

Purpose of this Study Guide

This material has been compiled to assist you in your preparation for the Rhode Island Department of Environmental Management Class I OWTS Designers' Examination; <u>it is **not** intended to provide the technical foundation necessary to pass the exam</u>. This document is intended to be utilized in conjunction with the OWTS Rules, available at: <u>https://rules.sos.ri.gov/regulations/part/250-150-10-6</u>.

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DEM OWTS Licensing Program Summary OWTS Design License Qualifications Authorized Tasks Task Practice Class -Year-round WT -Soil Evaluation by RIDEM-licensed CI-IV (Soil Site Suitability Evaluator) Residential system repairs -Field verification optional **OWTS** Installer ≤ 900gpd T -Field approval allowed conventional systems and certain alternative technologies **RIDEM-licensed OWTS designer** Design ≤ 2000 gpd residential **Design Review RIDEM Program** ≤ 900 gpd commercial Ш PE or PLS all Class I + alteration apps + new building apps without critical Installation -OWTS licensed designer variances compliance checks -RIDEM spot checks or case-by-case basis Completed and submitted to RIDEM by RIDEM-Certification of licensed designer within five business days after the Installation per OWTS, building foundation, drinking water well, and **RIDEM-approved** other appurtenances, as may be specified in written plan: Ш ΡE All system designs RIDEM guidance, have been constructed in Submission to accordance with the design plan. If an O&M RIDEM of a agreement is required, a copy of the agreement shall Certificate of be submitted to the Department with the Certificate Construction of Construction. Min 9 semester System Conformance Hours soil science Site/soil evaluations (req'd for all IV RIDEM (authorizes use of And 2 - 4 years new systems) system) experience

Activities in Licensing

- Application to take exam
- Exam
- License Application & fee
- License issued maximum 3-year period
- Continuing education 4 "Continuing education units" CEU per year
- Renewal of Licenses, Application submitted with fee and documentation of CEUs. License will not be renewed if designer has Certificates of Construction or As built plans due.

Responsibilities of Class I Designers

- · Obtain required site/system data
- · Design of OWTS repair
- Submittal of complete and accurate application and plan (see OWTS rule 6.18 OWTS Applications)
- · Notify RIDEM of construction date; at least 24 hrs. notice
- · Fulfill minimum inspection and recording requirements
- · Record and maintain a file (photos, material receipts, etc.)
- Submit Certificate of Construction within five business days after the OWTS, building foundation, drinking water well, and other appurtenances, as may be specified in
 written RIDEM guidance, have been constructed in accordance with the RIDEM-approved design plan.
- Inform owner of conventional system O&M requirements

Compliance Oversight Process

- Complaints/performance problems
 - · Preliminary review of complaints
 - Warning letter issued if appropriate
- Review Panel for more serious issues
 - Notice of Intent to Suspend or Revoke may be issued
- · Preliminary hearing
- Notice of Suspension or Revocation
- Appeal/Formal hearing
- Public censure

Rhode Island Installer Statute

Title 5 Businesses and Professions

Chapter 5-56 Installers of Individual Sewage Disposal Systems

5-56-1 License required. -

(a) It shall be unlawful for any person to install, construct, alter, or repair or cause to be installed, constructed, altered, or repaired any individual sewage disposal system unless he or she has a valid annual license issued by the director of environmental management.

(b) This section does not apply to a property owner installing, constructing, altering, or repairing an individual sewage disposal system to serve a building he or she occupies or will occupy as his or her intended permanent domicile, provided that he or she has obtained written permission for that work, and that he or she has obtained the necessary written approval of the director of the plans and specifications for that work prior to the start of any construction.

5-56-2 Conditions for obtaining an installer's license. -

(a) An application for an installer's license filled out in its entirety, along with a fee of twenty-five dollars (\$25.00), must be submitted to the director.

(b) The applicant installer must have demonstrated to the director that he or she is capable of installing individual sewage disposal systems in accordance with approved plans and specifications.

(c) The applicant installer must obtain a passing grade on a written examination given by the director, intended to demonstrate his or her understanding of the rules and regulations, and his or her ability to read and interpret approved plans and specifications for individual sewage disposal systems.

(d) The applicant installer must demonstrate possession of and ability to properly use a level or transit.

5-56-3 [Obsolete.] – Reenactments. The 1987 reenactment (P.L. 1987 ch. 78, § 1) deemed this section obsolete.

5-56-4 License not transferable or assignable. – Installer's licenses are not transferable or assignable and shall automatically become invalid upon a change of ownership or upon suspension or revocation.

5-56-5 Denial, suspension and revocation of licenses. -

(a) An application for a license may be denied, or a license may be suspended or revoked when the director has determined that the operation is not being and/or will not be conducted in manner as prescribed in these regulations.

(b) When an application for a license has been denied or when a license has been suspended or revoked, a hearing shall be granted if a hearing is requested in writing by the aggrieved applicant within ten (10) days of the denial, suspension or revocation.

5-56-6 Expiration and renewal of licenses. -

(a) Licenses shall be in effect for a period not to exceed three (3) years following the date of issuance.

(b) A license shall be renewed upon payment of a renewal fee and the satisfactory completion of any continuing education required by the director.

5-56-7 Responsibilities, performance and conduct. – A duly licensed installer shall adhere to the following:

(1) To perform all work in compliance with approved plans and specifications only.

(2) To report any discrepancies on an approved plan which he or she may note during construction to the director.

(3) To utilize only quality grade construction materials approved by the director.

(4) To use only the best construction techniques to provide for the best possible installations.

(5) To work only under valid plans approved by the director with the approval stamp clearly indicated, and to commence work only after completely reviewing the entire approval including the application, the layout plans, all typical

specification sheets, and other attachments.

(6) To adhere to each and every term of approval as stipulated by the director in his or her approval of the particular plan.

5-56-8 Penalties. -

(a) The penalties for noncompliance with any section of this chapter are as set forth in § 42-17.1-2, as amended, as follows:

(b) Any person who shall knowingly and willfully violate any rule or regulation adopted pursuant to authority granted to the director shall upon conviction be punished by a fine of not more than five hundred dollars (\$500) or by imprisonment for not more than thirty (30) days or both, for each offense or violation, and each day's failure to comply with any rule or regulation shall constitute a separate offense.

Rhode Island Designer Statute

Title 5 - Businesses and Professions

Chapter 5-56.1 - Designers of Individual Sewage Disposal Systems

5-56.1-1 Declaration of intent and purpose. -

(a) Whereas sewage entering individual sewage disposal systems contains bacteria, viruses, other pathogens and nutrients; and whereas the sewage may also contain hazardous materials, including, but not limited to, cleaning fluids, paints, hobby supplies and other hazardous household chemicals; and whereas improperly designed or defectively installed and failing individual sewage disposal systems may degrade wetlands, groundwater, or surface waters, including drinking water sources; and whereas the public health, the public welfare, and the environment require protection from pollutants emanating from individual sewage disposal systems; the general assembly establishes licensing requirements and responsibilities for persons involved in certain design and installation activities relating to individual sewage disposal systems.

(b) The purpose of this chapter is to establish provisions, qualifications and procedures for licensing persons engaged in the preparation of applications, plans, certifications and specifications for individual sewage disposal systems, also referred to as "ISDSs", for submittal to the department of environmental management.

5-56.1-2 License required. – Beginning one year after issuance of the first designer's license, all plans, applications, evaluations and certifications for the siting, location, design, installation or repair of any individual sewage disposal system submitted to the department of environmental management are prepared by a person possessing an appropriate designer's license issued by the director of the department of environmental management in accordance with rules and regulations promulgated under § 5-56.1-3. The department of environmental management may exempt the repair of individual sewage disposal system from this requirement.

5-56.1-3 Licensing authority. – The department of environmental management, acting through its director and referred to as "the licensing authority", carries out the functions and duties conferred upon it by this chapter. The licensing authority adopts standards, rules and regulations, pursuant to chapter 35 of title 42, for the administration of the licensing program established under this chapter and related activities.

5-56.1-4 Conditions for obtaining a designer's license. – A designer's license is issued to any person who satisfies all the requirements stated below:

(1) A completed application for a designer's license along with a reasonable fee is submitted to the licensing authority; all fees are deposited as general revenues and the amounts appropriated are used for the purpose of administering the water and air protection program.

(2) The applicant for a designer's license is required to pass a written examination, which may include a field component, administered or sanctioned by the licensing authority for the applicable class of license. The test assesses the competency and knowledge of the applicant regarding pertinent subject matter and the application of ISDS regulations.

(3) The licensing authority establishes, through regulations, classes of licenses appropriate to the expertise required for each activity performed by licensed individuals. The licensing authority establishes minimum qualifications, education and experience requirements for each class of license and eligibility requirements for testing. The licensing authority may waive the requirement of a written examination or any portion of it in the case of a person licensed by a federal agency or another state having licensing requirements substantially equivalent to those in Rhode Island.

(4) No person may be granted an exemption to any of the conditions for obtaining a license as provided for in this section on the basis of past experience or "grandfather" rights.

(5) The licensing authority holds an examination at least once per year.

5-56.1-5 License not transferable or assignable. – Designers' licenses are issued to natural persons only and are not transferable or assignable.

5-56.1-6 Expiration and renewal of licenses. -

(a) A designers' license is in effect for a period not to exceed three (3) years following the date of issuance.

(b) A license is renewed upon payment of a renewal fee and upon satisfactory completion of any continuing education required by the licensing authority.

5-56.1-7 Responsibilities – Performance and conduct. –

(a) A licensed designer performs all studies, measurements, evaluations, investigations, data gathering and other work within his or her licensed area of responsibility required to prepare the applicable submittal for individual sewage disposal systems; non-licensed employees or subordinates of a person possessing a designer's license may assist in the work provided the work is done under the direct supervision of the licensed designer who is responsible for the work and signs any and all required applications, submittals and certifications.

(b) A licensed designer witnesses and inspects the installation of any individual sewage disposal system which he or she designed. The licensing authority may, in accordance with regulation, waive this requirement for good cause, including the designer's death or incapacity.

(c) A licensed designer certifies to the licensing authority that the individual sewage disposal system was installed in conformance with the approved application, plans, specifications, applicable statutes and regulations and that he or she has witnessed and inspected the installation. Upon the certification, the licensed designer is responsible for the installation. The certification is not construed to release the installer from liability. The licensed designer is not responsible for any negligent act or omission of a user of an ISDS which causes damage to the ISDS, including altering of site conditions after certification of installation, failing to properly maintain the ISDS or failing to protect the ISDS from physical disturbance causing damage.

5-56.1-8 Denial, suspension and revocation of licenses - Censure. -

(a) The licensing authority may deny, suspend or revoke a designer's license if the person or licensed designer fails to comply with the requirements prescribed in this chapter or any regulation promulgated under this chapter or where the person or licensed designer:

(1) Provided incorrect, incomplete or misleading information in obtaining a designer's license; or

(2) Demonstrated gross or repeated negligence, incompetence or misconduct in the representation of site conditions in an application to the department of environmental management, design of an ISDS, or inspection or certification of an installation of an ISDS; or

(3) Committed a felony involving moral turpitude; or

(4) Failed or neglected to comply with continuing education requirements established by the licensing authority.

(b) An action to suspend or revoke a designer's license pursuant to subsection (a) of this section may not be taken until after the licensed designer has an opportunity to have a hearing before the licensing authority. This hearing is held within thirty (30) days of written notice of intent to suspend or revoke the license.

(c) The licensing authority appoints a review panel consisting of five (5) members at least three (3) of whom are licensed designers not employed by the licensing authority, for the purpose of reviewing and hearing disciplinary actions contemplated under subsection (b) of this section. The review board makes recommendations to the licensing authority to suspend or revoke licenses. All final decisions are made by the licensing authority.

(d) Any person aggrieved by the denial of an application for a license pursuant to 5-56.1-4 or a denial, suspension or revocation of a license pursuant to this section may request a formal hearing pursuant to 42-17.1-2(u) which is granted, if requested, in writing by the aggrieved applicant or licensee within ten (10) days of the denial, suspension or revocation.

(e) The licensing authority may publicly censure any licensed designer whose license was suspended or revoked.

5-56.1-9 Penalties. – The penalties for noncompliance with any section of this chapter are the same as stated in §§ 42-17.1-2(v) and 42-17.6-1 et seq., as amended.

Class I Exam Description

The format of the exam may include both multiple choice and fill in the blank questions; it also includes design of a repair on a site plan provided. A passing score is 70% correct.

The topics include:

(A) Principles of onsite wastewater treatment and dispersal;

Wastewater treatment begins in the septic tank and continues in the soil after it leaves the leachfield. There will be basic questions regarding the types of treatment expected in a septic system and the soil environment.

(B) <u>Applicable state rules</u> (Class I design authority is limited to residential systems with design flow less than or equal to 900 gallons per day, so the details of the large system and commercial sections of the OWTS Rules are not applicable).

In addition to design-related rules, the OWTS Rules include the following topics:

- Content of a Construction Application
- Expiration of a Repair Permit
- Responsibilities of a licensed designer before, during and following construction.

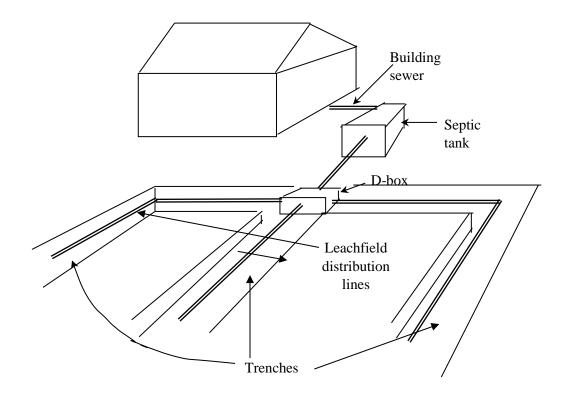
You should read through all of the OWTS Rules to be aware of what is included and where to find it.

(C) Analysis of OWTS failures

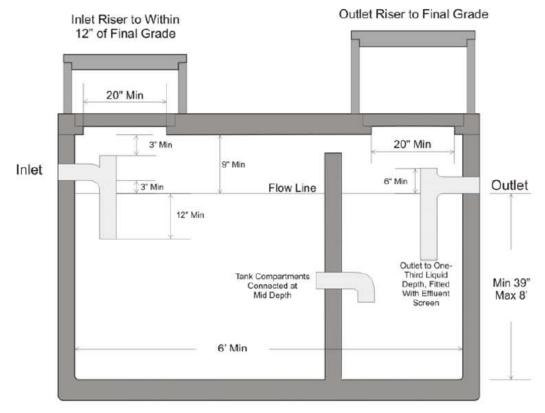
There will be questions regarding types of failure (hydraulic and treatment), causes of failure and how to evaluate a system for failure.

- (D) Design and construction of OWTS repairs, with consideration given to soil types and related constraints. The test includes design of a repair. Number of bedrooms, soil information and system type will be provided with a site plan.
 - An OWTS Construction Application must be completed using information provided.
 - A repair system must be drawn to scale on the site plan provided, including proposed grading and construction notes.
 - An invert schedule must be completed for all the system component inverts from the building sewer to the leachfield.

Components of a Conventional Septic System



Septic Tank Cross Section



Septic System Failure

Excerpt from OWTS Rules Definitions Section

"Failed OWTS" means any OWTS that does not adequately treat and disperse wastewater so as to create a public or private nuisance or threat to public health or environmental quality, as evidenced by, but not limited to, one or more of the following conditions:

(1) Failure to accept wastewater into the building sewer;

(2) Discharge of wastewater to a basement; subsurface drain; stormwater collection, conveyance, or treatment device; or watercourse unless expressly permitted by the Department;

(3) Wastewater rising to the surface of the ground over or near any part of OWTS or seeping from the absorption area at any change in grade, bank or road cut;

(4) The top of the inlet or the top of the outlet for a septic tank, distribution box, or pump tank is submerged;

(5) The liquid depth in a cesspool is less than six (6) inches from the inlet pipe invert;

(6) Pumping of the cesspool or septic tank is required more than two (2) times per year;

(7) OWTS is shown to have contaminated a drinking water well or watercourse;

(8) If a septic tank, pump tank, distribution box, or cesspool is pumped and groundwater seeps into it;

(9) Any deterioration, damage, or malfunction relating to any OWTS that would preclude adequate treatment and dispersal of wastewater; or

(10) Excessive solids are evident in the distribution box or distribution lines.

Types of Septic System Failure

Treatment failure - A system which is not adequately treating effluent (destruction, removal/reduction of pathogens: bacteria and viruses and reduction of nutrients: nitrogen and phosphorous).

Hydraulic failure – A system fails to accept all the wastewater being delivered to it. This may be evidenced by effluent backing-up into the home or effluent on the surface in the yard.

Structural failure - Damage to or displacement of any component of a system.

Possible Causes of System Failure:

- Leaking fixtures in the home
- System undersized (tank and or leachfield)
- Tank not watertight (water seeping into tank)
- Baffle not intact or no outlet tee (allowing solids, fats, oils and grease to carry over to the d-box and leachfield)
- D-box not level (effluent not distributed evenly over entire field)
- System in groundwater
- Dirty stone
- Crushed pipe
- Leachfield clogged

Signs of OWTS Failure

- Discharge to the surface of the ground
- Damps spots in the area of the tank, or leachfield
- Lush growth over portion of the lawn
- Sewage backup inside the house
- Sewage odor in house or yard

Where to Investigate

- Inlet, outlet covers, if septic tank in use
- Run water; insure flow is entering and exiting tank
- Check for buildup of solids; is outlet tee in place?
- Water test sewer line between tank and D-box

Rule 6.18 (G) OWTS Application for Repair – excerpted from OWTS Rules

- G. OWTS Application for Repair An application for a repair of any OWTS, or any component thereof, shall be made when an OWTS or component has failed, as defined by § 6.8 of this Part. An application for repair shall not propose any change of use, building renovation pursuant to §§ 6.18(D)(2)(a) through (d) of this Part or any increased flow to the OWTS. The Department may allow an OWTS Application for Repair to be submitted when, after the effective date of these rules, a fire or other catastrophic occurrence necessitates that a structure served by an OWTS be replaced. The applicant may also submit an OWTS (e.g., replacement of cesspool).
 - All plans and specifications for an OWTS application for Repair shall be prepared by a Class
 I, II or III Licensed Designer in accordance with §§ 6.10 and 6.11 of this Part. The applicant is
 not required to have a soil evaluation pursuant to § 6.16 of this Part prepared unless the
 Department specifies otherwise. The Director reserves the right to require that the plans
 and specifications for a repair be prepared by a Class II or Class III Licensed Designer.
 - 2. Applicants shall meet the requirements of these rules to the greatest extent possible. If necessary, certain requirements under these rules may be relaxed at the discretion of the Director, provided that such modification is consistent with the protection of the public health and the environment. In reviewing any request for relaxation of these rules, the protection of the public health and the environment shall be given priority over all other considerations.
 - 3. Deep concrete chambers will not be permitted for OWTS Applications for Repair where another type of leachfield designed in accordance with §§ 6.33, 6.34, and 6.35 of this Part can be sited and is deemed acceptable by the Department. The Licensed Designer must demonstrate that the repair alternatives to a deep concrete chamber, other than a bottomless sand filter or pressurized shallow narrow drainfield, are not feasible.
 - 4. Exemptions for OWTS Application for Repair Under the limited circumstances in §§ 6.18(G)(4)(a) through (e) of this Part, an OWTS Application for Repair will not be necessary prior to repairing the OWTS. Any repair or installation work done in accordance with §§ 6.18(G)(4)(a) through (e) of this Part that is found not to be in compliance with these rules, will have to be corrected and will be considered a violation of these rules.
 - a. Septic Tank Replacement When a crushed tank or other failure necessitates replacement to maintain wastewater handling capacity at a facility and averting a public health threat, the installer must receive verbal authorization from the Department prior to septic tank installation and the owner must submit a proper and complete repair application by the end of the next business day.
 - b. Building Sewer Replacing a crushed or otherwise repairing a faulty building sewer between the building and the septic tank does not require prior authorization of the Department or notification to the Department once the work is completed.
 - c. Access Openings The following work on access openings does not require prior authorization of the Department or notification to the Department once the work is completed:
 - (1) Installation of access openings to finished grade; and
 - (2) Compliance with the requirements to upgrade the cover of existing tanks that have access openings to finished grade in accordance with §§ 6.26(L), 6.27(O), 6.29(G), 6.30(H), and 6.35(H)(2)(d) of this Part.

- d. Retrofitting for a septic tank effluent screen Such work does not require prior authorization of the Department or notification to the Department once the work is completed.
- e. In-kind emergency replacement of a failed mechanical or electrical device does not require prior authorization of the Department or notification to the Department once the work is completed.

Use of Existing System in Design of Repair

- Building sewer should be replaced if not up to code.
- Steel tanks must be replaced and undersized concrete tanks must be replaced if possible.
- Insure existing tank has outlet tee.
- Old fields should be abandoned if failed.
- Portions of existing field may be used if field found to be only partially failed. Failed trenches can be disconnected by use of speed levelers or by capping off distribution lines inside d-box.

Methods for Watertable Determination for OWTS Repairs

- Test Hole
- Previous Application
- Knowledge of Area
- Nearby Dug Well
- Other: Wet Season, or Soil Evaluation if specified by RIDEM which is not common for repair applications.

Sizing the Leachfield for a Repair

Soil Evaluation is not generally required for repairs. The table in <u>OWTS rule 6.16 Soil Evaluation at subsection L</u>. provides the loading rates associated with Soil Category and the soil physical properties of each of the Soil categories.

Rule 6.23 Minimum Setback Distances

(OWTS Rules available at: https://risos-apa-production-public.s3.amazonaws.com/DEM/REG_10685_20181219115423.pdf)

OWTS rule 6.23(A): The horizontal distances between the parts of an OWTS and the items listed in the Tables at rules **6.23(B) through (E)*** of the OWTS rules shall not be less than those shown. Where a proposed OWTS cannot meet the horizontal distances in rules 6.23(B) through (E) a variance request shall be required pursuant to rule 6.51 unless the setback reduction is specifically allowed in Notes accompanying each Table (tables listed below).

*Tables in lettered subsections provide the specific setbacks identified below:

6.23(B). Minimum Setback Distances – General,

6.23(C). Minimum Setback Distances from Drinking Water Supply Watershed Critical Resource Area Features (distances in feet from all OWTS components),

6.23(D). Minimum Setback Distances from Features in the Salt Pond and Narrow River Critical Resource Area (distances in feet from all OWTS components),

6.23(E). Minimum Setback Distances from Drinking Water Wells.

Also see figures below:

OWTS rule 6.60, **Figure 2** for Minimum Setback Distances from Drinking Water Supply Watershed Critical Resource Area Features (distances in feet from all OWTS components).

OWTS rule 6.61, **Figure 3** for Minimum Setback Distances from Features in the Salt Pond and Narrow River Critical Resource Area (distances in feet from all OWTS components).

OWTS Repair Submission Requirements

Applications for Repair - Applications for repair shall at a minimum include information specified on the Department's "OWTS Repair Submission Requirements" document (this document can be found at: http://www.dem.ri.gov/programs/benviron/water/permits/isds/pdfs/rprcklst.pdf).

Proper Design Techniques and Materials

- All components properly located, all setbacks per regulations, as closely as possible.
- The OWTS Rules require that the area between the trenches remain undisturbed, unless site conditions warrant the removal of all soil material. The Rules also provide for leachfield design and construction where the invert of the distribution lines is above original grade and for leachfields on sloping sites. <u>OWTS rule 6.33 addresses</u> <u>leachfield design and construction, including **dispersal trenches** (rule 6.34) addresses dispersal trenches and **concrete chambers** (<u>rule 6.35</u>).</u>
- All invert elevations must be taken from benchmark.
- D-box must be level and installed in undisturbed soil, if possible.
- Backfill material must be free of stones over 6" in diameter, construction debris, stumps, etc.
- No wheeled machinery should be driven over field during backfilling.

Installation Tolerances

<u>The Field Guide for OWTS Installation</u> (provided on the next two pages) describes field tolerances that will not require as-built plans or redesign. This is available on the RIDEM website:

- 1. At <u>http://www.dem.ri.gov/</u>
- 2. Select the vertical tab labelled "Permits & Licenses"
- 3. Select "Septic (ISDS/OWTS) Records,
- 4. Beneath "Resources" at the "Regulations/Forms" tab, scroll down and select "<u>The "Field Guide for OWTS</u> <u>Installations</u>".

<u>Field Guidance for OWTS Installations</u> (Tolerance Guide), a two-sided publication, available on RIDEM website at: http://www.dem.ri.gov/programs/benviron/water/permits/isds/pdfs/owtstol.pdf

State of Rhode Island and Providence Plantations Department of Environmental Management Field Guide for OWTS Installations The following guidelines for field tolerances need to be used by licensed OWTS designers to determine if an OWTS is installed in compliance with approved plans. The Department recognizes that slight deviations from approved plans will not have a measurable effect on system performance. The Department recognizes that certain field changes, such as foundation footprint and final grading, are often due to the specifications of a homebuyer who is not involved in the project at inception. The purpose of this document is to set general guidelines on allowable changes in the field that differ from the original design. This document will also clarify when Department approval, as-built plans, and/or a redesign will be required. All deviations from approved plans must be noted on the Certificate of Construction (COC). 1. TOLERANCES- These deviations from approved plans will not require pre-approval of the Department: One (1) foot on any minimum horizontal distance shown in 6.23(B) through (E) of the OWTS Rules. Well, waterline, or leachfield is moved up to five (5) feet from the original location, but the new location complies with the minimum distances shown in 6.23(B) through (E) of the OWTS Rules, and with the tolerances specified above. The invert of the distribution pipe or the bottom of the stone elevation is moved up to three (3) inches vertically. A ten percent (10%) deviation on all vertical and horizontal separation distances listed in 6.33 and 6.34 of the OWTS Rules. The building sewer pitch is between one percent (1%) and five percent (5%). Note: VARIANCES - Any critical distance approved by variance must be strictly adhered to. If conditions are encountered during construction which indicate that the system cannot be installed or is not installed in accordance with the permit and the above tolerances, the designer shall notify the Director as soon as possible, but no later than 24 hours after discovery.

 AS-BUILTS - \$50.00 fee required for as-built submittals (except for repair applications-no fee required) and three (3) copies of the as-built drawings.

As-built plans may be required when changes in the field exceed horizontal and vertical tolerance limits but still comply with the standards in the OWTS Rules. The designer shall notify the Department when changes exceed acceptable tolerances. The designer shall certify these changes on the COC and by submitting as-built plans within ten (10) business days after the OWTS is installed.

OWTS Installation Field Tolerances Fact Sheet - April 16, 2019

1

The following are instances where the Department may require submission of as-built drawings:

- · The leachfield has moved up to ten (10) feet from the location on the approved plan.
- Orientation or location of the building served by the OWTS is changed so that up to twenty five (25%) of the footprint is outside the footprint on the approved plan.
- · The well, waterline, or leachfield has moved up to ten (10) feet from the approved plan.

 REDESIGN – Fee required in accordance with 6.54.C of the OWTS Rules, four (4) copies of the redesigned plans, and a new application form must be submitted.

Designers are required to submit redesigned plans when a well, foundation, wall, tank, waterline, leachfield, or other structure is placed in a location that is significantly different than indicated on the approved permit. If a redesign is required, the designer must stop construction of the OWTS and take measures to protect all work completed to date.

The following are instances where the Department may require redesigned plans:

- The leachfield is moved more than ten (10) feet horizontally from the approved plan.
- The invert of the distribution pipe or the bottom of the stone elevation has moved more than three (3) inches vertically from the approved plan.
- Orientation or location of the building served by the OWTS is changed so that more than twenty five percent (25%) of the footprint is outside the footprint on the approved plan.
- The well or waterline is moved more than ten (10) feet.

OWTS Installation Field Tolerances Fact Sheet - April 16, 2019

OWTS Design Application & Installation Observed Errors, Omissions and Problems

Don't do these things!!!!

<u>Pre-Approval</u>

- Design element missing on plan (eg. septic tank)
- Missing signature
- Plan errors
- Field incorrectly sized
- Omission of essential data
- Some aspect of setback rule not met; variance required but not requested
- Expired or incorrect field data
- Design not in accordance with subdivision approval
- Trench configuration or distances between trenches incorrect or not clear
- Application not completed

Post-Approval

- Designer not calling in 24 hour start of construction notice
- COC not submitted within 5 days of completed system installation or not at all
- Designers missing deficiencies during their inspections of septic systems
- Required bottom inspections not being called in.
- Cover inspections not being called in when required
- Installation records not being kept or inadequate
- Installation or design change not reported to Department

<u>Installers</u>

- Beginning construction without designer involvement
- Installer does not cooperate with designer to allow designer to do his/her part of job
- Installer not following design plan
- Installer mistakes identified by RIDEM inspectors during spot inspections.

Responsibilities of Licensed OWTS Designers

Hired by a Homeowner

Responding to Direction from

DEM Office of Compliance & Inspection (OC&I)

- 1) When contacted by a property owner about a failed system, <u>ask if they have received a letter from</u> <u>DEM.</u>
- 2) If the answer is yes, make sure you read the letter so you understand what the issue is.
- 3) Contact OC&I:
 - a. Advise them that the property owner has retained you to address the issue(s) in the letter, and
 - b. Provide them some idea of what you will be doing (time frame, approach, etc.).
- 4) Most of the notices require that an evaluation of the system be performed by a licensed designer and a report submitted to OC& I. The report, in addition to date, time and weather conditions, should include the following:
 - (1) What was the cause of the system failure the OC&I inspector observed and what was done to address that problem, if anything.
 - (2) Was the system functioning properly on the date of your inspection?
 - (3) If not, what is the cause of the system failure and what do you recommend to resolve the problem.
 - (4) If you establish that the system is functioning properly, how did you determine this:
 - Did you do a flow test,
 - Remove the covers of the tank, d-box, etc. and evaluate the condition of these components,
 - What were the liquid, sludge, and scum levels in the tank, d-box, etc.?

IMPORTANT!!!

You are the licensed professional, the expert; you are expected to apply your experience and knowledge to evaluate the situation and prepare a comprehensive report for submission to OC&I which supports your findings. At the time of your inspection, record for inclusion in your report, date, time, weather, all inspection activity conducted, observations and information provided by the homeowner.

Inspection of Septic Systems

Information on septic system function and procedures for conducting inspections of septic systems is available in the DEM publication "SEPTIC SYSTEM CHECKUP: THE RHODE ISLAND HANDBOOK FOR INSPECTION". This document is available on the RIDEM website at: <u>http://www.dem.ri.gov/pubs/regs/regs/water/isdsbook.pdf</u>.

Design Tips for the Exam

- 1. Read directions thoroughly
- 2. Draw to scale
- 3. Design the required system type identified in the given information
- 4. If problem states "use existing building sewer" use existing building sewer
- 5. Design in area of testing!
- 7. Design your repair using correct setbacks and separation distances
- 8. Size leachfield:

Number of bedrooms Soil category Minimum leachfield area Effective leachfield area

What to Bring?

Sharpened Pencils

OWTS Rules

Scale

Straight edge

Calculator, not an app on your phone (consider a spare battery)

This guide

Other material??? Exam is open book

OWTS Permitting Forms

<u>Soil Testing Application Form</u> – Designers and Soil Evaluators submit this form to the OWTS Program to apply for a date to perform various forms of soil testing, all of which may be witnessed by RIDEM.

<u>Site Evaluation Form</u> – This form is used to report site and soil conditions interpreted during a soil evaluation, or bedrock testing, for submission to RIDEM.

<u>Subdivision Site Suitability Certification Application and Checklist</u> – Prepared by a Class II, or III Designer and submitted to the OWTS Program for review to determine the suitability to support OWTS for the proposed use, of a parcel of land to be divided as shown. Application and Checklist are combined in a single document.

<u>System Suitability Determination – Residential and Commercial Application and Checklist</u> – Completed by the owner of an existing OWTS to receive a determination of the OWTS's suitability for proposed renovation, change of use or eligibility for Imminent Sewer Exemption. Application and Checklist are combined in a single document.

<u>Application Submission Checklist</u> – Completed by the Designer and submitted with all construction (permit) applications.

<u>Variance Request</u> – Completed by a Class II or III Designer accounting for each variance from the OWTS Rules requested as part of a New Construction, or Alteration Application and why each cannot be avoided.

<u>OWTS Construction Permit (Application Form)</u> – Used to apply for all OWTS construction permits; an image is posted to the RIDEM website for reference only, the RIDEM's Multi-Copy Form must be used.

<u>Joint OWTS/Wetlands Permit Application Form</u> – This form is used to request a Joint Permit for development of a single family lot involving a proposed OWTS and alteration of freshwater wetlands; it *may <u>not</u> be used for* an <u>OWTS</u> <u>variance</u> or <u>repair application</u>, an <u>application in CRMC jurisdiction</u>, or a <u>proposed significant alteration of</u> <u>freshwater wetlands</u>.

<u>Designer's Certificate of Construction Form</u> – Used by Class I, II and III Designers and submitted to the OWTS Program at the completion of all OWTS installations.

<u>Repair Submission Checklist</u> – Completed and submitted to the OWTS Program by the Designer; the form is used to indicate on the checklist that the required elements of a repair application have been included in the application (design plan).

<u>Affidavit of Continuing Validity of Field Data</u> – Used by the Designer to certify that data and site conditions meet the terms of the OWTS rules.

<u>Additional Wet Season Monitoring Data</u> – This form must be completed by a Class II or III Designer, or Class IV Soil Evaluator and submitted to the RIDEM along with the Wet Season Verification Form no later than April 1. This form is used by Class II and III Designers and Soil Evaluators to record groundwater elevations in certain circumstances following soil evaluation.

<u>Wet Season Verification Form</u> – An image of this form is posted to the RIDEM website for reference only, the Department's multi-copy (4-part) form must be submitted with the completed Additional Wet Season Monitoring Data Form.

<u>Affidavit to Replace Designer of Record Form</u> – This form is completed and signed by the Permittee and Replacement Designer and submitted to the RIDEM to request a change of the Designer of Record for an Application or Permit under the provisions specified in the OWTS Rules.

<u>Seller's and Buyer's Waiver</u> – This form is completed and signed by the seller and buyer of property that does not have a valid RIDEM certification of the property's suitability for development as part of a subdivision or a valid approval for the installation of an individual sewage disposal system(s) (onsite wastewater treatment system [OWTS]) on the property.

The forms most commonly used by Class I Designers are provided on the following pages for reference only.

DEM OWTS Construction Application - This form may not be printed form the RIDEM website for use; the multi-copy paper form must be used.

	square feet	TOTAL AREA OF LEACHFIELD PROVIDED
Signeture of RIDEM Official Date of Expiration	20	LEACHFIELD TYPE
	square feet	MINIMUM REQUIRED LEACHFIELD AREA
	Lumin TOTAL DANLT FLOW	TANK SIZE gallons per (Unity FOLVAL DAY TANK SIZE gallons DESIGN LOADING RATE
Const. The second recorded and the second of construction of the second of a	-	
H. Proper encision and sedimentation controls must be instelled prior to start of construction. Transfer See onginal permit for all applicable conditions.	D private well	WATER SUPPLY: 🔲 public water 📋 public well
Copy of this form and Operation/Meintenence contract must be filed in land evidence records prior to conformance. Proposed construction fails within "Constal Zone". Contract Rhode Island Coastal Resources Management Council	10	Other
Joint Permit. Designer of record must contlact RIDEM prior to start of any <u>site</u> construction. ArE Technology: additional installation, operation or maintenance requiraments may apply (see AVE Technology Certification.)		BUILDING USE: CRosidential Commercial
Applicant instantium must be instanced by much in overing any uniquentity of up approved on Applicant shall comply with all requirements, combinits and stipulations of variance(s) approved on		DESIGN INFORMATION
Bottom of leaching area excavation must be inspected by the RIDEM prior to placement of any gravel or atoma. Swatem instaliation must be inspected by RIDEM over to covering any component of the system with backfill.	ABLE	LARGE SYSTEM TYES NO OCI FILE #
IMPORTANT: Additional terms of approval as circled.	DATE	WETLAND DETERMINATION 🗆 YES 🔲 NO RIDEM FILE #
such that the approved design is not in accontance with the routes, or in the event that the system caccharges madequately treated wastewater to waters of the State or fails to operate selicitacide only in any other manner.	WETLANDS within 200' OF OWTS C YES NO	
This approval is surjust to nuive suspension or revocation in the event test subsequent examinence reveaus any conditions at the site are any application; form, submittal, plan or sketch to be incorrect, or not in compliance with the RULES or any conditions at the site are	1	DEPTH TO APPROVED WATER TABLE
responsibility or hability for the huture safe operation or mandonance of the atomisaid system, of the ithness or suitability of this system to this site, nor does it assume any responsibility for the accuracy and truth of the ownar's, or the ownar's agent's representations.	APPLICATION # to 8	PREVIOUS SITE TESTING C YES ONO
beset upon are representations or are owner and the owner's agains, including are representations to are unner a currit or use with and the fullh and accuracy of all information submitted, this application for an OWTS is hereby approved. The RIDEM assumas no		RIDEM APPLICATION HISTORY
PERMIT APPROVAL SECTION: DO NOT WRITE BELOW THIS LINE	ZIP CODE	NO. STREET CITY/TOWN
Owner's Email Owner(s) Signature	AE. M.J. Restored to the stress of the stres	
Owner's Phone Number		OWNER INFORMATION
application are the operative documents subject to certification.		SUBDIVISION SITE SUITABILITY CERTIFICATION #
record to whereas and impediation or the system, a / assume all naprovabitity for the hufu and accurancy of this application and all leakity and responsibility for any improper installation of the system on this site and agree to hufu RPICEM harmless from any and all claims relating whatsoever to the system, in the case of a transfer application, it acconveloped that the permit application and parts perviced and accompanying this	And the second s	SUBDIVISION NAME
I certify that is I am the owner of the property indicated under the site information on this application; b) I will here are incased OWTS installer to install the system proposed herein; c) the system will be installed in strict excordance with this application. If i will here and rein the incordance OWTS detayner of the property into the installed in strict excordance with this application. If i will here and rein the incordance of WTS detayner of the property of the pro	SUBDIVISION LOT NUMBER	PLAT NUMBER LOT NUMBER
Business/Company Name	# HOLE #	
Designer's Email Phone #		
Designer's Signature License #	al an over the second second	
A STATE OF A DATE OF A DAT	IS / WETLANDS PD	
(auplication and accompanying forms, submittals, plans and stetches in accordance with the RULEs of the RUDEM pertaining to OWTS and that all the information provided on this application and accompanying forms, submittals, plans and stelches is true and accurate.		A NEW BUILDING CONSTRUCTION ALTERATION C REPAIR
CERTIFICATION	IECK ALL THAT APPLY)	TYPE OF APPLICATION (CHECK ALL TH
AMOUNT RECEIVED \$ CHECK # NOTE	DATE RECEIVED / /	APPLICATION No.
FOR RIDEM USE ONLY		
ONSITE WASTEWATER TREATMENT SYSTEM CONSTRUCTION PERMIT www.dem.ri.gov/septic	ONSITE WASTEWATER TREATMEN www.dem.i	

-

 The owner must complete the or number. The ilconsed OWTS designer in PERMIT APPROVAL SECTION The ilconsed OWTS designer in Render all TYPES OF APPLICAT If an alternative or experimental SYSTEM must be completed. All site information including plat Any previous RIDEM application permit. 	 INSTRUCTIONS FOR COMPLETING APPLICATION The owner must complete the owner's information section of the application, sign in the cartification section, and furnish a telephone number. The licensed OWTS designer must complete the remainder of the application except areas marked FOR RIDEM USE ONLY and PERMIT APPROVAL SECTION. Check all TYPES OF APPLICATIONS that apply. If an alternative or experimental technology system is proposed, the AFE TECHNOLOGY tox must be checked and the TYPE OF SYSTEM must be completed.
 The owner must c number. The itoansed OW PERMIT APPRON The itoansed OW Check all TYPES Check all TYPES Check all TYPES All site information Any previous RID Any previous RID 	complete the owner's information section of the application, sign in the certification section, and furnish a telephone IS designer must complete the remainder of the application except areas marked FOR RIDEM USE ONLY and AL SECTION. OF APPLICATIONS that apply. experimental technology system is proposed, the A/E TECHNOLOGY tox must be checked and the TYPE OF completed.
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 Check all TYPES If an alternative or SYSTEM must be Sylste information Any pravious RID permit. 	OF APPLICATIONS that apply. experimental technology system is proposed, the A/E TECHNOLOGY box must be checked and the TYPE OF completed.
 4. If an alternative or SYSTEM must be 5. All site information 6. Any previous RID permit. 	experimental technology system is proposed, the A/E TECHNOLOGY box must be checked and the TYPE OF completed.
 All site information Any pravious RID permit. 	
6. Any pravious RID permit.	All site information including plat and lot, subdivision information, and lot size must be completed.
	Any previous RIDEM application information must be shown including groundwater table verification and wettands determination or permit.
7. Only one box shot	7. Only one box should be checked for BUILDING USE, IF COMMERCIAL, provide a brief description.
8. Crily one box shot	Only one box should be checked for WATER SUPPLY.
9. Design information	Design information must accurately reflect the type and size of the septic system shown on the accompanying plans.
10. RIDEM APPLICAT	RIDEM APPLICATION HISTORY, DESIGN INFORMATION, and Signature of Designer are not needed for a transfer application.
11. IMPORTANT: This any attachments s	IMPORTANT: This application is a part of a design submission that inust include 4 (four) copies of the design plan, 4 (four) copies of any attachments such as calculations or details, a designer's checklist, and the appropriate fee.
12. MAIL OR DELIVER TO:	R TO: Onsite Wastewater Treatment Systems Program Ri Department of Environmental Management 235 Promenade Street Providence, RI 02508-5767
lf you have any questic For additional informati	if you have any questions relating to this application, please call (401) 222-3961 Monday through Friday, 8:30 am to 4:00 pm. For additional information, please visit our website: www.dem.rl.gov/septic



RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT Onsite Wastewater Treatment Systems Program Office of Water Resources, Room 260 235 Promenade Street, Providence, RI 02908-5767 www.dem.ri.gov/septic



OWTS REPAIR APPLICATION REQUIREMENTS

APPLICATION FOR OWTS REPAIR

In accordance with Rules 6.18 and 6.19, the following repair application requirements are established for residential uses disposing of not more than 900 gallons of sewage per day.

APPLICATION FORM

All applications for the approval of plans for OWTS repair shall be made on form(s) provided by the Director. Fill out all sections of the application, including plat, lot (provide copy of tax card) and depth to design water table. Depth to design water table may be completed without test hole data if, and only if, the designer has verified information from the surrounding area or has extensive local knowledge based on past work completed in the area.

BASIC DESIGN DATA/PLAN REQUIREMENTS

All applications for OWTS repairs shall include basic design data and a drawing detailing the property and/or pertinent portion thereof showing the size and location of the proposed OWTS. Information to be provided on the plan shall include, but not be limited to, the following:

- Measured distances from the proposed OWTS to site features, including, but not necessarily limited to, foundations, streets, buildings, wells (private and public), water supply lines, drainage structures, fences, driveways, trees, pools and property lines;
- Spot elevations in the area of the proposed OWTS. If filling is needed to meet fill perimeter requirements, and/or to provide the minimum 18" cover over the leachfield, provide existing and proposed spot grades to detail the filling;
- Fixed benchmark in close proximity to the proposed OWTS;
- Invert elevation schedule;
- Excavation/strip note. Provide note or detail specifying full or trench excavation and any overdig, and any anticipated removal of an existing OWTS;
- Note to pump and fill any existing cesspool;
- Location and type of existing OWTS;
- Test hole location (if applicable) and soil description;
- 9. Waterline location(s). Where a proposed OWTS is within 50 feet of a waterline, the waterline location must be located and marked by the local water supply agency. Where it is unavoidable to maintain the required minimum 25 feet distance from leachfield to a waterline, the waterline must be sleeved, and an approval letter from the local public water supply agency provided;
- 10. ____ Location of drains, including foundation drains and basement sump pumps, within 50 feet of the OWTS;
- Location of private drinking water wells on all surrounding lots and/or within 150 feet and the location of public wells within 400 feet of the proposed OWTS. A note must be provided indicating the presence of any wells within 100 feet of the proposed OWTS;
- 12. ____ The location of wetlands on the subject property and/or within 100 feet of the proposed OWTS;
- The location of any drinking water supplies, including tributaries or storm/subsurface drains discharging into the drinking water supply, within 200 feet of the proposed OWTS;
- OWTS repairs involving pumps: provide pump tank size, dose calculations, pump spec. sheet, pump size, and float elevations (see OWTS Design Criteria);
- 15. ____OWTS repairs requiring structural retaining walls must be submitted by a professional engineer.

The Director reserves the right to require other information deemed necessary by the Department to fulfill its obligations in accordance with applicable statutes and regulations, on a case by case basis.

Office of Water Resources/Telephone 401.222.3961/Fax 401.222.6177

11/25/18

OWTS REVIEW COMMENTS:

Application No.

DESIGNER REVIEW COMMENTS:

The application, plans and attachments are being returned. Please address the OWTS Review Comments above and return.

DEM Official:

Date:

11/25/18

Office of Water Resources/Telephone 401.222.3961/Fax 401.222.6177

DEM OWTS Inspection Report

This form is used by the OWTS Program Inspector to record observations during inspections of installations.

	INSPECTION REPORT		
APPLICATION NUMBER:			
STREET:			INSPECTOR:
CITY/TOWN:	POLE NO:		INSPECTION DATE:
PLAT/LOT:	FOLE NO.	NIE	ARRIVAL TIME: WEATHER CONDITIONS:
SDS INSTALLER:	NODE OTION NUMBER		WEATHER CONDITIONS.
PHONE NO: TYPE OF INSPECTION:	INSPECTION NUMBER:		
	FINDINGS/COMMENTS	;)	
	NAME OF TAXABLE PARTY OF TAXABLE PARTY OF TAXABLE PARTY.	-15	
	RESULTS OF INSPECTION/ACTION	REQ	UIRED
Bottom Bed OK - Constru	RESULTS OF INSPECTION/ACTION uct system and call for cover inspection	REO	UIRED (ASB) Designer Must Submit As Built Plans
	uct system and call for cover inspection d or checked and call for a re-inspection		(ASB) Designer Must Submit As Built Plans
 (RFA) Address items lister (RFA) Correct items lister (RFA) Correct items lister 	uct system and call for cover inspection d or checked and call for a re-inspection		(ASB) Designer Must Submit As Built Plans (RPREQ) Submit Revised Plans (SOS) Designer's Supervision and Statement Required (SUS) Designer's Supervision and Statement Required

DEPARTMENT OF ENVIRONME OFFICE OF WATER F PERMITTING SE ONSITE WASTEWATER TREATMENT S	RESOURCES CTION
DESIGNER'S CERTIFICATE OF CON	INSTRUCTION FOR OWTS
(Street)	Rules, and that, in my professional opinion, the ifications, applicable statutes, regulations, and e Rhode Island Department of Environmental installation in accordance with RIDEM/OWTS
Installer's Name	License No
Designer's Name	
Designer's Signature Designer Request of Change (DROC) Approval Date(s)	
Designer Request of Change (DROC) Approval Date(s)	

	Application Date	
RHODE IS	 SLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT Onsite Wastewater Treatment Program Office of Water Resources, Room 260 235 Promenade Street, Providence, RI 02908-5767 	
AFFIDAV	/IT TO REPLACE DESIGNER OF RECORD)
	said owner(s) of property, OWTS permit number	
(print name)		
,	, do hereby request authorization to have the replacement designer	
	witness and inspect the installation of	
(designer name and lice	ense number)	
the OWTS on said property. I ar	m petitioning the Department for this request based on the following reason(s):	
CHECK APPROPRIATE ITI	<u>EM(S):</u>	
1) The original designer	of the system is incapable of witnessing and inspecting the system because	
he/she is:	Deceased	
	Physically Incapacitated	
	No Longer Licensed	
	Other	
designer who prepare	contracted with a certain business entity for design services. The original ed the OWTS design is no longer employed by that business entity, and the placing the original designer with another designer employed by that business	
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Directions to DEM's Foundry Offices at 235 Promenade Street Providence, RI 02908-5767

The Foundry is served by **RIPTA Routes 56 and 57** with a 10-minute walk from the Providence Place Mall. Go to www.ripta.com and use their Trip Planner, or call the Rhode Island Public Transit Authority (RIPTA) at 401-781-9400 for bus routes connecting to DEM's Foundry Offices.

From the South

- Follow Interstate 95 North toward Providence
- Take Exit 22C Providence Place
- Follow to end of ramp and take a right onto Kinsley/Providence Place
- Go to end, and make a U-shaped turn onto Promenade Street, crossing over river and under Rte. 95
- Take first right onto Holden Street
- Look for visitor parking lot on right (third right)

From the North

- Follow Route 146 South and/or Interstate 95 South toward Providence
- Take Exit 22C off of 95 South Providence Place
- At end of ramp go right onto Kinsley Street
- Take left in front of mall garage
- Take immediate left onto Promenade Street
- Take first right onto Holden Street
- Look for visitor parking lot on right (third right)

From the West

- Follow Route 6 toward Providence
- Take the Dean Street/Atwells Avenue Exit
- Turn left at the traffic light at the top of the ramp onto Dean Street
- Go to bottom of the hill and turn right onto Kinsley Avenue/Providence Place
- Go to end, and make a U-shaped turn onto Promenade Street, crossing over river and under Rte. 95
- Take first right onto Holden Street
- Look for visitor parking lot on right (third right)

235 Promenade Street is the first building on the right. Visitor parking is marked. (see map below for location).

Walking directions from the Providence Amtrak Station

DEM's Foundry Offices are located within walking distance of the Providence Station. The station is served by Amtrak trains and MBTA commuter trains.

- Exit out the back (southeast side) of the station (signs for taxis)
- Take a right and walk to the street named American Express Plaza
- Walk up American Express Plaza toward the Providence Place Mall
- Cross Francis Street and follow the walkway under the Providence Place Mall
- The walkway connects directly to Promenade Street
- Continue on Promenade Street
- Walk under Route I-95 and enter 235 Promenade Street on the right.

Call the <u>Rhode Island Public Transit Authority (RIPTA)</u> at 401-781-9400 for bus routes connecting to DEM's Foundry Offices.

