



Arizona Department of Transportation

INTERMODAL TRANSPORTATION DIVISION

Construction Group

CONSTRUCTION BULLETIN

09-04

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Date: December 8, 2009**From:** Julio Alvarado, Assistant State
Engineer, Construction**Subject:** Field Red-Line Drawings/As-Built Plans

Red-Line Drawings and As-Built Plan Submittals

(Supersedes Construction Bulletin 8-02)

Purpose

- To ensure complete, consistent and timely submission of Field Red-Line Drawings;
- To ensure that *all* Field Red-Line Drawings performed as part of the contract are received;
- To define the responsibilities and forms required for the Red-Line submittal process.

Background

There have been instances where Field Red-Line submittals have been incomplete and incorrect. In addition, upon completion of the construction project, there have been instances where the Red-Lines have not been compiled and submitted in a timely manner. The need for improvement in this area was acknowledged and the topic was previously addressed in Construction Bulletin 08-02, “Field Red-Line Drawings,” issued October 8, 2008. The bulletin was issued in an effort to achieve more accurate, complete, consistent and timely submission of Field Red-Line Drawings.

A Process Improvement Team, comprised of ADOT Construction and Design representatives, along with consultant design members (sponsored by Assistant State Engineers for Traffic; Statewide Project Management; and Construction), was tasked to revisit the issues and make recommendations. This bulletin is being issued as a result of the team’s efforts.

Process

As construction progresses, the Resident Engineer (RE) shall record all modifications from the As-Bid Plans. It is recommended that the field office identify a single drawing set to be used for Red-Lines prior to the start of construction. Modifications should be recorded promptly to ensure a thorough and accurate set of As-Built Plans are compiled. The RE can prepare the Red-Lines electronically. Prior to their preparation, the RE should coordinate method and format with the As-Built Designer. The ADOT Project Manager (PM) can furnish contact information for the As-Built Designer. A detailed description of procedures can be found in the [Red-Lines and As-Built Procedures and Guidelines](#) on the Statewide Project Management website.

Within 45 days of the project’s final acceptance (including Consultant, internal ADOT or Local Government administered projects), the RE shall assemble the final Red-Line Drawings and transmit them to the As-Built Designer. Prior to transmitting, the RE is to complete the Field Red-Lines Quantlist (Attachment 1, available on the ADOT Quantlist Application). Also, project information needs to be printed on the Plans Face Sheet. The Plans Face Sheet is being modified for future projects to provide fields for this information (Attachment 2). For current projects, the RE should request from the As-Built Designer a new Plans Face Sheet with Attachment 2 information printed on the sheet. The RE is required to fill out “Constructed by” and “Red-Lines Completed by” portions. (**NOTE:** The Construction Administrator is the RE for ADOT administered projects.)

When the RE transmits the completed Red-Line Drawings, both the ADOT PM and Field Reports Section are e-mailed, advising them of the transmittal date. Field Reports will enter the date into the Field Office Automation System (FAST) to be reflected on the Contract Card. The As-Built Designer must complete the As-Built Plans in a maximum of 60 days from the date the Field Red-Line Plans are received. The RE may also be requested by the ADOT Project Manager to complete the [As-Built Preparation Estimate](#) form (Attachment 3). This form is used as a tool for the PM to verify reasonableness of the Designer’s cost to prepare and submit As-Built Plans.

After all modifications from the As-Bid Plans (all permit work; all extra work; all deleted work; supplemental agreements; addendums; field adjustments; RFIs; and discovered, relocated or abandoned utilities) are incorporated into the final As-Built Plans set. The set – both pdf and 11”x17” hard copies - is returned to the RE (along with the RE’s Red-Line Drawings) for a final review. It is the RE’s responsibility to confirm that all modifications have been integrated into the final As-Built Plans. The RE should ensure that any other contract requirements (such as CAP, APS, SRP, electrical, etc.) have also been submitted. The RE must complete the review within five working days.

Upon acceptance by the RE - the As-Built Designer, PM and the Statewide Project Management Transportation Engineering Specialist (SWPMTES) will be notified by the RE (via e-mail) that the As-Built Plans are complete and approved. The RE will also instruct the As-Built Designer to send the approved As-Built Plans to the SWPMTES. Prior to transmittal the “As-Built Completed by” portion of the Plans Face Sheet will be filled in by the Designer to document the acceptance.

If the As-Built deliverables contain corrupt or unreadable file(s) the SWPMTES will request delivery of a new file and e-mail the RE, PM and As-Built Designer of the discrepancy. After the SWPMTES determines the As-Built Plans are readable, the information will be loaded into the ADOT Information Data Warehouse (AIDW), which generates a notice to Field Reports (as well as the RE and PM) for entry into the FAST system to record the date on the Contract Card.

The SWPMTES will then send the As-Built set to Engineering Records and e-mail the RE, PM and As-Built Designer, stating that the As-Built Plans have been delivered.

A flowchart (Attachment 4) has been provided to illustrate an overview of the process.

Attachments

**Arizona Department of Transportation
Construction Quantlist**

General Provisions - Division I

Field Red-Lines

Reviewer:	Contractor:	Version	12072009
Begin Date:	Completion Date:	Status	* Draft *
Bid \$ Amount:	Final \$ Amount:	Author	Giuly Caceres
		Designer	Robert Wade

Item #	Weight	Attributes	Reference
1	0	All Field Red-Lined changes are recorded onto a hardcopy (Half or Full size) or electronic image of the Original As-Bid plans.	Cst. Man. 1207-1
2	0	Field Red-Line submittal set includes all As-Bid plan sheets, addendums, shop drawings (only if unique in nature) and any redesigned plan sheet (submitted by any Professional) including the properly "Xed" out original sheets.	Cst. Man. 1207-1
3	0	Field Red-Line information is complete and includes location, (stationing, elevations, offsets etc.), dimensions, and item name.	Cst. Man. 1207-1
4	0	Field Red-Lines include all plan's modifications whether by field adjustments, supplemental agreements or RFIs and findings that differ from the conditions shown on the as-bid plans.	Cst. Man. 1207-1
5	0	Field Red lines include all utility work (gas, water, CAP, electric, communications, irrigation, railroad, etc.) moved, added or abandoned as part of the construction project.	Cst. Man. 1207-1
6	0	Field Red-Lines include only information relevant to the modifications. (Ensure inspector's field notes are not included.)	Cst. Man. 1207-1
7	0	Field Red-Lines are legible; drawings and text are done neatly and print size is adequate.	Cst. Man. 1207-1
8	0	Supplemental pages containing plan modification sketches have been sealed and signed by the registrant author of those sketches (eg: Designer, RE, or contractor's registrant who is providing the sketches).	Cst. Man. 1207-1
9	0	Field Red-Lines have been checked for accuracy prior to submittal to the As-Built designer.	Cst. Man. 1207-1
10	0	Field Red-Lines ready for submittal is a complete set and are in a correct sequential order.	Cst. Man. 1207-1
11	0	The Construction Administrator has completed the Field Red-Lines Information on the front page of the Red-line set.	Cst. Man. 1207-1
12	0	Construction Administrator submits Field Red-Lines to As-Built designer (including Consultant, internal ADOT & Local Government administered projects) within 45 days of project final acceptance. (copy only submittals to PM)	Cst. Man. 1207-1
13	0		None

Constructed by:

Construction Company

Completion Date

Red-Lines by:

Construction Administrator Name & Company

Completion Date

As-Built by:

As-Built Designer Name & Company

Completion Date

Arizona Department of Transportation

As-Built Preparation Estimate

Project Number:

Resident Engineer's name:

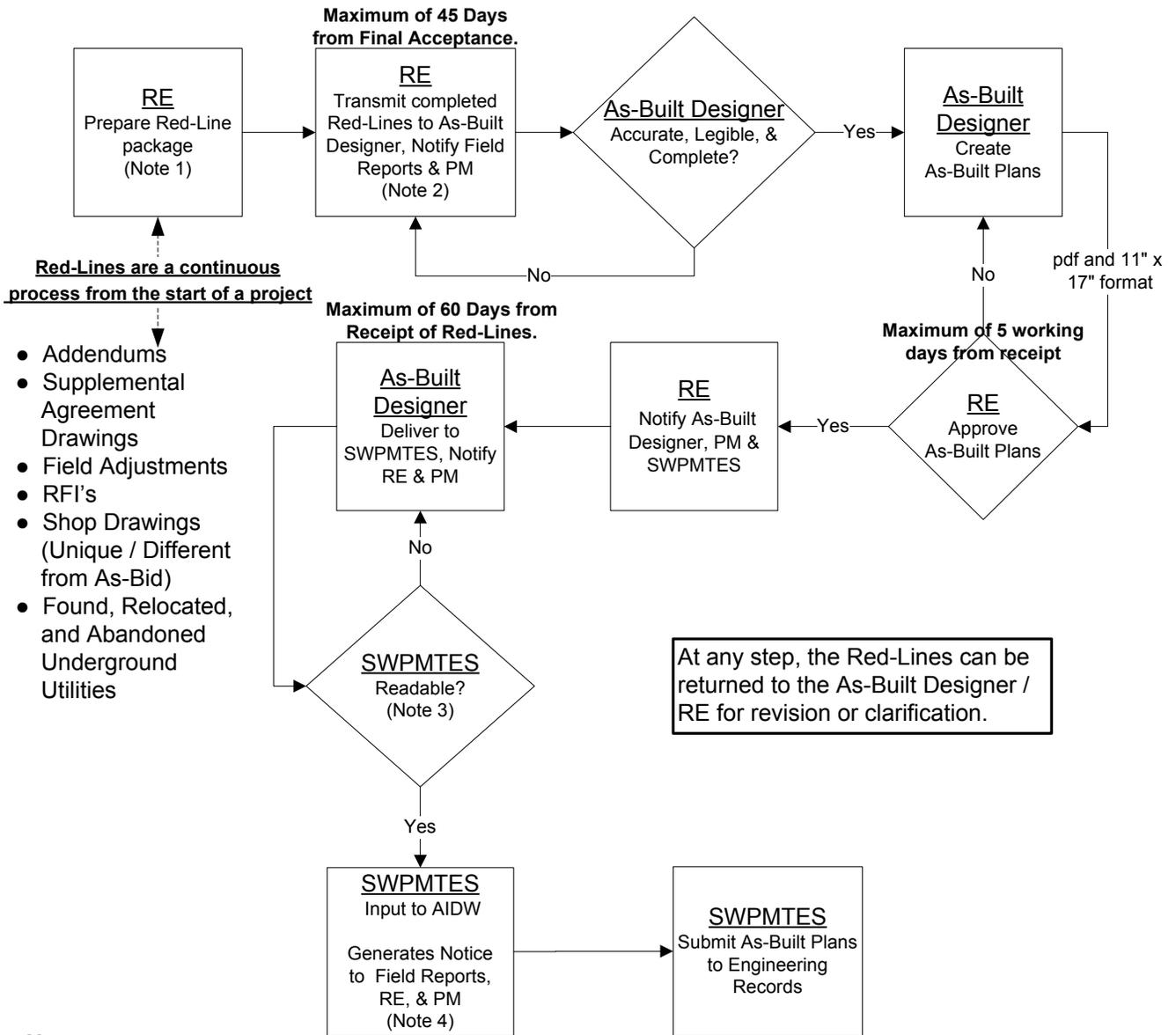
TRACS No.

Date:

Enter your data in all yellow fields DO NOT CHANGE THESE FIELDS	Unit	Number of sets	Estimated minutes/sheet	Total estimated minutes	Total Estimated Hours
Number of sheets in plan set	573 sheets				
Number of sheets with no revisions (no redlines) but include checking of seal and signature (1 min/sheet)	500 sheets	1	1.00	500	8
(*) Number of sheets with limited revisions (minor edit redline changes) (15 min/sheet).	200 sheets	1	15.00	3000	50
(*) Number of sheets with extensive revisions (some drawings need to be either created or edited) (40 min/sheet)	56 sheets	1	40.00	2240	37
Number of extra sheets to confirm that all pages are signed (1 min/sheet)	73 sheets	1	1.00	73	1
print half-size sets (1 check, 1 final) (10 sec/sheet)	573 sheets	2	0.17	191	3
scan and copy set for CD (2 min/sheet .pdf)	573 sheets	2	2.00	2292	38
Administration (contract estimate, QC etc)					16
Total Project Hours =					154
Equivalent to (min/sheet) =					16

(*) Note: Some major changes may need more time to re-draw some details. If that is the situation in your project then add 5 to 10% total hours or consult with the As-Built Statewide Project Management Specialist

Red-Line Drawings / As-Built Plans Flowchart



Notes:

- RE coordinates submittal format (Process 1, 2, or 3) as described in the [Red-Lines and As-Built Procedures and Guidelines](#) with As-Built Designer, and notifies the PM of the chosen process.
 - RE completes Field Red-Lines Quantlist before transmitting.
- Field Red-Lines information entered on the Plans Face Sheet & submitted with the Red-Lines. (As-Built Preparation Estimate Form can be used as a tool for verifying reasonableness of the designer's cost to prepare and submit As-Built Plans).
 - Field Reports enters date of Red-Line transmittal into FAST.
- If Unacceptable, the SWPMTES must notify the RE, PM, and the As-Built Designer.
- Field Reports enters date of As-Built Plans acceptance into FAST.

SWPMTES = Statewide Project Management Transportation Engineering Specialist
AIDW = ADOT Information Data Warehouse

ATTACHMENT 4

Exhibit 1207-1