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CHAPTER 3 - CONSTRUCTION DRAWING REQUIREMENTS

3.1. GENERAL. 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. Where construction plans are required with a building permit, the building permit submittal requires a stamped set of civil construction drawings complete with City approval. This requires submittal of the construction plans to the City for review sufficiently in advance of the building permit submittal to provide time for review and approval. The three typical types of construction plans are: utility plan, over lot grading plan, and civil construction plan.

3.1.1. Utility Plan. Utility plans include construction of utility improvements only. Utility plans shall be prepared according to the appropriate utility division requirements. Utility plans shall be submitted directly to the utility for review and approval. Where work is in the City Right-of-way (ROW), a ROW permit is also required.

3.1.2. Overlot Grading Plan – A separate overlot grading permit is required to be approved by the City where site grading is proposed that is not part of a building permit. It is recommended that civil construction plans be approved instead of an overlot grading plan to identify final design elements for the site. For sites where final design is not yet determined, an overlot grading plan for grading, drainage, and erosion control only may be submitted with Public Works Director approval. The approved plan cannot include streets beyond sub grade, utilities, sidewalks, or other infrastructure, but those items could be included on a separate drawing for reference if noted with “not for construction, for information only”. When submitted, construction under an overlot grading plan is at developer’s risk, and if final design requires modifications they will be at the developer’s cost.

3.1.3. Civil Construction Plan. Civil construction plans are required when public improvements, private streets, and access changes to US 40 (state highway), are constructed. They may also be required at the Public Works Director’s request for private improvements on City property or for other private improvements where construction may affect City property.

3.1.3.1. Exception: Separate civil construction plans are not required if the only public improvement with a building is a public sidewalk (sidewalk in the City ROW or in a City easement) or other minor improvement as approved by the Public Works Director. In these cases, the design for the sidewalk or other minor improvements shall be reviewed and approved as part of the building permits and shall include all applicable design elements. A separate copy of the public sidewalk design or minor improvement design shall be submitted to Public Works for their records.

- 3.2. GENERAL FORMATTING.** All construction plans shall be prepared by or under the direction of an appropriately experienced professional engineer registered in the State of Colorado. Plans shall include at a minimum the items listed in these standards. General formatting shall include:
- Plans shall be submitted in 24" x 36" format . Larger format will be permitted only where civil drawings are part of large-scale building project that utilizes 30" x 42" architect plans. Plans shall be prepared in CAD or comparable program. Reports shall be bound 8 ½" x 11" typed and legible. Plans shall be prepared in 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 stamp (as applicable)
 - 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. STANDARD NOTES.** The standard notes listed on Appendix 3- A shall be included within each construction drawing set.
- 3.4. STANDARD PLAN SHEETS.** The 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 Steamboat, CDOT, or other agency standard details shall be included with the plans and not merely referenced. An example of typical plan sheets and information is included as Appendix 3-B.
- 3.5. SOILS REPORT/ PAVEMENT DESIGN.** A soils report is required for all sites with public improvements, streets, and fire apparatus roads; and is recommended for sites with private improvements. The soils report, prepared by a professional geotechnical engineer licensed in the State of Colorado, shall be reviewed and approved by the City prior to approval of Construction Drawings or a Building permit as applicable. The report shall include a pavement section for any street or fire apparatus road. Pavement design (in lieu of a standard section) is not required for private parking lots and private access drives, but it is recommended. The content and format of each soils report will vary by project type, but all 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 a site design. Typically all reports will include:

- Cover Sheet with Subdivision, Site Name, Preparer Information (Name, Company, Address, and Contact Number), Report status (Draft - for initial submittal or PE Stamp - for final submittal)
- 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 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

3.6. DRAINAGE REPORT. Where design elements have changed from the final drainage report submitted with development plan approval, include a revised drainage report or drainage addendum as required by the drainage standards (Section 5.0) with the construction plan submittal.

3.7. RECORD DRAWINGS. In cases where the Public Works Director identifies that record drawings are required for other public improvements, a list of record drawing requirements shall be developed by the Public Works Director for that project. Typically the record requirement will be identified as part of development or construction drawing approval.

3.8. TESTING DOCUMENTATION REPORT. Any construction testing required by the project specifications shall be documented in a report and submitted to the City for review and approval. The Testing Documentation Report shall contain all necessary information to document testing activities, determine if testing requirements are met, and confirm that materials and methods were constructed in substantial conformance with specifications. They reports typically include:

- Cover sheet
- Summary of test results. Including identification of the following
 - Confirm testing was performed at the required frequency.
 - Include evaluation of adequacy of test results.
- For each component the report evaluated (subsurface, sub base, road base, asphalt – 1st lift, asphalt- 2nd lift, concrete, earthen fill, etc) include a separate section and summary showing:
 - Map of test locations
 - Summary table of test results including, location, frequency required, target value, actual value, retest info, and comments
 - If tests failed document any retest and passing result; where no retest or passing result provide suggestion for mitigation or reason for acceptability
 - Identify any site specific issues or concerns

- Copy of field logs

3.9. SPECIFICATIONS. Project specifications shall be prepared and submitted for approval in conjunction with the Utility Plan, Overlot Grading Plan, and Civil Construction Plan. The project specifications shall include the applicable jurisdiction standard specifications with any necessary project specific specifications added.

Appendix 3-A City of Steamboat Springs General Notes

Appendix 3-A – City of Steamboat Springs Standard Construction Plan Notes

General Notes

1. Benchmark = (insert City benchmark used, can be obtained from City Utilities. Note the City's vertical datum is NAVD 88 and horizontal datum is NAD 1983)
2. Topographic and existing conditions mapped by (insert name) on (insert date).
3. City of Steamboat Springs plan review and approval is only for general conformance with City design criteria 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.
4. 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 to verify with project engineer the latest revision date of the approved construction plans.
5. 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.
6. All infrastructure construction and related work shall conform to the City of Steamboat Springs standard specifications, latest revision.
7. 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).
8. Contractor shall obtain all necessary permits and approvals required to perform the work such as Right-of-Way permit, grading and excavation permit, construction dewatering permit, storm water quality 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.
9. Prior to any work in the City Right-of-Way including street cuts, 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.
10. Prior to closure of any street or part of street, an approved Obstruction permit must be issued by City Construction Services Foreman.
11. 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.
12. 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 for the Project Engineer to document that project is constructed in conformance with the approved plans and specifications. Prior to making any changes to the

13. 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.
14. Contractor shall provide all necessary traffic control (signs, barricades, flagmen, lights, etc) in accordance with the MUTCD, current edition.
15. Contractor must submit a Construction Site Management Plan (CSMP) for review and approval by the City Construction Services Foreman prior to start of construction. The CSM must be maintained on-site and updated as needed to reflect current conditions.
16. The following private improvements require construction observation per the City's Engineering Services Specification:(none(or list).
17. Record drawings are required for: (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 must be obtained 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.
3. Vegetated slopes greater than 2:1 require soil stabilization.

Erosion Control

1. Contractor shall submit a Construction Site Management Plan to the City for approval prior to building permit issuance.
2. Contractor shall work in a manner that minimizes the potential for erosion.
3. Contractor shall 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.
4. Any area disturbed by construction and not paved or natural rock surface shall be revegetated within one construction season.

Paving

1. Paving of public streets shall not start until sub grade compaction and material tests are taken and accepted by the Public Works Director.
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. Adjust rims of cleanouts, manholes, valve covers to final grade.
4. Contractor to contact City Streets Superintendent at (970)879-1807 to schedule installation of public street signs. All other traffic control signs are the responsibility of the contractor.

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.

Additional Standard Notes for Overlot Grading and Drainage Program

1. This is an overlot grading plan only – final grades may change depending on final development plan and construction plan approval. Owner/developer is proceeding at their risk and is responsible for any changes that are required based on final approvals.
2. This drawing is for grading permit, overlot grading, erosion control, and rough drainage construction only. The drawing does not include complete details for final construction.

Appendix 3-B Typical Civil Construction Plan Elements

Existing Conditions Map

- ❑ Existing grades at 2 ft minimum contours across site and sufficiently beyond to demonstrate impacts of changes offsite
- ❑ Dimension and location of all property lines, ROW lines, easements and tracts. Include centerline and edge of pavement for any streets or driveways
- ❑ Size, location, and type of all existing utilities and appurtenances including but not limited to water, fire hydrants, sanitary sewer, manholes, storm drainage facilities, telephone, gas, and electric
- ❑ Location and width of existing bridges, guardrails, driveways, and streets. (Show full intersections and opposite accesses)
- ❑ Location and width of Trails and sidewalks
- ❑ Location of existing buildings and structures
- ❑ Identify limits of any wetlands
- ❑ High water line for water courses and limits of 100 year floodplain.
- ❑ Other natural features such as outline of major tree stands and rock outcroppings.

Grading and Drainage Plan

- ❑ Existing and proposed ROW, property lines, lot numbers, easements, and tracts
- ❑ Existing and Proposed contours at 2 ft intervals
- ❑ 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 rip rap required
- ❑ Spot elevations and flow arrows as needed to indicate flow direction
- ❑ Floodplain base flood elevations
- ❑ Walls – show top and bottom wall elevation, note where less than 4 ft. Where greater than 4 ft or in setback provide cross-section and structural design.
- ❑ Storm Water Quality features 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 100 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 a representative frequency
- ❑ Show any guardrail including length and offset.

Appendix 3-B Typical Civil Construction Plan Elements

Typical Plan Sheets for Utility Plans

(See appropriate Utility division requirements)

Typical Plan Sheets for Overlot Grading Plans

(See civil construction plans for typical sheet detail)

- ❑ Cover Sheet
- ❑ Standard Notes
- ❑ Existing Conditions Plan
- ❑ Overlot Grading Plan
- ❑ Details
- ❑ Erosion Control Plan (If Temp Sediment Ponds Are Required)

Typical Plan Sheets for Civil Construction Plans

Elements listed are typical and may be combined or modified. The plans must include a sufficient level of information to support project review and construction.

Cover Sheet.

- ❑ Legal Description (Subdivision Name, Lot)
- ❑ Development Name (if different from legal description)
- ❑ Vicinity Map (does not need to be to scale) showing location of streets within approx 1 mile of the proposed site and highlighting the project site
- ❑ Drawing Index
- ❑ City Standard Approval Block (Figure 3.1)
- ❑ Project Team (Company, Contact Name, Address, Phone) for owner, developer, engineer, surveyor and any other
- ❑ UNCC Note and number
- ❑ Original plan date and any revision dates
- ❑ Note (as applicable) “Construction Specifications have also been issued and must be used in conjunction with these drawings.”
- ❑ Note identifying public improvements
- ❑ PE Signature and Stamp (once final ok has been given by Public Works Director) or “DRAFT – Not for Construction” for plans in review

- ❑ Show any bridge location, type, etc.
- ❑ Show location and design parameters for any proposed retaining walls or other special structures
- ❑ Extend design beyond site to demonstrate tie into existing grade
- ❑ 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
- ❑ Show location of existing and proposed utilities.

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

Temporary Erosion and Sediment Control Plan. The erosion and sediment control plan is generally not required as part of the Civil Construction Drawings, but rather will be prepared by the contractor in conjunction with the Construction Site Management Plan prior to approval of the building permit. For sites where the drainage standards indicate that temporary sediment ponds are required, or where the engineer specifies construction methods or phasing to minimize erosion, a temporary erosion and sediment control plan shall be provided. The plan shall generally 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 complete erosion and sediment control plan, but presents the engineered temporary features only and that a separate erosion control and construction site management plan will be required by the contractor prior to construction.

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.

Landscape Plan - Provide a copy of the landscape plan approved with the development approval modified to show any updates at a minimum for any landscaping proposed within the public ROW, utility easements, or drainage/ storm water quality feature. Include location and type of all plants, bushes, trees, irrigation lines, vaults, and utility connections. Label for reference only.

Details. Include design details as needed to support construction. Where retaining wall design is approved by the Building Department, provide at minimum dimensions of wall, general detail of any footings or temporary shoring, and general wall detail. Where retaining wall design not approved by the Building Department, provide all details required for construction.

Figure 3-1 City Standard Approval Block

PROJECT APPROVED BY COUNCIL _____		
FINAL DESIGN APPROVALS		
	DATE	INITIALS
ENGINEERING	_____	_____
PLANNING	_____	_____
PUBLIC UTILITIES (Mt. Werner/ City)	_____	_____
Other ()	_____	_____