



CIVIL CONSTRUCTION STANDARDS AND PLANS

The City of Wheat Ridge requires construction plans on all new development projects. Street construction plan requirements for projects by building permit are determined on a case-by-case basis. Plan submittals are required whenever drainage improvements are required or improvements are proposed to be constructed within easements, public rights-of-way, or private streets.

The following checklist has been developed in order to assist in the preparation of the required construction plans. It includes items pertinent for the City's review and reflects established professional engineering practice for the preparation on construction plans. If you have any questions regarding the items required on this list, please contact:

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FINAL CONSTRUCTION PLANS

The final construction plan submittal should be a complete and self-supporting plan set, which includes all of the details and documentation necessary for the professional construction of the proposed improvements. Where applicable, the City of Wheat Ridge and CDOT standard details and notes shall be included with the construction plan submittal.

GENERAL NOTES

The general notes included with this checklist are to be used on construction plan submittals. This list of general notes is not intended to be all-inclusive for every project; therefore additional notes may be required.

STANDARD CONSTRUCTION DETAILS

The City of Wheat Ridge Standard Construction Details may be obtained through the Department of Public Works from the City's website, and are available in either AutoCAD DWG or Adobe Acrobat PDF format:

www.ci.wheatridge.co.us

Construction Plans Checklist

I. General Plan Requirements	Present	Comments
1. Scales to be used are: 1"= 40' or larger horizontal, and 1"= 5' vertical.		
2. North arrow points to the top or left of the sheet.		
3. Title block.		
4. Vicinity map 1"=500' or larger		
5. 24"x 36" plan sheets		
6. Dates of preparation and revision.		
7. All lettering is $\geq 0.1"$.		
8. Plans have been checked, dated, signed, and sealed by a Professional Engineer licensed in CO.		
9. Complete Legend.		
10. Existing and proposed ROW dimensions.		
11. City standard General Notes are shown.		
12. Existing and proposed roadway names.		
13. Existing improvements for the full street width shall extend a minimum of 50' beyond the proposed construction limits, and be drawn using a ghosted or shaded linetype.		
14. Proposed construction items shall be depicted by bold, solid lines.		
15. Limits of construction clearly identified.		
16. Locations of all proposed and existing property lines, easements, ROW, easements, etc. are shown.		
17. Existing and proposed street ROW C _L -C _L monuments shall be shown in correct locations.		
18. Existing and proposed utilities shall be shown.		
19. Locations of fixed objects (trees, poles, fences, etc.).		
20. Show all proposed street improvements (curb, gutter, & sw, pavement, asphalt patch-backs, etc.).		
21. Existing and proposed drainage facilities (inlets, manholes, channels, outlet structures, etc.)		
22. Curve layout info including radius, length of curve, P.C., P.T., chord length & bearing, and offsets		
23. Grades are shown on the plan view for all ditch flow lines, curbing, roadways, swales, open channels, or any other conveyance, adequate to construct.		
24. Road and storm drainage network including its connection to an existing public or state roadway.		
25. An index of drawings.		
26. Include sheet match lines.		
27. All major subdivisions shall include an overall site plan showing the project.		
28. If applicable: A proposed 1"=20' Traffic Signal Plan and 1"-50' Signing and Striping Plan.		

II. Horizontal and Vertical Control	Present	Comments
1. Benchmark description, location, and elevation on the current City of Wheat Ridge Datum.		
2. All baselines shall be fully defined using bearing & distance. All beginning stations shall be tied to either a section or quarter section corner on the current City of Wheat Ridge Datum.		
3. Road alignments shall have either 25' or 50' stationing (depending on project size), and stationing for all points of curvature, tangency, reverse curvature, and intersection, with ties to a section or ¼ section corner on the current City of Wheat Ridge Datum.		
4. Adequate baseline information shall be provided for all constructed items so as to be field locatable.		

III. Cross-Section and Profiles	Present	Comments
1. On widening/matching projects 3-line profiles and cross-sections every 25' extending a minimum of 50' beyond the project limits shall be shown.		
2. Vertical curve data including length of curve, P.V.C., P.V.T., P.V.I., beginning and end grades.		
3. Profiles for all curb returns.		
4. Existing profile elevations extended 100 feet beyond the end/beginning of the project.		
5. Cross-sections extended 25' beyond property line.		
6. Profiles shall align with plan view.		
7. A minimum of 2 cross-sections of each detention facility showing the property lines, slope catch points, and any other pertinent information to properly construct the facility.		
8. Cross-sections shall be provided across open channel conveyances at the locations to be specified during the initial review.		

IV. Grading & General Engineering Design	Present	Comments
1. Two-foot contour lines shall be used for both existing conditions and for proposed grading.		
2. Recommended maximum side slopes are 4:1. At no time shall any side slope be graded at greater than a 3:1.		
3. Side slopes greater than 3:1 may require terracing and/or structural retaining walls.		
4. Any structural retaining walls 36" or greater in height will need to be engineered by a Professional Engineer, and adhere to the requirements set forth in the City Retaining Wall Design checklist.		
5. All proposed drainage swales shall be identified, along		

with the longitudinal grade % and channel lining material.		
6. All existing and proposed roadways shall be clearly identified.		
7. The cross-slopes of new proposed roadways shall be between the min. of 1% and the max. of 3%.		
8. The property boundary bearings and distances shall be shown on all plan views		

V. Stormwater Drainage	Present	Comments
1. All stormwater sewer conduits proposed within the public Right-of-Way shall conform to the standards of the City of Wheat Ridge Section 603, <i>Culverts and Sewers</i> . (See Sec 603 at the end of this checklist).		
2. Rim, grate, and invert elevations shall be provided for all stormwater drainage structures.		
3. Grades, linear footages, types, and classes shall be provided for all storm sewer conduits.		
4. Any new stormwater drainage conveyance proposed on private property shall lie within a Drainage Easement of sufficient width as to allow for proper maintenance.		
5. Per UDFCD guidelines, <u>retention</u> facilities are only considered short term solutions. Permanent storage facilities shall be designed as detention meeting all City Site Drainage Requirements.		
6. All storm sewer inlets shall be Standard City of Wheat Ridge inlets unless otherwise approved.		
7. To allow for proper maintenance, all detention facilities shall lie within a Stormwater Detention Easement or be located within a "non-buildable tract", and accompanied by the standard City of Wheat Ridge stormwater detention facility language.		
8. A minimum of one (1) foot of freeboard shall be provided for all stormwater detention facilities and open channel conveyances.		
9. An emergency spillway adequate to handle the 100-year, 24-hour storm shall be provided for all detention facilities.		
10. A 2' wide concrete trickle channel is recommended for use in detention pond bottoms to fully drain the pond within 24-40 hours as required by the City's Site Drainage Requirements. If a trickle channel is used, the detention pond bottom shall have a minimum grade of 2% towards the trickle channel.		
11. A minimum of 2 cross-sections of each detention facility showing the property lines, slope catch points, and any other pertinent information to properly construct the facility.		

12. Minimum allowable conduit to be placed within the public ROW shall be 18" in diameter.		
13. Connections to a pipe system shall only occur at catch basins or manholes.		
14. A break in grade or alignment in pipe material shall only occur at catch basins or manholes.		

VI. Erosion & Sediment Control / BMP's	Present	Comments
1. Adequate erosion control measures have been utilized to prevent sediment from leaving the site. <u>NOTE</u> : All BMP's shall be in place prior to the commencement of any construction activities.		
2. Properties and waterways downstream from development sites have been adequately protected from erosion due to an increase in the volume, velocity, and peak flow rate of stormwater runoff from the proposed site.		
3. Soil stockpiles shall set back a minimum of 50' from down gradient features such as drainageways, ponds, stream or irrigation channel banks, etc.		
4. Adequate stabilization to prevent erosion of outlets, slopes, adjacent stream channels, and downstream reaches provided at all conveyance system outlets.		
5. Dewatering devices shall discharge into a sediment trap or sediment pond.		
6. If a permanent stormwater detention facility will be used as a temporary sediment pond, describe how and when the sediment will be removed.		
7. Vehicle tracking control has been provided at all vehicle entrances or access points		
8. Sediment protection has been provided for all drop inlets and catch basins.		
9. A concrete washout area shall be provided.		
10. Erosion control seeding shall not be used in areas subject to wear by construction traffic.		

VII. Standard City of Wheat Ridge Details	Present	Comments
1. City of Wheat Ridge Standard Details shall be utilized.		
2. Where modifications to City or CDOT standard details are used in the design, all specific information necessary to construct needs to be shown.		
3. Include a standard street section for all proposed (new) roadways.		