, or recreational river.

(c) Any area established by the department of natural resources as a state wildlife area under Chapter 1531. of the Revised Code and rules adopted under it.

(d) Any area that is formally dedicated as a nature preserve under section 1517.05 of the Revised Code.

(e) Any area designated by the United States department of the interior as a national wildlife refuge.

(iii) A state forest purchased or otherwise acquired under Chapter 1503. of the Revised Code.

(iv) A lake or reservoir of one acre or more that is hydrogeologically connected to ground water. For purposes of this paragraph, a lake or reservoir does not include a body of water constructed and used for purposes of surface water drainage or sediment control.

(v) A residential or public water supply well, unless one of the following conditions is met:

(a) The water supply well is a residential supply well and is controlled by the owner or operator of the construction and demolition debris facility.

(b) The water supply well is a residential supply well and is hydrologically separated from the horizontal limits of construction and demolition debris placement.

(c) The water supply well is a residential supply well and is at least three hundred feet upgradient from the horizontal limits of construction and demolition debris placement and the facility meets the criteria in paragraph (C)(3) of this rule.

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(vi) Land that is placed on the state registry of historic landmarks under section 149.55 of the Revised Code.

(vii) An occupied dwelling, unless written permission is given by the owner of the dwelling.

(3) Isolation distance. The limits of construction and demolition debris placement at a facility shall have an isolation distance of not less than five feet from the uppermost aquifer system and shall meet the following:

(a) Any single sample of the geologic material comprising the five-foot isolation distance shall not exceed a hydraulic conductivity of 1.0 times ten to the negative five centimeters per second.

(b) The overall hydraulic conductivity of the entire thickness of the geologic material comprising the five-foot isolation distance shall not exceed a hydraulic conductivity of 1.0 times ten to the negative six centimeters per second.

(4) Location of main hauling road. Any road that is designated by the owner or operator as the main hauling road at a construction and demolition debris facility shall not be located within five hundred feet of an occupied dwelling, unless written permission is given by the owner of the occupied dwelling.

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3745-520-200 Applicability of design requirements.

An applicant who submits a license application that contains a facility design plan for a construction and demolition debris facility and an applicant who submits an application for a permit to install to establish a proposed facility or to modify a facility shall comply as follows:

- (A) The facility design plan of a license application for a facility that is not required to obtain a permit to install under this chapter shall conform to rules 3745-520-290 and 3745-520-291 of the Administrative Code.

- (B) The facility design plan of an application for a permit to install for the modification of a facility to expand beyond the previously approved limits of C&DD placement shall conform to rules 3745-520-205 to 3745-520-280 of the Administrative Code.

- (C) The facility design plan of an application for a permit to install for a proposed facility shall conform to rules 3745-520-205 to 3745-520-280 of the Administrative Code.

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3745-520-205 Engineered components.

(A) Each facility design plan of an application for a permit to install for a construction and demolition debris facility shall include the following engineered components, which shall be designed in accordance with rule 3745-520-200 of the Administrative Code and constructed in accordance with rules 3745-520-500 to 3745-520-581 of the Administrative Code:

(1) Vegetated earthen berms when required by paragraph (D)(2) of rule 3745-520-310 of the Administrative Code.

(2) Permanent survey marks.

(3) Access roads.

(4) A stable in situ foundation.

(5) A cap system comprised of the following engineered components:

(a) A cap barrier layer that includes the following:

(i) A recompacted soil barrier layer.

(ii) A flexible membrane barrier layer.

(b) A cushion layer.

(c) A drainage layer.

(d) A filter layer.

(e) A protection layer.

(6) Surface water control structures.

(7) Sedimentation basins.

(B) In addition to the other engineered components required by this rule, the facility design plan of an application for a permit to install that includes either a proposal to expand beyond the previously approved horizontal limits of C&DD placement or a proposal to expand below the basal elevations of the vertical limits of C&DD placement shall include the following engineered components for the expansion, which shall be designed in accordance with rule 3745-520-200 of the Administrative Code and constructed in accordance with rules 3745-520-500 to 3745-520-581 of the Administrative Code:

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(1) Added geologic material when required by paragraph (C)(3) of rule 3745-520-100 of the Administrative Code.

(2) A liner system comprised singly or in combination as required by applicable rules of the following engineered components:

(a) A recompacted soil liner.

(b) A flexible membrane liner.

(3) A leachate management system comprised of the following components:

(a) A cushion layer.

(b) A leachate collection layer.

(c) Leachate collection pipes.

(d) A filter layer.

(e) Leachate sumps.

(f) Leachate conveyance apparatuses.

(g) Leachate storage tanks, leachate treatment works, or a discharge connection to a public sewerage system.

(C) Proposed expansion of the final elevations of vertical limits of C&DD placement over disposed C&DD.

(1) If the facility design plan includes a proposal for an expansion of the final elevations of the vertical limits of C&DD placement over disposed C&DD, the vertical expansion shall only be proposed in areas that have the following under all disposed C&DD:

(a) At least 5.0 feet of isolation distance between the uppermost aquifer system and the basal elevations of the limits of C&DD placement.

(b) A liner system that conforms to rule 3745-520-230 of the Administrative Code.

(c) A leachate management system that conforms to rule 3745-520-240 of the Administrative Code.

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- (2) If the facility was not constructed to satisfy the requirements of paragraph (C)(1) of this rule, then in addition to the other engineered components required by this rule, the facility design plan shall include a separatory leachate barrier and collection system that shall be comprised of the following components which shall be designed in accordance with rule 3745-520-200 of the Administrative Code and constructed in accordance with rules 3745-520-500 to 3745-520-581 of the Administrative Code:
- (a) A gas collection layer and gas vents or gas extraction system to remove gas from under the separatory leachate barrier and collection system.
 - (b) A liner system as described in paragraph (B)(2) of this rule.
 - (c) A leachate management system as described in paragraph (B)(3) of this rule.
- (D) The applicant, owner, or operator may propose any of the following engineered components as part of a facility design plan. The engineered components shall be designed in accordance with rule 3745-520-200 of the Administrative Code and constructed in accordance with rules 3745-520-500 to 3745-520-581 of the Administrative Code.
- (1) Equivalent barriers to vegetated earthen berms.
 - (2) Structural fill for berms and subbase.
 - (3) Permanent ground water control structures.
 - (4) A geocomposite drainage layer in the leachate management system.
 - (5) A leachate drainage layer comprised of tire shreds.
 - (6) A geocomposite drainage layer in the separatory leachate barrier and collection system.
 - (7) A geocomposite drainage layer in the cap system.
 - (8) A leachate recirculation system.
- (E) The facility design plan of an application for a permit to install shall conform to paragraphs (A) to (D) of this rule for all portions of the facility within the previously approved limits of C&DD placement that have no disposed C&DD prior to the effective date of an approved permit to install to expand the limits of C&DD placement.
- (F) The facility design plan of an application for a permit to install shall conform to paragraph (A)(5) of this rule for all portions of the facility that have disposed C&DD

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and have not had cap constructed and certified and the certification report submitted to the permitting authority prior to the effective date of an approved permit to install to expand the limits of C&DD placement.

(G) The permitting authority may require additional engineered components to be included in the facility design plan of an application for a permit to install if the permitting authority determines that the engineered components are necessary to protect public health or safety or the environment or are necessary to prevent air or water pollution or contributing to air or water pollution by the facility. These additional engineered components include but are not limited to the following:

(1) A gas collection layer.

(2) Gas vents.

(3) A gas extraction system.

(H) The approved facility design plan shall be changed only as part of an application for a permit to install to modify a facility, an application to modify or renew a license that includes a facility design plan for a facility that is not required to obtain a permit to install, or to incorporate an alteration in accordance with rule 3745-520-02 of the Administrative Code.

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3745-520-210 Facility design plan for a facility required to obtain a permit to install.

[Comment: For dates of non-regulatory government publications, publications of recognized organizations and associations, test methods, federal rules, and federal statutory provisions referenced in this rule, see rule 3745-500-03 of the Administrative Code titled "Incorporation by reference."]

(A) The facility design plan. The facility design plan for a facility that is required to obtain a permit to install in accordance with rule 3745-520-400 of the Administrative Code shall include the drawings, calculations, and narrative necessary to demonstrate that the design of the facility conforms to rules 3745-520-200 to 3745-520-280 of the Administrative Code. The facility design plan shall conform to the following:

(1) Drawings shall appear on plan sheets with minimum dimensions of twenty-four inches by thirty-six inches. If narrative is necessary to explain a drawing or a calculation, the narrative shall appear with the drawing or calculation.

(2) The facility design plan shall be signed and sealed by a professional engineer.

(3) All survey information included in the facility design plan shall be signed and sealed by a professional surveyor.

(4) A grid system shall meet the following criteria:

(a) Be established having grid points a maximum of one hundred feet apart and grid lines a maximum of five hundred feet apart.

(b) Be referenced to one of the permanent survey marks at the facility.

(c) Be used on all facility design plan drawings containing topographical information, except for the plan cover sheet.

(5) Each drawing in a facility's design plan that includes a representation of the boundary of the facility shall show the boundary in the same location, and that location shall have been surveyed by a professional surveyor. At a minimum, the boundary of the facility shall encompass all of the area that includes all of the following:

(a) The limits of C&DD placement.

(b) All areas within one hundred feet of the limits of C&DD placement except that the boundary of the facility shall not extend beyond the boundary of the property owned or controlled by the owner or operator.

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(c) All engineered components included in rule 3745-520-205 of the Administrative Code and all engineered components that are required or proposed to be in the facility design plan.

(d) All ground water monitoring, assessment, and corrective action structures.

(e) All gas monitoring apparatuses and structures.

(f) All buildings.

(g) All borrow areas.

(h) The unloading zone.

(i) All parking lots, staging areas, and storage areas.

(j) All other areas on which activities associated with disposal occur.

(k) All roads used to access any item listed in paragraphs (A)(5)(a) to (A)(5)(j) of this rule.

(B) The facility design plan for a facility that is required to obtain a permit to install in accordance with rule 3745-520-400 of the Administrative Code shall include the following:

(1) A plan cover sheet. The plan cover sheet, to be numbered sheet 1, shall contain the following information:

(a) The name of the facility.

(b) The precise geographic location and boundaries of the facility and the area within a five-mile radius shown on a road map with a scale of one inch equals no greater than one mile.

(c) The limits of C&DD placement. The applicant, owner, or operator may determine the location of disposed C&DD using existing surveys. If the applicant, owner, or operator does not have survey results, the applicant, owner, or operator shall use the results of a field investigation to provide justification of the location of disposed C&DD shown in the facility design plan.

(d) The name and address of the facility operator.

(e) The name and address of each owner of the land to be used for the facility.

(f) The name and address of the professional engineer who prepared the plans.

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(2) Drawings showing the facility environs. Plan drawings shall show the following items that are within the area that includes the facility and all property within five hundred feet of the boundary of the facility. The items shall be illustrated on a series of plan drawings numbered consecutively: 2A, 2B, 2C, etc. All items specified in an individual subheading shall be shown on the same plan drawing unless otherwise specified. An individual plan drawing may contain information specified in more than one subheading. A scale of one inch equals no greater than two hundred feet shall be used.

(a) Each plan drawing required by paragraphs (B)(2)(b) to (B)(2)(p) of this rule shall include the following:

(i) The boundary of the facility.

(ii) The limits of C&DD placement, as shown on the design plan cover sheet.

(iii) The limits of all drinking water source protection areas for a public water system using ground water including the area surrounding a public water supply well that will provide water from an aquifer to the well as delineated or endorsed by Ohio EPA under Ohio's wellhead protection and source water assessment and protection programs.

(iv) All public roads, railroads, and structures built by humans, including the location of all existing or proposed maintenance buildings, weighing facilities, and storage buildings.

(v) Unless division (G)(2) of section 3714.03 of the Revised Code applies to the facility, the areas of the facility that will be prohibited from having a road that is designated by the owner or operator as the main haul road at the facility.

(vi) Existing topography showing vegetation, streams, swamps, lakes, springs, and other surface waters, with a contour interval no greater than five feet.

(vii) The north arrow.

(viii) A legend with information necessary to understand the drawing.

(ix) The scale of the drawing.

(b) All oil wells and gas wells. If oil wells or gas wells are identified in accordance with this paragraph, a letter from the department of natural resources or other appropriate agency verifying the type, location, depth,

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and status of the well shall be included. All oil wells and gas wells within the proposed limits of C&DD placement shall be properly plugged and abandoned in accordance with Chapter 1509. of the Revised Code.

- (c) The location of all boundaries of a one-hundred-year flood plain, as those boundaries are shown on the applicable maps prepared under the "National Flood Insurance Act of 1968," 82 Stat. 572, 42 U.S.C.A. 4001. If no such maps have been prepared, the boundaries of a one-hundred-year flood plain shall be determined by the applicant for a permit based upon standard methodologies set forth in "Urban Hydrology for Small Watersheds" (soil conservation service technical release number 55) and section 4 of the "National Engineering Hydrology Handbook" of the soil conservation service of the United States department of agriculture.
- (d) The location of boundaries of a sole source aquifer designated by the administrator of the United States environmental protection agency under the "Safe Drinking Water Act," 88 Stat. 1660 (1974), 42 U.S.C.A. 300f.
- (e) The location of all perennial streams as depicted on a 7.5-minute USGS topographical map and all category 3 wetlands.
- (f) The location of each residential or public water supply well. Each well shall be identified as a residential or public water supply well. The owner of each well shall be identified.
- (g) Unless division (G)(2) of section 3714.03 of the Revised Code applies to the facility, the location of any park created or operated pursuant to section 301.26, 511.18, 755.08, 1545.04, or 1545.041 of the Revised Code, a state park established or dedicated under Chapter 1541. of the Revised Code, a state park purchase area established under section 1541.02 of the Revised Code, a national recreation area, any unit of the national park system, or any property that lies within the boundaries of a national park or recreation area, but that has not been acquired or is not administered by the secretary of the United States department of the interior, located in this state, or any area located in this state that is recommended by the secretary for study for potential inclusion in the national park system in accordance with "The Act of August 18, 1970," 84 Stat. 825, 16 U.S.C.A. 1a-5, as amended.
- (h) Unless division (G)(2) of section 3714.03 of the Revised Code applies to the facility, the location of any natural area, any area established by the department of natural resources as a state wildlife area under Chapter 1531. of the Revised Code and rules adopted under it, any area that is formally dedicated as a nature preserve under section 1517.05 of the Revised Code, or any area designated by the United States department of the interior as a national wildlife refuge.

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- (i) The location of any lake or reservoir of one acre or more that is hydrogeologically connected to ground water. For the purpose of this rule, a lake or reservoir does not include a body of water constructed and used for purposes of surface water drainage or sediment control.
- (j) Unless division (G)(2) of section 3714.03 of the Revised Code applies to the facility, the location of any state forest purchased or otherwise acquired under Chapter 1503. of the Revised Code.
- (k) Unless division (G)(2) of section 3714.03 of the Revised Code applies to the facility, the location of any land that is placed on the state registry of historic landmarks under section 149.55 of the Revised Code.
- (l) The location of each occupied dwelling.
- (m) The location and top and bottom elevations of the isolation material required to separate the uppermost aquifer system from the limits of C&DD placement.
- (n) An isopach map showing the differences between the top and bottom elevations of the isolation material required to separate the uppermost aquifer system from the limits of C&DD placement.
- (o) The location of all tracts of land showing the property lines and owners.
- (p) All tracts of land upon which an applicable zoning resolution allows residential construction. The drawing shall be cross referenced to the copies of the applicable zoning resolutions required to be included in the permit to install application by rule 3745-520-400 of the Administrative Code.
- (3) Drawings showing the facility design. Plan drawings shall show the following items, and the items shall be illustrated on a series of plan drawings numbered consecutively: 3A, 3B, 3C, etc. The scale on these drawings shall be one inch equals no greater than two hundred feet and contour intervals shall be no greater than five feet.

 - (a) Each plan drawing required by paragraphs (B)(3)(b) to (B)(3)(r) of this rule shall include the following:

 - (i) The boundary of the facility.
 - (ii) The limits of C&DD placement being requested including all areas of disposed C&DD, all areas previously authorized where no C&DD has been disposed, and all areas not previously authorized that are proposed to be used for disposal.

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- (iii) All roads, railroads, and structures built by humans, including the location of all existing or proposed permanent access roads, maintenance buildings, office buildings, weighing facilities, and storage buildings.
- (iv) The areas of the facility that will be prohibited from having an access road that is designated by the owner or operator as the main haul road at the facility.
- (v) Existing topography of areas of the facility that will remain undisturbed showing vegetation, streams, swamps, lakes, springs, and other surface waters.
- (vi) Proposed topography of areas of the facility that will be disturbed.
- (vii) The north arrow.
- (viii) A legend with information necessary to understand the drawing.
- (ix) The scale of the drawing.
- (b) The horizontal and vertical limits of excavation.
- (c) The horizontal limits and top elevations of structural fill, added geologic material, vegetated earthen berms, and equivalent barriers to vegetated earthen berms.
- (d) The horizontal limits, basal elevations, and final elevations of the recompacted soil liner.
- (e) The location and top elevations of all access roads that are proposed to be built on internal slopes or across the facility bottom.
- (f) The top elevation of the leachate drainage layer and the leachate pipes, all leachate pipe inverts, and the layout of the leachate management system.
- (g) The location of all leachate management system appurtenances and apparatuses outside the limits of C&DD placement.
- (h) If leachate recirculation is proposed, the location of all leachate conveyance apparatuses that are part of the leachate recirculation system.
- (i) If a separatory leachate barrier and collection system is required, the top elevation and layout of the separatory leachate barrier and collection system.

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- (j) The horizontal limits and basal elevations of the limits of C&DD placement, including all disposed C&DD and areas of proposed C&DD disposal.
- (k) The horizontal limits and top elevations of C&DD placement, including all disposed C&DD and proposed C&DD placement.
- (l) The location of all existing or proposed fencing, gates, and natural or other vegetated earthen material on the site. This may be shown on an aerial photograph.
- (m) The top elevations of existing and proposed cap.
- (n) The location and top elevations of all access roads on the cap.
- (o) The location and top elevations of all surface water drainage and sediment controls.
- (p) The location of all ground water control structures.
- (q) The location of borings used for the site investigation.
- (r) The location of all permanent survey marks.
- (4) Cross sections. Cross sections of the facility design shall be at an interval no greater than every three hundred feet of length and width and shall clearly show the horizontal and vertical scales used. Each cross section shall be on plan drawings numbered consecutively 4A, 4B, 4C, etc., and shall show the following items:

 - (a) Existing topography.
 - (b) The horizontal and vertical limits of the uppermost aquifer system and shall include the following:

 - (i) Logs of the applicable borings showing the stratigraphic units from the ground surface to fifty feet below the bottom of the facility.
 - (ii) The thickness and hydraulic conductivity measurements of the stratigraphic units described in paragraph (B)(4)(b)(i) of this rule.
 - (iii) The thickness of all added geologic material used to establish the required isolation distance from the uppermost aquifer system to the limits of C&DD placement.
 - (c) The horizontal and vertical limits of excavation.

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(d) The horizontal limits and final elevations of the following:

(i) Structural fill.

(ii) Added geologic material.

(iii) The liner system.

(iv) The leachate collection system.

(v) The separatory leachate barrier and collection system.

(vi) The cap protection layer, surface water control structures, berms, benches, and roads.

(e) The horizontal limits, basal elevations, and final elevations of the limits of C&DD placement.

(5) Detail drawings. The following details shall be on plan drawings numbered consecutively 5A, 5B, 5C, etc. and shall show the following items:

(a) The liner system.

(b) Added geologic material used to create the required isolation distance between the uppermost aquifer system and the limits of C&DD placement.

(c) Each leachate management system element.

(d) If leachate recirculation is proposed, each leachate recirculation system element.

(e) For existing facilities, the separatory leachate barrier and collection system if required by paragraph (C)(2) of rule 3745-520-205 of the Administrative Code.

(f) The cap system and details showing the interactions of the outlets from the drainage layer with roads, and surface water control.

(g) Interactions between surface water control structures and roads.

(6) Design calculations. The facility design plan shall have a section titled "Design Calculations" that includes the following design calculations with references to equations used, showing site specific input, assumptions, and results:

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- (a) The disposal volume of the facility in cubic yards and anticipated life in years.
- (b) Leachate management system calculations.
- (c) The geotechnical and stability analyses report required by rules 3745-507-300 to 3745-507-362 of the Administrative Code.
- (d) Surface water control structures and sedimentation basin calculations.
- (e) Cap system drainage layer calculations.
- (f) The soil erosion calculations for the cap system under closure conditions with references to equations used and showing site specific input and assumptions. The design shall provide a maximum erosion rate of five tons per acre per year as calculated using the "Revised Universal Soil Loss Equation or the Water Erosion Prediction Project Model."
- (g) If leachate recirculation is proposed, the design calculations section shall include the following:

 - (i) Calculations of the anticipated amount of leachate that will be generated by the facility. If leachate recirculation is being proposed for phases in which C&DD has been disposed, documentation of how much leachate is currently being removed from within the limits of C&DD placement on a daily, weekly, monthly, and annual basis shall also be included.
 - (ii) Calculations of the anticipated amount of leachate that will be recirculated.
 - (iii) Calculations that demonstrate the leachate drainage layer, filter layer, leachate piping, leachate conveyances, leachate pumps, and leachate storage tank have adequate capacity to handle the amount of leachate that will be recirculated.
 - (iv) Calculations of the field capacity of the C&DD to determine when the C&DD will be saturated.
 - (v) Calculations showing the anticipated amount of leachate that will be absorbed by the C&DD and used or generated by biodegradation.
 - (vi) Calculations estimating the density of the C&DD once biodegradation is completed.

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- (vii) Calculations showing that the leachate management system will not be damaged by the increased vertical compressive stress created by the C&DD after biodegradation is completed.
- (viii) Calculations showing that the level of leachate will not exceed twelve inches above any portion of the liner.
- (ix) Calculations showing the anticipated level of saturation in the disposed C&DD.
- (x) Calculations showing that the disposed C&DD and engineered components will remain stable at the anticipated levels of saturation to be experienced in the disposed C&DD.
- (h) All other relevant calculations.
- (7) Construction specifications. The facility design plan shall have a section titled "Construction Specifications" that shall include all of the construction specifications that are to be used during construction to ensure that the engineered components included in the facility design plan are constructed to conform to the design assumptions and calculations that are included in the facility design plan.

 - (a) Specifications for engineered components required by rules 3745-520-500 to 3745-520-581 of the Administrative Code shall not be included in the "Construction Specifications" section of the facility design plan unless construction specifications different than those required by rules 3745-520-500 to 3745-520-581 of the Administrative Code are needed to conform with rules 3745-520-200 to 3745-520-280 of the Administrative Code.
 - (b) If the facility design plan contains different construction specifications than those required by rules 3745-520-500 to 3745-520-581 of the Administrative Code, the different construction specifications included in the facility design plan shall meet the following criteria:

 - (i) Not exceed maximum specifications required by rules 3745-520-500 to 3745-520-581 of the Administrative Code.
 - (ii) Not be below minimum specifications required by rules 3745-520-500 to 3745-520-581 of the Administrative Code.
- (8) The construction specifications necessary to demonstrate conformance to Chapter 3745-507 of the Administrative Code shall be in a section titled "Geotechnical and Stability Specifications."

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(9) The construction, testing, verification, and certification requirements necessary to ensure that the following engineered components are constructed to conform to the facility design plan shall be in a section titled "Construction, Testing, Verification, and Certification for Engineered Components":

(a) Vegetated earthen berms required by rule 3745-520-220 of the Administrative Code.

(b) Equivalent barriers to vegetated earthen berms required by rule 3745-520-220 of the Administrative Code.

(c) Ground water control structures required by rule 3745-520-220 of the Administrative Code.

(d) Leachate storage tanks required by rule 3745-520-240 of the Administrative Code.

(e) Gas collection layers, gas vents, and gas extraction systems required by rule 3745-520-270 of the Administrative Code.

(f) Surface water control structures, excluding sedimentation basins, required by rule 3745-520-280 of the Administrative Code.

(C) If tire shreds will be used in the leachate collection layer, the facility design plan shall include a tire shred damage contingency plan.

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3745-520-220

Vegetated earthen berms, equivalents to vegetated earthen berms, in situ foundation, structural fill, ground water control structures, and added geologic material design.

(A) The facility shall be designed such that non-mechanical means are used to prevent the following:

- (1) Ground water flow and the associated ground water gradient from exerting force against the liner.
- (2) Ground water flow through the liner toward the C&DD disposal area.
- (3) Damage to the liner system from ground water flow and seepage forces.

(B) Vegetated earthen berms.

(1) Vegetated earthen berms shall be designed to conform to the following:

- (a) Provide a visual barrier separating the facility from adjoining property.
- (b) Be comprised of earth and be vegetated. Rock fill of durable rock or clean hard fill may be used to form the core of the vegetated earthen berms. If rock fill or clean hard fill is used, it shall be designed to prevent the soil from migrating into the rock fill, to maintain a complete cover of at least two feet of soil, and to allow any water that may accumulate in the rock fill to escape without damaging the cover soil.
- (c) The soil at the surface of the vegetated earthen berm shall be of sufficient thickness and fertility to support a complete and dense cover of vegetation.
- (d) Have a minimum height of six feet.
- (e) Have slopes and top configuration design based on the following:
 - (i) Conformance to the geotechnical and stability analyses requirements of Chapter 3745-507 of the Administrative Code.
 - (ii) The operational limitations of maintenance equipment.
 - (iii) The operational limitations of construction equipment.
 - (iv) Minimization of erosion.
- (f) Have surface water control structures that conform to rule 3745-520-580 of the Administrative Code adjacent to the vegetated earthen berm to prevent

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surface water from ponding against the vegetated earthen berm or damaging the vegetated earthen berm.

(2) The facility design plan shall include the construction, testing, verification, and certification requirements that are necessary to ensure vegetated earthen berms are constructed to conform to the facility design plan.

(C) Equivalent barriers to vegetated earthen berms.

(1) Equivalent barriers to vegetated earthen berms shall be designed to conform to the following:

(a) Provide a permanent and complete visual barrier from the ground surface to at least six feet above the ground surface.

(b) Separate the facility from adjoining property.

(c) Be stable.

(d) Have surface water control structures that conform to rule 3745-520-580 of the Administrative Code to prevent surface water from ponding against or damaging the equivalent barrier to a vegetated earthen berm.

(2) The facility design plan shall include the construction, testing, verification, and certification requirements that are necessary to ensure equivalent barriers to a vegetated earthen berm are constructed to conform to the facility design plan.

(D) In situ foundation shall be designed to conform to the following:

(1) Provide adequate support to other engineered components and the C&DD mass.

(2) If the surface of the in situ foundation will be immediately beneath the liner system, the surface of the in situ foundation shall have no abrupt changes in grade that may result in damage to the liner system.

(3) Demonstrate conformance to the geotechnical and stability analyses requirements of Chapter 3745-507 of the Administrative Code.

(E) Structural fill.

(1) Structural fill shall be designed to conform to the following:

(a) Provide adequate support to other engineered components and the C&DD mass.

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(1) Added geologic material used to create the required isolation distance between the limits of C&DD placement and the uppermost aquifer system shall be designed to conform to the following:

(a) Singly or in combination with in situ foundation material, provide at least 5.0 feet of isolation distance between the uppermost aquifer system and the basal elevations of the limits of C&DD placement. The isolation distance shall be calculated after accounting for one hundred per cent of the primary consolidation settlement and the secondary consolidation settlement of the compressible materials beneath the facility which includes, as applicable, in situ soils, isolation material, structural fill material, and added geologic material. Secondary settlement shall be calculated using a one-hundred-year time frame.

[Comment: All material being used to provide the isolation distance shall meet the requirements of paragraphs (C)(3)(a) and (C)(3)(b) of rule 3745-520-100 of the Administrative Code.]

(b) Be located immediately below the liner system.

(c) The surface of the added geologic material shall have no abrupt changes in grade that may result in damage to the liner system.

(d) Demonstrate conformance to the geotechnical and stability analyses requirements of Chapter 3745-507 of the Administrative Code.

(2) The geotechnical and stability analyses requirements of Chapter 3745-507 of the Administrative Code shall be used to determine the minimum shear strength necessary for this engineered component to provide stability.

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3745-520-230

Liner system design.

(A) The liner system shall be designed to conform to the following:

- (1) Serve as a barrier to prevent the discharge of leachate to ground water or surface water.
- (2) The owner or operator shall select a liner option from paragraph (B) of this rule as follows:
 - (a) If the design of the liner system is such that the shortest distance from the uppermost aquifer system to the basal elevations of the liner system is at least five feet and less than fifteen feet, then select the option from paragraph (B)(1) of this rule.
 - (b) If the design of the liner system is such that the shortest distance from the uppermost aquifer system to the basal elevations of the liner system is at least fifteen feet and less than twenty five feet, then select any option from paragraphs (B)(1) to (B)(3) of this rule.
 - (c) If the design of the liner system is such that the shortest distance from the uppermost aquifer system to the basal elevations of the liner system is at least twenty five feet and less than one hundred fifty feet, then select any option from paragraphs (B)(1) to (B)(5) of this rule.
 - (d) If the design of the liner system is such that the shortest distance from the uppermost aquifer system to the basal elevations of the liner system is at least one hundred fifty feet, then select any option from paragraphs (B)(1) to (B)(7) of this rule.
- (3) The selected option shall be applied to all phases that have not been constructed in accordance with a previously approved facility design plan and certified in accordance with rule 3745-520-510 of the Administrative Code and which do not contain disposed C&DD.
- (4) The liner system shall not be designed to be within or below the 5.0 feet of the isolation material that is required to be located between the basal elevations of the limits of C&DD placement and the uppermost aquifer system required by paragraph (C)(3) of rule 3745-520-100 of the Administrative Code.
- (5) Have at least a 2.0 per cent slope in all areas, except along flow lines augmented by leachate collection pipes designed in accordance with paragraph (E)(3) of rule 3745-520-240 of the Administrative Code. The slope shall be calculated after accounting for one hundred per cent of the primary consolidation settlement and the secondary consolidation settlement of the compressible

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materials beneath the facility which includes, as applicable, in situ soils, isolation material, structural fill material, and recompacted soil liner. Secondary settlement shall be calculated using a one hundred year time frame.

(6) Have a maximum slope based on the following:

(a) Compaction equipment limitations.

(b) The geotechnical and stability analyses requirements of Chapter 3745-507 of the Administrative Code.

(7) Demonstrate conformance to the geotechnical and stability analyses requirements of Chapter 3745-507 of the Administrative Code.

(B) The following options for engineered components for the liner system shall be selected as required by paragraph (A)(2) of this rule.

(1) A recompacted soil liner of at least 5.0 feet thick and a flexible membrane liner.

(2) A recompacted soil liner of at least 5.0 feet thick.

(3) A recompacted soil liner of at least 3.0 feet thick and a flexible membrane liner.

(4) A recompacted soil liner of at least 4.0 feet thick.

(5) A recompacted soil liner of at least 2.0 feet thick and a flexible membrane liner.

(6) A recompacted soil liner constructed using a minimum of six loose lifts with each loose lift at least four inches thick.

(7) A flexible membrane liner.

(C) The geotechnical and stability analyses requirements of Chapter 3745-507 of the Administrative Code shall be used to determine the minimum shear strengths necessary for the engineered components of this system to provide stability.

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3745-520-240

Leachate management system design.

(A) The leachate management system shall be designed to conform to the following:

- (1) Limit the level of leachate in areas other than recessed leachate sumps to a maximum of one foot above the liner system at all times prior to the end of post closure care.
- (2) Include the following engineered components:
 - (a) A cushion layer.
 - (b) A leachate collection layer.
 - (c) Leachate collection pipes.
 - (d) A filter layer.
 - (e) Leachate sumps.
 - (f) Leachate conveyance apparatuses.
 - (g) A leachate monitoring system.
 - (h) At least one of the following:
 - (i) Leachate storage tanks.
 - (ii) Wastewater treatment works.
 - (iii) A discharge connection to a public sewerage system.
- (3) Automatically remove leachate from the limits of C&DD placement and discharge it to leachate storage tanks, a permitted public sewerage system, or a permitted wastewater treatment works.
- (4) Include a leachate monitoring system that will provide access to collect valid and representative samples of the leachate that is within the limits of C&DD placement. If leachate sumps are included in the design of the facility, at a minimum, the leachate monitoring system shall be comprised of apparatuses in each leachate sump that provide access to collect valid and representative samples of leachate.
- (5) All cleanouts, sampling accesses, and sump risers shall have removable covers that will remain in place at all times except when using the cleanouts, sampling

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accesses, or sump risers. The covers shall be designed to prevent foreign materials from entering the leachate management system and to prevent odors and gas from being released.

(6) Demonstrate conformance to the geotechnical and stability analyses requirements of Chapter 3745-507 of the Administrative Code.

(7) All components of the leachate management system shall be physically and chemically resistant to attack by the C&DD, leachate, gas, or other substances with which they may come into contact. Bonding materials used in the leachate management system shall also be resistant to physical and chemical attack by the C&DD, leachate, gas, or other substances with which they may come into contact.

(B) The geotechnical and stability analyses shall be used to determine the minimum shear strengths necessary for the engineered components of the leachate management system to provide stability.

(C) The cushion layer. If an alternative to the cushion layer requirements in rule 3745-520-540 of the Administrative Code is proposed, the facility design plan shall include the design assumptions, methodology, and the results of calculations used to determine the values for the characteristics in paragraph (C)(1) of this rule necessary for the cushion layer to protect the liner system from the potential sources of damage listed in paragraph (C)(2) of this rule:

(1) Characteristics of the cushion layer:

(a) The minimum average roll value (MARV).

(b) The tensile strength.

(c) The elongation at break.

(d) The Mullen burst.

(e) The puncture strength.

(f) The trapezoidal tear characteristics of the cushion layer.

(2) Potential sources of damage to the liner system.

(a) Construction materials.

(b) Construction activities.

(c) Slope failure.

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(d) Disposal activities.

(e) If the liner system does not include a flexible membrane liner:

(i) Erosion by water and leachate.

(ii) Intrusion of the leachate collection layer into the recompacted soil liner during settlement.

(iii) Intrusion and clogging of the leachate collection system caused by soil from the recompacted soil liner migrating into the leachate collection layer.

(D) The leachate collection layer shall be designed to conform to the following:

(1) If granular drainage material will be used, the following criteria shall be met:

(a) The minimum hydraulic conductivity of the granular drainage material shall be at least 1.0 times ten to the negative two centimeters per second after being adjusted to account for biological and chemical clogging.

[Comment: The hydraulic conductivity specified in paragraph (D)(1)(a) of this rule is not high enough for use if leachate recirculation will be proposed. The applicant, owner, or operator may want to use the hydraulic conductivity specified in paragraph (B)(1)(a) of rule 3745-520-249 of the Administrative Code if the owner or operator may want to propose leachate recirculation in the future.]

(b) The granular drainage material shall have a minimum thickness of one foot.

(2) If a geocomposite drainage layer will be used, the applicant, owner, or operator shall do the following:

(a) Use the geotechnical and stability analyses of Chapter 3745-507 of the Administrative Code to determine the minimum transmissivity of a geocomposite drainage layer.

(b) Adjust the minimum transmissivity of the geocomposite drainage layer to account for elastic deformation, creep deformation, biological clogging, and chemical clogging by using the appropriate reduction factors.

(c) Determine the apparent opening size necessary to maximize flow through the geotextile portions of the geocomposite drainage layer, and prevent clogging of the drainage layer.

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(d) Use geocomposite drainage material that has at least twelve inches of permeable material installed above and in direct and uniform contact that will meet the following criteria:

(i) Not restrict the flow of leachate into the geocomposite drainage material.

(ii) Protect the liner from damage during at all times prior to the end of the post-closure care period.

(iii) Result in leachate levels being no more than one foot above any portion of the liner, excluding the liner in sumps.

(3) If tire shreds will be used, the following criteria shall be met:

(a) The minimum hydraulic conductivity of the shredded tires used as drainage material shall be at least 1.0 times ten to the negative two centimeters per second after being adjusted to account for biological and chemical clogging, and to account for the compression caused by the maximum vertical stress expected in the facility.

(b) The collection layer shall have a minimum thickness of thirty inches and have a maximum thickness of forty-eight inches once deployment of the tire shreds is complete.

(4) The leachate collection layer shall not be designed within or below the 5.0 feet of the isolation material that is required to be located beneath the basal elevations of the limits of C&DD placement and the uppermost aquifer system required by paragraph (C)(3) of rule 3745-520-100 of the Administrative Code.

(5) The basal elevation of the drainage layer shall have the following slopes while meeting the requirements of paragraph (C) of rule 3745-507-350 of the Administrative Code:

(a) A slope not less than 0.5 per cent beneath leachate collection pipes.

(b) A slope not less than 2.0 per cent in all other areas.

(E) The leachate collection pipes shall be designed to conform to the following:

(1) Be embedded in the leachate collection layer.

(2) Be permanently joined together using chemical, mechanical, or heat bonding.

(3) Have at least a 0.50 per cent grade after accounting for one hundred per cent of the primary consolidation settlement and ninety-five per cent of the secondary consolidation settlement of the compressible materials beneath the facility which

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includes, as applicable, in situ soil, added geologic material, structural fill material, and recompacted soil liner.

- (4) Resist the force of the maximum loads and settlement to an extent where the crushing, deflection, and deformation do not exceed the manufacturer's design recommendations and will not impact the performance of the leachate management system.
 - (5) Provide access for clean-out devices. The access for clean-out devices shall be provided with protection from the adverse affects of settlement, from damage during operations, and from damage during construction.
 - (6) Have lengths and configurations that shall not exceed or limit the capabilities of clean-out devices.
 - (7) An alternative to leachate collection pipes may be used in the design plan if it is demonstrated to the satisfaction of the reviewing authority that the leachate management system using the alternative will meet the requirements of this rule.
- (F) The filter layer placed above the leachate collection system shall be designed to conform to the following:
- (1) Maximize the velocity of the leachate moving into the collection layer.
 - (2) Minimize the entry of fines into the leachate collection layer.
 - (3) Minimize clogging.
 - (4) If the filter layer will be a geotextile, the design shall determine the apparent opening size necessary for the geotextile to conform to this rule.
 - (5) If the filter layer will be comprised of granular material, the design shall determine the thicknesses and diameters of each layer of the granular filter necessary to conform to this rule.
- (G) Unless leachate will flow by gravity into the leachate storage tanks, a permitted public sewerage system, or a permitted wastewater treatment works, there shall be an adequate number of properly located leachate sumps provided in the design of the leachate management system. The leachate sumps shall be designed to conform to the following:
- (1) Be protected from adverse effects from C&DD, leachate, gas, and settlement.
 - (2) Be equipped with high level alarms and a method for measuring leachate head.

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[Comment: Leachate sumps are required to be recessed relative to the rest of the phase if leachate recirculation will be proposed. The applicant, owner, or operator may want to design the leachate sumps to be recessed relative to the rest of the phase in accordance with paragraph (B)(1)(b) of rule 3745-520-249 of the Administrative Code if the owner or operator may want to propose leachate recirculation in the future.]

(3) Access and apparatuses for easy maintenance and removal of pumps.

(4) Each sump shall have at least one pump.

(H) Leachate conveyance apparatuses shall be designed to conform to the following:

(1) Automatically remove leachate from the limits of C&DD placement and discharge the leachate to leachate storage tanks, or any of the following for which the owner or operator has obtained a permit issued pursuant to Chapter 6111. of the Revised Code:

(a) A public sewerage system.

(b) An on-site wastewater treatment works.

(2) All leachate pumps shall be sized to ensure that leachate head will not exceed one foot above any portion of the liner.

(3) All leachate pumps shall be equipped with automatic on/off switches located to ensure the elevation of leachate will not exceed the maximum level above the liner system, except that leachate may exceed one foot above the liner in recessed sumps.

(4) All leachate conveyance apparatuses inside the limits of C&DD placement shall be placed above the liner system and beneath the cap system.

(5) All leachate conveyance apparatuses shall be protected from damage due to the effects of freezing temperatures, crushing, deformation, and deflection.

(I) Any leachate conveyance apparatus located outside the limits of C&DD placement, except public sewerage systems, shall be:

(1) Capable of being inspected.

(2) Protected from the effects of freezing temperatures, crushing, and excess deflection.

(J) Leachate storage tanks shall be designed to conform to the following:

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- (1) Above ground leachate storage tanks shall be located outside the limits of C&DD placement and shall have spill containment for at least one hundred ten per cent of the total tank volume, or be double walled and be provided with a witness zone.
- (2) Underground leachate storage tanks shall be located outside the limits of C&DD placement and shall be double walled with a witness zone.
- (3) Leachate load-out facilities shall be designed to conform to the following:

 - (a) Be able to contain spills.
 - (b) Allow spilled leachate to be removed.
 - (c) Prevent releases of leachate from the leachate load-out facilities.
 - (d) Be protected from damage due to freezing and operations.
- (K) On-site wastewater treatment works and discharge connections to public sewerage systems shall conform to the following:

 - (1) Chapter 6111. of the Revised Code.
 - (2) Leachate lagoons shall be designed to be no less protective of public health and safety and the environment than a proposed construction and demolition C&DD facility in accordance with paragraph (C) rule 3745-520-200 of the Administrative Code.
 - (3) Leachate lagoons shall be designed to demonstrate conformance to the geotechnical and stability analyses requirements of Chapter 3745-507 of the Administrative Code.

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3745-520-249

Leachate recirculation system design.

(A) The facility design plan may include the design for a leachate recirculation system only if all of the following requirements are met:

(1) The facility design plan includes facility-specific information, calculations, and publicly available information showing that the leachate recirculation system will do either of the following:

(a) Reducing the volume of disposed C&DD by biodegradation.

(b) Improving the quality of the leachate by either of the following:

(i) Significantly reducing the number and concentration of contaminants.

(ii) Changing the leachate to contain significantly different contaminants of lesser concern.

(2) For a facility that has a leachate recirculation system installed prior to submitting the facility design plan to the permitting authority, the documentation specified in paragraph (A)(1) of this rule shall include an evaluation of the operations and effectiveness of the leachate recirculation system for providing the benefits required in paragraph (A)(1) of this rule. The documentation shall also include all information about all adverse effects created by the leachate recirculation system, if any.

(3) For a facility that has a leachate recirculation system, documentation shall be included in the facility design plan that demonstrates that the leachate management system is functioning as designed.

(4) The leachate recirculation system shall be located in a phase that conforms to rules 3745-520-230 and 3745-520-240 of the Administrative Code.

(5) The facility conforms to the siting criteria for isolation distance between the uppermost aquifer system and the limits of C&DD placement as required by paragraph (C)(3) of rule 3745-520-100 of the Administrative Code.

(6) The owner or operator is monitoring ground water in accordance with Chapter 3745-506 of the Administrative Code.

(7) The owner or operator has not been required to implement assessment or corrective actions in accordance with Chapter 3745-506 of the Administrative Code at the facility.

(B) The leachate recirculation system shall be designed to conform to the following:

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- (1) The requirements of rule 3745-520-240 of the Administrative Code, except as follows:
 - (a) The leachate collection layer shall have a hydraulic conductivity of at least one centimeter per second after being adjusted to account for biological and chemical clogging.
 - (b) Leachate sumps shall be recessed relative to the rest of the phase.
 - (c) The leachate sumps, leachate pumps, and the elevation for the on/off switch for the pumps shall be designed so that leachate levels do not exceed the top of the sump.
- (2) Release leachate back into the limits of C&DD placement in a manner that uniformly distributes the leachate within the C&DD mass and maximizes the contact of leachate with C&DD.
- (3) Not use surface application, open pits, or excavations as methods for distributing leachate into the limits of C&DD placement.
- (4) Prevent release of leachate to surface water control structures and minimize leachate outbreaks.
- (5) Have continuously recording monitors to record the level of leachate in the sumps and the amount of leachate being recirculated and to notify the owner or operator at all times when the leachate recirculation system or leachate management system is malfunctioning.
- (6) Have a method for determining the saturation level of the disposed C&DD.
- (7) Demonstrate that the design of the facility is in conformance with the geotechnical and stability analyses requirements of Chapter 3745-507 of the Administrative Code while leachate recirculation is being used.

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3745-520-250

Separatory leachate barrier and collection system design.

(A) The separatory leachate barrier and collection system shall be designed to conform to the following:

(1) Include the engineered components listed in paragraph (C)(2) of rule 3745-520-205 of the Administrative Code.

(2) Function as designed from the time the engineered components are constructed until the end of post-closure care of the facility.

(3) Serve as a barrier to prevent leachate generated from C&DD disposed above the separatory leachate barrier and collection system from entering into disposed C&DD that is below the separatory leachate barrier and collection system.

(4) Manage all gas generated from the disposed C&DD that is below the barrier in a manner that will not violate Chapter 3704. of the Revised Code and will prevent damage to the other components of the leachate barrier and collection system.

(5) Provide a liner system that conforms to the following:

(a) The minimum slope of the liner system shall be at least a 10.0 per cent constructed grade in all areas or have some other minimum slope based on settlement analyses that complies with the geotechnical and stability analyses requirements of Chapter 3745-507 of the Administrative Code.

(b) The liner system shall be designed to meet the requirements specified in paragraph (A)(6)(a) of this rule.

(c) Notwithstanding the requirement of paragraph (A)(5)(b) of this rule, if the owner or operator demonstrates that the shortest distance from the uppermost aquifer system to the basal elevations of the limits of debris placement is at least fifteen feet and less than twenty five feet, then the owner or operator shall select any option from paragraphs (A)(6)(a) to (A)(6)(c) of this rule.

(d) Notwithstanding the requirement of paragraph (A)(5)(b) of this rule, if the owner or operator demonstrates that the shortest distance from the uppermost aquifer system to the basal elevations of the limits of debris placement is at least twenty five feet and less than one hundred fifty feet, then the owner or operator shall select any option from paragraphs (A)(6)(a) to (A)(6)(e) of this rule.

(e) Notwithstanding the requirement of paragraph (A)(5)(b) of this rule, if the owner or operator demonstrates that the shortest distance from the

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uppermost aquifer system to the basal elevations of the limits of debris placement is at least one hundred fifty feet, then the owner or operator shall select any option from paragraphs (A)(6)(a) to (A)(6)(g) of this rule.

- (6) The following options for engineered components for the liner system shall be selected as required by paragraph (A)(5) of this rule.
- (a) A recompacted soil liner of at least 5.0 feet thick and a flexible membrane liner.
 - (b) A recompacted soil liner of at least 5.0 feet thick.
 - (c) A recompacted soil liner of at least 3.0 feet thick and a flexible membrane liner.
 - (d) A recompacted soil liner of at least 4.0 feet thick.
 - (e) A recompacted soil liner of at least 2.0 feet thick and a flexible membrane liner.
 - (f) A recompacted soil liner constructed using a minimum of six loose lifts with each loose lift at least four inches thick.
 - (g) A flexible membrane liner.
- (7) Provide a leachate collection system that conforms to rule 3745-520-240 of the Administrative Code, except that the minimum slope of all leachate pipes shall be 10.0 per cent or some other minimum slope based on settlement analyses that complies with the geotechnical and stability analyses requirements of Chapter 3745-507 of the Administrative Code.
- (8) Demonstrate conformance to the geotechnical and stability analyses requirements of Chapter 3745-507 of the Administrative Code.
- (9) Have a maximum slope based on the following:
- (a) Compaction equipment limitations.
 - (b) The geotechnical and stability analyses requirements of Chapter 3745-507 of the Administrative Code.
 - (c) Minimizing the amount of C&DD disposed beneath the separatory leachate barrier and collection system to obtain the required minimum slope.

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(B) The geotechnical and stability analyses requirements in Chapter 3745-507 of the Administrative Code shall be used to determine the minimum shear strength necessary for the engineered components to provide stability.

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3745-520-255 Tie-in area and run-out design for the liner system, leachate management system, and separatory leachate barrier and collection system.

The design of tie-in areas and run-outs for the liner system, leachate management system, and separatory leachate barrier and collection system shall show how the engineered components from one construction event are to be connected to the same engineered components of a subsequent construction event in a manner that results in each engineered component being continuous and conforming to the applicable design rules and construction rules of this chapter. Each tie-in area and run-out shall also conform to the following:

- (A) The tie-in area shall be designed to extend beyond the phase limits to the extent necessary to allow a minimum of three times the distance needed to create the connection between the recompacted soil liners from the two construction events, or three times the width of the widest construction equipment that will be used to construct the liner system, whichever results in the longer distance.
- (B) The recompacted soil liner run-out shall be designed to eliminate the need for cutting or excavating any berms during construction.
- (C) The liner system run-out and leachate management system run-out shall be designed to eliminate the need to move or excavate C&DD during subsequent construction events.
- (D) The connection between the recompacted soil liners from two different construction events shall be designed in a manner that eliminates preferential pathways for leachate migration through the recompacted soil liner.
- (E) The connection between the recompacted soil liners from two different construction events shall be designed to account for the construction practices and equipment that will be used during liner construction to ensure that the recompacted soil liners in the tie-in area can be constructed in accordance with rule 3745-520-530 of the Administrative Code.
- (F) If a flexible membrane liner is included in the liner design, the tie-in area and the liner system run-out shall be designed to prevent surface water and leachate from migrating or flowing under the flexible membrane liner.
- (G) The tie-in area and run-outs shall be designed to protect the liner system and leachate management system from the effects of weather; freeze-thaw damage; and from damage from construction activities, operational activities, and disposal activities.
- (H) The leachate collection layer run-out shall not cover more than one third of the tie-in area.

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(I) The leachate management system run-out shall be designed in a manner that will prevent clogging of the leachate collection layer.

(J) The tie-in area and leachate management system run-out shall be designed to prevent leachate from migrating or flowing into any portion of the facility for which the owner or operator has not received authorization for disposal by obtaining written concurrence from the concurring authority for the construction certification report.

(K) If the liner system run-out will be used to transition between a liner system that includes a flexible membrane liner and a liner system that does not include a flexible membrane liner, then the design of the tie-in area and run-outs shall conform to the following:

(1) All of the requirements of paragraphs (A) to (J) of this rule.

(2) Separate the leachate flow of the two different types of liner system using a berm or another method such that leachate does not flow from one type of liner to the other, except that in the tie-in area leachate may flow from the liner system that includes a flexible membrane liner onto the liner system that does not include a flexible membrane liner.

(3) Anchor the flexible membrane liner run-out in a manner that will not compromise the integrity of the recompacted soil liner or cause the recompacted soil liner to not conform to this rule or the requirements of and rule 3745-520-230 of the Administrative Code.

(L) If the liner system run-out will be used to transition between two liner systems that have different thicknesses of recompacted soil liner, then the design of the tie-in area and run-outs shall conform to the following:

(1) All of the requirements of paragraphs (A) to (K) of this rule.

(2) Incorporate changing the basal elevations of the recompacted soil liner to adjust for the difference in thickness of the recompacted soil liner that occurs in the tie-in area. Changing the final elevations of the liner system shall not be used to adjust for the difference in thickness of the recompacted soil liner that occurs in the tie-in area.

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3745-520-260

Cap system design.

For all areas not capped prior to the submission of a permit to install application, the cap system shall be designed to conform to the following:

- (A) Be placed above all disposed C&DD.
- (B) Minimize infiltration of surface water into the limits of C&DD placement.
- (C) Serve as a barrier to prevent leachate outbreaks.
- (D) Demonstrate conformance to the geotechnical and stability analyses requirements of Chapter 3745-507 of the Administrative Code. The geotechnical and stability analyses shall be used to determine the minimum shear strength necessary for the engineered components to provide stability.
- (E) Include a gas collection layer if hydrogen sulfide or other gases are being created by the facility.
- (F) Include a recompacted soil barrier layer at least 18.0 inches thick that has no abrupt changes in grade that may result in damage to geosynthetics.
- (G) Include a flexible membrane barrier layer.
- (H) Include a cushion layer.
- (I) If an alternative to the cushion layer requirements in rule 3745-520-540 of the Administrative Code is proposed, the facility design plan shall include the design assumptions, methodology, and the results of calculations used to determine the tensile strength, elongation at break, Mullen burst, puncture strength, and trapezoidal tear characteristics of the cushion layer necessary to protect the cap barrier layer from damage due to construction materials, construction activities, slope failure, and erosion.
- (J) Have a drainage layer designed to conform to the following:
 - (1) The granular drainage material shall conform with the following:
 - (a) Be placed in a layer having a minimum thickness of 1.0 foot.
 - (b) Have a hydraulic conductivity of a minimum of 1.0 times ten to the negative three centimeters per second.
 - (c) Have a higher hydraulic conductivity than that specified in paragraph (I)(1)(b) of this rule if the geotechnical and stability analyses required by

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Chapter 3745-507 of the Administrative Code demonstrates that a higher minimum hydraulic conductivity is required to provide stability for the cap system.

- (d) The minimum hydraulic conductivity selected shall be adjusted to account for biological and chemical clogging using appropriate reduction factors.
- (2) The hydraulic conductivity of geocomposite drainage material shall conform with the following:
 - (a) Be based on the transmissivity needed to provide stability of the cap system in accordance with the geotechnical and stability analyses required by Chapter 3745-507 of the Administrative Code.
 - (b) The minimum transmissivity calculated in paragraph (I)(2)(a) of this rule shall be adjusted to account for elastic deformation, creep deformation, biological clogging, and chemical clogging by using the appropriate reduction factors.
- (3) Have piping and outlets of a size and spacing capable of safely passing the calculated maximum flow from the drainage layer.
- (4) Piping and outlets shall be designed to prevent reduced flow of water from deformation, deflection, crushing, clogging, and freezing.
- (K) Have a filter layer placed above the drainage layer that shall be designed to conform to all of the following:
 - (1) Minimize clogging of the drainage layer, drainage pipes, and outlets.
 - (2) Maximize the velocity of water moving into the drainage layer.
 - (3) Minimize the entry of fines into the drainage layer.
 - (4) If the filter layer will be a geotextile, the applicant, owner, or operator shall include in the facility design plan calculations to determine the apparent opening size for the geotextile to conform to paragraphs (J)(1) to (J)(3) of this rule.
 - (5) If the filter layer will be granular material, the applicant, owner, or operator shall include in the facility design plan calculations to determine the coefficient of uniformity and the coefficient of curvature needed in each layer of the granular filter for the granular filter to conform to paragraphs (J)(1) to (J)(3) of this rule.
- (L) Have a protection layer placed above the filter layer that shall be designed to conform to the following:

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- (1) If granular drainage material is used for the drainage layer, the protection layer shall be a minimum of 24.0 inches thick for facilities located in the northern tier of counties in Ohio (i.e., Williams, Fulton, Lucas, Ottawa, Erie, Lorain, Cuyahoga, Lake, Geauga, and Ashtabula counties) and 18.0 inches thick for facilities located elsewhere in Ohio.
- (2) If geocomposite drainage material is used for the drainage layer, the protection layer shall be a minimum of 36.0 inches thick for facilities located in the northern tier of counties in Ohio (i.e., Williams, Fulton, Lucas, Ottawa, Erie, Lorain, Cuyahoga, Lake, Geauga, and Ashtabula counties) and 30.0 inches thick for facilities located elsewhere in Ohio.
- (3) Have at least a 5.0 per cent slope in all areas except where surface water control structures are located.
- (4) Have a maximum slope based on the following:

 - (a) Compaction equipment limitations.
 - (b) Maintenance equipment limitations.
 - (c) The geotechnical and stability analyses requirements of Chapter 3745-507 of the Administrative Code.
 - (d) A maximum erosion rate of five tons per acre per year as calculated using the "Revised Universal Soil Loss Equation or the Water Erosion Prediction Project Model" as described in rule 3745-500-03 of the Administrative Code.

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3745-520-270

Gas collection layer, gas vent, and gas extraction system design.

- (A) If hydrogen sulfide or other gases are being created by the facility, a gas collection system shall be installed below the cap soil barrier layer or as part of a separatory leachate barrier and collection system to protect the integrity of the cap soil barrier layer or the separatory leachate barrier and collection system from damage due to the build up of gas pressure.
- (B) Gas collection layers, gas vents, and gas extraction systems shall be designed to conform to the following:
- (1) Gas vents, gas extraction wells, and packing materials shall not be placed within ten feet of the top of any leachate collection layer.
 - (2) Penetrations through the cap system shall be designed to allow settlement of the C&DD, gas collection layers, and the cap system relative to the gas vents and gas extraction wells.
 - (3) The installation and operation of gas collection layers, gas vents, and gas extraction systems shall be in conformance to all applicable provisions of Chapter 3704. of the Revised Code and rules adopted thereunder.
 - (4) The design shall be such that construction in accordance with the design can be accomplished without damaging the liner system, the leachate management system, and the separatory leachate barrier and collection system, if one exists.
 - (5) Be designed to remove gas to prevent damage to the cap system, and, if one exists, the separatory leachate barrier and collection system.
 - (6) Be designed to prevent lateral movement of hydrogen sulfide or other gases from the facility.
 - (7) Use either a passive venting system or an active extraction system, or a combination thereof, in order to meet the requirements of this rule.
 - (8) Be designed to not cause fires within the limits of C&DD placement.
- (C) Gas extraction systems shall be designed such that individual gas extraction wells and individual portions of gas header systems can be isolated from the rest of the system for repairs and maintenance so that the remainder of the system can remain in operation during maintenance and repair activities.
- (D) For the management of condensate, gas collection layers, gas vents, and gas extraction systems shall be designed to conform to the following:

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- (1) Prevent restricted gas flow due to the collection of condensate.
- (2) Return condensate to the C&DD or collect it in a condensate management system, which shall include the following:
 - (a) Condensate conveyance apparatuses that shall deliver condensate to a condensate storage tank, a permitted public sewerage system, or a wastewater treatment works that is permitted in accordance with Chapter 6111. of the Revised Code.
 - (b) Condensate conveyance apparatuses outside the limits of C&DD placement shall be double cased and have inspection ports.
 - (c) If condensate tanks are used, the condensate tanks shall have the following:
 - (i) Enough capacity to hold at least the amount of condensate generated in one week of continuous operation of the gas extraction system.
 - (ii) Spill containment equal to at least one hundred ten per cent of the condensate tank capacity.
 - (iii) A load-out area capable of containing all leaks and spills that occur during emptying of condensate from the tank.
 - (iv) Protection of the condensate conveyance apparatuses and condensate tanks from damage due to freezing, construction activities, and operation activities.
 - (v) Access areas for obtaining valid and representative samples of condensate for analysis.
- (E) The facility design plan shall include the construction, testing, verification, and certification requirements that are necessary to ensure gas collection layers, gas vents, and gas extraction systems are constructed to conform to the facility design plan.

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3745-520-280

Surface water control structures design.

- (A) Surface water control structures shall be designed to prevent runoff of surface water from within the limits of C&DD placement and all disturbed portions of the facility from discharging to any adjacent property except through a discharge point for which the owner or operator has obtained a permit issued pursuant to Chapter 6111. of the Revised Code.
- (B) Surface water control structures and sedimentation basins shall be designed such that surface water is not directed under or through the limits of C&DD placement.
- (C) Surface water control structures other than sedimentation basins shall be designed to conform to the following:
- (1) Promote drainage of surface water.
 - (2) Eliminate ponding.
 - (3) Minimize erosion.
 - (4) Accommodate the peak flow from a twenty-five-year/twenty-four-hour storm event.
 - (5) Minimize silting and scouring.
 - (6) Use non-mechanical means for all permanent surface water control structures.
- (D) Sedimentation basins shall be designed to conform to the following:
- (1) The size of the sedimentation basin shall provide at least sixty-seven cubic yards of storage per acre of total contributing drainage area.
 - (2) The depth of the sedimentation basin shall not exceed five feet.
 - (3) The principal spillway shall safely discharge the flow from a ten-year/twenty-four-hour storm event using non-mechanical means.
 - (4) The inlet elevation of the emergency spillway shall provide flood storage with no flow entering the emergency spillway while allowing flow through the principal spillway during a twenty-five-year/twenty-four-hour storm event.
 - (5) The combination of principal and emergency spillways shall safely discharge the flow from a one-hundred-year/twenty-four-hour storm event using non-mechanical means.

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- (6) The embankment design shall provide for at least one-foot net freeboard when flow is at the maximum design depth, after accounting for embankment settlement.
- (7) The inlet and spillways shall be separated to provide a sufficient drop in water velocity and sufficient time for settling of soil particles from the water to ensure conformance to all discharge permits issued by Ohio EPA pursuant to Chapter 6111. of the Revised Code and rules adopted thereunder.
- (8) Demonstrate conformance to the geotechnical and stability analyses requirements of Chapter 3745-507 of the Administrative Code. The geotechnical and stability analyses shall be used to determine the minimum shear strengths necessary for the engineered components of the sedimentation basin to provide stability.

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3745-520-290 Design of a licensed construction and demolition debris facility that is not required to obtain a permit to install.

(A) The owner or operator of a facility that is not required to obtain a permit to install pursuant to this chapter shall submit a facility design plan that conforms to this rule as part of the license application. The facility design plan shall be comprised of the following:

- (1) The site characterization report as outlined in paragraph (C) of rule 3745-520-291 of the Administrative Code.
- (2) The facility plan specified in paragraph (C) of this rule.
- (3) If leachate recirculation is proposed to be included in the facility design plan, the design of the leachate recirculation system that shall conform to rule 3745-520-249 of the Administrative Code.
- (4) The cap system design plan specified in paragraph (D) of this rule.
- (5) Surface water control design plan specified in paragraph (E) of this rule.
- (6) Ground water management design plan specified in paragraph (F) of this rule.

(B) The owner or operator of a facility shall comply with the following:

- (1) The facility design plan shall include a recompacted soil liner that conforms to paragraph (C)(5)(a) of this rule unless either of the following is true:
 - (a) The conditions in paragraph (B) of rule 3745-520-291 of the Administrative Code are met.
 - (b) The limits of C&DD placement were filled with C&DD on or before September 30, 1996.
- (2) The facility design plan shall include a leachate management system that conforms to rule 3745-520-240 of the Administrative Code for all phases within the limits of C&DD placement of a facility unless the phase contained disposed C&DD as of January 1, 2008.
- (3) The facility design plan shall include the design for a cap system as follows:
 - (a) A cap system that conforms to rule 3745-520-260 of the Administrative Code for all areas within the limits of C&DD placement of a facility where C&DD disposal will occur on or after of January 1, 2008.

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- (b) A cap system that conforms to paragraph (D)(2)(a) of this rule for all areas within the limits of C&DD placement of a facility that had C&DD disposed to the final elevations of the limits of C&DD placement and a cap had not been constructed and certified in conformance with the requirements that were applicable to the area prior to January 1, 2008.
- (4) Each drawing in a facility's design plan that includes a representation of the boundary of the facility shall show the boundary in the same location, and that location shall have been surveyed by a professional surveyor. The boundary of the facility shall at a minimum encompass all of the area that includes the following:
- (a) The limits of C&DD placement.
 - (b) All areas within one hundred feet of the limits of C&DD placement except that the boundary of the facility shall not extend beyond the boundary of the property owned or controlled by the owner or operator.
 - (c) All engineered components required by this rule.
 - (d) All ground water monitoring, assessment, and corrective action structures.
 - (e) All gas monitoring apparatuses and structures.
 - (f) All buildings.
 - (g) All borrow areas.
 - (h) The unloading zone.
 - (i) All parking lots, staging areas, and storage areas.
 - (j) All other areas on which activities associated with disposal occur.
 - (k) All roads used to access any item listed in paragraphs (B)(4)(a) to (B)(4)(j) of this rule.
- (C) The facility plan. The facility plan shall be signed by a professional engineer. Drawings, calculations, and narrative shall appear on plan sheets with minimum dimensions of twenty-four inches by thirty-six inches. If narrative is necessary to explain the drawings or calculations, the narrative shall appear with the drawing or calculation on the plan sheet. The facility plan shall be comprised of the following:
- (1) A cover sheet. A cover sheet, to be numbered sheet 1, shall contain the following information:

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(a) The name of the facility.

(b) The precise geographic location and the boundary of the facility and the area within a five-mile radius shown on a road map with a scale of one inch equals no greater than one mile shall be used.

(c) The name and address of the facility operator.

(d) The name and address of each owner of the land to be used for the facility.

(e) The name and address of the professional engineer who prepared the plans.

(2) Drawings showing the facility environs. Plan drawings shall show the following items located within two hundred feet of the limits of C&DD placement. The items shall be illustrated on a series of plan drawings numbered consecutively 2A, 2B, 2C, etc. All items specified in an individual subheading shall be shown on the same plan drawing, unless otherwise specified. An individual plan drawing may contain information specified in more than one individual subheading. A scale of one inch equals no greater than two hundred feet shall be used.

(a) All plan drawings required by paragraph (C)(2) of this rule shall include those items specified in paragraph (C)(2)(a) of this rule as follows:

(i) The boundary of the facility.

(ii) The limits of C&DD placement. The owner or operator may determine the location of disposed C&DD using existing surveys. If the owner or operator does not have survey results, the owner or operator shall use the results of a field investigation to provide justification of the location of disposed C&DD shown in the facility design plan.

(iii) All public roads, railroads, and structures built by humans.

(iv) Existing topography showing vegetation, streams, swamps, lakes, springs, and other surface waters, with a contour interval no greater than five feet.

(v) The north arrow.

(b) The location of all existing and all proposed maintenance buildings, weighing facilities, and storage buildings.

(c) All oil wells and gas wells. If oil wells or gas wells are identified in accordance with this paragraph, include a letter from the department of natural resources or other appropriate agency verifying the type, location,

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depth, and status of the well shall be included. All oil wells and gas wells within the proposed limits of C&DD placement shall be properly plugged and abandoned in accordance with Chapter 1509. of the Revised Code, prior to construction of any engineered components in the phase where the wells are located.

(3) The facility. Plan drawings for the entire facility showing the elevations of the following items shall be on plan drawings numbered consecutively 3A, 3B, 3C, etc. The scale on these drawings shall be one inch equals no greater than two hundred feet and contour intervals shall be no greater than five feet.

(a) The horizontal and vertical limits of excavation.

(b) The horizontal limits, basal elevations, and final elevations of the recompacted soil liner, if one is required.

(c) The top elevation of the leachate collection layer and the location of the leachate pipes, all leachate pipe inverts, and the layout of the leachate management system.

(d) The location of all leachate management system appurtenances and apparatuses outside the limits of C&DD placement.

(e) If leachate recirculation is proposed, the location of all leachate conveyance apparatuses that are part of the leachate recirculation system.

(f) The horizontal limits and basal elevations of the limits of C&DD placement, including all disposed C&DD and areas of proposed C&DD disposal.

(g) The horizontal limits and final elevations of C&DD placement, including all disposed C&DD and areas of proposed C&DD disposal.

(h) The location of all existing and proposed fencing, gates, and natural or other screening material on the site. This may be shown on an aerial photograph.

(i) The location of borings used to determine the information required by paragraph (C)(5) of rule 3745-520-291 of the Administrative Code.

(j) The location of all permanent survey marks.

(4) Cross sections. Cross sections of the design of the facility shall be at an interval no greater than every three hundred feet of length and width and shall clearly show the horizontal and vertical scales used. Each cross section shall be on plan drawings numbered consecutively 4A, 4B, 4C, etc. and shall show the following items:

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(a) Existing topography.

(b) The horizontal extent and vertical limits of the uppermost aquifer system, if the owner or operator meets the criteria of paragraph (B) of rule 3745-520-291 of the Administrative Code or is pursuing compliance with the provisions of paragraph (C)(5)(a) of this rule. The demonstration of the thickness and hydraulic conductivity of the in situ geologic material shall be based on the borings included in the site characterization report required by paragraph (C) of rule 3745-520-291 of the Administrative Code, shall be shown on the cross sections, and shall include the following:

(i) Logs of the applicable borings showing the stratigraphic units from the ground surface to at least ten feet below the bottom of the facility.

(ii) The thickness and hydraulic conductivity measurements of the stratigraphic units.

(iii) The thickness of all added geologic material used to establish the isolation distances cited in rule 3745-520-291 of the Administrative Code.

(c) The horizontal and vertical limits of excavation.

(d) The horizontal limits and final elevations of the following:

(i) Structural fill.

(ii) Added geologic material.

(iii) The liner system.

(iv) The leachate collection layer and leachate sumps.

(v) The cap protection layer, surface water control structures, berms, benches, and roads.

(e) The horizontal limits, basal elevations, and final elevations of the limits of C&DD placement.

(5) Detail drawings. The following detail drawings shall be on plan drawings numbered consecutively 5A, 5B, 5C, etc. and shall show the following items:

(a) If a recompacted soil liner is required by paragraph (B)(1) of rule 3745-520-291 of the Administrative Code, at a minimum, the design of the recompacted soil liner shall meet the following criteria:

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- (i) Have a minimum thickness of twenty-four inches.
 - (ii) Have a maximum hydraulic conductivity of 1.0 times ten to the negative six centimeters per second for each lift of the recompacted soil liner.
 - (iii) Be placed on the facility bottom and the internal slopes under all horizontal limits of C&DD placement.
 - (iv) Be on a prepared smooth surface that shall be able to bear the weight of the facility and its construction and operations without causing or allowing a failure of the liner to occur from settling.
- (b) Added geologic material, if utilized. At a minimum, the design of the added geologic material used to establish separation distance from the uppermost aquifer system described in paragraph (B) of rule 3745-520-291 of the Administrative Code shall meet the following criteria:
 - (i) Provide at least 5.0 feet of isolation distance separately or in combination with in situ materials.
 - (ii) Be able to bear the weight of the facility and its construction and operations without causing or allowing a failure to occur due to settlement or slope failure.
 - (iii) Be located immediately below the liner system if one is required and be located immediately below the leachate collection layer if no liner is required.
- (c) All leachate management system elements. The design of the leachate management system shall conform to rule 3745-520-240 of the Administrative Code.
- (d) For existing facilities, the barrier layer. A soil barrier layer shall be utilized to impede the infiltration of leachate into disposed C&DD and shall conform to paragraph (B)(1)(c) of rule 3745-520-291 of the Administrative Code when the geologic material between the uppermost aquifer and the disposed C&DD is insufficient to conform to paragraph (B)(1)(b) of rule 3745-520-291 of the Administrative Code. At a minimum, the soil barrier layer shall include the following:
 - (i) Be constructed on the interior slopes of already disposed C&DD.
 - (ii) Be constructed and compacted to a minimum thickness of twenty-four inches using loose lifts eight inches thick or less.

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- (iii) Achieve a maximum hydraulic conductivity of 1.0 times ten to the negative six centimeters per second for each lift of geologic material.
- (iv) Be free of solid waste, C&DD, foreign material, and deleterious material.
- (v) Be constructed on a subbase that shall meet the following criteria:

 - (a) Be comprised of a cohesive soil.
 - (b) Be one foot thick if placed on a filter capable of retaining the subbase soil or be two feet thick if not placed on such a filter.
 - (c) Have a smooth surface and be free of solid waste, C&DD, foreign material, and deleterious material.
 - (d) Be placed on a prepared surface or C&DD that has been smoothed such that irregularities do not exceed six inches.
- (vi) Be sloped such that ponding of leachate on the barrier layer shall not occur.
- (e) If leachate recirculation is proposed, all leachate recirculation system elements. The design of the leachate recirculation system shall conform to rule 3745-520-249 of the Administrative Code.
- (f) Permanent ground water control structures. The design of all permanent ground water control structures shall adequately control ground water infiltration using non-mechanical means, such as impermeable barriers or permeable drainage structures. However, no permanent ground-water control structures may be used to dewater an aquifer system. Added geologic material and recompacted soil liner shall not be used as permanent ground water control structures.
- (6) Design calculations. The facility design plan shall have a section titled "Design Calculations" that includes all the following design calculations with references to equations used, showing site specific input, assumptions, and results:

 - (a) The disposal volume of the facility in cubic yards and anticipated life in years.
 - (b) Leachate management system calculations.
 - (c) All calculations necessary to demonstrate that the facility is able to bear the weight of the facility and its construction and operations without causing or allowing a failure to occur because of settlement or slope failure.

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(d) If leachate recirculation is proposed, the design calculations section shall include the following:

(i) Calculations of the anticipated amount of leachate that will be generated by the facility.

(ii) Calculations that demonstrate the leachate collection layer, filter layer, leachate piping, leachate conveyances, leachate pumps, and leachate storage tank have adequate capacity to handle the calculated amount of leachate that will be recirculated.

(iii) If leachate recirculation is being proposed for phases in which C&DD has been disposed, the following shall be included:

(a) Documentation showing how much leachate is currently being removed from within the limits of C&DD placement on a daily, weekly, monthly, and annual basis.

(b) Calculations of the anticipated amount of leachate that will be recirculated.

(c) Calculations to determine how much leachate would need to be recirculated to cause the C&DD to be saturated.

(d) Calculations showing the anticipated amount of leachate that will be absorbed by the C&DD and used or generated by biodegradation.

(e) Calculations estimating the density of the C&DD once biodegradation is completed.

(f) Calculations showing that the leachate management system will not be damaged by the increased vertical compressive stress created by the C&DD when biodegradation is completed.

(g) Calculations showing that the level of leachate will not exceed twelve inches above any portion of the liner if one exists, or above the bottom of any portion of the leachate collection layer.

(h) Calculations showing the anticipated level of saturation in the disposed C&DD.

(i) Calculations showing that the disposed C&DD and engineered components will remain stable at the anticipated levels of saturation to be experienced in the disposed C&DD.

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(e) All other relevant calculations.

(D) The cap system design plan. The cap system design plan shall be signed by a professional engineer. Drawings, calculations, and narrative shall appear on plan sheets with minimum dimensions of twenty-four inches by thirty-six inches. If narrative is necessary to explain the drawings or calculations, the narrative shall appear with the drawing or calculation on the plan sheet. The cap system facility design plan shall consist of the following:

(1) The facility. Plan drawings for the entire facility showing the elevations of all of the following items shall be on plan drawings numbered consecutively 7A, 7B, 7C, etc. The scale of these drawings shall be one inch equals no greater than two hundred feet, and contour intervals shall be no greater than five feet. Facility plan drawings shall contain the following information:

(a) The horizontal limits and final elevations of the limits of C&DD placement.

(b) The horizontal limits and final elevations the cap system, surface water control structures, berms, benches, and roads.

(c) The information required by paragraph (B)(3) of this rule.

(d) Identification of the areas of the facility that conform to paragraph (B)(3)(b) of this rule.

(e) Planned end use for the facility.

(2) Detail drawings. The following detail drawings shall be on plan drawings numbered consecutively 8A, 8B, 8C, etc. and shall show the following items:

(a) For areas within the limits of C&DD placement of a facility that had C&DD disposed to the final elevations of the limits of C&DD placement and a cap system had not been constructed and had not been certified in conformance with the requirements that were applicable to the area prior to January 1, 2008, the design and construction requirements for the cap system shall include the following:

(i) First, a soil layer of well compacted, cohesive soil with a minimum recompacted thickness of eighteen inches. The soil shall meet the following criteria:

(a) The maximum soil particle size shall be six inches.

(b) At least ninety-five per cent of the soil particles, by volume, shall pass the three inch sieve.

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(c) At least seventy-five per cent of the soil particles, by volume, shall pass the number four sieve.

(d) At least fifty per cent of the soil particles, by weight, shall pass the number two hundred sieve.

(e) The soil shall meet either of the following specifications:

(i) Possess plasticity properties lying above the A-line in the "Unified Soil Classification System" described in ASTM D2487 as described in rule 3745-500-03 of the Administrative Code.

(ii) Consist of 0.002 inch or finer clay particles as determined in ASTM D422 as described in rule 3745-500-03 of the Administrative Code such that these clay particles shall comprise at least fifteen per cent of the total soil dry mass.

(f) The soil shall not be comprised of solid waste or C&DD.

(g) The soil shall be compacted using loose lifts twelve inches thick or less and meet a compaction standard described in paragraph (D)(2)(a)(ii) of this rule.

(ii) After construction, the compacted density of the recompacted soil of the standard cap system and the subbase of any soil barrier layer shall be demonstrated by at least one of the following:

(a) By proof rolling with a pneumatic tire or smooth steel drum roller providing at least sixty-five pounds per square inch contact pressure.

(b) Be at least ninety-five per cent of the maximum standard proctor density at a frequency of at least five times per acre per lift.

(c) Be at least ninety per cent of the maximum modified proctor density at a frequency of at least five times per acre per lift.

(d) If the standard or modified proctor density is to be used as the standard for recompaction as in paragraph (D)(2)(a)(ii)(b) or (D)(2)(a)(ii)(c) of this rule, the maximum dry density and optimum moisture content shall be established by method ASTM D698 or ASTM D1557 as described in rule 3745-500-03 of the Administrative Code at least once for every five thousand cubic yards of soil prior to use.

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(2) The design of sedimentation basins that have not been permitted in accordance with Chapter 6111. of the Revised Code prior to the effective date of this rule shall conform to rule 3745-520-280 of the Administrative Code.

(3) The design of surface water control structures and sedimentation basins that were permitted in accordance with Chapter 6111. of the Revised Code prior to the effective date of this rule shall conform to the permits issued in accordance with Chapter 6111. of the Revised Code, unless the permits issued in accordance with Chapter 6111. of the Revised Code expired prior to construction of the surface water control structures or sedimentation basins, in which case the design shall conform to paragraphs (E)(1) and (E)(2) of this rule.

[Comment: In addition to conforming to the requirements of this rule, surface water control structures and sedimentation basins may also require permits issued by Ohio EPA under Chapter 6111. of the Revised Code before construction or discharge of water may occur.]

(4) The owner or operator shall demonstrate how surface water shall be diverted from the limits of C&DD placement using non-mechanical means. The design of the surface water control structures shall not divert surface water under, over, or through the limits of C&DD placement.

[Comment: Diversion of streams may require authorization from the army corps of engineers or Ohio EPA.]

(5) The owner or operator shall show the grades and elevations of the facility and show the drainage systems that will be used to ensure that surface water shall not run into the limits of C&DD placement, that minimal infiltration of water shall occur through the cover material and cap system, and that ponding shall not occur within the limits of C&DD placement.

(6) The surface water control structures shall be designed to minimize silting and scouring.

(F) Ground water management design plan. The ground water design plan shall be signed by a professional experienced in the appropriate discipline. Drawings, calculations and narrative shall appear on plan sheets with minimum dimensions of twenty-four inches by thirty-six inches. If narrative is necessary to explain the drawings or calculations, the narrative shall appear with the drawing or calculation on the plan sheet. The ground water design plan shall consist of the following:

(1) The owner or operator shall show how ground water shall be diverted from the limits of C&DD placement using non-mechanical means. The design of the ground water management structures shall not divert ground water under, over, or through the limits of C&DD placement.

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(2) The owner or operator shall show the grades and elevations of the facility and show the drainage systems that shall be used to ensure that ground water shall not run into the limits of C&DD placement.

(3) The ground water management structures shall be designed to minimize silting, clogging, and scouring.

(4) The information required by paragraph (F) of this rule may be included on the drawings required by paragraph (E) of this rule.

(5) Ground water may be directed to surface water control structures.

(G) Additional engineered components to be included in the facility design plan.

(1) The licensing authority may require any of the engineered components listed in paragraph (G)(2) of this rule to be included in the facility design plan of an application for a license if the licensing authority determines that the concentration of any constituent in the leachate obtained from valid samples that are representative of the leachate from the facility exceed the concentrations listed in paragraph (A)(3)(d) of rule 3745-520-655 of the Administrative Code and the licensing authority determines that the facility poses a threat or has impacted public health or safety or the environment or will cause or contribute to air or water pollution.

(2) Additional engineered components that may be required to be included in the facility design plan of an application for a license based on leachate analysis results include the following:

(a) A liner system designed to conform to rule 3745-520-230 of the Administrative Code.

(b) A separatory leachate barrier and collection system designed to conform to rule 3745-520-250 of the Administrative Code.

(H) Construction specifications. The facility design plan shall have a section titled "Construction Specifications" that shall include all of the construction specifications that are to be used during construction to ensure that the engineered components included in the facility design plan are constructed to conform to the design assumptions and calculations that are included in the facility design plan. The owner, operator, or applicant shall comply with the following:

(1) Specifications for engineered components required by rules 3745-520-500 to 3745-520-581 of the Administrative Code shall not be included in the "Construction Specifications" section of the facility design plan unless construction specifications different than those required by rules 3745-520-500

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to 3745-520-581 of the Administrative Code are needed to conform with this rule.

(2) If the facility design plan contains different construction specifications than those required by rules 3745-520-500 to 3745-520-581 of the Administrative Code, the different construction specifications included in the facility design plan shall meet the following criteria:

(a) Not exceed maximum specifications required by this rule.

(b) Not be below minimum specifications required by this rule.

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3745-520-291

Site characterization for a licensed construction and demolition debris facility that is not required to obtain a permit to install.

[Comment: For dates of non-regulatory government publications, publications of recognized organizations and associations, test methods, federal rules, and federal statutory provisions referenced in this rule, see rule 3745-500-03 of the Administrative Code titled "Incorporation by reference."]

(A) Any combination of borings, test pits, and piezometers may be used as is necessary to obtain the site characterization and hydrogeologic information required by this rule. The minimum number of locations utilized to collect data for the site characterization and hydrogeologic investigation shall be equal to the first whole number that is greater than the number represented by the square root of the number of acres which comprise the limits of C&DD placement.

(B) Site characterization and hydrogeologic investigation to determine the requirement for recompacted soil liner.

(1) A recompacted soil liner as described in paragraph (C)(5)(a) of rule 3745-520-290 of the Administrative code is required to be shown in the facility design plan for all areas within the limits of C&DD placement where no C&DD has been disposed, except when the in situ material and the added geologic material singly or in combination that separates the uppermost aquifer system from the base of the leachate management system in areas within the limits of C&DD placement where no disposal has occurred meets the criteria in paragraphs (B)(2) and (B)(3) of this rule and one of the following is true:

(a) The in situ and added geologic material singly or in combination separates the uppermost aquifer system from all disposed C&DD and meets the criteria in paragraphs (B)(2) and (B)(3) of this rule.

(b) The areas within the limits of C&DD placement where no disposal has occurred conform to paragraph (B)(1) of this rule and the design plan includes a barrier layer on disposed C&DD in accordance with paragraph (C)(5)(d) of rule 3745-520-290 of the Administrative Code.

(c) The areas within the limits of C&DD placement where no disposal has occurred conform to paragraph (B)(1) of this rule and a minimum fifteen foot horizontal separation exists between existing disposed C&DD and the areas within the limits of C&DD placement where no disposal has occurred.

(2) The in situ and added geologic material singly or in combination shall have the following:

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- (a) A minimum thickness of five feet with a maximum hydraulic conductivity of 1.0 times ten to the negative five centimeters per second.
- (b) A maximum hydraulic conductivity equivalent to two feet of soil with a hydraulic conductivity of 1.0 times ten to the negative six centimeters per second.
- (3) Added geologic material, if any, shall conform to paragraph (C)(5)(b) of rule 3745-520-290 of the Administrative Code.
- (C) Site characterization report. The owner or operator may comply with rules 3745-507-01 to 3745-507-200 of the Administrative Code instead of the requirements of this paragraph.
- (1) The owner or operator shall have a qualified ground water scientist provide a site characterization report that demonstrates the standards established in paragraph (C)(1) of rule 3745-520-100 of the Administrative Code and paragraphs (A) to (C) of this rule are met and that the ground water monitoring system for the facility, if one is required pursuant to rule 3745-520-03 of the Administrative Code, is capable of complying with Chapter 3745-506 of the Administrative Code. The site characterization report is a part of the facility design plan as outlined in paragraph (A) of rule 3745-520-290 of the Administrative Code. The site characteristics shall be documented in a narrative report and shall also use such maps and cross sections as needed to clearly convey the nature of the site and the hydrogeology beneath the facility.
- (2) The site characterization report shall be signed by a qualified ground water scientist. The qualified ground water scientist signing a report as required by this paragraph shall make the following certification:
- "I certify under penalty of law that I satisfy the requirements for a qualified ground water scientist as defined within rule 3745-500-01 of the Administrative Code and have personally prepared the information submitted in this document and all attachments and believe the information is true, accurate, complete, and meets the requirements of the rules requiring that the information be submitted."
- (3) The qualified ground water scientist shall make a final summary as to whether the standards established in paragraph (C)(1) of rule 3745-520-100 of the Administrative Code and paragraphs (A) to (C) of this rule are met. The final summary shall state each standard and whether the standard has been met. The final summary shall be signed by the qualified ground water scientist.
- (4) The site characterization report shall contain the following publicly available information to support the final summary:

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- (a) An applicable map prepared under the "National Flood Insurance Act of 1968" 82 Stat. 572, 42 U.S.C.A. 4001, showing where the facility is located with respect to the one-hundred-year flood plain of a watercourse. If no such map has been prepared for the watercourse, the location of the facility and the delineation of the one-hundred-year flood plain shall be shown on a plan sheet. The boundaries of the one-hundred-year flood plain of a watercourse shall be determined by the applicant based upon standard methodologies set forth in "Urban Hydrology for Small Watersheds" (soil conservation service technical release number 55) and section 4 of the "National Engineering Hydrology Handbook" of the soil conservation service of the United States department of agriculture.
- (b) A map showing the location of the facility with respect to the sole source aquifer designated by the administrator of the United States environmental protection agency under the "Safe Drinking Water Act", 88 Stat. 1660, 42 U.S.C.A. 300F. If a sole source aquifer is not in the vicinity, a statement of that fact will be sufficient.
- (c) The ground water resource map for the applicable county prepared by the Ohio department of natural resources showing where the facility is located.
- (d) A map showing the location of the facility with respect to the limits of any drinking water source protection area for a public water system using ground water including the area surrounding a public water supply well that will provide water from an aquifer to the well as delineated or endorsed by Ohio EPA under Ohio's wellhead protection and source water assessment and protection programs. If the limits of any drinking water source protection area for a public water system using ground water including the area surrounding a public water supply well that will provide water from an aquifer to the well as delineated or endorsed by Ohio EPA under Ohio's wellhead protection and source water assessment and protection programs are not in the vicinity of the facility, a statement to that fact will be sufficient.
- (e) A map showing the location of the facility and all public water supply wells within two thousand feet of the limits of C&DD placement. The yield of any public water supply well field shall also be stated.
- (f) A map showing the location of the facility and all water supply wells within one thousand five hundred feet of the limits of C&DD placement.
- (5) The site characterization report shall contain the following site-specific hydrogeologic information to support the final summary. Any combination of borings, test pits, and piezometers may be used as is necessary to obtain the hydrogeologic information. The minimum number of locations utilized to collect data for the hydrogeologic investigation shall be equal to the first whole number

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above the number represented by the square root of the number of acres which comprise the limits of C&DD placement. The hydrogeologic investigation shall be documented in a narrative report using such maps and cross sections as to clearly convey the nature of the hydrogeology beneath the facility.

(a) A description of the consolidated and unconsolidated stratigraphic units from the ground surface down to the uppermost aquifer system. This description shall include the following:

(i) Sedimentary, including for unconsolidated stratigraphic units, the textural classification using the "Unified Soil Classification System" described in ASTM D2487.

(ii) Hydraulic conductivity.

(iii) Thickness and horizontal extent.

(b) A description of the methodology, equipment, and procedures used to identify and characterize the hydrogeology beneath the facility as required by paragraphs (C)(5)(a) and (C)(5)(c) of this rule, including but not limited to the following:

(i) Well and piezometer construction specifications.

(ii) Water level measurement procedures.

(iii) The drilling and soil sampling methods used in characterizing the soil and its hydrogeologic properties under the facility.

(iv) All boring logs, test pit logs, soil analytical data, and all other data generated while preparing this report. A map shall be submitted showing the location of all borings, test pits, and soil sampling sites.

(c) When ground water monitoring is required for a facility in accordance with rule 3745-520-03 of the Administrative Code, a description and documentation of the uppermost aquifer system and all significant zones of saturation underlying the facility above the uppermost aquifer system. This description and documentation shall include the depth to and lateral and vertical extent of the uppermost aquifer system and all significant zones of saturation underlying the facility above the uppermost aquifer system. This description, using narrative, cross sections, and potentiometric maps, shall include the direction of flow within the uppermost aquifer system and all significant zones of saturation underlying the facility above the uppermost aquifer system.

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3745-520-305

Additional procedures for acting on a construction and demolition debris permit to install.

(A) When acting upon a permit to install, Ohio EPA and an approved board of health shall follow the appropriate procedures set forth in rule 3745-500-04 of the Administrative Code and any other applicable procedures set forth in the Revised Code.

(B) Notice of receipt of application. An approved board of health shall notify the director of its receipt of an application for a permit to install not later than fourteen days after receipt of the application. An approved board of health or its authorized representative may request in writing that the director review an application, or part of an application, for a permit to install and also may request in writing that the director issue or deny it when the approved board of health determines that additional expertise is required.

(C) Terms and conditions.

(1) The permitting authority may issue a permit to install with terms and conditions that the permitting authority finds necessary to ensure that the facility will meet the requirements of Chapter 3714. of the Revised Code and rules adopted thereunder and to protect public health and safety and the environment.

(2) If the permitting authority determines that standards more stringent than those applicable in rules adopted under Chapter 3714. of the Revised Code, or standards pertaining to subjects not specifically addressed by those rules, are necessary to ensure that a facility will not cause a nuisance, cause or contribute to air or water pollution, or endanger public health or safety or the environment, the permitting authority may issue a permit to install for the facility with such terms and conditions as the permitting authority finds necessary to protect public health and safety and the environment.

(D) Issuance of a permit to install.

(1) In deciding whether to issue a permit to install or deny a permit to install application, the director or approved board of health shall evaluate whether the construction and demolition debris facility satisfies the criteria in rule 3745-520-310 of the Administrative Code.

(2) Upon issuance of a permit to install, the permitting authority shall stamp all copies of the permit to install and the permit to install application with the word "approved" and the date of issuance.

(3) Copies upon issuance.

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(a) Upon the approved board of health's issuance of a permit to install for a construction and demolition debris facility, the approved board of health shall send stamped copies of the permit to install and permit to install application as follows:

(i) Return one copy to the applicant.

(ii) Send two copies to the director.

(iii) Retain one copy in the approved board of health's files.

(b) Upon the director's issuance of a permit to install for a construction and demolition debris facility, the director shall send stamped copies of the permit to install and the permit to install application as follows:

(i) Return one copy to the applicant.

(ii) Send one copy to the board of health if the board of health is on the director's approved list.

(iii) Retain two copies in Ohio EPA's files.

(E) Grounds for denial of a permit to install application. At a minimum, the director or approved board of health may deny a permit to install application for any of the following reasons:

(1) The permit to install application does not satisfy the criteria in rule 3745-520-310 of the Administrative Code.

(2) Falsification of material information pursuant to section 3714.101 of the Revised Code.

(3) If the applicant does not respond to a notice of deficiency as specified in paragraph (L) of rule 3745-520-400 of the Administrative Code.

(F) Transfer of a permit to install.

(1) Notice to permitting authority. At least one hundred twenty days prior to the proposed date of a permit to install transfer, the permittee for a construction and demolition debris facility shall submit a written request for transfer. The request shall also include the identity of the proposed transferee and of the proposed transferee's intent to assume the permittee's obligations. The permit to install transfer shall not be effective unless approved by the permitting authority.

(2) Public notice. The owner or operator shall publish prominent notice of the request for transfer of the permit to install in a newspaper of general circulation

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in the county in which the facility is located not later than seven days after submitting the request and at four-week intervals thereafter until a decision is made by the permitting authority to either approve or deny the transfer. At a minimum, the notice shall contain a general description of the request for transfer, including the name and location of the facility for which the permit to install is proposed to be transferred, the identity of the proposed transferee, and the reason for requesting a transfer.

- (3) Compliance disclosure information. The proposed permit transferee shall comply with division (D) or (F) of section 3714.052 of the Revised Code at least one hundred twenty days prior to the date of the proposed acquisition of the facility by the proposed transferee.
- (4) Not later than one hundred twenty days after receiving the notice as described in paragraph (F)(1) of this rule, the permitting authority shall approve or deny the transfer. The permitting authority may deny the transfer of the permit to install as provided for in division (B) of section 3714.052 of the Revised Code. The permitting authority shall promptly notify the proposed transferee and the permittee of the decision in writing and shall state the reasons for the decision.
- (5) If the transfer is approved, the transferee shall update the administrative information in the permit to install including but not limited to the name or the owner and operator, telephone number, mailing address, name of the facility, and contact person, in accordance with rule 3745-520-315 of the Administrative Code.
- (G) Suspension of a permit to install. The director or approved board of health may order the suspension of a permit to install. If the director or approved board of health suspends a permit to install, the construction of all engineered components included in the approved facility design plan shall immediately cease, unless the orders provide otherwise.
- (1) At a minimum, the director or approved board of health may suspend a permit to install if any of the following occur:
- (a) Falsification of any material information that is required to be submitted to a board of health or the director as detailed in section 3714.101 of the Revised Code.
 - (b) Information is discovered about the facility that affects the design or construction of the facility as previously approved in the permit to install. Information may include but is not limited to hydrogeologic information, a change in site conditions, and discovery of previously disposed solid waste, hazardous waste, or other unauthorized materials at the facility.

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- (c) The owner or operator is not operating or constructing the facility in substantial compliance with applicable provisions of Chapter 3704., 3714., 3734., or 6111. of the Revised Code or any rules adopted thereunder.
 - (d) The owner or operator is not operating or constructing the facility in strict compliance with authorizing documents.
 - (e) Significant construction failures, slope stability changes, or improper installation or failure of engineered components at the facility.
 - (f) The director or approved board of health determines that a nuisance, fire hazard, or health hazard exists at the facility or that the facility is a threat to public health or safety or the environment.
- (2) Reinstatement of a suspended permit to install. The permitting authority shall not reinstate a permit to install until all conditions cited as the reason for the suspension have been remedied. The owner or operator shall submit a request in writing to the permitting authority that includes information about any actions that were taken in response to the conditions listed in paragraph (G)(1) of this rule and any actions that will be taken to ensure that the conditions will not reoccur at the facility. The owner or operator shall not recommence suspended activities unless the request for reinstatement of the permit to install is approved by the permitting authority.
- (H) Revocation of a permit to install.
- (1) The director or approved board of health may revoke a permit to install if any one of the following occur:

 - (a) Falsification of any material information that is required to be submitted to a board of health or the director as detailed in section 3714.101 of the Revised Code.
 - (b) Any cause that would be grounds for denial of a permit to install application pursuant to division (B) of section 3714.052 of the Revised Code.
 - (c) The director or approved board of health determines that a nuisance, fire hazard, or health hazard exists at the facility including but not limited to ongoing fires or hazardous leachate, or if the facility threatens public health or safety or the environment.
 - (2) If the permit to install is revoked, the director or approved board of health shall revoke the construction and demolition debris facility license in accordance with rule 3745-500-04 of the Administrative Code.

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(I) Expiration of a permit to install. A permit to install shall expire in accordance with the following:

(1) If the owner or operator has not established the facility, a permit to install shall expire upon the third anniversary of the issuance of the permit to install.

(a) The owner or operator may request an extension of the expiration date if prior to the expiration date the owner or operator has entered into a binding contractual obligation to undertake and complete a continuing program of construction not later than twelve months after the expiration date.

(b) The request for an extension shall include but not be limited to the following information:

(i) Facility name and address.

(ii) Permittee name, mailing address, and contact information.

(iii) Operator information, if different from the permittee.

(iv) Land owner information, if different from the permittee.

(c) The request for an extension shall also include the justification for the extension of time, and a demonstration that the facility satisfies the applicable siting criteria and design standards established in the rules in effect on the date the permit to install is to expire, unless new rules have been final filed with the joint committee on agency rule review, in which case, the owner or operator shall demonstrate that the facility satisfies the applicable siting criteria and design standards in the rules that have been final filed.

(d) The request for an extension shall be accompanied by documentation demonstrating that the owner or operator has entered into a binding contractual obligation to undertake and complete a continuing program of construction not later than twelve months after the expiration date of the permit to install.

(e) The request shall be signed by the owner or operator in accordance with rule 3745-500-02 of the Administrative Code.

(f) The request shall contain a notarized statement signed by the owner or operator in accordance with rule 3745-500-02 of the Administrative Code.

(g) The permitting authority shall not approve a request for an extension, unless the permitting authority determines the following:

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- (i) The facility satisfies the applicable siting criteria and design standards established in the rules in effect on the date the permit to install is to expire, unless new rules have been final filed with the joint committee on agency rule review, in which case, the facility satisfies the applicable siting criteria and design standards in the rules that have been final filed.
 - (ii) The owner or operator has demonstrated compliance with this rule.
 - (h) If the permitting authority approves a request for an extension of the expiration date, the extension shall not exceed twelve months for a request described in paragraph (I)(1) of this rule.
- (2) If the owner or operator has established the facility and has not been required to begin closure, a permit to install shall expire every tenth anniversary of the issuance of the permit to install.
 - (a) The owner or operator may request an extension of the expiration date.
 - (b) The request for an extension shall include but not be limited to the following information:
 - (i) Facility name and address.
 - (ii) Permittee name, mailing address, and contact information.
 - (iii) Operator information, if different from the permittee.
 - (iv) Land owner information, if different from the permittee.
 - (c) The request for an extension shall also include the justification for the extension of time, and a demonstration that the facility satisfies the design standards established in the rules in effect on the date the permit to install is to expire, unless new rules have been final filed with the joint committee on agency rule review, in which case, the owner or operator shall demonstrate that the facility satisfies the applicable design standards in the rules that have been final filed.
 - (d) The request shall be signed by the owner or operator in accordance with rule 3745-500-02 of the Administrative Code.
 - (e) The request shall contain a notarized statement signed by the owner or operator in accordance with rule 3745-500-02 of the Administrative Code.
 - (f) The permitting authority shall not approve a request for an extension, unless the permitting authority determines the following:

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- (i) The facility satisfies the applicable design standards established in the rules in effect on the date the permit to install is to expire, unless new rules have been final filed with the joint committee on agency rule review, in which case, the facility satisfies the applicable design standards in the rules that have been final filed.
- (ii) The owner or operator is operating or constructing the facility in substantial compliance with applicable provisions of Chapter 3704., 3714., 3734., or 6111. of the Revised Code or any rules adopted thereunder.
- (g) If the permitting authority approves a request for an extension of the expiration date, the extension shall not exceed ten years for a request described in paragraph (I)(2) of this rule.

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3745-520-310 Permit to install approval criteria.

The permitting authority shall issue a permit to install to only the owner or operator of a construction and demolition debris facility. If the applicant is different from the owner or operator, then the applicant shall become the owner or operator of the facility prior to permit issuance.

(A) General criteria. The permitting authority shall not approve a permit to install application for a construction and demolition debris facility unless the permitting authority determines that the following criteria are satisfied:

(1) Establishment or modification and operation of the construction and demolition debris facility will not violate Chapter 3704., 3714., 3734., or 6111. of the Revised Code.

(2) The owner or operator is capable of constructing, operating, closing, and maintaining during the post-closure care period the facility in accordance with this chapter and with the terms and conditions of the permit to install.

(3) The person listed as the operator meets the operator certification requirements of rules adopted under division (O) of section 3714.02 of the Revised Code.

(4) The owner or operator has obtained all other necessary approvals and authorizations including but not limited to approvals and authorizations issued pursuant to Chapters 3704. and 6111. of the Revised Code for the construction and operation of the construction and demolition debris facility.

(B) Design criteria and permit to install application information. The permitting authority shall not issue a permit to install unless the permitting authority determines that the facility design plan is complete and the permit to install application contains all of the information required by rule 3745-520-400 of the Administrative Code.

(C) Siting criteria. The permitting authority shall not issue a permit to install for a construction and demolition debris facility unless the permitting authority determines that the application demonstrates that the facility will conform to rule 3745-520-100 of the Administrative Code.

(D) Except as provided in paragraph (E) of this rule, the permitting authority shall not issue a permit to install to establish a proposed facility or to expand a facility beyond its approved limits of construction and demolition debris placement unless the permitting authority determines that the following are true:

(1) Access roads will be constructed in a manner that allows use in all weather conditions and will withstand the anticipated degree of use and minimize erosion and generation of dust.

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- (2) If the facility is proposed to be located in an area in which an applicable zoning resolution allows residential construction, the facility will have vegetated earthen berms or an equivalent barrier with a minimum height of six feet separating the facility from adjoining property.
- (E) Paragraph (D) of this rule does not apply to an expansion of a construction and demolition debris facility that was in operation prior to December 22, 2005, onto property within the property boundaries identified in the application for the initial license for that facility or any subsequent license issued for that facility up to and including calendar year 2005.
- (F) Vertical expansion. The permitting authority shall not approve any permit to install application for a vertical expansion of a construction and demolition debris facility, unless the permitting authority determines that the concentration of any constituent in the leachate obtained from valid samples that are representative of the leachate from the facility does not exceed the concentrations listed in paragraph (A)(3)(d) of rule 3745-520-655 of the Administrative Code, the facility has at least 5.0 feet of isolation material between the basal elevations of the limits of C&DD placement and the uppermost aquifer system, and that the facility and proposed expansion does not pose a threat to public health or safety or the environment and will not cause or contribute to air or water pollution.
- (G) Discretionary criteria. When determining whether to issue a permit to install or deny a permit to install application for a construction and demolition debris facility, the permitting authority may consider the following:
- (1) The impact the proposed construction and demolition debris facility may have on corrective actions that are presently being taken, or that are proposed to be taken at the facility or in the immediate area, including but not limited to gas or ground water corrective actions.
- (2) The technical feasibility of adequately monitoring the impact of the construction and demolition debris facility on the environment.
- (3) Pursuant to division (B) of section 3714.052 of the Revised Code, the history of compliance with state and federal laws pertaining to environmental protection or the environmental laws of another state or country, indicating if the applicant or any other person listed on the application has sufficient reliability, expertise, and competence to operate the proposed facility or proposed expansion of the facility in substantial compliance with Chapter 3714. of the Revised Code and rules adopted thereunder.

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3745-520-315 Administrative change to a permit to install.

(A) The permitting authority may make an administrative change to any permit to install. An "administrative change" to a permit to install is an amendment that does not result in a modification or alteration to the facility or permit to install for the facility.

(B) A permit to install may be administratively changed to do the following:

(1) To update administrative information including but not limited to the telephone number, address, or name of the facility, the name of the owner or operator, or other facility contact information.

(2) To clarify or correct typographical errors contained in a permit to install. Such changes shall be made solely for the purpose of clarification or correction of typographical errors.

(3) To establish a new termination date of a permit to install in accordance with paragraph (I) of rule 3745-520-305 of the Administrative Code.

(C) The owner or operator shall submit a written request for an administrative change to the permitting authority not later than fourteen days after the discovery of the need for the change. The request shall include the following:

(1) The revised pages from the permit to install.

(2) An index listing the page numbers in the permit to install where each change occurs.

(3) A description of each change.

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3745-520-400 **Application for a permit to install requirements and applicant procedures.**

- (A) The applicant, owner or operator shall obtain a permit to install from the permitting authority before establishment, expansion, or modification of a construction and demolition debris facility has begun. Compliance with this rule does not relieve any person from the obligation to comply with any statute, rule, or authorizing document.
- (B) The applicant for a permit to install shall be either the owner or operator of the construction and demolition debris facility or have an interest in the property on which the facility is proposed to be located.
- (C) Each application for a permit to install shall be accompanied by the application fee established in section 3714.051 of the Revised Code.
- (D) The applicant shall include with the application for a permit to install the information required under section 3714.052 of the Revised Code.
- (E) The application for a permit to install shall contain all of the information specified below. The detail of the information shall be sufficient to allow clear understanding for the review of the permit application, so the permitting authority may determine whether the criteria set forth in rule 3745-520-310 of the Administrative Code are satisfied. If the permitting authority requests additional information to be used to determine whether the approval criteria are satisfied, the applicant shall supply the requested information.
 - (1) Pursuant to division (C)(2) of section 3714.051 of the Revised Code, the permit application shall include the location or proposed location of the facility, anticipated beginning and ending dates for work performed, and any other related information that the director requires by rule.
 - (2) The permit to install application shall contain a facility design plan prepared in accordance with rules 3745-520-200 and 3745-520-210 of the Administrative Code.
 - (3) The permit to install application shall contain the site investigation report required by rule 3745-507-200 of the Administrative Code.
 - (4) The permit to install application shall contain the following information on forms prescribed by the director:
 - (a) Facility name and address.
 - (b) The name, address, and contact information of the applicant, of all partners if the applicant is a partnership or of all officers and directors if the applicant

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is a corporation, and of any other person who has a right to control or in fact controls management of the applicant or selection of officers, directors, or managers of the applicant.

(c) Operator information, if different from applicant.

(d) Land owner information, if different from applicant.

(e) Preparer information, if different from applicant.

(5) A copy of each letter sent pursuant to paragraph (H) of this rule and a copy of each receipt documenting the delivery of the letters.

(6) A list of the permits, licenses, plan approvals, authorizations or other approvals that have been applied for and the local, state, or federal office or agency where application has been made.

(7) A copy of each notification submitted in accordance with paragraph (G) of this rule.

(8) Proof of property ownership, lease agreement, or other proof of interest in the property to use the property as a construction and demolition debris facility.

(9) A copy of the local zoning resolutions for the property where the facility is or is proposed to be located and adjacent properties.

(F) Exemption requests. If the applicant intends to request an exemption from any of the requirements of Chapter 3714. of the Revised Code and rules adopted thereunder, the permit to install application shall include the exemption requests. This shall not be interpreted to preclude the owner or operator from requesting an exemption from any of the requirements of Chapter 3714. of the Revised Code and rules adopted thereunder at any other point in time.

(G) Concurrent to submitting the application for a permit to install, the applicant shall submit to the divisions of Ohio EPA regulating air pollution control and water pollution control, written notification of intent to establish or modify a construction and demolition debris facility and a written request for information pertaining to any regulatory requirements under Chapter 3704. or Chapter 6111. of the Revised Code.

(H) Notifications and certification. Letters of intent to establish or modify a construction and demolition debris facility shall be sent by the applicant via certified mail or any other form of mail accompanied by a receipt to the following entities and at a minimum shall include a description of the proposed boundary of the facility and the proposed limits of C&DD placement:

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- (1) The governments of the general purpose political subdivisions where the facility is located, including but not limited to county commissioners, legislative authority of a municipal corporation, or the board of township trustees.
 - (2) The owner or lessee of any easement or right of way bordering or within the proposed boundaries of the facility.
 - (3) The local zoning authority having jurisdiction, if any.
 - (4) The local fire department responsible for responding to the facility.
 - (5) The park system administrator, if any part of the facility is located within or shares the park boundary.
 - (6) The conservancy district, if any part of the facility is located within or shares the conservancy district boundary.
 - (7) The authority responsible for implementing the Federal Emergency Management Agency National Flood Insurance Act of 1968 (82 Stat. 572, U.S.C.A. 4001 et seq.) as described in rule 3745-500-03 of the Administrative Code and rules adopted thereunder at the proposed facility and in the vicinity of the proposed facility.
- (I) The applicant shall comply with the public hearing requirements in rule 3745-520-450 of the Administrative Code.
- (J) For regulatory review purposes, the initial application for a permit to install and any subsequent revisions to the application shall be submitted in duplicate to the permitting authority. Any revisions to the application shall be accompanied by the following:
- (1) An index listing each change and the page where each change occurred.
 - (2) For plan drawings, a schedule on the drawing indicating what has changed.
- (K) Upon written request from the permitting authority, the applicant shall submit two additional and identically complete copies of the revised application to the permitting authority and the notarized statement described in rule 3745-500-02 of the Administrative Code. The notarized statement shall be signed by the applicant in accordance with rule 3745-500-02 of the Administrative Code.
- (L) Notices of deficiency. If the reviewing authority determines that the permit to install application is incomplete or if information in addition to that required by this rule is necessary to determine whether the criteria set forth in rule 3745-520-310 of the Administrative Code are satisfied, the applicant shall provide such information not

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later than one hundred eighty days after the date of a notice of deficiency from the reviewing authority.

(M) Signatories. The application for a permit to install shall be signed by the applicant in accordance with rule 3745-500-02 of the Administrative Code.

In addition, the application shall contain the notarized statement described in rule 3745-500-02 of the Administrative Code. The notarized statement shall be signed by the applicant in accordance with rule 3745-500-02 of the Administrative Code.

(N) Transfer of a permit to install. An owner or operator of a facility and the proposed permit transferee shall comply with the requirements in paragraph (F) of rule 3745-520-305 of the Administrative Code when proposing to transfer a permit to install.

(O) Reinstatement of a suspended permit to install. In order to reinstate a suspended permit to install, an owner or operator shall submit a request to the permitting authority in accordance with paragraph (G)(2) of rule 3745-520-305 of the Administrative Code.

(P) Termination of a permit to install. A permit to install shall terminate in accordance with paragraph (I) of rule 3745-520-305 of the Administrative Code. An owner or operator may request the establishment of a new termination date in accordance with that rule.

(Q) Administrative change to a permit to install. An owner or operator shall make an administrative change to a permit to install in accordance with rule 3745-520-315 of the Administrative Code.

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3745-520-450

Public hearing and notice requirements.

- (A) Not later than sixty days after the director or approved board of health receives an application for a permit to install for a proposed construction and demolition debris facility or an application for a permit to install for an expansion of a facility beyond its approved limits of C&DD placement, the applicant shall hold a public hearing in a township or municipal corporation in which the facility or proposed facility is or is to be located. The public hearing shall be held on a weekday and shall begin no earlier than six p.m. and no later than eight p.m., unless otherwise authorized by the permitting authority.
- (B) At least thirty days prior to the public hearing, the applicant shall publish public notice of the time, date, and location of the public hearing and a general description of the facility or proposed facility in a newspaper of general circulation in the locality of the facility or proposed facility and shall mail a copy of the notice to the director and approved board of health.
- (C) At least thirty days prior to the public hearing, the applicant shall provide notification of the public hearing by certified mail to the owner of each parcel of real property that is adjacent to the facility or proposed facility.
- (D) If the facility or proposed facility is located in more than one township or municipal corporation, the applicant shall provide notice of the public hearing in accordance with paragraph (B) of this rule in a newspaper of general circulation in each locality in which the facility or proposed facility is located. The applicant shall provide notification in accordance with paragraph (C) of this rule.
- (E) At the public hearing, the applicant shall describe the proposed facility or proposed expansion of the facility and respond to comments and questions concerning the proposed facility, proposed expansion of the facility, or the application. At the public hearing, any person may submit written or oral comments or questions about the proposed facility, proposed expansion of the facility, or application.
- (F) Not later than thirty days after the public hearing, the applicant shall provide the director and approved board of health with a transcript of the full hearing, copies of any exhibits, displays, or other materials presented by the applicant at the hearing, and a copy of any written comments submitted at the hearing.

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3745-520-500 **Applicability of construction, testing, verification, and certification requirements.**

- (A) The owner or operator shall comply with rules 3745-520-500 to 3745-520-581 of the Administrative Code whenever an engineered component described in rule 3745-520-205 of the Administrative Code is being constructed prior to the end of the post-closure care period.
- (B) Notwithstanding paragraph (A) of this rule, if the approved facility design plan is part of a permit to install and contains explicit requirements that conflict with the requirements of rules 3745-520-510 to 3745-520-581 of the Administrative Code, and the requirements in the approved facility design plan conform to paragraph (B)(7) of rule 3745-520-210 of the Administrative Code, the owner or operator shall comply with the approved facility design plan instead of the requirements in rules 3745-520-510 to 3745-520-581 of the Administrative Code only in as much as is necessary to resolve the conflict.
- (C) Notwithstanding paragraph (A) of this rule, if the owner or operator is not required to obtain a permit to install under this chapter, and the approved facility design plan contains explicit requirements that conflict with the requirements of rules 3745-520-510 to 3745-520-581 of the Administrative Code, and the requirements in the approved facility design plan conform to paragraph (H) of rule 3745-520-290 of the Administrative Code, the owner or operator shall comply with the approved facility design plan instead of the requirements in rules 3745-520-510 to 3745-520-581 of the Administrative Code only in as much as is necessary to resolve the conflict.

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3745-520-501 Certification report.

(A) The owner or operator shall submit a written certification report to the concurring authority for all engineered components that are constructed. The construction certification report shall be submitted as follows:

(1) Not later than forty-five days prior to the following:

(a) The intended date to begin to dispose construction and demolition debris into a phase.

(b) The intended date to begin to allow leachate into leachate conveyance apparatuses, storage tanks, on-site leachate treatment works, or a public sewerage system.

(c) The intended date to begin to allow surface water into any sedimentation basin.

(d) The intended date to begin to use gas venting apparatuses or gas extraction apparatuses or systems.

(2) Not later than sixty days after completion of construction activities of any engineered component that is not otherwise certified in accordance with paragraph (A)(1) of this rule and that is not associated with the construction of a phase.

(B) The information in the certification report shall be presented in a clear and easily understandable manner. The certification report shall include the following:

(1) A narrative summary section that is comprised of the following:

(a) A list of all the engineered components constructed during the construction event.

(b) A comparison of each engineered component as built with the applicable requirements of the approved facility design plan and rules 3745-520-510 to 3745-520-581 of the Administrative Code.

(c) A summary of how the construction event was affected by weather, equipment limitations, and any other difficulties encountered.

(2) All alterations and other changes that relate to the installation of any of the components to be certified, which shall be presented as follows:

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- (a) A listing of all alterations previously concurred with by the concurring authority.
- (b) All alteration requests which are proposed for concurrence and supporting documentation, drawings, and testing and verification results. All alteration requests shall result in a design that is equivalent or more protective than the approved facility design plan.
- (c) A list of any other changes made by the owner or operator that are not alterations but which affected construction or the record drawings.

[Comment: Rule 3745-520-620 of the Administrative Code requires that the owner or operator obtain the concurring authority's written concurrence with the certification report prior to placing C&DD in a phase being certified. If an alteration request will be submitted within a certification report, it is strongly recommended that the concurring authority be notified prior to construction of the engineered component being altered. The concurring authority is not required to concur with alterations submitted after construction. If the concurring authority does not concur with the requested alteration, reconstruction or amendment of the altered engineered component will be required prior to C&DD placement in a phase being certified.]

- (3) The results of all tests required by the approved facility design plan or rules 3745-520-500 to 3745-520-581 of the Administrative Code, including all passing, failing, and inconclusive test results.
- (4) The verification documents required by paragraph (B) of rules 3745-520-510 to 3745-520-581 of the Administrative Code.
- (5) The certifications required by rules 3745-520-510 to 3745-520-581 of the Administrative Code.
- (6) If the results of pre-testing and verification of borrow soils were submitted during construction in a format that is acceptable to the concurring authority, only summary tables of the results shall be included in the certification report.
- (7) The results of all surveys required by the approved facility design plan and rules 3745-520-500 to 3745-520-581 of the Administrative Code.
- (8) Documentation demonstrating that all oil or gas wells that were identified within the limits of C&DD placement have been properly plugged and abandoned in accordance with Chapter 1509. of the Revised Code prior to any construction in the area of the wells.

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- (9) A description of the experience, training, responsibilities in decision making, and other qualifications of the personnel that provided oversight or conducted the testing, verification, or certification of the engineered components for which the certification report is submitted.
- (C) The certification report shall be signed by a professional engineer.
- (D) Drawings in the certification report shall appear on plan sheets with minimum dimensions of twenty-four inches by thirty-six inches. If narrative is necessary to explain a drawing or a calculation, the narrative shall appear with the drawing or calculation.
- (E) All plan drawings used to certify that an engineered component conforms to the approved facility design plan or the requirements of this chapter shall be signed by a professional engineer.
- (F) All plan drawings used for certification shall use the same scale as the drawings in the approved facility design plan that show the engineered component being certified, unless an alternative scale is acceptable to the concurring authority.
- (G) Each certification drawing may show the certification information and record drawings for more than one engineered component.
- (H) All survey information included in the certification report shall be signed by a professional surveyor.
- (I) All survey records used to certify that an engineered component conforms to the approved facility design plan or the requirements of this chapter shall be signed by a professional surveyor.
- (J) Survey data shall at a minimum be reported in a table at the northing and easting for each designated survey point established to be no more than one hundred feet apart. Additional survey points shall be established at grade breaks and other critical locations as needed to accurately portray the surface being surveyed.
- (K) Each survey point shall be referenced to the grid system established in the approved facility design plan. If the approved facility design plan does not establish a grid system, the owner or operator shall establish a grid system for the purposes of establishing the location of each survey point used for certification.
- (L) The certification report shall include a signed notarized statement that conforms to rule 3745-500-02 of the Administrative Code.

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3745-520-510 **General construction, testing, verification, and certification requirements.**

(A) Construction. When constructing any engineered component described in rule 3745-520-205 of the Administrative Code, the owner or operator shall comply with the following construction requirements in addition to the testing and verification requirements of the approved permit to install and rules 3745-520-500 to 3745-520-581 of the Administrative Code:

(1) Notify the concurring authority at least seven calendar days prior to beginning construction of an engineered component.

(2) Comply with the approved facility design plan each time an engineered component described in rule 3745-520-205 of the Administrative Code is being constructed prior to the end of the post-closure care period.

(3) Ensure that engineered components are not damaged during construction.

(4) Repair, test, verify, and certify in conformance with paragraph (B)(6) of this rule any engineered component that is damaged during construction, testing, or certification, or that tests or verifications indicate does not meet the requirements in rules 3745-520-520 to 3745-520-581 of the Administrative Code.

(5) Perform pre-construction testing on materials used to construct engineered components of the facility in accordance with this rule prior to the use of the construction material. Materials shall not be used to construct the facility unless the results of pre-construction testing required by this rule meet all applicable specifications in rules 3745-520-520 to 3745-520-581 of the Administrative Code and the approved parameters that were established by the slope stability analyses in the approved facility design plan. The evaluation of the construction materials shall be signed by a professional engineer and submitted to Ohio EPA or the approved board of health no later than seven days prior to the intended use of the materials.

(B) Testing and verification. The owner or operator shall comply with the following testing and verification requirements in addition to the testing and verification requirements of the approved facility design plan and rules 3745-520-520 to 3745-520-581 of the Administrative Code.

(1) Shear strength testing of geosynthetic to soil interfaces and geosynthetic to geosynthetic interfaces shall use representative samples of the specific soils and the geosynthetic materials used at the facility and shall be in accordance with the following:

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- (a) Prior to the initial use of each specific geosynthetic material in the construction of engineered components at the facility, the appropriate type of shear strengths for all interfaces that include the material shall be determined at least twice using ASTM D 5321 (direct shear test) or ASTM D 6243 (direct shear test for geosynthetic clay liner), and at least once for each subsequent construction event, using samples of the materials identified by the initial two tests as being at the highest risk for interface failure.
- (b) The tests of each interface required by paragraph (B)(1)(a) of this rule shall be conducted to determine the shear strength failure envelope that represents the entire range of normal stresses that will be experienced by the interface during facility construction and disposal operations. Each test shall use representative samples of the materials that create the interface. If a shear stress point plots below the minimum shear strength failure envelope established in the stability analysis report in the approved permit to install, it is considered a failed test. If the approved permit to install does not include a minimum shear strength envelope, then the owner or operator shall use an appropriate shear strength failure envelope that was developed in conformance to Chapter 3745-507 of the Administrative Code that is applicable to the interface.
- (c) The tests required by paragraph (B)(1)(a) of this rule for the flexible membrane liner interface with a recompacted soil liner or a recompacted soil barrier layer of a cap system shall be conducted using recompacted soil that has the highest moisture content and the lowest density specified for construction of the recompacted soil liner.
- (d) If no recompacted soil liner is required and if a flexible membrane liner is required, the tests required by paragraph (B)(1)(a) of this rule of the interface created by the soil that will be beneath and in contact with the flexible membrane liner shall use soil that has the highest moisture content and lowest density that is acceptable for construction of the in situ foundation or the engineered component of which the soil is a part.
- (2) The professional engineer shall verify that the construction of each engineered component conforms to the following:

 - (a) Each requirement of rules 3745-520-500 to 3745-520-581 of the Administrative Code applicable to the engineered component.
 - (b) The approved facility design plan, if the engineered component is included in the approved facility design plan.
 - (c) For manufactured materials, the manufacturer's installation specifications where those specifications exceed the requirements of the approved facility

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design plan and rules 3745-520-510 to 3745-520-581 of the Administrative Code.

- (3) The professional engineer shall verify that all equipment used to comply with any testing requirements of rules 3745-520-510 to 3745-520-581 of the Administrative Code is properly calibrated in accordance with the manufacturer's recommendations and specifications and remains calibrated throughout the construction event.
- (4) The verification required by paragraphs (B)(2) and (B)(3) of this rule shall be documented by a professional engineer. The documentation shall identify the following:

 - (a) The facility.
 - (b) The engineered component or testing equipment being verified.
 - (c) The location within the facility of the engineered component being verified.
 - (d) The date of the verification.
 - (e) The observations made during construction of the engineered component by the professional engineer.
- (5) The professional engineer shall verify that engineered components are not damaged during construction.
- (6) The owner or operator shall investigate all damage, tests, and verifications of engineered components that indicate that the engineered component fails to meet the requirements of the approved facility design plan or rules 3745-520-500 to 3745-520-581 of the Administrative Code and shall do the following:

 - (a) Test and verify the engineered component as many times as is necessary to determine if the test result and verification are valid.
 - (b) Reconstruct any engineered component represented by a verified failure until testing and verification demonstrate that the engineered component conforms to the approved facility design plan and rules 3745-520-500 to 3745-520-581 of the Administrative Code.
 - (c) Test, verify, and certify reconstructed components as required by the approved facility design plan and rules 3745-520-500 to 3745-520-581 of the Administrative Code.
 - (d) Document the activities required by paragraphs (B)(6)(a) to (B)(6)(c) of this rule.

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(7) Verification of the shear strength of all engineered components comprised of soil shall conform to the following:

(a) Representative samples of the soils that will be used for the engineered components shall be compacted to the highest moisture content and lowest density that is specified for construction of the engineered component.

(b) The effective shear strength of the samples described in paragraph (B)(7)(a) of this rule shall be tested using ASTM D3080 (direct shear test), ASTM D4767 (consolidated-undrained triaxial compression test), or ASTM D6467 (torsional ring shear test) as these tests are described in rule 3745-500-03 of the Administrative Code.

(c) The undrained shear strength of the samples described in paragraph (B)(7)(a) of this rule that will be used to construct an engineered component that may become saturated and may be susceptible to slope failure shall be tested using fully saturated samples using ASTM D2850 (unconsolidated-undrained triaxial compression) as described in rule 3745-500-03 of the Administrative Code.

(d) The tests required by paragraph (B)(3)(b) of this rule shall be conducted to determine the shear strength failure envelope that represents the entire range of normal stresses that will be experienced by the engineered component during facility construction and disposal operations. If a shear stress point plots below the minimum shear strength failure envelope established in the stability analysis report in the approved permit to install, it is considered a failed test. If the approved permit to install does not include a minimum shear strength enveloped, then a shear strength failure envelope shall be developed in the manner established by Chapter 3745-507 of the Administrative Code.

(C) Certification. The owner or operator shall comply with the following certification requirements in addition to the certification requirements of the approved facility design plan and rules 3745-520-500 to 3745-520-581 of the Administrative Code. A professional engineer shall certify the following:

(1) The construction of all engineered components conforms to rules 3745-520-501 to 3745-520-581 of the Administrative Code.

(2) The construction of each engineered component conforms to the approved facility design plan if the engineered component is included in the approved facility design plan.

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- (3) The results of all testing of the construction of engineered components conform to rules 3745-520-500 to 3745-520-581 of the Administrative Code and the approved facility design plan.
- (4) The verifications that were documented by the professional engineer demonstrate that the engineered components were constructed in conformance to the requirements of rules 3745-520-500 to 3745-520-581 of the Administrative Code and the approved facility design plan.
- (D) The owner or operator shall keep copies of the daily construction activity logs at the facility and make them available to the director and approved board of health upon request.

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3745-520-520

Permanent survey mark construction and certification.

[Comment: For dates of non-regulatory government publications, publications of recognized organizations and associations, test methods, federal rules, and federal statutory provisions referenced in this rule, see rule 3745-500-03 of the Administrative Code titled "Incorporation by reference."]

When constructing the engineered component described in this rule, the owner or operator shall comply with rule 3745-520-510 of the Administrative Code and shall comply with the following:

(A) There shall be at least one permanent survey mark established and certified at the facility prior to construction of any other engineered component. Permanent survey marks shall be constructed to conform with the following:

- (1) Permanent survey marks shall be referenced horizontally to the 1927 "North American Datum," 1983 "North American Datum", or "State Plane Coordinate System" and vertically to the 1929 or 1988 "North American Vertical Sea Level Datum" as identified on a 7.5-minute USGS topographical map.
- (2) Permanent survey marks shall be at least as stable as a poured concrete monument ten inches in diameter installed to a depth of forty-two inches below the ground surface.
- (3) Each permanent survey mark shall include a corrosion resistant metallic disk, which indicates horizontal and vertical coordinates of the permanent survey mark.
- (4) Each permanent survey mark shall contain a magnet or ferromagnetic rod to allow identification using magnetic detection methods.
- (5) Survey control standards for permanent survey marks shall conform to the following:
 - (a) For the first facility permanent survey mark established from the known control point, the maximum horizontal error shall be one foot horizontal to two thousand five hundred feet horizontal.
 - (b) For each facility permanent survey mark established from the first facility permanent survey mark, the maximum horizontal error shall be one foot horizontal distance to five thousand feet horizontal.
 - (c) For the first facility permanent survey mark established from the known control point and for each facility permanent survey mark established from

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the first facility permanent survey mark, the maximum vertical error shall be one inch to five thousand feet horizontal.

(B) Testing and verification of permanent survey marks shall conform to the following:

- (1) The location of the permanent survey marks shall be surveyed by a professional surveyor.
- (2) The construction and location of the permanent survey marks shall be verified and the verification documented by the professional engineer.

(C) Certification of permanent survey marks shall include the following information:

- (1) An identification and description of the known control points used to establish the horizontal and vertical coordinates of the facility permanent survey marks.
- (2) The horizontal and vertical coordinates of the known control points and facility permanent survey marks.
- (3) A summary of surveying activities performed in determining the coordinates of the facility permanent survey marks.
- (4) A copy of the 7.5-minute USGS topographical map used in establishing the permanent survey marks with the known control points and the location of the facility permanent survey marks clearly identified.
- (5) A scale drawing showing the design of the facility permanent survey marks as built.

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3745-520-521 Access road construction, testing, verification, and certification.

When constructing the engineered component described in this rule, the owner or operator shall comply with rule 3745-520-510 of the Administrative Code and shall comply with the following:

(A) Each access road at a facility shall be constructed to conform to the following:

(1) Each portion of an access road that is located within the horizontal limits of C&DD placement shall conform to the following:

(a) Not be comprised of solid waste or C&DD, except that clean hard fill may be used.

(b) Not have grades in excess of twelve per cent.

(c) Allow use in all weather conditions, withstand the anticipated degree of use, and minimize erosion and generation of dust.

(d) Not be located directly on top of the liner system, the leachate management system, or the cap system unless the design for the access roads is included in the approved facility design plan, in which case the access roads shall be constructed as follows:

(i) For roads located over the liner system or leachate management system, the road base shall be stable and capable of preventing damage to the liner system caused by the effects of traffic, braking, turning, and all other actions.

(ii) For roads located on cap system, the road base shall be stable and capable of preventing damage to the cap system caused by the effects of traffic loading, braking, turning, and all other actions of equipment.

(2) Each portion of an access road that is located outside the horizontal limits of C&DD placement shall conform to the following:

(a) Be free of foreign material and deleterious material.

(b) Not be comprised of solid waste or C&DD, except that clean hard fill may be used.

(c) Not have grades in excess of twelve per cent.

(d) Allow use in all weather conditions, withstand the anticipated degree of use, and minimize erosion and generation of dust.

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(e) The access road that is designated by the owner or operator as the main hauling road at the facility shall not be located within the areas of the facility shown in the approved facility design plan that are prohibited from having such roads.

(B) Testing and verification of access roads shall include surveying the location, grades, and final elevations of the access roads by a professional surveyor and verified by the professional engineer.

(C) Certification of access roads shall include a record drawing showing the location and topographic representation of the access roads as built.

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3745-520-522 Vegetated earthen berm construction, testing, verification, and certification.

[Comment: For dates of non-regulatory government publications, publications of recognized organizations and associations, test methods, federal rules, and federal statutory provisions referenced in this rule, see rule 3745-500-03 of the Administrative Code titled "Incorporation by reference."]

When constructing the engineered component described in this rule, the owner or operator shall comply with rule 3745-520-510 of the Administrative Code and shall comply with the following:

(A) Vegetated earthen berms shall conform with the following:

- (1) Have a minimum height of six feet.
- (2) Separate the facility from adjoining property.
- (3) Be free of foreign material and deleterious material.
- (4) Not be comprised of solid waste or C&DD, except clean hard fill may be used if its use is included in the approved facility design plan.
- (5) For soil used to construct all or a portion of the berm, be constructed in lifts to achieve uniform compaction. Each lift shall conform to the following:
 - (a) Be placed in loose lifts twelve inches or less in thickness.
 - (b) Be comprised of soil with low hydraulic conductivity, good compactability, cohesiveness, relatively uniform texture, and that does not contain large objects in such quantities as may interfere with its construction, testing, verification, certification, and intended purpose. The soil shall be a loam, silty loam, clay loam, silty clay loam, silty clay, or other soil types that can achieve the intended purpose.
 - (c) Be constructed of a soil with a maximum clod size that does not exceed the lift thickness and does not interfere with the compaction or testing of the soil.
 - (d) Be compacted to at least ninety-five per cent of the maximum dry density as determined by ASTM D698 (standard proctor) or at least ninety per cent of the maximum dry density as determined by ASTM D1557 (modified proctor).

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- (e) Have a soil moisture content that is not less than two per cent below and is not greater than four per cent above the optimum moisture content as determined by ASTM D698 or ASTM D1557.
 - (6) If rock or clean hard fill is used to construct the core of the berm, be constructed to conform to the following:
 - (a) Be placed in a manner that ensures the rock and clean hard fill will not shift or move.
 - (b) Have a smooth surface such that soils placed in accordance with paragraph (A)(7) of this rule will not migrate into the rock and clean hard fill voids.
 - (7) Soil at the surface shall be of sufficient thickness and fertility to support vegetation, and shall be seeded as soon as practicable and as many times as is necessary to establish a complete and dense vegetative cover of healthy grasses or other vegetation not later than one year after completing construction.
 - (8) Erosion controls shall be installed on the vegetative earthen berm to minimize erosion until the cover of vegetation conforms to paragraph (A)(7) of this rule.
- (B) Testing and verification of vegetated earthen berms shall conform to the methods and frequencies contained in the approved facility design plan and shall include the following:
 - (1) Surveying the location, grades, and final elevations of the completed vegetated earthen berms.
 - (2) Each compacted lift shall be tested at a frequency of at least five tests per five hundred feet of berm length per lift to determine the density and moisture content according to ASTM D2922 and ASTM D3017 (nuclear methods), ASTM D1556 (sand cone), ASTM D2167 (rubber balloon), or ASTM D6780 (TDR). The locations of the individual tests shall be adequately spaced to represent the lift and shall be offset from one lift to the next. All penetrations shall be repaired using bentonite.
- (C) Certification of vegetated earthen berms shall include record drawings showing the location and topographic representation of the vegetated earthen berms as built.

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3745-520-523

Construction, testing, verification, and certification for an equivalent barrier to a vegetated earthen berm.

When constructing the engineered component described in this rule, the owner or operator shall comply with rule 3745-520-510 of the Administrative Code and shall comply with the following:

- (A) The construction of equivalent barriers shall conform to the approved facility design plan.
- (B) The testing and verification of equivalent barriers shall conform to the approved facility design plan and shall include surveying the location, grades, and final elevations of the components and the completed equivalent barriers.
- (C) Certification of equivalent barriers shall include record drawings of the equivalent barriers showing the location, plan views, cross sections, and details.

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3745-520-524 **In situ foundation preparation, testing, verification, and certification.**

When constructing the engineered component described in this rule, the owner or operator shall comply with rule 3745-520-510 of the Administrative Code and shall comply with the following:

(A) The in situ foundation shall be prepared to conform to the following:

- (1) Be free of C&DD, foreign material, solid waste, and deleterious material.
- (2) Not have any abrupt changes in grade that may result in damage to the liner system.
- (3) If the in situ foundation is comprised of unconsolidated material, it shall be proof rolled to locate soft areas, and the subgrade shall be compacted and prepared to provide uniform support for whatever will be placed above it.
- (4) If a stratigraphic unit identified and tested in accordance with rule 3745-520-510 of the Administrative Code does not conform to the geotechnical and stability analyses contained in the approved facility design plan, the owner or operator shall do the following:
 - (a) Immediately notify the concurring authority.
 - (b) Identify the vertical and lateral extent of the stratigraphic unit at the facility.
 - (c) Characterize the stratigraphic unit in accordance with rules 3745-507-100 to 3745-507-150 of the Administrative Code.
 - (d) Submit a revised site investigation report and proposal and obtain concurrence for an alteration to provide a foundation comprised of in situ foundation, structural fill, and added geologic material, singly or in combination, that conforms to the geotechnical and stability specifications in the approved facility design plan without modifying the facility; or obtain the appropriate authorizations for a modification to the facility and changes to the approved facility design plan; and implement the alteration or modification.

[Comment: Rule 3745-520-02 of the Administrative Code prohibits the alteration of a facility without concurrence from the permitting authority. Rule 3745-520-02 of the Administrative Code prohibits the modification of a facility without first modifying the permit to install for the facility in accordance with rule 3745-520-400 of the Administrative Code.]

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(B) Testing and verification for the in situ foundation. The location and final elevation of the in situ foundation shall be surveyed prior to constructing any engineered components on the in situ foundation.

(C) Certification of in situ foundation preparation shall include the following:

(1) Record drawings showing the location and plan views with topographic representation of the elevations of the in situ foundation as it existed after preparation was completed.

(2) The results of all testing performed during in situ foundation preparation.

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3745-520-525 Structural fill construction, testing, verification, and certification.

[Comment: For dates of non-regulatory government publications, publications of recognized organizations and associations, test methods, federal rules, and federal statutory provisions referenced in this rule, see rule 3745-500-03 of the Administrative Code titled "Incorporation by reference."]

When constructing the engineered component described in this rule, the owner or operator shall comply with rule 3745-520-510 of the Administrative Code and shall comply with the following:

(A) Structural fill shall conform to the following:

- (1) Be free foreign material and deleterious material.
- (2) Not be comprised of solid waste or C&DD, except that clean hard fill may be used.
- (3) For structural fill comprised of rock, the fill shall be durable rock.
- (4) Not have any abrupt changes in grade that may result in damage to the liner system.
- (5) For soil fill, be constructed in lifts to achieve uniform compaction. Each lift shall conform to the following:
 - (a) Have a maximum thickness of twelve inches.
 - (b) Be compacted to at least ninety-five per cent of the maximum dry density as determined by ASTM D698 (standard proctor) or at least ninety per cent of the maximum dry density as determined by ASTM D1557 (modified proctor).
- (6) If the structural fill is comprised of unconsolidated material, it shall be proof rolled to locate soft areas, and the subgrade shall be compacted and prepared to provide uniform support for whatever will be placed above it.
- (7) For structural fill comprised of soil that will not have other engineered components constructed above it, be of sufficient thickness and fertility to support a complete and dense cover of vegetation.
- (8) Structural fill comprised of soil that will not have other engineered components constructed above it shall be seeded as soon as weather permits and as many times as is necessary to have established a complete and dense vegetative cover

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of healthy grasses or other vegetation not later than one year after completing construction.

(9) Erosion controls shall be installed on structural fill comprised of soil that will not have other engineered components constructed above it to minimize erosion until the cover of vegetation conforms to paragraph (A)(8) of this rule.

(B) Testing and verification for structural fill shall conform to the following:

(1) The location and final elevation of the structural fill shall be surveyed prior to constructing any engineered components on the structural fill.

(2) For soil fill, the following shall be met:

(a) Pre-testing and verification of the soils to be used for the structural fill shall be performed on representative samples to determine the maximum dry density and optimum moisture content according to ASTM D698 (standard proctor), or ASTM D1557 (modified proctor) at a frequency of at least once for every ten thousand cubic yards of soil.

(b) Each compacted lift shall be tested at a frequency of at least five tests per acre per lift to determine the density and moisture content according to ASTM D2922 and ASTM D3017 (nuclear methods), ASTM D1556 (sand cone), ASTM D2167 (rubber balloon), or ASTM D6780 (TDR).

(c) The locations of the individual tests shall be adequately spaced to represent the lift and shall be offset from one lift to the next. All penetrations shall be repaired using bentonite.

(C) Certification of structural fill shall include the following:

(1) Record drawings showing the location and plan views with topographic representation of final elevations of the structural fill prior to constructing any engineered components on the structural fill.

(2) Results of all pre-testing and verification of borrow soils.

(3) Results of all testing of the lifts.

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3745-520-526

Ground water control structure construction, testing, verification, and certification.

When constructing the engineered component described in this rule, the owner or operator shall comply with rule 3745-520-510 of the Administrative Code and shall comply with the following:

- (A) Permanent ground water control structures shall conform to the approved facility design plan. Any permanent or temporary ground water control structures shall be installed in a timely manner so that the effect of the control measure is fully evident at the time it is needed. If control is necessary for construction, construction shall not begin until the ground water is adequately controlled.
- (B) Testing and verification of permanent ground water control structures shall conform to the methods and frequencies contained in the approved facility design plan and shall include surveying the location, grades, and final elevations of the components and the completed permanent ground water control structures.
- (C) Certification of permanent ground water control structures shall include the following:

 - (1) Record drawings of the permanent ground water control structures showing the location, plan views, cross sections, and details, as constructed.
 - (2) Results of all testing required by the approved facility design plan.

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3745-520-527 Added geologic material construction, testing, verification, and certification.

[Comment: For dates of non-regulatory government publications, publications of recognized organizations and associations, test methods, federal rules, and federal statutory provisions referenced in this rule, see rule 3745-500-03 of the Administrative Code titled "Incorporation by reference."]

When constructing the engineered component described in this rule, the owner or operator shall comply with rule 3745-520-510 of the Administrative Code and shall comply with the following:

(A) Added geologic material used to create the required isolation distance between the limits of C&DD placement and the uppermost aquifer system shall conform to the following:

- (1) Be comprised of soil with low hydraulic conductivity, good compactability, cohesiveness, relatively uniform texture, and that does not contain large objects in such quantities as may interfere with its construction, testing, verification, certification, and intended purpose. The soil shall be a loam, silty loam, clay loam, silty clay loam, silty clay, or other soil type that can achieve the intended purpose.
- (2) Be free of solid waste, C&DD, foreign material, and deleterious material.
- (3) Be constructed in lifts to achieve uniform compaction. Each lift shall conform to the following:
 - (a) Be placed in loose lifts eight inches or less in thickness.
 - (b) Be constructed of a soil with a maximum clod size that does not exceed the lift thickness and does not interfere with the compaction or testing of the soil.
 - (c) Be compacted to at least ninety-five per cent of the maximum dry density as determined by ASTM D698 (standard proctor) or at least ninety per cent of the maximum dry density as determined by ASTM D1557 (modified proctor).
 - (d) Have a soil moisture content that is not less than two per cent below and is not greater than four per cent above the optimum moisture content as determined by ASTM D698 or ASTM D1557.
 - (e) The overall hydraulic conductivity of the entire thickness of the constructed added geologic material shall have a maximum hydraulic conductivity of

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1.0 times ten to the negative six centimeters per second, with no single sample of the added geologic material having a hydraulic conductivity that exceeds 1.0 times ten to the negative five centimeters per second.

(4) Not have any abrupt changes in grade that may result in damage to the liner system.

(5) The approved facility design plan.

(B) Testing and verification for added geologic material shall conform to the following:

(1) The location, basal elevations, and final elevations of the added geologic material shall be surveyed prior to constructing any engineered components on the added geologic material.

(2) Pre-testing and verification of the borrow soils shall be performed on representative samples to determine the following:

(a) The maximum dry density and optimum moisture content according to ASTM D698 (standard proctor), or ASTM D1557 (modified proctor) at a frequency of at least once for every ten thousand cubic yards.

(b) The grain size distribution according to ASTM D422 (sieve and hydrometer) at a frequency of at least once for every three thousand cubic yards.

(c) The recompacted laboratory hydraulic conductivity using ASTM D5084 (falling head) at a frequency of at least once for every ten thousand cubic yards. This test shall be run using the minimum compaction and the minimum optimum moisture content to be used during construction.

(3) Testing of each constructed lift shall be performed at a frequency of at least five tests per acre per lift to determine the density and moisture content according to ASTM D2922 and ASTM D3017 (nuclear methods), ASTM D1556 (sand cone), ASTM D2167 (rubber balloon), or ASTM D6780 (TDR). The locations of the individual tests shall be adequately spaced to represent the constructed area and be offset from one lift to the next. All penetrations shall be repaired using bentonite.

(C) Certification of added geologic material shall include the following:

(1) Record drawings of the added geologic material showing the location and the plan views with topographic representation of the basal and final elevations of the added geologic material.

(2) Results of all pre-testing and verification of borrow soils.

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(3) Results of all testing and verification of the constructed lifts.

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3745-520-530

Liner system construction, testing, verification, and certification.

[Comment: For dates of non-regulatory government publications, publications of recognized organizations and associations, test methods, federal rules, and federal statutory provisions referenced in this rule, see rule 3745-500-03 of the Administrative Code titled "Incorporation by reference."]

When constructing the engineered component described in this rule, the owner or operator shall comply with rule 3745-520-510 of the Administrative Code and shall comply with the following:

(A) The liner system shall conform to the following:

(1) The recompacted soil liner shall conform to the following:

(a) Be free of solid waste, C&DD, foreign material, and deleterious material.

(b) Be placed on all internal slopes and the facility bottom.

(c) If no flexible membrane liner is included in the approved facility design plan, be located immediately below the cushion layer, otherwise be located immediately below the flexible membrane liner.

(d) Be located below the leachate collection system.

(e) Be comprised of soil with low hydraulic conductivity, good compactability, cohesiveness, relatively uniform texture, and that does not contain large objects that may interfere with its construction, testing, verification, certification, and intended purpose. The soil shall be a loam, silty loam, clay loam, silty clay loam, silty clay, or other soil type that can achieve the intended purpose.

(f) The soil shall meet the following criteria:

(i) The maximum soil particle size shall be two inches.

(ii) At least ninety-five per cent of the soil particles, by volume, shall pass the three inch sieve.

(iii) At least seventy-five per cent of the soil particles, by volume, shall pass the number four sieve.

(iv) At least fifty per cent of the soil particles, by weight, shall pass the number two hundred sieve.

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(g) The soil shall meet either of the following specifications:

(i) Possess plasticity properties lying above the A-line in the "Unified Soil Classification System" described in ASTM D2487.

(ii) Consist of 0.002 inch or finer clay particles as determined in ASTM D422 such that these clay particles shall comprise at least fifteen per cent of the total soil dry mass.

(h) Not have any abrupt changes in grade that may result in damage to the geosynthetics.

(i) Be constructed using a minimum of six lifts to achieve uniform compaction. Each lift shall conform to the following:

(i) Be placed in loose lifts greater than or equal to four inches thick and less than or equal to eight inches thick.

(ii) Be constructed of a soil with a maximum clod size that does not exceed three inches.

(iii) Be compacted using a soil compactor with pads, sheep's foot tines, or other soil compacting tines that penetrate the entire thickness of the loose lift.

(iv) Be compacted to at least ninety-five per cent of the maximum dry density as determined by ASTM D698 (standard proctor) or at least ninety per cent of the maximum dry density as determined by ASTM D1557 (modified proctor).

(v) Be placed with a soil moisture content that shall not be less than the optimum moisture content as determined by the same test used to determine the maximum dry density specified in paragraph (A)(1)(i)(iv) of this rule.

(vi) Have a maximum hydraulic conductivity of 1.0 times ten to the negative seven centimeters per second.

(vii) Be adequately protected from damage due to desiccation, freeze/thaw cycles, wet/dry cycles, and the intrusion of objects until post-closure care is completed.

(2) The flexible membrane liner shall conform to the following:

(a) If a recompacted soil liner is included in the approved facility design plan, be placed above and in direct and uniform contact with the recompacted soil

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liner. If no recompacted soil liner is included in the approved facility design plan, be placed above and in direct and uniform contact with the added geologic material or in situ material that comprises the isolation distance.

(b) Be seamed to allow no more than negligible amounts of leakage; the seaming material shall be physically and chemically resistant to chemical attack by the C&DD, leachate, gas, or other substances that come in contact with the seams.

(c) The flexible membrane liner shall be comprised of either of the following:

(i) A high-density polyethylene (HDPE) flexible membrane that is at least sixty mils thick.

(ii) A flexible membrane of another material acceptable to the concurring authority that is at least forty mils thick; is capable of conforming to all of the other requirements for flexible membrane liner in this rule and the approved facility design plan; and using U.S. EPA method 9090A or other documented data is demonstrated to be physically and chemically resistant to attack by the C&DD, leachate, gas, or other substances that may come in contact with the flexible membrane liner.

(B) Testing and verification for the liner system shall conform to the following:

(1) The location, basal elevations, and final elevations of the recompacted soil liner shall be surveyed.

(2) Pre-testing and verification of the borrow soils to be used for the recompacted soil barrier layer shall be performed on representative samples, and the results shall be submitted to Ohio EPA or the approved board of health not later than seven days prior to the intended use of the material in the construction of the liner system. The pre-construction testing shall determine the following:

(a) The maximum dry density and optimum moisture content according to ASTM D698 (standard proctor) or ASTM D1557 (modified proctor) at a frequency of at least once for every two thousand cubic yards of soil used.

(b) The grain size distribution according to ASTM D422 (sieve and hydrometer) at a frequency of at least once for every two thousand cubic yards of soil used.

(c) The Atterberg limits according to ASTM D4318 at a frequency of at least once for every two thousand cubic yards of soil used.

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- (d) The recompacted laboratory hydraulic conductivity using ASTM D5084 (falling head) at a frequency of at least once for every ten thousand cubic yards of soil used. This test shall be run using the minimum compaction and the minimum optimum moisture content to be used during construction.
- (3) Testing and verification of the constructed lifts of recompacted soil liner shall be performed at a frequency of at least five tests per acre per lift to determine the density and moisture content according to ASTM D2922 and ASTM D3017 (nuclear methods), ASTM D1556 (sand cone), ASTM D2167 (rubber balloon), or ASTM D6780 (TDR). The locations of the individual tests shall be adequately spaced to represent the constructed area and be offset from one lift to the next. All penetrations shall be repaired using bentonite.
- (4) If flexible membrane liner is included in the approved facility design plan, testing and verification of the flexible membrane liner shall be performed in accordance with the following, unless the manufacturer's specifications for testing are more stringent, in which case the manufacturer's specifications shall be used:

 - (a) Every seaming apparatus in use each day shall be tested using peel tests according to ASTM D4437 (integrity of field seams) performed on scrap pieces of flexible membrane liner whenever an apparatus is started, operators change, an apparatus is restarted, and at the beginning of each seaming period.
 - (b) Destructive testing for peel according to ASTM D4437 (integrity of field seams) shall be performed on randomly selected samples at a frequency of at least once per five hundred feet of seam completed by a particular seaming apparatus.
 - (c) A peel test shall be considered a failure if it fails through any part of the seam.
 - (d) Nondestructive testing shall be performed on one hundred per cent of the flexible membrane liner seams.
 - (e) All damage to the flexible membrane barrier layer shall be repaired and the repairs tested in a manner that conforms to this rule, unless the manufacturer's specifications are more stringent, in which case the manufacturer's specifications shall be followed.
- (C) Certification of liner system shall include the following:

 - (1) Record drawings showing the location and plan views with topographic representation of the basal and final elevations of the recompacted soil liner.

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- (2) If flexible membrane liner is included in the approved facility design plan, plan views of the deployment of the flexible membrane liner panels and the location and identification of all destructive tests and all repairs.
- (3) Results of all pre-testing and verification of borrow soils.
- (4) Results of all pre-construction interface testing.
- (5) Results of all testing and verification of the constructed lifts of recompacted soil liner.
- (6) If flexible membrane liner is included in the approved facility design plan, the manufacturer's specifications and testing of the flexible membrane liner.
- (7) If flexible membrane liner is included in the approved facility design plan, results of all testing and verification of deployment and seaming of flexible membrane liner.

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3745-520-540

Cushion layer construction, testing, verification, and certification.

[Comment: For dates of non-regulatory government publications, publications of recognized organizations and associations, test methods, federal rules, and federal statutory provisions referenced in this rule, see rule 3745-500-03 of the Administrative Code titled "Incorporation by reference."]

When constructing the engineered component described in this rule, the owner or operator shall comply with rule 3745-520-510 of the Administrative Code and shall comply with the following:

(A) The cushion layer shall conform to the following:

(1) Be used to protect the following engineered components:

(a) For liner system:

(i) The recompacted soil liner if no flexible membrane liner is included in the design of the liner system in the approved facility design plan.

(ii) The flexible membrane liner if one is included in the design of the liner system in the approved facility design plan.

(b) For separatory leachate barrier and collection system:

(i) The recompacted soil liner if no flexible membrane liner is included in the design of the separatory leachate barrier and collection system in the approved facility design plan.

(ii) The flexible membrane liner if one is included in the design of the separatory leachate barrier and collection system in the approved facility design plan.

(c) For cap system: the flexible membrane barrier layer.

(2) If the leachate collection layer will be comprised of sand, no cushion layer is required.

(3) Be comprised of a geotextile that shall have a minimum average roll value for weight of eight ounces per square yard if any of the following are true:

(a) The leachate collection layer will be comprised of rounded or sub-rounded gravel with no dimensions greater than one inch in length.

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- (b) The leachate collection layer is comprised of debeaded tire shreds with no dimension greater than twelve inches in length.
- (c) No flexible membrane liner is included for the system listed in paragraph (A)(1) of this rule that is being protected.
- (4) Be installed in a manner so that it will protect the engineered component it is intended to protect at all times prior to the end of the post-closure care period.
- (5) Be installed above and in direct and uniform contact with the engineered component it is intended to protect.
- (6) Be seamed to prevent exposing the engineered component the cushion layer is protecting during deployment of the leachate collection layer.
- (B) Testing and verification for cushion layer. A professional engineer shall verify that none of the underlying engineered components were damaged during installation of the cushion layer.
- (C) Certification of the cushion layer shall include the following:

 - (1) Results of all field observations required to determine conformance to this rule.
 - (2) Results of all pre-construction interface testing.
 - (3) Plan views of the deployment of the cushion layer panels and the location and identification of all repairs.
 - (4) The manufacturer's specifications and testing of the geotextile used as cushion layer.

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3745-520-541 Leachate collection layer construction, testing, verification, and certification.

[Comment: For dates of non-regulatory government publications, publications of recognized organizations and associations, test methods, federal rules, and federal statutory provisions referenced in this rule, see rule 3745-500-03 of the Administrative Code titled "Incorporation by reference."]

When constructing the engineered component described in this rule, the owner or operator shall comply with rule 3745-520-510 of the Administrative Code and shall comply with the following:

(A) The construction of the leachate collection layer shall conform to the following:

- (1) The leachate collection layer shall be placed above and in direct and uniform contact with the liner system, or if one is used, the cushion layer.
- (2) The leachate collection layer shall be placed in a manner that does not damage the liner system, or the cushion liner if one is used.
- (3) An observer who is not the equipment operator shall be present at all times during deployment of the leachate collection layer into a phase. The observer shall do the following:
 - (a) Ensure that equipment travel is controlled such that sudden stops, turns, and braking do not occur.
 - (b) Ensure that at no time does a piece of a vehicle or equipment used for deploying the leachate collection layer come within eight inches of the recompacted soil liner, flexible membrane liner, or cushion layer.
 - (c) Ensure that if equipment does come within eight inches of the recompacted soil liner or if sudden stops, braking, or turns do occur, the recompacted soil liner, flexible membrane liner, and cushion layer are inspected for damage and any damage found is repaired in conformance with the requirements of rules 3745-520-500 to 3745-520-581 of the Administrative Code.
 - (d) Visually inspect the leachate collection material during deployment and ensure that dirt clods, loose wire, and other substances that may harm the cushion layer, the liner, or the function of the leachate management system are removed.
- (4) Granular drainage materials used in the leachate collection layer shall meet the following requirements:

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- (a) Have no more than five per cent of the particles, by weight, passing through the number two hundred sieve.
 - (b) Have no more than five per cent carbonate content by weight.
 - (c) Be deployed in an uphill direction from the bottom of internal slopes.
- (5) Geocomposite drainage material used in the leachate collection layer shall conform to the following requirements:
 - (a) Have at least twelve inches of permeable material installed above and in direct and uniform contact with the liner system that will meet the following criteria:
 - (i) Not restrict the flow of leachate into the geocomposite drainage material.
 - (ii) Protect the liner from damage during at all times prior to the end of the post-closure care period.
 - (iii) Result in leachate levels being no more than one foot above any portion of the liner, excluding the liner in sumps.
 - (b) Each panel of geocomposite drainage material shall be secured to adjoining panels in a manner to ensure stability and proper operation of the leachate collection layer. Each panel shall be installed in accordance with the manufacturer's specifications, if those specifications are more stringent than this rule and the approved facility design plan.
- (6) If tire shreds are used in the leachate collection layer, the use shall conform to the following:
 - (a) Tire shreds may be temporarily used in thicknesses that exceed forty-eight inches to create roadways across the cushion layer for delivery of additional tire shreds into the phase.
 - (b) Have no more than ten per cent of the particles by weight with any dimension greater than twelve inches.
 - (c) Have no more than one per cent fines by weight, not contain dirt clods, loose wire, or be coated with soil or other contaminants.
 - (d) The entire thickness of tire shreds shall be deployed as one lift.
 - (e) Equipment used to deliver, place, or spread tire shreds on the cushion layer shall have a low maximum gross equipment weight and a ground pressure of less than five pounds per square inch.

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(f) Equipment travel during deployment shall be controlled to eliminate sudden starts and stops, sharp turns, and all activities that may result in dragging of the shredded tires across the cushion layer.

(g) Deployment of tire shreds on internal slopes shall be in an uphill direction and equipment shall not travel on the internal slope after deployment of the tire shreds.

(h) Tire shreds shall be deployed in a manner that allows the shreds to roll on to the cushion layer. Tire shreds shall not be dragged or pushed across the cushion layer in a manner that may cause the cushion layer to slip across the liner.

(i) The observer described in paragraph (A)(3) of this rule shall conduct activities described in paragraph (A)(3) of this rule, except that the activities shall be changed as follows:

(i) Ensure that all equipment used to deliver tire shreds into the phase is separated from the cushion layer by at least forty-eight inches of tire shreds, or at least thirty inches of a combination of granular material with tire shreds on top.

(ii) Ensure that the equipment used to spread tire shreds is separated from the cushion layer by at least thirty inches of tire shreds, or at least thirty inches of a combination of granular material with tire shreds on top.

(iii) Ensure that tire shreds are deployed in an uphill direction from the bottom of internal slopes.

(B) The testing requirements for the leachate collection layer are as follows:

(1) Surveys or other methods shall be used to verify that the thickness of the leachate collection layer complies with the facility design plan and this rule.

(2) Surveys of the final elevations of the leachate collection layer shall be created.

(3) Granular drainage materials used for the leachate collection layer shall be tested at a frequency of once for every three thousand cubic yards of material in accordance with the following methods:

(a) Hydraulic conductivity using ASTM D2434 (constant head).

(b) Grain size distribution using ASTM D422 (sieve).

(c) Carbonate content using ASTM D3042 at a pH of 4.0.

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(4) Tire shreds used for the leachate collection layer shall be tested at a frequency of once for every seven thousand five hundred cubic yards of material in accordance with the following:

(a) The size distribution of the tire shreds shall be determined by a method that provides accurate and representative results prescribed by the professional engineer.

(b) The hydraulic conductivity of the tire shreds shall be determined using a method prescribed by the professional engineer that will provide accurate and representative results. The hydraulic conductivity shall be tested with the tire shreds compressed under a normal compressive load equal to or greater than the load that will be created by the maximum height of C&DD to be disposed in the phase.

(c) If a flexible membrane liner is included in the approved facility design plan, test pits shall be used to determine if the tire shreds have damaged the liner as follows:

(i) At least one test pit shall be created in each acre of the phase where tire shreds have been deployed.

(ii) Each test pit shall expose at least nine square feet of liner.

(iii) Once the liner is exposed, it shall be visually inspected, photographed, and thoroughly examined to determine if any punctures or gouges exist.

(iv) Tire shreds shall be placed in the test pit to the depth necessary to conform to this rule and the approved facility design plan.

(d) If the tire shreds have damaged the liner, then the following shall occur:

(i) If punctures or gouges exist, the tire shred damage contingency plan in the facility design plan shall be implemented.

(ii) The cushion layer shall be repaired in a manner that uses sewing, heat bonding, or other method of seaming, and results in complete coverage of the liner.

(5) Geocomposite drainage material shall be tested and verified as follows:

(a) Transmissivity shall be determined using ASTM D4716 at the maximum vertical compressive stress that will be encountered in the life of the facility shall be tested at a frequency of at least once for every fifty thousand square feet of material.

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(b) The apparent opening size of the geotextile shall be determined by using ASTM D4751 (apparent opening size of a geotextile) at a frequency of at least one test per roll of geotextile.

(c) A professional engineer shall verify that the manufacturer's specifications for the material conform to the approved facility design plan and this rule.

(C) Certification of the leachate collection layer shall include the following:

(1) Results of all testing for the placement of the leachate collection layer.

(2) Results of the thickness evaluation for the placement of granular materials and tire shreds.

(3) If geocomposite drainage material was used, a scale drawing showing the deployment of all geocomposite drainage material panels.

(4) All documentation of manufacturer's specifications, observations, and written verifications used to conform to this rule and the approved facility design plan.

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3745-520-542 **Leachate collection pipes and leachate monitoring system pipes construction, testing, verification, and certification.**

When constructing the engineered component described in this rule, the owner or operator shall comply with rule 3745-520-510 of the Administrative Code and shall comply with the following:

(A) Leachate collection pipes and leachate monitoring system pipes shall conform to the following:

(1) Pipe bedding consisting of a gravel material shall be used to surround the pipes and shall provide protection from crushing, deflection, deformation, and clogging. The pipe bedding shall have a hydraulic conductivity that is equal to or that exceeds that of the leachate collection layer.

(2) Pipes shall be permanently joined to prevent separation. Joints shall be physically and chemically resistant to chemical attack by the C&DD, leachate, gas, and other substances that come in contact with the joints.

(3) Perforations in the leachate collection pipes shall be oriented to enhance collection of leachate.

(B) The testing and verification requirements for the leachate collection pipes, leachate monitoring system pipes, and pipe bedding are as follows:

(1) The location of pipes and final elevation of the leachate collection pipe inverts shall be surveyed as built.

(2) A professional engineer shall verify and document in writing that the manufacturer's specifications for the pipes conform to the approved facility design plan.

(3) Pipe bedding materials shall be tested at a frequency of once for every three thousand cubic yards of material in accordance with the following methods:

(a) Hydraulic conductivity using ASTM D2434 (constant head) as described in rule 3745-500-03 of the Administrative Code.

(b) Grain size distribution using ASTM D422 (sieve) as described in rule 3745-500-03 of the Administrative Code.

(c) Carbonate content using ASTM D3042 as described in rule 3745-500-03 of the Administrative Code at a pH of 4.0.

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(C) Certification of the leachate collection pipes and leachate monitoring system pipes shall include the following:

- (1) Record drawings of the pipes showing the location of the pipes, the slope of the pipes, and the elevation of pipe inverts at the ends of all runs of pipe.
- (2) Drawings showing the details of the pipe system as constructed.
- (3) All documentation of manufacturer's specifications, field observations, testing, and written verifications used to conform to this rule and the approved facility design plan.

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3745-520-543

Filter layer construction, testing, verification, and certification.

When constructing the engineered component described in this rule, the owner or operator shall comply with rule 3745-520-510 of the Administrative Code and shall comply with the following:

(A) The filter layer shall conform to the following:

(1) A filter layer shall be used protect the following engineered components from clogging at all times prior to the end of the post-closure care period:

(a) Leachate collection layer.

(b) Cap drainage layer.

(2) The filter layer shall be deployed in a manner that prevents damage to underlying engineered components.

(3) If the filter layer is a geotextile, each panel of the filter layer shall be overlapped and secured in a manner that will keep the filter layer in place during filling or disposal operations and in accordance with the manufacturer's specifications.

(B) The testing and verification requirements for the filter layer are as follows:

(1) A professional engineer shall verify and document in writing that the underlying engineered components were not damaged during construction of the filter layer.

(2) If the filter layer is comprised of geotextile, at least one test per roll of geotextile shall be conducted to determine the apparent opening size of the geotextile using ASTM D4751 (apparent opening size of a geotextile) as described in rule 3745-500-03 of the Administrative Code.

(3) If the filter layer is comprised of granular material, at least one test per ten thousand cubic yards of each type of granular material shall be tested for the following:

(a) Hydraulic conductivity using ASTM D2434 (constant head) as described in rule 3745-500-03 of the Administrative Code.

(b) Grain size distribution using ASTM D422 (sieve) as described in rule 3745-500-03 of the Administrative Code.

(c) For filter layers over the leachate collection layer, carbonate content using ASTM D3042 as described in rule 3745-500-03 of the Administrative Code at a pH of 4.0.

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(C) Certification of the filter layer shall include the following:

- (1) If the filter layer is a geotextile, record drawings of the filter layer panels showing the location of the panels and all repairs.
- (2) All documentation of manufacturer's specifications, observations, and written verifications used to conform to this rule and the approved facility design plan.

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3745-520-544 Leachate sump construction, testing, verification, and certification.

[Comment: For dates of non-regulatory government publications, publications of recognized organizations and associations, test methods, federal rules, and federal statutory provisions referenced in this rule, see rule 3745-500-03 of the Administrative Code titled "Incorporation by reference."]

When constructing the engineered component described in this rule, the owner or operator shall comply with rule 3745-520-510 of the Administrative Code and shall comply with the following:

(A) Each leachate sump shall conform to the following:

- (1) The materials used to construct leachate sumps shall provide protection from adverse effects from clogging, leachate, gas, C&DD, and settlement.
- (2) All riser pipe sections shall be permanently joined to prevent separation. Joints shall be physically and chemically resistant to chemical attack by the C&DD, leachate, gas, or other substances that come in contact with the joints.
- (3) All leachate sumps shall be equipped with a high level alarm located in a manner that leachate head shall not exceed one foot on the liner.
- (4) Leachate sumps shall be equipped with means of measuring leachate head.

(B) The testing and verification requirements for the leachate sumps shall include the following:

- (1) The location and final elevations of each leachate sump, riser pipe, sampling access, and clean out access shall be surveyed as built.
- (2) Granular material used in a sump shall be tested at least one test per ten thousand cubic yards of each type of granular material used for the following:
 - (a) Hydraulic conductivity using ASTM D2434 (constant head).
 - (b) Grain size distribution using ASTM D422 (sieve).
 - (c) Carbonate content using ASTM D3042 at a pH of 4.0.

(C) Certification of the leachate sumps shall include the following:

- (1) Record drawings depicting the final elevations and location of the sumps, riser pipes, and sampling access.

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- (2) Record drawings showing the details of the sumps, riser pipes, clean out accesses, and sampling accesses as built.
- (3) All documentation of manufacturer's specifications, observations, and written verifications used to conform to this rule and the approved facility design plan.

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3745-520-545

Leachate conveyance apparatus construction, testing, verification, and certification.

When constructing the engineered component described in this rule, the owner or operator shall comply with rule 3745-520-510 of the Administrative Code and shall comply with the following:

(A) Leachate conveyance apparatuses shall conform to the following:

- (1) All pumps, piping, or other apparatuses placed on the liner system shall be installed in a manner to prevent damage to the liner system during operations of the pumps, piping, or other apparatuses.
- (2) All pipes shall be permanently joined to prevent separation. Joints shall be physically and chemically resistant to chemical attack by the C&DD, leachate, gas, or other substances that come in contact with the joints.
- (3) A leachate pipe shall be installed in each sump.
- (4) All leachate pumps shall be equipped with on/off switches located in a manner that leachate head will not exceed 1.0 foot above the liner system, except in recessed sumps.

(B) The testing and verification requirements for the leachate conveyance apparatuses shall include the following:

- (1) Leachate conveyance pipes outside the limits of C&DD placement shall be pressure tested to ensure no leaks exist.
- (2) Pumps in the leachate sumps shall be tested to ensure they are operating properly.

(C) Certification of the leachate conveyance apparatuses shall include the following:

- (1) Record drawings depicting the final elevations and location of the leachate conveyance apparatuses.
- (2) Record drawings showing the details of the leachate conveyance apparatuses as constructed.
- (3) Summary information for each pump shall be presented in a summary table that identifies each pump manufacturer and model, the location of each pump, and the elevations of the on/off switch and the high level alarm.
- (4) All documentation of manufacturer's specifications, observations, and written verifications used to conform to this rule and the approved facility design plan.

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3745-520-546 Leachate storage tank construction, testing, verification, and certification.

When constructing the engineered component described in this rule, the owner or operator shall comply with rule 3745-520-510 of the Administrative Code and shall comply with the following:

- (A) Each leachate storage tank shall be constructed to conform to this rule and the approved facility design plan.

- (B) The owner or operator shall conduct all testing and verification needed to ensure that each leachate storage tank conforms to the approved facility design plan. At a minimum, the testing and verification shall include pressure testing all piping into and out of each leachate storage tank to ensure it does not leak, and the visual inspection of each leachate storage tank to ensure it does not leak.

- (C) Certification of each leachate storage tank shall include the following:
 - (1) Record drawings depicting the final elevations and location of the leachate storage tanks.

 - (2) Record drawings showing the details of the leachate storage tanks, the spill containment, and leachate load-out facilities as constructed.

 - (3) All documentation of manufacturer's specifications, observations, and written verifications used to conform to this rule and the approved facility design plan.

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3745-520-547 **On-site leachate treatment works and discharge connections to public sewerage systems construction, testing, verification, and certification.**

When constructing the engineered component described in this rule, the owner or operator shall comply with rule 3745-520-510 of the Administrative Code and shall comply with the following:

- (A) On-site leachate treatment works and discharge connections to public sewerage systems shall conform to the approved facility design plan and all permits issued pursuant to Chapter 6111. of the Revised Code.

- (B) A professional engineer shall conduct all testing that is necessary to ensure on-site leachate treatment works and discharge connections to public sewerage systems conform to the approved facility design plan and all permits issued pursuant to Chapter 6111. of the Revised Code.

- (C) Certification of on-site leachate treatment works and discharge connections to public sewerage systems shall include the following:
 - (1) Written verification from the professional engineer that the on-site leachate treatment works and discharge connections to public sewerage systems conform to the approved facility design plan and all permits issued pursuant to Chapter 6111. of the Revised Code.

 - (2) The results of all testing required by paragraph (B) of this rule.

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3745-520-548 **Leachate recirculation system construction, testing, verification, and certification.**

When constructing the engineered component described in this rule, the owner or operator shall comply with rule 3745-520-510 of the Administrative Code and shall comply with the following:

- (A) A leachate recirculation system shall not be constructed at a facility unless the design for the leachate recirculation system is included in the approved facility design plan. If the design for a leachate recirculation system is included in the approved facility design plan, the leachate recirculation system shall conform to the following:
- (1) Be constructed in a manner that does not damage any engineered component.
 - (2) Leachate recirculation distribution layers shall be constructed in the same manner as leachate collection layers and shall conform to rule 3745-520-541 of the Administrative Code.
 - (3) Leachate recirculation distribution pipes within the limits of C&DD placement shall be constructed in the same manner as leachate collection pipes and shall conform to rule 3745-520-542 of the Administrative Code.
 - (4) Leachate sumps shall conform to rule 3745-520-544 of the Administrative Code.
 - (5) Leachate recirculation conveyances shall conform to rule 3745-520-545 of the Administrative Code.
- (B) Testing and verification of the leachate recirculation system shall conform to paragraph (B) of rules 3745-520-541, 3745-520-542, 3745-520-544, and 3745-520-545 of the Administrative Code; and the professional engineer shall verify that the construction of the leachate recirculation system did not damage any engineered component.
- (C) Certification of the leachate recirculation system shall conform to paragraph (C) of rules 3745-520-541, 3745-520-542, 3745-520-544, and 3745-520-545 of the Administrative Code and shall include the following:
- (1) All documentation created for the purpose of documenting conformance with this rule and the approved facility design plan during the construction of the leachate recirculation system.
 - (2) Written certification from a professional engineer that the leachate recirculation system conforms to this rule and the approved facility design plan and that the construction of the leachate recirculation system did not damage any engineered component.

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3745-520-550 Separatory leachate barrier and collection system construction, testing, verification, and certification.

When constructing the engineered component described in this rule, the owner or operator shall comply with rule 3745-520-510 of the Administrative Code and shall comply with the following:

(A) The construction of the separatory leachate barrier and collection system shall conform to the approved facility design plan and the following:

- (1) The liner system requirements of rule 3745-520-530 of the Administrative Code.
- (2) The cushion layer requirements of rule 3745-520-540 of the Administrative Code.
- (3) The leachate collection layer requirements of rule 3745-520-541 of the Administrative Code.
- (4) The leachate collection piping requirements of rule 3745-520-542 of the Administrative Code.
- (5) The filter layer requirements of rule 3745-520-543 of the Administrative Code.
- (6) The sump construction requirements of rule 3745-520-544 of the Administrative Code.

(B) Testing and verification of the separatory leachate barrier and collection system shall conform to paragraph (B) of rules 3745-520-530 to 3745-520-544 of the Administrative Code.

(C) Certification of the separatory leachate and barrier and collection system shall conform to paragraph (C) of rules 3745-520-530 to 3745-520-544 of the Administrative Code.

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3745-520-555 **Tie-in area and run-out construction for the liner system, leachate management system, and separatory leachate barrier and collection system.**

When constructing the engineered component described in this rule, the owner or operator shall comply with rule 3745-520-510 of the Administrative Code and shall comply with the following:

(A) The owner or operator shall construct run-outs in accordance with the approved facility design plan and the following:

(1) The construction of liner system run-outs shall conform to rule 3745-520-530 of the Administrative Code.

(2) The construction of leachate management system run-outs shall conform to rules 3745-520-540 to 3745-520-545 of the Administrative Code.

(3) The construction of separatory leachate barrier layer and collection system run-outs shall conform to rule 3745-520-550 of the Administrative Code.

(4) The owner or operator shall inspect and test as necessary all engineered components located in the tie-in area prior to beginning construction to connect the engineered components from a subsequent construction event to the run-outs to determine if any of the engineered components have been damaged and to verify that the engineered components still conform to paragraphs (A)(1) to (A)(3) of this rule.

(5) If it is determined that any of the engineered components in the tie-in area have been damaged or do not conform to paragraphs (A)(1) to (A)(3) of this rule the owner or operator shall comply with rule 3745-500-05 of the Administrative Code.

(B) Testing and verification of run-outs shall conform to the following:

(1) The testing and verification of liner system run-outs shall conform to paragraph (B) of rule 3745-520-530 of the Administrative Code.

(2) The testing and verification of leachate management system run-outs shall conform to paragraph (B) of rules 3745-520-540 to 3745-520-545 of the Administrative Code.

(3) The testing and verification of separatory leachate barrier layer and collection system run-outs shall conform to paragraph (B) of rule 3745-520-550 of the Administrative Code.

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(C) Certification of run-outs shall conform to the following:

- (1) Certification of liner system run-outs shall conform to paragraph (C) of rule 3745-520-530 of the Administrative Code.
- (2) Certification of leachate management system run-outs shall conform to paragraph (C) of rules 3745-520-540 to 3745-520-547 of the Administrative Code.
- (3) Certification of separatory leachate barrier layer and collection system run-outs shall conform to paragraph (C) of rule 3745-520-550 of the Administrative Code.

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3745-520-560 Cap barrier layer construction, testing, verification, and certification.

[Comment: For dates of non-regulatory government publications, publications of recognized organizations and associations, test methods, federal rules, and federal statutory provisions referenced in this rule, see rule 3745-500-03 of the Administrative Code titled "Incorporation by reference."]

When constructing the engineered component described in this rule, the owner or operator shall comply with rule 3745-520-510 of the Administrative Code and shall comply with the following:

(A) The cap barrier layer shall conform to the following:

(1) The cap barrier layer shall be comprised of a recompacted soil barrier layer and a flexible membrane barrier layer.

(2) The recompacted soil barrier layer shall conform to the following specifications:

(a) Be placed above all disposed C&DD.

(b) Be free of solid waste, C&DD, foreign material, and deleterious material.

(c) Be comprised of soil with low hydraulic conductivity, good compactability, cohesiveness, relatively uniform texture, and that does not contain large objects in such quantities as may interfere with its construction, testing, verification, certification, and intended purpose. The soil shall be a loam, silty loam, clay loam, silty clay loam, silty clay, or other soil type that can achieve the intended purpose.

(d) Be comprised of soil that meets the following criteria:

(i) The maximum soil particle size is two inches.

(ii) At least ninety-five per cent of the soil particles, by volume, pass the three inch sieve.

(iii) At least seventy-five per cent of the soil particles, by volume, pass the number four sieve.

(iv) At least fifty per cent of the soil particles, by weight, pass the number two hundred sieve.

(e) The soil shall meet either of the following specifications:

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- (i) Possess plasticity properties lying above the A-line in the "Unified Soil Classification System" described in ASTM D2487.
- (ii) Consist of 0.002 inch or finer clay particles as determined in ASTM D422 such that these clay particles shall comprise at least fifteen per cent of the total soil dry mass.
- (f) Not have any abrupt changes in grade that may result in damage to any geosynthetics.
- (g) Be constructed in lifts to achieve uniform compaction. Each lift shall conform to the following:
 - (i) Be constructed in loose lifts less than or equal to eight inches thick.
 - (ii) Be constructed of soil with a maximum clod size that does not exceed three inches.
 - (iii) Be compacted using a soil compactor with pads, sheep's foot tines, or other soil compacting tines that penetrate the entire thickness of the loose lift.
 - (iv) Be compacted to at least ninety-five per cent of the maximum dry density as determined by ASTM D698 (standard proctor) or at least ninety per cent of the maximum dry density as determined by ASTM D1557 (modified proctor).
 - (v) Be placed with a soil moisture content that shall not be less than the optimum moisture content as determined by the same test used to determine the maximum dry density specified in paragraph (A)(2)(g)(iv) of this rule.
 - (vi) Have a maximum hydraulic conductivity of 1.0 times ten to the negative six centimeters per second.
 - (vii) Be adequately protected at all times from damage due to desiccation, freeze/thaw cycles, wet/dry cycles, and the intrusion of objects.
- (3) The flexible membrane barrier layer shall conform to the following:
 - (a) Be placed above all disposed C&DD.
 - (b) Be above and in direct and uniform contact with the recompacted soil barrier layer.

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(c) Be seamed to allow no more than negligible amounts of leakage. The seaming material shall be physically and chemically resistant to chemical attack by the C&DD, leachate, gas, or other substances that come in contact with the seams.

(d) The flexible membrane barrier layer shall be comprised of either of the following:

(i) A high-density polyethylene (HDPE) flexible membrane that is at least sixty mils thick.

(ii) A flexible membrane of another material acceptable to the concurring authority that is at least forty mils thick; is capable of conforming to all of the other requirements for flexible membrane barrier layer in this rule and the approved facility design plan; and using U.S. EPA method 9090A or other documented data is demonstrated to be physically and chemically resistant to attack by the C&DD, leachate, gas, or other substances that may come in contact flexible membrane barrier layer.

(B) The testing and verification for the cap barrier layer shall include the following:

(1) The location, basal elevations, and final elevations of the recompacted soil barrier layer shall be surveyed.

(2) Pre-testing and verification of the borrow soils to be used for the recompacted soil barrier layer shall be performed on representative samples, and the results shall be submitted to Ohio EPA or the approved board of health not later than seven days prior to the intended use of the material in the construction of the cap barrier layer. The pre-construction testing shall determine the following:

(a) The maximum dry density and optimum moisture content according to ASTM D698 (standard proctor), or ASTM D1557 (modified proctor) at a frequency of at least once for every ten thousand cubic yards of soil used.

(b) The grain size distribution according to ASTM D422 (sieve and hydrometer) at a frequency of at least once for every three thousand cubic yards of soil used.

(c) The Atterberg limits according to ASTM D4318 at a frequency of at least once for every three thousand cubic yards of soil used.

(d) The recompacted laboratory hydraulic conductivity using ASTM D5084 (falling head) at a frequency of at least once for every ten thousand cubic yards of soil used. This test shall be run using the minimum compaction and the minimum optimum moisture content to be used during construction.

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(3) Testing and verification of the constructed lifts of recompacted soil barrier layer shall be performed at a frequency of at least five tests per acre per lift to determine the density and moisture content according to ASTM D2922 and ASTM D3017 (nuclear methods), ASTM D1556 (sand cone), ASTM D2167 (rubber balloon), or ASTM D6780 (TDR). The locations of the individual tests shall be adequately spaced to represent the constructed area and be offset from one lift to the next. All penetrations shall be repaired using bentonite.

(4) Testing and verification of the flexible membrane barrier layer shall be performed in accordance with the following, unless the manufacturer's specifications for testing are more stringent, in which case the manufacturer's specifications shall be used:

(a) Every seaming apparatus in use each day shall be tested using peel tests according to ASTM D4437 (integrity of field seams) performed on scrap pieces of flexible membrane barrier layer when an apparatus is started, operators change, an apparatus is restarted, or at the beginning of each seaming period.

(b) Destructive testing for peel according to ASTM D4437 (integrity of field seams) shall be performed on randomly selected samples at a frequency of at least once per five hundred feet of seam completed by a particular seaming apparatus. A peel test shall be considered a failure if it fails through any part of the seam.

(c) Nondestructive testing shall be performed on one hundred per cent of the flexible membrane barrier layer seams.

(d) All damage to the flexible membrane barrier layer shall be repaired and the repairs tested in a manner that conforms to this rule, unless the manufacturer's specifications are more stringent, in which case the manufacturer's specifications shall be followed.

(C) Certification of cap barrier layer shall include the following:

(1) Record drawings showing the location and plan views with topographic representation of the basal and final elevations of the recompacted soil barrier layer.

(2) Plan views of the deployment of the flexible membrane barrier layer panels and the location and identification of all destructive tests and all repairs.

(3) Results of all pre-testing and verification of borrow soils.

(4) Results of all pre-construction interface testing.

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(5) Results of all testing and verification of the constructed lifts of recompacted soil barrier layer.

(6) Results of all testing and verification of deployment and seaming of flexible membrane barrier layer.

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3745-520-561 Cap drainage layer construction, testing, verification, and certification.

[Comment: For dates of non-regulatory government publications, publications of recognized organizations and associations, test methods, federal rules, and federal statutory provisions referenced in this rule, see rule 3745-500-03 of the Administrative Code titled "Incorporation by reference."]

When constructing the engineered component described in this rule, the owner or operator shall comply with rule 3745-520-510 of the Administrative Code and shall comply with the following:

(A) The cap drainage layer shall conform to the following:

- (1) Include the drainage layer and associated collection pipes and outlet pipes.
- (2) Include a cushion layer constructed in accordance with rule 3745-520-540 of the Administrative Code.
- (3) Be placed above and in direct and uniform contact with the cushion layer. If a cushion layer is not required, the cap drainage layer shall be above and in direct and uniform contact with the cap barrier layer.
- (4) Be constructed in a manner that protects the cap barrier layer and the cushion layer from damage at all times prior to the end of the post-closure care period.
- (5) All collection pipes and outlet pipes included in the cap drainage layer shall conform to the approved facility design plan and rule 3745-520-542 of the Administrative Code.
- (6) An observer who is not the equipment operator shall be present at all times during deployment of the cap drainage layer and shall do the following:
 - (a) Ensure that equipment travel is controlled such that sudden stops, turns, and braking do not occur.
 - (b) Ensure that at no time does a piece of a vehicle or equipment used for deploying the cap drainage layer come within eight inches of the recompacted soil barrier layer, flexible membrane barrier layer, or cushion layer.
 - (c) Ensure that if equipment does come within eight inches of the recompacted soil barrier layer that the recompacted soil barrier layer, flexible membrane barrier layer, and cushion layer are inspected for damage and any damage

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found is repaired in conformance with rules 3745-520-500 to 3745-520-581 of the Administrative Code.

- (d) Visually inspect the drainage material during deployment and ensure that dirt clods, loose wire, and other substances that may harm the cushion layer, the cap barrier layer, or the function of the cap drainage layer are removed.

- (7) If the cap drainage layer will be comprised of granular material, a filter layer that conforms to rule 3745-520-543 of the Administrative Code is required. Granular materials used in the cap drainage layer shall have no more than five per cent of the particles, by weight, passing through the number two hundred sieve.

- (8) Each panel of geocomposite drainage material used in the cap drainage layer shall be secured to adjoining panels in a manner to ensure stability and proper operation of the cap drainage layer. Each panel shall be installed in accordance with the manufacturer's specifications, if those specifications are more stringent than this rule and the approved facility design plan.

- (B) The testing and verification requirements for the cap drainage layer shall include the following:
 - (1) Unless the cap drainage layer is comprised of geocomposite drainage material, surveys or other methods shall be used to verify that the thickness of cap drainage layer conforms to the approved facility design plan and this rule.

 - (2) A topographic map depicting the final elevations of the cap drainage layer based on survey data.

 - (3) Granular materials shall be tested at a frequency of once for every ten thousand cubic yards of material in accordance with the following methods:
 - (a) Hydraulic conductivity using ASTM D2434 (constant head).

 - (b) Grain size distribution using ASTM D422 (sieve).

 - (4) Geocomposite drainage material shall be tested and verified as follows:
 - (a) Transmissivity shall be determined using ASTM D4716 at the maximum projected load on the final slope that will be encountered during the life of the facility shall be tested at a frequency of at least once for every fifty thousand square feet of material.

 - (b) The apparent opening size of the geotextile shall be determined by using ASTM D4751 (apparent opening size of a geotextile) at a frequency of at least one test per roll of geotextile.

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(c) A professional engineer shall verify and document in writing the following:

(i) That the manufacturer's specifications for the material conform to the approved facility design plan and this rule.

(ii) That the geocomposite drainage material panels were secured to each adjoining panel as required by this rule and the manufacturer's specifications.

(iii) That the collection pipes and outlet pipes for the drainage layer were constructed to conform to this rule.

(C) Certification of the cap drainage layer shall include the following:

(1) The results of all testing conducted during the placement of the cap drainage layer.

(2) If granular drainage material was used, the results of the thickness evaluation for the placement of granular materials.

(3) If granular drainage material was used, record drawings showing the final elevations of the cap drainage layer.

(4) Record drawings of the location and invert elevations of all pipes and outlets.

(5) Record drawings of the details of all piping and outlets.

(6) If geocomposite drainage material was used, a scale drawing showing the deployment of all geocomposite drainage material panels.

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3745-520-562 Cap protection layer construction, testing, verification, and certification.

When constructing the engineered component described in this rule, the owner or operator shall comply with rule 3745-520-510 of the Administrative Code and shall comply with the following:

(A) The cap protection layer shall conform to the following:

- (1) Be placed above and in direct and uniform contact with the cap drainage layer.
- (2) Soil at the surface shall be of sufficient thickness and fertility to support a complete and dense cover of vegetation, and shall be seeded as soon as practicable and as many times as is necessary to establish a complete and dense vegetative cover of healthy grasses or other vegetation within one year of completing construction of the protection layer.
- (3) Erosion controls shall be installed on the cap to minimize erosion until the cover of vegetation conforms to paragraph (A)(2) of this rule.
- (4) If based on the testing required by paragraph (B)(2) of this rule, soil amendments are necessary to support a dense and complete cover of vegetation, the amendments shall be added.

(B) The testing and verification requirements for the cap protection layer shall include the following:

- (1) Surveys or other methods shall be used to verify that the thickness of cap protection layer conforms to the approved facility design plan and this rule.
- (2) The soil at the surface shall be tested to determine if any soil amendments are necessary to ensure the protection layer has sufficient fertility to support a dense and complete cover of vegetation.
- (3) A professional engineer shall verify that the erosion controls required by paragraph (A)(3) of this rule have been used.

(C) Certification of the cap protection layer shall include the following:

- (1) Record drawings showing the final elevations of the cap protection layer, surface water control structures, berms, benches, and roads.
- (2) Results of the verification of thickness of the cap protection layer.
- (3) Documentation of the verification required in paragraph (B)(3) of this rule.

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3745-520-570 Gas collection layer, gas vent, and gas extraction system construction, testing, verification, and certification.

When constructing the engineered component described in this rule, the owner or operator shall comply with rule 3745-520-510 of the Administrative Code and shall comply with the following:

- (A) Each gas collection layer, gas vent, and gas extraction system shall be installed in a manner that does not damage the liner system or leachate management system.

- (B) Testing and verification of each gas collection layer, gas vent, and gas extraction system shall conform to the approved facility design plan and shall include the following:
 - (1) Surveying the location, grades, and final elevations of the components and the completed gas collection layers, gas vents, and gas extraction systems.

 - (2) A professional engineer shall verify that no engineered components were damaged during the construction of the gas collection layers, gas vents, and gas extraction systems.

- (C) Certification of each gas collection layer, gas venting apparatus, and gas extraction system shall include the following:
 - (1) Record drawings of the gas collection layers, gas vents, and gas extraction systems showing the location, plan views, cross sections, and details.

 - (2) Cross sections of each gas extraction well showing the distance between the bottom of the boring and the leachate collection layer.

 - (3) Results of all testing required by the approved facility design plan and paragraph (B) of this rule.

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3745-520-580 Surface water control structures, excluding sedimentation basins, construction, testing, verification, and certification.

When constructing the engineered component described in this rule, the owner or operator shall comply with rule 3745-520-510 of the Administrative Code and shall comply with the following:

- (A) Each surface water control structure shall be constructed to conform to the approved facility design plan.
- (B) Testing and verification of each surface water control structure shall include the following:
 - (1) Surveys of the location and final elevations of the surface water control structures as constructed.
 - (2) A professional engineer shall verify that no engineered components were damaged during the construction of the surface water control structures.
- (C) Certification of each surface water control structure shall include record drawings showing the location and plan views with topographic representation of the elevations of the surface water control structures.

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3745-520-581 **Sedimentation basin construction, testing, verification, and certification.**

When constructing the engineered component described in this rule, the owner or operator shall comply with rule 3745-520-510 of the Administrative Code and shall comply with the following:

(A) Each sedimentation basin shall be constructed as follows:

- (1) Each sedimentation basin shall conform to the approved facility design plan.
- (2) Embankment material shall be constructed in lifts to achieve uniform compaction. Each lift shall meet the following criteria:
 - (a) Be free of C&DD, solid waste, foreign material, and deleterious material.
 - (b) Be free of objects exceeding six inches.
 - (c) Consist of loam, silty loam, clay loam, silty clay loam, or silty clay. The concurring authority may approve use of another soil type if it has low permeability, has good compactibility, good cohesiveness, and meets the requirements of paragraphs (A)(2)(a) and (A)(2)(b) of this rule.
 - (d) Be compacted to at least ninety-five per cent of the maximum dry density as determined by ASTM D698 (standard proctor) or at least ninety per cent of the maximum dry density as determined by ASTM D1557 (modified proctor).
 - (e) Be placed with a soil moisture content that shall not be less than two per cent below or more than four per cent above the optimum moisture content as determined by ASTM D698 or ASTM D1557.
 - (f) Have a hydraulic conductivity that does not exceed 1.0 times ten to the negative six centimeters per second.

(B) Testing and verification of each sedimentation basin shall conform to the following:

- (1) The location and elevations of sedimentation basins shall be surveyed as constructed.
- (2) For embankment material, pre-construction testing and verification of the borrow soils shall be performed on representative samples, and the results shall be submitted to Ohio EPA or the approved board of health not later than seven days prior to the intended use of the material in the construction of the liner system. The pre-construction testing shall determine the following:

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- (a) The maximum dry density and optimum moisture content according to ASTM D698 (standard proctor) or ASTM (D1557 (modified proctor) at a frequency of not less than once for every ten thousand cubic yards of borrow soil.
 - (b) The recompacted laboratory hydraulic conductivity using ASTM D5084 (falling head) at a frequency of not less than once for every ten thousand cubic yards of borrow soil.
 - (c) The grain size distribution according to ASTM D422 (sieve and hydrometer) at a frequency of not less than once for every three thousand cubic yard of borrow soil.
- (3) For embankment material, testing and verification of the constructed lifts shall be performed to determine the density and moisture content according to ASTM D2922 or ASTM D3017 (nuclear methods), ASTM D1556 (sand cone), ASTM D2167 (rubber balloon), or ASTM D6780 (TDR) at a frequency of not less than five tests per acre per lift. The locations of the individual tests shall be adequately spaced to represent the constructed area. All penetrations shall be repaired using bentonite.
- (4) A professional engineer shall verify that the spillways were properly constructed and do not leak.
- (C) Certification of the sedimentation ponds shall include the following:
- (1) Record drawings showing the location and plan views with topographic representation of sedimentation basins as constructed.
 - (2) Record drawings showing the details of the inlet and outlet structures of the sedimentation basins.
 - (3) A professional engineer shall certify in writing that the spillways do not leak.

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3745-520-600 Applicability of operational rules.

Until closure has been deemed complete in accordance with paragraph (G) of rule 3745-520-700 of the Administrative Code, the owner or operator shall comply with rules 3745-520-600 to 3745-520-690 of the Administrative Code as follows:

(A) The following operational requirements apply to all owners and operators at all times without regard to phasing:

- (1) Paragraphs (A) to (E), (H), (J), and (L) to (Q) of rule 3745-520-605 of the Administrative Code regarding operations.
- (2) Rule 3745-520-606 regarding the general plan of facility operation.
- (3) Rule 3745-520-610 of the Administrative Code regarding records management.
- (4) Rule 3745-520-615 of the Administrative Code regarding phasing.
- (5) Rule 3745-520-625 of the Administrative Code regarding the maintenance of components.
- (6) Rule 3745-520-630 of the Administrative Code regarding unauthorized materials.
- (7) Rule 3745-520-632 of the Administrative Code regarding rejected C&DD shipments.
- (8) Paragraphs (A) and (D) to (G) of rule 3745-520-640 of the Administrative Code regarding fire prevention and control.
- (9) Rule 3745-520-645 of the Administrative Code regarding access to the facility.
- (10) Rule 3745-520-650 of the Administrative Code regarding leachate outbreaks.
- (11) Rule 3745-520-660 of the Administrative Code regarding minimization of leachate generated by the facility.
- (12) Rule 3745-520-665 of the Administrative Code regarding the annual operational report.
- (13) Rule 3745-520-679 of the Administrative Code regarding monitoring and responding to hydrogen sulfide or other gases at a facility.
- (14) Rule 3745-520-680 of the Administrative Code regarding the contingency plan for hydrogen sulfide or other gases created by a facility.

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- (15) Rule 3745-520-681 of the Administrative Code regarding corrective actions for hydrogen sulfide or other gases at a facility.
- (16) Rule 3745-520-685 of the Administrative Code regarding the contingency plan for response to fire or explosion at a facility.
- (17) Rule 3745-520-690 of the Administrative Code regarding certification by transfer facilities and documentation from railroads.
- (B) For an unfilled phase where no C&DD has been disposed, the owner or operator shall comply with paragraph (A) of this rule and rule 3745-520-620 of the Administrative Code regarding phase preparation.
- (C) For a phase that contains the working face or in which the owner or operator is placing the select C&DD layer, the owner or operator shall comply with paragraph (A) of this rule and the following:

 - (1) Paragraph (I) of rule 3745-520-605 of the Administrative Code regarding inclement weather.
 - (2) Paragraph (K) of rule 3745-520-605 of the Administrative Code regarding litter control.
 - (3) Rule 3745-520-620 of the Administrative Code regarding phase preparation.
 - (4) Rule 3745-520-622 of the Administrative Code regarding the select C&DD layer.
 - (5) Rule 3745-520-635 of the Administrative Code regarding C&DD acceptance and disposal.
 - (6) Paragraphs (B) and (C) of rule 3745-520-640 of the Administrative Code regarding weekly cover.
 - (7) If the owner or operator has a leachate management system in any portion of the limits of C&DD placement, rule 3745-520-655 of the Administrative Code regarding the leachate management system.
- (D) For a phase other than a phase described in paragraph (C) of this rule that has disposed C&DD, the owner or operator shall comply with paragraph (A) of this rule and the following:

 - (1) Paragraphs (F) and (G) of rule 3745-520-605 of the Administrative Code regarding surveying and capping.
 - (2) Paragraph (K) of rule 3745-520-605 of the Administrative Code regarding litter control.

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(3) If the owner or operator has a leachate management system in any portion of the limits of C&DD placement, rule 3745-520-655 of the Administrative Code regarding the leachate management system.

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3745-520-605 Operations.

The owner or operator shall do the following:

- (A) Dispose only of construction and demolition debris, asbestos in accordance with paragraph (E) of rule 3745-520-630 of the Administrative Code, or other materials in accordance with the specific written authorization from the director.
- (B) Comply with Chapter 3714. of the Revised Code and rules adopted thereunder for the certification of operators.
- (C) Not cause or allow operations to create a nuisance or health hazard from noise, dust, odors, or the attraction or breeding of birds, insects, rodents, or other vectors.
- (D) Comply with the approved general plan of facility operations submitted in accordance with rule 3745-520-606 of the Administrative Code.
- (E) Dispose only within a phase specified in paragraph (C) of rule 3745-520-600 of the Administrative Code in accordance with the phase sequence in the approved phasing plan.
- (F) Upon completion of disposal in a phase, survey the top of C&DD placement and create a scale drawing that compares the elevations of disposed C&DD to the limits of C&DD placement in the approved facility design plan.
- (G) Construct cap over phases and all portions of phases that have reached approved final elevations of C&DD placement. The timing of construction of the cap system shall be in accordance with rule 3745-520-510 of the Administrative Code, the phasing plan, and the approved facility design plan. The cap system shall be constructed in accordance with rules 3745-520-560 to 3745-520-562 of the Administrative Code.
- (H) Conduct facility inspections by doing the following:
 - (1) Inspecting the construction and demolition debris facility for ponding, erosion, leachate outbreaks, evidence of fires including subsurface combustion, subsidence, and odors on each day C&DD is being accepted. Written results of the inspections, including a discussion of any corrective actions taken, the date, and weather conditions shall be recorded on the daily log form required by rule 3745-520-610 of the Administrative Code and shall be made available to Ohio EPA or the approved board of health upon request.
 - (2) Inspecting engineered components described in rule 3745-520-205 of the Administrative Code at least weekly for damage, erosion, clogging, or failure and taking prompt corrective action if any is discovered. Written results of the inspections, including a discussion of all corrective actions taken, all water

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quality samples taken, the date, and weather conditions shall be recorded on the daily log form required by rule 3745-520-610 of the Administrative Code, which shall be made available to Ohio EPA or the approved board of health upon request.

- (I) Ensure that preparations have been made to receive, spread, and cover C&DD during inclement weather. Preparations shall include but are not limited to designated areas within the limits of C&DD placement where C&DD will be deposited, spread, and covered during inclement weather, all-weather access roads leading to the designated areas, and stockpiles of cover material.
- (J) Prohibit scavenging. No person shall scavenge. For the purpose of this rule, "scavenge" is the extraction or removal of material from a facility by a person unauthorized by the owner or operator.
- (K) Employ all reasonable measures necessary to collect, properly contain, and dispose of scattered litter at the facility, including but not limited to frequent policing of the facility, the use of portable wind screens where necessary, and if necessary ceasing disposal activities until litter can be collected and properly contained. If the owner or operator discovers litter at the facility, the owner or operator shall ensure proper disposal.
- (L) Maintain roads within the facility in a manner that allows use in all weather conditions and will withstand the anticipated degree of use and minimize erosion and generation of dust.
- (M) Employ measures necessary to minimize the incidence of mud, dirt, and dust on public roads from vehicles leaving the facility.
- (N) Post clear instructions for using the facility at the entrance. At a minimum, instructions shall include a listing of materials that are unauthorized pursuant to rule 3745-520-630 of the Administrative Code, telephone numbers of emergency personnel including the local fire department, the board of health, and the appropriate district office of Ohio EPA, and whether the facility is approved or not to accept asbestos. The instructions shall be readable from vehicles arriving to dispose C&DD at the facility.
- (O) If requested by Ohio EPA or the approved board of health, provide a topographic map with the same scale and contour interval of the approved design plan of all phases of the facility. The topographic map shall represent existing contours of the facility.
- (P) Utilize best management practices for all aspects of facility operations.

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(Q) Prevent releases of hydrogen sulfide, other gases, and odors that pose a nuisance, may cause an offensive odor, or may cause a threat to public health or safety or the environment.

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3745-520-606

General plan of facility operation.

(A) The owner or operator shall submit with the license application a general plan of facility operations. The general plan of facility operation shall include the following:

(1) An introductory section that is a written narrative that accurately represents the daily operations of the facility including best management practices. The purpose of this introductory section is for understanding of the daily operations and the operator's use of the best management practices at the facility. At a minimum, the introductory section shall describe the following:

(a) The handling of construction and demolition debris at the facility from acceptance to disposal.

(b) Identification and handling of unauthorized materials at the facility.

(c) Maintenance of the integrity and effectiveness of the components at the facility.

(d) Implementation and compliance with the specific individual plans required by paragraph (A)(2) of this rule.

(2) Specific individual plans covering the following:

(a) Contingency plans for fire or explosion and gas. The plans shall include contingency activities for fire, explosion, hydrogen sulfide, other gases, or odors in accordance with rules 3745-520-680 and 3745-520-685 of the Administrative Code.

(b) A contingency plan for equipment failure that specifies how the owner or operator intends to operate in compliance with this chapter in the event of equipment failure.

(c) A phasing plan in accordance with rule 3745-520-615 of the Administrative Code showing the systematic development of each phase of the facility.

(d) A leachate sampling and analysis plan required by rule 3745-520-655 of the Administrative Code.

(e) A contingency plan for the storage, treatment, and disposal of leachate. The contingency plan for the storage, treatment, and disposal of leachate at the facility shall describe the immediate and long-term steps, including the location of an existing or proposed on-site treatment works, to be taken for leachate management in the event that collected leachate cannot be

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managed in accordance with the management option selected in paragraph (G) of rule 3745-520-655 of the Administrative Code.

- (B) The owner or operator shall implement the general plan of facility operation upon issuance of the license.
- (C) The owner or operator shall submit any revision to an individual specific plan listed in paragraph (A)(2) of this rule to the licensing authority for concurrence. Upon concurrence of the revision, the revised plan shall be implemented.
- (D) The licensing authority shall not concur with any revision unless the revision complies with Chapter 3714. of the Revised Code and rules promulgated thereunder.
- (E) The licensing authority shall not concur with a revision to the phasing plan unless the owner or operator is in substantial compliance with Chapter 3714. of the Revised Code and rules promulgated thereunder.
- (F) The licensing authority may decline to concur with any revision if the owner or operator is not in substantial compliance with Chapter 3714. of the Revised Code and rules promulgated thereunder.

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3745-520-610 Records management.

(A) The owner or operator shall retain all authorizing documents at the facility or at another location acceptable to Ohio EPA or the approved board of health.

(B) Daily log form. The owner or operator shall maintain a daily log of operations of the facility.

(1) The daily log shall contain the following information on forms prescribed by the director:

(a) Annual log.

(b) Facility license number.

(c) Facility phone number.

(d) Name of the facility.

(e) Mailing address of the facility.

(f) Location of the facility.

(g) Owner of the facility.

(h) Licensee name.

(i) Name of the site manager.

(j) Total annual C&DD received in tons and cubic yards.

(k) Unique vehicle identification number for vehicles delivering to the facility.

(l) C&DD type.

(m) Weight of C&DD in tons and volume of C&DD in cubic yards.

(n) If load is accepted or rejected.

(o) C&DD origin.

(p) Total amount of C&DD for each daily log.

(q) Cumulative total of C&DD from the previous day's log.

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- (r) Cumulative total of C&DD for each day.
- (s) Amount of unauthorized material removed from the working face in cubic yards.
- (t) Amount of unauthorized material removed from the unloading zone in tons or cubic yards.
- (u) The name of the hauling company and proper disposal facility for unauthorized material.
- (v) If a roll-off container issued for the collection of unauthorized material, the name of the company maintaining the container.
- (w) The volume of the containers for collection of unauthorized material.
- (x) Description of all incidences of fire or explosion at the facility and response taken.
- (2) The owner or operator shall complete all entries required by the daily log form prescribed by the director.
- (3) The owner or operator may use alternate forms either in paper or electronic formats for the daily log of operations provided that all of the information required on the prescribed forms is present.
- (C) Rejected and unauthorized material log forms. The owner or operator shall keep records of all material rejected or unauthorized for disposal that was accepted by the facility, including material removed from the working face or unloading zone in accordance with rule 3745-520-630 of the Administrative Code. The owner or operator shall do the following:

 - (1) Keep records of volumes and destinations for proper disposal.
 - (2) For unauthorized materials removed by others authorized by the owner or operator or for rejected loads, list the person responsible for the material or load, including companies maintaining transfer containers at the facility for the purpose of collecting unauthorized materials.
 - (3) For loads that are rejected from the unloading zone, complete the form prescribed by the director and submit it to the licensing authority as required in division (A) of section 3714.083 of the Revised Code.
- (D) The owner or operator shall accurately complete and maintain all daily logs and rejected and unauthorized material log forms at the facility or at another location acceptable to Ohio EPA or the approved board of health.

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(E) Upon request from Ohio EPA or the approved board of health, the owner or operator shall make daily logs and rejected and unauthorized material log forms available for inspection by Ohio EPA or the approved board of health during normal operating hours.

(F) If requested by Ohio EPA or the approved board of health, the owner or operator shall submit daily log forms or rejected and unauthorized material log forms or summaries of daily logs or rejected and unauthorized material log forms to Ohio EPA or the approved board of health.

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3745-520-615 Phasing plan.

(A) Applicability and procedures.

- (1) A person who submits an application in accordance with Chapter 3745-501 of the Administrative Code for a license to operate a construction and demolition debris facility shall submit with the application a phasing plan for the facility.
- (2) The owner or operator shall submit to the licensing authority closure cost estimates calculated in accordance with rule 3745-520-907 of the Administrative Code with the phasing plan each time a phasing plan is submitted to the licensing authority.
- (3) The owner or operator shall not implement the phasing plan unless the license specified in paragraph (A)(1) of this rule is approved or the owner or operator obtains written concurrence from the licensing authority that the phasing plan conforms to this rule.
- (4) The owner or operator shall implement and comply with the phasing plan until either of the following occur:
 - (a) The owner or operator submits a revised phasing plan to the licensing authority and the licensing authority either concurs with the revised phasing plan or it is approved as part of a license. Then, the owner or operator shall implement and comply with the revised phasing plan.
 - (b) The owner or operator begins closure.
- (5) The owner or operator shall review, revise, and submit a revised phasing plan to the licensing authority as needed to ensure that the phasing plan continues to conform to this rule. At a minimum, the owner or operator shall comply with this rule each time a license application to operate the construction and demolition debris facility is submitted to the licensing authority.
- (6) The phasing plan shall require the owner or operator to install cap system over all phases and all portions of phases that have reached final elevations of C&DD placement in a time frame that will minimize infiltration, reduce the production of leachate and hydrogen sulfide or other gases, minimize the threat of water pollution, and prevent fires.

[Comment: Cost estimates for financial assurance require the inclusion of the costs for capping. As a result, as the number of phases that are not capped increases, the cost of financial assurance will also increase. There is a provision in rule 3745-520-905 of the Administrative Code that allows the owner or

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operator to request a reduction of the amount of financial assurance each year that cap system is constructed at the facility.]

(B) General requirements for the phasing plan. The phasing plan shall include the drawings, calculations, and narrative necessary to demonstrate that the phasing of the facility complies with this rule. The phasing plan shall conform to the following:

(1) Drawings shall appear on plan sheets with minimum dimensions of twenty-four inches by thirty-six inches. If narrative is necessary to explain a drawing or a calculation, the narrative shall appear with the drawing or calculation.

(2) The phasing plan shall be signed by a professional engineer.

(3) All survey information included in the phasing plan shall be signed by a professional surveyor.

(4) A grid system shall be included on each drawing and the grid system shall use the same reference point and spacing as the one used in the approved facility design plan.

(5) Each drawing in the phasing plan shall include a representation of the boundary of the facility and shall show the boundary in the same location as the boundary of the facility shown in the approved facility design plan.

(6) Each drawing in the phasing plan shall show a representation of the limits of C&DD placement and the limits of C&DD placement in the phasing plan shall be shown in the same location as the limits of C&DD placement shown in the approved facility design plan.

(7) At least one drawing in the phasing plan shall clearly identify the phase of the facility where the owner or operator will be disposing of C&DD during either of the following:

(a) If the phasing plan is not being submitted with a license application, the current license year.

(b) If the phasing plan is being submitted with a license application, the year for which the license application applies.

(8) At least one drawing in the phasing plan shall clearly identify the phase of the facility where the owner or operator anticipates disposal will occur during the license year subsequent to the license year described in paragraph (B)(7) of this rule.

(9) At least one drawing in the phasing plan shall clearly identify the phase of the facility where the owner or operator anticipates disposal will occur during the

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license year subsequent to the license year described in paragraph (B)(8) of this rule.

(10) If vegetated earthen berms or equivalent barriers are required at the facility, the phasing plan shall show that all of the vegetated earthen berms and equivalent barriers included in the approved facility design plan shall be constructed prior to disposing of C&DD in the air space authorized for disposal by the approved facility design plan.

(C) Phasing plan format and content. The phasing plan shall include the following:

(1) A plan cover sheet. The plan cover sheet, to be numbered sheet 1, shall contain the following information:

(a) The name of the facility.

(b) The precise geographic location and boundaries of the facility shown on a road map with a scale of one inch equals no greater than one mile.

(c) The horizontal limits of C&DD placement.

(d) The name and address of the facility operator.

(e) The name and address of each owner of the land to be used for the facility.

(f) The name and address of the professional engineer who prepared the plans.

(2) Drawings showing the phasing. Plan drawings shall show the following items, and the items shall be illustrated on a series of plan drawings numbered consecutively 2A, 2B, 2C, etc. The scale on these drawings shall be one inch equals no greater than two hundred feet and contour intervals shall be no greater than five feet.

(a) Each plan drawing required by paragraphs (C)(2)(b) and (C)(2)(c) of this rule shall include the following:

(i) The boundary of the facility.

(ii) The limits of C&DD placement.

(iii) All roads, railroads, and structures built by humans, including the location of all existing or proposed permanent access roads, maintenance buildings, office buildings, weighing facilities, and storage buildings.

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(iv) The areas of the facility that will be prohibited from having an access road that is designated by the owner or operator as the main hauling road.

(v) Existing topography of areas of the facility that will remain undisturbed showing vegetation, streams, wetlands, lakes, springs, and other surface waters, with a contour interval no greater than five feet.

(vi) Proposed topography of areas of the facility that will be disturbed.

(vii) The north arrow.

(viii) A legend with information necessary to understand the drawing.

(ix) The scale of the drawing.

(b) A general phasing diagram that shows all of the phases.

(c) One plan drawing for each phase of the facility showing the following engineered components and other items as they will be immediately prior to beginning disposal in the phase:

(i) The horizontal limits of C&DD placement for the phase and the basal elevations of the limits of C&DD placement of the phase.

(ii) The tie-in areas for that phase.

(iii) All previous phases and the elevations and contours of the C&DD disposed in those phases, or if a cap system has been installed, the elevations of the cap system.

(iv) Ground water monitoring wells, piezometers, and gas monitoring locations.

(v) The engineered components of the leachate management system.

(vi) If leachate recirculation is proposed, the location of all leachate conveyance apparatuses that are part of the leachate recirculation system.

(vii) Surface water control structures.

(viii) The horizontal limits of cap system that have been constructed.

(ix) The horizontal limits of the cap system that will be constructed prior to beginning disposal in the subsequent phase.

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- (x) The location and top elevations of all access roads and surface water control structures on the cap system.
 - (xi) The location of access roads for the phase. Roads that are proposed but will not be constructed until subsequent phases shall be clearly marked.
 - (xii) The direction of flow and locations of concentrations of surface water.
 - (xiii) The permanent and temporary measures to be utilized to control surface water run-on and runoff, erosion, and any temporary or permanent ground water control structures.
 - (xiv) The horizontal limits and top elevations of structural fill and added geologic material that do not have any engineered components constructed above them.
 - (xv) The horizontal limits and top elevations of vegetated earthen berms and equivalent barriers to vegetated earthen berms.
 - (xvi) The location and top elevations of all access roads that are proposed to be built on internal slopes or across the facility bottom.
 - (xvii) The location of all permanent survey marks.
- (3) Cross sections. Cross sections of the phasing shall be at an interval no greater than every three hundred feet of length and width and shall clearly show the horizontal and vertical scales used. Each cross section shall be on plan drawings numbered consecutively 3A, 3B, 3C, etc., and shall show the following items:
- (a) Existing topography.
 - (b) The horizontal and vertical limits of excavation.
 - (c) The horizontal limits, basal elevations, and final elevations of the limits of C&DD placement.
 - (d) The horizontal limits and final elevations of the following:

 - (i) Structural fill.
 - (ii) Added geologic material.
 - (iii) Liner system.
 - (iv) Leachate collection system.

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(v) Cap protection layer, surface water control structures, berms, benches, and roads.

(4) Design calculations. The phasing plan shall have a section titled "Design Calculations" that includes the following design calculations with references to equations used, showing site specific input, assumptions, and results:

(a) The calculations demonstrating that the interim slopes of the phase are stable and meet the geotechnical and stability analyses requirements of Chapter 3745-507 of the Administrative Code.

(b) The acreage within the horizontal limits of C&DD placement that have had C&DD disposed and the acreage within the horizontal limits of C&DD placement of each phase.

(c) The volume within the phase limits of each phase.

(d) All other relevant calculations.

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3745-520-620

Phase preparation.

The owner or operator shall not dispose of C&DD into a phase until the following have occurred:

(A) The owner or operator has completed construction of the following engineered components included in the approved facility design plan:

(1) All engineered components that are part of the phase in the approved phasing plan.

(2) Surface water control structures and sedimentation basins.

(3) Vegetated earthen berms or equivalent barriers, if required.

(4) Access roads.

(5) Leachate conveyance apparatuses.

(6) Leachate storage tanks, leachate treatment works, or connections to public sewerage systems.

(B) A construction certification report for that phase, prepared in accordance with rule 3745-520-501 of the Administrative Code, has been submitted to Ohio EPA and the approved board of health.

(C) The concurring authority has inspected the facility and provided written concurrence that the owner or operator has complied with this rule and rules 3745-520-500 to 3745-520-581 of the Administrative Code, as applicable.

(D) All equipment necessary for operations at the facility is ready and operational.

(E) The owner or operator has implemented a ground water monitoring program in accordance with rule 3745-520-03 of the Administrative Code.

(F) All applicable permits and authorizations required by Chapter 3704, or 6111, of the Revised Code have been applied for and received by the owner or operator for the facility.

(G) The owner or operator has placed at least four markers clearly delineating the limits of the active phase. The markers shall be easily observable by all equipment operators from the cab of the equipment.

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- (H) The owner or operator has placed at least four markers delineating the limits of the unloading zone. The markers shall be easily observable by all equipment operators from the cab of the equipment.
- (I) The owner or operator shall not dispose C&DD into any air space that has not previously had C&DD disposed unless the owner or operator has funded and executed and maintains financial assurance in accordance with rules 3745-520-905 to 3745-520-930 of the Administrative Code.
- (J) The owner or operator shall not begin filling a new phase without completing the previous phase, except to the extent necessary for the proper operation of the facility.

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3745-520-622

Select C&DD layer.

(A) The owner or operator shall place select construction and demolition debris as the first layer disposed on the filter layer that is a top of the leachate collection layer. The select construction and demolition debris shall be placed in a manner that protects the leachate collection system and the liner system from intrusion of objects during operation of the facility. The select C&DD layer shall meet the following criteria:

(1) Be spread but not compacted.

(2) Be free of items over two feet in length that are capable of penetrating the leachate collection system and puncturing the liner.

(3) Be comprised of C&DD that does not restrict the flow of leachate to the leachate collection layer.

(4) Be free of fines or small particles that can clog the leachate management system.

(5) Be placed as a single lift on the filter layer that is above the leachate collection layer so that a minimum distance of five feet is created between the liner and the next lift of construction and demolition debris to be disposed.

(B) During placement of the select C&DD layer, the owner or operator shall not damage the liner system, leachate collection layer, or leachate management system.

(C) The owner or operator shall maintain and make available upon request to Ohio EPA and the approved board of health documentation at the facility verifying the placement of the select C&DD layer. The documentation shall include the following information:

(1) The date on which the select C&DD layer was placed.

(2) The location of the phase where the select C&DD layer was placed.

(3) The thickness of the select C&DD layer.

(4) The source and composition of the material used for the select C&DD layer.

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3745-520-625

Maintenance of components.

The owner or operator shall maintain the integrity and effectiveness of the components of the facility. If any damage to or failure of a component occurs, the owner or operator shall comply with rule 3745-500-05 of the Administrative Code and shall comply with rules 3745-520-500 to 3745-520-581 of the Administrative Code for any construction performed to repair the damage or failure of an engineered component and Chapter 3745-506 of the Administrative Code for any construction performed to repair the damage or failure of the ground water monitoring system. "Components" include the engineered components described in rule 3745-520-205 of the Administrative Code and components installed as part of the ground water monitoring program.

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3745-520-630

Unauthorized materials.

- (A) The owner or operator shall not accept or dispose pulverized debris, hazardous waste, infectious waste, low-level radioactive waste as specified in section 3734.027 of the Revised Code, or containerized or bulk liquids at the facility. All incidents concerning unauthorized materials shall be noted in the daily log form and on the unauthorized material log form in accordance with rule 3745-520-610 of the Administrative Code.
- (B) If the owner or operator discovers unauthorized material at the facility, the owner or operator shall do the following:
- (1) Remove the unauthorized material from the facility.
 - (2) Not later than one business day after discovering the unauthorized material, notify the licensing authority.
 - (3) Not later than five days after discovering the unauthorized material, notify the licensing authority in writing and provide the following information:
 - (a) Description of the unauthorized material.
 - (b) Actions that have been taken or that will be taken to remove the unauthorized material.
 - (c) When the removal of the unauthorized material was completed or is expected to be completed.
- (C) If the owner or operator discovers pulverized debris at the unloading zone of the facility or if Ohio EPA or the approved board of health requests removal of pulverized debris from the facility in accordance with section 3714.081 of the Revised Code, the owner or operator shall do one of the following:
- (1) Immediately remove the pulverized debris from the facility.
 - (2) Store the pulverized debris at a location at the facility where construction and demolition debris is not disposed and remove the pulverized debris from the facility not later than ten days after discovering the pulverized debris or receipt of a request to remove the pulverized debris from the facility, whichever is sooner.
- (D) The owner or operator of a facility shall not dispose of any solid waste. If the owner or operator discovers solid waste in the working face, the owner or operator shall immediately remove the solid waste. The solid waste shall be disposed at a solid waste disposal facility licensed pursuant to Chapter 3734. of the Revised Code. The

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existence of solid waste on the working face of a construction and demolition debris facility does not constitute a violation of Chapter 3714. of the Revised Code or rules adopted thereunder if the following apply:

- (1) The waste constitutes not more than two cubic yards per one thousand cubic yards of construction and demolition debris or four cubic yards per one thousand tons of construction and demolition debris disposed at the construction and demolition debris facility based on the amount of construction and demolition debris disposed at the facility on the preceding full business day as determined by using the amount of disposal fees collected under section 3714.07 of the Revised Code for wastes disposed at the facility on that preceding full business day.
- (2) The owner or operator or the employees of the facility remove the solid waste from the working face of the facility prior to placement of any cover or any additional C&DD on the solid waste that is on the working face, and no later than by the end of the working day.
- (3) The facility is not located within the boundary of a sole source aquifer as described in division (B) of section 3714.03 of the Revised Code.

(E) Asbestos.

- (1) The owner or operator shall not accept any asbestos materials subject to NESHAP, 40 CFR Part 61, Subpart M, as described in rule 3745-500-03 of the Administrative Code, unless the owner or operator has obtained the necessary air pollution control permits from Ohio EPA and the authorized local air authority.
- (2) The owner or operator shall submit a copy of the asbestos disposal permit to the licensing authority prior to accepting any asbestos.

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3745-520-632

Rejected C&DD shipments.

(A) If the owner or operator of a facility rejects a load of C&DD at the unloading zone of the facility because the load is not authorized for disposal at the facility, the owner or operator shall document the rejection of the load. The owner or operator shall notify the licensing authority in writing at least weekly of all instances in which loads were rejected. This notification shall contain the following information:

(1) The date and time the load was rejected.

(2) The license plate number of the vehicle transporting the rejected load and an indication of the state of origin of the vehicle.

(3) The name of the transporter or shipper of the load, if ascertainable.

(4) The reason for rejecting the load.

(B) After rejecting a load, the owner or operator shall give the transporter or shipper of the load instructions regarding the requirements of paragraph (C) of this rule. The instructions shall be on a form prescribed by the director.

(C) A transporter or shipper of a load that has been rejected pursuant to paragraph (A) of this rule shall notify the licensing authority of the ultimate disposition of the load after the load's rejection. The notification shall be in writing and shall be sent to the director or approved board of health not later than fifteen days after final disposition of the rejected load. The notification shall include the following information:

(1) The date and time that the load was ultimately disposed after its rejection.

(2) The location of the disposal.

(3) The name of the owner or operator of the facility that accepted the load for disposal.

(D) Any C&DD that is rejected by a facility shall be transported and disposed in accordance with applicable local, state, and federal laws and regulations.

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3745-520-635 C&DD acceptance and disposal.

(A) The owner or operator shall log material in accordance with rule 3745-520-610 of the Administrative Code before the material is unloaded or disposed at the facility.

(B) Unloading zone. The owner or operator shall do the following:

(1) Deposit incoming loads of C&DD at the unloading zone directly after logging the material in accordance with paragraph (A) of this rule.

(2) Inspect all unloaded C&DD and remove all unauthorized materials prior to disposal.

(3) Ensure that the limits of the unloading zone are marked in accordance with paragraph (H) of rule 3745-520-620 of the Administrative Code at all times.

(C) Working face. The owner or operator shall do the following:

(1) Maintain not more than one working face at the facility, except that two working faces may be used when the owner or operator is placing the select C&DD layer in a phase in accordance with rule 3745-520-622 of the Administrative Code.

(2) Maintain the working face as the smallest area necessary for operations.

(3) Spread the C&DD evenly over the working face and compact the C&DD to the smallest practical volume.

(4) Place or spread C&DD in the working face in level lifts such that an edge or a cliff is not formed.

(5) In the event that unauthorized material is found at the working face, comply with rule 3745-520-630 of the Administrative Code.

(D) Burning or hot loads of C&DD. If it is discovered that C&DD at the facility is burning or is at a temperature likely to cause a fire, the owner or operator shall do the following:

(1) Implement the procedures established in the fire contingency plan required by rule 3745-520-685 of the Administrative Code.

(2) Place the C&DD that is burning or at a temperature likely to cause a fire in a separate location at a sufficient distance from the working face, unloading zone, and other flammable materials to prevent fires from spreading to the working face.

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(3) Immediately cover the hot or burning C&DD with sufficient amount of earth or other non-flammable material, or spray the C&DD with water or another fire suppressant to extinguish or prevent fire. When the C&DD is no longer burning or smoking or at a temperature likely to cause a fire, the owner or operator shall place the extinguished material on the working face.

(E) C&DD disposal. The owner or operator shall do the following:

(1) When placing the first lift of C&DD for disposal into a newly constructed phase, place the C&DD in accordance with rule 3745-520-622 of the Administrative Code.

(2) Dispose of C&DD in a manner that does not damage the liner system or the leachate management system.

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3745-520-640 Fire prevention and control.

The owner or operator shall do the following:

(A) Operate the facility in a manner that prevents fires, including subsurface combustion, and inspect the facility for evidence of heating or fires in accordance with paragraph (H) of rule 3745-520-605 of the Administrative Code.

(B) Cover all disposed combustible C&DD on a weekly basis with soil, clean hard fill, or other material which is noncombustible. All covering shall be placed in a manner such that it minimizes void spaces and inhibits the ability of oxygen to reach combustible C&DD. For the purpose of this rule, "covering" means to apply noncombustible material in a manner such that combustible C&DD is not visible.

(C) Record the date, location, and area of the placed cover on the daily log form.

(D) Maintain at or near the facility adequate fire control equipment, material, and services to control or prevent fire and explosion.

(E) Upon detection of evidence of fire or explosion, implement the approved contingency plan for fire or explosion in a manner that meets the following:

(1) Is protective of public health and safety.

(2) Maintains the integrity and effectiveness of the components of the facility.

(3) Controls and extinguishes fires.

(F) Not later than twenty-four hours after either of the following occur, notify Ohio EPA and the approved board of health:

(1) When fire department or other emergency personnel enter the facility in response to a fire or explosion.

(2) When fire or explosion threatens or damages the integrity or effectiveness of the components of the facility.

(G) Record all incidents of fire and explosion in the daily log of operations.

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3745-520-645

Access to the facility.

(A) The owner or operator shall limit access to the facility to prevent interference with proper operating procedures as follows:

(1) The owner or operator shall limit access to the facility to authorized personnel only, except when operating personnel are present during operating hours.

(2) The owner or operator shall exclude live domestic and live farm animals from the facility except those used for security or vector control.

(B) Ohio EPA or the approved board of health, upon proper identification and upon stating the purpose and necessity of an inspection, may enter at reasonable times upon any public or private property, real or personal, to inspect or investigate, obtain samples, and examine or copy records to determine compliance with Chapter 3714. of the Revised Code and rules adopted thereunder.

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3745-520-650 Leachate outbreaks.

If a leachate outbreak occurs at the facility, at a minimum, the owner or operator shall perform the following:

- (A) Contain and properly manage the leachate at the facility.
- (B) As necessary to prevent violations of Chapter 6111. of the Revised Code and to comply with this chapter, collect and dispose of the leachate in accordance with paragraph (G) of rule 3745-520-655 of the Administrative Code.
- (C) Take action to minimize, control, or eliminate the conditions that contribute to the production of leachate.
- (D) Document on the daily log forms required in rule 3745-520-610 of the Administrative Code any action taken to minimize, control, or eliminate a leachate outbreak.

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3745-520-655 Leachate management system.

The owner or operator of a facility that has a leachate management system for any portion of the limits of C&DD placement shall do the following:

(A) Prepare a written sampling and analysis plan for leachate. The sampling and analysis plan shall include a detailed description of the standardized forms, equipment, procedures, and techniques to be used to do the following:

(1) At least annually, leachate samples shall be obtained from all access locations within the leachate management system that exist pursuant to rule 3745-520-240 of the Administrative Code and as identified in the approved facility design plan.

(2) All sample collection, preservation, and handling methods shall provide representative samples and shall be consistent with U.S. EPA SW-846, "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods" as described in rule 3745-500-03 of the Administrative Code.

(3) U.S. EPA analytical methods shall be used to analyze leachate for all parameters contained in rule 3745-506-704 of the Administrative Code in all samples. The practical quantitation limit shall be protective of public health and safety and the environment and shall not exceed whichever of the following options that has the lowest value:

(a) A primary drinking water standard for the parameter included in Chapter 3745-81 of the Administrative Code.

(b) A secondary drinking water standard for the parameter included in Chapter 3745-82 of the Administrative Code.

(c) If neither paragraph (A)(3)(a) nor paragraph (A)(3)(b) of this rule apply to the parameter, the lowest concentration level that can be reliably achieved within the specified limits of precision and accuracy during routine laboratory operating conditions that are available to the owner or operator.

(d) If the parameter is listed in the following table, the concentration value listed for the parameter in the table:

This rule contains the common names of constituents that are widely used in government regulation, scientific publications, and commerce. However, synonyms may exist for many constituents. The chemical abstract service registry number (CAS RN) for each constituent has been provided. The metals include all species in leachate that contain the element unless specified.

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<u>Constituent</u>	<u>Concentration (milligrams per liter)</u>	<u>CAS RN</u>
<u>1) Antimony</u>	<u>0.006</u>	<u>7440-36-0</u>
<u>2) Arsenic</u>	<u>0.01</u>	<u>7440-38-2</u>
<u>3) Barium</u>	<u>2</u>	<u>7440-39-3</u>
<u>4) Benzene</u>	<u>0.005</u>	<u>71-43-2</u>
<u>5) Cadmium</u>	<u>0.005</u>	<u>7440-43-9</u>
<u>6) Chloroethane</u>	<u>0.0046</u>	<u>75-00-3</u>
<u>7) Chromium (total)</u>	<u>0.1</u>	<u>16065-83-1</u>
<u>8) Copper</u>	<u>1.3</u>	<u>7440-50-8</u>
<u>9) Dichlorobenzene (1,4-); p-dichlorobenzene</u>	<u>0.075</u>	<u>106-46-7</u>
<u>10) Dichloroethylene (cis-1,2-)</u>	<u>0.07</u>	<u>156-59-2</u>
<u>11) Lead</u>	<u>0.015</u>	<u>7439-92-1</u>
<u>12) Manganese</u>	<u>0.3</u>	<u>7439-96-5</u>
<u>13) Methylene chloride; dichloromethane</u>	<u>0.005</u>	<u>75-09-2</u>
<u>14) Methylphenol (4-); p-cresol</u>	<u>0.18</u>	<u>106-44-5</u>
<u>15) Pentachlorophenol</u>	<u>0.001</u>	<u>87-86-5</u>
<u>16) Phenol</u>	<u>4</u>	<u>108-95-2</u>
<u>17) Selenium</u>	<u>0.05</u>	<u>7782-49-2</u>
<u>18) Toluene</u>	<u>1</u>	<u>108-88-3</u>
<u>19) Trichloroethylene</u>	<u>0.005</u>	<u>79-01-6</u>
<u>20) Vinyl chloride</u>	<u>0.002</u>	<u>75-01-4</u>

- (B) Implement the plan identified in paragraph (A) of this rule by commencing leachate sampling.
- (C) Operate the leachate management system such that no more than one foot of head exists anywhere above the bottom of the leachate collection layer, except in recessed sumps.
- (D) Maintain at least one back-up pump at the facility at all times if the owner or operator utilizes a leachate management system that does not function entirely upon gravity flow.
- (E) Not later than thirty days after placing the initial lift of C&DD over any of the leachate collection pipes, visually or physically inspect the leachate collection pipes to ensure that crushing has not occurred and inspect the collection pipes annually thereafter to ensure that clogging has not occurred and to ensure that the pipes have not settled, deflected, deformed, or crushed, to the extent that leachate is not flowing to the sumps such that compliance with paragraph (C) of this rule is not achieved.
- (F) If the owner or operator has authorization from the director to recirculate leachate within the limits of C&DD placement, the owner or operator shall do the following:

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- (1) Sample leachate in accordance with the sampling and analysis plan required by paragraph (A) of this rule at least every calendar quarter for the parameters listed in rule 3745-506-704 of the Administrative Code.
- (2) Inspect the leachate recirculation system quarterly to ensure that it is functioning as designed, and is not causing violations of Chapters 3704., 3714., or 6111. of the Revised Code and rules adopted thereunder.
- (3) Not later than fifteen days after the inspection date, the owner or operator shall submit a written summary to Ohio EPA and the approved board of health detailing the results of the inspection and a schedule of any actions to be taken to maintain compliance with this rule.
- (G) Treat and dispose of collected leachate in accordance with Chapter 6111. of the Revised Code and in accordance with one of the following:

 - (1) Treat and dispose of collected leachate on site at the construction and demolition debris facility.
 - (2) Pretreat collected leachate on site and dispose of collected leachate off site of the construction and demolition debris facility.
 - (3) Treat and dispose of collected leachate off site of the construction and demolition debris facility.
- (H) If a method being used to treat and dispose of leachate identified in paragraph (G) of this rule becomes unavailable, implement the leachate storage, treatment, and disposal contingency plan in accordance with paragraph (A)(2)(e) of rule 3745-520-606 of the Administrative Code.

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3745-520-660

Minimization of leachate generated by the facility.

The owner or operator shall control surface water and ground water to minimize the generation of leachate by doing the following:

(A) Grading the facility and providing drainage and diversion structures or systems to minimize infiltration of water through the cover material and cap system and to minimize erosion of the cover material and cap system.

(B) Eliminating all conditions causing ponding or erosion in areas of C&DD placement.

(C) Eliminating all conditions causing silting or scouring in surface water drainage structures and repairing any surface water drainage structures.

(D) Diverting ground water from all phases of the facility by nonmechanical means.

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3745-520-665 Annual operational report.

The owner or operator of a facility shall submit an "Annual Operational Report" to the Ohio EPA district office assigned to the geographical area in which the facility is located and the approved board of health not later than the first day of April of each year. At a minimum, the "Annual Operational Report" shall include the following information summarizing the previous calendar year's operations:

(A) A topographic map of the facility, certified by a professional skilled in the appropriate discipline, with updated contour lines on the plan drawing. The scale and contour interval shall be consistent with the approved facility design plan. At a minimum, the topographic map shall include the following:

(1) The calendar year which the submittal represents.

(2) Delineation and acreage of the following:

(a) Areas of cap.

(b) Areas containing C&DD that have not been capped.

(c) Areas that were used for disposal during the previous year.

(d) Areas that are to be used for disposal in the next year.

(e) Areas that have been approved for disposal but have not been used.

(3) The type of cap and the year the cap system was installed for areas of cap delineated pursuant to paragraph (A)(2)(a) of this rule.

(4) Access roads and buildings.

(5) Borrow areas and cover material stockpiles within the boundary of the facility.

(6) A comparison of the actual vertical and horizontal limits of disposed C&DD to the vertical and horizontal limits of C&DD placement in the approved facility design plan. The owner or operator shall also submit all of the topographic maps required by paragraph (O) of rule 3745-520-605 of the Administrative Code regarding surveying the top of C&DD placement and comparing the elevation to the limits of C&DD placement in the approved facility design plan upon the completion of a phase.

(7) If disposed C&DD exceeds the limits of vertical or horizontal C&DD placement authorized in the approved facility design plan, a comparison that delineates the

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acreage of disposed C&DD that exceeds the limits of C&DD placement in the approved facility design plan.

In addition, the topographic map shall contain notes that indicate the estimated volume, maximum depth, and average depth for C&DD exceeding the limits of C&DD placement in the approved facility design plan.

- (B) A summary of the daily logs for the previous year on forms prescribed by the director.
- (C) An estimate of the remaining air space and the remaining number of years of disposal at the facility.
- (D) A summary of the quantity of leachate collected and the amount sent for treatment and disposal on a monthly basis during the year, the location of leachate treatment and disposal, and verification that the leachate management system has been inspected in accordance with paragraph (E) of rule 3745-520-655 of the Administrative Code.
- (E) If a leachate recirculation system has been approved, a summary of the amount of leachate that has been recirculated during the year, verification that the leachate recirculation system has been inspected in accordance with paragraph (F) of rule 3745-520-655 of the Administrative Code, a listing of the maximum leachate head recorded in each sump each month, and an evaluation and supporting documentation of whether the leachate recirculation system meets the criteria in paragraph (A) of rule 3745-520-249 of the Administrative Code.
- (F) Results of the analytical testing of leachate required by rule 3745-520-655 of the Administrative Code. If the owner or operator has authorization from the director to recirculate leachate within the limits of C&DD placement, results of analytical testing of leachate are required to be submitted for at least every calendar quarter.
- (G) A summary of any maintenance performed on the leachate management system, ground water monitoring system, and any other monitoring and control system installed at the facility.
- (H) A notarized statement that shall be signed by the owner or operator in accordance with rule 3745-500-02 of the Administrative Code.

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3745-520-679 **Monitoring and responding to hydrogen sulfide or other gases at a construction and demolition debris facility.**

The owner or operator shall monitor hydrogen sulfide, other gases, or odors at a construction and demolition debris facility in accordance with the following:

(A) The owner or operator shall prepare and implement a written monitoring strategy for monitoring hydrogen sulfide, other gases, and odors at a facility. At a minimum, the monitoring strategy shall include the following:

(1) A detailed scale topographical map, where one inch equals no more than two hundred feet, of the facility showing the following:

(a) The boundary of the facility, the horizontal limits of construction and demolition debris placement, and a zone extending outward one thousand feet from the horizontal limits of construction and demolition debris placement.

(b) All property boundaries, property ownership, and political subdivisions within one thousand feet of the horizontal limits of construction and demolition debris placement.

(c) On-site and off-site structures built by humans located within one thousand feet of the horizontal limits of construction and demolition debris placement.

(d) All other potential sources of odor or gas located within one thousand feet of the horizontal limits of construction and demolition debris placement, including but not limited to oil and gas wells, other landfills, and swamps.

(2) A discussion of the following information:

(a) The elevation of the uppermost aquifer and any significant zones of saturation in the proximity of the limits of construction and demolition debris placement, fluctuations in ground water levels, and factors that influence ground water level fluctuations.

(b) The facility and surrounding area topography and the topography's influence on the migration of gas and gas odors.

(c) The location of potential receptors for hydrogen sulfide or other gases.

(3) Geologic cross sections of the facility presenting the depth of excavation and C&DD placement.

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- (4) A discussion of any records or information regarding the type of waste or C&DD disposed at the facility.
- (5) A description of any existing and operating gas extraction or gas venting systems at the facility.
- (6) A description of any existing plan for addressing hydrogen sulfide or other gases or odors from the facility and an evaluation of the effectiveness of plan.
- (7) A summary of historical records pertaining to the investigation of hydrogen sulfide, other gases, or odors from the facility.
- (8) A summary of historical records pertaining to complaints regarding hydrogen sulfide, other gases, or odors from the facility.
- (9) A detailed description based upon but not limited to the site-specific information required in paragraphs (A)(1) to (A)(8) of this rule of the monitoring locations and methods to be used in determining if the facility is releasing hydrogen sulfide, other gases, or odors.
- (10) A detailed description of all sampling and analysis procedures or equipment that are proposed to be used.
- (B) The monitoring strategy shall be maintained at the facility and be made available to Ohio EPA and the approved board of health upon request.
- (C) The owner or operator shall inspect for hydrogen sulfide, other gases, and odors at locations which at a minimum shall include the limits of C&DD placement and the boundary of the facility and shall document inspection results in accordance with paragraph (F) of this rule.
- (D) The owner or operator shall inspect at the established inspection locations at least daily unless otherwise approved by the licensing authority. Inspections shall be made during times when atmospheric conditions that could promote generation or result in a release of hydrogen sulfide, other gases, or odors.
- (E) The owner or operator shall investigate and monitor for hydrogen sulfide, other gases, and odors along the boundary of the facility immediately upon receipt of a complaint and shall document inspection results in accordance with paragraph (F) of this rule.
- (F) Inspection results shall be documented as follows:

 - (1) At a minimum, documentation shall include the following:

 - (a) Presence of odors and, if monitoring equipment is being used, the concentration of gases causing the odors.

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(b) Ambient air temperature.

(c) Observed precipitation or other weather conditions.

(d) Relative humidity.

(e) Wind speed and direction.

(f) Barometric pressure.

(g) Erosion, cracking, or discoloration of cover material or the cap system.

(h) Leachate or surface water accumulation, seeps, or bubbling.

(i) The presence of distressed vegetation or areas of subsidence over the limits of C&DD placement.

(2) All monitoring results, including those collected in accordance with paragraphs (C) and (E) of this rule, shall be maintained at the facility with the daily log of operations and be made available to Ohio EPA and the approved board of health upon request.

(G) Contingency plan. If hydrogen sulfide or other gases are detected within or along the boundary of the facility, the owner or operator shall implement the hydrogen sulfide contingency plan submitted with the license application and required by rule 3745-520-680 of the Administrative Code.

(H) Not later than seven days after implementing the hydrogen sulfide contingency plan required by rule 3745-520-680 of the Administrative Code, the owner or operator shall submit monitoring results and a description of the steps that have been taken or will be taken to abate the current release of hydrogen sulfide or other gases and prevent future releases to the appropriate Ohio EPA district office and approved board of health.

(I) Corrective action.

(1) Upon detecting levels of hydrogen sulfide that equal or exceed thirty parts per billion as a one-hour average five times within a seven day period beyond the boundary of the facility or an alternate site-specific concentration of hydrogen sulfide established in accordance with paragraph (E) of rule 3745-520-680 of the Administrative Code, the owner or operator shall take all actions necessary to abate the release and prevent any further release, including but not limited to implementation of the corrective actions plan pursuant to rule 3745-520-681 of the Administrative Code.

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(2) The owner or operator shall commence corrective actions pursuant to rule 3745-520-681 of the Administrative Code if the director or approved board of health notifies the owner or operator of one of the following:

(a) Hydrogen sulfide, other gases, or odors released beyond the boundary of the facility pose a nuisance, may cause an offensive odor, or may pose a threat to public health or safety or the environment.

(b) Levels of hydrogen sulfide equal or exceed thirty parts per billion as a one-hour average five times within a seven day period beyond the boundary of the facility or an alternate site-specific concentration established in accordance with paragraph (E) of rule 3745-520-680 of the Administrative Code.

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3745-520-680

Contingency plan for hydrogen sulfide or other gases created by a construction and demolition debris facility.

[Comment: For dates of non-regulatory government publications, publications of recognized organizations and associations, test methods, federal rules, and federal statutory provisions referenced in this rule, see rule 3745-500-03 of the Administrative Code titled "Incorporation by reference."]

(A) Applicability.

- (1) A person who submits an application under section 3714.06 of the Revised Code for a license to operate a construction and demolition debris facility shall submit with the application a "contingency plan for hydrogen sulfide or other gases."
- (2) Upon issuance of a license after the effective date of this rule, the owner or operator of a construction and demolition debris facility shall implement and comply with the "contingency plan for hydrogen sulfide or other gases." Implementation and compliance shall continue through the applicable closure and post-closure care period.
- (3) The "contingency plan for hydrogen sulfide or other gases" shall be reviewed, updated as necessary, and submitted to the director or approved board of health and the fire department that is responsible for responding to the facility every time an application for a license to operate a construction and demolition debris facility is submitted and by September thirtieth of each year during the applicable closure and post-closure care period.

(B) Contingency plan general requirements.

- (1) The "contingency plan for hydrogen sulfide or other gases" shall provide for corrective action in response to hydrogen sulfide or other gases created by the operation of a facility that may pose a nuisance, may cause an offensive odor, or may pose a threat to public health or safety or the environment.
- (2) The "contingency plan for hydrogen sulfide or other gases" shall be prepared in a manner acceptable to the director or approved board of health. If the director or approved board of health finds that additional information is necessary, the owner or operator shall supply such information to the director or the approved board of health and the fire department that is responsible for responding to the facility not later than thirty days after receiving notification that additional information is required.
- (3) The "contingency plan for hydrogen sulfide or other gases" shall contain the information listed in paragraph (C) of this rule.

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(C) At a minimum, the contingency plan shall include the following information:

- (1) A protocol for increasing or altering the inspection frequency based on changes in atmospheric conditions, operations, or site conditions.
- (2) Actions to be taken in the event that hydrogen sulfide or other gases are detected within the boundary of the facility. Actions shall include but are not limited to the following:
 - (a) Inspecting areas of C&DD disposal to identify potential points of origin and to ensure compliance with the operational rules contained in rules 3745-520-600 to 3745-520-690 of the Administrative Code.
 - (b) Inspecting the site for conditions that could promote generation or release of hydrogen sulfide or other gases.
 - (c) Installing soil cover material or repairing and increasing existing soil cover material as needed.

[Comment: If installing soil cover or repair and increasing existing soil affects constructed cap, then the construction requirements in rules 3745-520-560 to 3745-520-562 of the Administrative Code apply.]
 - (d) Evaluating the need to remove leachate and dispose of it properly.
 - (e) Ceasing leachate recirculation activities.
 - (f) Repairing all leachate seeps.
 - (g) Removing and preventing the accumulation of ground water or surface water within the limits of C&DD placement.
 - (h) At a minimum, continuing monitoring in accordance with rule 3745-520-679 of the Administrative Code.
 - (i) Performing any additional activities deemed necessary by the owner or operator or ordered by the director, approved board of health, or court having competent jurisdiction.
- (3) Actions to be taken in the event hydrogen sulfide or other gases are detected along the boundary of the facility. Actions shall include but are not limited to the following:
 - (a) Acquiring monitoring equipment. Monitoring equipment used to measure levels of hydrogen sulfide gas shall be designed, calibrated, and capable of measuring one part per billion.

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- (b) Conducting sampling using monitoring equipment at evenly spaced intervals across the limits of construction and demolition debris placement to identify the origin of hydrogen sulfide or other gas releases.
 - (c) Conducting sampling using monitoring equipment along the boundary of the facility.
 - (d) Installing soil cover material or increasing soil cover material in areas identified during sampling conducted at evenly spaced intervals across the limits of C&DD placement.
 - (e) Removing all leachate exposed to the atmosphere and disposing of it properly.
 - (f) Ceasing leachate recirculation activities.
 - (g) Repairing all leachate seeps.
 - (h) Removing and preventing the accumulation of surface water within the limits of C&DD placement.
 - (i) At a minimum, continuing monitoring in accordance with rule 3745-520-679 of the Administrative Code.
 - (j) Performing any additional activities deemed necessary by the owner or operator or ordered by the director, approved board of health, or court having competent jurisdiction.
- (4) Actions to be taken in the event hydrogen sulfide is detected along the boundary of the facility at concentrations equal to or greater than thirty parts per billion.. Actions shall include the activities in paragraph (C)(3) of this rule and the following:
- (a) Providing written notification to the appropriate local public safety authorities including the local health district, fire department, Ohio EPA district office, local air agency or Ohio EPA division of air pollution control, whichever is applicable, not later than twenty-four hours each time hydrogen sulfide is detected along the boundary of the facility at concentrations equal to or greater than thirty parts per billion.
 - (b) Providing written notification to persons residing on or owning land that may be affected by the off-site migration of hydrogen sulfide or other gases as soon as practicable and not later than seven days after each time hydrogen sulfide is detected along the boundary of the facility at concentrations equal to or greater than thirty parts per billion. The owner or operator shall also

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attempt to verbally notify persons residing on or owning land that may be affected by the off-site migration of hydrogen sulfide or other gases as soon as practicable and not later than seven days after each time hydrogen sulfide is detected along the boundary of the facility at concentrations equal to or greater than thirty parts per billion and shall document the attempt.

- (c) Performing continuous monitoring in areas of concern along the boundary of the facility not later than one hundred twenty days after the initial detection. The number and locations of monitoring sites shall be based on accepted modeling practice and shall adequately monitor areas of maximum concentration of hydrogen sulfide at the boundary of the facility.
- (d) If the director or approved board of health determines that the number or locations of monitoring sites is not adequate, adding additional monitors as required.
- (e) Siting and locating all monitors in accordance with the requirements of 40 CFR, Part 58, Appendix E.
- (f) Maintaining a monitor that is automated, continuous, and that measures the concentration of sulfur dioxide in the ambient air. The monitors shall have a hydrogen sulfide to sulfur dioxide converter integrated within a sulfur dioxide analyzer. The monitors shall meet the methods and criteria for sulfur dioxide as specified in 40 CFR, Part 53 and shall be designated as either reference or equivalent for sulfur dioxide by the U.S. environmental protection agency.
- (g) If the owner or operator proposes to install a hydrogen sulfide monitor that does not meet the specifications in paragraph (C)(4)(f) of this rule, providing information satisfactory to Ohio EPA describing the design and operation of the monitor, the operating parameters that would indicate proper performance, and the appropriate monitoring procedures. Ohio EPA may specify additional appropriate monitoring procedures.
- (h) Calibrating, operating, and maintaining the monitoring devices and recorders in accordance with the manufacturers' recommendations, instructions and operating manuals, or other written procedures that provide adequate assurance that the equipment would reasonably be expected to monitor accurately.
- (i) Maintaining an operator's log book for each monitoring site that includes the information specified in paragraphs (C)(2) to (C)(5) of this rule.
- (j) Continuing to operate the continuous monitors along the boundary of the facility until written approved from the director to discontinue monitoring is received. In determining such a discontinuation, the director shall consider

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the concentrations measured by the monitors, the trends in air quality concentrations, and the value of the air quality data.

(5) Activities taken in accordance with paragraph (D) of this rule.

(D) The owner or operator may undertake during implementation of actions discussed in paragraph (C) of this rule, other activities necessary to prevent the release or continued release of hydrogen sulfide, other gases, or odors along the boundary of the facility. Any activities undertaken by the owner or operator in accordance with this paragraph shall be in compliance with all applicable federal and Ohio statutes and regulations. Actions shall be documented and reported to the director and approved board of health not later than twenty-four hours after implementation. Monitoring activities shall continue in accordance with rule 3745-520-679 if the Administrative Code.

(E) In the contingency plan, the owner or operator may request an alternate site-specific concentration of hydrogen sulfide for which corrective action is required. The alternate concentration shall be an appropriate health-based level that satisfies the following criteria:

(1) The level is derived in a manner consistent with federal guidelines for assessing the health risks of environmental pollutants.

(2) The level is based on scientifically valid studies conducted in accordance with standard laboratory practices.

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3745-520-681

Corrective actions for hydrogen sulfide or other gases at a construction and demolition debris facility.

- (A) Not later than thirty days after triggering corrective actions for hydrogen sulfide, other gases, or odors at a facility in accordance with paragraph (I) of rule 3745-520-679 of the Administrative Code, the owner or operator shall submit to the director and approved board of health and implement a corrective actions plan in accordance with this rule.
- (B) Upon submittal of a corrective actions plan to the director and approved board of health, the owner or operator shall submit a revised contingency plan to the fire department responsible for responding to the facility. The revised contingency plan shall include the corrective actions plan in accordance with this rule.
- (C) The corrective actions plan shall provide for the installation and operation of a gas extraction and treatment system designed in accordance with rule 3745-520-270 of the Administrative Code or other technology acceptable to the director not later than twelve months after initially determining that hydrogen sulfide, other gases, or odors released along or beyond the boundary of the facility pose a nuisance, may cause an offensive odor, or may pose a threat to public health or safety or the environment or that hydrogen sulfide equals or exceeds thirty parts per billion as a one-hour average five times in a seven day period or an alternate site-specific concentration established in accordance with paragraph (E) of rule 3745-520-680 of the Administrative Code.
- (D) The corrective actions plan shall include, at a minimum, details concerning the following:
- (1) The design and schedule for construction and operation of the gas extraction and treatment system or other technology acceptable to the director.
 - (2) Methods for monitoring the effectiveness of the corrective actions.
 - (3) Methods for controlling the source of release to reduce or eliminate further releases of hydrogen sulfide, other gases, or odors beyond the boundary of the facility.
 - (4) A description of all permanent, portable, and non-portable, monitoring equipment that will be used.
 - (5) Monitoring equipment installation procedures, quality assurance measures, and security.
 - (6) Procedures for the addition, repair, and replacement of permanent monitors.

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- (7) Procedures for the certification of the installation of new and replacement monitors.
- (8) A detailed discussion of the criteria to be used to determine when corrective actions have abated emissions.
- (9) Procedures for the removal or abandonment of continuous monitoring equipment.
- (10) Revised third party cost estimates including prevailing wages for closure and post-closure care of the gas extraction and treatment system and any monitoring equipment or activities.
- (11) Any additional information deemed necessary by the director.
- (E) If the director finds that additional information is necessary, the owner or operator shall supply the requested information not later than thirty days after receiving notification from the director that additional information is required.
- (F) Upon installation of a gas extraction and treatment system or other technology acceptable to the director, the owner or operator shall submit to the director and approved board of health a certification report that complies with rule 3745-520-501 of the Administrative Code.
- (G) Semiannual corrective actions activities report. Upon implementation of the corrective actions plan, the owner or operator shall submit to the appropriate Ohio EPA district office and approved board of health a report of the activities being conducted at the facility as part of implementation of the corrective actions plan. The report shall be submitted semiannually and contain the following information:

 - (1) A narrative description of all corrective action activities that have occurred since the previous report.
 - (2) All data generated as part of the corrective actions conducted at the facility.
 - (3) A notarized statement signed by the owner or operator in accordance with rule 3745-500-02 of the Administrative Code.
- (H) Certification of completion of corrective actions.

 - (1) Upon completion of the corrective actions, the owner or operator shall certify to the director that the corrective actions have been completed in compliance with the corrective actions plan. The certification shall be signed by the owner or operator in accordance with rule 3745-500-02 of the Administrative Code and a qualified professional engineer and be notarized.

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(2) The corrective actions shall be considered complete when the owner or operator demonstrates to the satisfaction of the director that hydrogen sulfide, other gases, or odors will no longer be released beyond the boundary of the facility.

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3745-520-685

Contingency plan for response to fire or explosion at a construction and demolition debris facility.

(A) Applicability.

- (1) A person who submits an application under Chapter 3745-501 of the Administrative Code for a license to operate a construction and demolition debris facility shall submit with the application a contingency plan for response to fire or explosion.
- (2) Upon issuance of a license after the effective date of this rule, the owner or operator of a construction and demolition debris facility shall implement and comply with the contingency plan for response to fire or explosion. Implementation and compliance shall continue at least until the end of the post-closure care period.
- (3) The contingency plan for response to fire or explosion shall be reviewed, updated as necessary, and submitted to the licensing authority and the fire department that is responsible for responding to the facility every time an application for a license to operate a construction and demolition debris facility is submitted and shall be submitted by the thirtieth day of September of each year at least until the end of the post-closure care period.

(B) Contingency plan general requirements.

- (1) The contingency plan for response to fire or explosion shall provide for effective actions in response to both a fire and explosion at a construction and demolition debris facility. For the purposes of the contingency plan, fire includes subsurface combustion.
- (2) The contingency plan for response to fire or explosion shall contain all of the elements listed in paragraphs (C) to (G) of this rule.
- (3) The contingency plan for response to fire or explosion shall be prepared in a manner acceptable to the licensing authority. If the licensing authority finds that additional information is necessary, the owner or operator shall supply such information to the licensing authority and to the fire department that is responsible for responding to the facility not later than thirty days after receiving notification that additional information is required.

(C) A section describing evidence or indicators of fire or explosion.

(D) A section containing procedures to be taken by the owner or operator to verify the occurrence of fire or explosion. At a minimum, this section shall address the following:

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- (1) Inspections necessary to verify the occurrence of fire, type of observations, and location and frequency of inspections. Observations may include weather conditions, wind direction, and detection of odors or smoke. Procedures regarding frequency and location of inspections shall consider changing conditions to ensure the earliest verification of a fire.
- (2) The manner in which the owner or operator will utilize and evaluate the observations to verify the occurrence of fire or explosion.
- (E) A section containing procedures that the owner or operator will utilize upon verification of the occurrence of fire or explosion. At a minimum, this section shall address the following:

 - (1) Identification of the appropriate response that meets the following:

 - (a) Is protective of public health and safety.
 - (b) Maintains the integrity and effectiveness of the components of the facility.
 - (c) Controls and extinguishes.
 - (2) For each type of identified response, describe the actions, personnel, and equipment the owner or operator will commit to the response.
- (F) A section containing notification procedures and contact information that the owner or operator will utilize, including but not limited to the following:

 - (1) Fire departments and emergency response personnel.
 - (2) Licensing authority, Ohio EPA, and other appropriate governmental authorities.
- (G) A section describing the efforts to be taken by the owner or operator to coordinate with the fire department and emergency response personnel in developing pre-plans for fire or explosion occurrences. At a minimum, procedures shall address the following:

 - (1) Verification of which fire department(s) and emergency personnel will respond to the facility location.
 - (2) Providing fire department and emergency response personnel with ready and updated information regarding the facility, such as location, site access, facility personnel contacts, and a copy of the contingency plan.
 - (3) A general description of any incident command structure utilized by the fire department and emergency response personnel.

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(H) The owner or operator shall provide fire department and emergency response personnel an opportunity to comment upon the development of the contingency plan. Copies of comments shall be submitted by the owner or operator to the licensing authority with the contingency plan.

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3745-520-690

**Certification by transfer facilities and documentation from
railroads.**

(A) Certification by transfer facilities.

(1) The owner or operator of a construction and demolition debris facility may request a transfer facility to certify that material that is transferred from the transfer facility to the construction and demolition debris facility is not any of the following unauthorized materials:

(a) Off-specification material.

(b) Hazardous waste, as defined in section 3734.01 of the Revised Code.

(c) Solid waste, as defined in section 3734.01 of the Revised Code.

(d) Infectious waste, as defined in section 3734.01 of the Revised Code.

(e) Low-level radioactive waste whose treatment, recycling, storage, or disposal is regulated under division (B) of section 3748.10 of the Revised Code.

(2) Certification forms for transfer facility certification.

An owner or operator of a construction and demolition debris facility choosing to request that a transfer facility certify material in accordance with paragraph (A)(1) of this rule shall use a form prescribed by the director. When requesting a transfer facility to certify material, the owner or operator of a construction and demolition debris facility shall provide the form to the transfer facility. The owner or operator shall make completed certification forms available upon the request of Ohio EPA or an approved board of health.

(B) Documentation from railroads.

(1) If material is transported to a construction and demolition debris facility by a railroad that is regulated under Title 49 of the United States Code as described in rule 3745-500-03 of the Administrative Code, the owner or operator of a construction and demolition debris facility may request the railroad to provide either of the following:

(a) A bill of lading, or a copy of a bill of lading, from the shipper of the material.

(b) Written information indicating that the railroad did not process or add to the material.

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(2) An owner or operator of a construction and demolition debris facility choosing to request that a railroad provide information in accordance with paragraph (B)(1) of this rule shall make available all bills of lading or written information upon the request of Ohio EPA or an approved board of health.

(C) Information provided in accordance with paragraph (A) or (B) of this rule shall not prevent an owner or operator of a construction and demolition debris facility from rejecting a load, nor shall certification be construed to absolve the owner or operator from the requirement to reject a load containing unauthorized material.

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3745-520-700

Closure of a construction and demolition debris facility.

(A) The owner or operator shall complete closure of a construction and demolition debris facility in a manner that minimizes the need for further maintenance; prevents the failure of final slopes; protects public health and safety and the environment; prevents air or water pollution; and minimizes erosion, infiltration of surface water, production of leachate, and accumulation and runoff of contaminated surface water.

(B) Closure of a facility shall begin when any of the following occur:

(1) The owner or operator provides written notice to the licensing authority that C&DD will no longer be accepted for disposal at the facility.

(2) The license issued for the facility has expired, and the renewal license has not been applied for in accordance with Chapter 3745-501 of the Administrative Code.

(3) All approved limits of C&DD placement have been reached.

(4) The license issued for the facility has expired, a renewal license has been applied for, and the licensing authority has denied the license application for renewal as a final action.

(5) The licensing authority has revoked the license issued for the facility as a final action.

(C) Notification of anticipated date to cease acceptance of C&DD.

The owner or operator shall provide to the licensing authority written notice of the intent and anticipated date of ceasing acceptance of C&DD at a facility not later than ninety days prior to the anticipated date if closure is or will be triggered by any of the following occurrences:

(1) Paragraph (B)(1) of this rule.

(2) Paragraph (B)(2) of this rule.

(3) Paragraph (B)(3) of this rule.

(D) The owner or operator shall complete the closure activities within the time provided as follows:

(1) Not later than seven days after ceasing to accept C&DD for disposal, the owner or operator shall provide written notification to the licensing authority of the date the facility ceased to accept C&DD.

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- (2) Not later than seven days after ceasing to accept C&DD for disposal, the owner or operator shall block, by locked gates, fencing, or other sturdy obstacles, all entrances and access roads to the facility to prevent unauthorized access during the closure period, unless the facility is to be used for other purposes which are indicated in writing to the licensing authority.
- (3) Not later than thirty days after ceasing to accept C&DD for disposal, the owner or operator shall post signs, easily visible from all access roads leading onto the facility, stating in letters at least three inches high that the construction and demolition debris facility is closed and no longer accepts construction and demolition debris.
- (4) Not later than thirty days after ceasing to accept C&DD for disposal, the owner or operator shall revise if necessary, submit, and implement the plans specified in paragraph (A)(2)(a) of rule 3745-520-606 of the Administrative Code.
- (5) Not later than sixty days after ceasing to accept C&DD for disposal, the owner or operator shall cover all exposed C&DD with at least six inches of soil and grade this soil to prevent ponding of water.
- (6) Not later than ninety days after ceasing to accept C&DD for disposal, the owner or operator shall do any or all of the following, as necessary, to prevent ponding of water prior to the construction of the cap system:

 - (a) Use soil fill.
 - (b) Relocate C&DD within the approved limits of C&DD placement.
 - (c) Create a grade that promotes run off of surface water.
- (7) Construction of cap system in all uncapped areas as follows:

 - (a) Not later than one year after ceasing to accept C&DD for disposal, the owner or operator shall complete construction of a cap system over all areas of C&DD placement not previously certified for the construction of a cap system with the exception of the establishment of dense vegetative cover. Establishment of dense vegetative cover shall be completed within two years after ceasing to accept C&DD or, in the case of postponement authorized in paragraph (D)(7)(b) of this rule, one year after completion of construction of the cap.
 - (b) If the owner or operator of a construction and demolition debris facility appeals the final denial or final revocation of a construction and demolition debris facility license to the environmental review appeals commission in accordance with section 3745.04 of the Revised Code, and the commission

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grants a de novo hearing with respect to the appeal in accordance with section 3745.05 of the Revised Code, the owner or operator may elect to postpone the construction of a cap system. In order to postpone construction under this rule, all of the following must be the case:

- (i) The owner or operator maintains and will continue to maintain compliance with all applicable financial assurance requirements.
- (ii) The owner or operator is in compliance with and will continue to comply with all other applicable closure requirements set forth in this rule.
- (iii) The construction and demolition debris facility is not the subject of an emergency order mandating the capping or placement of cover over the facility issued pursuant to division (B) of section 3714.12 of the Revised Code.
- (iv) A court of competent jurisdiction has not ordered the construction and demolition debris facility to cease acceptance of waste and/or to commence closure activities.
- (v) Postponement of construction of the cap system will not create a nuisance, fire hazard, or cause or contribute to air or water pollution.
- (vi) The owner or operator has undertaken a continuing program of cap construction or has entered into a binding contractual obligation to complete construction of a cap system within one hundred eighty days after the entry of the commission's decision affirming the final action.

Not later than ten days after the commission grants a de novo hearing, the owner or operator shall provide written notice to the licensing authority and the director stating that the construction of the cap system will be postponed in accordance with this rule. The written notice must be accompanied by an affidavit certifying that all of the conditions required for postponement are satisfied.

Postponement under this rule shall automatically terminate upon the failure of the owner or operator to comply with any part of this rule; or the dismissal of the appeal by the commission; or the issuance of an order by the commission affirming the denial or revocation. The owner or operator shall complete construction of a cap system as required by this rule within one hundred eighty days of the termination of the postponement.

- (8) Prior to the completion of closure, the owner or operator shall cease any leachate recirculation at the facility and properly remove or abandon all leachate recirculation equipment.

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- (9) Prior to submitting the closure certification report required by rule 3745-520-720 of the Administrative Code, the owner or operator shall file with the appropriate county recorder a plat of the facility and information describing the acreage, location, depth, volume, and nature of the placed C&DD, waste, and other materials such as asbestos.
- (10) Prior to submitting the closure certification report required by rule 3745-520-720 of the Administrative Code, the owner or operator shall file in the office of the appropriate county recorder a notice that the property was previously used as a construction and demolition debris facility. The notice shall be filed in the same manner as a deed to the property and shall include information describing the acreage, location, depth, volume and nature of the placed C&DD, waste, and other materials such as asbestos. The notice shall also include an engineering drawing attachment showing the physical locations of C&DD placement, an indication of the volumes of C&DD, and an indication of the depth of the final cover material.
- (11) Not later than ninety days after the completion of closure activities, the owner or operator shall submit to the licensing authority a closure certification report in accordance with rule 3745-520-720 of the Administrative Code.
- (E) Monitoring and reporting. The owner or operator shall continue all monitoring and reporting activities during closure that are required by Chapter 3745-506 of the Administrative Code, this chapter, and any orders and other authorizing documents issued during the operating life of the facility.
- (F) During closure, the owner or operator shall comply with rule 3745-520-600 of the Administrative Code.
- (G) Closure of the facility shall be deemed complete when one of the following occurs:
- (1) The licensing authority concurs with the closure certification report in accordance with rule 3745-520-720 of the Administrative Code.
 - (2) Twelve months after the closure certification report is submitted to the licensing authority for concurrence and the owner and operator are in substantial compliance with all orders, the facility's authorizing documents, and applicable rules.
- (H) Entry for inspection. Ohio EPA or the approved board of health, upon proper identification and upon stating the purpose and necessity of an inspection, may enter at reasonable times upon any public or private property, real or personal, to inspect or investigate, obtain samples, and examine or copy records to determine compliance with Chapter 3714. of the Revised Code and rules adopted thereunder.

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3745-520-720

Closure certification report.

(A) The closure certification report shall be signed by a professional engineer and shall certify the following:

(1) The facility has been blocked by locked gates, fencing, or other sturdy obstacles. If the facility is to be used for other purposes, access to the closed facility shall be controlled through a facility access plan provided in writing to the licensing authority. The facility access plan shall include the following:

(a) The uses of the facility.

(b) The contact information for the person responsible for controlling access.

(c) The measures to be taken to protect engineered components and monitoring wells, from damage by users of the facility.

(2) Signs are posted in accordance with paragraph (D)(3) of rule 3745-520-700 of the Administrative Code.

(3) All areas within the limits of C&DD placement have been certified for cap system construction in accordance with rule 3745-520-510 of the Administrative Code, rules 3745-520-560 to 3745-520-562 of the Administrative Code, and the approved facility design plan and all such areas shall be shown on a plan sheet with the date of the licensing authority concurrence for each certified capped area.

(B) The closure certification report shall also include the following:

(1) A copy of the plat filed with the appropriate county recorder in accordance with paragraph (D)(9) of rule 3745-520-700 of the Administrative Code.

(2) A copy of notice filed in accordance with paragraph (D)(10) of rule 3745-520-700 of the Administrative Code.

(3) Documentation that demonstrates the owner or operator has completed all of the closure activities in rule 3745-520-700 of the Administrative Code.

(4) A notarized statement that the owner or operator shall sign in accordance with rule 3745-500-02 of the Administrative Code.

(C) The licensing authority shall not concur with a closure certification report unless the following are met:

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- (1) The owner or operator has completed all of the closure activities in rule 3745-520-700 of the Administrative Code.
- (2) The owner and operator are in substantial compliance with Chapter 3714. of the Revised Code and rules adopted thereunder, all orders, and the facility's authorizing documents.

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3745-520-750 Post-closure care of a construction and demolition debris facility.

- (A) The owner or operator shall commence post-closure care activities at a construction and demolition debris facility immediately after the facility is deemed closed in accordance with paragraph (G) of rule 3745-520-700 of the Administrative Code.
- (B) Post-closure care activities shall be conducted for a minimum of five consecutive years unless the post-closure care period is extended by order of the approved board of health, the director, or a court of competent jurisdiction.
- (C) Post-closure care activities shall include but are not limited to the owner or operator doing the following:
 - (1) Maintaining strict compliance with each permit to install, license, order, alteration concurred with in writing by Ohio EPA or the approved board of health, and authorizing document.
 - (2) Complying with rule 3745-520-03 of the Administrative Code.
 - (3) Complying with Chapter 3714. of the Revised Code and rules adopted thereunder for the certification of operators.
 - (4) Preventing post-closure care activities from creating a nuisance or health hazard from noise, dust, odors, or the attraction or breeding of birds, insects, rodents, or other vectors.
 - (5) Ensuring that the facility will not create a fire hazard or cause or contribute to air or water pollution.
 - (6) Complying with the plans required by paragraph (A)(2)(a) of rule 3745-520-606 of the Administrative Code.
 - (7) Maintaining roads within the facility in accordance with paragraph (L) of rule 3745-520-605 of the Administrative Code.
 - (8) Complying with rule 3745-520-625 of the Administrative Code.
 - (9) Complying with paragraphs (D) to (F) of rule 3745-520-640 of the Administrative Code for fire prevention and control.
 - (10) Limiting access to the facility in accordance with paragraph (A) of rule 3745-520-645 of the Administrative Code.
 - (11) Complying with rules 3745-520-650 to 3745-520-660 of the Administrative Code.

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- (12) Complying with rule 3745-520-680 of the Administrative Code for the operation and maintenance of the gas extraction and treatment system and permanent monitors, if applicable.
- (13) Complying with rule 3745-520-685 of the Administrative Code.
- (14) Maintaining signs required by paragraph (D)(3) of rule 3745-520-700 of the Administrative Code such that the signs remain legible.
- (15) Complying with rule 3745-520-910 of the Administrative Code.
- (16) Performing quarterly inspections of the facility during each year of the post-closure care period and submitting a written summary to Ohio EPA and the approved board of health not later than fifteen days after the inspection date detailing the results of the inspection and a schedule of any actions to be taken to maintain compliance with this rule.
- (17) Submitting an annual post-closure care report to the licensing authority not later than the first day of April of each year, which contains the following:

 - (a) A summary of the quantity of leachate collected and the amount sent for treatment and disposal on a monthly basis during the year, the location of leachate treatment and disposal, and verification that the leachate management system has been inspected in accordance with paragraph (E) of rule 3745-520-655 of the Administrative Code.
 - (b) Results of analytical testing of annual valid and representative samples of leachate for the parameters and constituents specified in rule 3745-506-704 of the Administrative Code. Samples shall be obtained from each sump and all other leachate sampling locations within the leachate management system in accordance with the sampling and analysis plan required by rule 3745-520-655 of the Administrative Code.
 - (c) A summary of any maintenance performed on the leachate management system, ground water monitoring system, and any other monitoring and control system installed at the facility.
 - (d) A summary of all ongoing ground water assessment or corrective measures.
 - (e) An assessment of the integrity and stability of the cap system if post-closure care activities cease.
 - (f) The most recent updated post-closure cost estimate and for any change in the post-closure cost estimate required by rule 3745-520-912 of the Administrative Code.

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(g) Updated contingency plans in accordance with paragraph (A)(2)(a) of rule 3745-520-606 of the Administrative Code.

(D) The owner or operator shall maintain all records and reports generated by paragraph (C) of this rule for the duration of the post-closure care period at a location acceptable to Ohio EPA or the approved board of health where the records and reports are available for inspection by Ohio EPA or the approved health department during normal business hours.

(E) Ohio EPA or the approved board of health, upon proper identification and upon stating the purpose and necessity of an inspection, may enter at reasonable times upon any public or private property, real or personal, to inspect or investigate, obtain samples, and examine or copy records to determine compliance with Chapter 3714. of the Revised Code and rules adopted thereunder.

(F) The post-closure care period may be extended by order of the approved board of health, the director, or a court of competent jurisdiction if conditions at a facility are impacting public health or safety or the environment or if ground water assessment and corrective actions are required to be conducted at the facility in accordance with Chapter 3745-506 of the Administrative Code.

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3745-520-760

Certification of the completion of post-closure care.

(A) Thirty to sixty days prior to the completion of the post-closure care period for the facility, the owner or operator shall do the following:

(1) Decommission the ground water monitoring system in a manner that will be protective of public health and safety and the environment, unless the owner or operator is required to continue ground water monitoring.

(2) Submit to the director and approved board of health written certification that the owner or operator has completed post-closure activities. The certification shall be accompanied by documentation which demonstrates that all post-closure care activities have been completed in accordance with rule 3745-520-750 of the Administrative Code. The certification shall be signed by a qualified professional in the appropriate discipline. The documentation shall include the following:

(a) A summary of all ongoing ground water assessment or corrective actions, if applicable.

(b) An assessment of the integrity and long term stability of the cap system after post-closure care activities cease.

(c) A summary of changes to leachate quality and quantity.

(d) Rate of leachate generation and quantity of leachate at the facility, with an explanation of how these figures were derived.

(e) A summary of hydrogen sulfide gas migration and generation by the facility.

(B) The certification report shall be signed by the owner or operator and contain a notarized statement in accordance with rule 3745-500-02 of the Administrative Code.

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3745-520-905 Financial assurance for construction and demolition debris facility closure.

(A) Applicability.

- (1) The owner or operator shall submit financial assurance information in accordance with this rule as part of a construction and demolition debris license application, including a license application for a modification.
- (2) The owner or operator shall submit to the licensing authority a closure financial assurance instrument in accordance with this rule whenever required to submit financial assurance pursuant to an authorizing document other than documents required by paragraph (A)(1) of this rule.

(B) Implementation.

- (1) The owner or operator shall execute and fund the closure financial assurance instrument and submit an originally signed duplicate of the financial assurance instrument to the licensing authority prior to the issuance of a construction and demolition debris license.
- (2) Financial assurance for closure shall be maintained and may be released only in accordance with paragraph (N) of this rule.

(C) Closure financial assurance instrument.

The closure financial assurance instrument shall contain an itemized written cost estimate in accordance with rule 3745-520-907 of the Administrative Code and shall be funded in an amount not less than the closure cost estimate calculated in accordance with that rule.

(D) Review of closure financial assurance instrument.

- (1) The owner or operator shall adjust the amount of the financial assurance instrument according to the cost estimates calculated in accordance with rule 3745-520-907 of the Administrative Code. Whenever the current closure cost estimate increases to an amount greater than the amount of the financial assurance maintained, the owner or operator shall cause the amount of the financial assurance instrument to be increased to an amount at least equal to the current closure cost estimate and submit evidence of such increase to the licensing authority or obtain alternate financial assurance, as specified in this rule, to compensate for the increase. The increase shall occur within sixty days after the increase of the cost estimate or the thirty-first day of December, whichever occurs first, and at least prior to license issuance.

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(2) The owner or operator may use an existing financial assurance instrument to satisfy all or part of the financial assurance requirements of this rule as long as the requirements of paragraph (E) of this rule are met.

(3) The licensing authority shall review and approve or require revisions to the closure financial assurance instrument to ensure compliance with this rule.

(E) The owner or operator of a construction and demolition debris facility shall select a closure financial assurance mechanism from the list of mechanisms specified in paragraphs (F), (G), (H), (I), (J), or (K) of this rule provided the owner or operator satisfies the criteria for use of that mechanism.

(F) Closure trust fund.

(1) The owner or operator may satisfy the requirements of this rule by establishing a closure trust fund which conforms to the requirements of paragraph (F) of this rule and submitting an originally signed duplicate of the trust agreement to the licensing authority in accordance with paragraph (B)(1) of this rule. The trustee shall be an entity which has the authority to act as a trustee and whose trust operations are regulated and examined by a federal or state agency.

(2) The wording of the trust agreement shall be identical to the wording specified in paragraph (A)(1) of rule 3745-520-930 of the Administrative Code and the trust agreement shall be accompanied by a formal certification of acknowledgment.

(3) The owner or operator shall fully fund the trust fund prior to the date of license issuance. The owner or operator shall submit to the licensing authority a receipt from the trustee for the deposit made into the trust fund.

(4) If the owner or operator establishes a closure trust fund after having used one or more alternate mechanisms specified in this rule, the owner or operator shall fully fund the trust fund in the amount determined in accordance with rule 3745-520-907 of the Administrative Code.

(5) When any area of the facility with financial assurance has had the cap system constructed and the cap system certification report has been concurred with by the licensing authority, the owner or operator, or any other person authorized to perform closure, may request reimbursement for closure expenditures. The licensing authority shall calculate in accordance with paragraph (M) of this rule the amount to be reimbursed and shall instruct, in writing, the trustee to make such reimbursement.

(6) When the facility is certified closed, the owner or operator, or any other person authorized to perform closure, may request reimbursement for closure expenditures after submitting a closure certification report to the licensing authority. The licensing authority shall calculate in accordance with paragraph

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(M) of this rule the amount to be reimbursed and shall instruct, in writing, the trustee to make such reimbursement.

(7) The trust may be terminated when either of the following occurs:

(a) The licensing authority has approved termination because the owner or operator has substituted alternate financial assurance for closure as specified in this rule.

(b) The approved board of health or the director notifies the owner or operator in accordance with paragraph (N) of this rule that the owner or operator is no longer required by this rule to maintain financial assurance for closure of the facility.

(G) Surety bond guaranteeing payment into a closure trust fund.

(1) The owner or operator may satisfy the requirements of this rule by obtaining a surety bond which conforms to the requirements of paragraph (G) of this rule and submitting the originally signed bond to the licensing authority in accordance with paragraph (B)(1) of this rule. At a minimum, the surety company issuing the bond shall be among those listed as acceptable sureties on federal bonds in "Circular 570" of the U.S. department of the treasury.

[Comment: "Circular 570" is published in the "Federal Register" annually on the first day of July; interim changes in the circular are also published in the "Federal Register."]

(2) The wording of the surety bond shall be identical to the wording specified in paragraph (B) of rule 3745-520-930 of the Administrative Code.

(3) The owner or operator who uses a surety bond to satisfy the requirements of this rule shall also establish a standby trust fund not later than the date the bond is obtained. Under the terms of the surety bond, all payments made thereunder shall be deposited by the surety directly into the standby trust fund in accordance with instructions from the licensing authority. This standby trust fund shall meet the requirements specified in paragraph (F) of this rule, except as follows:

(a) An originally signed duplicate of the trust agreement shall be submitted with the surety bond.

(b) Until the standby trust fund is funded, pursuant to the requirements of this rule, a deposit into the standby trust fund as specified in paragraph (F) of this rule is not required.

(4) The bond shall guarantee that the owner or operator shall do one of the following:

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- (a) Fund the standby trust fund in an amount equal to the penal sum of the bond before the beginning of the facility closure.
- (b) Fund the standby trust fund in an amount equal to the penal sum not later than fifteen days after closure is required in compliance with paragraph (B) of rule 3745-520-700 of the Administrative Code.
- (c) Provide alternate financial assurance as specified in this rule, and obtain written approval of the alternate financial assurance from the licensing authority not later than ninety days after both the owner or operator and the licensing authority receive notice of cancellation of the bond from the surety.
- (5) Under the terms of the bond, the surety shall become liable on the bond obligation when the owner or operator fails to perform as guaranteed by the bond.
- (6) Except as provided in paragraph (K) of this rule, the penal sum of the bond shall be in an amount at least equal to the cost estimate determined in accordance with rule 3745-520-907 of the Administrative Code.
- (7) Under the terms of the bond, the bond shall remain in force unless the surety sends written notice of cancellation by certified mail or other form of mail accompanied by a receipt to the owner or operator, the approved board of health, and the director. Cancellation shall not occur during the one-hundred-twenty-day period beginning on the first day that both the owner or operator and the licensing authority have received the notice of cancellation, as evidenced by the return receipts.
- (8) The owner or operator may cancel the bond if the licensing authority has given prior written approval. The licensing authority may provide such written approval when one of the following occurs:

 - (a) The owner or operator substitutes alternate financial assurance for closure as specified in this rule.
 - (b) The licensing authority notifies the owner or operator in accordance with paragraph (N) of this rule that the owner or operator is no longer required to maintain financial assurance for closure of the facility.
- (H) Surety bond guaranteeing performance of closure.

 - (1) The owner or operator may satisfy the requirements of this rule by obtaining a surety bond which conforms to the requirements of paragraph (H) of this rule and submitting the originally signed bond to the licensing authority in

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accordance with paragraph (B)(1) of this rule. The surety company issuing the bond shall, at a minimum, be among those listed as acceptable sureties on federal bonds in "Circular 570" of the U.S. department of the treasury.

[Comment: "Circular 570" is published in the "Federal Register" annually on the first day of July; interim changes in the circular are also published in the "Federal Register."]

- (2) The wording of the surety bond shall be identical to the wording specified in paragraph (C) of rule 3745-520-930 of the Administrative Code.
- (3) The owner or operator who uses a surety bond to satisfy the requirements of this rule shall also establish a standby trust fund not later than the date the bond is obtained. Under the terms of the surety bond, all payments made thereunder shall be deposited by the surety directly into the standby trust fund in accordance with instructions from the licensing authority. This standby trust fund shall meet the requirements specified in paragraph (F) of this rule except as follows:
 - (a) An originally signed duplicate of the trust agreement shall be submitted with the surety bond.
 - (b) Until the standby trust fund is funded in accordance with this rule, a deposit into the standby trust fund as specified in paragraph (F) of this rule is not required.
- (4) The bond shall guarantee that the owner or operator shall do one of the following:
 - (a) Perform closure in accordance with rule 3745-520-700 of the Administrative Code and any other requirements of the license.
 - (b) Provide alternate financial assurance as specified in this rule, and obtain written approval of the alternate financial assurance from the licensing authority not later than ninety days after both the owner or operator and the licensing authority receive notice of cancellation of the bond from the surety.
- (5) Under the terms of the bond, the surety shall become liable on the bond obligation when the owner or operator fails to perform as guaranteed by the bond. Following a determination by the approved board of health or the director, that the owner or operator has failed to perform closure activities in accordance with rule 3745-520-700 of the Administrative Code and license requirements, the surety shall perform post-closure care in accordance with rule 3745-520-700 of the Administrative Code, and license requirements or shall deposit the amount of the penal sum into the trust fund.

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- (6) The penal sum of the bond shall be in an amount at least equal to the cost estimate determined in accordance with rule 3745-520-907 of the Administrative Code.
- (7) Under the terms of the bond, the bond shall remain in force unless the surety sends written notice of cancellation by certified mail or other form of mail accompanied by a receipt to the owner or operator, the approved board of health, and the director. Cancellation shall not occur during the one-hundred-twenty-day period beginning on the first day that both the owner or operator and the licensing authority have received the notice of cancellation, as evidenced by the return receipts.
- (8) The owner or operator may cancel the bond if the licensing authority has given prior written approval. The licensing authority may provide such written approval when one of the following occurs:

 - (a) The owner or operator substitutes alternate financial assurance for closure as specified in this rule.
 - (b) The licensing authority notifies the owner or operator in accordance with paragraph (N) of this rule that the owner or operator is no longer required by this rule to maintain financial assurance for closure of the facility.
- (9) The surety shall not be liable for deficiencies in the completion of closure activities by the owner or operator after the owner or operator has been notified by the licensing authority in accordance with this rule that the owner or operator is no longer required to maintain financial assurance for closure of the facility.

(I) Closure letter of credit.

- (1) The owner or operator may satisfy the requirements of this rule by obtaining an irrevocable standby letter of credit which conforms to the requirements of paragraph (I) of this rule and having the originally signed letter of credit delivered to the licensing authority in accordance with paragraph (B)(1) of this rule. The issuing institution shall be an entity which has the authority to issue letters of credit and whose letter of credit operations are regulated and examined by a federal or state agency.
- (2) The wording of the letter of credit shall be identical to the wording specified in paragraph (D) of rule 3745-520-930 of the Administrative Code.
- (3) An owner or operator who uses a letter of credit to satisfy the requirements of this rule shall also establish a standby trust fund not later than the date the letter of credit is obtained. Under the terms of the letter of credit, all amounts paid pursuant to a draft by the licensing authority shall be deposited promptly and directly by the issuing institution into the standby trust fund in accordance with

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instructions from the licensing authority. The standby trust fund shall meet the requirements of the trust fund specified in paragraph (F) of this rule, except as follows:

- (a) An originally signed duplicate of the trust agreement shall be submitted with the letter of credit.
- (b) Until the standby trust fund is funded, pursuant to the requirements of this rule, a deposit into the standby trust fund as specified in paragraph (F) of this rule is not required.
- (4) The letter of credit shall be accompanied by a letter from the owner or operator referring to the letter of credit by number, issuing institution, and date, and providing the following information: the names and addresses of the construction and demolition debris facility and the owner or operator and the amount of funds assured for closure of the facility by the letter of credit.
- (5) The letter of credit shall be irrevocable and issued for a period of at least one year. The letter of credit shall provide that the expiration date shall be automatically extended for a period of at least one year unless, at least one hundred twenty days prior to the current expiration date, the issuing institution notifies the owner or operator, the approved board of health, and the director by certified mail or any other form of mail accompanied by a receipt of a decision not to extend the expiration date. Under the terms of the letter of credit, the one-hundred-twenty-day period shall begin on the day when both the owner or operator and the licensing authority have received the notice, as evidenced by the return receipts.
- (6) Except as provided in paragraph (K) of this rule, the letter of credit shall be issued in an amount at least equal to the cost estimate determined in accordance with rule 3745-520-907 of the Administrative Code.
- (7) Following a determination by the approved board of health or the director that the owner or operator has failed to perform closure activities in accordance with rule 3745-520-700 of the Administrative Code, or license requirements, the approved board of health or the director may draw on the letter of credit.
- (8) If the owner or operator does not establish alternate financial assurance as specified in this rule and obtain written approval of such alternate financial assurance from the licensing authority not later than ninety days after both the owner or operator and the licensing authority have received notice from the issuing institution that it shall not extend the letter of credit beyond the current expiration date, the approved board of health or director shall draw on the letter of credit. The approved board of health or the director may delay the drawing if the issuing institution grants an extension of the term of the credit. During the final thirty days of any such extension, the approved board of health or the

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director shall draw on the letter of credit if the owner or operator has failed to provide alternate financial assurance as specified in this rule and has failed to obtain written approval of such alternate financial assurance from the licensing authority.

(9) The licensing authority shall return the original letter of credit to the issuing institution for termination when one of the following occurs:

(a) The owner or operator substitutes alternate financial assurance for closure as specified in this rule.

(b) The licensing authority notifies the owner or operator in accordance with paragraph (N) of this rule that the owner or operator is no longer required to maintain financial assurance for closure of the facility.

(J) Closure insurance.

(1) The owner or operator may satisfy the requirements of this rule by obtaining closure insurance which conforms to the requirements of paragraph (J) of this rule and submitting an originally signed certificate of such insurance to the licensing authority in accordance with paragraph (B)(1) of this rule. At a minimum, the insurer shall be licensed to transact the business of insurance, or eligible to provide insurance as an excess or surplus lines insurer, in one or more states.

(2) The wording of the certificate of insurance shall be identical to the wording specified in paragraph (E) of rule 3745-520-930 of the Administrative Code.

(3) Except as provided in paragraph (K) of this rule, the closure insurance policy shall be issued for a face amount at least equal to the amount determined in accordance with rule 3745-520-907 of the Administrative Code. "Face amount" means the total amount the insurer is obligated to pay under the policy. Actual payments by the insurer shall not change the face amount, but the insurer's future liability shall be lowered by the amount of the payments.

(4) The closure insurance policy shall guarantee that funds shall be available to close the facility and conduct closure of the facility whenever closure is mandated. The policy shall also guarantee that once closure of the facility occurs, the insurer shall be responsible for paying out funds, up to an amount equal to the face amount of the policy. Upon the direction of the licensing authority, payment shall be made to such party or parties as the licensing authority specifies.

(5) When any area of the facility with financial assurance has had the cap system constructed and the cap system certification report has been concurred with by the licensing authority, the owner or operator, or any other person authorized to

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perform closure, may request reimbursement for closure expenditures. The licensing authority shall calculate in accordance with paragraph (M) of this rule the amount to be reimbursed and shall instruct, in writing, the insurer to make such reimbursement.

- (6) The owner or operator shall maintain the policy in full force and effect until the licensing authority approves termination of the policy by the owner or operator as specified in paragraph (J)(9) of this rule. The owner or operator shall not fail to timely pay the premium during the time the insurance is required to be in place. "Timely pay" means payment occurs such that the licensing authority does not receive a notice of future cancellation, termination, or failure to renew due to nonpayment of the premium, unless such notice is due to cancellation in accordance with paragraph (J)(9) of this rule.
- (7) Each policy shall contain a provision allowing assignment of the policy to a successor owner or operator. Such assignment may be conditional upon consent of the insurer, provided such consent is not unreasonably refused.
- (8) The policy shall provide that the insurer may not cancel, terminate, or fail to renew the policy except for failure to pay the premium. The automatic renewal of the policy shall, at a minimum, provide the insured with the option of renewal at the face amount of the expiring policy. If there is a failure to pay the premium, the insurer may elect to cancel, terminate, or fail to renew the policy by sending notice by certified mail to the owner or operator and to the licensing authority. Cancellation, termination, or failure to renew shall not occur during the one-hundred-twenty-day period beginning on the first day that both the owner or operator and the licensing authority have received the notice, as evidenced by the return receipts. Cancellation, termination, or failure to renew shall not occur and the policy shall remain in full force and effect in the event that on or before the date of expiration one or more of the following occurs:
- (a) Closure activities in accordance with 3745-520-700 of the Administrative Code occur.
 - (b) Closure is ordered by the approved board of health, the director, or a court of competent jurisdiction.
 - (c) The owner or operator is named as debtor in a voluntary or involuntary proceeding under U.S.C, Title 11, bankruptcy, as described in rule 3745-500-03 of the Administrative Code.
 - (d) The premium due is paid.
- (9) The licensing authority may give written approval that the owner or operator may terminate the insurance policy when one of the following occurs:

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- (a) The owner or operator substitutes alternate financial assurance for closure as specified in this rule.
- (b) he licensing authority notifies the owner or operator in accordance with paragraph (N) of this rule that the owner or operator is no longer required to maintain financial assurance for closure of the facility.
- (K) Use of multiple financial assurance mechanisms. The owner or operator may satisfy this rule by establishing more than one financial assurance mechanism for the facility. The mechanisms that may be used in combination are limited to trust funds, surety bonds guaranteeing payment into a closure trust fund, letters of credit, and insurance. The mechanisms shall conform to paragraphs (F), (G), (I) and (J) of this rule, except that it is the combination of mechanisms, rather than each single mechanism, that shall provide financial assurance for an amount at least equal to the current closure cost estimate calculated in accordance with rule 3745-520-907 of the Administrative Code. If an owner or operator uses a trust fund in combination with a surety bond or a letter of credit, the owner or operator may use the trust fund as the standby trust fund for the other mechanisms. A single standby trust fund may be established for two or more mechanisms. The licensing authority may invoke use of any or all of the mechanisms in accordance with paragraphs (F), (G), (I) and (J) of this rule to provide for closure of the facility.
- (L) Use of a financial assurance mechanism for multiple facilities. The owner or operator may use a financial assurance mechanism specified in this rule to meet the requirements of this rule for more than one construction and demolition debris facility. Evidence of financial assurance submitted to the licensing authority shall include a list showing, for each construction and demolition debris facility, the name, address, and the amount of funds for closure assured by the financial assurance mechanism. The amount of funds available through the financial assurance mechanism shall be no less than the sum of the funds that would be available if a separate financial assurance mechanism had been established and maintained for each construction and demolition debris facility.
- (M) Release of funds. If the owner or operator is in substantial compliance, then reimbursement shall be made as follows:

 - (1) Release of funds prior to closure. The owner or operator or any other person authorized to construct the cap system on behalf of the owner or operator shall receive reimbursement from the financial assurance mechanism or a reduction in the amount of financial assurance maintained in accordance with this rule after the licensing authority's written concurrence with the cap system certification report in accordance with rule 3745-520-501 of the Administrative Code has been obtained. Reimbursement or a reduction shall be made; however, a balance of five hundred fifty dollars per acre of financial assurance shall be maintained for maintenance of the certified cap until facility closure is completed in accordance with rule 3745-520-700 of the Administrative Code.

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(2) Release of funds after closure certification. The owner or operator or any other person authorized to perform closure on behalf of the owner or operator shall receive reimbursement of all remaining funds or termination of the financial assurance required under this rule only after written concurrence has been given by the licensing authority that closure has been completed for the facility in accordance with rule 3745-520-700 of the Administrative Code.

(N) Release of the owner or operator from the requirements of this rule. Release of the owner or operator from this rule does not release the owner or operator from the requirements to comply with post-closure care financial assurance in accordance with rule 3745-520-910 of the Administrative Code.

(1) Upon the receipt of the written concurrence of the approved board of health or the director that closure is completed for the facility as required in paragraph (G) in rule 3745-520-700 of the Administrative Code, the owner or operator may request written approval to terminate financial assurance for closure of the particular facility in accordance with this rule.

(2) The board of health or the director may notify the owner or operator that financial assurance may be terminated if the board of health or director has issued written concurrence that the owner or operator is no longer required by this rule to maintain financial assurance for closure of the facility and the owner or operator has requested release from financial assurance obligations.

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3745-520-907 Cost estimates for closure.

(A) The closure cost estimate shall be calculated using whichever one of the following methods results in the higher amount:

(1) Using current dollars and based on a third party being paid prevailing wages conducting the closure activities listed in this rule at the point in time during the licensing year that closure will be the most expensive.

(2) Using thirteen thousand dollars per acre to the nearest tenth of an acre as established in the facility's license application for the area that has been or is being used for the disposal of construction and demolition debris plus two thousand one hundred seventy-five dollars per ground water monitoring well.

(B) The licensing authority shall review the cost estimates for closure each year and do either of the following:

(1) Approve the closure cost estimate if the cost estimate conforms to this rule.

(2) Require revisions to the closure cost estimate to ensure compliance with this rule. If the licensing authority requires revisions to the financial assurance amounts exceeding thirteen thousand dollars per acre, the licensing authority shall provide an explanation of the rationale.

(C) Cost estimates for performing closure in accordance with rule 3745-520-700 of the Administrative Code shall be reported on forms prescribed by the director and shall include but not be limited to the following information and activities:

(1) Inspection and reporting in accordance with rule 3745-520-700 of the Administrative Code. Costs shall include the professional services needed for routine inspection and report preparation.

(2) Ground water monitoring in accordance with Chapter 3745-506 of the Administrative Code. Costs shall include all activities required by Chapter 3745-506 of the Administrative Code.

(3) Operation and maintenance of the ground water monitoring system in accordance with Chapter 3745-506 of the Administrative Code. Costs shall include the maintenance and repair, replacement, and abandonment of existing wells or the installation of new wells including mobilization, development, background sampling and quality control and certification.

(4) Leachate monitoring in accordance with rule 3745-520-655 of the Administrative Code. Costs shall include amounts for analyzing the required parameters and report preparation.

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- (5) Operation and maintenance of the leachate management system in accordance with rule 3745-520-655 of the Administrative Code. Costs shall include amounts for inspection, flushing, cleaning, repair and replacement, sludge removal, sludge characterization, sludge disposal, on-site leachate treatment if applicable, and leachate sampling, analysis, reporting, and disposal.
- (6) Surface water monitoring in accordance with rule 3745-520-660 of the Administrative Code. Costs shall include amounts for analyzing the required parameters and report preparation.
- (7) Filling and grading to establish permanent drainage. Costs shall include mobilization of contractors, transportation, excavation, placement and compaction of soil materials, materials testing (field and lab), quality assurance/quality control (QA/QC) including surveying, and restoration of borrow areas.
- (8) Construction and maintenance of cap system and permanent surface water structures incorporated into the cap system in accordance with rules 3745-520-501, 3745-520-510, and 3745-520-560 to 3745-520-562 of the Administrative Code and the approved facility design plan. Costs shall include mobilization of contractors, transportation, excavation, placement and compaction of soil materials, geosynthetic materials, drainage materials, materials testing (field and lab), QA/QC including surveying, temporary erosion control, seeding and mulching, restoration of borrow areas, and reporting.
- (9) Construction and maintenance of permanent surface water control structures outside the limits of C&DD placement. Costs shall include mobilization of contractors, transportation, excavation, placement and compaction of soil materials, materials testing (field and lab), QA/QC including surveying, restoration of borrow areas, and reporting.
- (10) Maintenance of access roads, permanent survey marks, sedimentation basins, other surface water control structures, and vegetative earthen berms or equivalent barriers.
- (11) Site access control. Costs shall include the materials and installation of fencing, gates, and signage.
- (12) Engineering. Costs shall include amounts for the preparation of construction and bid documents, any services necessary for any requests for revisions of the technical design plan, and construction certification.
- (13) Other construction costs. Costs shall be identified for items not otherwise addressed in another section. Any engineered components required by

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contingency plans that have yet to be installed, such as a gas extraction system for the control of hydrogen sulfide, shall be included.

(14) Operation and maintenance associated with corrective actions in accordance with Chapter 3745-506 of the Administrative Code. Costs shall provide for the completion of all activities associated with all corrective actions that have been implemented.

(15) Administration. Costs shall provide for personnel such as an on-site engineer, project manager, and clerical staff.

(16) Certification of closure. Costs shall include the preparation of a closure certification report in accordance with rule 3745-520-700 of the Administrative Code and the QA/QC and surveying costs for any items not included in other sections.

(17) Reserve for unanticipated costs. Costs shall include an amount for unanticipated costs that may not be accounted for in the closure cost estimate.

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3745-520-910 **Financial assurance for construction and demolition debris facility post-closure care.**

(A) Applicability.

- (1) The owner, or operator shall submit financial assurance information in accordance with this rule as part of a construction and demolition debris license application, including a license application for a modification.
- (2) The owner or operator shall submit to the licensing authority a post-closure care financial assurance instrument in accordance with this rule whenever required to submit financial assurance pursuant to an authorizing document other than documents required by paragraph (A)(1) of this rule.
- (3) The requirements of this rule do not apply to construction and demolition debris facilities that are described in paragraph (C)(1) of rule 3745-520-04 of the Administrative Code.

(B) Implementation.

- (1) The owner or operator shall execute and fund the post-closure care financial assurance instrument and submit an originally signed duplicate of the financial assurance instrument to the licensing authority prior to the issuance of a construction and demolition debris license.
- (2) Financial assurance for post-closure care shall be maintained and may be released only in accordance with paragraph (N) of this rule.

(C) Post-closure care financial assurance instrument.

The post-closure care financial assurance instrument shall contain an itemized written cost estimate in accordance with rule 3745-520-912 of the Administrative Code and shall be funded in an amount not less than the post-closure care cost estimate calculated in accordance with that rule.

(D) Review of post-closure care financial assurance instrument.

- (1) The owner or operator shall adjust the amount of the financial assurance instrument according to the cost estimates calculated in accordance with rule 3745-520-912 of the Administrative Code. Whenever the current post-closure care cost estimate increases to an amount greater than the amount of the financial assurance maintained, the owner or operator shall cause the amount of the financial assurance instrument to be increased to an amount at least equal to the current post-closure care cost estimate and submit evidence of such increase to the licensing authority or obtain alternate financial assurance, as specified in

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this rule, to compensate for the increase. The increase shall occur within sixty days after the increase of the cost estimate or December 31, whichever occurs first, and at least prior to license issuance.

(2) The owner or operator may use an existing financial assurance instrument to satisfy all or part of the financial assurance requirements of this rule as long as the requirements of paragraph (E) of this rule are met.

(3) The licensing authority shall review and approve or require revisions to the post-closure care financial assurance instrument to ensure compliance with this rule.

(E) The owner or operator of a construction and demolition debris facility shall select a post-closure care financial assurance mechanisms from the list of mechanisms specified in paragraphs (F), (G), (H), (I), (J), or (K) of this rule provided the owner or operator satisfies the criteria for use of that mechanism.

(F) Post-closure care trust fund.

(1) The owner or operator may satisfy the requirements of this rule by establishing a post-closure care trust fund which conforms to the requirements of paragraph (F) of this rule and submitting an originally signed duplicate of the trust agreement to the licensing authority in accordance with paragraph (B)(1) of this rule. The trustee shall be an entity which has the authority to act as a trustee and whose trust operations are regulated and examined by a federal or state agency.

(2) The wording of the trust agreement shall be identical to the wording specified in paragraph (A)(1) of rule 3745-520-930 of the Administrative Code and the trust agreement shall be accompanied by a formal certification of acknowledgment.

(3) The owner or operator shall fully fund the trust fund prior to the date of license issuance. The owner or operator shall submit to the licensing authority a receipt from the trustee for the deposit made into the trust fund.

(4) If the owner or operator establishes a post-closure care trust fund after having used one or more alternate mechanisms specified in this rule, the owner or operator shall fully fund the trust fund in the amount determined in accordance with rule 3745-520-912 of the Administrative Code.

(5) After beginning post-closure care, the owner or operator, or any other person authorized to perform post-closure care, may request reimbursement for post-closure care expenditures by submitting itemized bills to the licensing authority for post-closure care activities performed. The licensing authority shall determine the amount to be reimbursed and shall instruct, in writing the trustee to make such reimbursement in accordance with paragraph (M) of this rule.

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(6) The licensing authority may agree to termination of the trust when either of the following occurs:

(a) The owner or operator substitutes alternate financial assurance for post-closure care as specified in this rule.

(b) The licensing authority notifies the owner or operator in accordance with paragraph (N) of this rule that the owner or operator is no longer required by this rule to maintain financial assurance for post-closure care of the facility.

(G) Surety bond guaranteeing payment into a post-closure care trust fund.

(1) The owner or operator may satisfy the requirements of this rule by obtaining a surety bond which conforms to the requirements of paragraph (G) of this rule and submitting the originally signed bond to the licensing authority in accordance with paragraph (B)(1) of this rule. At a minimum, the surety company issuing the bond shall be among those listed as acceptable sureties on federal bonds in "Circular 570" of the U.S. department of the treasury.

[Comment: "Circular 570" is published in the "Federal Register" annually on the first day of July; interim changes in the circular are also published in the "Federal Register."]

(2) The wording of the surety bond shall be identical to the wording specified in paragraph (B) of rule 3745-520-930 of the Administrative Code.

(3) The owner or operator who uses a surety bond to satisfy the requirements of this rule shall also establish a standby trust fund not later than the date the bond is obtained. Under the terms of the surety bond, all payments made thereunder shall be deposited by the surety directly into the standby trust fund in accordance with instructions from the licensing authority. This standby trust fund shall meet the requirements specified in paragraph (F) of this rule, except as follows:

(a) An originally signed duplicate of the trust agreement shall be submitted with the surety bond.

(b) Until the standby trust fund is funded, pursuant to the requirements of this rule, a deposit into the standby trust fund as specified in paragraph (F) of this rule is not required.

(4) The bond shall guarantee that the owner or operator will do one of the following:

(a) Fund the standby trust fund in an amount equal to the penal sum of the bond before the beginning of post-closure care.

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- (b) Fund the standby trust fund in an amount equal to the penal sum not later than fifteen days after closure is required in compliance with paragraph (B) of rule 3745-520-700 of the Administrative Code.
- (c) Provide alternate financial assurance as specified in this rule and obtain written approval of the alternate financial assurance from the licensing authority not later than ninety days after both the owner or operator and the licensing authority receive notice of cancellation of the bond from the surety.
- (5) Under the terms of the bond, the surety shall become liable on the bond obligation when the owner or operator fails to perform as guaranteed by the bond.
- (6) Except as provided in paragraph (K) of this rule, the penal sum of the bond shall be in an amount at least equal to the post-closure care cost estimate determined in accordance with rule 3745-520-912 of the Administrative Code.
- (7) Under the terms of the bond, the bond shall remain in force unless the surety sends written notice of cancellation by certified mail or other form of mail accompanied by a receipt to the owner or operator, the approved board of health, and the director. Cancellation shall not occur during the one-hundred-twenty-day period beginning on the first day that both the owner or operator and the licensing authority have received the notice of cancellation, as evidenced by the return receipts.
- (8) The owner or operator may cancel the bond if the licensing authority has given prior written approval. The licensing authority may provide such written approval when one of the following occurs:

 - (a) The owner or operator substitutes alternate financial assurance for post-closure care as specified in this rule.
 - (b) The licensing authority notifies the owner or operator in accordance with paragraph (N) of this rule that the owner or operator is no longer required to maintain financial assurance for post-closure care of the facility.
- (H) Surety bond guaranteeing performance of post-closure care.

 - (1) The owner or operator may satisfy the requirements of this rule by obtaining a surety bond which conforms to the requirements of paragraph (H) of this rule and submitting the originally signed bond to the licensing authority in accordance with paragraph (B)(1) of this rule. The surety company issuing the bond shall, at a minimum, be among those listed as acceptable sureties on federal bonds in "Circular 570" of the U.S. department of the treasury.

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[Comment: "Circular 570" is published in the "Federal Register" annually on the first day of July; interim changes in the circular are also published in the "Federal Register."]

- (2) The wording of the surety bond shall be identical to the wording specified in paragraph (C) of rule 3745-520-930 of the Administrative Code.
- (3) The owner or operator who uses a surety bond to satisfy the requirements of this rule shall also establish a standby trust fund not later than the date the bond is obtained. Under the terms of the surety bond, all payments made thereunder will be deposited by the surety directly into the standby trust fund in accordance with instructions from the licensing authority. This standby trust fund shall meet the requirements specified in paragraph (F) of this rule except as follows:
 - (a) An originally signed duplicate of the trust agreement shall be submitted with the surety bond.
 - (b) Until the standby trust fund is funded, pursuant to the requirements of this rule, a deposit into the standby trust fund as specified in paragraph (F) of this rule is not required.
- (4) The bond shall guarantee that the owner or operator shall do one of the following:
 - (a) Perform post-closure care in accordance with rule 3745-520-750 of the Administrative Code and any other requirements of the license.
 - (b) Provide alternate financial assurance as specified in this rule, and obtain written approval of the alternate financial assurance from the licensing authority not later than ninety days after both the owner or operator and the licensing authority receive notice of cancellation of the bond from the surety.
- (5) Under the terms of the bond, the surety shall become liable on the bond obligation when the owner or operator fails to perform as guaranteed by the bond. Following a determination by the approved board of health or the director, that the owner or operator has failed to perform post-closure care activities in accordance with rule 3745-520-750 of the Administrative Code and license requirements, the surety shall perform post-closure care in accordance with rule 3745-520-750 of the Administrative Code, and license requirements or shall deposit the amount of the penal sum into the trust fund.
- (6) The penal sum of the bond shall be in an amount at least equal to the post-closure care cost estimate determined in accordance with rule 3745-520-912 of the Administrative Code.

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- (7) Under the terms of the bond, the bond shall remain in force unless the surety sends written notice of cancellation by certified mail or other form of mail accompanied by a receipt to the owner or operator, the approved board of health, and the director. Cancellation shall not occur during the one-hundred-twenty-day period beginning on the first day that both the owner or operator and the licensing authority has received the notice of cancellation, as evidenced by the return receipts.
- (8) The owner or operator may cancel the bond if the licensing authority has given prior written approval. The licensing authority may provide such written approval when one of the following occurs:
- (a) The owner or operator substitutes alternate financial assurance for post-closure care as specified in this rule.
- (b) The licensing authority notifies the owner or operator in accordance with paragraph (N) of this rule that the owner or operator is no longer required to maintain financial assurance for post-closure care of the facility.
- (9) The surety shall not be liable for deficiencies in the completion of post-closure care activities by the owner or operator after the owner or operator has been notified by the licensing authority in accordance with this rule that the owner or operator is no longer required to maintain financial assurance for post-closure care of the facility.

(I) Post-closure care letter of credit.

- (1) The owner or operator may satisfy the requirements of this rule by obtaining an irrevocable standby letter of credit which conforms to the requirements of paragraph (I) of this rule and by having the originally signed letter of credit delivered to the licensing authority in accordance with paragraph (B)(1) of this rule. The issuing institution shall be an entity which has the authority to issue letters of credit and whose letter of credit operations are regulated and examined by a federal or state agency.
- (2) The wording of the letter of credit shall be identical to the wording specified in paragraph (D) of rule 3745-520-930 of the Administrative Code.
- (3) An owner or operator who uses a letter of credit to satisfy the requirements of this rule shall also establish a standby trust fund not later than the date the letter of credit is obtained. Under the terms of the letter of credit, all amounts paid pursuant to a draft by the licensing authority shall be deposited promptly and directly by the issuing institution into the standby trust fund in accordance with instructions from the licensing authority. The standby trust fund shall meet the requirements of the trust fund specified in paragraph (F) of this rule, except as follows:

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- (a) An originally signed duplicate of the trust agreement shall be submitted with the letter of credit.
- (b) Until the standby trust fund is funded pursuant to the requirements of this rule, a deposit into the standby trust fund as specified in paragraph (F) of this rule is not required.
- (4) The letter of credit shall be accompanied by a letter from the owner or operator referring to the letter of credit by number, issuing institution, and date, and providing the following information: the names and addresses of the construction and demolition debris facility and the owner or operator and the amount of funds assured for post-closure care of the facility by the letter of credit.
- (5) The letter of credit shall be irrevocable and issued for a period of at least one year. The letter of credit shall provide that the expiration date shall be automatically extended for a period of at least one year unless, at least one hundred twenty days prior to the current expiration date, the issuing institution notifies the owner or operator, the approved board of health, and the director by certified mail or any other form of mail accompanied by a receipt of a decision not to extend the expiration date. Under the terms of the letter of credit, the one-hundred twenty-day period shall begin on the day when both the owner or operator and the licensing authority have received the notice, as evidenced by the return receipts.
- (6) Except as provided in paragraph (K) of this rule, the letter of credit shall be in an amount at least equal to the cost estimate determined in accordance with rule 3745-520-912 of the Administrative Code.
- (7) Following a determination by the approved board of health or the director that the owner or operator has failed to perform post-closure care activities in accordance with rule 3745-520-750 of the Administrative Code, or license requirements, the approved board of health or director may draw on the letter of credit.
- (8) If the owner or operator does not establish alternate financial assurance as specified in this rule and obtain written approval of such alternate financial assurance from the licensing authority not later than ninety days after both the owner or operator and the licensing authority have received notice from the issuing institution that it shall not extend the letter of credit beyond the current expiration date, the approved board of health or director shall draw on the letter of credit. The approved board of health or the director may delay the drawing if the issuing institution grants an extension of the term of the credit. During the final thirty days of any such extension, the approved board of health or the director shall draw on the letter of credit if the owner or operator has failed to

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provide alternate financial assurance as specified in this rule and has failed to obtain written approval of such alternate financial assurance from the licensing authority.

(9) The licensing authority shall return the original letter of credit to the issuing institution for termination when one of the following occurs:

(a) The owner or operator substitutes alternate financial assurance for post-closure care as specified in this rule.

(b) The licensing authority notifies the owner or operator in accordance with paragraph (N) of this rule, that the owner or operator is no longer required to maintain financial assurance for post-closure care of the facility.

(J) Post-closure care insurance.

(1) The owner or operator may satisfy the requirements of this rule by obtaining post-closure care insurance which conforms to the requirements of paragraph (J) of this rule and submitting an originally signed certificate of such insurance to the licensing authority in accordance with paragraph (B)(1) of this rule. At a minimum, the insurer shall be licensed to transact the business of insurance, or eligible to provide insurance as an excess or surplus lines insurer, in one or more states.

(2) The wording of the certificate of insurance shall be identical to the wording specified in paragraph (E) of rule 3745-520-930 of the Administrative Code.

(3) Except as provided in paragraph (K) of this rule, the post-closure care insurance policy shall be issued for a face amount at least equal to the amount determined in accordance with rule 3745-520-912. "Face amount" means the total amount the insurer is obligated to pay under the policy. Actual payments by the insurer shall not change the face amount, but the insurer's future liability will be lowered by the amount of the payments.

(4) The post-closure care insurance policy shall guarantee that funds shall be available to conduct post-closure care of the facility whenever post-closure care begins. The policy shall also guarantee that once post-closure care of the facility begins, the insurer shall be responsible for paying out funds, up to an amount equal to the face amount of the policy. Upon the direction of the licensing authority, payment shall be made to such party or parties as the licensing authority specifies.

(5) After beginning post-closure care, the owner or operator, or any other person authorized to perform post-closure care activities, may request reimbursement for post-closure care expenditures. The licensing authority shall calculate in

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accordance with paragraph (M) of this rule the amount to be reimbursed and shall instruct, in writing, the insurer to make such reimbursement.

- (6) The owner or operator shall maintain the policy in full force and effect until the licensing authority approves termination of the policy by the owner or operator as specified in paragraph (J)(9) of this rule. The owner or operator shall not fail to timely pay the premium during the time the insurance is required to be in place. "Timely pay" means payment occurs such that the licensing authority does not receive a notice of future cancellation, termination, or failure to renew due to nonpayment of the premium, unless such notice is due to cancellation in accordance with paragraph (J)(9) of this rule.
- (7) Each policy shall contain a provision allowing assignment of the policy to a successor owner or operator. Such assignment may be conditional upon consent of the insurer, provided such consent is not unreasonably refused.
- (8) The policy shall provide that the insurer may not cancel, terminate, or fail to renew the policy except for failure to pay the premium. The automatic renewal of the policy shall, at a minimum, provide the insured with the option of renewal at the face amount of the expiring policy. If there is a failure to pay the premium, the insurer may elect to cancel, terminate, or fail to renew the policy by sending notice by certified mail to the owner or operator and to the licensing authority. Cancellation, termination, or failure to renew may not occur, however, during the one hundred-twenty-day period beginning on the first day that both the owner or operator and the licensing authority has received the notice, as evidenced by the return receipts. Cancellation, termination, or failure to renew may not occur, and the policy will remain in full force and effect, in the event that on or before the date of expiration one or more of the following occurs:
- (a) Post-closure care activities in accordance with rule 3745-520-750 of the Administrative Code occur.
 - (b) Closure is ordered by the approved board of health, the director, or a court of competent jurisdiction.
 - (c) The owner or operator is named as debtor in a voluntary or involuntary proceeding under U.S.C, Title 11, bankruptcy, as described in rule 3745-500-03 of the Administrative Code.
 - (d) The premium due is paid.
- (9) The licensing authority may give written approval that the owner or operator may terminate the insurance policy when one of the following occurs:
- (a) The owner or operator substitutes alternate financial assurance for post-closure care as specified in this rule.

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(b) The licensing authority notifies the owner or operator in accordance with paragraph (N) of this rule, that the owner or operator is no longer required to maintain financial assurance for post-closure care of the facility.

(K) Use of multiple financial assurance mechanisms. The owner or operator may satisfy the requirements of this rule by establishing more than one financial assurance mechanism for the facility. The mechanisms are limited to trust funds, surety bonds guaranteeing payment into a post-closure care trust fund, letters of credit, and insurance. The mechanisms shall conform to paragraphs (F), (G), (I), and (J) of this rule, except that it is the combination of mechanisms, rather than each single mechanism, that shall provide financial assurance for an amount at least equal to the current post-closure care cost estimate calculated in accordance with rule 3745-520-912 of the Administrative Code. If an owner or operator uses a trust fund in combination with a surety bond or a letter of credit, the owner or operator may use the trust fund as the standby trust fund for the other mechanisms. A single standby trust fund may be established for two or more mechanisms. The licensing authority may invoke use of any or all of the mechanisms in accordance with paragraphs (F), (G), (I), and (J) of this rule to provide for post-closure care of the facility.

(L) Use of a financial assurance mechanism for multiple facilities. The owner or operator may use a financial assurance mechanism specified in this rule to meet the requirements of this rule for more than one construction and demolition debris facility. Evidence of financial assurance submitted to the licensing authority shall include a list showing, for each construction and demolition debris facility, the name, address, and the amount of funds for post-closure care assured by the financial assurance mechanism. The amount of funds available through the financial assurance mechanism shall be no less than the sum of the funds that would be available if a separate financial assurance mechanism had been established and maintained for each construction and demolition debris facility.

(M) Release of funds. If the owner or operator is in substantial compliance, then reimbursement shall be made as follows:

(1) Release of funds during post-closure care. The owner or operator or any other person authorized to perform post-closure care activities shall receive reimbursement from the financial assurance mechanism or a reduction in the amount of financial assurance maintained in accordance with this rule after the licensing authority's written concurrence that the post-closure care activities listed in the request for reimbursement or reduction have been performed in accordance with rule 3745-520-750 of the Administrative Code.

(2) Release of funds after post-closure care period has ended. The owner or operator or any other person authorized to perform post-closure care activities shall receive reimbursement of all remaining funds or termination of the financial assurance required under this rule only after written concurrence has been given

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by the licensing authority that post-closure care has been completed for the facility in accordance with rule 3745-520-750 of the Administrative Code.

(N) Release of the owner or operator from the requirements of this rule. Release of the owner or operator from this rule does not release the owner or operator from the requirements to comply with closure financial assurance in accordance with rule 3745-520-905 of the Administrative Code.

(1) After the completion of the post-closure care period in accordance with rule 3745-520-750 of the Administrative Code, the owner or operator may request written approval to terminate financial assurance for post-closure care of the particular facility in accordance with this rule.

(2) The board of health or the director may notify the owner or operator that financial assurance may be terminated if the board of health or director has issued written concurrence that the owner or operator is no longer required by this rule to maintain financial assurance for post-closure care of the facility and the owner or operator has requested release from financial assurance obligations.

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3745-520-912

Cost estimates of post-closure care.

- (A) The post-closure care cost estimate shall be calculated using current costs and based on a third party being paid prevailing wages conducting the post-closure care activities listed in this rule.
- (B) The licensing authority shall review and concur with or require revisions to the post-closure care cost estimate and to the post-closure care financial assurance instrument to ensure compliance with this rule.
- (C) During the post-closure care period, the owner or operator shall submit revised post-closure care cost estimates annually. The site-specific post-closure care cost estimates shall be revised in accordance with paragraphs (A) and (D) of this rule to account for any changes at the facility or changes in the length of the post-closure care period. If no changes have occurred, then the cost estimates shall be adjusted for inflation. The adjustment shall be made using an inflation factor derived from the annual implicit price deflator for gross domestic product as published by the United States. department of commerce in its February issue of "Survey of Current Business."
- (D) Cost estimates for post-closure care shall be reported on forms prescribed by the director and shall include but not be limited to the following information and activities:
- (1) Inspection and reporting in accordance with rule 3745-520-750 of the Administrative Code. Costs shall include the professional services needed for routine inspection and report preparation.
 - (2) Ground water monitoring in accordance with Chapter 3745-506 of the Administrative Code. Costs shall include all activities required by Chapter 3745-506 of the Administrative Code.
 - (3) Operation and maintenance of ground water monitoring system in accordance with Chapter 3745-506 of the Administrative Code. Costs shall include the maintenance and repair/replacement/abandonment of existing wells or the installation of new wells including mobilization, development, background sampling and quality control and certification.
 - (4) Leachate monitoring in accordance with rule 3745-520-655 of the Administrative Code. Costs shall include for analyzing the required parameters and report preparation.
 - (5) Operation and maintenance of leachate management system in accordance with rule 3745-520-655 of the Administrative Code. Costs shall include for inspection, flushing, cleaning, repair/replacement, sludge removal, sludge

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characterization, sludge disposal, on-site leachate treatment if applicable, and leachate disposal.

- (6) Surface water monitoring in accordance with rule 3745-520-660 of the Administrative Code. Costs shall include for analyzing the required parameters and report preparation.
- (7) Maintenance of cap system. Costs shall include for mowing, repair, and rodent control.
- (8) Maintenance of access roads, the permanent survey mark, permanent surface water control structures, sedimentation basins, and vegetative earthen berms or equivalent barriers.
- (9) Operation and maintenance of surface water control structures and sedimentation basins. Costs shall include for maintaining and repairing ditches, conveyance structures, and ponds and basins.
- (10) Maintenance of access control. Costs shall include for maintaining and repairing/replacing fences, gates, and signs.
- (11) Other operation and maintenance costs. Costs shall be identified for items not otherwise addressed in another section. Any engineered components required to be constructed by contingency plans, such as a gas extraction system for the control of hydrogen sulfide, shall be included.
- (12) Administration. Costs shall provide for personnel such as an engineer, project manager, and clerical staff, and reporting.
- (13) Certification of completion of post-closure care in accordance with rule 3745-520-760 of the Administrative Code. Costs shall provide for the preparation of a certification report.
- (14) Reserve for unanticipated costs. Costs shall include an amount for unanticipated costs that may not be accounted for in the closure cost estimate and includes but is not limited to the construction and maintenance of any gas extraction system, if a gas extraction system is required by a contingency plan.
- (15) Costs shall provide for performance and maintenance of any specific requirements established through a permit, license, or order of the director.

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3745-520-930

Wording of the financial instruments.

(A) Trust agreement.

(1) The trust agreement for the trust fund specified in paragraph (F) of rule 3745-520-905 of the Administrative Code and the trust agreement for the trust fund specified in paragraph (F) of rule 3745-520-910 of the Administrative Code must be worded as follows on forms prescribed by the director, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:

"Trust agreement

Trust agreement. The "agreement", entered into as of [date] by and between [name of the owner or operator], a [state] [corporation, partnership, association, proprietorship], the "grantor", and [name of corporate trustee], ["incorporated in the state of _____" or "a national bank"], the "trustee".

Whereas, the Ohio Environmental Protection Agency, ("Ohio EPA"), has established certain rules applicable to the grantor, requiring that the owner or operator of a construction and demolition debris disposal facility provide assurance that funds will be available when needed for closure and/or post-closure care of the facility.

Whereas, the grantor has elected to establish a trust to provide all or part of such financial assurance for the facilities identified herein.

Whereas, the grantor, acting through its duly authorized officers, has selected the trustee to be the trustee under this agreement, and the trustee is willing to act as trustee.

Now, therefore, the grantor and the trustee agree as follows:

Section 1. Definitions. As used in this agreement:

a) The term "grantor" means the owner or operator who enters into this agreement and any successors or assigns of the grantor.

b) The term "trustee" means the trustee who enters into this agreement and any successor trustee.

c) The term "licensing authority" means a city or general health district as created by or under authority of Chapter 3709. of the Revised Code, which is on the approved list in accordance with section 3714.09 of the Revised Code, or the director where the health district is not on the approved list.

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Section 2. Identification of facilities and amount for closure and/or post-closure care. This agreement pertains to the facilities and amount for closure and/or post-closure care identified on attached schedule A [on Schedule A, for each facility list the name, address, and the amount for closure and/or post-closure care, or portions thereof, for which financial assurance is demonstrated by this agreement].

Section 3. Establishment of fund. The grantor and the trustee hereby establish a trust fund, the "fund", for the benefit of the licensing authority. The grantor and the trustee intend that no third party have access to the fund except as herein provided. The fund is established initially as consisting of the property, which is acceptable to the trustee, described in schedule B attached hereto. Such property and any other property subsequently transferred to the trustee is referred to as the fund, together with all earnings and profits thereon, less any payments or distributions made by the trustee pursuant to this agreement. The fund will be held by the trustee, in trust, as hereinafter provided. The trustee shall not be responsible nor shall it undertake any responsibility for the amount or adequacy of, nor any duty to collect from the grantor, any payments necessary to discharge any liabilities of the grantor established by the licensing authority.

Section 4. Payment for closure and/or post-closure care. The trustee will make such payments from the fund as the licensing authority will direct, in writing, to provide for the payment of the costs of closure and/or post-closure care of the facilities covered by this agreement. The trustee will reimburse the grantor or other persons as specified by the licensing authority from the fund for closure and/or post-closure care expenditures in such amounts as the licensing authority will direct, in writing. In addition, the trustee will refund to the grantor such amounts as the licensing authority specifies in writing. Upon refund, such funds will no longer constitute part of the fund as defined herein.

Section 5. Payments comprising the fund. Payments made to the trustee for the fund will consist of cash or securities acceptable to the trustee.

Section 6. Trustee management. The trustee will invest and reinvest the principal and income of the fund and keep the fund invested as a single fund, without distinction between principal and income, in accordance with general investment policies and guidelines which the grantor may communicate in writing to the trustee periodically, subject, however, to the provisions of this section. In investing, reinvesting, exchanging, selling, and managing the fund, the trustee will discharge his duties with respect to the trust fund solely in the interest of the beneficiary and with the care, skill, prudence, and diligence under the circumstances then prevailing which persons of prudence, acting in a like capacity and familiar with such matters, would use in the conduct of an enterprise of a like character and with like aims; except that:

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a) Securities or other obligations of the grantor, or any other owner or operator of the facilities, or any of their affiliates as defined in the investment company act of 1940, as amended, 15 U.S.C. section 80a-2(a), will not be acquired or held, unless they are securities or other obligations of the federal or a state government;

b) The trustee is authorized to invest the fund in time or demand deposits of the trustee, to the extent insured by an agency of the federal or state government; and

(c) The trustee is authorized to hold cash awaiting investment or distribution uninvested for a reasonable time and without liability for the payment of interest thereon.

Section 7. Commingling and investment. The trustee is expressly authorized in its discretion:

a) To transfer periodically any or all of the assets of the fund to any common, commingled, or collective trust fund created by the trustee in which the fund is eligible to participate, subject to all of the provisions thereof, to be commingled with the assets of other trusts participating therein; and

b) To purchase shares in any investment company registered under the Investment Company Act of 1940, 15 U.S.C. sections 80a-1 et seq., including one which may be created, managed, underwritten, or to which investment advice is rendered or the shares of which are sold by the trustee. The trustee may vote such shares in its discretion.

Section 8. Express powers of trustee. Without in any way limiting the powers and discretions conferred upon the trustee by the other provisions of this agreement or by law, the trustee is expressly authorized and empowered:

a) To sell, exchange, convey, transfer, or otherwise dispose of any property held by it, by public or private sale. No person dealing with the trustee will be bound to see to the application of the purchase money or to inquire into the validity or expediency of any such sale or other disposition;

b) To make, execute, acknowledge, and deliver any and all documents of transfer and conveyance and any and all other instruments that may be necessary or appropriate to carry out the powers herein granted;

c) To register any securities held in the fund in its own name or in the name of a nominee and to hold any security in bearer form or in book entry, or to combine certificates representing such securities with certificates of the same issue held by the trustee in other fiduciary capacities, or to deposit or arrange for the deposit of such securities in a qualified central depository even though, when so

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deposited, such securities may be merged and held in bulk in the name of the nominee of such depository with other securities deposited therein by another person, or to deposit or arrange for the deposit of any securities issued by the United States government, or any agency or instrumentality thereof, with a federal reserve bank, but the books and records of the trustee will at all times show that all such securities are part of the fund;

d) To deposit any cash in the fund in interest- bearing accounts maintained or savings certificates issued by the trustee, in its separate corporate capacity, or in any other banking institution affiliated with the trustee, to the extent insured by an agency of the federal or state government; and

e) To compromise or otherwise adjust all claims in favor of or against the fund.

Section 9. Taxes and expenses. All taxes of any kind that may be assessed or levied against or in respect of the fund and all brokerage commissions incurred by the fund will be paid from the fund. All other expenses incurred by the trustee in connection with the administration of this trust, including fees for legal services rendered to the trustee, the compensation of the trustee to the extent not paid directly by the grantor, and all other proper charges and disbursements of the trustee will be paid from the fund.

Section 10. Annual valuation. The trustee will annually, not later than thirty days prior to the anniversary date of the establishment of the fund, furnish to the grantor and to the licensing authority a statement confirming the value of the trust. Any securities in the fund will be valued at market value as of no more than sixty days prior to the anniversary date of establishment of the fund. The failure of the grantor to object in writing to the trustee not later than ninety days after the statement has been furnished to the grantor and the licensing authority will constitute a conclusively binding assent by the grantor, barring the grantor from asserting any claim or liability against the trustee with respect to matters disclosed in the statement.

Section 11. Advice of counsel. The trustee may periodically consult with counsel, who may be counsel to the grantor, with respect to any question arising as to the construction of this agreement or any action to be taken hereunder. The trustee will be fully protected, to the extent licensed by law, in acting upon the advice of counsel.

Section 12. Trustee compensation. The trustee will be entitled to reasonable compensation for its service as agreed upon in writing periodically with the grantor.

Section 13. Successor trustee. The trustee may resign or the grantor may replace the trustee, but such resignation or replacement shall not be effective until the grantor has appointed a successor trustee and this successor accepts the

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appointment. The successor trustee will have the same powers and duties as those conferred upon the trustee hereunder. Upon the successor trustee's acceptance of the appointment, the trustee will assign, transfer, and pay over to the successor trustee the funds and properties then constituting the fund. If for any reason the grantor cannot or does not act in the event of the resignation of the trustee, the trustee may apply to a court of competent jurisdiction for the appointment of a successor trustee or for instructions. The successor trustee shall specify the date on which it assumes administration of the trust in a writing sent to the grantor, the licensing authority, and the present trustee by certified mail not later than ten days before such change becomes effective. Any expenses incurred by the trustee as a result of any of the acts contemplated by this section will be paid as provided in section 9.

Section 14. Instructions to the trustee. All orders, requests, and instructions by the grantor to the trustee will be in writing, signed by such persons as are designated in the attached exhibit A or such other designees as the grantor may designate by amendment to exhibit A. The trustee will be fully protected in acting without inquiry in accordance with the grantor's orders, requests, and instructions. All orders, requests, and instructions by the licensing authority to the trustee will be in writing, signed by the licensing authority, and the trustee will act and will be fully protected in acting in accordance with such orders, requests, and instructions. The trustee will have the right to assume, in the absence of written notice to the contrary, that no event constituting a change or a termination of the authority of any person to act on behalf of the grantor or the licensing authority hereunder has occurred. The trustee will have no duty to act in the absence of such orders, requests, and instructions from the grantor and/or the licensing authority except as provided for herein.

Section 15. Notice of nonpayment. The trustee will notify the grantor and the licensing authority by certified mail not later than ten days after the expiration of the thirty-day period following the anniversary of the establishment of the trust, if no payment is received from the grantor during the period. After the pay-in period is completed the trustee is not required to send a notice of nonpayment.

Section 16. Amendment of agreement. This agreement may be amended by an instrument in writing executed by the grantor, the trustee, and the licensing authority, or by the trustee and the licensing authority if the grantor ceases to exist.

Section 17. Irrevocability and termination. Subject to the right of the parties to amend this agreement as provided in section 16, this trust will be irrevocable and will continue until termination at the written agreement of the grantor, the trustee, and the licensing authority, or by the trustee and the licensing authority if the grantor ceases to exist. Upon termination of the trust, all remaining trust property, less final trust administration expenses, will be delivered to the grantor, unless the trust is a "standby trust" fund created in accordance with

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paragraph (G), (H), or (I) of rule 3745-520-905 of the Administrative Code and/or paragraph (G), (H), or (I) of rule 3745-520-910 of the Administrative Code, in which case all remaining trust property, less final trust administration expenses, will be delivered to the provider of the financial assurance.

Section 18. Immunity and indemnification. The trustee will not incur personal liability of any nature in connection with any act or omission, made in good faith, in the administration of this trust, or in carrying out any directions by the grantor or the licensing authority issued in accordance with this agreement. The trustee will be indemnified and saved harmless by the grantor or from the trust fund, or both, from and against any personal liability to which the trustee may be subjected by reason of any act or conduct in its official capacity, including all expenses reasonably incurred in its defense in the event the grantor fails to provide such defense.

Section 19. Choice of law. This agreement will be administered, construed, and enforced according to the laws of the state of Ohio.

Section 20. Interpretation. As used in this agreement, words in the singular include the plural and words in the plural include the singular. The descriptive headings for each section of this agreement will not affect the interpretation or the legal efficacy of this agreement. In witness whereof the parties have caused this agreement to be executed by their respective officers duly authorized and their corporate seals to be hereunto affixed and attested as of the date first above written: the parties below certify that the wording of this agreement is identical to the wording specified in paragraph (A) of rule 3745-520-930 of the Administrative Code as such rule was constituted on the date first above written.

[Signature of grantor]

[Title]

Attest:

[Title]

[Seal]

[Signature of trustee]

Attest:

[Title]

[Seal]"

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(2) The following is an example of the certification of acknowledgment, which must accompany the trust agreement for a trust fund as specified in paragraph (F) of rule 3745-520-905 of the Administrative Code and/or paragraph (F) of rule 3745-520-910 of the Administrative Code:

"State of _____

County of _____

On this [date], before me personally came [owner or operator] to me known, who, being by me duly sworn, did depose and say that she/he resides at [address], that she/he is [title] of [corporation], and the corporation described in and which executed the above instrument; that she/he knows the seal of said corporation; that the seal affixed to such instrument is such corporate seal; that it was so affixed by order of the board of licensing authority(ies) of said corporation, and that she/he signed her/his name thereto by like order.

[Signature of notary public]"

(B) The surety bond guaranteeing payment into the trust fund specified in paragraph (G) of rule 3745-520-905 of the Administrative Code and the surety bond guaranteeing payment into the trust fund specified in paragraph (G) of rule 3745-520-910 of the Administrative Code, must be worded as follows on forms prescribed by the director, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:

"Financial guarantee bond

Date bond executed: _____

Effective date: _____

Principal: [legal name and business address of owner or operator]

Type of organization: [insert "individual", "joint venture", "partnership", or "corporation"]

State of incorporation: _____

Surety(ies): [name(s) and business address(es)]

Name, address, and closure and/or post-closure care amount(s) for each facility guaranteed by this bond [indicate amount of closure and/or post-closure care]:
\$ _____

Total penal sum of bond: \$ _____

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Surety's bond number: _____

Know all persons by these presents, that we, the principal and surety(ies) hereto are firmly bound to the licensing authority, in the above penal sum for the payment of which we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally; provided that, where the surety(ies) are corporations acting as co-sureties, we, the sureties, bind ourselves in such sum "jointly and severally" only for the purpose of allowing a joint action or actions against any or all of us, and for all other purposes each surety binds itself, jointly and severally with the principal, for the payment of such sum only as is set forth opposite the name of such surety, but if no limit of liability is indicated, the limit of liability shall be the full amount of the penal sum.

Whereas, said principal is required to have a valid license, in order to operate each construction and demolition debris facility(ies) identified above, and

Whereas, said principal is required to provide financial assurance for closure and/or post-closure care of the facility(ies) as a condition of Chapter 3714. of the Revised Code; and

Whereas said principal shall establish a standby trust fund as specified by rule 3745-520-905 of the Administrative Code and/or rule 3745-520-910 of the Administrative Code.

Now, therefore, the conditions of the obligation are such that if the principal shall faithfully, before the beginning of closure of each facility identified above, fund the standby trust fund in the amount(s) identified above for the facility.

Or, if the principal shall fund the standby trust fund in such an amount(s) not later than fifteen days after an order to begin closure is issued by the licensing authority, or an Ohio court, or a U.S. district court, or other court of competent jurisdiction, or not later than fifteen days after a notice of revocation of the construction and demolition debris facility license, or, if the principal shall provide alternate financial assurance as specified in rule 3745-520-905 of the Administrative Code and/or rule 3745-520-910 of the Administrative Code as applicable, and obtain the licensing authority's written approval of such alternate financial assurance, not later than ninety days after the first day that notice of cancellation has been received by both the principal and the licensing authority from the surety(ies), then this obligation will be null and void; otherwise it is to remain in full force and effect.

The surety(ies) shall become liable on this bond obligation only when the principal has failed to fulfill the conditions described above. Upon notification by the licensing authority that the principal has failed to perform as guaranteed by this bond, the surety(ies) shall place funds in the amount guaranteed for the facility(ies) into the standby trust fund as directed by the licensing authority.

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The liability of the surety(ies) shall not be discharged by any payment or succession of payments hereunder, unless and until such payment or payments shall amount in the aggregate to the penal sum of the bond, but in no event shall the obligation of the surety(ies) hereunder exceed the amount of said penal sum.

The surety(ies) may cancel the bond by sending notice of cancellation by certified mail to the principal and to the licensing authority, provided, however, that cancellation shall not occur during the one hundred twenty day period beginning on the first day of receipt of the notice of cancellation by both the principal and the licensing authority as evidenced by the return receipt(s) or while a compliance procedure is pending, as defined in rule 3745-520-905 of the Administrative Code and/or rule 3745-520-910 of the Administrative Code.

The principal may terminate this bond by sending written notice to the surety(ies), provided, however, that no such notice shall become effective until the surety(ies) receives written authorization for termination of the bond by the licensing authority.

[The following paragraph is an optional rider that may be included but is not required.]

Principal and surety(ies) hereby agree to adjust the penal sum of the bond annually so that it guarantees a new closure and/or post-closure care amount, and no decrease in the penal sum takes place without the written permission of the licensing authority.

In witness whereof, the principal and surety(ies) have executed this financial guarantee bond and have affixed their seals on the date set forth above.

The persons whose signatures appear below hereby certify that they are authorized to execute this surety bond on behalf of the principal and surety(ies) and that the wording of this surety bond is identical to the wording specified in paragraph (B) of rule 3745-520-930 of the Administrative Code as such rule was constituted on the date this bond was executed.

Principal

Signature(s): _____

Name(s) and title(s) [typed]: _____

Corporate seal:

Corporate surety(ies)

Name and address: _____

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State of incorporation: _____

Liability limit: \$ _____

Signature(s): _____

Name(s) and title(s) [typed]: _____

Corporate seal:

[For every co-surety, provide signature(s), corporate seal, and other information in the same manner as for surety above.]

Bond premium: \$ _____ "

(C) The surety bond guaranteeing performance of closure specified in paragraph (G) of rule 3745-520-905 of the Administrative Code and the surety bond guaranteeing performance of post-closure care specified in paragraph (G) of rule 3745-520-910 of the Administrative Code, must be worded as follows on forms prescribed by the director, except that instructions in brackets are to be replaced by the relevant information and the brackets deleted:

"Performance bond

Date bond executed: _____

Effective date: _____

Principal: [legal name and business address of owner or operator]

Type of organization: [insert "individual", "joint venture", "partnership", or "corporation"]

State of incorporation: _____

Surety(ies): [name(s) and business address(es)]

Name, address, and closure and/or post-closure care amount for each facility guaranteed by this bond [indicate closure and/or post-closure care amount]:
\$ _____

Total penal sum of bond: \$ _____

Surety's bond number: _____

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Know all persons by these presents, that we, the principal and surety(ies) hereto are firmly bound to the licensing authority, in the above penal sum for the payment of which we bind ourselves, our heirs, executors, administrators, successors, and assigns jointly and severally; provided that, where the surety(ies) are corporations acting as co-sureties, we, the sureties, bind ourselves in such sum "jointly and severally" only for the purpose of allowing a joint action or actions against any or all of us, and for all other purposes each surety binds itself, jointly and severally with the principal, for the payment of such sum only as is set forth opposite the name of such surety, but if no limit of liability is indicated, the limit of liability shall be the full amount of the penal sum.

Whereas, said principal is required to have an Ohio EPA license or licenses in order to operate each construction and demolition debris facility(ies) identified above, and

Whereas said principal is required to provide financial assurance for closure and/or post-closure care, as a condition of the license(s), and

Whereas said principal shall establish a standby trust fund as is required when a surety bond is used to provide such financial assurance;

Now, therefore, the conditions of this obligation are such that if the principal shall faithfully perform closure and/or post-closure care, whenever required to do so, of each facility for which this bond guarantees closure and/or post-closure care, in accordance with rule 3745-520-905 of the Administrative Code and/or rule 3745-520-910 of the Administrative Code and other requirements of the license as such license may be amended, pursuant to all applicable laws, statutes, rules, and regulations, as such laws, statutes, rules, and regulations may be amended.

Or, if the principal shall provide alternate financial assurance as specified in rule 3745-520-905 of the Administrative Code and/or rule 3745-520-910 of the Administrative Code and obtain the licensing authority's written approval of such alternate financial assurance not later than ninety days after the date notice of cancellation is received by both the principal and the licensing authority from surety(ies), then this obligation will be null and void, otherwise it is to remain in full force and effect.

The surety(ies) shall become liable on this bond obligation only when the principal has failed to fulfill the conditions described above.

Upon notification by the licensing authority that the principal has been found in violation of the closure requirements of rule 3745-520-700 of the Administrative Code or post-closure care requirements of rule 3745-520-750 of the Administrative Code, for a facility for which this bond guarantees performance of closure or post-closure care, the surety(ies) shall either perform closure in accordance with rule 3745-520-700 of the Administrative Code or post-closure care in accordance with rule 3745-520-750 of the Administrative Code and other license requirements or

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place the closure and/or post-closure care amount guaranteed for the facility into the standby trust fund as directed by the licensing authority.

Upon notification by the licensing authority that the principal has failed to provide alternate financial assurance as specified in rule 3745-520-905 of the Administrative Code and/or rule 3745-520-910 of the Administrative Code and obtain written approval of such alternate financial assurance from the licensing authority not later than ninety days after receipt by both the principal and the licensing authority of a notice of cancellation of the bond, the surety(ies) shall place funds in the amount guaranteed for the facility(ies) into the standby trust fund as directed by the licensing authority.

The surety(ies) hereby waives notification of amendments to licenses, applicable laws, statutes, rules, and regulations and agrees that no such amendment shall in any way alleviate its (their) obligation on this bond.

The liability of the surety(ies) shall not be discharged by any payment or succession of payments hereunder, unless and until such payment or payments shall amount in the aggregate to the penal sum of the bond, but in no event shall the obligation of the surety(ies) hereunder exceed the amount of said penal sum.

The surety(ies) may cancel the bond by sending notice of cancellation by certified mail to the owner or operator and to the licensing authority, provided, however, that cancellation cannot occur during the one-hundred-twenty-day period beginning on the first day of receipt of the notice of cancellation by both the principal and the licensing authority as evidenced by the return receipts. The principal may terminate this bond by sending written notice to the surety(ies), provided, however, that no such notice shall become effective until the surety(ies) receives written approval for termination of the bond by the licensing authority.

[The following paragraph is an optional rider that may be included but is not required.]

Principal and surety(ies) hereby agree to adjust the penal sum of the bond annually so that it guarantees a new closure and/or post-closure care amount, and no decrease in the penal sum occurs without the written approval of the licensing authority.

In witness whereof, the principal and surety(ies) have executed this performance bond and have affixed their seals on the date set forth above.

The persons whose signatures appear below hereby certify that they are authorized to execute this surety bond on behalf of the principal and surety(ies) and that the wording of this surety bond is identical to the wording specified in paragraph (C) of rule 3745-520-930 of the Administrative Code, as such rule was constituted on the date this bond was executed.

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Principal

Signature(s): _____

Name(s) and title(s) [typed]: _____

Corporate seal:

Corporate surety(ies)

Name and address: _____

State of incorporation: _____

Liability limit: \$ _____

Signature(s): _____

Name(s) and title(s) [typed]: _____

Corporate seal:

[For every co-surety, provide signature(s), corporate seal, and other information in the same manner as for surety above.]

Bond premium: \$ _____ "

(D) The letter of credit specified in paragraph (I) of rule 3745-520-905 of the Administrative Code and the letter of credit specified in paragraph (I) of rule 3745-520-910 of the Administrative Code must be worded as follows on forms prescribed by the director, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted [note: a letter of credit may also contain provisions used by the issuing institution in its regular course of business, provided that such provisions do not alter the terms and conditions in this paragraph]:

"Irrevocable standby letter of credit

[Licensing authority]

Dear sir or madam: We hereby establish our irrevocable standby letter of credit no. _____ In your favor, at the request and for the account of [owner's or operator's name and address] up to the aggregate amount of [in words] U.S. Dollars (\$ _____), available upon presentation of

1) Your sight draft, bearing reference to this letter of credit no. _____, and

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2) Your signed statement reading as follows: 'I certify that the amount of the draft is payable pursuant to regulations issued under the authority of Chapter 3714. of the Revised Code.

This letter of credit is effective as of [date] and will expire on [date of at least one year later], but such expiration date will be automatically extended for a period of [at least one year] on [date] and on each successive expiration date, unless, at least one hundred twenty days prior to the current expiration date, we notify both you and [owner's or operator's name] by certified mail that we have decided not to extend this letter of credit beyond the current expiration date. In the event that you are so notified, any unused portion of the credit will be available upon presentation of your sight draft for one hundred twenty days after the first day of receipt by both you and [owner's or operator's name] as evidenced by the return receipts.

Whenever this letter of credit is drawn under and in compliance with the terms of this credit, we will duly honor such draft upon presentation to us, and we will deposit the amount of the draft directly into the standby trust fund by [owner's or operator's name] in accordance with your instructions.

We certify that the wording of this letter of credit is identical to the wording specified in paragraph (D) of rule 3745-520-930 of the Administrative Code as such rule was constituted on the date shown immediately below.

[Signature(s) and title(s) of official(s) of issuing institution] [date]

This credit is subject to [insert "the most recent edition of the "Uniform Customs and Practice for Documentary Credits", published by the "International Chamber of Commerce" or "The Uniform Commercial Code"]."

[Comment: In the event that the owner or operator ceases to exist, any unused portion of the credit will be available for the one-hundred-twenty-day period after the date of receipt by the licensing authority, as evidenced by the return receipt.]

(E) The certificate of insurance specified in paragraph (J) of rule 3745-520-905 of the Administrative Code and the certificate of insurance specified in paragraph (J) of rule 3745-520-910 of the Administrative Code, must be worded as follows on forms prescribed by the director, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:

"Certificate of insurance for closure and/or post-closure care

Name and address of insurer

(Herein called the "insurer"): _____

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Name and address of insured

(Herein called the "insured"): _____

Facilities covered: [List for each facility: name, address, county in which the facility is located, and the amount of insurance for closure and/or post-closure care (these amounts for all facilities covered must total the face amount shown below).]

Face

Amount: \$ _____

Policy

Number: _____

Effective date: _____

The insurer hereby certifies that it has issued to the insured the policy of insurance identified above to provide financial assurance for [insert "closure and/or post-closure care"] for the facilities identified above. The insurer further warrants that such policy conforms in all respects with the requirements of paragraph (J) of rule 3745-520-905 of the Administrative Code and/or paragraph (J) of rule 3745-520-910 of the Administrative Code, as applicable as such rules were constituted on the date shown immediately below. It is agreed that any provision of the policy inconsistent with such regulations is hereby amended to eliminate such inconsistency.

Whenever requested by the licensing authority the insurer agrees to furnish to the licensing authority a duplicate original of the policy listed above, including all endorsements thereon.

I hereby certify that the wording of this certificate is identical to the wording specified in paragraph (E) of rule 3745-520-930 of the Administrative Code as such rule was constituted on the date shown immediately below.

[Authorized signature for insurer]

[Name of person signing]

[Title of person signing]

Signature of witness or notary: _____

[Date]"