

CHAPTER 3 - Construction Plan Requirements

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CHAPTER 3 - CONSTRUCTION PLAN REQUIREMENTS

3.1. GENERAL.

The purpose of this chapter is to set forth the minimum requirements for civil construction plans for public and private infrastructure associated with developments within the city. The requirements also cover construction specifications and technical reports required for detailed design and construction of the infrastructure.

Development project review and approval is managed by the Department of Planning and Community Development. Approval of a development project represents a land development entitlement. Development approval is not authorization to proceed to construction. Project construction requires submittal and approval of civil construction plans and an approved building permit.

3.2. DEFINITIONS/ABBREVIATIONS.

DRT - Development Review Team

RCRBD - Routt County Regional Building Department

RoW - Right of Way

3.3. CIVIL CONSTRUCTION PLAN

This section sets forth requirements for civil construction plans for public and private infrastructure. Civil construction plans document the design of infrastructure and must be approved prior to any site construction, prior to approval of a final plat where infrastructure is required, or prior to issuance of a building permit, whichever is applicable.

Civil construction plans shall be prepared by or under the direction of an appropriately experienced professional engineer registered in the State of Colorado.

Civil construction plans shall be a complete and self-supporting plan set which includes all details and documentation necessary for the professional construction of the proposed improvements.

A Drainage Report and Geotechnical Report are required to accompany civil construction plan submittals. If the required reports were included with the approved development, these reports should be included with the civil construction plan submittal with appropriate revisions as needed. When a Traffic Report submitted with the development recommended infrastructure improvements, the Traffic Report shall be included with the civil construction plan submittal.

3.3.1. GENERAL PLAN FORMATTING.

- Plan sheet size shall be 24" x 36".
- Plans shall be prepared using CAD.
- Plans shall be black and white only.
- Different line weights and styles and not colors shall be used to distinguish among different site features.
- Each drawing sheet shall include a title block, scale, north arrow, revision block, and engineer's seal and signature.
- Drawings shall be scaled appropriately for the detail and extent of work shown.
- Include reference call outs for each detail provided.
- Title blocks shall be located in the bottom right corner of each drawing or along the right margin.

3.3.2. STANDARD NOTES.

The standard plan notes listed on Appendix 3- A shall be included within each civil construction plan set.

3.3.3. STANDARD PLAN SHEETS.

Format for plan sheets is included as Appendix 3-B.

3.3.4. DETAIL SHEETS.

Civil Construction Plans shall include construction details. Detail drawings should generally be to scale to allow constructability review and to provide accurate information to the contractor. When details are marked as "not to scale" they should at a minimum be drawn in proportion in order to provide accurate information to the contractor. When standard city of Steamboat Springs details or CDOT details are used, the detail drawings shall be included in the plans rather than referencing the standard detail drawings.

3.3.5. CIVIL CONSTRUCTION PLAN SUBMITTAL

Civil construction plans submitted for review and approval shall be signed and sealed by the engineer in Responsible Charge of Engineering as defined by the Colorado State Board of Licensure for Professional Engineers and Professional Land Surveyors. Civil construction plan submittals are handled either as a submittal through the City Planning and Development CityView portal for review and approval by DRT or as a submittal through the RCRBD CityView portal for review and approval with the building permit application.

The method of civil construction plan submittal is determined during development plan review through DRT and is identified for each development as a Condition of Approval. Refer to the approved development Condition of Approval to determine which of 3.3.5.1 or 3.3.5.2 applies.

3.3.5.1. DRT Submittal

Submittal of civil construction plans through the City Planning and Development CityView portal for review and approval by DRT is required for development projects with:

- public improvements
- private streets
- access changes to US 40
- disturbance over 1 acre
- phased construction
- plats with shared access infrastructure
- improvements on City property or public RoW
- construction which may affect City property or public RoW
- Developments with design elements that will require a more detailed review of Civil Construction Plans

Construction Permit Requirement. After civil construction plan review and approval through DRT, site construction requires an approved permit through RCRBD.

3.3.5.2. RCRBD Submittal

Submittal of civil construction plans to RCRBD via CityView portal for review and approval with the building permit application is allowed for projects where civil construction plans are not required to be submitted through the City Planning and Development CityView portal for review and approval by DRT. Civil construction plans submitted to RCRBD are a sub-permit of the building permit. Civil construction plans submitted to RCRBD via CityView portal for review and approval shall be a complete plan-set with a unique plan sheet number prefix. The civil construction plan sheets shall be sequentially ordered.

3.4. TECHNICAL REPORTS.

3.4.1. GENERAL REPORT FORMATTING.

- Reports shall be submitted in in PDF format
- Reports shall be typed and legible
- Report sheet size shall be 8.5" x 11"
- Plan sheet size shall be 24" x 36

3.4.2. GEOTECHNICAL REPORT/ PAVEMENT DESIGN/SLOPE STABILITY

A geotechnical report is required for all sites. The geotechnical report shall be prepared by a professional geotechnical engineer licensed in the State of Colorado. The geotechnical report shall include a pavement design for all public or private streets and fire apparatus roads. The geotechnical report shall include a slope stability analysis for all proposed cut and fill slopes. A pavement design is not required but it is recommended for private parking lots and private driveways. The content and format of each geotechnical report will vary by project type. Geotechnical reports should contain sufficient information to characterize existing conditions, identify required design elements, identify any potential impacts to adjacent property or City property,

and recommend site grading requirements. All geotechnical reports shall include:

- Cover Sheet with Subdivision, Site Name, Preparer Information (Name, Company, Address, and Contact Number), PE Seal and signature.
- Summary (with location maps) of all subsurface exploration data, including subsurface soil profile, exploration logs, laboratory or in situ test results, and ground water information.
- Interpretation and analysis of the subsurface data.
- Specific engineering recommendations for site grading design.
- Discussion of construction conditions and solutions of anticipated problems (ex. cold weather construction, excavation adjacent to RoW, temporary shoring)
- Recommended geotechnical special provisions or mitigation measures.

3.4.3. DRAINAGE REPORT.

Where drainage design elements shown on the civil construction plans have changed from the final drainage report submitted and approved with the development plan, the project engineer shall revise the final drainage report or write a drainage report addendum as required by the drainage criteria (Section 5.0). The revised final drainage report or drainage report addendum shall be submitted with the civil construction plan for review and approval.

3.5. CONSTRUCTION SPECIFICATIONS.

Construction specifications for all construction in the City of Steamboat Springs shall be the City of Steamboat Springs General Specifications current edition. When a project requires a specification which is not included in the City of Steamboat Springs General Specifications, the project engineer shall write a specification and include it in a "*project specification addendum*" which includes all necessary additional specifications. The *project specification addendum* can include specifications from other agencies such as CDOT. The *project specification addendum* shall be submitted with the civil construction plans for review and approval.

Appendix 3-A –Standard Civil Construction Plan Notes

General Notes

1. City of Steamboat Springs plan review and approval is only for general conformance with City Engineering Standards and the City code. The City is not responsible for the completeness, accuracy and adequacy of the drawings. Design, dimensions, and elevations shall be confirmed and correlated at the job site by the Project Engineer.
2. The Construction Specifications for this project are the City of Steamboat Springs General Specifications, latest revision.
3. All infrastructure construction and related work shall conform to the City of Steamboat Springs General Specifications, latest revision.
4. Note (if applicable) A Construction Specification Addendum has been issued and shall be used in conjunction with these plans.
5. Prior to commencement of construction, a pre-construction meeting is required. The Project Engineer shall coordinate the pre-construction meeting with the Contractor. Attendees include the contractor, the Project Engineer, representatives of City Engineering and appropriate utility representatives. Pre-construction meeting requirements are covered in City Engineering Standards Chapter 7 and include items such as inspection and testing requirements and as-built document requirements.
6. Prior to start of construction Contractor shall coordinate with Project Engineer to identify project inspection and testing requirements. Contractor shall provide for inspections and testing at an adequate frequency in accordance with City Specifications and additional testing as needed for the Project Engineer to document that project is constructed in conformance with the approved plans and specifications.
7. One copy of the approved construction plans and specifications shall be kept on the job site at all times. Prior to the start of construction, contractor shall verify with project engineer the latest revision date of the approved construction plans.
8. Prior to constructing any improvements which deviate from these approved plans, the contractor shall coordinate with the Project Engineer. The Project Engineer shall determine if the proposed construction change is required. The Project Engineer shall determine if the proposed construction change requires a plan revision to be reviewed and approved by City Engineering.
9. Benchmark = (insert City benchmark used) benchmarks can be obtained from City Utilities. Note the City's vertical datum is NAVD 88 and horizontal datum is NAD 1983)
10. Topographic and existing conditions mapped by (insert name) on (insert date).
11. Contractor shall verify the location of all utilities. Call the Utility Notification Center of Colorado (UNCC) at 1-800-922-1987 and any necessary private utility to perform locates prior to conducting any site work.
12. All water and sanitary sewer construction and related work shall conform to the City of Steamboat Springs Standard Specifications for Water and Wastewater utilities, current edition or Mt. Werner Water District Standards and Specifications (list whichever is applicable).

13. Contractor shall obtain all necessary permits and approvals required to perform the work such as Right-of-Way permit, Grade and Fill permit, construction dewatering permit, stormwater permit, Army Corp of Engineer permit, etc. It is the contractor's responsibility to obtain a copy of all applicable codes, licenses, specifications, and standards necessary to perform the work, and be familiar with their contents prior to commencing any work.
14. Prior to any work in the City Right-of-Way including street cuts, contractor shall contact the City of Steamboat Springs Street Department at 970.879.1807 for permit requirements. No work shall occur in the ROW between November 1 – April 1 unless a written variance has been approved and issued by the City Public Works Director.
15. Prior to closure of any street or part of street, an approved Right of Way permit is required to be approved and issued by City Engineering.
16. Contractor is responsible for contacting the Colorado Department of Transportation (CDOT) and obtaining any required permits or approvals for work on or adjacent to CDOT ROW.
17. Contractor is responsible for all necessary traffic control. Traffic control shall be in accordance with the Manual on Uniform Traffic Control Devices (MUTCD), latest edition.
18. Contractor shall provide all necessary traffic control (signs, barricades, flaggers, lights, etc) in accordance with the MUTCD, current edition.
19. Contractor shall submit a Traffic Management Plan with the construction permit application. The Traffic Management Plan is required to be maintained on-site and updated as needed to reflect current conditions.
20. The following improvements are public improvements: (List or None)
21. The following improvements are critical improvements: (List)
22. Record drawings are required for the following improvements: (none or list)

Grading

1. Grading shall occur within the property limits. Where off-site work is approved, written permission of the adjacent property owner is required prior to any off-site grading or construction.
2. No work shall occur in wetlands or floodplains without appropriate permits. Any work shall be in accordance with the issued permits.

Erosion Control

1. Contractor shall work in a manner that minimizes the potential for erosion.
2. Contractor is be responsible for installing, inspecting, and maintaining all necessary erosion and sediment control during construction and removing erosion control when project is complete and vegetation is established.

Paving

1. Construction of public streets requires geotechnical testing by a qualified geotechnical engineer of embankment, subgrade, base material and paving. Testing shall be in accordance with City Engineering Standards Chapter 7.

2. Existing asphalt pavement shall be straight saw cut when adjoining with new asphalt pavement or when access to underground utilities is required. Tack coat shall be applied to all exposed surfaces including saw cuts, potholes, trenches, and asphalt overlay. Asphalt patches in the Right-of-Way shall be per City Specifications.
3. Contractor shall adjust rims of cleanouts, manholes, valve covers to final grade.
4. Contractor shall contact City Streets Superintendent at (970)879-1807 to schedule installation of public street name signs. Contractor is responsible for payment for street name signs. All traffic control signs are the responsibility of the contractor to provide and install.

Water, Sewer, and Dry Utility

(Add notes as required by utility)

Site-Specific Notes

Insert any site specific notes here or at the end of the general note sections, please do not modify, edit, or add to the general notes.

Appendix 3-B Standard Civil Construction Plan Sheet Format

Plan Sheets listed below are typical for Civil Construction Plans. Some elements may be combined where there is no loss of clarity. The plans shall include the appropriate level of information and detail to support project review, construction, inspection and as-built record documentation. All plan sheets shall be signed and sealed by a Colorado Professional Engineer.

Cover Sheet.

- Plan Title
- Legal Description (Subdivision Name, Lot)
- Development Name (if different from legal description)
- Vicinity Map showing location of streets within approx 1 mile of the proposed site and highlighting the project site
- Sheet Index
- Project Team (Company, Contact Name, Address, Phone) for owner, developer, engineer, surveyor and any other
- PE Signature and Stamp
- Original plan date and any revision dates
- Standard Civil Construction Plan Notes from Appendix 3-A.
- UNCC Note and number

Existing Conditions Plan

- Show and annotate existing contours at no greater than 2 ft intervals across site and sufficiently beyond to depict the existing drainage patterns. (indicate PLS and date of survey).
- Show, annotate and dimension all property lines, ROW lines, easements and tracts.
- Show and annotate location and width of existing streets, bridges, guardrails, and driveways.
- Show and dimension full width of roadway corridor including centerline, lane markings, edge of pavement, shoulders curbs, valley pans, roadside swales, sidewalks etc.
- Show and annotate existing intersections and driveways on both sides of the street including approach radii.
- Show and annotate size, location, and type of all existing utilities such as: waterlines, water valves, fire hydrants, sanitary sewer, manholes, storm drainage facilities, telephone, gas, and electric facilities.
- Location and width of trails and sidewalks.
- Location of existing buildings and structures.
- Identify limits of any wetlands.
- Show and annotate Ordinary High Water Mark (OHWM) for water courses.
- Show and annotate limits of 100 year floodplain and Floodway and BFE.
- Other natural features such as outline of major tree stands and rock outcroppings.

Grading and Drainage Plan

- ❑ Show and annotate relevant elements from the existing conditions plan: property lines, plat names, lot numbers, easements, etc.
- ❑ Show and annotate proposed Right of Way and easements.
- ❑ Show and annotate existing and proposed contours. Proposed contours shall be a heavier line type than existing contours. Annotation shall be frequent enough to facilitate review and construction. Proposed contour lines shall tie to existing contour lines, tie points shall be clearly identified.
- ❑ Proposed drainage swales shall be clearly identified with contour lines and centerline of swale.
- ❑ Show disturbance limit line and annotate the total disturbed area of project. Total disturbed area shall include and areas outside the slope catch lines to account for erosion control practices and final grading. Total disturbed area shall include stockpiles and staging areas.
- ❑ Label Private streets and storm systems as "Private"
- ❑ Building footprint outline and FFE
- ❑ Limits of cut and fill slopes; limit of area of disturbance
- ❑ Curb, gutter, and sidewalk size and type with detail
- ❑ Storm sewer pipe – size, type, invert in, invert out, length, and slope
- ❑ Ditches/ swales – cross-section, indicate if channel liner is required
- ❑ Spot elevations and flow arrows as needed to indicate flow direction
- ❑ Floodplain base flood elevations
- ❑ Retaining Walls – show top and bottom wall elevation, note where less than 4 ft. Where greater than 4 ft or in setback provide wall profiles and cross sections and structural design.
- ❑ Permanent Stormwater Treatment Facilities including design information such as required pond size (sf), overflow elevations, etc

Street Plan

- ❑ Show property line, ROW lines, easements, and tracts
- ❑ Show street plan including length of tangents and curve; widths of ROW; stationing and elevation of all PT, PC, PI; high point and low point, curve radii, centerline stationing at 50 ft intervals, dimensions of all street elements, curbs, gutters, utilities, easements, and other structures
- ❑ Show slope contours to demonstrate grading for street can be accommodated within the proposed ROW or construction easements
Show existing and proposed culverts (size, slope, and length)
- ❑ Show cross-sections of the entire ROW width at 50 ft intervals. Show additional cross sections at intersections, driveways and retaining walls.
- ❑ Show any guardrail including length and offset.
- ❑ Show bridge type, size and location.
- ❑ Show location and design parameters for any proposed retaining walls or other special structures
- ❑ Extend design beyond site to demonstrate future extension.
- ❑ Where streets intersect show design parameters for cross-slope transition

Street Profile

- ❑ Profile of existing and proposed ground surface along proposed centerline of street. Stationing shall be at 50-foot intervals. (Different intervals may be permitted based on topography or proposed design features.)
- ❑ Show grades, length of vertical curves, K values, stationing and elevations of all BVC, EVC, and PIVC. The vertical scale may be distorted 10:1 or 5:1.
- ❑ Identify high point and low point
- ❑ Identify intersection approach grades meeting ADA requirements for sidewalk and trail crossings.
- ❑ Show location of existing and proposed utilities.

Combined Street Plan and Profile

- ❑ Combined Street Plan and Profile Sheets are preferred when the drawing scale and orientation permits. Combined Plan and Profile sheets shall be split horizontally with the Plan view on top and the profile view on bottom
- ❑ The Stationing of the Plan and Profiles shall be aligned vertically on the left side of the sheet.

Driveway Cross sections

- ❑ Provide driveway cross sections as needed for driveways longer than 100 feet.
- ❑ Cross sections shall be oriented in a vertical format with the lowest station at the bottom. Cross sections read from bottom to top and from left to right if sheet contains more than one column of cross sections.

Street Cross Sections

- ❑ Provide street cross sections showing existing ground and street template with back slopes and intersection with existing ground.
- ❑ Annotate and dimension centerline, edge of road, ditch lines, right of way lines and easements.
- ❑ Cross sections shall be oriented in a vertical format with the lowest station at the bottom. Cross sections read from bottom to top and from left to right if sheet contains more than one column of cross sections.

Storm Drain Profile

- ❑ Elevations (rim, final grade, inverts) and stationing on profile view
- ❑ Profile existing and proposed ground surface along proposed centerline stationed at 50 ft intervals (Different intervals may be permitted based on topography or proposed design features.)
- ❑ Pipe length, size, slope, inverts
- ❑ Manhole diameter, size of inlets
- ❑ Clearance of utility crossings

Storm Swale Profile

- ❑ Flowline elevations and stationing on profile view

- ❑ Profile existing and proposed ground surface along proposed centerline stationed at 50 ft intervals
- ❑ Flowline elevations of grade breaks such as scour holes, grade control check dams, rip rap and the like.
- ❑ Clearance of utility crossings

Storm Swale Cross Sections

- ❑ Provide drainage swale cross sections showing flow line elevations back slopes and intersection with existing ground.
- ❑ Cross sections shall be oriented in a vertical format with the lowest station at the bottom. Cross sections read from bottom to top and from left to right if sheet contains more than one column of cross sections.

Signing and Striping Plan.

- ❑ Signs: Show the general location of each sign. Specify the sign legend, size and type from the MUTCD. Provide a typical detail of sign installation dimensions (height, distance from eop, etc).
- ❑ For public street signs add note: "Contact City Shop (879-1807) to coordinate ordering and installation of street signs. (Developer is responsible for funding.)"
- ❑ Striping: Show the width, color, line type for each. Identify typical details as needed.

Detail Sheets. Detail Sheets shall include all design details needed to construct the project. Detail sheets shall include typical sections and standard details rather than referencing other documents or plans.

Retaining Wall Plans Include plans, profile, structural detail of cross section and cross sections. Retaining wall structural design is reviewed by Routt County Regional Building Department at time of construction permit application.

- ❑ Wall Plan showing drainage swale at top of wall, underdrain layout and outfall locations, detail grading at wall termination.
- ❑ Identify wall underdrain outfall location. (tie to storm drain or ditch)
Weep Holes are not allowed to drain across sidewalk or to a street pavement.
- ❑ Wall Profile showing footing elevations, top of wall elevations, step locations, construction/expansion joint locations.
- ❑ Wall typical section showing structural detail, backfill, underdrain, retained earth line, drainage swale at top of wall, fill line over toe, fence/rail at top of wall.
- ❑ Wall Cross sections at minimum 50 ft intervals showing tie to existing ground line.

Landscape Plan - Provide a copy of the landscape plan approved with the development approval. Plan shall be revised to show any changes to resolve sight distance, drainage or utility conflicts. Include location and type of all plants, bushes, trees, irrigation lines, vaults, and utility connections. Label for reference only.

Utility Plan Sheets

(Refer to appropriate Utility division requirements)

Construction Phase Erosion Control. A Construction Phase Erosion Control Plan is not required as part of a Civil Construction Plan set, but rather is prepared by a Qualified Stormwater Manager as part of a Storm Water Protection Plan or Construction Site Management Plan as part of a building permit application. For sites the project engineer specifies construction methods or phasing to minimize erosion, A Construction Phase Erosion Control Plan **can** be included. The plan will typically include the following:

- ❑ Existing and Proposed topography
- ❑ Storm drainage features
- ❑ Temporary storm water quality features with any phasing identified
- ❑ Note indicating that this plan is not a complete Stormwater Management Plan.