



Project Delivery Network
Design Leader QC Checklist

Version
02/05/2014

QC Manager:
UDOT Central Preconstruction Standards Engineer

Introduction

The Project Delivery Network Roadway Design QC Checklist is to be used with the [UDOT QC/QA Procedures](#). This checklist is a tool to assist the project team in verifying all work is produced with due diligence, using acceptable industry standard techniques, available resources and data, and reasonable decisions by competent professionals. The checklist is a tool and cannot replace the sound judgment and experience of competent professionals. It is the Design Team's responsibility to verify the quality of project documents **before** distribution.

For suggestions or answers to questions please contact:

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QC Documentation

Consistently documenting the QC process is an essential step to the QC procedures. The documentation provides the following benefits:

1. It confirms for project teams that each step in the QC process was completed correctly.
2. It confirms for UDOT that the QC procedures are followed consistently by all project teams.
3. It provides the opportunity for all to find ways of improving the QC/QA procedures.

Documentation has always been used by the project team to perform required quality assurance verification and has been maintained by the design team for reference during construction. It has also served as the way for UDOT to perform project audits to verify the design team followed the required QC/QA procedures. Providing this documentation in ProjectWise increases the opportunities to realize the benefits of QC documentation.

UDOT **requires** the Originator to upload all QC documentation for each deliverable into ProjectWise and attribute it as directed by this QC/QA Design Checklist (see *Recommended QC Documentation Table*). Every deliverable and applicable checklist item must have some form of documentation demonstrating the QC was completed. The QC documentation must be uploaded at or before each milestone review package distribution. The QC process is incomplete until all QC documentation is uploaded and attributed correctly.

The following recommendations are provided for creating QC documentation files:

- Provide all QC documentation required to review the QC process.
- Separate or combine QC documentation into files that are logical for the size and complexity of the project. For example, smaller projects can combine multiple disciplines' plan sheets into one QC file while larger projects should maintain separate files.
- Insert the entire final deliverable copy into the file before the QC check prints.
Example: M&P deliverable, M&P check prints
- Collate the plan sheets, specifications, and special provisions so that each sheet and spec. has the deliverable and check print redlines together.
Example: EC-01 deliverable, EC-01 check prints, EC-02 deliverable, EC-02 check prints, etc.

UDOT QC Documentation Recommendations and Instructions

A balance between consistency and flexibility is required to meet the demands of quality control and the variation in project scopes, teams, budgets, and methods. UDOT is not providing a list of requirements for QC documentation to help meet this balance. UDOT is only requiring that the project team provide all QC documentation, upload it to ProjectWise, and attribute it properly.

Recommended QC Documentation and *UDOT QC Instructions* are provided within the checklist to assist project teams, Checkers, and QA reviewers. These recommendations and instructions are given as guidance and are not meant to change the way a project team performs their QC process if the process meets all UDOT requirements. Project teams may adapt the recommendations and instructions as needed or use them to verify their process meets UDOT's requirements. The recommendations and instructions are not and cannot be completely comprehensive so it is necessary for project teams to make some alterations to the recommendations as needed to meet specific project challenges.

The *UDOT QC Instructions* for each checklist item or group of checklist items can be found italicized under the corresponding items followed by the right justified *Recommended QC Documentation*.

Not all checklist items have a recommended QC documentation. The completed checklist serves as the QC documentation for these items. Provide additional documentation when available.

Some checklist items require coordination, acceptance, or approval to be completed. A space has been provided for these items to identify the documentation being provided as evidence of completion.

The **Originator** is responsible to have all their work checked and to provide and upload all documentation. The **Checker** is responsible to complete a thorough check and provide all documentation to the Originator. Complete QC reviews **before** deliverable distribution.

QC Checklist Instructions

It is **required** to complete and upload into ProjectWise all 14 Design QC Checklists unless otherwise noted by the UDOT Project Manager on the Project QC/QA Plan (*see the UDOT QC/QA Procedures for the Project QC/QA Plan form and instructions*). The Checker must verify all items in the checklist are complete and correct for each deliverable listed along with any additional items the Checker deems necessary.

- The checklist items are not to be interpreted as the only items that need to be checked.
- The Checker places his or her name in the space provided at the beginning of the checklist. Fill out one checklist and include all names if multiple Checkers are used for the same deliverable. Place the Checker's initials next to each item they checked. Use the text box to the left of the item number provided in the form for the Checkers' initials unless the item is not applicable.
- Check the checkbox next to each item that has been checked. Place an **NA** in the checkbox or the text box provided to the left of each item number if the item is not applicable to the project. **ALL** items must have check mark or NA.
- Provide documentation demonstrating the action occurred for checklist items that recommend **Approval Documentation, Coordination Documentation, or Acceptance Documentation**. Documentation may be formal communications, emails, meeting notes, phone conversation logs, or other forms that document communication process. Place the file name in the space provided and follow the attributing convention in the Recommended QC Documentation Table.
- Provided at the end of each checklist is an Estimate Review Checklist. Complete and submit this checklist when checking the estimate as well as completing any checkboxes found on the activity checklist.
- A comments sheet is provided at the end of each discipline's checklist for the Originator and Checker to make comments, notes, and clarifications. Only one comment sheet is provided to minimize space and printing when printing the entire checklist. Use this sheet to document and consolidate the QC check comments.
- Each discipline checklist is separated into activity checklists. Complete the activity checklists necessary for the phase of the project. The Recommended QC Documentation table recommends uploading each activity checklist as a separate file. The checklists may be combined, but each

checklist must be included in the file name and attributed properly (example: QC_4U1_4U3_Checklist_dddmyy).

- Every checklist item in each section of all required Design QC Checklists (see the Project QC/QA Plan) must be completed. It is unacceptable to address an entire section with a blanket statement or a continuous line through all boxes. Each item must have “NA” next to it even if an entire activity or section is not applicable.
- Previously completed checklists may need to be completed again if, after a milestone, changes were made to elements checked on the previous checklist. Complete the necessary checklist items associated with the changed element and mark “NA” on all other items. Combine these checklists with the existing phase checklist into one file (example: QC_4R1_3R1_Checklist_dddmyy).
- Do not recheck items that have been QC checked previously and have not changed or are not affected by a change.

The Originator is required to upload the completed checklist into ProjectWise and attribute it correctly (see *Recommended QC Documentation Table*) once all items are checked and verified. Properly attributed documents can be verified by checking the QC Saved Search folders in ProjectWise.

The following explanations are to aid in completing the QC checklist items:

- A checklist item deemed “complete,” “correct,” or “accurate” does not denote that the item is perfect, but rather that the item satisfies design criteria based on known information, acceptable techniques, and sound judgment.”
- A checklist item deemed “addressed” denotes the item as “reviewed all known concerns and verified the concerns are appropriately mitigated and satisfy design criteria.” Addressed concerns are not necessarily incorporated into the design, but satisfactorily mitigated.
- A checklist item deemed “identified” denotes the item as “an acceptable and economical approach to satisfy design criteria based on known information.”
- A checklist item deemed “verified” denotes the item as “verified the approach/conclusion as acceptable based on known information.”

QC Documentation ProjectWise/Attributing Instructions

ALL QC documentation must be uploaded into ProjectWise and attributed correctly. Please see [UDOT ProjectWise Online Training](#) for more information on ProjectWise and attributing documents.

There are three potential attributing scenarios for all QC documentation in ProjectWise:

1. Not in ProjectWise initially (e.g. scanned documents that will be uploaded/attributed)
2. Already in ProjectWise but either not attributed or attributed incorrectly
3. Already in ProjectWise and correctly attributed for another reason but also in need of a supplemental attribute specifically for QC

No matter how the required documents initially exist, all must be attributed for QC as directed below or the QC documentation is not considered complete as required

It is *required* to properly attribute ALL QC documentation. To assist project teams properly name and attribute each document, the following table *Recommended QC Documentation* provides naming and attributing conventions for all recommended QC documentation. These naming and attributing conventions can be adapted for use with all additional documentation or altered for combining documents. Name a file logically with all elements included in the file and follow the naming and attributing convention if altering or combining files. Remember, the goal of naming and attributing is to make the document searchable by someone not intimately associated with the project.

Recommended QC Documentation

Required Documentation	Naming Convention	Document Type Filter	Document Type	Document Subtype	Document Phase***
PDC Redlines	<i>PIN_QC_PDC_Phase_mmddyy</i>	Roadway Design	QC/QA +	Proejct Documents	<i>Phase</i>
Checklist 1Y1	<i>PIN_QC_1Y1_Checklist_mmddyy</i>	Roadway Design	QC/QA +	QC Checklist	Scoping
Maintenance/Preconstruction Site Visit Certification	<i>See form for naming and attributing instructions</i>				
Maintenance Comment Resolution Form*	<i>PIN_CRF_M_mmddyy</i>	Roadway Design	QC/QA +	Comment Resolution	Scoping
Project Definition Document Redlines	<i>PIN_QC_PDD_mmddyy</i>	Roadway Design	QC/QA +	Project Documents	Scoping
Scoping Engineer's Estimate Redlines	<i>PIN_QC_Engineer's_Estimate_Scoping_mmddyy</i>	Roadway Design	QC/QA +	Engineer's Estimate	Scoping
Checklist 1Y2	<i>PIN_QC_1Y2_Checklist_mmddyy</i>	Roadway Design	QC/QA +	QC Checklist	Scoping
Scoping Comment Resolution Form*	<i>PIN_CRF_S_mmddyy</i>	Roadway Design	QC/QA +	Comment Resolution	GR
Geometry Review Engineer's Estimate Redlines	<i>PIN_QC_Engineer's_Estimate_GR_mmddyy</i>	Roadway Design	QC/QA +	Engineer's Estimate	GR
Checklist 2Y1	<i>PIN_QC_2Y1_Checklist_mmddyy</i>	Roadway Design	QC/QA +	QC Checklist	GR
Geometry Review Comment Resolution Form*	<i>PIN_CRF_GR_mmddyy</i>	Roadway Design	QC/QA +	Comment Resolution	PIH
Plan-in-Hand Engineer's Estimate Redlines	<i>PIN_QC_Engineer's_Estimate_PIH_mmddyy</i>	Roadway Design	QC/QA +	Engineer's Estimate	PIH
Printout ePM Screen 505	<i>PIN_QC_ePM_Estimate_PIH_mmddyy</i>	Roadway Design	QC/QA +	Engineer's Estimate	PIH
Checklist 3Y1	<i>PIN_QC_3Y1_Checklist_mmddyy</i>	Roadway Design	QC/QA +	QC Checklist	PIH
Title and 1's Sheets Redlines	<i>PIN_QC_1s_PlanSheets_mmddyy</i>	Roadway Design	QC/QA +	Plan Sheet	PSE
Special Provisions Redlines*	<i>PIN_QC_Specs_PSE_mmddyy**</i>	Roadway Design	QC/QA +	Project Documents	PSE
Plan-in-Hand Comment Resolution Form*	<i>PIN_CRF_PIH_mmddyy</i>	Roadway Design	QC/QA +	Comment Resolution	PSE
PS&E Engineer's Estimate Redlines	<i>PIN_QC_Engineer's_Estimate_PSE_mmddyy</i>	Roadway Design	QC/QA +	Engineer's Estimate	PSE
Printout ePM Screen 505	<i>PIN_QC_ePM_Estimate_PSE_mmddyy</i>	Roadway Design	QC/QA +	Engineer's Estimate	PSE
Checklist 4Y1	<i>PIN_QC_4Y1_Checklist_mmddyy</i>	Roadway Design	QC/QA +	QC Checklist	PSE
Final Comment Resolution Form*	<i>PIN_CRF_Final_mmddyy</i>	Roadway Design	QC/QA +	Comment Resolution	Advertise
Final Engineer's Estimate Redlines	<i>PIN_QC_Engineer's_Estimate_CR_mmddyy</i>	Roadway Design	QC/QA +	Engineer's Estimate	Advertise
Printout ePM Screen 505 Redlines	<i>PIN_QC_ePM_Estimate_CR_mmddyy</i>	Roadway Design	QC/QA +	Project Documents	Advertise
Checklist 5Y1	<i>PIN_QC_5Y1_Checklist_mmddyy</i>	Roadway Design	QC/QA +	QC Checklist	Advertise

*Files typically combined with other disciplines into one documentation file. Coordinate with the other disciplines that will provide these documents and the Design Leader. If not combined into one project QC file, provide appropriate file name identifiers and attributing.

** Use *Pin_QC_SpecNo_SpecName_mmddyy* when separating spec files; maintain correct attributing.

*** Use the appropriate document phase; this list is given as a guide.

1Y1 Develop Project Design Criteria (PDC)

Develop the PDC.

References

1. AASHTO, A Policy on Geometric Design of Highways and Streets
 2. [UDOT Roadway Design Manual of Instruction](#)
 3. [UDOT Project Design Criteria Website](#)
 4. [Critical Elements](#)
 5. [Additional Design Criteria](#)
 6. [UDOT Project Delivery Network](#)
 7. [UDOT QC/QA Procedures](#)
 8. [UDOT Practical Design Guide](#)
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Develop PDC

Checker: _____

Date Completed: _____ PIN: _____

1. The correct PDC is used (ie urban arterial, rural arterial, etc.).
2. All project description information is correct and matches ePM.
 - a. Project No.
 - b. PIN
 - c. Location
 - d. Concept
 - e. Project scope description
3. The Design Standards are correct.
 - a. Roadway Characteristics are correct (Matches and addresses the findings of the OSR).
 - b. The Proposed Roadway Characteristics are correct.
 - c. All intersections are identified and characterized correctly.
 - d. All curb radius information is correct.
 - e. The pavement thickness information is correct based on known information.
4. All FHWA 13 Critical Elements and Additional Criteria are addressed and filled out correctly.
 - a. All critical elements are met as much as possible.
 - b. All additional criteria requiring design waivers are met as much as possible.
 - c. All exceptions and/or waivers are identified and adequately justified.
5. The preparer's signature and date are on the form.

Check each PDC following the UDOT QC/QA Procedures Section 3. A separate PDC is required for each roadway on the project, but a single checklist may be used to document all PDCs were QC checked. Complete the applicable 1Y2 PDC checklist items for EACH submitted revision to the PDC. Check all calculations and computer input required for the PDC..

Recommended QC Documentation: PDC Redlines

1Y2 Prepare/Compile Scoping Review Package

Prepare and compile all discipline review materials to produce the Scoping Review Package.

References

1. [UDOT QC/QA Procedures](#)
 2. [Maintenance/Preconstruction Site Visit Certification Form](#)
 3. [Project Definition Document \(PDD\)](#)
-

Maintenance/Preconstruction Site Visit Certification Form

Checker: _____

Date Completed: _____ PIN: _____

1. All required project team members were invited.
2. All appropriate project team members were invited.
3. The following items were discussed during the site visit:
 - a. Soft spot locations
 - b. Drainage issues
 - c. Culvert inspections
 - d. Safety
 - e. Structures
 - f. Maintenance Management Quality Assurance (MMQA) grades and concerns
 - g. Top three issues provided by the maintenance station
4. The certification form is complete with all signatures.

Verify the visit occurred as required. Verify all discipline related comments are addressed and all actions are implemented. If any exceptions to the requirements or items were not completed, use the QC Check Comments sheet to document and explain them.

Required QC Documentation: Maintenance/Preconstruction Site Visit Certification Form

Verify the following if a Comment Resolution Form is used:

5. All site visit comments were addressed and discussed with the PM.
6. The comment resolution form is complete and verified.
7. Each comment has required verification initials and dates.

Verify all comments not retired are transferred to the current CRF. See the UDOT QC/QA Procedures section 6.0 for more information.

Recommended QC Documentation: Maintenance Comment Resolution Form (M-CRF)

Compile Project Definition Document (PDD)

Checker: _____

Date Completed: _____ PIN: _____

1. The objective statement is brief, accurate, and complete.
2. The high level project goals are appropriate, attainable, and encompass the intent of the project.
3. The project scope supports the project goals.
4. The project delivery method is identified and appropriate.
5. All major risks have been identified and addressed.
6. Budget estimate matches ePM screen 505.
7. The proposed advertisement date and anticipated construction completion dates have been accurately scheduled.
 - a. Available resources have been considered.
 - b. Schedule critical path and risks have been identified.

Check the PDD following the UDOT QC/QA Procedures Section 3.4.

Recommended QC Documentation: Project Definition Document Redlines

Scoping Project Cost Estimate

Checker: _____

Date Completed: _____ PIN: _____

1. Each discipline's initial bid items and unit prices are included.
2. All additional project cost estimate line items (non-bid items) are included and unit prices are actual or reasonable estimates.
3. Each discipline completed a QC Review of their bid items, quantities, units, and unit prices.

See the [Estimate Review Checklist](#) for recommended QC documentation and instructions.

Recommended QC Documentation: Scoping Engineer's Estimate Redlines

2Y1 Prepare/Compile Geometry Review Package

Compile project cost estimate and all discipline deliverables into one Geometry Review Package.

References

1. [UDOT QC/QA Procedures](#)
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Geometry Review Project Cost Estimate

Checker: _____

Date Completed: _____ PIN: _____

1. Each discipline's updated bid items and unit prices are included.
2. All additional project cost estimate line items (non-bid items) are included and unit prices are actual or reasonable estimates.
3. Each discipline completed a QC Review of their bid items, quantities, units, and unit prices.

See the [Estimate Review Checklist](#) for recommended QC documentation and instructions.

Recommended QC Documentation: Geometry Review Engineer's Estimate Redlines

Scoping Comment Resolution Form (S-CRF)

Checker: _____

Date Completed: _____ PIN: _____

1. All project information is correct.
2. All Scoping review comments are included.
3. All comments are verified.

Check all Design Leader comments are addressed and actions implemented. Verify all comments not retired in previous stages are transferred to the current CRF. See the UDOT QC/QA Procedures section 6.0 for more information.

Required QC Documentation: Scoping Comment Resolution Form

Prepare Geometry Review Package

Checker: _____

Date Completed: _____ PIN: _____

1. The PDC has been reviewed and all updates are correct. (See 1Y1 Checklist to QC the updates).

If there are no updates to the PDC during the Geometry Review phase, mark NA. If there are updates, the 1Y1 Checklist is required.

3Y1 Prepare/Compile Plan-in-Hand Review Package

Compile Geometry Review comment resolution form, project cost estimate, and all discipline deliverables into one Plan-in-Hand review package.

References

1. [Price + Time Bidding \(P+T\) Website](#)
 2. [UDOT QC/QA Procedures](#)
 3. [UDOT Project Delivery Network QC/QA Checklists](#)
 4. [Milestone Review Comment Resolution Form](#)
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Plan-In-Hand Project Cost Estimate

Checker: _____

Date Completed: _____ PIN: _____

1. Each discipline's updated bid items and unit prices are included.
2. All additional project cost estimate line items (non-bid items) are included and unit prices are actual or reasonable estimates.
3. Each discipline completed a QC Review of their bid items, quantities, units, and unit prices.

See the [Estimate Review Checklist](#) for recommended QC documentation and instructions.

Recommended QC Documentation: Plan-in-Hand Engineer's Estimate Redlines

Geometry Review Comment Resolution Form (GR-CRF)

Checker: _____

Date Completed: _____ PIN: _____

1. All project information is correct.
2. All Geometry Review comments are included.
3. All comments are verified.

Check all Design Leader comments are addressed and actions implemented. Verify all comments not retired in previous stages are transferred to the current CRF. See the UDOT QC/QA Procedures section 6.0 for more information.

Recommended QC Documentation: Geometry Review Comment Resolution Form

Prepare Plan-in-Hand Review Package

Checker: _____

Date Completed: _____ PIN: _____

1. The PDC has been reviewed and all updates are correct. (See 1Y1 Checklist to QC the updates)

If there are no updates to the PDC during the Geometry Review phase, mark NA. If there are updates, the 1Y1 Checklist is required.

2. The project estimate on ePM screen 505 is updated and correct.

Print and review the ePM Screen 505 following the UDOT QC/QA Procedures Section 3.4.

Recommended QC Documentation: Printout ePM Screen 505

4Y1 Prepare/Compile PS&E Review Package

Compile comment resolutions, project cost estimate, and all discipline review materials to produce the PS&E Review Package.

References

1. [UDOT CADD Standards](#)
 2. [UDOT Plan Sheet Development Standards](#)
 3. [Specification Writer's Guide](#)
 4. [UDOT Project Delivery Network](#)
 5. [UDOT QC/QA Procedures](#)
 6. [UDOT Practical Design Guide](#)
-

Plan Set Sheets

Checker: _____

Date Completed: _____ PIN: _____

The 4Y1 checklist is for the non-discipline plan sheets and special provisions only.

1. All sheets meet [UDOT CADD Standards](#) and [UDOT Plan Sheet Development Standards](#).
 - a. PSDS General Plan Sheet Requirements are followed. (2)
 - b. Call-out rules are followed.
 - c. All title blocks are filled out correctly.
 - d. All plan sheets are numbered correctly.
 - e. Plan Sheet CADD standards are followed and maintained on each sheet.
2. **Title Sheet** is complete.
 - a. Title Sheet meets [UDOT Plan Sheet Development Standards](#) requirements.
 - b. Project number, name, description, funding source, and county are correct.
 - c. Project name matches ePM screen 710 exactly.
 - d. Correct length in miles.
 - e. Location map and north arrow are correct.
 - f. All text is correct.
3. **Cross Reference Sheet** is complete.
 - a. Cross Reference Sheet meets [UDOT Plan Sheet Development Standards](#) requirements.
 - b. Sheet number is 1-A.
 - c. Sheet numbers and names match actual sheets in plans.
 - d. Structure sheets included on the index sheet.
 - e. Index for all applicable Supplemental Standard Drawings are included.
 - f. For small projects, put the index to standard drawings on the title sheet.
 - g. All text is correct.

4Y1 Continued

- 4. **Index Sheet** is complete.
 - a. Index Sheet meets [UDOT Plan Sheet Development Standards](#) requirements.
 - b. All stations are legible.
 - c. The project flags are visible.
 - d. The sheet numbers & names match the index.
 - e. All major structures correctly identified.
 - f. All mile posts correctly identified.
 - g. All text is correct.
- 5. **Abbreviations and Legend Sheet** is complete.
 - a. Abbreviations and Legend Sheet meets [UDOT Plan Sheet Development Standards](#) requirements.
 - b. All text is correct.
 - c. All appropriate abbreviations and legends are included.
- 6. **General Notes Sheet** is complete.
 - a. General Notes meets [UDOT Plan Sheet Development Standards](#) requirements.
 - b. All text is correct.

Print and review the plan sheets following the UDOT QC/QA Procedures Section 3.3.

Recommended QC Documentation: Title and 1's Sheets Redlines

- 7. The non-discipline specific **Special Provisions** are complete.
 - a. All non-discipline specific special provisions needed are prepared.
 - b. All special provisions conform to the [Specification Writer's Guide](#) (verify using Chapter 11 Checklist).
 - c. All general and project specific special provision content is accurate, complete, and does not contain anything unnecessary.

Check each special provision following the UDOT QC/QA Procedures Section 3.4.

Recommended QC Documentation: Special Provisions Redlines

Plan-in-Hand Comment Resolution Form (PIH-CRF)

Checker: _____

Date Completed: _____ PIN: _____

- 1. All project information is correct.
- 2. All Plan-in-Hand review comments are included.
- 3. All comments are verified.

Check all Design Leader comments are addressed and actions implemented. Verify all comments not retired in previous stages are transferred to the current CRF. See the UDOT QC/QA Procedures section 6.0 for more information.

Required QC Documentation: Plan-in-Hand Comment Resolution Form

PS&E Project Cost Estimate

Checker: _____

Date Completed: _____ PIN: _____

- 4. Each discipline's updated bid items and unit prices are included.
- 5. All additional project cost estimate line items (non-bid items) are included and unit prices are actual or reasonable estimates.
- 6. Each discipline completed a QC Review of their bid items, quantities, units, and unit prices.

See the [Estimate Review Checklist](#) for recommended QC documentation and instructions.

Recommended QC Documentation: PS&E Engineer's Estimate Redlines

Prepare PS&E Review Package

Checker: _____

Date Completed: _____ PIN: _____

- 1. The PDC has been reviewed and all updates are correct. (See 1Y1 Checklist to QC the updates)

If there are no updates to the PDC during the Geometry Review phase, mark NA, initial, and date. If there are updates, the 1Y1 Checklist is required.

- 2. The project estimate on ePM screen 505 is updated and correct.

Print and review the ePM Screen 505 following the UDOT QC/QA Procedures Section 3.4.

Recommended QC Documentation: Printout ePM Screen 505

5Y1 Incorporate PS&E Review Comments

Make revisions based on comments made during PS&E Review (4V1).

References

1. [UDOT CADD Standards](#)
 2. [UDOT Plan Sheet Development Standards](#)
 3. [Specification Writer's Guide](#)
 4. [UDOT QC/QA Procedures](#)
 5. [UDOT Practical Design Guide](#)
-

Final Comment Resolution Form (Final CRF)

Checker: _____

Date Completed: _____ PIN: _____

1. All project information is correct.
2. ALL milestone review comments are included.
3. All comments have an A or C disposition.
4. All comments are verified.
5. All revisions to the project plans and documents due to comment incorporation have been QC reviewed in accordance with the [UDOT QC/QA Procedures](#).

Verify all Design Leader comments are addressed and actions implemented. See the UDOT QC/QA Procedures section 6.0 for more information.

Recommended QC Documentation: Final Comment Resolution Form

Final Project Cost Estimate

Checker: _____

Date Completed: _____ PIN: _____

1. Each discipline's updated bid items and unit prices are included.
2. All additional project cost estimate line items (non-bid items) are included and unit prices are actual or reasonable estimates.
3. Each discipline completed a QC Review of their bid items, quantities, units, and unit prices.

See the [Estimate Review Checklist](#) for recommended QC documentation and instructions.

Recommended QC Documentation: Final Engineer's Estimate Redlines

4. The project estimate on ePM screen 505 is updated and correct.

Print and review the ePM Screen 505 following the UDOT QC/QA Procedures Section 3.4.

Recommended QC Documentation: Printout ePM Screen 505

Estimate Review Checklist

Provide review checklist of all design cost estimates.

References

1. [Estimating – Roadway Design Manual of Instruction](#) (Section 7.19)
 2. [Estimator's Corner Website](#)
 3. [UDOT Project Delivery Network](#)
 4. Project Development Business System
-

Estimate (applies to every stage for updating the estimate)

Checker: _____

Date Completed: _____ PIN: _____

1. All required bid items are included.
2. All quantities and units are correct.
3. All standard bid items match UDOT standard bid items exactly.
4. Unit prices were estimated using UDOT approved methods (PDBS, local contractors, etc.).
5. All unit price estimates are documented.
6. Unit prices reflect the following: (1)
 - a. Location
 - b. Inflation
 - c. Quantity of item
 - d. Construction Complexity
 - e. Limitations of operation
 - f. Current bidding environment
 - g. Familiarity of a process
 - h. Time of year for advertising
 - i. Specialty equipment
 - j. Risk to contractor
 - k. Availability of materials
 - l. Construction schedule
7. Lump sum bid prices are used only when appropriate (i.e. unit pricing is too difficult).
8. All lump sum bid prices considered the following:
 - a. Contractor risk due to unknown quantity
 - b. Difficulty in making it a unit price pay item

Additional PS&E Estimate

9. All bid items, quantities, and units match the plan sheet callouts, summary sheets, and M&P exactly.

Check the engineer's estimate following the UDOT QC/QA Procedures Section 3.4. The way the engineer's estimate is QC checked may vary depending upon the project scope and project team. Provide documentation demonstrating that every item and all quantities in the engineer's estimate were QC checked. Provide spreadsheets, hand calculations, notes, etc. as necessary to explain methods, assumptions, etc. Design Leader compiles all cost estimate QC documentation into one file to upload.

Recommended QC Documentation: Total Project Cost Estimate Redlines

QC Check Comments

Provide comments, methods, assumptions, explanations, file locations, and any other information needed to facilitate the QC check. Print and attach this sheet to the checklist. Upload this sheet with the associated checklist.

PIN: _____ Activity: _____ Deliverable(s): _____

Originator: _____

Checker: _____

Additional Commenter(s): _____