



RECORD DRAWING REQUIREMENTS



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1. PURPOSE

The Quonset Development Corporation's (QDC) Record Drawing Requirements has been prepared as part of a continuing effort to enhance the timely completion of record drawings. The intent is to guide an applicant or their representative (referred as "Applicant") through preparation of record drawings so that review times are limited to resolution of geospatial issues only.

The purpose of this document is to outline the minimum acceptable standards and requirements for QDC Record Drawing submissions. Plan preparers should review this information prior to collecting data and submitting any drawings to QDC to ensure that the eventual record drawings will meet QDC standards.

2. RECORD DRAWING REVIEW PROCESS

Record drawings indicate instances where the as-built condition differs from the design plan. QDC's Technical Review Process includes the review and approval of record drawings, per section 4.15(G)1 of the QDC Development Package. Record drawings must contain all required materials in the **RECORD DRAWING CHECKLIST** and conform to the **DRAWING REQUIREMENTS AND STANDARDS**.

To facilitate completion and submittal of the record drawing, the Applicant shall obtain and submit to QDC a proposal by the project's design engineer or surveyor of record for completion of the record drawing.

Throughout construction the design engineer and/or surveyor of record shall make regular visits to the construction site to field verify and record the actual locations of all improvements. The Applicant shall notify QDC upon completion of construction, at which time QDC will coordinate directly with the design engineer and/or surveyor of record to complete the record drawing. Once the project is complete, record drawing plans are reviewed by QDC staff and/or QDC representative. Approval requires the following:

1. Final field inspection of stormwater infrastructure
2. Final field inspection of water/sewer infrastructure
3. Final field inspection of gas/electric/telecommunication infrastructure
4. Water Department Testing Approval
5. Sewer Department Testing Approval

3. RECORD DRAWING DEPOSIT

As part of the Development Plan Review submittal the Applicant shall provide the Record Drawing Deposit equal to:

1. \$5,000.00 for structures less than 50,000 square feet of gross floor area
2. \$7,500.00 for structures between 50,000-100,000 square feet of the gross floor area
3. \$10,000.00 for structures greater than 100,000 square feet of gross floor area

The deposit will be returned to the applicant upon approval of the record drawing. If the record drawing is not submitted to QDC within 60 days of the Rhode Island Building Code Commission's Certificate of Occupancy or Certificate of Completion, the deposit will be forfeited.

4. DRAWING REQUIREMENTS AND STANDARDS

4.1 DATUM REQUIREMENTS

The drawing must be referenced from the control provided in the QDC Survey Control Plan. The

datum will be recorded on the sheet and shall read exactly as follows:

6. Horizontal datum: Rhode Island State Plane NAD 83 (U.S. Survey Feet ESPG 3438)
7. Vertical datum: Vertical: 3.05 QVD = 0.00 (NAVD 88)

AutoCAD drawings are to be drafted utilizing this datum for insertion into the QDC's GIS system. In addition, tie the project to two (2) Quonset Development Corporation Horizontal Control Monuments and two (2) Quonset Development Corporation Vertical Control Datum benchmarks. For Vertical and Horizontal Control information, please contact QDC.

4.2 DRAWING STANDARDS

1. The record drawing shall be stamped and signed by the appropriate professional registered in the State of Rhode Island.
2. Improvements and site features shall include but are not limited to property information, environmental resources, buildings, roadways, sidewalks, curbing/berm, stormwater management systems, clearing/tree-line, planting features, permanent structures, signage, roadway/parking markings, utilities and their appurtenances.
3. Both the PDF and AutoCAD drawing must depict all items required by the **RECORD DRAWING CHECKLIST**.

4.3 AUTOCAD STANDARDS

1. It is QDC's intent that the Final AutoCAD Drawings reflect only the as-built conditions of the Project. Therefore, prior to the submittal of the Final AutoCAD Drawings to QDC, several items may need to be addressed by the Applicant to finalize and complete the drawings. These include the removal of delta triangles, cleanup of the issue block, placement of the Record Drawing wording and any text revisions necessary to reflect final as-built conditions.
2. AutoCAD drawings submitted to QDC shall use the approved design drawing as the base, showing only the field changes based on the acceptable tolerances listed in the **SPECIFIC FEATURE REQUIREMENTS**.
3. Applicant is responsible for incorporating all field changes submitted by the Contractor into the final drawings. **Scans of the contractor's hard copy field drawings will not be accepted.**
4. The AutoCAD drawing shall be one composite file in model space. No reference files (XREFs), no aerial overlays and no locked or frozen layers will be accepted. Include only one composite DWG file.
5. All inverts to be field recorded and shown on the plan.

4.4 PDF STANDARDS

1. The PDF record drawings must be stamped and signed by the appropriate professional registered in the State of Rhode Island on each sheet.
2. The PDF record drawing shall include pertinent plan sheets from the Applicant's approved design plans as the base template.
3. All installations, removals, and/or stationing where the as-built conditions are outside the tolerances listed in the **SPECIFIC FEATURE REQUIREMENTS** shall be shown.
4. All inverts to be field recorded and shown on the plan.

5. SPECIFIC FEATURE REQUIREMENTS

Record Drawings must show accurate locations of storm, sewer, water mains, other water appurtenances, structures, conduits, power poles, light standards, vaults, width of streets, sidewalks, building footprints, sidewalks pavement markings, property lines, easements, etc. All AutoCAD drawings submitted to QDC shall follow the standards outlined in this document. QDC has established tolerances for each feature. If the location of the feature is outside of the tolerance than that of the approved design drawings, then the feature shall be surveyed, and the new location shown on the Record Drawings.

The following requirements provide a minimum guide and should be used along with good engineering practices.

Record drawings and profiles as drawn shall indicate all necessary information about the storm drainage and stormwater management, water system, sanitary sewer, earth retention, utilities, easements and demolition/abandonment, to evaluate whether the constructed features will be able to function as intended by the design. Record drawing information for the above items, at minimum should include, but not be limited to the following:

5.1 STORM DRAINAGE AND STORMWATER MANAGEMENT

Feature	Field Verify	Survey	Acceptable Tolerance
Pipes	Material, length of pipe, pipe diameter and direction of flow	Inverts and location of ends (not in structures)	0.5 feet
Catch basins, manholes, inlets	Size, type and cover	Rim elevation, bottom elevation, and location	2 feet
Culverts	Material, shape and size and indicate if flowline is undisturbed, exposed culvert material or filled with streambed sediment	Location of ends, inverts of structure ends and inverts of stream	1 foot
Underdrains	Pipe location, cleanouts	Cleanout rims and inverts	1 foot
Monitoring Well	Size of well and condition	Location, cap elevation and ground elevation	Structure if moved 1 foot or more
Vault	Material, type, size, control system, etc.	Control structure location, control elevation, bottom elevation and access location	Structure corners - 0.5 feet Access covers - 2 feet
Ponds	Size and shape	Control structure location	1 foot
		Control elevations (orifice inverts, weir elevations), overflow elevation, bottom elevation	0.5 feet
		Water surface shape (spot locations around edge of water surface, enough to indicate shape/location)	1 foot
Swales and bioretention	Length and width	Inlet and outlet inverts	0.1 feet
		Swale and bioretention limits	1 foot

Infiltration systems, trench drains	Material, size, and pipe diameter	Inverts in and out of system and top and bottom elevation of system	0.1 feet Location if moved 1 foot or more
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5.2 WATER SYSTEM

Feature	Field Verify	Survey	Acceptable Tolerance
Pipes and fittings	<p>Manufacturer, length of pipe, material, size, joint type, fitting</p> <p>Distance between fittings (center of tees, crosses, and bends)</p> <p>Location of all utility crossings and depth of pipes (verify during installation at every fitting and appurtenance)</p>	<p>Location of all vertical and horizontal bends with top elevations</p> <p>Horizontal location of main</p> <p>Outside of ROW, every 100 feet</p> <p>Within ROW, distance</p>	<p>If moved 2 feet or more</p> <p>0.25 feet for inverts and depths</p>
Valves	Size, type, valve manufacturer, depth of operating nut, length of valve nut extension used	<p>Horizontal and vertical location as follows:</p> <p>Center of Gate Valve</p> <p>Valve (same as center of box)</p> <p>Butterfly Valve — center of valve and box</p> <p>Air & Vacuum—center of meter box assembly, and center of standpipe at post</p> <p>Blow Off —center of meter box assemble</p>	0.5 feet
Hydrants	Manufacturer and bury depth	<p>Horizontal location of hydrant (center of valve stem)</p> <p>Vertical elevation of safety flange</p>	<p>Hydrant if moved 1 foot or more</p> <p>More 0.1-foot vertical elevation of safety flange</p>
Service Lines	Material, size, and locations	At building or connection point	If moved 2 feet or more
Meters	Type, size, vault, or box and size	Horizontal locations of four corners of vault	Box if moved 1 foot or more

Pressure Reducing Valves	Material, size, location of valve and appurtenances	Horizontal locations	Structure if moved 1 foot or more
Fire Systems	Material, size, location of pipe and appurtenances	Horizontal locations of Post Indicator Valve (PIV), center of Fire Dept. Connection (FDC), and four corners of vault All valves, connections to QDC mains	Pipe, vault, PIV, and FDC if moved 2 feet or more horizontally Vertical tolerance PIV = 1 foot FDC, vaults and connections to QDC mains = 0.5 feet
Backflow devices - interior to building	Device, brand, type, size, service line size and location of drain	---	Location if moved 2 feet or more
Water pipe tie-in	Location and depth	---	0.5 feet

5.3 SANITARY SEWER

Feature	Field Verify	Survey	Acceptable Tolerance
Manholes	Diameter, type, cover, manufacturer	Horizontal locations of center of manhole, center of lid, elevations of rims and inverts	Manhole if moved 1 foot or more horizontally 0.1-feet vertically
Pipes - gravity sewer main	Manufacturer, material, length of pipe, pipe diameter and direction of flow	Location of all vertical and horizontal bends with top elevations Horizontal length of pipe from center of manhole	Pipe if moved 0.25-feet or more
Pipes - force main	Material, length of pipe, pipe diameter and direction of flow, manufacturer, joint type, and fittings (distance between) Fittings (center of tees, crosses, bends) Location of any invert and of any utility crossings. Depth of pipes (verify during installation at every fitting and appurtenance)	Location of all vertical and horizontal bends with top elevations Outside of ROW, every 100 feet Within ROW, distance off centerline of road (use pipe locator for location)	Pipe if moved 0.5 feet or more
Valves	Size, type, and manufacturer	Horizontal & Vertical locations as follows; Gate Valve: center of valve Air & Vacuum: center of	0.5 feet

meter box

Blow Off: center of meter box

Cleanouts	Size	Horizontal location of and rim elevation at center of box	Structure if moved 0.5 feet or more
Grease interceptor/oil water separators	Pipe, materials, size and vault dimensions and size	Horizontal locations of four corners of the vault	Structure if moved 0.5 feet or more
		Pipe inverts	0.25 feet
		Access manhole	0.5 feet

5.4 TRANSPORTATION

Feature	Field Verify	Survey	Acceptable Tolerance
Curb and gutter	Location and face of curb and type	---	0.1 foot horizontal 0.05 foot vertical
Driveways	Location, width, and type	---	0.5 foot horizontal
Signage	Location, size, and type	---	If moved 1 foot or more
Sidewalks	Location, material, width, slope	---	Width 0.5 feet Cross/linear/ramp .005 ft/ft
ADA Ramps	Location and curb ramp number	---	Width 0.5 feet Cross/linear/ramp .005 ft/ft
Street/Parking Lot Lighting	Location	Pole and electrical service cabinet locations	If moved 1 foot or more
Traffic Signals/Traffic Control Devices	Location	Pole, traffic signal and electrical service cabinet locations	If moved 1 foot or more
Monument Cases	Location and material	Horizontal coordinates	If moved 1 foot or more
Conduit/Cable	Location, material depth and size	---	Horizontal 0.5 feet Vertical 0.25 feet
Junction Boxes	Location, type, and conduit entrances	---	If moved 1 foot or more
Loop Detectors	Location	---	0.5 feet
Grades	Finished grades	---	0.1 feet

5.5 DEMOLITION

Feature	Field Verify	Survey	Acceptable Tolerance
Cutting & Capping of Pipes	Location of removal/ abandonment and cap	Pipe cap locations	If moved 1 foot or more

5.6 EASEMENTS

Feature	Field Verify	Survey	Acceptable Tolerance
Property Line	Location of easement	---	If moved 1 foot or more