

## CHAPTER 7 - RECORD DRAWINGS

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## CHAPTER 7 RECORD DRAWINGS

### 7.1 GENERAL

Record Drawings shall be submitted to the Engineering Division:

1. For all improvements constructed under the terms of a Subdivision Improvement Agreement, and;
2. Under all conditions specified by the Planning Commission or Board of County Commissioners in approving any land use charges, and;
3. Under all terms of a service plan and approved construction plan for a Metropolitan Improvement District, and;

**7.1.1** A copy of the Record Drawing, signed and sealed by the responsible Professional Engineer, registered in the State of Colorado, shall accompany the request for Probationary Acceptance of the constructed public improvements.

**7.1.2** Record Drawings shall be provided as original signed and sealed blackline copies suitable for scanning as a computer image in a format acceptable to the Department of Public Works and Development.

**7.1.3** Substantial Compliance Accuracy of the Record Drawings is as follows:

**7.1.3.1** The Professional Engineer, registered in the State of Colorado, who is responsible for the project, shall submit an Engineer's Statement of Substantial Compliance (see Figure 7.1) prior to issuance of Probationary Acceptance and reduction of collateral.

**7.1.3.2** A Professional Land Surveyor, registered in the State of Colorado, shall submit a Surveyor's Statement of Substantial Compliance (see Figure 7.2) prior to issuance of Probationary Acceptance and reduction of collateral.

**7.1.3.3** All Record Drawings depicting storm drainage facilities shall comply with all requirements located in the Arapahoe County Storm Water Manual, latest edition.

**7.1.4** The Engineering Division will compare the substantially compliant Record Drawing information with the approved construction documents. A certificate or letter of Probationary Acceptance for the public improvements will only be issued if:

**7.1.4.1** The Record Drawing information demonstrates that the construction is in substantial compliance with the design intent, as determined by Engineering Staff.

**7.1.4.2** The Record Drawings are submitted by the responsible Professional Engineer, a registered Professional Land Surveyor and all requirements of the Arapahoe County Storm Water Manual are met.

**7.1.5** The Record Drawings shall be inclusive of the following information:

1. Statement of Substantial Compliance by the responsible Professional Engineer.
2. Statement of Substantial Compliance by a Professional Land Surveyor
3. Sequentially numbered plan sheets.
4. Case Number in the lower left corner of all plan sheets.
5. Roadway flowline and centerline elevations at 50-foot increments, high points, low points, vertical grade breaks and curves and at all points of curvature, continuous

curvature, tangency and curb returns. Along horizontal curves the flowline and centerline elevations shall be listed at 25-foot increments.

**Figure 7.1**

**Engineer's Statement of Substantial Compliance**

Based upon review of and reliance on the field survey data and other pertinent data provided by (Name of Firm(s) or Surveyor), on (Date), and a final site investigation conducted on (Date), I hereby state that to the best of my knowledge, information and belief, it is my professional opinion that the facilities shown in these drawings were constructed in substantial compliance with the approved Drainage Report and/or Construction Drawings and the Engineer's intent. This statement is not based on any direct involvement in the construction process. I did not administer the construction process or perform inspections or observations during construction. This statement is based only on a review of the field survey data and a final site investigation.

\_\_\_\_\_  
(Engineer's Name)  
Colorado Professional Engineer No.

\_\_\_\_\_  
Date

(SEAL)



6. Pond volume, manhole and inlet surface and sump elevations, pipe invert elevations at flared end sections, manholes, inlets and outlet structures.
7. All additional requirements set forth by the Arapahoe County Storm Water Manual.
8. Digital design files as detailed in section 7.1.7 of these standards.

**7.1.6** Record Drawings shall verify the following information including but not limited to:

- 7.1.6.1** Record Drawings shall depict all field changes.
- 7.1.6.2** Record Drawings shall verify the size and elevation of all pipes, inlet and outlet riprap, headwalls, and all other drainage infrastructure shown on the approved Construction Plans, including the improvements located outside of right-of-way.
- 7.1.6.3** Record Drawings shall verify all pipe, drainageway and roadway centerline and flowline grades.
- 7.1.6.4** Record Drawings shall verify all signage and striping has been completed per plan.
- 7.1.6.5** Record Drawings shall verify all other information as specifically requested by the Arapahoe County Engineering Division, or as identified within the approved Construction Plans.
- 7.1.6.6** Record Drawing shall verify all additional information requested by the Arapahoe County Storm Water Manual.

**7.1.7** Digital Files submitted with the Record Drawings shall meet the following requirements:

- 7.1.7.1** Digital Files shall be in AutoCAD Version 14 (or more recent version) or approved equivalent (no fragmented pieces, which are required to be scaled, rotated, and/or assembled to achieve a complete base drawing).
- 7.1.7.2** The "Base" drawing should be related (tied) to at least two (2) monumented horizontal control lines showing a basis of bearings and/or
- 7.1.7.3** The "Base" drawing should not contain any undefined fonts, "shp", "shx" or line references.
- 7.1.7.4** The "Base" drawing should not contain any "xref'd" drawings, which are not compatible with the "base".
- 7.1.7.5** The "Base" drawing should not reference any image files, ie, "bmp", "tif", "jpeg", etc.
- 7.1.7.6** The "Base" drawing should not contain blocks or nested blocks with attributes, which cannot be "exploded".

- 7.1.7.7** Completely assembled horizontal "base" drawing showing all:
- |   |  |
|---|--|
| <b>Inlets</b>   | <b>Conduits</b>                          |
| <b>Manholes</b>   | <b>Junctions</b>                         |
| <b>Vaults</b>   | <b>Diversion structures</b>              |
| <b>Check/drop structures</b>                                    | <b>Revetments</b>                        |
| <b>Stilling basins</b>  | <b>Plunge pools</b>                      |
| <b>Water quality ponds and forebays</b>                         | <b>Detention/retention ponds</b>         |
| <b>Inlet/outlet structures</b>                                  | <b>Outfall facilities</b>                |
| <b>Channels</b>   | <b>Ditches, swales, trickle channels</b> |
| <b>Rundowns</b>   | <b>Bridges</b>                           |
| <b>Right-of-ways</b>  | <b>Easements</b>                         |
| <b>Risers, subdrains, cleanouts, subdrain connections, etc.</b> |  |

**7.1.7.8** The drawings should be drawn at 1:1 scale.

**7.1.7.9** Drawing x & y axis should be identical.

**7.1.7.10** 100-year floodplain should be shown on any FEMA, dFIRM or FIRM defined drainageway or channel.

**7.1.7.11** All dimensions (if shown) should be clearly defined and to center of structure, manhole, inlet, etc.

**7.1.8** Summary of certifications and County actions required for Engineering Reports and Plans:

**7.1.8.1** Drainage Report – Refer to the Arapahoe County Storm Water Manual for further requirements.

**7.1.8.2** Required Certifications and County Actions

<b>Document</b>	<b>Certification Required</b>	<b>County Action Required</b>
Phase I Drainage Report	None	Review and Comment
Phase II Drainage Report	Engineer/Developer	Review and Comment
Phase III Drainage Report	Engineer/Developer	Approval (Concurrent with Construction Plans)
Construction Drawings	Engineer	Approval
Signing and Striping Plans	Engineer	Approval
Subgrade Investigation and Pavement Design Report	Engineer	Approval

**7.1.8.3** Required Statements of Substantial Compliance and County Actions

<b>Document</b>	<b>Statement of Substantial Compliance Required</b>	<b>County Action Required</b>
Record Drawings	Civil Engineer/ Surveyor	Probationary Acceptance