



Statewide Roadside Development Quality Plan

**Project Delivery QA/QC Program
Oregon Department of Transportation**

September 2024

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Oregon Department of Transportation

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Revision History (the current revision is first entry)

Release Date	Change made by	Section(s) Updated	Summary of what, why changed
9/17/2024	Robert Marshall Roadside Development Program Leader	Sections 1, 3, 4.1, 4.2, 4.5, 4.6, 5.	Administrative update to conform with agency standards.

1. Roadside Development Quality Management

Quality in project delivery is the degree to which a product, service, or deliverable conforms with established project and design requirements, satisfies its intended purpose, and meets the customer's requirements and expectations.

Quality is the result of a cooperative partnership between the providers of project development services (engineering services and technical reports) and quality assurance (QA). Those providing project development services must implement quality control (QC) to ensure products and services meet customer requirements and expectations. Those responsible for QA review the process to confirm the quality management efforts are achieving desired results.

The quality management system efforts foster continuous improvement in the ongoing quest to meet customer expectations, provide high quality engineering and technical services, and make efficient use of resources.

2. Quality and Technical Standards

The [ODOT Project Delivery QA/QC Program website](#) provides an overview of the ODOT Project Delivery QA/QC Program, access to the quality standards of practice. The Project Delivery Quality Program Manual can be found there, as well as a listing of the quality plans and guidance documents, including the region technical center quality plans, the technical discipline quality plans, and the transportation project management statewide quality plan. There is also a listing of the associated quality forms and checklists.

Roadside development usually consists of revegetating areas disturbed by construction with seeding or planting using the associated components of soil, fertilizers, amendments, irrigation and mulch and seeds. This discipline involves work ranging from the mitigation of wetlands to the development of urban site amenities. The requirements for roadside development are provided in the [Oregon Standard Specifications for Construction](#), latest edition.

Roadside development is a highly visible aspect of ODOT projects. The public sees when roadside development projects succeed or fail. Providing the public successful projects is ODOT's obligation. Because roadside development involves mitigating regulated areas such as wetlands or riverbanks as conditions of permits, success of these projects is maximized by good plans that have undergone a thorough QA. The best practices in the roadside development discipline are provided in the [ODOT Roadside Development Manual](#).

3. Roles and Responsibilities

The roles and responsibilities for implementing roadside development quality management are described in this section.

Table 1: Roadside Development Quality Roles and Responsibilities

Roles	Responsibilities
Designer/Professional of Record (POR)	<ul style="list-style-type: none"> • Develops roadside development plans that stabilize disturbed ground, that enhance site aesthetics and that preserve or enhance the safety of road users. • Develops roadside development plans and specifications while using the Roadside Development Designer Checklist. (ODOT’s Roadside Development Webpage/Guidance Materials/form 734-5284) • Develops roadside development plans that satisfy the scope of work and employ best practices. • Ensure compliance with the conditions of Section 00280 (Erosion Control) and the 1200-CA Permit, when applicable. • Must be a licensed landscape architect or working under the controlling oversight of a landscape architect. • Originator of roadside development plans and specifications shall affix the designer’s professional seal and signature on the final signed and sealed project deliverable. • Responsible for self-checking their work and maintaining compliance with applicable manuals, standards of practice, errors, and omissions. • Person in responsible charge for roadside development interpretation and decisions made on a project. • The professionals of record are responsible for acting within their own level of competence and knowledge.
Reviewer	<ul style="list-style-type: none"> • Provides primary technical review for aspects of the project to catch and correct mistakes, oversights, or logic errors. The reviewer would typically not stamp the work unless they were in responsible charge of some discrete portion of the project. • Qualified as equal to or more qualified than the designer. • The reviewer signing the work product will be the one who conducted the review.
Supervisor	<ul style="list-style-type: none"> • Direct personnel responsibility for professionals who work within roadside development Program.

4. Quality Control

4.1. Quality Control Milestones

ODOT’s project delivery process is broken down into a series of milestones or phases.

Accurate roadside development plans depend on the designs of other disciplines as base information. Plans must accommodate the locations of pavement and built features, site grading and utilities, and signs to prevent conflicts and ensure road user safety. For this reason, roadside development plans submittals lag behind the submittals from other disciplines. The following table details the review required at each listed phase.

Table 2: QC Milestones

Milestone	Document	Guidance	Requirements <i>include whether signed or initialed, and if so, by role</i>
Scoping	No deliverable during scoping	Determine area of disturbance and if permit conditions require mitigation	No deliverable or review is required at this milestone.
Design Acceptance Package (DAP)	Provide Narrative describing plans roadside development and required mitigation if applicable	Roadside Development Manual provides guidance. Site visit with analysis is recommended.	No review of Roadside Development Narrative is required at DAP
Preliminary Plans	No roadside development deliverable is due at Preliminary Plans	Continue site research and development of Roadside Development Plans	Reference and fill out Designer Check List, form 734-5284 during development of Roadside Development Plans
Advance Plans	Roadside Development Plans, the 01030, 01040 and Engineer’s Estimate are deliverables at Advance Plans.	Work with region erosion and sediment control POR to coordinate seeding, mulching and land stabilization.	Designer continues to reference form 734-5284. Review of Advance Roadside Development Plans is required with initial. Verify review was done.

Roadside Development Quality Plan

Milestone	Document	Guidance	Requirements <i>include whether signed or initialed, and if so, by role</i>
Final Plans	Plans, Special Provisions and Engineer’s Estimate	See Highway Directive DES-20-01 and get concurrence on level of risk from TR	Review of Final Plans, specs and cross reference with estimate. Verify compliance with requirements in content and format. Complete form 734-2573 and sign reviewed plans.
PS&E Package	Plans, Special Provisions and Engineer’s Estimate	N/A	Review deliverable package. If applicable, Roadside Development Plans direct final stabilization and are included in submittal to DEQ as part of the ESCP.

4.2. Quality Control Reviews

Quality control reviews assist the POR in developing documents free of errors and mistaken assumptions. The reviews verify the documents are consistent with applicable standards and guidance and there is consistency between calculation results and recommendations.

Quality reviews should verify that previous QC review comments have been understood and addressed. Reviewers should also check with other disciplines to ensure there is interdisciplinary consistency for the project design. Both preparers and quality reviewers need to be technically competent in the discipline.

For expediency and consistency, the following standard templates and checklists are available from the [Roadside Development webpage](#):

- QC checklist form 734-5284 – Located under the “Forms and Templates” subheading.
- Manuals, technical guidance, and standards – Located under “Roadside Development Guidance Materials.”

It is important to note that the use of these tools is not intended to replace sound professional judgement nor to relieve the POR from their responsibilities.

Roadside development quality reviews begin with the preparer, who checks the quality of their work. They provide it to a QC reviewer who will:

- Check that roadside development design is appropriate for project and the considerations of the maintenance business line, as identified in division directive

DES_20-01, are addressed. Verify designed features do not conflict with utilities or signs, do not block sightlines or introduce obstructions into the operational ROW or clear zone.

- Verify plants used (either by seeding or planting) are appropriate for the climate and naturally available water. Verify they are adapted to thrive in the soils and solar aspect where they are planned. The use of plants and landscapes that require irrigation and supplemental watering after establishment is discouraged.
- When irrigation plans are part of the roadside development plans, check the hydraulic calculations and verify the irrigation system uses necessary and appropriate equipment.
- Verify Roadside Development Plans are prepared by licensed landscape architect who is technically competent in that discipline.
- Verify that if Roadside Development Plans preparer is not licensed, the design and deliverable production occurred under the controlling oversight of a licensed professional.
- When reviewing roadside development plans reviewer verifies risks are addressed and appropriate measures specified. When reviewing plans, additions, deletions and revisions are marked in red pencil. Corrections: strike redlines in yellow highlighter and back check mark over.
- Verify project's special provisions are appropriate for the project's risk designation, permit requirements and that they align with Roadside Development Plans.
- Review engineer's estimate to verify quantities align with plans and that plant establishment and monitoring (when applicable) are captured in estimate.

Reviewer enters comments in project comment log. The reviewer then checks back with the preparer whether they accept the comments. See Section 4.3 on how differences of opinion are handled. Once agreement is reached, corrections are made, and a back-check is done to verify that corrections were made as intended before sending to the POR for signing.

Consultant designers may have alternative QA/QC procedures that may involve multiple design firms as well as ODOT. Consultant QA/QC procedures must use the Designer Checklist Form 734-5284 and verify that the Roadside Development Plans, the special provisions, the Engineer's Estimate comply with standards, guidance and requirements.

When this is the case, QA/QC shall follow consultant's procedures. Consultant's QA/QC procedures must be as rigorous (or more) than this (ODOT's) QA/QC process. When working on projects with alternative QA/QC procedures inform reviewers of process, assure reviewers have software and training in alternative procedures and verify reviewers are aware of review submittal dates and review submittal procedures.

4.3. Authority of the Reviewer

Because a designer has a better understanding of project limitations, constraints, and opportunities than a reviewer, who enters the project late in its lifecycle, the designer/POR is in

the position to not act on comments of a reviewer, with exceptions listed below. If there is a major technical disagreement, the issue should be elevated within the discipline or region technical center, as applicable. If the issue cannot be resolved at that level, it is elevated to the discipline section level, i.e., Roadside Development Program, and if needed, up to the chief engineer.

ODOT has the right, responsibility, and authority to establish the procedures, policies, codes, standards of practice and level of quality under which work products and tasks will be conducted. The only limitation is practice standards should be no less than the standard of care in the industry.

Most often, the reviewer and POR will address recommendations and changes in a collaborative manner and create a work product that satisfies both parties. However, situations will arise where that is not tenable. For those cases, guidance is needed as follows:

- Recommended changes to the work will generally fall into three categories, those that:
 - Represent different ways to analyze or view the work that are suggested or advisory.
 - Represent differences of opinion that do not violate the standard of care or impact the safety of the public.
 - Violate the standard of care or impact the safety of the public.
- Compromise and open-minded communication are crucial. Further, it is the POR's first duty to try and solve the matter with the reviewer. The reviewer should make every possible effort to explain their position to the POR and listen to feedback. Failing resolution between the parties, the resolution will vary depending on the nature of the dispute.
- For changes requested by the reviewer that would fall into the first category and would be considered suggestions of feedback, the POR should respond to the reviewer but does not need to document their choice to not incorporate the suggested changes.
- For the second category, differences not violating the standard of care or impacting the safety of the public, the POR should respond to each item individually and document why they are not implementing the recommendation.
- For differences that either party (POR or reviewer) considers a violation of the standard of care or impact safety of the public and that cannot be resolved, the professional shall next work with the unit manager and then the technical center manager (or section manager in the case of a centralized discipline) prior to seeking other ways of resolving the problem. Such ways may include an approval to a deviation or design exception by the delegated authority for the discipline.
- Reviewers cannot require licensed professionals to change work in a way that would endanger the public or violate the standard of care.

- Licensed professionals are expected to address issues of standard of care or public safety. Only if proposed changes jeopardize the safety of the public or violate the standard of care would the licensed professional have an argument for not being responsible for sealing the work.

4.4. Software, Tool, and Data Validation

Experience and training empower designers to understand and address the risks and opportunities regarding roadside development. Software is generally not required other than that used in drafting and compiling cost estimates, which are not discipline specific.

4.5. Quality Control Documentation

As project QC work is done, quality records are created that provide reviewable evidence documenting that quality work was done. These quality records also provide the basis for quality reviews and/or audits (performed by professional auditors).

Quality reviewer shall register on the Roadside Development Quality Control Checklist (Form 734-5284) that the suite of Roadside Development Plans are complete, accurate and appropriate.

Documentation needs to occur as the QC work is completed. As the scope of roadside development plans are dependent on the completion of work by other disciplines, these plans are developed later in the project life cycle than other disciplines. The timely completion of plan verification and documenting effectiveness is important to maintaining project schedule. By documenting QC as identified in Section 3.1, and saving that documentation in an appropriate manner, subsequent reviewers can confirm the QC process was implemented throughout the life of the project.

All reviewed work products or tasks will be documented in the project file. A separate sheet attached to the file will list the items reviewed and provides a place to record the initials of the reviewer and the date the review was accomplished.

Review comments and notes should be written/recorded to the greatest extent possible to promote good communication and minimize misunderstandings. In addition, reviewers should have a conversation with the person who created the work product or task to go over their comments. This establishes a personal relationship that helps to lessen possible conflicts of ego. Reviewer comments should be retained in ProjectWise.

To the extent reasonable to document the process of deciding on the final approach, unsealed drafts of professional deliverables should be retained within the project file. Electronic version control should be in accordance with file naming convention detailed elsewhere in this manual. Drafts should be retained for significant projects with multiple iterations.

Quality records in ProjectWise are stored in their regular discipline or milestone directory, with either "QC," "QA," or "QV" in the document title or description, to facilitate searches for

quality documentation. Quality files from each discipline or milestone folder in ProjectWise will be added to a set created in the "7_quality" folder for Environmental: E_K#####_##.

Deliverables and all quality records needed to confirm a thorough QC review has been completed at the time of production will be stored in ProjectWise following ODOT ProjectWise protocols and naming conventions.

Electronic signature or initials will be considered a valid secure signature. The electronic signatures will include at least the name and date the document was signed.

4.6. QC Communications

The process described by this section defines the minimum level of communication and collaboration necessary to meet the requirements of the roadside development quality plan. Members of the project team are encouraged to freely communicate throughout the life of the project to assure a high level of service and quality and reduce significant amounts of rework, errors, or omissions.

5. Quality Assurance

Quality assurance (QA) is a system undertaken to maximize the effectiveness of the quality program. The QA process assists in measuring the effectiveness of the quality efforts in order to provide input into continuous improvement of the work and assist in identifying technical development needs.

The goals of an effective QA process are:

Verification – A primary purpose of the ODOT QA program is to confirm all elements of the QC process took place at the right time and applicable standards were applied effectively. This is done by collecting and processing information relative to the connection between quality processes and outcomes.

Competency Building – The QA process assists in developing an agency-wide vision of the current needs with respect to technical knowledge and competence. The evaluation of where projects succeed or fail, and the role of the QC program in assuring success will provide data to be used in identifying gaps or weaknesses within the current knowledge base.

Continuous Improvement – Beyond the above-described project specific compliance, the QA process is intended to enable continuous improvement within both the quality program as well as within the practice community providing roadside development services for ODOT projects.

In order to achieve the goals stated above, the QA process will need to be objective, transparent, and effectively communicated.

5.1. Quality Assurance Review Process

Project Review – An in-depth review of the project documentation will address how well the project met standards and the extent to which the QC process contributed to the success of the project. The results of the in-depth reviews will be collected and evaluated for inclusion in an annual summary report.

QA Review Team – For projects developed in regions 1 and 2, the roadside development program leader provides QA/QC reviews for roadside development plans developed by that region’s landscape architects. In regions 3, 4, and 5 the roadside development program leader provides landscape architecture services and solicits review from either the Region 1 or Region 2 landscape architect. Consultant designed projects are reviewed internally, within their firm, and by region’s landscape architect.

Completeness Review – Initial information on completed projects will be gathered from ProjectWise. The QA team will complete an initial review and evaluation focused on the completeness and timeliness of the QC documentation and will write up their findings and recommendations in a draft version of a short, project-specific report. The draft report will be provided to the POR and their direct supervisor, and to the Project Delivery QA/QC Program.

The POR will provide the QA team with any applicable clarification or additional information available, which will be incorporated in the final completeness review.

5.2. Quality Assurance Documentation

- Quality records in ProjectWise are stored in their regular discipline or milestone directory, with either “QC,” “QA,” or “QV” in the document title or description, to facilitate searches for quality documentation.
- Quality files from each discipline or milestone folder in ProjectWise will be added to a set created in the “7_quality” folder for Environmental: E_K#####_##.

Appendix A - Glossary

Table A-3: Glossary of Terms, Titles, and Acronyms

Term	Explanation
DEQ	Oregon Department of Environmental Quality
DAP	Design acceptance package – Statewide phase gate project delivery milestone.
PS&E	Plans, specifications and estimates – Statewide phase gate project delivery milestone.
BMP	Best Management Practice – Products and processes accepted by profession as most effective
Quality control (QC)	Focused on the product fulfilling quality requirements as it is developed for the Roadside Development Plans
Quality assurance (QA)	<p>Focused on the process and assurances that quality requirements are being fulfilled.</p> <ul style="list-style-type: none"> • Verifying QC was done following the quality processes. • Reviews of QC and QA processes, supporting continuous improvement. <p>Project and program level QA reviews.</p>
Quality Management Quality control (QC)	<p>Policies, processes, activities, and responsibilities that ensure the overall quality of tasks and deliverables in project delivery.</p> <p>Implemented by means such as quality planning, quality control, quality assurance, and continuous improvement within the system.</p> <p>Quality control, focused on the product fulfilling quality requirements as it is developed.</p>
Quality Verification (QV) Quality assurance (QA)	<p>Review process to ensure technical sufficiency of all deliverables, verify performance of all quality tasks, and to document the completion of those tasks. Quality assurance, focused on the process and assurances that quality requirements are being fulfilled.</p> <ul style="list-style-type: none"> • Verifying that QC was done following the quality processes. • Reviews of QC and QA processes, supporting continuous improvement. <p>Project and program level QA reviews.</p>
POR Quality Management	<p>Professional of Record policies, processes, activities, and responsibilities that ensure the overall quality of tasks and deliverables in project delivery.</p> <p>Quality management is implemented by means such as quality planning, quality control, quality assurance, and continuous improvement within the system.</p>

Term	Explanation
Technical sufficiency Quality Verification (QV)	<p>Reviewing a deliverable for technical sufficiency means technical review, checking that the deliverable complies with all applicable laws, rules, regulations, technical standards, guidance, policies and procedures, suitable for the milestone.</p> <p>An initial check of key elements can be used to decide whether additional review is warranted.</p> <p>Review process to ensure technical sufficiency of all deliverables, verify performance of all quality tasks, and to document the completion of those tasks.</p>
POR	Professional of record
Technical sufficiency	<p>Reviewing a deliverable for technical sufficiency means technical review, checking that the deliverable complies with all applicable laws, rules, regulations, technical standards, guidance, policies and procedures, suitable for the milestone.</p> <p>An initial check of key elements can be used to decide whether additional review is warranted.</p>



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