# Chapter 2 - Submittal Procedures and Requirements

## 2.1 Drawings and Specifications

### 2.1.1 Procedures and Requirements

Consulting engineers and developers seeking acceptance of Civil Engineering Reports and Construction Documents shall follow the procedures outlined herein. Submittal procedures and requirements for the various City of Castle Pines (City) land development processes can be found in the City's Municipal Code and in other City publications. Initial submittal of reports or plans without fees shall constitute an incomplete submittal and will not be processed until receipt of fees. Additional fees may be added in the Permitting process or may be required for resubmittals. Resubmittals are subject to the City of Castle Pines Fee Schedule.

### 2.1.2 Pre-submittal Meetings

The City routinely conducts pre-submittal meetings at which Applicants to the various City land development processes may ask questions or obtain direction. These meetings are intended to supply basic information about City procedures, practices, or standards as a basis on which to begin development planning.

### 2.1.3 Construction Documents

The City may request, with the initial submittal to the City, an electronic set of construction documents. The submittal shall include detailed drawings for the entire project (refer to Section 2.3 Submittal Checklist).

### 2.1.4 Engineering Review Objective

The City's objective for new submittals is to complete initial reviews in timelines specific to Department or Permit type. The actual time required is a function of the submittal complexity and overall workload of City reviewers.

### 2.1.5 Results of Engineering Review

The review comments shall be forwarded to the Applicant's Representative. If Plans lack adequate information or are considered seriously deficient, they will be returned to the Applicant's Representative without review.

### 2.1.6 Revision of Engineering Plans and Reports

The Applicant's Representative will make all revisions requested on their original plans or report and resubmit according to the review comments. As part of the revision process, the Applicant's Representative may contact the City reviewer to receive clarification or discuss comments. The City will normally process the resubmitted plans within 13 regular business days for the second review and 7 regular business days for any subsequent reviews after the second review. Plans may require several reviews prior to acceptance.

1) When submitting revised plans, drawings, or reports to the City, the resubmittal must contain the following:
    a) A comment response letter from the Applicant's Representative outlining everything being resubmitted and a summary of any revisions made to the plans that are not related to the review comments.
    b) A response to all review comments provided directly in the markup file in a unique line and fill color.
    c) The revised plans and reports for review.
2) When plans or reports have been accepted by the City, the Applicant, if requested by the City, shall submit two sets to ten sets of the Construction Plans, signed and stamped by a Professional Engineer (PE) licensed in the State of Colorado, for signature. An electronic copy of all certified Engineering Reports shall be submitted.
3) The time needed to obtain signed Construction Plans from the City is 10 regular business days. This time may be extended depending on workload conditions. Resubmittals made more than 180 days after the date of the City-reviewed comment letter will be treated as a new submittal, and a new engineering review fee will be due unless an extension is requested by the Applicant and granted by the City in writing. If the Land Use Application has been closed by the City, any associated Construction Document resubmittal is considered a new application, and new engineering review fees will apply.

## 2.2 Revisions to Accepted Plans

### 2.2.1 Validity Period

Construction Plans, Pavement Design Reports, and other engineering documents that are accepted by the City are valid for a period of 2 years prior to commencement of construction. If construction has not commenced during this time period, the plans and reports shall be voided and must be brought into conformance with current criteria and accepted by the City before any Permits can be issued. Contact the City with questions regarding Drainage Report time limits.

### 2.2.2 Updates and Revisions

When submitting updates or revisions to previously accepted Construction Plans, Pavement Design Reports, Traffic Impact Study Reports, Drainage Reports, and other documents, the Applicant shall revise the documents and submit updates or revisions through the normal document submittal process.

## 2.3 Submittal Checklist

The following documents may be included with any Construction Plan submittal:

1) Engineering Review Fee (first submittal only)
2) Cover Sheet
3) Street Plan and Profiles
4) Storm Sewer Plan and Profiles
5) Evidence showing upload of Grading, Erosion, and Sediment Control (GESC) documents to the standalone GESC Permit if required
6) Permanent Detention and Water Quality Facilities and associated appurtenances

7) Culvert Plan and Profiles
8) Traffic Signage and Striping Plan with City Standard Details and Notes
9) Standard City Details
10) Non-City Details (If used, these details must be signed and stamped by a PE licensed in the State of Colorado)
11) Other plan sheets and documents as required
    a) Landscape
    b) Traffic Impact Study Report
    c) Water and sanitary sewer Construction Plans that have been accepted and approved by the governing district or utility (if these plans represent improvements for installation within a City right-of-way, they must be accepted by the City.)
    d) Other Utilities
    e) Phase III Drainage Report
    f) Applicable Improvements Agreement form with engineering cost estimate
    g) Final Plat with appropriate dedication statements for public right-of-way and easements
    h) Traffic Signal
    i) Lighting

## 2.4 Drafting Standards

All Construction Documents submitted for acceptance shall meet the following standards:

1) Plans size shall be 24 by 36 inches (or minimum 11 by 17 inches at the City's discretion).
2) Text height shall not be less than one-tenth (0.10) of an inch on a 24- by 36-inch plan set or less than one-five hundredths (0.05) of an inch on an 11- by 17-inch plan set.
3) Design text shall be black.

## 2.5 General Submittal Requirements for Construction Documents

The following documentation is required in conjunction with the submittal of Construction Plans for any roadway or storm drainage improvement project in Castle Pines. All Construction Plans and Engineering Reports shall be prepared by, or under the direct supervision of, a PE licensed in the State of Colorado, and shall be reviewed for the minimum requirements set forth herein. The City may require additional information and analysis beyond the minimum requirements of these Roadway Standards and criteria.

## 2.6 Cover Sheet

### 2.6.1 Cover Sheet Requirements

A Cover Sheet is required for every submittal. The Cover Sheet requirements are as follows:

1) Vicinity map
2) Sheet Index
3) Standard Notes

4) Acceptance Block
5) Engineering Certification Note
6) Title Block
7) Project Title
8) Project Contacts (City Representative, Engineer, Developer, and Owners' Representative, affected utilities at a minimum)
9) Benchmark and Basis of Bearing
10) Overall Key Map
11) Official Name of the Subdivision
12) City Case Number

### 2.6.2 Vicinity Map

1) Minimum scale is 1 inch = 2,000 feet. Map must show the location and name of all Arterial roadways and major drainageways within 1 mile of the proposed construction site, and all other roadways in the vicinity of the proposed construction site. Shading shall indicate the project area. Section, Township, and Range shall also be shown. North arrow and scale shall be included.
2) Minimum size of vicinity map shall be 6 inches by 6 inches (for full-size drawings).

### 2.6.3 Sheet Index

The Sheet Index shall be located along the right side of the sheet and should include all sheets in the Construction Plan set, numbered consecutively, beginning with the Cover Sheet. No letters shall be used for sheet numbers.

### 2.6.4 Standard Notes

The following Standard Notes shall be included on the Cover Sheet or a Standard Notes Sheet as applicable:

1) The City Development Review Engineer's signature affixed to this document indicates the City has reviewed the document and found it to generally conform with the City of Castle Pines Roadway Design and Construction Standards, applicable municipal code, and any associated agreement (such as a Development Agreement) or accepted variances to those regulations. Through acceptance of this document, the City assumes no responsibility, other than stated previously, for the completeness and accuracy of these documents. The Owner and engineer understand that the responsibility for the engineering adequacy of the facilities depicted in this document lies solely with the PE registered in the State of Colorado whose stamp and signature are affixed to this document.
2) All construction shall conform to City Standards. Any construction not specifically addressed by these Roadway Standards and specifications will be built in compliance with the latest edition of the most stringent of the following:
    a) The City of Castle Pines Roadway Design and Construction Standards
    b) The Colorado Department of Highways Standard Specifications for Road and Bridge Construction
    c) The Colorado Department of Transportation (CDOT) Miscellaneous and Safety (M&S) Standards

3) All materials and workmanship shall be subject to inspection by the City as applicable. The City reserves the right to accept or reject any such materials and workmanship that do not conform to its Standards and Specifications.

4) The Contractor shall notify the City Public Works Department a minimum of 24 hours and a maximum of 72 hours prior to starting construction of elements that require review and inspection. Notification shall consist of the Contractor's contacting the City Public Works Department and receipt of acknowledgment by the City. The Contractor shall notify the City when working outside of the public right-of-way on any facility that will be conveyed to the City, Mile High Flood District (MHFD), or other special districts for maintenance (storm sewer, energy dissipaters, detention outlet structures, or other drainage infrastructures). Failure to notify the City to allow inspection of the construction may result in non-acceptance of the facility or infrastructure by the City, MHFD, or relevant agency.

5) Construction shall not begin until all applicable Permits have been issued. If a City Inspector is not available after proper notice of construction activity has been provided, the Permittee may commence work in the Inspector's absence. However, the City reserves the right not to accept the improvement if subsequent testing reveals an improper installation.

6) The location of existing utilities shall be verified by the Contractor prior to actual construction.

7) The Contractor shall have one copy of the Plans signed by the City, one copy of the Roadway Design and Construction Standards, latest version, and all applicable Permits at the job site at all times.

8) All proposed street cuts to existing pavements for utilities, storm sewer, or for other purposes are listed and referenced here:

| | | |
|---|---|---|
| Examples: | Water tie-in | Sheet 3 |
| | Storm sewer Connection | Sheet 6 |

9) A Traffic Control Plan, in accordance with the *Manual on Uniform Traffic Control Devices for Streets and Highways* (MUTCD), shall be submitted to the City for acceptance with the Right-of-Way Permit Application. A Right-of-Way Permit will not be issued without an accepted Traffic Control Plan for traffic control during construction. Exceptions can be made by the City Public Works Department if construction does not include traffic control.

10) The Construction Plans shall be considered valid for 2 years from the date of City acceptance, after which time, these plans shall be void and will be subject to re-review and re-acceptance by City.

11) City of Castle Pines Standard Details shall not be modified. Any nonstandard details will be clearly identified as such.

12) Paving, including construction of curb and gutter (when used), shall not start until a Pavement Design Report and subgrade compaction tests are accepted by the City for all public and private roads.

13) Standard City Americans with Disabilities Act ramps are to be constructed at all curb returns and at mid-block locations opposite of one of the curb returns of all "T" intersections as identified on the Plans.

14) All stationing is based on roadway centerlines unless otherwise noted.

15) All elevations are on United States Coast and Geodetic Survey (USC&GS) (NAVD-88) DATUM with date. The Range Point or Monuments shall be shown on construction drawings.

16) All storm sewer improvements (public and private), including, but not limited to, inlets, pipes, culverts, channels, ditches, hydraulic structures, riprap, detention basins, forebays, micro-pools, and water quality facilities, require Permitting and inspections. Please contact the City Public Works Department for inspection scheduling.

17) Two manhole access points are required on all type "R" curb inlets greater than or equal to 10 feet in length.

18) Epoxy-coated rebar is required on all drainage structures.

19) The City requires Class D concrete for all drainage structures.

20) All reinforced concrete pipe (RCP) storm sewers must use ASTM International (ASTM) C443 watertight gaskets per the current City and MHFD design criteria.

21) All RCP shall be Class III storm sewer pipe, unless otherwise specified.

22) Joint restraints are required for a minimum of the last two pipe joints and flared end section of an RCP outfall.

23) Toe walls are required on flared end sections at the outlet end of culverts and storm sewer outfalls.

24) Filter fabric is required under all riprap pads.

25) The PE registered in the State of Colorado who signs these plans is responsible for confirming that the details included are compatible with the standard City details contained in the latest versions of the criteria manuals. These include, but are not limited to, the following:

    a) City of Castle Pines Roadway Design and Construction Standards

    b) Douglas County Storm Drainage Design and Technical Criteria

    c) City of Castle Pines Grading, Erosion and Sediment Control Manual

    d) CDOT M&S Standards

    e) MUTCD

    f) MHFD Criteria Manual

26) A Temporary Construction Access Permit from the City may be required for any project.

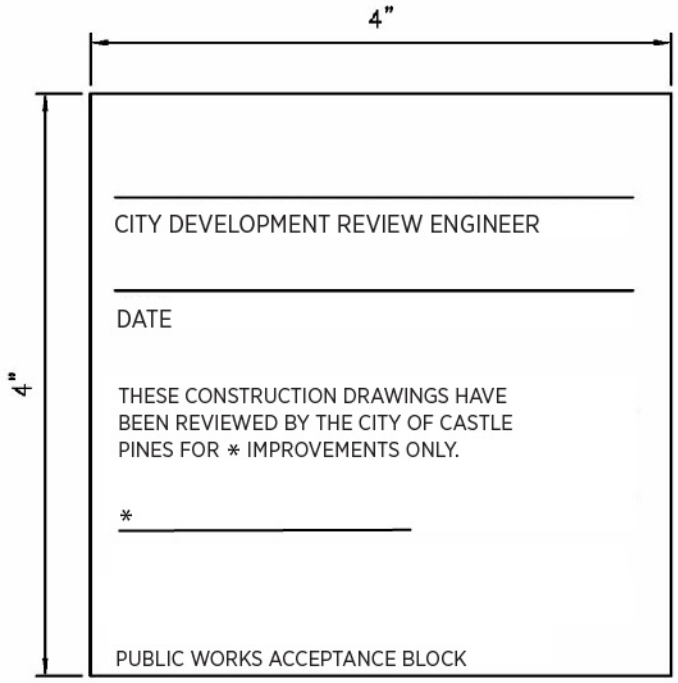
If roadways are to be dedicated on the Final Plat to an entity other than the City, then the following statement shall be included with the Standard Notes:

> "27. The City of Castle Pines shall not be responsible for the maintenance of roadway and appurtenant improvements, including sidewalk and storm drainage infrastructure, for the following private streets: (*List street names*)"

### 2.6.5 Acceptance Block

The Acceptance Block shall be located in the lower right-hand corner of each sheet, except for sheets that have only Castle Pines Standard Details (refer to Figure 2-1).

**Figure 2-1. Acceptance Block**




* Insert the applicable wording or combination of wording into the Acceptance Block:

1) Street and Drainage
2) Grading, Erosion, and Sediment Control
3) Landscaping within the Public Right-Of-Way
4) Utilities
5) Signage and Striping
6) Traffic Signal

### 2.6.6 Public Works Certification Note

Construction Plans and Engineering Reports submitted for review and comment shall be prepared by, or under the direct supervision of, a PE licensed in the State of Colorado. All sheets of the Construction Plans must be signed and stamped by a PE licensed in the State of Colorado, except the City of Castle Pines Standard Detail sheets. Construction Plans and Engineering Reports must include the following statement on the Cover Sheet:

> *"These Construction Plans for (name of subdivision, development, or project) were prepared by me (or under my direct supervision) in accordance with the requirements of the City's Roadway Design and Construction Standards, Storm Drainage Design and Technical Criteria, and the Grading, Erosion, and Sediment Control Manual."*
>
> *Name of Engineer*
> *Name of Firm*

On the Final Construction Plans and Engineering Reports submitted for acceptance, the statement shall be signed and stamped by the PE who prepared or supervised the preparation of the documents.

The City of Castle Pines, through the acceptance of the Construction Plans and Engineering Reports, assumes no responsibility for the completeness or accuracy of the Construction Plans or Engineering Reports.

### 2.6.7 Title Block

A Title Block is required on every sheet. The subdivision name and filing number; Land Use name (if applicable); the type of improvement; name, address (including zip code), and telephone number of the Applicant's Representative; sheet number; and revision date and number shall be included in the Title Block.

The Title Block shall be located in the extreme lower-right-hand corner, the right-side margin, or along the bottom edge of the sheet (refer to Figure 2-2).

**Figure 2-2. Title Block Layout**

### 2.6.8 Project Title

The Project Title shall be centered on the top of the Cover Sheet.

### 2.6.9 Contacts for Project

The name, address (including zip code), telephone number, and email address of the Applicant's Engineer, Owner's Representative, Developer, City representative, and affected utilities shall be included at a minimum.

### 2.6.10 Benchmark and Basis of Bearing

The Benchmark shall be shown as USC&GS NAVD-88 DATUM with date.

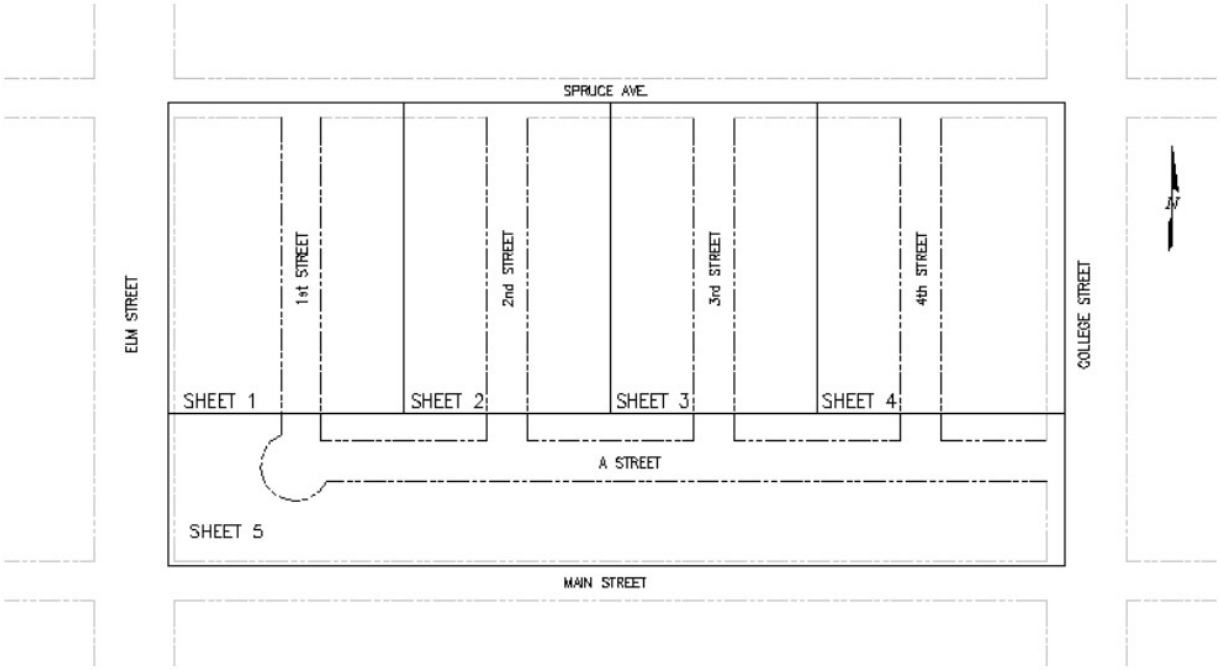
The Basis of Bearing and ties to the closest cadastral monument shall be included.

The Surveyor shall tie into a minimum of two City of Castle Pines or adjacent jurisdiction geographic information system points with the bearing and distance.

### 2.6.11 Overall Key Map

The Overall Key Map shall be located on the upper right-hand side. Minimum scale is 1 inch = 500 feet. Map must show the location and name of all roadways within and adjacent to the proposed construction site and all future roadways. Scale should be indicated. Key Map should be oriented consistent with the detail in the sheet (that is, same north) (refer to Figure 2-3).

**Figure 2-3. Overall Key Map**




## 2.7 Requirements for Construction Plans

All Construction Plan sheets shall include the following information:

1) Acceptance Block
2) Title Block
3) Scale
4) North Arrow
5) Stationing
6) Date of Plan
7) Seal and Signature
8) Utilities
9) Key Map
10) City Case Number

Additional specific requirements are discussed in other parts of this Submittal Procedures and Requirements chapter.

### 2.7.1 Scale

Scales listed are minimum. Larger scales may be required where necessary to clearly show details. This can be discussed during the pre-submittal meeting.

1) Drainage Plans, Site Plans, and the like: from 1 inch = 50 feet to 1 inch = 100 feet.
2) Plan and Profile Sheets: Horizontal 1 inch = 50 feet; Vertical 1 inch = 5 feet.
3) Details: Scales are set as needed to adequately show detailed information.

### 2.7.2 North Arrow

The north arrow shall point to the top or to the right margin of the sheet only; all other detail and drawings on the sheet shall be oriented consistently with the north arrow.

### 2.7.3 Stationing

Stationing shall be from left to right.

### 2.7.4 Date of Plan

The original submittal date of the plans and any subsequent revisions must be shown in the Title Block.

### 2.7.5 Seal and Signature

The seal and signature of the PE licensed in the State of Colorado, under whose supervision the plans were prepared, shall be located next to the Acceptance Block on each sheet, except for the City of Castle Pines Standard Detail sheets. This requirement is only on the final plans ready for acceptance.

### 2.7.6 Utilities

The type, size, location, and number of utilities shall be shown, including utility easements. Field-verified elevations (USC&GS NAVD-88 DATUM and date) and locations are required on the Construction Plans for all utilities that will potentially affect the design or construction. It will be the responsibility of the Applicant's Engineer and Contractor to verify the existence and location of all utilities along the work route prior to commencing any new construction. Field-located utilities not shown on accepted Construction Plans shall be added to the "As-Built Drawings" and submitted as a condition for the Preliminary Acceptance of the improvements.

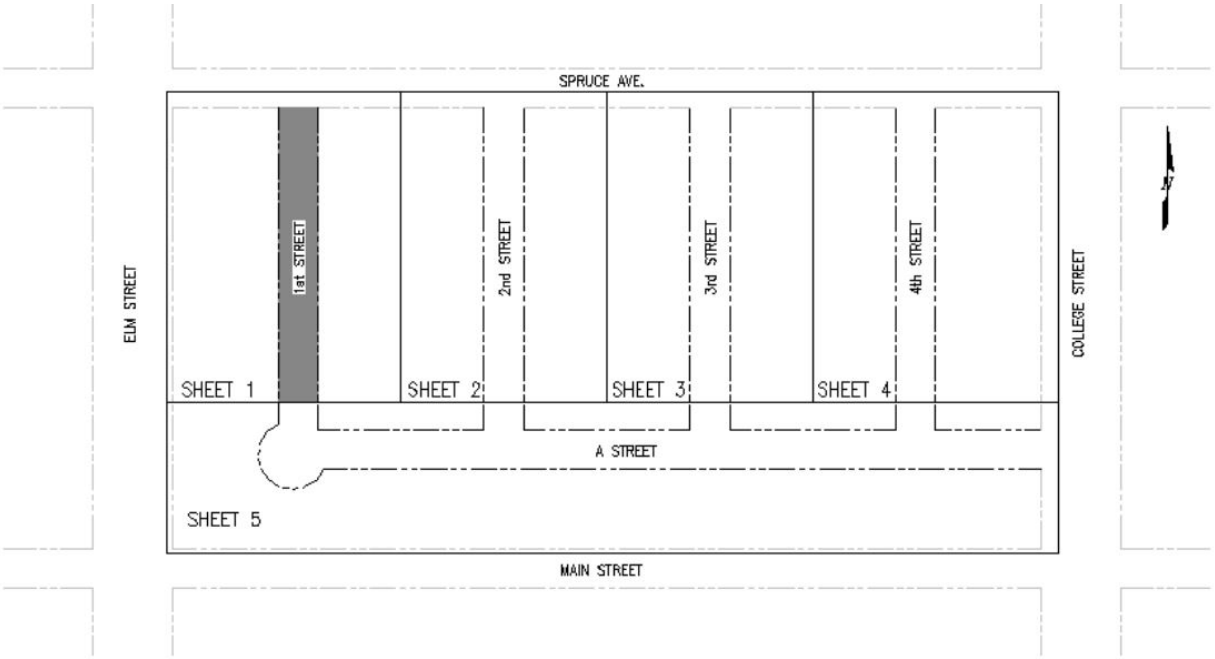
### 2.7.7 Key Map

The Key Map shall be located in the upper right-hand side of every sheet. Minimum scale is 1 inch = 500 feet. The Key Map must show the location and name of all roadways within and adjacent to the proposed construction and all future roadways. Scale should be indicated. Key Map should be oriented consistent with detail in the sheet (that is, same north). The roadway or area that the design the specific sheet pertains to will be shaded, as shown on the example Key Map on Figure 2-4.

### 2.7.8 City Case Number

The City's case number must be located on the bottom left side of every sheet.

**Figure 2-4. Key Map**




## 2.8 Requirements for Roadway Plans

In addition to the requirements set forth in Chapter 7 of these Roadway Standards, the following information shall be shown on all Construction Plans submitted for review and acceptance.

### 2.8.1 Plan View

The plan view shall include, but not be limited to, the following:

1) Existing and proposed property or right-of-way lines, easements, and tracts. Type and dimension of easement or tract shall be clearly labeled. Existing and proposed widths of rights-of-way shall be dimensioned.
2) Stations shall be based on the centerline only; other profiles may be included but shall be referenced to centerline stationing. Stationing is to be equated to and from flowline stationing at departures from normal roadway cross sections. Centerline stationing is to be equated to flowline stationing at cul-de-sacs, knuckles, bubbles, and curb returns.
3) All streets and roadways must show City-accepted roadway names as shown on the plat.
4) Existing sub-surface and surface utilities and structures, including, but not limited to, waterlines, valves, fire hydrants, manholes, dry utility ditches, sanitary sewer trench and components, curb and gutter, sidewalk, storm drainage facilities, pavement limits, gas and power lines, fence lines, bridges, monuments, and utility boxes.
5) Station and critical elevation (flowline, invert, and top of pipe where applicable) of all existing and proposed utility or drainage appurtenances in rights-of-way or in easements. Location of utilities shall be dimensioned horizontally and vertically from roadway centerline profile grade.
6) Flow direction arrows for surface drainage, particularly at intersections, and all high and low points.
7) Match lines referenced to appropriate sheets.

8) Station and elevation of all horizontal curves, points of curves (PCs), points of tangents (PTs), points of curb returns (PCRs), points of compound curvatures (PCCs); high or low point of all vertical curves, existing and proposed; centerline bearings and distances and curve information on each sheet.

9) Curb return radii, existing and proposed. Stations and elevations of all curb returns; midpoint elevations, flowline-flowline intersection elevations, and percent of grade from the PCR to flowline-flowline intersections of all cross-pans.

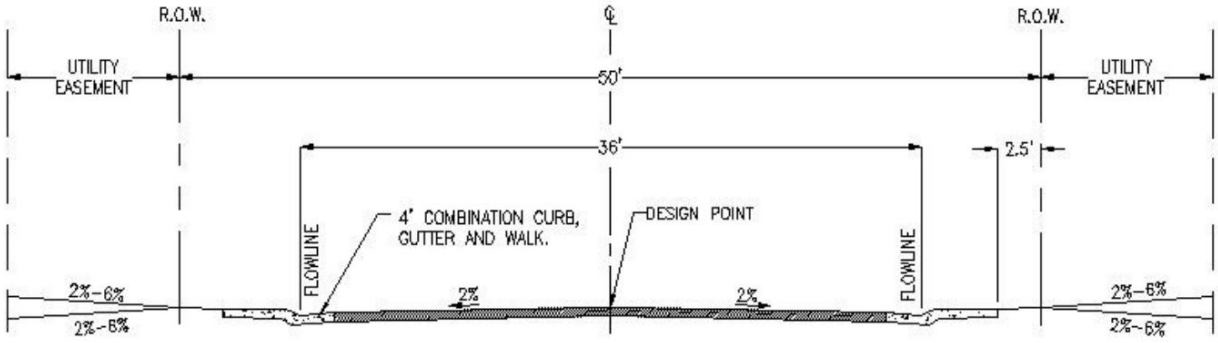
10) All curb ramp locations.

11) Centerline stations of all existing and proposed intersecting roadways and driveways except for single-family residential driveways with mountable curbs.

12) Survey tie lines to section corners or quarter corners consistent with that shown on the Final Plat. City or adjacent jurisdiction Global Positioning System Control Monuments shall be shown.

13) Typical roadway cross section(s) shall be shown for all roadways, existing or proposed, within and adjacent to the proposed development. These cross-sections shall appear on the detail sheet, or if no detail sheet has been used, on the first sheet of the submittal showing the roadway design. Show cross-slope at warped intersections where cross-slope varies from the standard 2% crown. Cross-sections shall indicate type of roadway(s); design point at centerline; roadway width; right-of-way width; type of curb, gutter, and walk; and pavement cross-slope. Refer to Chapter 10 of these Roadway Standards for the methodology of submitting preliminary and final pavement design. The Final Pavement Design Report must be based on testing of finished grade after utility installation (refer to Figure 2-5).

**Figure 2-5. Example: Road Name(s)**




14) Any roadway intersecting an Arterial, or any Collector intersection requiring signalized traffic control, shall include construction and lane details for the new construction and existing facilities a minimum of 150 feet beyond the limits of construction.

15) Basis of plan view elevations and profile elevations shall reference the same (for example, flowline to flowline, centerline of roadway to centerline of roadway).

### 2.8.2 Profile

The profile shall include, but not be limited to, the following:

1) All design profiles shall be along the centerline and continued through the centerline of all intersecting streets. Additional profiles, such as flowline, may be shown. On streets where minimal grade is proposed, an additional flowline profile shall be provided, showing that the flowline grade around the outside of all curves meets the minimum longitudinal grade (refer to Chapter 7). The basis for record-drawing information shall be the same as the design (centerline, flowline) when possible.

2) Existing ground (dashed) along profile stationing and design grade (heavy solid). Both grades are to be clearly labeled.

3) Stationing shall be continuous for the entire portion of the roadway shown in the plan view, with the centerline station of all existing non-single-family driveways and all intersecting roadways clearly labeled.

4) All existing curbs, gutters, sidewalks, utilities, and pavement adjacent to the proposed design shall be shown. Existing elevations shall be field verified at intervals not to exceed 25 feet. Previously accepted designs are not an acceptable means of establishing existing grades. Refer to "Connection with Existing Roadways" in Chapter 7 of these Roadway Standards for additional information.

5) Station and elevation of all PCs, PTs, PCRs, PCCs, existing and proposed.

6) Station and elevation of all vertical grade breaks, existing and proposed, and slope between grade breaks. Refer to "Grade Breaks and Vertical Curves" in Chapter 7 of these Roadway Standards for additional information.

7) Vertical curves, when necessary, with point of intersection, vertical point of curvature, and point of tangency, and high or low point (if applicable) with stations and elevations. All vertical curves shall be labeled with length of curve (L), algebraic difference in slopes, in percent (A), and K-value where K = L/A. Refer to "Grade Breaks and Vertical Curves" in Chapter 7 of these Roadway Standards for additional information.

8) Flowline profiles shall be shown for curb returns. The profile shall be extended past the curb return until the flowline profile meets the standard cross section of the street. Refer to "Curb Returns" under Chapter 7 of these Roadway Standards for additional information.

9) Flowline profiles shall be shown for all Cul-de-Sac Bubbles, Eyebrows, Knuckles, and the like. Refer to Chapter 7 of these Roadway Standards for design information.

## 2.9 Requirements for Drainage and Stormwater Management Facility Plans

The following sections outline requirements for Stormwater Management Facility design and plan presentation.

### 2.9.1 Storm Sewer and Culverts – Plan View

The plan view shall include, but not be limited to, the following:

1) Existing and proposed property or right-of-way lines, easements, and tracts
   a) The type and dimension of easement or tract shall be clearly labeled. Existing and proposed widths of rights-of-way shall be dimensioned.
2) Horizontal locations of existing and proposed pipes, inlets, manholes, junction boxes, and outlet structures with outfall protection
   a) Appropriate horizontal control shall also be shown.
3) All existing and proposed roadways, property lines, right-of-way lines, easements, and tracts
4) Utilities adjacent to or crossing the storm sewer or culvert alignment
5) Grading details at 1-foot contour intervals for all pipe and culvert inlets and outlets at a scale of 1 inch = 20 feet
6) Maintenance access improvements
7) Match lines referenced to appropriate sheets.

### 2.9.2 Storm Sewer and Culverts – Profile View

The profile shall include, but not be limited to, the following:

1) Profile of all existing and proposed pipe mains, laterals or culverts with all inverts, rim elevations, sizes, lengths, slopes, design flow rates, and outfall protection with cutoff walls
    a) Minor and major storm hydraulic grade lines
    b) Utilities adjacent to or crossing the storm sewer or culvert alignment
    c) Vertical clearance between the top or bottom of pipe and other utility crossings, pavement section, and the like

### 2.9.3 Open Channels and Channel Stabilization – Plan View

The plan view shall include, but not be limited to, the following:

1) Existing and proposed property or right-of-way lines, easements, and tracts, with the type and dimension of easement or tract clearly labeled, and existing and proposed widths of rights-of-way dimensioned
2) Horizontal locations with stations of all channels, including locations of grade control structures and stabilization measures, such as check structures, drop structures, toe protection, bank stabilization, low-flow or trickle channels, with appropriate horizontal control
3) All existing and proposed roadways, property lines, right-of-way lines, easements, and tracts
4) Water Surface Limits of the Major Storm
5) Maintenance access improvements
6) Tributary channels and pipe outlets
7) Utilities adjacent to or crossing the channel alignment
8) Match lines referenced to appropriate sheets

### 2.9.4 Open Channels and Channel Stabilization – Profile View

The profile shall include, but not be limited to, the following:

1) Profile along channel alignments with all invert elevations and design flow rates
2) Water surface profiles for the minor storm and major storm
3) Utilities adjacent to or crossing the channel alignment
4) Typical sections
    a) As required by channel geometry as specified by the MHFD and in the accepted Drainage Report

### 2.9.5 Detention/Storage Facilities – Plan View

The plan view shall include, but not be limited to, the following:

1) Existing and proposed property or right-of-way lines, easements, and tracts. Type and dimension of easement or tract shall be clearly labeled. Existing and proposed widths of rights-of-way shall be dimensioned.
    a) Horizontal location of the pond, including locations of low-flow or trickle channels, outlet structure, emergency overflow spillways, pipe or channel inlets, with appropriate horizontal control

2) All existing and proposed roadways, property lines, right-of-way lines, existing and proposed easements and tracts adjacent to the facility
3) Grading details at 1-foot contour interval for all pipe and culvert inlets and outlets at a scale of 1 inch = 20 feet
4) Water surface limits for the minor storm, major storm, and emergency overflow conditions
5) Maintenance access and improvements
6) Utilities adjacent to or crossing the detention area

### 2.9.6 Detention/Storage Facilities – Profile View

The profile shall include, but not be limited to, the following:

1) Profile along low-flow or trickle channels from all inlets and structures through the outlet structure and pipe or channel with invert and outlet elevations to an existing drainageway showing the opposite stream bank
2) Invert and outlet structure elevations for pipes and channels going into the pond
3) Water surface limits for the headwater depths, minor storm, major storm, and emergency overflow conditions
4) Utilities adjacent to or crossing the detention area
5) Inlet and outlet protection

### 2.9.7 Water Quality Facilities not Associated with Detention/Storage Facilities – Plan

The plan view shall include, but not be limited to, the following:

1) Horizontal locations of the improvements
2) Existing and proposed roadways, property lines, right-of-way lines, existing and proposed easements, and tracts adjacent to the facility
3) Water surface limits for the water quality capture volume, minor storm, major storm, and emergency overflow conditions

### 2.9.8 Water Quality Facilities Not Associated with Detention/Storage Facilities – Profile

The profile shall include, but not be limited to, the following:

1) Profile of improvements, as necessary, to clearly define the required improvements
2) Maintenance access and improvements
3) Utilities adjacent to or crossing the detention area

## 2.10 Requirements for Grading, Erosion, and Sediment Control Plans

Requirements for preparation of a GESC Plan are outlined in the City of Castle Pines GESC Manual.

## 2.11 Requirements for Signage and Striping Plan Sheets

All subdivisions, road improvement projects, and commercial developments must submit Signage and Striping Plan sheets within the overall Construction Plans. In addition to the requirements set forth in

Chapter 9 of these Roadway Standards, the following information shall be shown on all Signage and Striping Plans submitted for review and acceptance.

### 2.11.1 General Provisions

All traffic control devices shall conform to the most current versions of these Roadway Standards, the MUTCD, and the Colorado Supplemental to the MUTCD. Additional specifications and illustrations are located in the CDOT M&S Standard Plans and the CDOT Standards for Road and Bridge Construction. The following additional provisions apply to the Signage and Striping Plans:

1) Utility locations
    a) Sign contractors shall be responsible for locating all underground utilities.
2) End of roadways
    a) Type III barricades shall be set at ends of roadways, separating finished and unfinished areas. A ROAD CLOSED sign shall be mounted on the barricade.

### 2.11.2 Signage Plan

The Signage Plan design and plan sheets shall include the following requirements at a minimum:

1) Show the general location of each existing and proposed sign (horizontal offset and station)
2) Specify the sign legend and sign code (according to the MUTCD or the CDOT Traffic and Safety website).
3) Specify the sign size.
4) Specify design speed(s) used as basis for street design (or as constructed).
5) Right-of-way and easement lines.
6) Existing and proposed trail or pedestrian crossings.

A Right-of-Way Permit must be obtained for sign installation.

### 2.11.3 Striping Plan

The striping design and information may be shown on the same plan sheets as the Signage Plan. Striping Plan design and plan sheets shall include the following requirements at a minimum:

1) Type, color, width, and size of all pavement markings
2) Lane and shoulder width dimensions
3) All existing striping, including striping on roads adjacent to the project area
4) Turn arrow and ONLY symbols in turning lanes
5) Begin and end stations of each type of pavement marking
6) Bike lane markings located in accordance with requirements set forth in Chapter 9 of these Roadway Standards

## 2.12 Requirements for Traffic Signal Plan Sheets

If a Traffic Signal is warranted and accepted by the City at an intersection, the Developer or Owner is required to submit Traffic Signal Plans sheets in accordance with the following criteria:

### 2.12.1 Submittal

Traffic Signal Plans sheets for proposed signalized intersections shall be produced at a scale of 1 inch = 20 feet. If needed, Traffic Signal Interconnect Plans shall be included at a scale of 1 inch = 50 feet.

For the preliminary submittal (and if required by the City for the final submittal), WB-62 turning templates, cone of vision, and stop line distance results shall be submitted as part of the plans.

The following information shall be included:

1) Traffic Signal Plan
2) Traffic Signal Interconnect Plans (if needed, as determined by City)
3) Fiber Termination Diagram (if needed, as determined by City)

### 2.12.2 General Provisions

All Traffic Signal devices shall conform to the latest versions of Chapter 9 of these Roadway Standards, the MUTCD, and the Colorado Supplement to the MUTCD. Additional specifications and illustrations are located in the CDOT M&S Standards and the CDOT Standards for Road and Bridge Construction.

### 2.12.3 Pole and Mast Arm Loading

The Applicant's Engineer shall provide certification that the proposed pole and mast arm loadings do not exceed the allowable loadings provided in the Traffic Signal Specifications.

### 2.12.4 Traffic Signal Plan

The Traffic Signal Plan shall complete the following:

1) Provide a signal-phasing diagram.
2) Show the existing lane widths (and proposed, if applicable).
3) Show crosswalk and stop bar locations.
4) Provide a legend.
5) Show details concerning the type of signal heads proposed (such as, three-section, five-section, regular or countdown pedestrian heads, pedestrian signing).
6) Show locations of pedestrian push buttons and accessible pedestrian signal equipment as applicable.
7) Include locations of vehicle detection and emergency pre-emption equipment.
8) Show legend, sign code, and size for sign panels to be mounted on mast arms and signal poles.
9) Show all topographic features close to the intersection and within the public rights-of-way that are affected by the signal installation. This includes, but is not limited to, the following:
    a) Right-of-way lines and easements
    b) Existing topographic features

c) Existing utility locations and conflicts

d) The location for each Traffic Signal pole with a northing/easting coordinate

e) The proposed controller location

f) The proposed power source locations and power company contact

g) The mast arm layout showing Traffic Signal heads, signs, and their locations on the arm

h) The proposed signal phasing

i) Pedestrian heads

j) Street name signs and proposed layout

k) Potential street widening

These requirements must meet or exceed City Standards. A Signal Warrant Study is required for any signal proposed.

### 2.12.5 Traffic Signal Details and Notes

Refer to Chapter 9 for additional requirements, including standard signal details and notes.

## 2.13 Requirements for Landscaping Plans within City Right-of-Way or Other City Properties or Easements

Landscape Plans are required for any landscaping proposed within the public right-of-way or that would affect the sight distance of a public or private street. Landscape Plans must show all landscaping close to and within the right-of-way. This includes, but is not limited to, the location of all plants, bushes, trees, irrigation lines, proposed street cuts, direction of drainage flows (both on the street and on the proposed landscaped area), street names, vicinity and Key Maps, general notes, and signature block. Landscaping must not screen regulatory or warning signs from approaching vehicles. Trees or large shrubs shall not be planted over buried utilities, within the sight-distance triangle at intersections or accesses, or within 10 feet of the flowline of the public street, whichever is most restrictive.

On low speed (posted 35 miles per hour [mph] or less) Minor Collectors and Local streets, trees may be planted within 6 feet of the flowline except for within 150 feet in either direction from an intersection, in which case, the trees must be a minimum of 10 feet back from the flowline. Landscaping over 36 inches above the adjacent flowline shall not be allowed within the sight triangle; however, when landscaping is located within the sight triangle, plans shall demonstrate that there is no encroachment into the line-of-sight. In no case shall trees, shrubs, or other landscaping, including branches from trees, be allowed to encroach either horizontally or vertically into the line-of-sight of the sight-distance triangle.

### 2.13.1 Guidelines

1) Right-of-way Landscape Plans for streets cannot be submitted for review until the Street Construction Plans have been submitted to, and accepted by, the City.

2) A Right-of-Way Permit and License Agreement is required prior to landscaping activity.

3) The City does not allow installation of brick pavers in City-owned rights-of-way.

4) Noncompliance with any of the maintenance requirements in accordance with the License Agreement will result in the removal of the landscaping by the City.

5) Landscaping within the City right-of-way installed by a single-family property owner typically does not require a Landscape Plan except when the proposed landscaping does not conform to these Roadway Standards as determined by the City Development Review Engineer (that is, a sight-distance problem or landscaping blocks a sign for example).

### 2.13.2 Plans

Landscape Plans must show all existing and proposed improvements adjacent to and within the public right-of-way. This includes, but is not limited to, the following:

1) Project location vicinity map
2) Location of all plants, bushes, and trees with their mature dripline
3) Irrigation lines and facilities
4) Curb openings
5) Line-of-sight
6) Utilities and easements
7) Drainage flows
8) Existing and proposed trench drains
9) Right-of-way lines and tract boundaries with property ownership
10) Street centerlines and flowlines with street names
11) Project limits
12) Trails and sidewalks
13) Monumentation and planters
14) Drainage improvements
15) Floodplains
16) Traffic control devices
17) Existing and proposed contours
18) GESC improvements
19) Construction and maintenance access points
20) Standard notes
21) Landscape notes

### 2.13.3 Landscape Notes

The following notes are also applicable to Landscape Plans and shall be included on the Plans:

1) All trees are to be planted a minimum of 10 feet from the face of the curb of Arterial and Major Collector roadways and a minimum of 6 feet from the face of the curb of Minor Collector and Local streets. Trees located within 150 feet of an intersection with an Arterial road must be planted a minimum of 10 feet from the face of the curb and outside of any line-of-sight requirements. The required distance of 150 feet is measured from the right-of-way line of the Arterial roadway.
2) Trees or large shrubs shall not be located over buried utilities, within 10 feet of storm sewer systems, or within the line-of-sight at intersections, accesses, or pedestrian crossings.

3) All plantings located within the line-of-sight will have a mature height of no more than 24 inches above the adjacent gutter or flowline.
4) A Right-of-Way Permit is required prior to landscaping activity within City rights-of-way, tracts, or easements.
5) Any wall or monument, over 4 feet in height, or under a surcharged condition, or with a rail on top of the wall requires a Permit from the City before construction. Structural Plans for any wall over 4 feet in height (measured from bottom of footer to top of wall) or tiered walls, as determined by the City, will be submitted to the City prior to the issuance of the required building Permit. No walls or monuments are allowed in the City's right-of-way.
6) A Permit must be obtained from the City prior to the installation of monumentation and planters outside of the public right-of-way, including those within the right-of-way of private streets. An additional Permit may be obtained from the City for lighting outside of the public right-of-way, including lighting for monumentation and planters.
7) A Traffic Control Plan shall accompany the application for a Right-of-Way Permit.
8) Trench drains shall not have angles greater than 45 degrees.
9) Maximum spacing between trench drain cleanouts shall be 200 feet.
10) Trench drains shall not discharge into the gutter or flowline.
11) Trench drain crossings under pavement shall be installed prior to paving, or shall be installed by boring under roadway.

## 2.14 Requirements for Construction Plans for Multifamily Site Improvement Plans

Construction Plans are separate from the Site Improvement Plan (SIP). Construction Plans must be accepted prior to SIP approval. The following items may be required:

1) Cover Sheet
2) Overall Utility Plan
3) GESC Plan (refer to City of Castle Pines GESC Manual)
4) A detailed Fine Grading Plan (20 scale drawings with spot elevations)
5) Street Plan and Profiles
6) Typical Roadway Cross Sections
7) Storm Sewer and Culvert Plan and Profiles – show all other utilities, including depth and size, on the profiles
8) Drainage Plan (refer to City of Castle Pines Drainage Criteria)
9) Detail Sheets
10) Other items as determined necessary by the City

## 2.15 Requirements for Construction Plans for Non-Residential Site Improvement Plans

Construction Plans are separate from the SIP. Construction Plans must be accepted prior to SIP approval. The following items may be required:

1) Cover Sheet
2) Overall Utility Plan
3) GESC Plan (refer to City of Castle Pines GESC Manual)
4) A detailed Fine Grading Plan (20 scale drawings with spot elevations)
5) Curb Return Profiles (if necessary)
6) Typical Roadway Cross Sections
7) Storm Sewer and Culvert Plan and Profiles
8) Drainage Plan (refer to City of Castle Pines Drainage Criteria)
9) Detail Sheets
10) Other items as determined necessary by the City, to be identified during the pre-submittal meeting

## 2.16 Requirements for Construction Plans for Single-Family Residential Development

The Construction Plans must be accepted prior to Final Plat approval. The following items may be required:

1) Cover Sheet
2) Overall Utility Plan
3) GESC Plan (refer to City of Castle Pines GESC Manual)
4) Street Plan and Profiles
5) Curb Return Profiles (if necessary)
6) Typical Roadway Cross Sections
7) Drainage And Stormwater Management Facilities
8) Drainage Plan (refer to City of Castle Pines Drainage Criteria)
9) Detail Sheets
10) Other items as determined necessary by the City, to be identified during the pre-submittal meeting

## 2.17 Requirements for Overall Utility Plans

In addition to the requirements set forth in these Roadway Standards, the following information shall be shown on the Overall Utility Plan submitted for review. Maximum scale shall be 1 inch = 200 feet.

1) Existing and proposed property or right-of-way lines, easements, and tracts. The type and dimension of easement or tract is to be clearly labeled. Property lines and right-of-way lines are to be dimensioned.
2) The type, size, location, and number of all existing and proposed underground and aboveground utilities shall be shown.

## 2.18 Requirements for Utility-Only Construction Plans

In addition to the requirements set forth in Chapter 4 of these Roadway Standards, the following items are required in the Construction Plans:

1) Cover Sheet
2) Overall Utility Plan Sheet
3) GESC Plan (refer to City of Castle Pines GESC Manual)
4) Utility Plan Sheets (all utilities with the exception of water, sanitary, and storm)
5) Traffic Control Plan
6) Temporary Construction Access Detail Sheet, if applicable
7) Detail Sheets
8) Other items as determined necessary by the City, to be identified during the pre-submittal meeting

### 2.18.1 Utility Plan Sheets

1) Plan view showing type, size, location, separation from other utilities, and number of all existing and proposed underground and aboveground utilities shall be shown with appropriate horizontal control.
2) Existing and proposed roadways, property or right-of-way lines, easements, and tracts. Type and dimension of easement or tract is to be clearly labeled. Property lines and right-of-way lines are to be dimensioned.
3) If public roadways are crossed, a profile of the crossing shall be provided.

## 2.19 Requirements for Detail Sheets

Applicable City of Castle Pines Standard Details found in the Appendix of these Roadway Standards shall be included in the Construction Plans. The Plans shall include adequate details of special structures not covered by the City of Castle Pines Standard Details. The document accepted by the City, which includes the standard detail and special structures, shall be available on the job site at all times. Nonstandard details shall be submitted on a separate sheet (within the Construction Plans) accepted by City and require a certification by a PE licensed in the State of Colorado.

## 2.20 Range Points – Property Monuments – Benchmarks

1) All survey monuments delineating property boundaries, or witness thereof, shall be set in accordance with these Roadway Standards and all applicable State of Colorado laws and regulations.
2) Any aliquot corner (section corner or quarter corner, for example) as described in the Public Land Survey System shall be monumented per Colorado State Statutes. If such a corner falls within concrete or asphalt, a range box (as shown in Appendix A) shall be installed to protect and provide access to said corner. If corner falls outside of pavement, a monument marker must be placed next to the corner.
3) If so desired, the Developer may install additional range boxes in asphalt or concrete for property monuments, range points, benchmarks, and the like. The boxes must comply with the City of Castle Pines Range Box Standard Detail.

## 2.21 Variances and Appeals

### 2.21.1 General Variances

Variance(s) shall be identified in the initial submittal of Construction Plans. The Variance request(s) shall consist of the following:

1) Identification of the criteria provision to be waived or varied.
2) Identification of the alternative design or construction criteria to be adhered to.
3) A thorough justification of the Variance request, including impact on capital and maintenance requirements and cost.
4) The Variance shall be stamped and signed by a PE licensed in the State of Colorado with the following note:

   *"This Variance Request from the City of Castle Pines Roadway Design and Construction Standards, Section (include the section number and name) for (name of subdivision, development, or project) was prepared by me (or under my direct supervision) and is based on sound engineering practices."*

   *Name of Engineer*
   *Name of Firm*

If more than one Variance is requested for public facilities, Alternate Roadway Standards may need to be processed. If more than one Variance is requested for private facilities, Private Roadway Standards may need to be processed.

## 2.22 Alternate Roadway Standards

Alternate Roadway Standards, based on sound engineering criteria, may be proposed for roads that will be owned and maintained by the City. These Alternate Roadway Standards must be certified as to their adequacy and safety by a PE licensed in the State of Colorado. The Alternate Roadway Standards must contain a list of all deviations from City criteria, as well as references to all sources that support the adequacy of the proposed deviations. The Alternate Roadway Standards shall be subject to acceptance by the governing Fire District and the City.