New Jersey
Department of Environmental Protection

Site Remediation and
Waste Management Program

Presumptive and Alternative Remedy Technical Guidance

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PRESUMPTIVE AND ALTERNATE REMEDY TECHNICAL GUIDANCE

1. INTENDED USE OF GUIDANCE DOCUMENT

This technical guidance is designed to help the person responsible for conducting remediation to comply with the New Jersey Department of Environmental Protection (Department) requirements established by the Technical Requirements for Site Remediation (Technical Rules) N.J.A.C. 7:26E. This technical guidance will be used by many different people involved in the remediation of a contaminated site, such as Licensed Site Remediation Professionals (LSRP), Non-LSRP environmental consultants and other environmental professionals. Therefore, the generic term "investigator" will be used to refer to any person that uses this technical guidance to remediate a contaminated site on behalf of a remediating party, including the remediating party itself.

The procedures for a person to vary from the technical requirements in regulation are outlined in the Technical Rules at N.J.A.C. 7:26E-1.7. Variances from a technical requirement or departure from guidance must be documented and adequately supported with data or other information. In applying technical guidance, the Department recognizes that professional judgment may result in a range of interpretations on the application of the guidance to site conditions.

This technical guidance supersedes previous Department guidance issued on this topic.

This technical guidance was prepared with stakeholder input. The following people were on the committee who prepared this document:

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This technical guidance is to be used in concert with all applicable laws, rules and other Department guidance. Courtesy copies of the Department's rules, including the Administrative Requirements for the Remediation of Contaminated Sites (ARRCS) rule, N.J.A.C. 7:26C, and amendments to the Technical Rules, N.J.A.C. 7:26E, are available on the Department's website at www.nj.gov/dep/rules/. In addition, a courtesy copy of the Site Remediation Reform Act (SRRA), N.J.S.A. 58:10C et seq. and other statutes are posted at www.state.nj.us/dep/srp/.

2. PURPOSE

The purpose of this document is to assist investigators in implementing presumptive remedies and alternative remedies. A presumptive remedy is a remedy that can be implemented at a contaminated site without the need for Departmental approval of the required remedial action work plan. An alternative remedy is a remedy that must receive Departmental approval before it can be implemented and can only be proposed when the presumptive remedy is impractical due to conditions at the site or when the alternative remedy will be equally protective over time.

Presumptive remedies may be used at any site if desired by the person responsible for conducting the remediation even if they are not required pursuant to the Technical Rules. If a presumptive remedy is not required, and the site will not be a residence, child care center or a school, then an alternative remedy cannot be proposed.

3. DOCUMENT OVERVIEW

This document describes the use of presumptive remedies where there will be new construction or a change in use at a contaminated site or AOC and where the site or AOC is planned for residential purposes, for use as a licensed child care center or as a public school, private school or charter school. This document also provides technical guidance in developing alternative remedies and preparing a Remedial Action Work Plan (RAWP) for the AOC that is subject to the presumptive remedy requirements.

4. GENERAL PRESUMPTIVE REMEDY CRITERIA

4.1 Applicability

Pursuant to N.J.S.A. 58:10B-12(g), the Department is required to establish presumptive remedies for any remediation initiated after May 7, 2010, at a site or AOC where new construction is proposed for residential purposes, for use as a child care center licensed pursuant to P.L.1983, c.492 (C.30:5B-1 et seq.), or as a public school or private school as defined in N.J.S.18A:1-1, as a charter school established pursuant to P.L.1995, c.426 (C.18A:36A-1 et seq.), or where there will be a change in the use of the site to residential, child care, or public school, private school, or charter school purposes.

It is necessary that a remedial action conducted at these facilities is an unrestricted use remedy, presumptive remedy or an alternative remedy that is pre-approved by the Department prior to implementation.

The phrase “initiate remediation” refers to the start of the remediation process in accordance with the definition of remediation:

"Remediation" or "remediate" means all necessary actions to investigate and cleanup or respond to any known, suspected, or threatened discharge, including, as necessary, the preliminary assessment, site investigation, remedial investigation and remedial action.

At an **existing** school, child care center or residence, the person responsible for conducting remediation is not required to use a presumptive remedy.

The only portions of a site subject to presumptive remedies are those areas where there will be new construction of, or change in use to, a school, child care center or residence and are used for those purposes. If a portion of a building is being converted to a child care center then all areas of the building where the children have access, including the parking lot, would be subject to presumptive remedy requirements. The remainder of the building would not be required to use a presumptive remedy.

If a person responsible for conducting remediation, initiated remediation at a school, child care center or residence ***before*** May 7, 2010, then they are ***not*** subject to presumptive remedy requirements. However, they *may* submit a RAWP to the Department if that person desires Department pre-approval for an alternative remedy or a remedial action for the specific issues detailed in section 5.5 below under the following conditions:

(a) Remediation was initiated prior to May 7, 2010 at a site or AOC where new construction was proposed for residential purposes; for use as a licensed child care center or as a public school, private school, or charter school; or
(b) Remediation was initiated prior to May 7, 2010 at a site or AOC where there was a change in the use of the site to residential, child care, or public school, private school, or charter school purposes, or
(c) A person responsible for conducting remediation chooses to remediate at an existing licensed child care center, a public school, private school, a charter school or a residence.

BE ADVISED: For these voluntary pre-approval requests, once a RAWP is submitted with an Alternative Remedy proposal, Departmental approval must be obtained prior to implementation of the remedial action.

4.2 Technical Rule Requirements

The person responsible for conducting the remediation shall apply the criteria noted below to all sites where remediation was initiated after May 7, 2010 with new construction or change in use to a school, child care center or residence:

- All remedial action permit requirements must be met pursuant to N.J.A.C. 7:26C-7.1.
- All remedies must comply with applicable federal, state, and local requirements pursuant to N.J.A.C. 7:26E

4.3 Presumptive Remedies in Table 5.1 of the Technical Rules

Each presumptive remedy listed in Table 5.1 of N.J.A.C. 7:26E consists of engineering and institutional controls divided into four major components consisting of a physical barrier, buffer, visible demarcation and inspection. The combination of these components is intended to establish a capping system that is protective and durable. The applications of these terms are further explained below:

- **Physical barrier** is either a durable surface material or a clean fill layer that prevents direct human contact to the contaminated material(s).

- **Buffer layer** consists of a separate additional clean fill layer (top soil, fill dirt, gravel, etc.) of another specified thickness that provides added protection from exposure in the event of breaches of the physical barrier. The buffer layer is placed immediately below the barrier with no space in between the layers.

- **Visible demarcation** such as a visible contamination boundary marker (e.g., orange plastic snow fence) or geotextile fabric, that provides a visible warning to those

conducting intrusive activities. The purpose of the visible demarcation is to serve as notification of the vertical limit of the engineering control and beginning of the contaminated zone. The geotextile fabric may limit upward contaminant migration and provide a better physical barrier to the contamination below compared to the orange plastic snow fencing. The visible demarcation may also consist of a visible change in soil type from the contaminated zone to the buffer layer.

- **Inspection, monitoring and maintenance requirements** of a deed notice and remedial action permit provide a mechanism for protection of public health and for disruption/ restoration procedures to support the long- term effectiveness of the remedy.

5. REMEDIAL ACTIONS

Presumptive remedies were developed based upon consideration of the general historical use of contaminated properties, the general nature and extent of the contamination at sites, the future use of these sites (i.e. as residences, schools or child care facilities) and other factors deemed relevant by the Department. The presumptive remedies are minimum requirements.

In circumstances where more than one contamination type/subcategory exists at a site or AOC, the Department expects that the person responsible for conducting the remediation will select the most stringent of the presumptive remedies for the various types/subcategories present at the site or a given AOC. The selected presumptive remedy should also be appropriate to address the contamination.

5.1 Discrete Area Discharges

Discrete area discharges are areas of contamination that can readily be remediated by excavation and off-site disposal using routinely available construction equipment and conventional techniques. A discrete area discharge comprises a volume of 300 cubic yards or less of contaminated soil. The person responsible for conducting the remediation shall remove and/or treat the contamination to unrestricted use levels.

The unrestricted use remedy is independent of contamination type(s) and does not include site-wide, ubiquitous, large-scale contaminated soil areas. Discrete area discharges do not apply to unexploded ordnance, chlorinated dioxins and furans, hexavalent chromium and those landfills that are required to submit a RAWP to the Department for review and approval pursuant to N.J.A.C 7:26E-5.3. Discrete discharges do not apply to historic fill material because historic fill material may be capped.

Some examples of discrete area discharges include, but are not limited to, contaminated soils originating from an above or below ground drum, overfills or leaks of associated underground storage tanks/aboveground storage tank systems, and surface spills of a regulated hazardous substance.

If there are discrete area discharges within a larger area of contamination that will be remediated to restricted use standards pursuant to a Department approved alternative remedy, then the person responsible for conducting the remediation may remediate the discrete area discharge to restricted

use standards. For example, contamination from a discharge of heating oil from an aboveground storage tank commingled with historic fill contamination, without immediate environmental concerns, free and/or residual product remediation, vapor intrusion (VI) conditions, soil impact to ground water standards/criteria, ground water impacts, and/or ecological concerns, can submit an alternative remedy to the Department for approval to cap the area.

If multiple discrete area discharges exist at the site or AOC, it may become impractical based on the site conditions to utilize the presumptive remedy. The person responsible for conducting the remediation can propose an alternative remedy in accordance with Section 6 below. The alternative remedy may be either a suitable capping remedy from Table 5.1 of the Technical Rules, consolidation of contaminated soil in accordance with the Department's Fill Guidance document or another alternative remedy in accordance with section 6 below.

5.2 Multiple Discrete Area Discharges

The total area of the site or AOC should be compared with the number of discrete area discharges and the total area of each discharge. The ranges of multiple discrete area discharges that may be considered appropriate for an alternative remedy are as follows:

- Sites that are less than 10 acres in size and contain more than one discrete area discharge per acre;
- Sites that are between 10 and 50 acres in size and contain more than one discrete area discharge per two acres, with a minimum of 10 discrete area discharges; and
- Sites that are larger than 50 acres in size and contain more than one discrete area discharge per five acres with a minimum of 25 discrete area discharges.

5.3 Historic Fill and Other Discharged Contaminants Not Otherwise Excluded

The presumptive remedies for historic fill, coal tar and other discharged contaminants, not otherwise excluded, are listed in Table 5.1 of the Technical Rules. Discharged contaminants excluded from Table 5.1 are polychlorinated biphenyls (PCBs), chromium, dioxin and furans. The exclusive use of Table 5.1 remedies for mobile compounds is not recommended as it is unlikely that these capping technologies will be adequately protective of the VI and groundwater pathways.

The presumptive remedies in Table 5.1 consist of restricted use remedies requiring institutional and engineering controls. The person responsible for conducting the remediation may remediate historic fill contamination to the unrestricted standards, if desired. The latest version of the

Historic Fill Technical Guidance should be consulted (found at: http://www.nj.gov/dep/srp/guidance). If the specific intended use of an area at a school, child care center or a residence is not indicated on a row of Table 5.1, then the person responsible for conducting the remediation should propose an alternative remedy.

5.4 Polychlorinated Biphenyls

PCBs are federally regulated under the Toxic Substance Control Act (TSCA) at 40 CFR 761.61. The presumptive remedy for PCBs can be found on Table 5.1 of the Technical Rules. All

presumptive remedies must comply with all federal TSCA rules and regulations. TSCA stipulates a range of self-implementing cleanup levels based upon future high and low occupancy scenarios that are identified in 40 CFR 761.61 (a)4. Pursuant to 40 CFR 761.61(c), the person responsible for conducting remediation must obtain United State Environmental Protection Agency written approval for remedial actions that do not meet the federal self-implementing criteria.

5.5 Landfills

Pursuant to the Brownfield and Contaminated Site Remediation Act, N.J.S.A. 58:10B-12(g) and N.J.A.C 7:26E-5.3, the construction of single family residences, schools, or child care centers is prohibited on a landfill that undergoes remediation if engineering controls are required for the management of landfill gas or leachate.

5.6 Remedial Action Work Plans Requiring Departmental Pre-approval

Pursuant to N.J.A.C. 7:26E-5.3(d), the person responsible for conducting the remediation shall obtain the Department's written approval of a remedial action prior to implementation by proposing a RAWP prepared pursuant to the Technical Rules for the following:

- containment of free product;
- unexploded ordnance;
- chlorinated dioxins and furans;
- hexavalent chromium; and
- landfills not referenced in section 5.4 of this guidance.

Pursuant to N.J.A.C. 7:26E – 5.3(c), the person responsible for conducting the remediation shall obtain the Department's written approval of an alternative remedy as detailed in section 6 below.

6. ALTERNATIVE REMEDIES

6.1 Administrative Procedures for Obtaining Approval of an Alternative Remedy

As per N.J.S.A. 58:10B-12(g), Department pre-approval is required prior to implementation of an alternative remedy. To obtain Department approval for an alternative remedy proposal, prepare and submit to the Department's Bureau of Case Assignment and Initial Notice the "Alternative Remedy / Remedial Action Pre-Approval Form" and a RAWP prepared pursuant to N.J.A.C. 7:26E-5.5 **prior to the submission of the final RAWP.** Alternative remedies may be proposed for an entire site or for an AOC. The final RAWP must include the Department's approval letter for the Alternative Remedy.

The following topics shall be addressed in the RAWP for the Alternative Remedy as specified in N.J.A.C. 7:26E-5.3(c):

- A written analysis explaining: (1) why the presumptive remedy is impractical due to site conditions or (2) how the alternative remedy would be equally protective over time as the presumptive remedy

- A detailed description of the alternative remedy including specifications for engineering and institutional controls and a plan for monitoring and maintenance of such controls pursuant to N.J.A.C. 7:26E and N.J.A.C. 7:26C
- A written discussion of how the alternative remedy is protective of human health, safety and the environment

The investigator that is seeking approval of an AOC-specific alternative remedy should provide all AOC-specific information and any other site-related information necessary to demonstrate the requirements noted above**. The submittal for an alternative remedy pre-approval does not require a complete RAWP, just the pertinent information described in the bullets above, plus the Alternative Remedy/Remedial Action Pre-Approval form, a map of the proposed areas and a narrative description of the presumptive remedy versus the proposed alternative remedy.**

6.2 Developing Alternative Remedies

If the specific intended use of an area at a school, child care center or a residence is not indicated on a row of Table 5.1, then the person responsible for conducting the remediation should propose an alternative remedy.

When developing an alternative remedy, give consideration to how a presumptive remedy in Table 5.1 for the same intended end use would be constructed. This should include the three major engineering control components and the institutional control.

6.3 Equally Protective Over Time

When developing an alternative remedy that is equally protective over time, an end use may have more than one presumptive remedy available. Consider each of the four components: barrier, buffer, demarcation and monitoring, listed in section 4.3 to evaluate ways to compensate for one component being more or less protective than the corresponding component of another option. This type of evaluation should then be used to develop a proposal for the alternative remedy. For example, an increased (more frequent) monitoring program may be appropriate to offset a barrier or buffer layer of decreased thickness, because more frequent inspections should identify any need for corrective action, such as a breach in the cover layer, more quickly.

If an engineering control already exists at the site that does not meet the requirements listed in Table 5.1, the engineering control may not need to be removed and replaced. An alternative remedy may be proposed detailing why the existing engineering control is equally protective or how the existing engineering control can be improved, enhanced or augmented to meet the requirement of being equally protective. An example of this could be an existing parking lot that does not meet the overall thickness requirements for the barrier and buffer layers in Table 5.1; increasing the thickness of the pavement, or barrier layer, could be proposed as a potential alternative remedy to offset the decreased thickness of the underlying buffer layer.

In all cases, the engineering controls should be suitable for the anticipated wear and use. The overall alternative remedy should consider all four components outlined above and meet the objective of preventing exposure. The RAWP should explain how the alternative remedy would be equally protective over time.

6.4 Impractical Due to Conditions at the Site

The Department will consider various site specific factors, including the nature and severity of these factors, when evaluating the impact on the practicability of implementing the unrestricted use remedy or presumptive remedy at a given site. Combinations of several of the factors below, or other factors, may increase the cost of remediation to the degree that an unrestricted use remedial action or the presumptive remedy may become cost prohibitive.

- The presence of steep slopes, unsuitable subsoils or other physical constraints that will affect the implementability or long-term effectiveness of the remedy.
- The remedy will be prohibited or environmentally undesirable due to proximity to wetlands, flood plains, or wooded areas.
- The remedy will require excavation near or beneath structures (either on the site or on adjacent sites) that would jeopardize the stability or integrity of such structures.
- The need for substantial dewatering that will affect the implementability or feasibility of the remedy.
- A discrete area discharge is contained within a widespread area of contamination such as historic fill.
- The remedy will require excavation of bedrock.
- The remedy will require extensive excavation support (e.g., shoring, sheeting).
- The remedy will damage or otherwise compromise the integrity of an existing remedy or engineering control.
- The remedy will render the site unusable.
- The site includes multiple discrete area discharges.
- The remedy will require extended disruption to public service, public utilities or other vital infrastructure improvements.

The RAWP should identify and explain the site-specific conditions that led to the determination that the unrestricted use remedial action or the presumptive remedy in Table 5.1 is impractical due to conditions at the site. Where this determination is based upon cost, the underlying technical factors should also be discussed in the Alternative Remedy proposal. In addition, the RAWP should include all site-specific data that will assist the Department in its evaluation of the "impractical due to site condition" determination for the alternative remedy.

APPENDIX A
GLOSSARY

GLOSSARY

Refer to the Technical Rules at N.J.A.C. 7:26E-1.8 and the Administrative Requirements for the Remediation of Contaminated Sites at N.J.A.C. 7:26C-1.3 for additional definitions.

Barrier: the layer of material of an engineering control that is on top of the buffer layer.

Buffer: the layer of material of an engineering control that is between the barrier and visible demarcation or contaminant as applicable.

Change of use: change of use of an AOC to a school, child care center or residence. Change of use also applies if the school, child care center or residence moves from an upper floor to the lowest level floor in the building.

Child care center: a center as defined at N.J.S.A. 30:5B-1 et seq.

Clean fill: material to be used in a remedial action that meets all soil remediation standards, site-specific alternative standards, or site-specific interim standards; does not contain extraneous debris or solid waste; and does not contain free liquids. This also includes any material that meets all criteria or action levels for contaminants without standards, such as asbestos, radiation, hexavalent chromium, and dioxins. This material can be "soil" or "non-soil".

Discrete area discharge: a discharge that only results in less than or equal to 300 cubic yards of contaminated soil. Historic Fill material is not a discrete area discharge.

Durable surface materials: means a surface that inhibits exposure to the subsurface contaminants.

Equally protective over time: achieving the same remedial action objectives as the presumptive remedy.

Geotextile fabric: a permeable fabric made of woven or non-woven (needle punch or heat bonded) polyester or polypropylene which, when used in association with soil, has the ability to separate, filter, reinforce, protect, or drain.

Impractical Due to Conditions at the Site: as discussed in section 6.4

Loose fill surface: a playground surfacing material as defined in the U.S. Consumer Product Safety Commission’s Handbook for Public Playground Safety (Pub. No. 325 dated 2008 or subsequent current version).

New construction: the construction of a building or other site improvement including an addition to an existing building that will extend the footprint of the building. This would include the addition of a play area or athletic field.

Residential type I: any residence not a residential type II.

Residential type II: an area under the control or authority of an entity or person, other than the occupant, with the legal authority to preclude anyone from disturbing an engineering control.

School: a public school or private school as defined in N.J.S.A. 18A:1-1, or a charter school established pursuant to N.J.S.A. 18A:36A.

Unitary material: a playground surfacing material as defined in the U.S. Consumer Product Safety Commission's Handbook for Public Playground Safety (Pub. No. 325 dated 2008 or subsequent current version).

"Unrestricted use remedial action" means any remedial action for soil that does not require the continued use of either engineering or institutional controls to meet the established health risk or environmental standards.

Visible contamination boundary marker: a demarcation that consists of a synthetic, durable material that can be easily seen when uncovered while digging.

Visible Demarcation: method of visibly depicting the boundary between the buffer layer of engineering control and the contaminated material.

Widespread Contamination: contamination that is not a discrete area discharge.

APPENDIX B
ACRONYMS

ACRONYMS

AOC	area of concern
ARRCS	Administrative Requirements for the Remediation of Contaminated Sites
CFR	Code of Federal Regulations
LSRP	Licensed Site Remediation Program
N.J.A.C.	New Jersey Administrative Code
N.J.S.A.	New Jersey Statutes Annotated
PCB	polychlorinated biphenyls
RAWP	Remedial Action Work Plan
SRRA	Site Remediation Reform Act
TSCA	Toxic Substance Control Act
VOC	volatile organic compounds

APPENDIX C

N.J.A.C. 7:26E 5.3 Table 5.1

Presumptive Remedies for Soil Contamination at Schools, Child Care Centers, and Residences

Contamination type	Subcategories/Scenarios	Presumptive Remedy/ Remediation Goal	Remedial Action-Schools, Child Care Centers, and Type II Residential	Remedial Action - Type I Residential
Historic Fill and/or all other discharged contaminants not otherwise excluded in N.J.A.C.7:26E-5.3	1) Play Areas Loose Fill Surface (e.g., mulch, sand, etc.)	Restricted Use	Option #1. *Barrier* - Minimum of one foot clean loose fill material; *Buffer* - Minimum of one foot clean loose fill material; *Demarcation* - Geotextile fabric; and *Inspection* - Quarterly Option #2. *Barrier* - Minimum of two feet clean loose fill material; *Buffer* - Minimum of two feet clean loose fill material; *Demarcation* - Visible contamination boundary marker or geotextile fabric; and *Inspection* - Semi-annual	Same engineering control requirement as schools, child care centers and Type II Residential

Contamination type	Subcategories/Scenarios	Presumptive Remedy/ Remediation Goal	Remedial Action-Schools, Child Care Centers, and Type II Residential	Remedial Action - Type I Residential
Historic Fill and/or all other discharged contaminants not otherwise excluded in N.J.A.C.7:26E-5.3	1) Play Areas Unitary Material Surface (e.g., Tile, Rubber Mat, Artificial Turf)	Restricted Use	Option #1. *Barrier* - Proposed surface of unitary material and a minimum of six (6) inches crushed stone; *Buffer* - Minimum of six (6) inches crushed stone; *Demarcation* - Geotextile fabric; and *Inspection* - Annual Option #2. *Barrier* - Proposed surface of unitary material and a minimum of four (4) inches of concrete or asphalt; *Buffer* - Four (4) inches of sub base; *Demarcation* - Visible contamination boundary marker; and *Inspection* - Annual Option #3. *Barrier* - Proposed surface of unitary material and a minimum of one (1) foot clean fill; *Buffer* - Minimum of one (1) foot clean fill; *Demarcation* - Visible contamination boundary marker; and *Inspection* - Annual	Same engineering control requirement as schools, child care centers and Type II Residential

Contamination type	Subcategories/Scenarios	Presumptive Remedy/ Remediation Goal	Remedial Action-Schools, Child Care Centers, and Type II Residential	Remedial Action - Type I Residential
Historic Fill and/or all other discharged contaminants not otherwise excluded in N.J.A.C.7:26E-5.3	1) Play Areas Other Unpaved Playing Surfaces (e.g., athletic fields)	Restricted Use	Option #1. *Barrier* - Vegetative cover with a minimum of one foot clean fill; *Buffer* - Minimum of one foot clean fill; *Demarcation* - Geotextile fabric; and *Inspection* - Annual Option #2. *Barrier* - Vegetative cover with a minimum of two feet clean fill; *Buffer* - Minimum of two feet clean fill; *Demarcation* - Visible contamination boundary marker; and *Inspection* - Annual	Same engineering control requirement as schools, child care centers and Type II Residential
Historic Fill and/or all other discharged contaminants not otherwise excluded in N.J.A.C.7:26E-5.3	2) Concrete or Asphalt Surfaces: e.g., Driveways, Roadways, Parking, Walkways, Bicycle Paths, etc.	Restricted Use	*Barrier* - Minimum of four (4) inches of concrete or asphalt; *Buffer* Minimum of four (4) inches of sub base; *Demarcation* - Visible contamination boundary marker; and *Inspection* - Annual	Same engineering control requirement as schools, child care centers and Type II Residential

Contamination type	Subcategories/Scenarios	Presumptive Remedy/ Remediation Goal	Remedial Action-Schools, Child Care Centers, and Type II Residential	Remedial Action - Type I Residential
Historic Fill and/or all other discharged contaminants not otherwise excluded in N.J.A.C.7:26E-5.3	3) Building Footprint - New Construction	Restricted Use	Option #1 *Barrier* - Minimum of four (4) inches of concrete; *Buffer* - Minimum four (4) inches of sub base; *Demarcation* - Visible contamination boundary marker; and *Inspection* -Annual Option #2 (for crawl spaces) *Barrier* - Minimum of one (1) foot clean fill; *Buffer* - Minimum of one (1) foot clean fill; *Demarcation* - Visible contamination boundary marker; and *Inspection* - Semi-annual	Same engineering control requirement as schools, child care centers and Type II Residential

Contamination type	Subcategories/Scenarios	Presumptive Remedy/ Remediation Goal	Remedial Action-Schools, Child Care Centers, and Type II Residential	Remedial Action - Type I Residential
Historic Fill and/or all other discharged contaminants not otherwise excluded in N.J.A.C.7:26E-5.3	3) Building Footprint - Existing	Restricted Use	Option #1 *Barrier* - Minimum of four (4) inches of concrete; *Buffer* - Minimum four (4) inches of sub base; *Demarcation* - Not required; and *Inspection* - Annual Option #2 (for crawl spaces and basements with a dirt floor) *Barrier* - Minimum of one (1) foot clean fill; *Buffer* - Minimum of one (1) foot clean fill; *Demarcation* - Visible contamination boundary marker; and *Inspection* - Semi-annual	Same engineering control requirement as schools, child care centers and Type II Residential

Contamination type	Subcategories/Scenarios	Presumptive Remedy/ Remediation Goal	Remedial Action-Schools, Child Care Centers, and Type II Residential	Remedial Action - Type I Residential
Historic Fill and/or all other discharged contaminants not otherwise excluded in N.J.A.C.7:26E-5.4	4) Vegetative Cover e.g., Lawn Areas	Restricted Use	*Barrier* - A vegetative cover and a minimum of six (6) inches of clean fill; *Buffer* - Minimum of six (6) inches of clean fill; *Demarcation* - Visible contamination boundary marker; and *Inspection* - Semi-annual	Option #1. *Barrier* - Vegetative cover and a minimum of one (1) foot clean fill; *Buffer* - Minimum of one (1) foot clean fill; *Demarcation* - Geotextile fabric; and *Inspection* - Quarterly Option #2. *Barrier* - Vegetative cover and a minimum of two (2) feet clean fill; *Buffer* - Minimum of two (2) feet clean fill; *Demarcation* - Visible contamination boundary marker or geotextile fabric; and *Inspection* - Semi-annual

Contamination type	Subcategories/Scenarios	Presumptive Remedy/ Remediation Goal	Remedial Action-Schools, Child Care Centers, and Type II Residential	Remedial Action - Type I Residential
Historic Fill and/or all other discharged contaminants not otherwise excluded in N.J.A.C.7:26E-5.3	5) Landscaped Areas	Restricted Use	Option #1. *Barrier* - Minimum of one (1) foot clean fill; *Buffer* - Minimum of one (1) foot clean fill; * *Demarcation* - Geotextile fabric; and *Inspection* - Semi-annual Option #2. *Barrier* - Minimum of two (2) feet of clean fill; *Buffer* - Minimum of two (2) feet clean fill;* *Demarcation* - Visible contamination boundary marker; and *Inspection* - Semi-annual * Tree and/or shrub can be planted within barrier and/or buffer layer(s), but must maintain a minimum of one (1) foot clean fill on all sides and below the extent of planted root ball of larger plant materials.	Same engineering control requirement as schools, child care centers and Type II Residential
Historic Fill and/or all other discharged contaminants not otherwise excluded in N.J.A.C.7:26E-5.3	6) Maintenance Areas/Dumpsters and Compactor Pad/Other Areas Restricted to Workers	Restricted Use	*Barrier* - Minimum of four (4) inches of concrete or asphalt; *Buffer* - Minimum of four (4) inches of sub base; *Demarcation* - Visible contamination boundary marker; and *Inspection* - Annual	Not Applicable

Contamination type	Subcategories/Scenarios	Presumptive Remedy/ Remediation Goal	Remedial Action-Schools, Child Care Centers, and Type II Residential	Remedial Action - Type I Residential
Historic Fill and/or all other discharged contaminants not otherwise excluded in N.J.A.C.7:26E-5.3	7) Underground Utility Corridors:	Restricted Use	Piping & Conduits Placed in Trenches: *Barrier* - Clean fill from surface down to utility (minimum of one (1) foot); *Buffer* - Minimum of one (1) foot of clean fill below and around the sides of the utility; *Demarcation* - Visible contamination boundary marker along the bottom and sides of the trench; and *Inspection* - Annual Direct Burial Cable can be installed within barrier and/or buffer layer(s) but must maintain a minimum of one foot clean fill on sides and below installation.	Same engineering control requirement as schools, child care centers and Type II Residential
Historic Fill and/or all other discharged contaminants not otherwise excluded in N.J.A.C.7:26E-5.3	8) Contamination at depths greater than 10 feet with 10 feet of clean material covering the contamination	Restricted Use	*Barrier* - Minimum of five feet clean material; *Buffer* - Minimum of five feet clean material; *Demarcation* - None Required; and *Inspection* - Annual	Same engineering control requirement as schools, child care centers and Type II Residential

Contamination type	Subcategories/Scenarios	Presumptive Remedy/ Remediation Goal	Remedial Action-Schools, Child Care Centers, and Type II Residential	Remedial Action - Type I Residential
Widespread PCBs	Any Use	Unrestricted Use or Restricted use	Remove and/or treat all PCB contamination to a minimum of 10 ppm. For any PCB contamination greater than 0.2 ppm and less than or equal to 10 ppm apply Option # 1 or Option # 2: Option #1: *Barrier* - Minimum of six (6) inches asphalt or concrete; *Buffer* -Minimum of 18 inches clean fill; *Demarcation* - Visible contamination boundary marker; and *Inspection* - Annual Option #2. *Barrier* - Minimum of 18 inches of clean fill; *Buffer* - Minimum of 10 inches of compacted soil pursuant to CFR 761.61(a)7; *Demarcation* - Geotextile fabric; and *Inspection* - Semi-annual	Remove and/or treat to unrestricted levels pursuant to N.J.A.C. 7:26E-5.4(b)2