

# **Routt County Road and Bridge Roadway Standards**

*Adopted July 2016*

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## **References:**

See GIS for road naming and addressing requirements  
AASHTO Guidelines for Geometric Design of Very Low-Volume Local Roads (ADT  $\leq$  400)  
Routt County Master Plan  
Routt County Planning and Zoning Code  
Tree Haus Metro District Rules and Regulations  
Steamboat II Metro District Specifications  
Morrison Creek Water and Sanitation District Rules and Regulations  
Steamboat Lake Water and Sanitation District Rules and Regulations  
Stagecoach Master Plan  
Sarvis Creek Area Plan  
Steamboat Springs Fire Protection District  
West Routt Fire Protection District  
Yampa Fire Protection District  
Oak Creek Fire Protection District  
North Routt Fire Protection District  
Routt County Policy on conversion of a gravel surface to a paved surface  
Routt County Road Level of Service Plan  
Cattle Guard Resolution 2003-018  
Routt County Planning Subdivision Regulations  
Colorado Department of Transportation Bridge Design Manual  
Colorado Department of Transportation Standard Specifications for Road and Bridge Construction  
AASHTO Roadside Design Guide

## **Roadway Standards**

### **Paved Roads**

Routt County paved roads shall consist of an 11' lane, 4' paved shoulder and a 3' gravel shoulder. Larger and smaller roadway sections may be looked at on a case by case basis considering traffic volumes and the area being served. Roadway design shall generally conform to the latest edition of the AASHTO Guidelines for Geometric Design of Very Low-Volume Local Roads (ADT  $\leq$  400). Road section design shall be based on the anticipated traffic load, generally the roadway section shall be 4" of hot mix asphalt. Routt County uses the CDOT Grading SX PG 58-28 mix with 20% of RAP max. The sub-base shall consist of 6" of base course conforming to the CDOT Class 6 Road Base and 12" of sub-base underneath that. The 12" of sub-base shall consist of a well-graded pit run sand and gravel aggregate meeting CDOT Class 1 or 2 grading and durability requirements.

## **Gravel Roads**

Routt County gravel roads shall consist of 2-14' lanes for a total roadway width of 28' wide. Modified roadway sections may be looked at on a case by case basis. Roadway design shall generally conform to the latest edition of the AASHTO Low-Volume Road Design Guide. Road section design is generally based on the anticipated traffic load the road will encounter. The road sections shall consist of at least 6" of ¾" road base conforming to the Colorado Department of Transportation Class 6 Aggregate Base Course and 8" sub-base that consists of a well-graded pit run sand and gravel aggregate meeting CDOT Class 1 or 2 grading and durability requirements. Thicker sections may be required based on the use of the roadway.

## **General Roadway Design**

Intersections and access approaches shall not have an equivalent turning radius of less than twenty (20) feet. Accesses designed for use by vehicles exceeding thirty (30) feet shall have a minimum 50-foot turning radius.

Roadway grades shall not exceed a grade of 7%. Private driveways are recommended not to exceed 10% max. Check with local fire district if driveway grades exceed 10%.

In general, horizontal curves in roads shall have a minimum centerline radius of 127'. Vertical curves shall at a minimum have a VCL crest of 50' and a VCL sag of 50'. The crest K-Value shall be 19 and the sag K-value shall be 37. Roads shall be designed for a roadway speed of 35 MPH. Values will differ per AASHTO if road is designed for different speeds.

Super elevation on County Roads is discouraged and shall not be used without prior acceptance by the Routt County Road and Bridge Department. If a super elevated design approved, the AASHTO design standards shall be used.

For the installation of fire hydrants along roadways, benches shall be installed to allow access to hydrants. Please see City of Steamboat Springs "Fire Hydrant Bench Detail" for dimensions and design details.

The design speed for roads shall be 5 mph more than the posted speed.

The crown of the paved road shall have a 2% cross slope and gravel shall have a 3% from the center line at a minimum to ensure drainage from the roadway to the road side ditch.

New roads to be maintained by the county shall be built to the county standards listed here. Roads shall be inspected by the Road and Bridge Department during and after construction for conformance to the standards. Roads are to be privately maintained unless accepted for public maintenance by resolution from the Board of County Commissioners.

## **Construction Drawing Requirements**

Construction plans document the design of infrastructure and are required and must be approved by the Road and Bridge Department prior to any construction in or on County Roads.

Utility plans shall include construction of utility improvements only. Utility plans shall be prepared according to the appropriate utility division. Utility plans shall be submitted to the Road and Bridge Department for review and approval. Where work is in the ROW, and ROW is also required. Utility plans shall show to the best of the design all existing utilities along the utility alignment.

Civil construction plans are required for public improvements, private roads for public acceptance, drainage structures, bridges, and overlot grading projects.

All construction plans shall be prepared by or under the direction of a professional engineer registered in the state of Colorado. Plans shall include at a minimum the items listed below.

- Plans shall be submitted in 24" X 36" format. 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 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.

Each construction plan submittal should be a complete and self-supporting set, which includes all of the details and documentation necessary for the professional construction of the proposed improvements. Where applicable, CDOT or other agency standard details shall be included with the plans and not referenced. Each civil construction plan shall have the following elements in the plan set:

- Cover sheet
- General Notes sheet
- Existing conditions map
- Grading and drainage plan
- Roadway plan and profile
- Drainage structure plan and profile
- Detour plan
- Traffic control plan
- Erosion control and Stormwater management plan
- Details

## **Geotechnical reports for roadway design**

A soils report is required for any improvements to the county roads and is recommended for private road construction as well. The soils report, prepared by a professional geotechnical engineer licensed in the State of Colorado, shall be reviewed and approved by the Road and Bridge Department prior to construction of roadways. The report shall include a recommended roadway section (paved or gravel) that is in line with the intended use of the roadway. The content and format of the soils report will vary by project type, but all reports shall contain sufficient information to identify existing conditions, required design elements, and any additional impacts resulting from the proposed work. Reports will include:

- Cover Sheet with project name, preparer information (Company, Name, Address, and Contact Number), Report Status (Draft – for initial submittal or PE Stamped – for construction)
- Summary (with location maps) of all subsurface exploration data, including subsurface soil profile, exploration logs, lab 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, temporary shoring, dewatering, etc.)
- Recommended geotechnical special provisions or mitigation measures.

## **Guardrail**

Guardrail shall be designed per the AASHTO roadside design guide. Construction of guardrail shall adhere to the CDOT standards. Guardrail installation shall be looked at on a case by case basis.

## **Ditches**

From the edge of gravel or pavement there should be a well formed ditch to convey storm water. Ditches at a minimum shall be 1' deep and shall have slopes no steeper than a 2:1 slope. In general roadside ditches shall be a trapezoidal channel with a 1' wide bottom. The ditch shall be sized such that it can handle the 100-yr storm with a maximum of 1' of water on the roadway. The allowable capacity shall be calculated using Mannings formula with an appropriate roughness coefficient. Suitable protection shall be added to the ditch if velocities of the ditch become erosive.

The most desirable ditch is the one that is lined with grass. The presence of grass in the ditches can result in turbulence which means loss of energy and increased retardance of flows. Refer to Urban Drainage for erosive velocities and soil types. Erosion protection shall be approved by Road and Bridge.

## **Maintenance**

Maintenance levels and level of service a road receives are determined by a number of factors. (See the Road and Bridge Level of Service map.) Those factors include, but not limited to, traffic counts, area plans, terrain, roadway classification, and resolutions. Generally, most roads accepted by the County will receive maintenance. For a road that has traffic counts below an Average Daily Travel (ADT) of 250 no surface treatment will occur. Once a gravel road has an ADT of 250 it may be considered for application of a dust suppressant. Once a road has an ADT of 600 or more it may be considered for paving.

## **Cul-de-sac, Turnarounds, and Pullouts**

Cul-de-sac, turnarounds, and pullouts shall conform to the Steamboat Springs Rural Fire Protection District Standards.

## **Signs**

Most public signs along county roads are maintained by the Routt County Road and Bridge Department. Signs are installed per the Manual on Uniform Traffic Control Devices (MUTCD). Public road signs will have a green background with the road name on it in white letters. There are exceptions to the MUTCD and will be looked at on a case by case basis. Other signage to be placed in the Right of Way shall adhere to the sign code put forth by the Routt County Planning Department.

Private Road Signage – Private roads in the county will be designated with a brown background sign with the road name on it in white letters. Other color combinations shall adhere to the MUTCD and will be accepted on a case by case basis. All road names must be adopted by resolution by the Routt County Commissioners or by plat. Once the road name is approved, street signs can be ordered from the Road and Bridge Department at the expense of the private entity.

Other approved signage can be requested through the Road and Bridge department.

## **Right of Way**

Right-of-way (ROW) shall be dedicated for public roads as needed in accordance with current master plans and development approval requirements. Specific requirements for ROW dedication or vacation are listed in the Routt County Planning Code. The purpose of this section is to provide more detail for accessing County ROW, conducting work in the ROW, and considerations for vacation of ROW.

Generally most Routt County Road ROW has a width of 60' based on the centerline of the roadway. If a county road has a different ROW width, it will be shown by dedication on a plat or other document. The ROW is the County's snow storage area for plowing operations during the winter months and maintenance access for repairs and maintenance during the summer months. Anything placed in the ROW by the adjacent property owner

(fence, gate, landscaping, structures, etc.) are susceptible to damage resulting from plowing and maintenance operations and are prohibited unless approved by Road and Bridge. The county is not responsible for damage to objects placed within the right of way limits.

Different types of ROWs exist in Routt County - There are public ROWs that contain a county road and are available for public use and the roads in the ROW are maintained by the County. There are public ROWs that contain private roads that are maintained privately. Finally, there are private ROWs that contain private roads that are maintained privately.

### **ROW Vacations**

ROW vacations are started in the Routt County Planning department. A check list for what is required for a ROW vacation is on the Planning website. The process and timetable for ROW vacation can be found in Section 3.2 of the Zoning Regulations under the Review Process Chart. The Road and Bridge Department is a referral agency and will be given a chance to review and comment on all ROW vacations.

### **Utilities**

All utilities placed within the County's ROW limits are required to obtain a "Work in the Right of Way Permit," from the Routt County's Road and Bridge office. The application and requirement checklist can be found online. The following are standard conditions for a "Work in the Right of Way Permit."

- A. The Permittee shall be responsible for establishing safety measures sufficient to protect the traveling public from any and all harm during utility construction, improvement, location or relocation. Said safety measures are in accordance with the Colorado Department of Transportation Standard Specifications for Road and Bridge Construction
- B. The utility facilities shall be placed in a location mutually agreed upon by the Permittee and Routt County in accordance with details and specifications shown on the utility construction plans. Above ground facilities may require easements to located them outside of plowing and maintenance activities.
- C. The Permittee shall inform the Routt County Road and Bridge Department of construction methods, equipment and operational procedures that will be utilized and obtain Routt County's concurrence.
- D. The Permittee's installation will be no less than the minimum requirements of the current code applicable to the installation.
- E. The Permittee shall advise the Road and Bridge Department 48 hours in advance of the date work will be started and shall notify the Road and Bridge Department a

minimum of 12 hours in advance if this date is changed.

F. The Permittee shall be responsible for any repairs necessary as a result of the utility installation. The maintenance responsibility of work and repairs to the utility shall be the continuing obligation of the Permittee after completion of the project.

G. Clearing of trees, bushes and other vegetation shall be held to the minimum required for construction and safety.

H. The Permittee shall return the right of way, including the road shoulders and ditch sections to its original condition as near as possible and shall remove all rubbish and debris following completion of construction and before inspection by the Road and Bridge Department and the Permittee. In the event inspection determines additional corrective measures necessary; corrective measures will be initiated within 10 days of the inspection, and completed by the Permittee within 90 days. The contractor shall restore the area by November 1 of the same year of the disturbance

I. The Permittee will hold Routt County, its agents, and employees, harmless from any and all claims which may arise as a result of the construction and maintenance of the utility facility covered by the permit.

J. Permittee agrees to institute no action and to hold Routt County harmless from any and all claims or causes of action by reason of the County's maintenance, construction or repair of the road which is adjacent, appurtenant or located upon the area for which the permit is granted.

K. The issuance of the permit shall not be deemed to be a warranty or representation by the Road and Bridge Department that the road in question is within the public right of way. It shall be the sole responsibility of the Permittee to obtain such surveys as may be necessary to insure that the improvements permitted are placed within the public right of way and Permittee agrees to indemnify, defend and hold Routt County harmless from any damages, liability or cost arising out of the failure of Permittee to properly locate the improvements permitted hereby within the public right of way.

**L. SPECIAL PROVISIONS FOR UTILITY INSTALLATION:**

1. Whenever possible utilities must be placed at a minimum of 4' from edge of the shoulder in the roadway or outside of the roadway ditch, placing as little trench material onto roadway as possible to avoid gravel contamination. If contamination of gravel has taken place, the permittee will be responsible for regravelling or regravelling costs.
2. Ditch slopes must be cleaned both on roadside and back slope to prevent slough and obstructions. Ditches shall conserve a 2:1 slope ratio as much as possible terrain permitting. Contractor will be responsible for disposal of residual debris and remaining materials. Contractor shall be responsible for slope stabilization for slopes at 2:1 and greater.
3. Road cuts must disturb as small an area as possible and shall comply with Road & Bridge guidelines. Boring under the roadway is always recommended,

road cuts shall be avoided as much as possible. Where road cuts occur on paved sections of roadway the City of Steamboat Springs road cut standards shall used. This includes backfilling the top 12” of the trench with flowfill. If a pavement cut is performed, the contractor will be required to patch the entire width of the lane. Routt County Road and Bridge will not allow partial lane patches.

4. If road has been treated with dust suppressant, the cost of reapplication will apply.

5. Paved roads must be bored, if the first boring attempt is unsuccessful a second attempt must be tried with a Road & Bridge employee present. If the second boring attempt is unsuccessful a road cut may be authorized with the condition that the asphalt will be repaired. Bonds will apply

6. When installing utility lines around an existing culvert in ROW the bury depth must be at least 36" below the downstream end of the culvert. No utility is authorized to utilize the inner space of a culvert or to cut through a culvert.

7. Road is to be in as good or better condition after construction work is complete. Contractor will be responsible for compaction problems if they occur.

8. After completion of the work, contact the Road & Bridge Department for a final inspection.

#### H. Minimum required depth for installation of Utilities.

- Gas 5 feet
- Water 7 feet
- Electric 4 feet
- Telephone/Cable/fiber 3 feet

Note: depth is measured from lowest surface point within the excavation area.

I. No private utility is allowed within the County’s ROW unless authorized by the County engineer or inspector. Approval of the Board of County Commissioners and a revocable agreement may also be required.

J. Generally, no work will occur in the ROW between November 1 to May1. If weather and material conditions are acceptable or there is an emergency, a variance may be issued by the field coordinator. Additional mitigation conditions may apply.

### **Cattle Guards**

An application for the placement of a cattle guard must be submitted to the Routt County Road and Bridge Department to begin the cattle guard installation process. The cattle guard application is first reviewed by the Road and Bridge Department, and subsequently passed on for approval by the Board of County Commissioners. The cattle guard can only be installed upon approval of the permit by the Board of County Commissioners.

Cattle guards shall be designed to withstand AASHTO HS-20 loading or above. Cattle guards shall extend across the entire traveled width of the road and have a grate width no less than 6’-

6". Gaps between rails shall not exceed 4.5" Cattle guards shall have a concrete base. For cattle guards on Routt County Roads, per Routt County resolution 03-018, the landowner will be responsible for the cost of installation and replacement of the cattle guard. Routt County will perform installation and be responsible for maintenance for the life of the cattle guard. The average lifetime expectancy for a cattle guard is 15 years. Wings will be of the removable type and will be removed in the winter to accommodate snow plowing and re-installed in the summer by the land owner. See CDOT Standard Plan M-611-1 for a typical cattle guard plan.

### **Culverts**

Culverts that are placed in the county ROW shall be corrugated steel pipe with a minimum diameter of 18". Culverts placed under county roads shall be designed by a Colorado Registered Engineer and shall convey the 100-yr storm with a foot of free board and shall have a minimum useful life of 50 years. Culverts made of alternate materials such as, reinforced concrete pipe (RCP), concrete box culvert (CBC), or aluminum or steel box culvert (ALBC or SBC) will be reviewed on a case by case basis. Soil tests shall be performed to test for soil corrosivity and pipe materials shall be designed to withstand the area soils. Corrugated metal pipe culvert gauges shall be the following:

<u>Size</u>	<u>Gauge</u>
18-36	14
42-60	12
66-102	10

### **Grading**

Routt County has adopted the International Building Code (IBC) to govern grading and excavations in the county. Additionally the Federal Clean Water Act requires stormwater management and erosion control for disturbances greater than 1 acre. The grading and excavation permit shows the land disturbance activities and how the erosion and sediment will be controlled onsite during construction operations. The permit points out the need to control the high rates of erosion and sedimentation from construction sites in an effort to protect valuable land and water resources.

A Grading and Excavation permit shall be obtained when:

1. More than an acre of soil is disturbed.
2. Any excavation of 300 cubic yards or more
3. Any fill of 300 cubic yards or more
4. Any activity that occurs within the 50-foot water body setback of any water body, as defined in the Routt County zoning resolution.

A permit is not required if the excavation or fill is for a structure foundation permitted via a Routt County Building Permit.

The permit application shall include:

1. A site plan/design (either CAD drawings or hand drawn to scale) showing proposed and existing contours with erosion control measures (BMPs) drawn in.
2. Storm Water Management Plan per the County Road and Bridge format.  
<http://www.co.routt.co.us/DocumentCenter/View/158>
3. Approximate amount of cut, fill, and surface disturbance.
4. Wetland development permit and any U.S. Army Corps of Engineer approvals, Colorado Department of Public Health and Environment Stormwater Discharge Permit.

Permit Process:

1. Submit complete G & E permit application to the County Road & Bridge Department offices at 136 6th Street, between the hours of 7:30 am and 4:30 pm. **Applications must include cut/fill calculations.**
2. Applicant completes Storm Water Management Plan (SWMP) and maintains a copy on-site.
3. R & B and Planning reviews application and inspects site.
4. Revisions are made by applicant if needed.
5. R & B and Planning re-reviews and re-inspects if needed.
6. If acceptable, application is approved
7. Applicant pays fee and permit issued.
8. Applicant conducts work in accordance with plans, maintains erosion control, and updates SWMP as needed.
9. R & B inspects completed work
10. If erosion, re-vegetation and structural measures are met, permit is closed

Following G & E plan review and initial inspection of complete and adequate application the permit will typically be issued within 7 business days. G & E permits should follow Routt County Best Management Practices to control erosion and sediment. (Guidelines available at Routt County Road and Bridge or Planning Depts.) PLEASE NOTE: The municipalities/towns of Yampa, Hayden, and Oak Creek will assess charges as per the Uniform Building Code Chapter 33 and not the adopted version by the county.

Permit fee calculations can be found on the Road and Bridge website.

Obtaining a Grading and Excavation permit from Routt County does not release the permittee from obtaining a Colorado Department of Public Health and Environment Stormwater Discharge permit.

Grading shall occur within the property limits and not extend into the ROW. Slopes shall not be greater than a 2:1 slope. All disturbed slopes shall be stabilized and revegetated. Retaining walls are allowed up to 4' tall without design by a registered Colorado Professional Engineer. Retaining walls that are over 4' tall require a building permit as well as design by a Colorado Professional Engineer. Any slopes greater than a 2:1 slope will not be allowed unless accompanied by a report sealed by a registered Colorado Professional Engineer confirming slope stability. Soil retention blankets shall be installed on slopes steeper than 3:1.



Per the Routt County Zoning Regulations (5.6.2 - 5.8) and rural fire standards driveway and common road widths are as follows:

A driveway serving **ONE** dwelling unit shall be a minimum of 12' wide.

A driveway serving **TWO** dwelling units shall be a minimum of 16' wide.

A driveway serving **THREE** or more dwelling units is considered a common road and shall be a minimum of 24' wide.

**SUGGESTED SIGHT DISTANCE FOR INTERSECTIONS  
DISTANCE BETWEEN ACCESS POINTS**

Design Speed, Posted Limit or 85<sup>th</sup> percentile whichever is greatest

50 mph	500 feet
40 mph	400 feet
30 mph	300 feet
20 mph	200 feet

2. All driveways and approaches shall be constructed so that they do not interfere with the drainage system of the roadway. The applicant will be required to pay for and install drainage structures at access points, which will become an integral part of the existing drainage system. Maintenance of the drainage improvements is the responsibility of the property owner using the access. No Driveway shall drain directly onto a county road. Driveway culverts for drainage shall not be less than 18 inches in diameter, unless expressly approved by the Road and Bridge Department representative during the preliminary inspection for a Right of Way Improvement Permit. Corrugated metal culverts are the standard. Alternative materials will be evaluated on a case by case basis.
3. Driveway culverts are required unless directed by Road and Bridge engineer or inspector. Culvert must be in line with roadside ditch. If the culvert must be deviated from a straight line, the applicant must present a petition for the construction of a swale to be approved by the Road and Bridge Department. Bends in culverts are not permitted.
4. Driveways serving up to two dwelling units shall have a minimum width of 20 feet within the county right of way. The driveway shall be constructed to match the grade at the shoulder of the road. The grade of the entrance shall slope downward and away from the road surface at the same rate as the normal cross slope (4% maximum) and for a distance of at least 25 feet from the edge of the traveled way.
5. A paved driveway may not be extended into the ROW on a graveled road. For a paved driveway accessing a paved road, pavement must be at or 1" below the roadway grade.
6. Driveways shall be surfaced with a minimum of 4" of 3" minus base and receive a surface or 1-1/2" - 3/4" base course meeting CDOT standards.

It is encouraged, if the driveway is being constructed within a platted ROW that will eventually become a common road in a subdivision; that it be constructed offset from the centerline of the ROW to ensure when the common road is built that the common road can be located in the center of the platted ROW.

See the attached driveway detail for dimensions and standards for drive way construction.

### **Revegetation and Erosion Control**

All construction sites and disturbed areas shall be revegetated no more than 30 days after completion of the grading work. Revegetation shall include application of either native seed, lawn seed, sod, and mulch or a soil retention blanket.

Seed mix shall be submitted to the County Engineer prior to application for approval. All seed shall be certified weed seed free. The seeding season shall follow the dates put forth in the Colorado Department of Transportation Standard Specifications for Road and Bridge Construction section 212.03. An acceptable seed mix for revegetation is as follows and shall be applied at a minimum rate of 15 PLS/Ac :

<u>Aggressive Dry Land Mix</u>	<u>PLS</u>
Western Wheatgrass	10%
Intermediate Wheatgrass	20%
Russian Wildrye	20%
Slender Wheatgrass	40%
Green Needlegrass	10%

Other seed mixes shall be approved by the Road and Bridge engineer prior to seed mix use.

If lawns are disturbed, the contractor shall be responsible for restoration that is acceptable to the property owner and must include noxious weed control.

Straw Mulch, Hay Mulch, Wood Straw, Hydraulic Mulch are acceptable forms of mulch that can be applied to reseeded areas. Straw and hay mulch shall be mechanically crimped into the soil to avoid blowing away. Wood straw shall be applied such that at least 70% of the ground is covered. Hydraulic mulch shall be applied such that it is uniform to the slope it is being applied to per the manufacturer's recommendations. All mulch shall be certified weed free per the Colorado Department of Transportation Standard Specifications for Road and Bridge Construction. Mulch shall not be applied to slopes greater than 3:1.

Soil retention blankets shall be installed on slopes steeper than 3:1. Excelsior and coconut blankets are acceptable types of soil retention blanket that can be used. The coconut and excelsior blanket shall have a functional life of up to 24 months and shall be 100%

biodegradable. Blankets shall be pinned or stapled to the slopes using pins or staples made of wire with a minimum 0.091 inch diameter. Staples shall be “U” shaped and shall have 6” long legs. “T” shaped pins shall have a minimum length of 8-inches after bending. The bar of the “T” shall be at least 4 inches long with the single wire and bent down approximately ¾-inch. Staples and pins shall be placed per manufacture’s recommendations.

All revegetation materials shall be submitted to the Road and Bridge Department for acceptance prior to application.

## **Bridges**

Major structures or bridges in Routt County are classified as any structure that has a span greater than 20’. The bridges in Routt County are inspected every two years by a private consultant selected by the Colorado Department of Transportation. This inspection is mandated by the Federal Highway Administration.

All bridge replacements in Routt County shall be designed using the most economical girder section and shall follow the latest edition of the Colorado Bridge Design Manual and applicable design memos. Bridge width and materials will be determined at the time of the bridge design. Typically, major structures on the county roads shall be designed to pass the 500 year storm and shall have a width of 33’ from outside of curb to outside of curb. The bridges shall have a waterproofed concrete deck and shall be paved with a minimum of 2” of hot mix asphalt.

## **Drainage**

For new development, redevelopment and significant changes to a parcel, a drainage study produced by a registered Colorado Engineer must be submitted for review to ensure adequate storm drainage system analysis and appropriate drainage design. The analysis and design shall meet or exceed the criteria set forth by the City of Steamboat Springs and or the Urban Drainage and Flood Control District’s *Urban Drainage Control Manual*.

In general, any project (new, redevelopment, or significant changes to a parcel) that alters stormwater drainage from existing conditions, including increasing impervious area, shall be required to evaluate the changes in a drainage report including a Stormwater Quality Plan and provide mitigation as needed. Existing parcels undergoing redevelopment or significant changes that do not alter stormwater drainage are required to identify this in the form of a drainage letter. The letter shall identify and show how the stormwater runoff is not being affected.

Culverts shall be designed and sized per the City of Steamboat Springs Drainage Criteria. Generally new culverts being replaced under County Road shall be designed to the 100-yr storm with 1’ of freeboard.

## **Striping**

Striping shall be done according to the MUTCD. All materials shall be a 100% acrylic type, low VOC fast drying, ready-mixed waterborne traffic line paint. The paints shall be suitable for

application to either asphaltic or Portland cement concrete pavements. The lines shall be applied with airless or air assisted spray equipment or equivalent designed for roadway applications. The maximum drying time of 20 minutes shall not be exceeded. The paint must be reflectorized for night visibility with drop-on-beads at an equivalent rate of six (6) pounds per gallon. The paint shall not contain more than .06% of lead or chromium for yellow and 0% for white. The coverage shall be 100-110 square feet per gallon at 15 mils wet film thickness. The paved sections of roads shall be striped per the attached striping list.

### **Traffic and Road Engineering Studies**

All development is required to mitigate its traffic impacts to the County Roads.

According to the Routt County Planning Department application checklists a Traffic Impact Study may be required by the Road and Bridge Department. If the new general use of the parcel of land increases traffic to the County road by 20% or less if traffic increases the road above a design threshold for improvement (such as dust suppression, paving, additional gravel or auxiliary lanes) a Traffic Impact and or a Road Engineering Study will be required.

A Traffic Impact Study evaluates the effects a particular project's traffic will have on the County Road network and makes recommendations to mitigate impacts such as signage, signalization, addition of turning lanes, etc. The traffic impact study shall be provided at the cost of the developer with the planning application and shall be performed by a registered Colorado Professional Engineer.

A Road Engineering Study evaluates the effects a particular project's traffic will have on the road system structure and makes recommendations to mitigate impacts such as road widening, additional gravel or pavement to increase road structure, signage, adding of auxiliary lanes or intersection improvements, etc. Road engineering studies shall be performed by the Routt County Road and Bridge on-call engineer at the cost of the developer. The scope of work performed by the engineer is as follows:

- Kick off meeting and Site Visit
- Data collection
- Geotechnical investigation
- Traffic generation and distribution
- Traffic impact analysis
- Traffic mitigation measures
- Final report documentation
- Level 2 CDOT traffic impact study (if needed)
- Planning Commission and Board of County Commissioners Meeting (if needed)

The applicant shall provide the Road and Bridge Department with a Transportation Overview prior to the start of the Road Engineering study. A transportation overview is a letter prepared by an applicant that includes a detailed description and a map of the proposed access route,

traffic circulation plan, and vehicle information (type, size, weight, number, and frequency of vehicles, etc.) Examples can be obtained from the Road and Bridge Department.

When the Transportation Overview is provided, the Road and Bridge Department will obtain a proposal from the on-call engineer to perform the road engineering study. The on-call engineer has 2 weeks to provide the proposal after the Transportation Overview is provided. The applicant and the county will review the proposal prior to drafting a reimbursement agreement.

Applicant will enter into a reimbursement agreement with the County and provide a signed copy of the agreement as well as a check made out to Routt County in the amount of the proposal prior to final signature by the commissioners.

After the reimbursement agreement is signed, the engineer has 8-10 weeks to finish the report. The report is distributed to the applicant for review and comment. The report is also reviewed by the Road and Bridge Department and comments are made. Once all comments for the report have been addressed the engineer has two weeks to correct comments and provide a final sealed draft of the report.

## **Plats**

Plats are generally submitted to the planning department for changes of lot lines, subdivisions, replatting of properties, etc. At a minimum the plat shall contain the following information:

- Indicate all road names and provide dimensions for the width of all rights-of-way for new and existing roads.
- Describe the purpose, widths and locations of all easements and abutting easements.
- Name of the proposed subdivision or parcel ownership.
- A general legal description including section, township, range, 6<sup>th</sup> Prime Meridian, and Routt County, CO
- Total acreage
- Preparation date and date of revisions, if applicable
- North arrow
- Written and graphic scale
- Vicinity map
- A written legal description of the parcel
- Display ties to section corners
- Accurately locate 100-yr floodplain and other water or drainageways
- Include plat notes explaining information pertinent to the ownership of tracts, reference any agreements, conservations easements, maintenance responsibility of roads, easements and tracts.

## **Planning Department Permits**

The Routt County Road and Bridge department is a referral agency to the Routt County Planning Department. Most planning applications are submitted to the Road and Bridge Department, via the Planning Department for review. Below is a general outline of what is checked during a planning permit review by the Road and Bridge Department.

### **ROADS**

1. Are the roads designed to our standard widths?
2. Is our Right of Way shown on the plans and is all construction contained within the Right of Way (ROW)?
3. Does the new road connect to our road at a right angle? If not what is the reason it does not?
4. Does the grade of the road meet our specifications? Is the grade called out?
5. Is the structure of the road shown on the plans? (cross section)
6. Are the curve radii shown? Do they meet our minimum specifications?
7. Does the road comply with the fire district that it falls in?
8. Is the road affected in a way that a Roadway Impact Study is necessary? If so, is the study with the plans?

### **DRIVEWAYS**

1. Is the length of the driveway shown?
  - a. If the driveway is greater than 150' does it have a turnaround?
  - b. If the driveway is greater than 200' does it have turnouts?
2. Is the grade of the driveway shown?
3. Is the width of the driveway shown?
4. Is the connection to the county or private road per our specifications?
5. Is the structure of the driveway shown? Is there an cross section or notes about driveway structure?
6. Are culverts shown in the right places? Do the sizes and material meet our minimum standard?
7. If the driveway has a curve is the radius shown and is it to our minimum?
8. Does the turnaround and/or turnouts meet our specifications?

9. Is there adequate sight distances?

## **PERMITS**

1. Have long lead time permits been applied for? Should include but are not limited to:
  - a. Grading and Excavation Permit
  - b. Driveway
  - c. ROW Access
  - d. US Army Corps of Engineers permits
  - e. CDPHE Stormwater Management Plan
  - f. CDPHE Fugitive Dust Permit
  - g. Local Water and Sanitation Districts

## **OVERALL SITE PLANS**

1. Does the plan clearly show contours for the proposed and existing contours? Are the contours labeled?
2. Are the slopes 2:1 or less?
3. Is the total area of disturbance shown on the site plan?
4. Is the developed area near a waterway?
  - a. Are the wetlands shown?
  - b. Is the 100-yr flood plain shown?
5. Does the plan show important existing features?
  - a. Phone lines
  - b. Waterlines
  - c. Wells
  - d. Septic
  - e. Electrical
  - f. Outbuildings, Corrals
  - g. Proposed building footprints
  - h. Existing Fences
  - i. Existing Culverts and sizes
  - j. Existing Ponds
  - k. Existing irrigation hydrants
  - l. Etc
6. Is a vicinity map shown?

## **GENERAL PLAN COMMENTS**

1. If a roadway plan and profile is shown do the vertical and horizontal curves work for the design speed?
2. Are the extents and elevations of the 100-yr water surface shown on plans, if by a creek or river?

3. Is a Traffic Impact Study necessary? Is it with the plans for review?
4. Is a drainage report or drainage letter included with a plan that includes a replacement or addition of a culvert or bridge?
5. Is the culvert size supported with calculations?
6. Are the temporary construction easements shown if needed?
7. Are all easements on property shown for any utility that might require an easement? (i.e. major pipeline, drainage, water or sanitary sewer)
8. Do plan call outs match? For example:
  - a. If a pipe or other object is shown on two different plan sheets are they called out the same?
  - b. Are pipe sizes inverts or slopes called out the same on the multiple pages?
  - c. Do the call outs in a profile match what is called out in the plan view?
9. Are existing tie in elevations confirmed with data we have?
10. Are pipe slopes correctly calculated?
11. Does the work fall within an area that has surface occupancy restrictions? Does the project schedule fit within restricted dates?
12. Does the site need a NEPA study? Is that underway?
13. If the plan is asking for more than one access do the accesses meet state and local access plans and specifications?
14. Is erosion control shown?
15. Does the erosion control make sense?
16. Is access to the site apparent?
17. Erosion control at a minimum should show:
  - a. Staging area
  - b. Concrete washout (if applicable)
  - c. Silt fence or waddles
  - d. Vehicle tracking pads (if applicable)
  - e. Revegetation seed mix (make sure it is okay with weed department).
  - f. Check dams in ditches and swales
  - g. Inlet and outlet protection
  - h. Stream bank or wetland revegetation plan (if applicable)
18. If applicable, is riprap adequately sized?
19. Have the plans been reviewed by the Weed Department?

20. No signs are allowed in the ROW without Road and Bridge and Planning Department approval
21. Are signs per the MUTCD?
22. All plans should be reviewed against the zoning, subdivision, and roadway standards for roads every time a planning review is given to Road and Bridge.

# **Standards and Details**

**Typical Roadway Section**

**Fire Hydrant Bench Detail**

**Road Striping Standards**

**Driveway Standards**

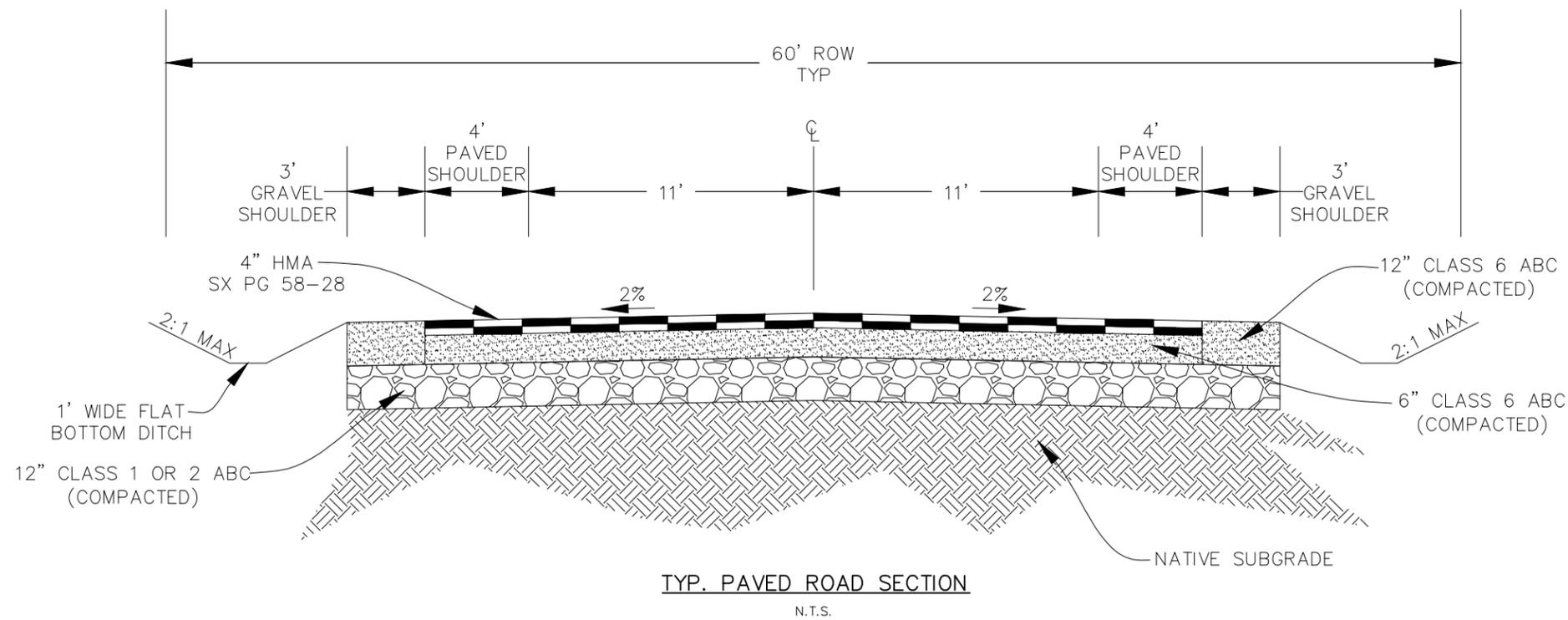
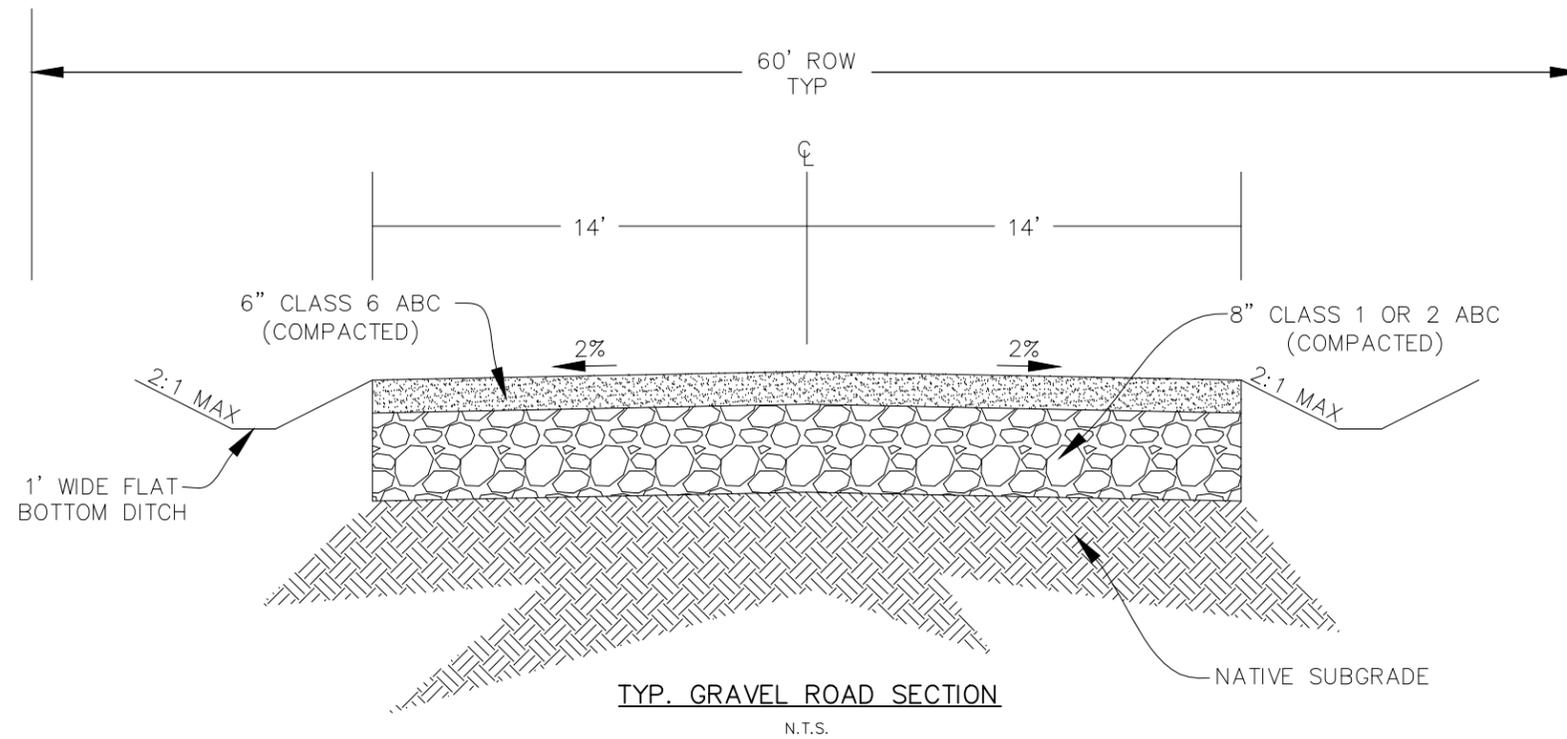
**Cul-De-Sac and Turnout Details**

ROAD STANDARDS  
ROADWAY TYPICAL SECTIONS  
ROUTT COUNTY ROAD AND BRIDGE

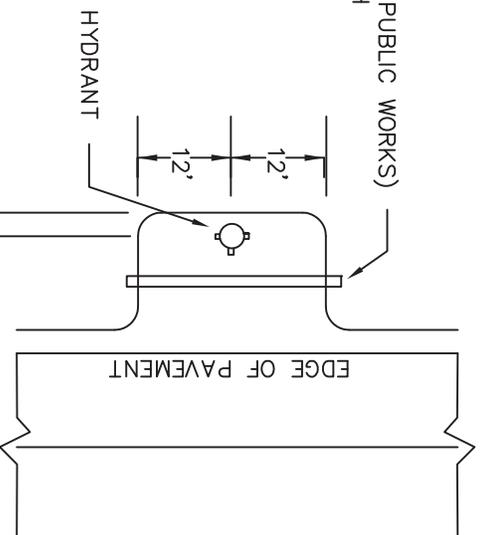
Date 1.12.15  
Drawn By MTM  
Reviewed By JH  
Job No. ---  
File ---  
Scale N/A

Revisions

Sheet



PROVIDE CULVERT AND FLARED-END SECTIONS  
(18" MIN. DIAMETER OR AS DIRECTED BY CITY PUBLIC WORKS)  
IF BENCH CONSTRUCTED OVER DRAINAGE DITCH



VARIABLE - TO BE  
DETERMINED BY THE CITY  
UTILITY DEPARTMENT  
PRIOR TO CONSTRUCTION

NOTES:  
NO OBSTRUCTIONS SUCH AS  
TREES, PEDESTALS, FENCES OR  
OTHER OBJECTS MAY BE  
PLACED WITHIN A 15-FOOT  
RADIUS OF A HYDRANT.

**FIRE HYDRANT BENCH DETAIL**  
NTS

<p>City Of <b>Steamboat Springs</b> Water &amp; Sewer</p> 	
<p>PO BOX 775088 STEAMBOAT SPRINGS, CO (970) 879-2060 FAX (970) 879-8851</p>	
<p><b>STANDARD DETAILS</b></p>	
<p>Drawn by: GLB</p>	
<p>Scale: N.T.S.</p>	<p>Date: 2/7/02</p>
<p>Revision description:</p>	
<p>Sheet number 8 of 17</p>	

STRIPING STANDARDS

RCR	DESCRIPTION	LENGTH	CENTERLINE ONLY	CENTERLINE & FOGLINE	TURN LANES	TURN LANE LOCATIONS	SPECIAL STRIPING
37	CRANDALL ST	0.40			N		
78	FREDERICKSON HILL	1.00			N		
14	HWY 131 SO TO HWY 131 N	11.00		X	Y	1- INT CR 14&16 LEFT TURN, 2- LEFT TURN FISHING AREA @ SP, 3- LEFT TURN INTO SP ENTRANCE 4 - TURN LANES INTO GRAVEL PIT	11' LANES
14	TREEHAUS, BIKE PATH NEAR MT WERNER EXIT TO CR 14F	4.50		X	N		10' LANES
14	CR 14F TO CR 22	2.50		X	Y	LEFT TURN ON TO CR 14	10' LANES
14	CR 35 TO HWY 131, HUDSPETH LANE	2.00	X				
27	OAK CREEK TO HWY 40 NEAR HAYDEN	26.80		X	N		11' LANES
33	STEAMBOAT CITY LMITS TO CR 27	18.60		X	N		11' LANES
36	SODA CREEK BRIDGE TO END OF PAVEMENT	1.50	X		N		
36	STEAMBOAT CITY LMITS TO JUST BEFORE SODA CREEK BRDGE	2.25		X	N		10' LANES
129	STEAMBOAT CITY LMITS NEAR AIRPORT TO END OF PAVEMENT	29.50		X	Y	1 - TURN LANE BOTH SIDES @ SP VISITOR CENTER, 2- LEFT TURN INTO SP MAINT SHOP, 3 - LEFT TURN CR 62	11' LANES
14/35	CR 22 TO TOP OF HILL TO INT CR 41&43	3.25	X		Y	LEFT TURN ON TO CR 35 GRAVEL SECTION	
36D	STEAMBOAT CITY LIMITS TO CR 36 INT. (AMETHYST)	1.00		X	N		10' LANES
51/ 51A	HWY 40 TO HWY 40 (YVRA )	3.00	X		N		
16	CR 14 TO END OF PAVEMENT	2.20		X	N		11' LANES
22	BARTHOLOMEW LANE	1.00		X	N		10' LANES
32	FISH CRK FALLS RD	2.30	X		N		
41	CR 35 INT TO TOP OF HILL	1.70	X		N		
42	HWY 40 TO END OF OIL	4.00	X		N		
53	SENECA HAUL RD INT TO END OF PAVEMENT	6.30	X		N		
53	RCR 65 TO SENECA HAUL ROAD	1.70	X		N		
62	CR 129 TO END OF PAVEMENT	1.10		X	N		11' LANES
62	CR 129, CLARK TO END OF PAVEMENT	0.50	X		N		
65	CR 53 NEAR ELEMENTARY SCHOOL TO END OF PAVEMENT	2.00	X		N		
178	HWY 40 TO CR 179	0.50	X		Y	LEFT TURN ONTO CR 179 @ CR 178 INTERSECTION	
179	MILNER TO END OF PAVEMENT	2.00	X		Y	LEFT TURN ONTO CR 179 @ CR 178 INTERSECTION	
76/80	HAYDEN CITY LIMITS TO TOP OF HILL (THE COG)	3.00	X		N		
7	YAMPA CITY LMITS TO END OF PAVEMENT	6.50	X		N		
18	CATAMOUNT(HWY 131 TO cr 18C)	4.50	X		N		
18	CR 18C TO CR 14B INT - 1.7	1.70	X		N		
38	CR 36 TO END OF PAVEMENT (BUFFALO PASS)	0.95	X		N		
64	CR 129 TO END OF PAVEMENT	6.00	X		N		
17 / 15	YAMPA CITY LIMITS TO HWY 131 IN PHIPPSBURG	7.60	X		N		
MC29 / RC 86	HWY 40 TO END PAVMENT 4 MILES	4.00	x		N		

# Routt County Road & Bridge

P. O. Box 773598  
Steamboat Springs, Colorado 80477  
(970) 879-0831 FAX (970) 879-3992

## Guidelines for Private Driveways on County Roads

**WORK IN THE RIGHT OF WAY is permitted between May 1 and November 1.** All work in County and / or Public Rights of Way must be reviewed and permitted through the Road & Bridge Department before work of any kind commences. Call 970-870-5344 for more information or to set up an appointment.

The County is in no way responsible for the construction or maintenance of a private driveway. Unless the County has entered into an agreement with a property owner to relocate a driveway due to road construction, the expense of the driveway culverts, gravel, labor and maintenance are the complete responsibility of the property owner. All private driveways adjoining a county road must be approved by a Road & Bridge representative, who will inspect the proposed driveway before signing a driveway permit.

**Finished Grade** of any driveway shall be below the grade at the edge of roadbed, at the edge of the public right of way. Any driveway shall have a finished surface of at least 6 inches of gravel when within a public road right of way.

**Drainage Facilities** shall be designed for a 25 year frequency flood. The minimum size culvert shall be 18 inches in diameter, designed for AASHTO H-20 loading. If corrugated pipe is used, it shall extend a minimum of 2 feet beyond the toe of any fill.

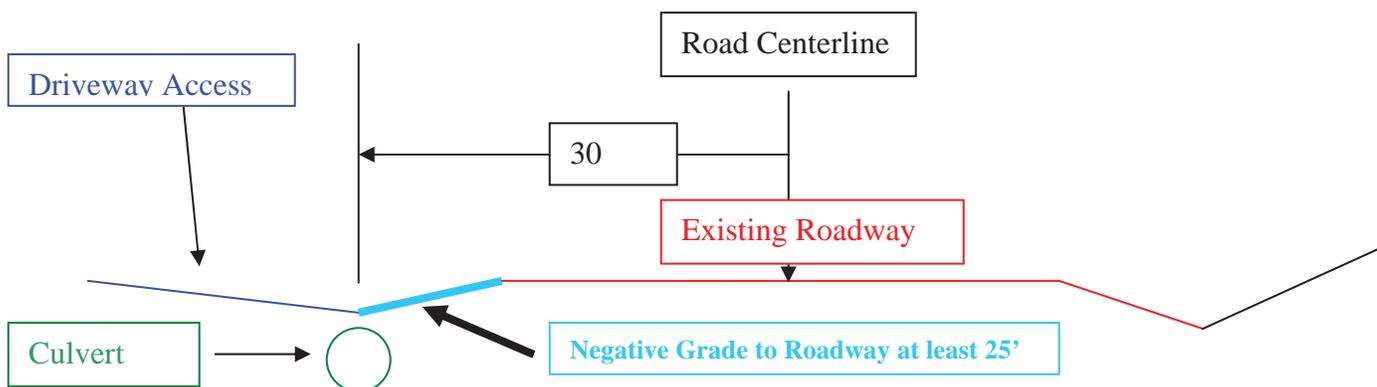
**Stopping Sight Distance** shall be designed as per "A Policy on Geometric Design of Highways and Streets".

### Minimum Specifications

1. Width of driving surface of driveway must be a minimum of 20 feet.
2. Culvert diameter must be 18 inches minimum unless otherwise specified by Road & Bridge.
3. Routt County road Right Of Way easement is 30 feet from Centerline of Roadway.
4. Top of culvert must be lower than existing roadway surface.
5. Cover over culvert must be a minimum of 12 inches or ½ the culvert diameter.
6. Flow line of culvert must match flow line of drainage ditch. Drainage ditch may be modified to accept culvert upon approval.
7. Negative Grade from roadway to control drainage onto roadway for at least 25'.
8. Driveway must approach roadway at a 90 degree angle.

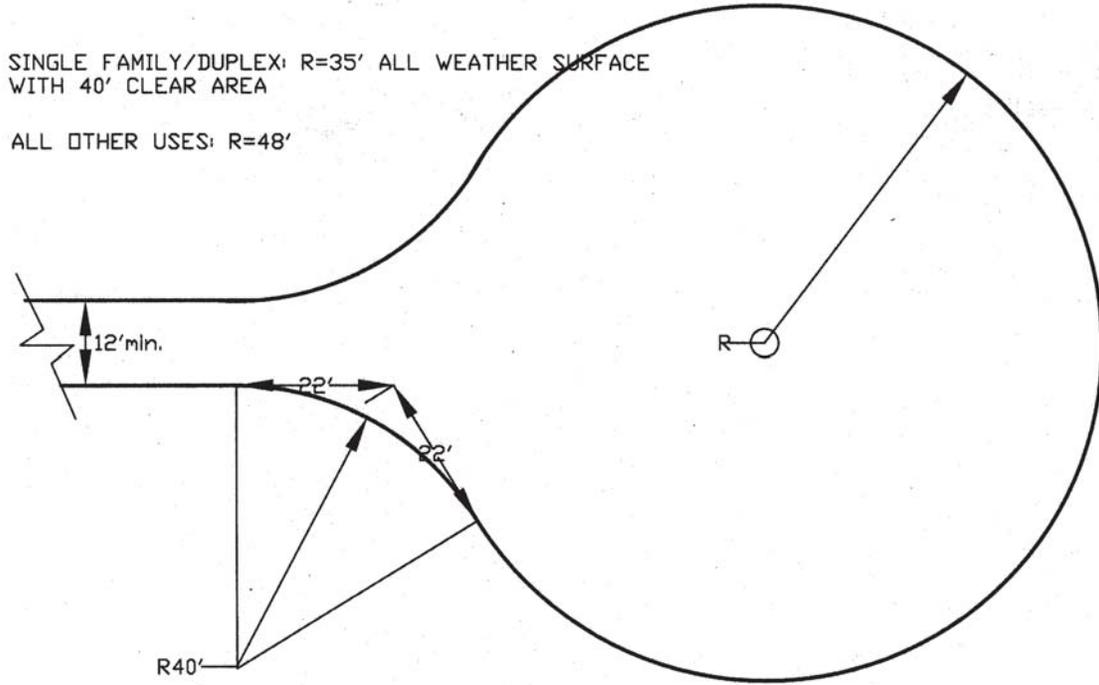
**DRIVEWAY SHALL NOT BE CONSTRUCTED TO ALLOW DRAINAGE TO FLOW ONTO THE EXISTING ROADWAY.**

### Cross Section of Typical Driveway

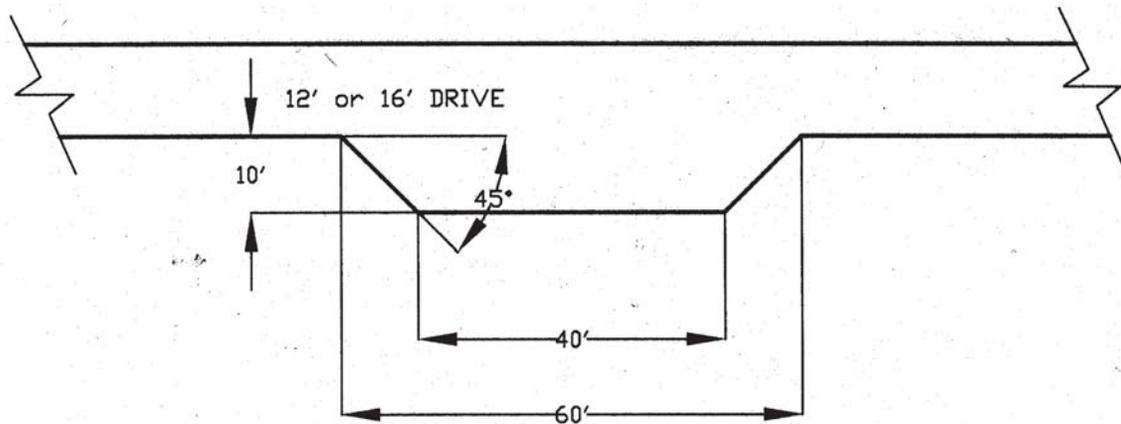


Questions regarding details should be directed to the Road & Bridge office at (970) 870-5344.

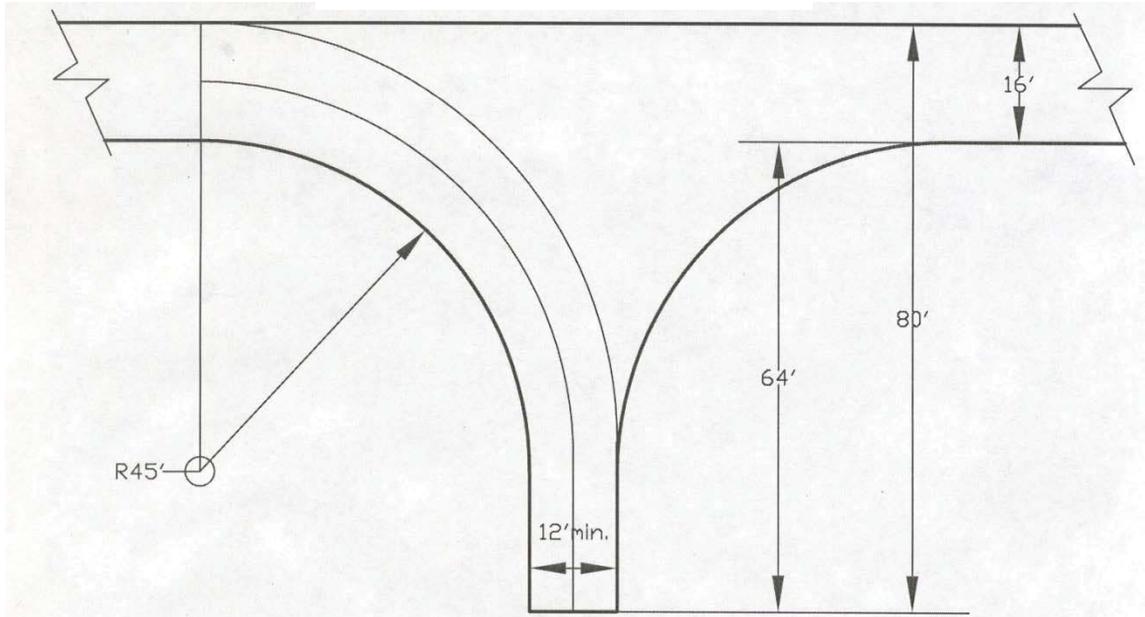
**Figure 5.6 – 3  
Standard Cul-de-sac**



**Figure 5.6 – 4  
Standard Turnout**



**Figure 5.6 – 1**  
**16-foot T-Turnaround**



**Figure 5.6 – 2**  
**12-foot T-Turnaround**

