

APPENDIX A of TITLE 12, CHAPTER 23
PRIVATE ROAD STANDARDS MANUAL
BONNER COUNTY, IDAHO

(Effective 6/28/06, Ord. #478)

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PURPOSE AND AUTHORITY

It is the purpose of this manual to provide consistent standards for construction of new private roads built in Bonner County and reconstruction or renovation of existing private roads for subdivisions, in Bonner County. All construction shall conform to the standards set forth in this manual.

SECTION 1: GENERAL PROVISIONS AND REQUIREMENTS

DEFINITIONS

County: The term "County" refers in all instances to Bonner County, Idaho.

Driveway: As used in this manual, the term "driveway" shall mean a vehicular entrance upon a right-of-way/easement or a roadway which provides access to a four-plex or smaller multi-family, duplex dwelling or single-family residential, commercial, industrial or public lot or parcel.

Local Fire Agency: The fire district, fire subscription agency or Bonner County in the absence of a fire district or subscription area.

New road: As used in this manual, the term "new road" shall mean any road built as a private road or existing private road(s) renovated or reconstructed for subdivisions and not defined as a Driveway.

Private Road: is that road which is to be constructed, reconstructed, or renovated within an easement or private right-of-way.

Project engineer: As used in this manual, the term "project engineer" shall mean a Registered Professional Engineer, licensed in the State of Idaho and who is retained to design, construct or supervise the construction of a new or renovated or reconstructed road.

Road surface, roadway: As used in this manual, the terms "road surface" and "roadway" shall mean the travelway and the road shoulders on each side.

Travelway: That portion of a road which has been improved for the movement of vehicles, exclusive of shoulders.

1.1 APPLICABILITY

The standards contained within this manual shall be applicable to Construction of new private roads built in Bonner County or existing roads renovated or reconstructed for subdivisions in Bonner County and not defined as a Driveway.

SECTION 2: STANDARDS FOR NEW PRIVATE ROAD CONSTRUCTION

2.1 GENERAL REQUIREMENTS

Construction of new private roads built in Bonner County and existing private roads renovated or reconstructed for subdivisions in Bonner County shall conform to the standards set forth in this Section. Note: Dedication of easement (right of way) to homeowner association shall be provided as part of final plat/deeds of family exemption and may be included in the gross acreage, where authorized by this Title.

A road maintenance agreement shall be provided with the subdivision application.

2.2 DESIGN & LAYOUT

A. New roads shall be laid out and designed in conformance with the transportation portion of the Comprehensive Plan.

B. New roads serving residential subdivisions shall be designed to connect to Local Access Roads or Collectors. New roads shall be designed to provide access to each lot.

2.3 SPECIFICATIONS FOR DRAWINGS

A. The project engineer shall prepare Road and Right-of-way/Easement drawings, and each sheet of the drawings shall bear the seal of such engineer. A licensed surveyor may prepare the right-of-way/easement drawings, and each sheet of the drawings shall bear the seal of such surveyor.

B. Two (2) copies of the design drawings shall be submitted to the Bonner County Planning Department. The Planning Department shall provide one copy

to the local fire agency official. All drawings shall include the following, when applicable:

1. The first sheet of the plans shall include a project title, vicinity map, and index of plan sheets.
2. Road horizontal and vertical * alignments with 50' stationing, reading from left to right, and stationing at point of curve, tangent, and intersections, with appropriate ties to existing road surveys and stationing, section corners, quarter corners, and the horizontal control established by the engineer and/or project surveyor. Stations shall increase from west to east and from south to north.
3. Section, township and range.
4. Bearings on the road centerline, keyed to an associated plat map.
5. Curve data including radius, delta, arc length, and semi-tangent length, on all road centerlines and curb returns.
6. Right-of-way/easement lines, width for proposed road travelway and roadway, intersecting roads, and existing road improvements with dimensions.
7. All topographic features within right-of-way/easement limits or future right-of-way/easement limits and sufficient area beyond to resolve questions of setback, cut and fill slope, drainage, access onto abutting property, and road continuations.
8. All existing utilities.
9. All proposed water and sewer utilities that will be designed and constructed.
10. Identification of all roads and adjoining subdivisions.
11. Existing and proposed drainage features, showing direction of flow, size and kind of each drainage channel, pipe, and structure and other specified requirements in any County storm water management specifications.
12. Horizontal Scale: 1" = 50' and a Vertical Scale of 1" = 10'. However, 1" = 100' shall be optional for development of lots one acre or larger. Details for clarification may be shown on a convenient scale. A scale of 1" = 20' may be required for urban arterial streets where detail is sufficiently dense to cause a "cluttered" drawing at a smaller scale.
13. A north arrow.
14. Project beginning and ending designation with stations.
15. A title block to include:
 - a. The project name
 - b. Sheet number
 - c. Road names
 - d. Road limits
16. All found and referenced survey monuments.
17. Section and lot lines.
18. Beginning, middle, and ending elevations of curb returns.
Other data necessary for the specific project.

* Vertical alignment (road centerline profile) is required only where vertical grade exceeds 6%.

2.5 WIDTH OF RIGHT-OF-WAY/EASEMENT REQUIRED

A. New private roads shall have a minimum right-of-way/easement width that shall be of sufficient width to accommodate all cuts and fills, snow storage, and stormwater features but not less than 30 feet in width.

B. Effort shall be made to provide through roads within a subdivision and minimize the need for dead ends. Cul de sacs and hammerhead turnarounds shall have a right-of-way/easement sufficient to provide area within the right-of-way/easement for storage of snow removed from the roadway.

C. Cul de sacs/hammerhead turnarounds shall be designed and constructed in accordance with the current edition of the International Fire Code, as adopted by the state fire marshal, and such later editions as may be so published and adopted by the state fire marshal, or as amended, modified or superseded, and incorporated herein by reference with a copy on file with the office of the clerk of the Board of County Commissioners, and herein after referred to as IFC.

2.6 ROAD DESIGN

A. The minimum and maximum for design parameters of new roads shall be:

DESIGN PARAMETER

Vertical grades	Maximum 10%*
Horizontal curvature on centerline	Minimum radius 50 ft
Roadway Width	22 ft. Minimum**
Travelway Width	20 ft. Minimum **

*Variation to grades steeper than 10% (ten percent) may be approved by Bonner County where evidence is provided by the applicant that steeper grades are necessary and can accommodate fire and emergency vehicles.

**Variations to roadway widths to allow a minimum of 14 (fourteen) feet may be approved by Bonner County where evidence is provided by the applicant that the required roadway width cannot be installed because of topography, waterways, or other similar restricting conditions and that the narrower width will not obstruct

access by fire and emergency vehicles. When a width variance is approved, a turnout on each end of the reduced width section shall be constructed to a minimum of 26 feet in overall travelway width and 40 feet in length, with the turnouts constructed on the right as the traffic enters the reduced width section. No driveways or other access roads shall be allowed in the roadway width varied area.

For the purposes of the standards contained in this manual, private roads are further divided into three subcategories as shown below. Where the term private road is used within the text, it shall include all of the following subcategories:

A. High Density Private Road. A Private Access Road, in any area zoned for lot or parcel sizes of twelve thousand (12,000) square feet or less in size on the official Bonner County Zoning Map.

B. Standard Private Road. A Private Access Road with a projected traffic volume* of two hundred (200) or more Vehicle Trips per Day, or in an area zoned for lot or parcel sizes greater than twelve thousand (12,000) square feet and less than five (5) acres in size on the official Bonner County Zoning Map.

C. Low Volume Private Road. A Private Access Road with a projected traffic volume* of less than two hundred (200) Vehicle Trips per Day, and in an area zoned for lot or parcel sizes of five (5) acres or greater on the official Bonner County Zoning Map. Note: Private roads are not maintained by Bonner County.

- Projected traffic volumes to be based on 10 Vehicle Trips per Day per Household over the design life of the road (usually 20 years).

New private roads shall have a minimum roadway width, travelway width and surfacing based on the classification of the road as follows:

Classification of road	Roadway Width	Travelway Width	Hard Surfaced
Private Access Roads			
A. High Density Private Road	26 feet	20 feet	yes
B. Standard Private Road	22 feet	20 feet	yes
C. Low Volume Private Road	22 feet	20 feet	no

Hard surfaced roads shall have a minimum surfacing of a two (2) shot application of Light Bituminous Surface Treatment.

B. Where fire hydrants are located along the roadway, the minimum width of the travelway shall be 26 feet. This may be accomplished by construction of a

turnout providing and overall travelway width of 26 feet and 40 feet in length at the hydrant location.

2.7 ROAD INTERSECTIONS

A. All new private roads which intersect new or existing roads and rights-of-way/easements shall intersect at an angle which is between eighty (80) and one hundred (100) degrees, and as close to 90 (ninety) degrees as is possible. The edge of the road surfaces shall be connected with a curve having a minimum radius of twenty eight (28) feet. All new roads intersecting a public right-of-way shall be constructed or reconstructed to meet the current Bonner County Road Standards.

2.8 VISIBILITY AT INTERSECTIONS

At intersections, a minimum clear sight triangle shall be maintained as illustrated on Plate 2, Sight Triangle at Intersections, of the current Bonner County Road Standards Manual. It shall be the responsibility of the developer/adjacent landowner to maintain the clear sight triangle at all times.

SECTION 3: ROAD CONSTRUCTION PRACTICES

3.0 CLEARING AND GRUBBING

Prior to the start of road construction, clearing of the entire width of the right-of-way/easement shall be completed. All materials removed by clearing or grubbing shall be properly disposed of in compliance with State and Local requirements. All denuded areas shall be erosion protected as specified in the Storm water and Erosion Control Plan if applicable.

3.1 EROSION CONTROL

During road construction, erosion control measures shall be installed and maintained to minimize soil erosion from disturbed sites. Permanent erosion control measures shall be included in all road designs, with design guidance from the Handbook of Best Management Practices for Stormwater Management and Erosion and the Idaho Standards for Public Works Construction. Refer to Chapter 24 of Title 12, of the Bonner County Revised Code for Stormwater Management and Erosion Control Plan requirements.

3.2 SUBGRADE

- A. The subgrade shall consist of the native materials remaining after duff (organic material) and topsoil have been removed and suitable underlying road construction material, or to a depth as necessary to allow placement of sufficient depth of sub-base material. The extent of the excavation necessary to expose the subgrade shall be determined by the project engineer. Soil and compaction tests are required to document the acceptability for construction. All testing shall be at the expense of the developer.
- B. In solid rock excavation, the solid rock shall be excavated 6 inches below the finished subgrade elevation and backfilled with approved granular material.
- C. Unstable subgrade conditions shall be remedied by over excavation and backfilling with approved material under the direction of the project engineer and/or placement of appropriate geo-synthetic materials to meet the required vehicular support criteria.
- D. Subgrade shall be prepared as necessary to allow overlying road material to be constructed in accordance with these specifications.
- E. Prior to placing any ballast on the subgrade, the Project Engineer is responsible for insuring that all testing, required inspections and standards outlined herein are adhered to.

3.3 BALLAST

- A. All underground utilities and conduits crossing the road shall be installed before placement of ballast material.
- B. Pit run gravel or fractured rock I shall be used for the ballast material. Ballast material shall have a sand equivalent of not less than thirty (30), and which meets the following gradations:

<u>Sieve Size</u>	<u>Percent Passing</u>
6 inch	100
3 inch	98 -- 100
2 inch	75 -- 100
1 inch	40 -- 80
#4	25 -- 60
#200	5 -- 12

- C. The ballast material shall be placed in loose six inch (6") to nine inch (9") lifts and shall be compacted using mechanical methods to at least ninety-five percent (95%) of the ASTM D-698 Standard Proctor Density.
- D. Prior to placing any top course material on the ballast, the Project Engineer is responsible for insuring that all testing, required inspections and standards outlined herein are adhered to.

E. All culvert installations crossing the roadway shall be installed before any base material is placed.

F. Recommended ballast thickness and top course thickness:

The following charts may be used by the Project Engineer to assist in the soils classification and to determine the depth of the minimum required ballast and top course material. The intent is to design a roadway section capable of providing an all weather road for a 78,000 pound fire apparatus.

SOILS DESCRIPTIONS/DEFINITIONS					
MAJOR DIVISIONS			LETTER SYMBOL	TYPICAL DESCRIPTIONS	
COARSE GRAINED SOILS More than 50% of material is larger No. 200 sieve size	GRAVEL AND GRAVELLY SOILS More than 50% of coarse fraction retained no. 4 sieve	CLEAN GRAVELS Little or no fines	GW	Well-graded gravels, gravel - sand mixtures, little or no fines	
			GP	Poorly - graded gravels, gravel - sand mixtures, little or no fines	
		GRAVELS WITH FINES Appreciable amount of fines	GM	Silty gravels, gravel - sand silt mixtures	
			GC	Clayey gravels, gravel - sand clay mixtures	
	SAND AND SANDY SOILS More than 50% of coarse fraction passing No. 4 sieve	CLEAN SAND Little or no fines	SW	Well - graded sands, gravelly sands, little or no fines	
			SP	Poorly - graded sands, gravelly sands, little or no fines	
			SM	Silty - sands, sand - silt mixtures	
			SC	Clayey sands, sand - clay mixtures	
			SANDS WITH FINES Appreciable amount of fines	ML	Inorganic silts & very fine sands, rock flour silty or clayey fine sands & clayey silts w/slight plasticity
				CL	gravelly, clays, sandy clays, silty clays, lean clays
FINE GRAINED SOILS More than 50% of material is smaller than No. 200 sieve size	SILTS AND CLAYS Liquid limit less than 50	OL	Organic silts and organic silty clays of low plasticity		
		MH	Inorganic silts, micaeous or diatomaceous fine sand or silty soils		
		CH	Inorganic clays of high plasticity, fat clays		
	SILTS AND CLAYS Liquid limit greater than 50	OH	Organic clays of medium to high plasticity, organic silts		
		PT	Peat, humus, swamp, soils with high organic contents		
HIGHLY ORGANIC SOILS					

Soil Type (USCS)	r value	Ballast	Top Course		Ballast	Top Course	Surfacing
OH,OL,CL, CH,MH	5	DESIGN REQUIRED					
	10						
	15						
SC	20	12"	4"				
ML	25	12"	4"				
	30	12"	4"				
**GM,GL	35	12"	4"				
SM	40	12"	4"				
SP	45	12"	4"				
	50	12"	4"				
GP	55	12"	4"				
SW	60	12"	4"				
GW	65	12"	4"				

*

** GM & GC soils are highly dependent on the % silt or clay, a 35 r value is on the conservative side

Subgrade R-value may require the minimum road section design to be increased under the direction of the project engineer.

3.4 TOP COURSE

A. Top course material shall meet the following gradation requirements:

SIEVE SIZE	% PASSING
1"	100
3/4"	90-100
#4	40-65
#8	30-50
#200	3-9

B. At least sixty percent (60%) of the crushed aggregate particles retained on the No. 4 sieve shall have at least one (1) fractured face.

C. The Los Angeles Abrasion Test may be required to ensure the top course aggregate does not show more than a loss of thirty-five per cent (35%) and the sand equivalent not less than 30.

D. The material shall be placed in loose lifts not to exceed 6" in depth

and compacted to the approved design depth. The material shall be mechanically compacted by rolling to ninety-five percent (95%) of the ASTM D-698 Proctor Density. The aggregate shall be placed in such a manner that it will have a uniform mixture throughout.

E. Prior to placing top course material on the ballast, the Project Engineer is responsible for insuring that all testing, required inspections and standards outlined herein are adhered to.

3.5 ROAD SIGNAGE

A. Road Name: No new private road or existing renovated or reconstructed private roads shall be considered completed until a road name sign has been installed. It shall be the responsibility of the developer/landowner to purchase, erect and maintain the road name signs. All road name signs shall conform to the standards contained in the latest edition of the Manual on Uniform Traffic Control Devices and Bonner County Revised Code.

B. Stop Sign: A stop sign shall be installed at the intersection with all public roads. Stop sign dimensions, installation and location shall conform to the latest edition of the MUTCD. It shall be the responsibility of the developer/landowner to purchase, erect and maintain the stop signs.

3.7 STANDARDS FOR NEW BRIDGE CONSTRUCTION

The standard for bridge design within private roads shall at a minimum be HB-16-1996, as described in the AASHTO Standard Specification for Highway Bridges, 16th edition.

3.8 ENGINEERING REQUIREMENTS

INSPECTIONS REQUIRED

The project engineer shall, at a minimum, conduct on site inspections of the new private road construction at the following stages of construction:

1. Completion of any construction surveying and staking.
2. Completion of subgrade, prior to the placement of any ballast material.
3. Completion of ballast, prior to the placement of any top course material.
4. Completion of installation of road signs, installation of any appurtenant structures, and reseeding of disturbed area and slopes.

3.9 FINAL REPORT AND AS-BUILT DRAWINGS

At the completion of the road construction, and following the last required inspection, the project engineer shall submit two (2) copies of the final report and as-built drawings for the new road and any appurtenant structures to the

Planning Department. The Planning Department shall provide one copy to the local fire agency official. The final report shall include complete information related to the road construction and at a minimum, include the following information:

- A. Dates of inspection, work performed and inspected, changes or repairs ordered.
- B. Weather conditions, unusual or unexpected site conditions.
- C. Engineering operations performed.
- D. The appropriate INSPECTION AND INFORMATION CHECKLIST.

REQUIRED INSPECTION & INFORMATION CHECKLIST

Check off when completed & submit to Bonner County Planning Department

PROJECT NAME: _____

ASSIGNED PLANNING DEPARTMENT NUMBER: _____

ASSIGNED PUBLIC WORKS ENCROACHMENT PERMIT
NUMBER: _____ (if applicable)

For all private roads:

- Project Engineer shall submit construction inspection notes
- Verify placement of any approved geotextile fabric, ballast and 3/4" minus
- Verify the gradation of 3/4" minus and ballast, submit sieve analysis
- Verify the section depth
- Submit nuclear density gauge field data sheets
- Submit subgrade Density Test results
- Density tests are required for every lift at a minimum frequency of 300 linear feet, for all materials, special attention shall be paid to curve returns, cul-de-sacs/hammerhead turnarounds or sensitive areas
- Submit proctor tests results on subgrade, ballast, 3/4" minus
- (Other requirements– verified by Engineer)

CERTIFICATION OF COMPLETION/ACCEPTANCE:

- I CERTIFY THE PROJECT IS COMPLETED IN GENERAL ACCORDANCE WITH THE APPROVED PLANS AND SPECIFICATIONS.

Project Engineer Signature

Date:

Project Engineer Name PRINTED Seal