

CHAPTER 3
SUBMITTAL REQUIREMENTS
FOR
CONSTRUCTION PLANS

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Connie Joiner, Clerk & Recorder, Teller County, Colorado

CHAPTER 3
SUBMITTAL REQUIREMENTS FOR CONSTRUCTION PLANS

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CHAPTER 3 - SUBMITTAL REQUIREMENTS FOR CONSTRUCTION PLANS

The following documentation is required in conjunction with the submittal of construction plans for any roadway or storm drainage improvement which will ultimately be approved and/or maintained by Teller County.

3.1 GENERAL

3.1.1 All construction plans and drainage reports, soils reports and pavement designs shall be prepared by, or under the direction of, an engineer, and shall be reviewed for the minimum requirements set forth herein. The engineer should be aware that whenever unusual or serious problems are anticipated in conjunction with a proposed construction, additional information and analysis beyond the minimum requirements of these specifications and criteria will be required.

3.1.2 Certification

3.1.2.1 Construction plans submitted for review and comment shall be prepared by an engineer. The plans must include this 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 Teller County Roadway Design and Construction Standards."

Name of Engineer

Name of Firm

The statement shall be signed and stamped by the Engineer who prepared or directed preparation of the construction plans.

3.1.2.2 Unless otherwise identified or noted, all construction plan submittals are assumed to comply with the provisions of these Roadway Standards and the Drainage Criteria (Appendix G). Variances or waivers shall be requested as set forth in Section 1.10. Failure to follow prescribed procedures may result in review delays, additional review fees, or both. (See Section 2.1.6)

3.1.3 Teller County is not responsible for the accuracy and adequacy of the design or dimensions and elevations on the plans. Teller County, through the acceptance of the construction plan or drainage report, assumes no responsibility for the completeness and/or accuracy of the construction plan or drainage report.

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3.2 VARIANCES AND APPEALS (See Section 1.10)

3.3 VICINITY MAP

3.3.1 A vicinity map shall be prepared to a minimum scale of 1"=2000' showing the location and name of all major roadways and drainage ways within one mile of the proposed construction, and all other roadways in the vicinity of the proposed construction. The project area shall be indicated by shading. The vicinity map shall show all arterial roadways and major drainage ways. Section, Township, and Range shall also be shown.

3.3.2 Minimum size of vicinity map shall be 3" x 3".

3.4 KEY MAP

3.4.1 Minimum scale is 1"=500' showing 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, i.e. same north.

3.4.2 The key map is to appear on every sheet showing proposed roadway, storm drainage or grading improvements. The roadway or area that the design pertains to will be shaded as shown on the example Key Map on Figure 3.1 of these Roadway Standards.

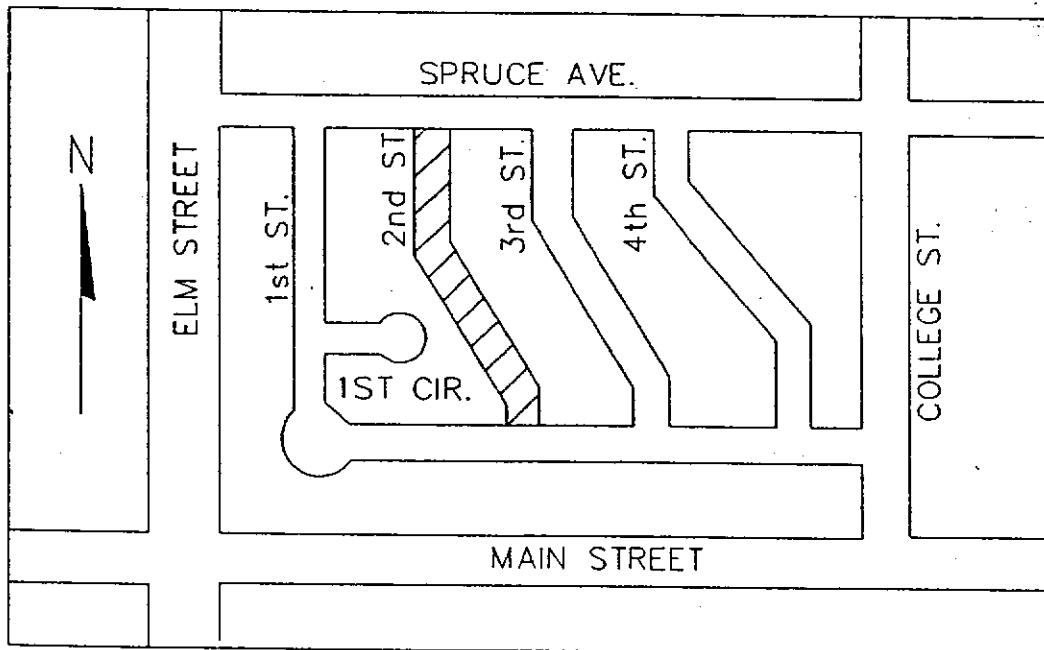


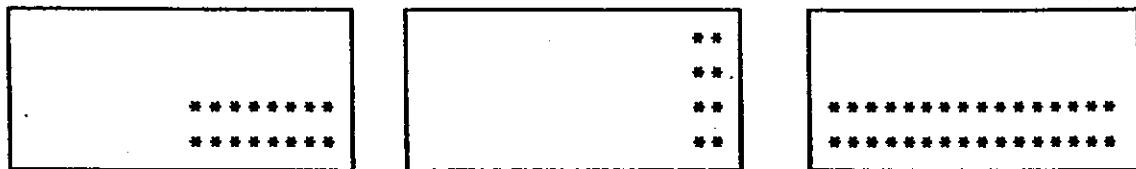
FIGURE 3.1

3.5 CONSTRUCTION PLANS AND DETAIL SHEETS

All construction plans and detail sheets shall conform to the following criteria and show the following information. Additional specific requirements are discussed in other parts of these Roadway Standards.

3.6 TITLE BLOCK

- 3.6.1 A title block is required on every sheet and cover sheet submitted for review and acceptance. The name and filing number; the type of improvement; name, address, including zip code, and telephone number of the Applicant's engineer; name address, including zip code, telephone number and name of the contact person of the Applicant; and sheet number (consecutive, beginning with the cover sheet) shall all be included in the title block.
- 3.6.2 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 (see Figure 3.2).



TITLE BLOCK LAYOUT

Figure 3.2

3.7 APPROVAL BLOCK

- 3.7.1 All roadway construction plans, storm sewer or other drainage improvement construction plans, and privately or publicly maintained stormwater detention or retention facility construction plans must show the approval signature of the Planning Director as a condition for having construction permits issued.
 - 3.7.1.1 Plans for traffic control during construction must be accepted prior to issuing construction permits.
 - 3.7.1.2 Signing/Striping plans require acceptance prior to issuing construction permits.
- 3.7.2 The approval block shall be located in the lower right hand quadrant of each sheet.
- 3.7.3 An example approval block is shown in Figure 3.3.

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<----- 4" ----->

County Engineer
Date
These construction plans have been reviewed by Teller County for _____ improvements only.
Planning Director
Date
Approval Block

APPROVAL BLOCK

Figure 3.3

- * Options:
 - road and drainage
 - signage and striping
 - grading and erosion control
 - landscaping within the public right-of-way
 - NFPA-299 Building Code

3.8 REQUIRED NOTES

These notes shall appear on the cover sheet. If a cover sheet has not been used they shall be put on every sheet of the submittal.

(1) The County Engineer's signature affixed to this document indicates the County Engineer has reviewed the document and found it in general conformance with the Roadway Standards or approved variances to those Roadway Standards. The County Engineer, through acceptance of this document, assumes no responsibility, other than stated above, for the completeness and/or accuracy of these documents. The Applicant and Applicant's engineer understand that the responsibility for the engineering adequacy of the facilities depicted in this document lies solely with the Applicant's engineer whose stamp and signature is affixed to this document.

(2) All roadway construction shall conform to the Roadway Standards.

(3) All materials and workmanship shall be subject to inspection by the County Engineer. The County reserves the right to accept or reject any such materials and workmanship that does not conform to its Roadway Standards.

(4) The contractor shall notify the County Engineer, a minimum of 24 hours and a maximum of 72 hours prior to starting construction.

(5) Location of existing utilities shall be verified by the contractor prior to actual construction.

(6) The contractor shall have one (1) signed copy of the plans (accepted by the County Engineer) and one (1) copy of the Roadway Standards at the job site at all times.

(7) All proposed road cuts to existing pavements for utilities, storm sewer or for other purposes are listed and referenced below:

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

(8) A plan for traffic control during construction shall be submitted to the County Engineer for acceptance with the permit application. A Right-Of-Way use permit will not be issued without an approved traffic control plan for traffic control during construction.

(9) The construction plans shall be considered valid as defined in Section 2.2.1.

(10) Contractor shall notify the County Engineer when working outside of the Public Right-Of-Way on any facility which will be conveyed to the County, Homeowner's Association, or Special District for maintenance (private road, storm sewer, energy dissipator, detention outlet structures, or other drainage infrastructures). Failure to notify County Engineer to allow the County Engineer to inspect the construction may result in non-acceptance of the facility/infrastructure by the County.

3.8.1 Other Notes. Roadway construction plans and signage and striping plans will require additional notes. See Sections 3.15.3 and 3.16 for additional notes.

3.9 SCALE

Scales listed are minimum. Larger scales may be required where necessary to clearly show details.

1. Plan and profile plans: Horizontal 1"=50'; Vertical 1"=5'.

2. Master, preliminary and final drainage plans; site plans, etc.: from 1"=50' to 1"=200'.

3. Contour interval: Generally 2 feet.

3.10 NORTH ARROW

North shall point to the top or to the left margin of the sheet only; all other detail and drawings on the sheet shall be oriented consistent with the north arrow.

3.11 DATE OF PLAN

The original date of the plans and any subsequent revisions must be shown in the title block.

3.12 SEAL SIGNATURE

The seal, signature and certification of the engineer, under whose supervision the plans were prepared shall be located next to the Approval Block on each sheet.

3.13 UNDERGROUND UTILITIES

The type, size, location and number of all underground utilities shall be shown. Field verified elevations (USGS Adjusted Datum and date) and locations may be required on the construction plans for all underground utilities which will potentially affect the design or construction. It will be the responsibility of the contractor to verify the existence and location of all underground utilities along the route of work prior to commencing any new construction. Field located utilities not shown on accepted construction plans shall be added to the record drawings submitted as a condition of probationary approval of the public improvements.

3.14 PRIVATE IMPROVEMENTS

3.14.1 Private improvements such as roadways, driveways, utilities, etc. shall be clearly shown and labeled as such on each sheet of the construction plans. The note below shall appear on each sheet of the construction plans that improvements occur:

"Teller County shall not be responsible for the maintenance of roadway and appurtenant improvements, including storm drainage structures and pipes, for the following private roads." (List)

3.14.2 When a request is made for the County to assume maintenance of any improvement, it shall be the responsibility of the person(s) making the request to satisfactorily demonstrate that the improvement is in fact constructed in accordance with these Roadway Standards in effect at the time of construction.

3.14.3 The County will review these requests under normal review procedures as outlined previously in these Roadway Standards.

3.14.4 Private improvements that were not constructed in accordance with the Roadway Standards will not be accepted for maintenance by Teller County.

3.15 REQUIREMENTS FOR ROAD PLAN AND PROFILE DRAWINGS

In addition to the requirements set forth in Chapter 6 of these Roadway Standards, the following information shall be shown on all roadway plans submitted for review and approval.

3.15.1 Plan View

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

3.15.1.1 Existing and proposed property and/or ROW lines, easements and/or tracts. Type and dimension of easement or tract is to be clearly labeled. ROW and property lines along the ROW lines are to be dimensioned.

3.15.1.2 Survey lines and stations, based on 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 horizontal radius curves, and other departures from normal roadway cross sections. Stationing is to be equated to flowline stationing at cul-de-sacs.

- 3.15.1.3 Roadways and roadway names.
- 3.15.1.4 Existing utilities and structures, including, but not limited to:

water valves	electric
fire hydrants	ditches or swales
sanitary sewer manholes	curbs and gutters
storm drainage facilities	pavement limits
telephone	bridges or culverts
gas	guardrails, etc.
fence lines	CATV
- 3.15.1.5 Station and critical elevation (flowline, invert of pipe, etc.) of all utility or drainage appurtenances, existing and proposed; including all box culverts, precast or cast-in-place, in right-of-way or in drainage easements. Location of utilities shall be dimensioned horizontally and vertically from roadway centerline profile grade.
- 3.15.1.6 Storm drainage flow direction arrows, particularly at intersections and all high and low points.
- 3.15.1.7 Match lines and consecutive sheet number, beginning with cover sheet.
- 3.15.1.8 Station and elevation of all horizontal curves, P.C.'s, P.T.'s, P.C.C.'s, etc.; high or low point of all vertical curves; existing and proposed, centerline bearings and distances.
- 3.15.1.9 Curb return radii, existing and proposed. Stations and elevations of all curb returns; mid point elevations, flowline-flowline intersection elevations, and per cent of grade from the P.C.R. to flowline-flowline intersections of all crosspans.
- 3.15.1.10 Mid-block handicap ramp locations at tee intersections.
- 3.15.1.11 Complete Horizontal curve data - radius, length of curve, tangent length and central angle. (R, L, T, Δ)
- 3.15.1.12 Centerline stations of all non-single family residential driveways and all intersecting roadways.
- 3.15.1.13 Survey tie lines to section corners or quarter corners, consistent with that accomplished on the plat.
- 3.15.1.14 Typical roadway cross section 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, the first sheet of the submittal showing roadway design.

They shall indicate type of roadway(s), profile grade, design point (centerline, flow-line, top of curb, lip of gutter, etc.), roadway width, right-of-way, type of curb, gutter and walk, pavement cross slope, pavement thickness, and structural material components of the pavement, base and subbase. Refer to Chapter 6 of the Roadway Standards for methodology of submitting preliminary and final pavement thicknesses. Final pavement design report must be based on testing of actual subgrade.

- 3.15.1.15 Construction plans for arterial improvements. 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' beyond the limits of construction.
- 3.15.1.16 Basis of plan view and profile elevations shall be the same, i.e. flowline and flowline, top of curb and top of curb, etc.
- 3.15.1.17 Proposed roadside ditches and other proposed grading.

3.15.2 **Profile**

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

- 3.15.2.1 Original ground (dashed) at each design grade (heavy, solid). Both grades are to be plainly labeled.
- 3.15.2.2 All design elevations shall be centerline, top of curb, lip of gutter, or flowline (preferred) for 6" vertical curb and gutter; or back of walk, or lip of gutter, or flowline (preferred) for combination curb, gutter and walk. The basis for record drawing information shall be the same as the design (both flowline or both top of curb, etc.) when possible.
- 3.15.2.3 Stationing continuous for the entire portion of the roadway shown in the plan view, with the centerline station of all non-single family driveways and all intersecting roadways clearly labeled.
- 3.15.2.4 All existing curbs, gutters, sidewalks and pavement adjacent to the proposed design. Basis for existing grades shall be as-built elevations at intervals not to exceed twenty-five (25) feet. Previously approved designs are not an acceptable means of establishing existing grades. See Chapter 6 of these Roadway Standards for additional information.
- 3.15.2.5 Existing utilities. See Section 3.13.

Elevation and location of all utilities in the immediate vicinity of the construction shall be shown on the plans.

- 3.15.2.6 Station and elevation of all P.C.R.'s, horizontal P.C.'s, P.T.'s, P.C.C.'s, etc., existing and proposed.
- 3.15.2.7 Station and elevation of all vertical grade breaks, existing (as-built) and proposed. (The use of grade breaks with proposed construction is limited by these Roadway Standards. See Chapter 6.)
- 3.15.2.8 Distance and grade or slope between grade breaks.
- 3.15.2.9 Vertical curves, when necessary, with VPI, VPC, and VPT, high or low point (if applicable) stations and elevations. All vertical curves shall be labeled with length of curve (L) and $K=L/A$ where A is the algebraic difference in slopes, in percent.
- 3.15.2.10 Profiles for all curb returns (except medians). See Section 6.7.3.

3.15.3 Additional Notes

In addition to the notes in Section 3.8 of these Roadway Standards, the following notes shall appear on the cover sheet of all submittals containing roadway plans. If a cover sheet has not been used, they shall be put on every sheet of the submittal containing roadway design.

- 3.15.3.1 Inspection: Construction shall not begin until a permit has been issued. If the County Engineer is not available after proper notice of construction activity has been provided, the permittee may commence work in the County Engineer's absence. However, Teller County reserves the right not to accept the improvement if subsequent testing reveals an improper installation.
- 3.15.3.2 Paving shall not start until a soils report and pavement design is approved by the County Engineer and subgrade compaction tests are taken and accepted by the County Engineer.
- 3.15.3.3 Standard Teller County handicap ramps are to be constructed at all curb returns and at all "T" intersections.
- 3.15.3.4 All stationing is based on centerline of roadways unless otherwise noted.
- 3.15.3.5 All elevations are on USGS DATUM with date. Range point or monument shall be shown on construction location plans.
- 3.15.3.6 Improvement note. See Section 3.14.
- 3.15.3.7 Except where otherwise provided for in these plans and specifications, the Colorado Department of Transportation Standard Specifications for Road and Bridge Construction, and the CDOT M Standards, latest edition, shall apply.

3.16 SIGNING AND STRIPING PLANS

- 3.16.1 Because the County will maintain the traffic control devices on public rights-of-way, all traffic control devices shall be fabricated and installed in accordance with these Roadway Standards. The Teller County signage and striping details in Section 6.13 shall be included in all sets of construction plans.

Permanent signage and striping shall be complete and in place before any new roadway is opened to the public.

Traffic signal installation and equipment shall conform to the CDOT M & S Standards. The MUTCD signal warrants shall be met for signal installation.

All subdivisions, road improvement projects, and/or major buildings must submit a separate signage and striping plan in accordance with the following criteria:

3.16.1.1 Submittal

Separate signage and striping plans are to consist of an overall area map noting all specific use areas, such as schools, parks, recreation centers, library, commercial, industrial, etc. The pages following the area map are to be broken down into road segments, for notation of signage and striping details.

3.16.1.2 Review Process

There are two steps the plans must undergo for review.

3.16.1.2.1 The first step of review is a redline markup. Requirements will be marked where necessary and the plans returned to the Applicant's Engineer.

3.16.1.2.2 Second, the revised plans and the marked preliminary plans must be resubmitted for final review with a signature box included for the County Engineer. If the final submittal is acceptable, the County Engineer will notify the Applicant's Engineer to send blueline copies of the plans for signature.

3.16.1.2.3 As these procedures require time to complete, all plans should be submitted along with the road construction plans and the Drainage Report.

3.16.1.3 Variance

Any variance from the Teller County sign standards will require obtaining written permission from the County Engineer. The Developer must also submit in writing to the Road and Bridge Department proof of responsibility for supplying and maintaining nonstandard signs and materials into perpetuity.

3.16.1.4 Acceptance Procedure

The acceptance procedures described in Chapter 15 of this document shall apply to signage and striping.

3.16.1.5 General Provisions

All traffic control devices shall conform to the MUTCD.

3.16.1.5.1 Sign Warrants

Traffic control devices which are not warranted by MUTCD shall not be installed. When MUTCD guidelines are not applicable for a given case, a traffic engineering study will be required. This study will address the existing conditions, safety issues, and the applicable warrants.

3.16.1.5.2 Utility Locations

Installers shall be responsible for locating all underground utilities.

3.16.1.5.3 Construction Areas

Type III lighted flashers, as opposed to steady burn barricades, shall be set at ends of roadways, separating finished and unfinished areas.

3.16.2 The signing plan shall:

3.16.2.1 Show the general longitudinal location of each sign (horizontal offset and station)

3.16.2.2 Specify the sign legend and sign type (from MUTCD)

3.16.2.3 Specify the sign size

3.16.2.4 Provide a "typical detail" of installation dimensions (height, distance from curb, etc.)

3.16.2.5 Specify design speed(s) used as basis for road design (or as constructed).

3.16.2.6 Detail post and base dimensions and installation plan (showing sleeves, depth below surface, and materials used). Breakaway posts shall be specified.

3.16.2.7 Specify the blank gauge of the sign.

3.16.2.8 Note the reflectorization provided.

All these requirements must meet or exceed Roadway Standards. A Right-Of-Way use permit must be obtained for installation of the signs.

3.16.3 The striping plan must show:

- 3.16.3.1 Color**
- 3.16.3.2 Lane width**
- 3.16.3.3 Striping/skip**
- 3.16.3.4 Typical treatments for accel/decel lanes, turning lanes, and crosswalks**

3.16.4 The following notes shall be on all signage and striping plans:

- A. All traffic control devices shall conform to the Manual on Uniform Traffic Control Devices (MUTCD), the "Colorado Supplemental MUTCD" and the Teller County "Roadway Design and Construction Standards." Further specifications and illustrations are located in the Colorado Division of Transportation "M and S Standards."**
- B. A field inspection of location and installation of all signs shall be performed by the County Engineer. All discrepancies identified during the field inspection must be corrected before the two-year warranty period will begin.**
- C. The Contractor installing signs is responsible for locating and protecting all underground utilities.**
- D. Type III lighted barricades shall be set at ends of roadways, separating finished and unfinished construction areas.**
- E. Special care shall be taken in sign location to ensure an unobstructed view of each sign.**
- F. A 7 foot minimum post length shall be maintained from bottom of sign panel to the sidewalks in areas of pedestrian traffic. This requirement for vertical clearance is for all signs in areas of pedestrian traffic.**
- G. Lateral offset shall be 8 feet minimum from flowline on collectors and arterials, and 6 feet minimum on interior roadways.**
- H. Delineation of roadways shall be as specified in the Colorado "M and S Manual."**
- I. Raised median islands shall be delineated.**
- J. Signage and striping has been determined by information available at the time of review. Prior to initiation of the warranty period, Teller County reserves the right to require additional signage and/or striping if they determine that an unforeseen condition warrants such signage according to the MUTCD or the CDOT M and S Standards. All signage and striping shall fall under the requirements of the two (2) year warranty period for new construction.**

K. All traffic control devices shall be high-intensity grade reflectivity.

L. Crosswalks:

1. shall be constructed using preformed thermal plastic.
2. shall line up handicap ramps.
3. shall be centered on lane lines so as to be straddled by vehicles.

M. All removed signs shall be returned to the Road and Bridge Department.

3.17 DETAILS

The plans shall include adequate details of special structures not covered by these Roadway Standards standard plates. Applicable details found in these Roadway Standards shall be bound in the project manual, if applicable, or shall be included in the construction plans. The document which includes the standard detail shall be available on the job site.

3.18 RANGE POINTS - PROPERTY MONUMENTS - BENCHMARKS

- 3.18.1 All monuments delineating boundaries of property or witness thereof shall be set in accordance with this section and all applicable State of Colorado laws and regulations.
- 3.18.2 Any "aliquot corner" (section corner, quarter corner, etc.), as described in the Public Land Survey System, shall be monumented per Colorado Revised Statutes. If such a corner falls within concrete or asphalt, a range box (as shown on Standard Drawing SP-14a) shall be installed to protect and provide access to said corner.
- 3.18.3 If so desired, the Applicant may install range boxes in asphalt or concrete for property monuments, range points, benchmarks, etc., if the boxes comply with standard drawing SP-14a.

3.19 LANDSCAPING PLANS

Landscape plans are required for any landscaping proposed within the public right-of-way or which would affect the sight-distance of a public road. Landscape plans must show all landscaping close to, and within the public ROW. This shall include, but not be limited to, location of all plants, bushes, trees, irrigation lines, proposed road-cuts, direction of drainage flows both on the road and on the proposed landscaped area, road names, vicinity & key maps, general notes, signature block, etc. 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' of the flowline of the public road, whichever is most restrictive. On low speed (posted 35 mph or less) collectors & local roads, trees may be planted to within six (6) feet of the flowline (except within 150' in either direction from an intersection, where the trees must be a minimum of 10' back from the flowline). Landscaping over 36" 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 (L.O.S.). 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. (See Section 6.5 regarding sight triangle and line of sight.)