

***RECOMMENDED GUIDELINES FOR “AS-BUILT” DRAWINGS
FOR THE CITY OF GLENWOOD SPRINGS***

The “as-built” drawing requirement is in Municipal Code Section 070.030.190.F, which reads as follows: “The developer or his successor shall retain, at his sole expense, a licensed professional engineer for appropriate on-site construction inspections to ensure that all improvements as set forth in Subsections B and C are installed as required, pursuant to City standards and specifications, and as-builts shall be provided. The engineer shall certify, in writing, to the City Engineer that the improvements were installed in compliance with the approved development plan or subdivision agreement pursuant to City standards and specifications, and as-builts shall be provided.”

The intent of the as-built drawings is to provide detailed and accurate information, in a useful format, to any party, public or private, that may have a need to locate or excavate installed infrastructure. With useful information available to crews, all affected parties should be able to minimize expense, damage, and interruption of service, and inconvenience to owners, customers and the general public. Questions regarding as-built drawings may be directed to the Public Works Director. Discretion must be employed by the draftsman regarding the functional quality of the drawings. If so much information is included on one sheet as to make their use impractical, a second, or third, drawing sheet may be necessary.

It is recommended that the contractor maintain a full sized set of approved plans on site, and during construction, accurately mark these plans with record information. The color green, for example, could be used to indicate all additions and the color red to indicate all deletions. Clear and concise notes and sketches should accompany changes marked on these plans. These field managed record drawings should be provided to the engineer to assist in the preparation of the final as-built drawings.

The following requirements should be applied to each as-built plan developed for the City of Glenwood Springs. The submittal requirements include Mylar drawing(s) and electronic AutoCAD drawing file format, on either a CD or disk. Other electronic drawing file formats may be considered, if they are capable of being imported directly into AutoCAD. As-built drawings shall be prepared by revisions to the original, approved Development, Subdivision or Engineering Plans. At no time will the original plan data be accepted as the as-built data. The following items shall be required for all “as-built” drawings.

GENERAL AS-BUILT REQUIREMENTS:

- ▶ All as-builts for projects are required to be on Mylar, at least 24” x 36”, and shall bear the name, address, and telephone number of the firm preparing the drawing and the date the as-built data is added to the original via the revision block. Electronic AutoCAD drawing files, based on the City of Glenwood Springs local coordinate grid, are also required.
- ▶ Surveyor’s/Engineer’s statement (with embossed or wet seal and with an original signature on each sheet) shall verify that as-built drawings reflect the true conditions in the field.
- ▶ Contractors’ statement (with an original signature on each sheet) shall verify that all construction specifications and product qualities have been met or exceeded.

- ▶ “AS-BUILT DRAWING” or “RECORD DRAWING” shall be clearly labeled on each sheet.
- ▶ Street names shall be on all streets. All easements and right-of-ways shall be shown and clearly labeled.
- ▶ If the utility system is to be private (not to be dedicated to City), then so state on each sheet.
- ▶ The location and elevation of the benchmark referenced will be shown on the drawing. If the referenced benchmark is not within the project, then a complete description of its location will be provided to assist in future locating.
- ▶ The locations and description of any utility lines and other installations of any kind or other description known to exist within the construction area. The location includes dimensions to permanent features.
- ▶ The locations and dimensions of any changes to buildings and structures.
- ▶ Correct grade or alignment of roads.
- ▶ Correct elevations to changes made in site grading.
- ▶ Changes in details of design or additional information such as approved placement details, pipe sizes, material changes, etc.
- ▶ Where drawings and/or specifications allow options, only the option actually used in the construction shall be shown on the as-built drawings.

ELECTRIC/FIBER OPTIC SYSTEM - CABLE UTILITY AS-BUILT REQUIREMENTS:

- ▶ Locate and clearly label all conduit runs, fittings, splice vaults, pull boxes, meter pedestals, light bases, transformer or switch gear pads, poles and other appurtenances in two directions. Swing ties should be made from objects that are permanent in nature and visible on the finished surface.
- ▶ Show all sizes and material types of pipes and conduits.
- ▶ All horizontal distances shall be shown to the nearest tenth of a foot (i.e., 205.3'). All vertical distances shall be shown to the nearest tenth of a foot (i.e., 5798.5').
- ▶ Show location and elevations on pipes and fittings where changes or deflections in direction occur.
- ▶ Special detail drawings may be required where installations are not shown on approved construction drawings for whatever reason or where required for clarity.
- ▶ Typical service installation details with deviations from original plans or standard details shall be noted on as-built drawings.

WATER SYSTEM AS-BUILT REQUIREMENTS:

- ▶ Locate valves, fittings, services, and fire hydrants in two directions. Swing ties should be made from objects that are permanent in nature and visible on the finished surface.
- ▶ Lot lines may be used to locate water services. Locations shall be perpendicular to the right-of-way and parallel to the water main. Radial ties are not acceptable.
- ▶ Permanent structures that are properly located may also be used.

- ▶ All horizontal distances shall be shown to the nearest tenth of a foot (i.e., 56.3'). All vertical distances shall be shown to the nearest tenth of a foot (i.e., 5788.5').
- ▶ Show all sizes and types of valves and pipes.
- ▶ Special detail drawings may be required where installations are not shown on approved construction drawings for whatever reason or where required for clarity.
- ▶ Show location and elevations on pipes and fittings where changes in direction occur.
- ▶ Typical water service installation details with deviations from original plans shall be noted on as-built drawings.

SANITARY SEWER SYSTEM AS-BUILT REQUIREMENTS:

- ▶ All piping, wyes, tees, valves, manholes and special cases shall be located in two directions, in the same manner as water locations.
- ▶ Horizontal dimensions shall be to the nearest tenth of a foot (i.e., 109.6'). Vertical dimensions shall be to the nearest hundredth of a foot (i.e., 5895.36').
- ▶ Identify runs of gravity mains (i.e., 300.4 feet of 8" PVC SDR 35 at 0.4%).
- ▶ Elevations shall be given for the top of all manhole covers and for all inverts.
- ▶ Service laterals are to be identified with location of end service or plug (station and offset measured upstream).
- ▶ Manholes shall be identified by types.

FORCE MAINS AS-BUILT REQUIREMENTS:

- ▶ Locate all valves, fittings, etc. in two directions as above.
- ▶ Locations of pipe shall be shown at all changes in direction.
- ▶ Show all sizes and types of valves, fittings, pipe, etc.
- ▶ Special detail drawings will be required where installations were not as shown on original drawings due to field conditions or where required for clarity.

PUMP STATION AS-BUILT REQUIREMENTS:

- ▶ Wet well size and location shall be shown.
- ▶ Elevations for top, bottom, inverts, adjacent ground and type and size of lines and fittings for all lines entering or leaving the wet well.
- ▶ All schedules which show pump, motor and electrical data shall be amended and shall be submitted with wet well drawings.
- ▶ All improvements within the pump station boundaries shall be located horizontally and vertically to the nearest tenth of a foot (i.e., 5.6' including valve pit, pump-out, water spigot, wet well, control panel, bends, fittings, etc.).

DRAINAGE SYSTEM AS-BUILT REQUIREMENTS:

- ▶ All drainage structures shall be located by swing ties in two directions. Ties should be made from objects that are permanent in nature and visible on the finished surface.
- ▶ Provide elevations for all drainage structures, top, invert, bottom, etc.
- ▶ Identify size, material, and slope of all piping.
- ▶ Provide spot elevations and cross sectional information, as well as slope, on all ditches, canals, etc. Provide as-built storage volume of detention/retention basins or structures.
- ▶ Show all drainage easements and encroachments to those easements on the as-built drawings.
- ▶ Spot elevation on top of bank to confirm minimum design bank elevation.
- ▶ Elevation of water stage at date of as-built.
- ▶ Elevation of top of control structure, throat, faces, or under drain.
- ▶ Location of top of bank and existing water edges at time and date of taking elevations.

STREETS, SIDEWALKS AND TRAILS SYSTEMS AS-BUILT REQUIREMENTS:

- ▶ Show all right-of-way or easement lines, clearly labeled.
- ▶ Provide typical offset dimensions from property, right-of-way or easement lines.
- ▶ Typical ramp or curb opening installation details that deviate from original plans shall be noted on as-built drawings.
- ▶ Special detail drawings will be required where installations were not as shown on original drawings due to field conditions or where required for clarity.
- ▶ Survey data, relative to the City of Glenwood Springs local coordinate grid, on right-of-way monuments installed or encountered within the project.
- ▶ Locate and describe all installed regulatory or warning signage and pavement markings within the project.
- ▶ Location and species information on installed street trees.
- ▶ Locate irrigation lines, controllers, sprinkler heads, backflow devices, pressure reducing valves, meters, supply sources and tap locations using two directions. Swing ties should be made from objects that are permanent in nature.
- ▶ Location, type, material and reinforcement, height, drainage systems and foundation information of all retaining walls.
- ▶ Note any changes to the alignment, either vertically or horizontally, of curb & gutter, sidewalk, pavers or any other surface improvement.
- ▶ Provide crown line spot elevations approximately on 100-foot stations, or as field conditions warrant.