



**City of Phoenix  
Street Transportation  
Design and Construction Management**

**Requirements for As-builts**

This document is a guide for contractor, surveyors and inspectors for preparation of as-built drawings. The final project as-builts is a compilation of contractor's record drawings (red-lines), surveyor's construction lay-out notes and calculations, comments from inspection records, and other construction notes gathered through the construction of the project and incorporated into a final as-built plan set prepared by a Registered Professional Engineer (P.E.) or Registered Land Surveyor (R.L.S.) that also includes certified as-built survey measurements of the completed improvements.

Preparation of final as-built drawings will typically follow the substantial completion of a project, but must include any punch list item work that could substantially impact the information provided for a project. Record drawings (red-lines) of as-constructed features shall be maintained by the contractor during the life of the project and should be provided to the inspector prior to the final walk through for the project, and a minimum of two (2) weeks prior to of the preparation of final as-built plans. These record drawings by the contractor must be given in a complete package that includes any drilling logs, slope stability reports, percolation tests, etc. performed by the contractor. The information gathered by the contractor during construction, included the red-line plan set, along with any additional comment from the inspector shall be used for preparation of final as-builts. Final as-builts will be noted as a standard punch list requirement to all projects. Approved as-builts signed and sealed by a P.E. or an R.L.S. are required to obtain Final Acceptance on any project.

The contractor or his representative must provide the following minimum items for the as-built plans to be accepted as final as-builts by the Street Transportation, Design and Construction Management Division. Other additional requirements outlined in the project specifications, contract, or as required by the City will need to be included. Electronic Format will be an acceptable submittal upon approval of as-builts.

1. The as-builts drawing will show all improvements, as depicted on the original signed and accepted original design plans, including but not limited to: stationing and elevations to grade breaks, P.C.'s and P.T.'s and flow line elevations at all catch basins and other drainage devices. Stations, offsets and inverts for all sanitary sewer, storm sewer, and irrigation manholes and pipes. Offsets to the back of curb, sidewalks, easements, and utilities should be given. Station and offsets, will be needed for streetlights and traffic signal equipment including junction boxes. Where elevations, stations and offsets for improvements were provided on the design plans, these will need to be confirmed or revised, and noted on the as-builts drawings. The as-builts must indicate the locations of the beginning(s) and end(s) of the construction. Their locations must be shown by stationing and dimensioning from appropriate monument lines or in their absence appropriate lot lines, property lines or easement line references. No dimensioning from points of curvature or tangency is acceptable for as-built drawing purposes. The drawings must clearly indicate the specific points of reference.
2. Any approved field changes made should also be noted on the as-builts. New stationing and elevations shall be shown by boldly striking through the proposed number and placing the new number with AB beside it. All stationing and elevations that was verified and remained the same as in the original design plans gets an AB beside it. On items of work where no original station and offset were provided (i.e. irrigation sleeves), horizontal cross ties to two



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permanent structures must be provided. All as-built annotation changes must be in red color font/linework and larger and bolder than the original and free from background obscuring. When applicable, approved changes must note the accompanying Change Order, Field Directive, or RFI number.

3. Easement and rights-of ways that were obtained as part of the project during construction, but not included on the original sealed design plans, must be incorporated in to the final as-builts based on the recorded plat, map of dedication, or separate dedication/granting instrument. The reference to the Maricopa County Recorded document must be reflected on the as-built.
4. As-Built plan set shall contain all sheets from the approved design/construction plan set (cover sheet to last sheet including details). Any sheet that was revised during construction will need to be incorporated into the final as-built plan set. The original sheet being replaced will be left in the plan set but crossed out in its entirety, from corner to corner. The final as-built set will renumber on the top right title block on all sheet including the cover sheet, and all deleted and added sheets. The as-built date shall also be noted at this location.
5. Improvements deleted from the project shall be crossed out with an "x" and labeled "not built".
6. All changes from the approved design plans shall be reflected and clearly called out by "clouding".
7. Control monuments (survey markers, brass caps, or center line monuments) that will be disturbed as a result of construction will need to be identified on the approved plans and field survey located a Registered Land Surveyor prior to commencement of work and prior to removing any survey monument. Monument locations will be re-set per MAG and City Standard, or as called out on the original design plans. When a section corner or quarter section corner is being re-set, then a corner record map showing the monument position, character and type set, with appropriate RLS registration number imprinted, shall be submitted to the City for approval and recordation with Maricopa County, per state statutes.
8. For storm drain systems, pipelines are to be as-built by station, offset, and elevation, as shown on original design plans. Where pipelines are constructed in areas such as parks or parking lots, the ends of the pipe need to be tied to at least two permanent points such as a monument or structure. The beginning and ending of pipe, changes in size, and angle points should be stationed. At an angle point or bend, an equation should be used so that the actual length of pipe and the location of the angle points are noted. Location of manholes, catch basins, headwalls, pipe plugs, spillways, end sections, tees, and other appurtenances are to be stationed. If the stations of any of the above items are called out in the notes, the designer's stations should either be confirmed or corrected with actual stations.
9. For Sanitary Sewers and related appurtenances, provide stations and offsets for all manholes, cleanouts, services and lateral stub-outs will be verified. Manhole pipe invert elevations (In and out) and manhole rim elevations shall be determined by field surveying. Also, a completed Water Assets Management (WAM) spreadsheet will accompany the Water Department as-builts. A complete list of all material installed and abandoned must be shown on the cover sheet. The specific size and material type of each pipeline installed must be shown at every construction reference to that pipe. Any changes to the drawing must be reflected on the materials list. In addition, the Water Services Department *Policy 85 - Information to be*



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*Furnished on "Record Drawings" CIP Plans must be followed.*

10. For Water lines and related appurtenances, provide stations and offsets of all water services including landscape and fire lines, fire hydrants, valve boxes, bends and tees as shown on original design plans. Profile view of all pipeline vertical alignments, including stations of all fittings, depth to finish grade, and pipe separation dimensions. Stations and length of pipe encasements, and clearances to existing utilities. Also, a completed Water Assets Management (WAM) spreadsheet will accompany the as-builts. A complete list of all material installed and abandoned must be shown on the cover sheet. The specific size and material type of each pipeline installed must be shown at every construction reference to that pipe. Any changes to the drawing must be reflected on the materials list. In addition, the Water Services Department *Policy 85 - Information to be Furnished on "Record Drawings" CIP Plans* must be followed.
11. Irrigation and Landscape modifications shall be included in the final as-built set. The as-built shall indicate exact routing of all piping, irrigation, power and control wiring, etc., any irrigation lateral line modifications or adjustments shall be depicted on the plans. Additionally, the required information includes the irrigation control system that shows the location of and id codes for all remote valves, backflow preventers, controllers, timers, and shut off valves. The valves will be labeled with the zone they water. The addresses to all water and power meters will also be noted. Any changes in plant material approved by the Engineer will also be noted on the as-built plans.
12. Prints must be blacklines on white background, having dark, clean, crisp, clear line work, symbols, and annotation. As-built font and linework shall be in red color. These items must be sufficient boldness and size, and be free from background obscuring, to be legible and easily read. No shading or tinting is acceptable.
13. Minimum acceptable height for all as-built drawing lettering is 1/8 inch. larger lettering is preferred, especially for dimensioning, stationing, size, material, slope, and elevation callouts. Standard bold block lettering is required.
14. Retention volumes are required to be certified by a Civil Engineer or a Registered Land Surveyor on the as- built drawing. Deviations from the approved plan for configuration of the basins or depth of basins will be looked at on a case-by-case basis to ensure all City of Phoenix Storm Water policies are being met.  
  
**Note:** The as-built drawings should have finish floor elevations (only when this information is included in the original sealed design plans), grate and invert elevations for catch basins and other drainage devices, retention volumes, retention bottoms and top of slopes, basin outfall elevations, extreme storm outfall, and random elevations at grade breaks and other areas to show direction of the flow.
15. When performing work for other utility companies, irrigation districts, railroads, or other agencies as part of the project, the approved as-built must be completed with the corresponding owner's requirements.
16. When working on a Federal Aid project, applicable ADOT requirements for as-builts must be followed.



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<https://azdot.gov/business/project-management-services/project-resource-office/record-drawing-guidelines>

- 17. Benchmark(s) location(s) and elevation(s) must be shown on the cover sheet. Only City datum is acceptable.
- 18. A Civil Engineer or a Registered Land Surveyor must sign and stamp the as-built certification on the cover sheet and seal each additional sheet of the as-built drawing. For water and sewer, only a Civil Engineer can complete the as-built certifications per Policy 85.
- 19. The cover sheet must show the name, address, and phone number of the engineer that certifies the as-built drawing with the following statement:

AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE "RECORD DRAWING" MEASUREMENTS AS SHOWN HEREON WERE MADE UNDER MY SUPERVISION OR AS NOTED AND ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

Registered Engineer/Land Surveyor	Registration Number	Date
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- 20. Each additional plan sheet must contain the signature and seal of an Arizona registrant.

The following must be shown on the cover sheet by the City of Phoenix department responsible for construction inspection.

- 1. Name of the contractor.
- 2. Project Number(s)
- 3. Date of Project Completion
- 4. Name of City of Phoenix inspector who witnessed the construction.