



RESOLUTION 2013-0411B
ADOPTING HIGHWAY & STREET GUIDELINES
FOR DESIGN & CONSTRUCTION IN TETON COUNTY

WHEREAS, the Teton County Board of County Commissioners desires to update the design and construction standards for Teton County roads adopted in 2005, and

WHEREAS, such updated standards will aid in providing roads designed and built specifically for the conditions encountered in Teton County; and

WHEREAS, the updated design standards are based on the previously adopted design standards with all changes based on sound engineering judgment in conjunction with federal design recommendations;

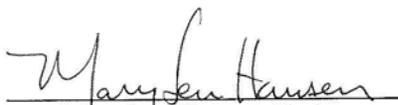
NOW THEREFORE BE IT RESOLVED that the Board of County Commissioners hereby unanimously adopts the attached Teton County Highway & Street Guidelines for Design and Construction dated April 11, 2013.

DATED and done this 11th day of April, 2013.

TETON COUNTY BOARD OF COMMISSIONERS



Kelly Park, Chairman

ATTEST: 

Mary Ldu Hansen, Clerk

HIGHWAY & STREET GUIDELINES FOR DESIGN AND CONSTRUCTION IN TETON COUNTY, IDAHO

As amended April 11, 2013

Local Highway Technical Assistance Council November, 2001



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INTENT OF MANUAL

Teton County, Idaho

This manual is prepared specifically for the consideration and use by Teton County, Idaho.

Need for Control and Uniformity

1. It is the intent of this manual to provide for a uniform roadway network at the local level throughout Teton County, Idaho. While each county has its own system of street and highways, the need exists for general overall highway and street design and construction guidelines to better serve the public. The overall system is established on maps showing the Functional Highway Classification System for Teton County, Idaho, shown later in this manual.
2. It is further the intent of these Guidelines to upgrade and maintain the safest highway system available for Teton County, Idaho. It is not the intent to put forward conflicting requirements that will detract from the safety of the traveling public.
3. The maintenance of the local highways is the responsibility of Teton County, Idaho. The intent of these Guidelines is to promote the construction of good streets and highways while reducing the maintenance and repair costs.
4. If any section, subsection, sentence, clause, phrase, or portion of these guidelines is for any reason held invalid or unconstitutional by any court of competent jurisdiction, such portions shall be deemed a separate, distinct, and independent provision and such holdings shall not affect the validity of the remaining portions thereof.

Disclaimer

1. Nothing herein shall be construed to impose a mandatory requirement or a duty upon Teton County, Idaho to construct, reconstruct, or improve existing public streets or highways to comply with these guidelines. The adoption or applications of these guidelines does not create a need for Teton County, Idaho to necessarily upgrade existing roadways to their same level.
2. Nothing herein shall be construed to impose a mandatory requirement or a duty reconstruct, streets or highways to comply with these guidelines.

DEFINITION OF TERMS

- **Applicant** - Any person or persons making application to Teton County, Idaho.
- **Dedication** - The setting apart of land or interest in land for use by the public. Land becomes dedicated when accepted by Teton County, Idaho as a public dedication, either by ordinance, resolution, or entry in the official minutes or by the recording of a plat showing such dedication.
- **Easement** - A grant by the owner of the use of a parcel of land by the public, corporation, or persons for specified use and purposes.
- **Highway** - The entire width between the boundary lines of every way publicly maintained when any part is open to the use of the public for vehicular travel, with jurisdiction extending to the adjacent property line, including sidewalks, shoulders, berms and public rights-of-way not intended for motorized traffic. The terms “street” or “road” are interchangeable with highway.
- **Irrigation Facilities** - Includes canals, laterals, ditches, conduits, gates, wells, pumps, and allied equipment necessary for the supply, delivery, and drainage of irrigation water.
- **Owner** - The person or persons holding title by deed to land or holding title as vendees under a land contract.
- **Plat** - A map of a subdivision:
 - **Preliminary Plat** - A preliminary map, including supporting data, indicating a proposed subdivision development, prepared in accordance with Teton County, Idaho ordinances and the Idaho Code.
 - **Final Plat** - A map of all or part of a sub-division providing substantial conformance to an approved preliminary plat, prepared by a registered professional engineer or a registered land surveyor in accordance with Teton County, Idaho ordinances and the Idaho Code.
 - **Recorded Plat** - A final plat bearing all of the certificates of approval required by ordinance and duly recorded in the Teton County, Idaho Recorder’s Office.

- **Public Right-of-Way** - A right-of-way open to the public and under the jurisdiction of a public highway agency, where the public highway agency has no obligation to construct or maintain said right-of-way for vehicular traffic. A term used to define a specific space.
- **Reserve Strip** - A strip of land between a dedicated street or partial street and adjacent property, in either case, reserved or held in public ownership for future street extension or widening.
- **Roadway** - That portion of a highway improved, designed or ordinarily used for vehicular travel, exclusive of sidewalks, shoulders, berms, and other portions of the public right-of-way.

Arterial Route - A general term including expressways, major and minor arterial streets' and interstate, state or county highways having regional continuity.

Collector Street or Highway - A street or highway that provides for traffic movement within neighborhoods of the county and between major streets and local street and for direct access to abutting property.

Local Street - A street that provides for direct access to residential, commercial, industrial, or other abutting land for local traffic movements and connects to collector and/or arterial streets.

Marginal Access Street - A minor street parallel and adjacent to an arterial route and intercepts local streets and controls access to an arterial route, sometimes referred to as a frontage road.

Cul-de-sac Street - A local road or street having one end permanently terminated in a vehicular turnaround.

Loop Street - A minor street with both terminal points on the same street of origin.

Alley - A public way of limited use intended only to provide access to the rear or side of lots or buildings in urban districts.

- **Shared Use Roads** - A shared use road is one that is used by both vehicular and other non-motorized modes of transportation. According to AASHTO, roadways carrying low traffic volumes (<400 vehicles per day), and operating at low speeds, are suitable for shared use lanes in their present state. Also, rural roadways with good sight distance that carry low

DESIGN CRITERIA

General Design Criteria

These guidelines are based upon the American Association of State Highway and Transportation Officials, (AASHTO) *Policy on Geometric Design of Highways and Streets*, and (AASHTO) *Guidelines for Design of Very Low Volume Local Roads*, current edition. Where possible, all design should be based on these guidelines and the applicable design criteria set forth by AASHTO. Any variation from these design guidelines should be done on a detailed basis in conformance with sound engineering judgment and with the safety of the traveling public in mind.

Roadway Classification

All roadways within Teton County, Idaho are classified in accordance with the appropriate Federal Highway Administration legislation. All streets and highways are classified as arterials, collectors, or local roads and streets. It shall be the prerogative of Teton County, Idaho, having jurisdiction over the area to be developed, to define the roads within subdivisions and their classification as arterials, collectors, or local roads and streets. The system map showing the classifications for Teton County, Idaho can be viewed in Figure 2 below.

Existing Functional Classifications Teton County

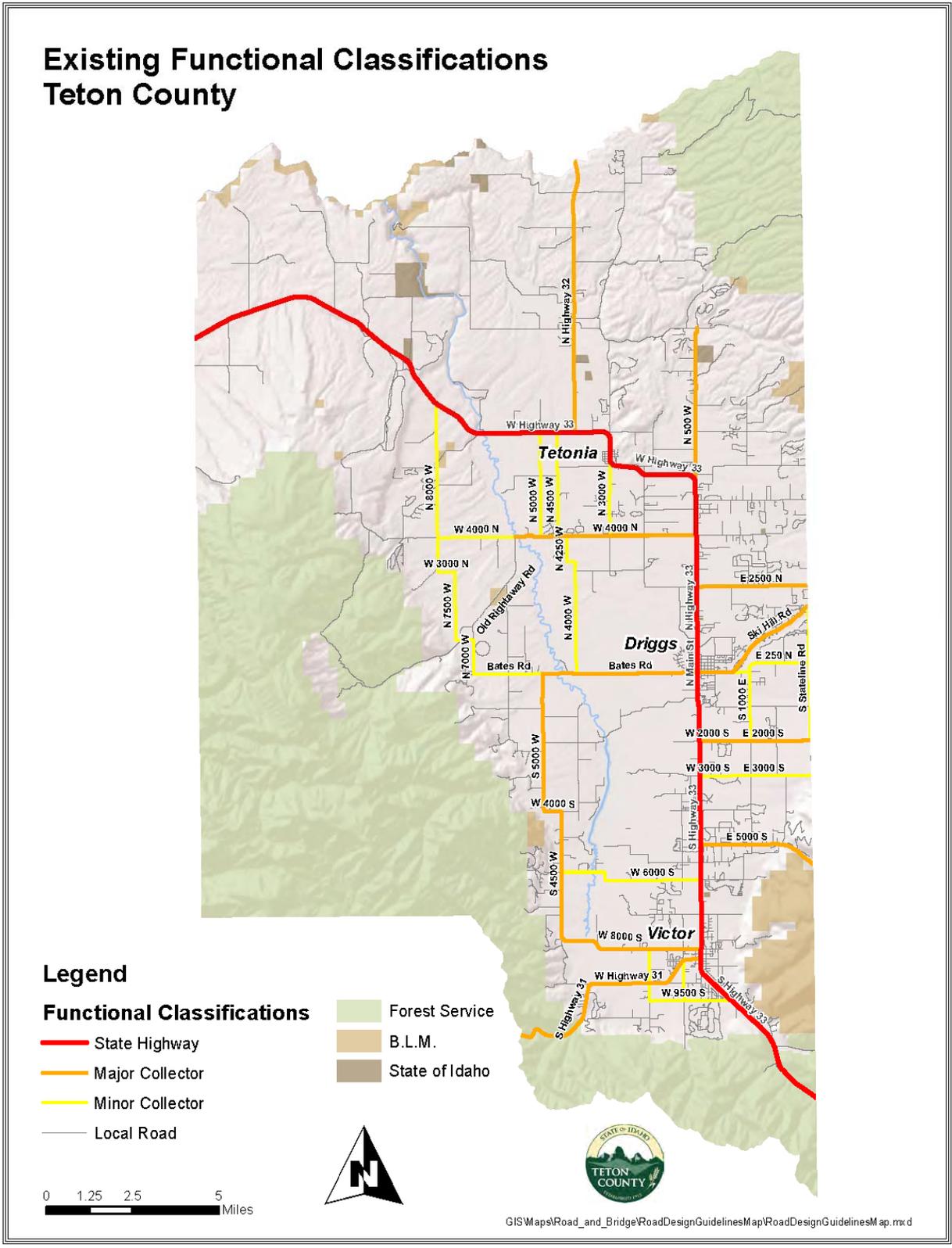


Figure 2. Teton County Road Classifications

Public Highway and Street Right-of-Way#

1. The desirable width of the public highway and street right-of-way for each classification is shown in Table 1 below.

Table 1. Recommended Right-of-Way Widths

TYPE OF ROADWAY	MINIMUM WIDTH OF PUBLIC RIGHT-OF-WAY*
Arterials	80 - 100 feet
Collectors	60 - 80 feet
Local Roads and Streets	60 feet

**Note: Additional widths may be required for accommodation of extreme cut or fill sections.*

2. Cul-de-sacs should have a minimum right-of-way of a 60-foot radius with additional highway right-of-way as needed to accommodate unusual cut and fill sections. Cul-de-sacs of a temporary nature may be allowed, providing each public right-of-way is shown on the plans or plat and approved by Teton County, Idaho. If buses are expected to use the cul-de-sac, the minimum public right-of-way should be a 70-foot radius. A standard cul-de-sac layout is shown in Figure 3 on the following page.
3. All intersections of highway right-of-way lines at street and highway intersections and at cul-de-sac bulbs should be connected by a curve having a minimum radius of twenty feet (20').

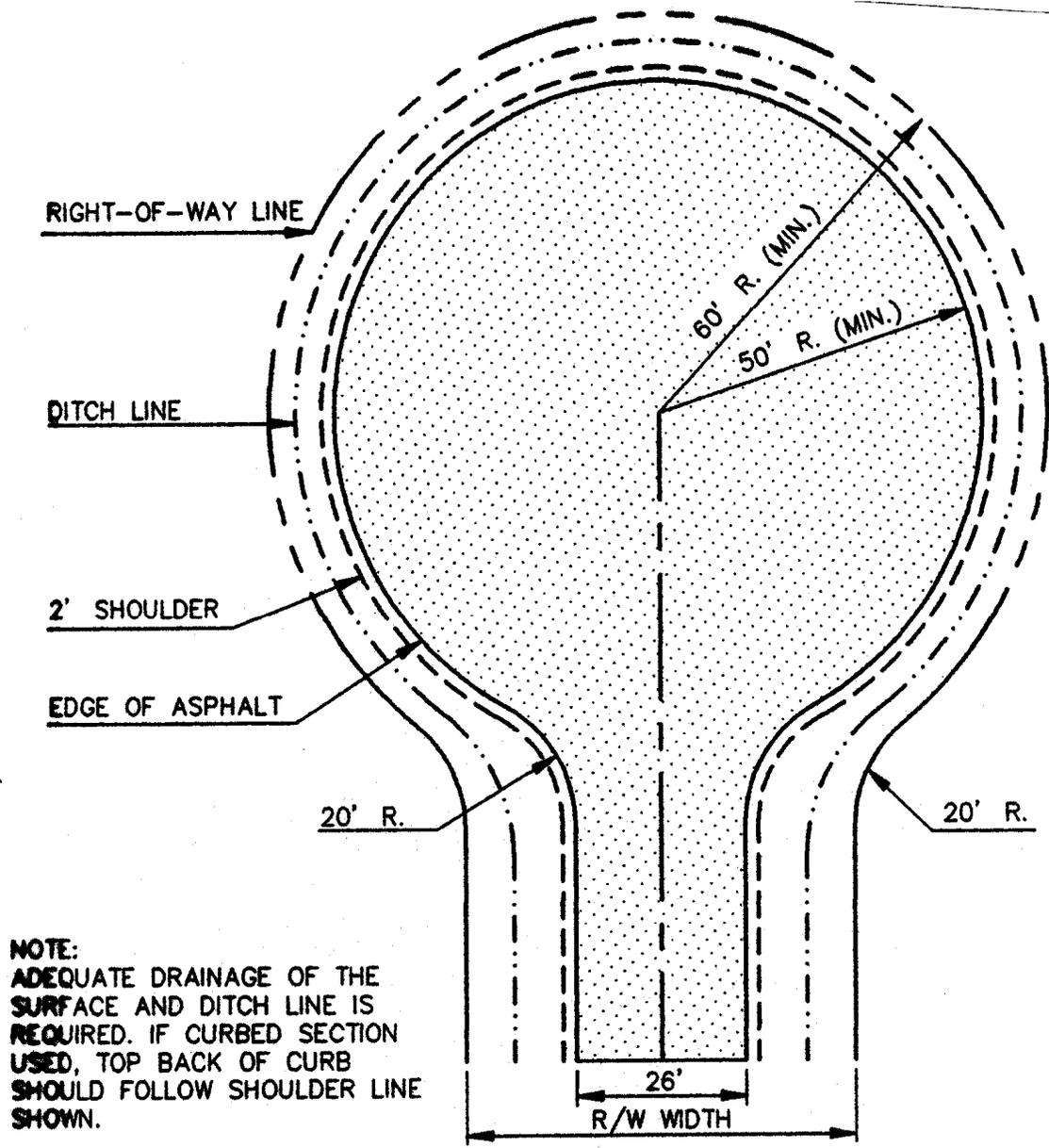


Figure 3. Typical Cul-de-sac Layout

Alignment

Table 2 below is intended to show the minimum and maximum values for various parameters used in design criteria for the three classes of streets and highways to be designed. Modification by Teton County, Idaho on an individual project by project basis may be accomplished under each jurisdiction's appropriate procedures.

Table 2. Geometric Design Criteria

DESIGN PARAMETER	ARTERIAL	COLLECTOR	LOCAL ROADS AND STREETS
Vertical Grades*	Minimum 0.5% Maximum 6%	Minimum 0.5% Maximum 6%	Minimum 0.5% Maximum 10%****
Horizontal Curvature	7° Min. Radius 839 Ft.**	11.5° Min. Radius 510 Ft.**	25° Min. Radius 250 Ft.**
Design Speed	35 - 60 mph	35 - 55 mph	25 - 35 mph
Super Elevations	Max 0.06 ft. per foot	Max 0.06 ft. per foot	Max. 0.06 ft. per foot
Min. Runoff Length	150 Ft. ***	120 ft.***	110 ft. ***
Angles of Intersection	80 - 90°	80 - 90°	70 - 90°

* *Roadways constructed using curb and gutter sections may have a minimum grade of 0.35%*

** *Radius measured to centerline of roadway*

*** *Runoff length dimension from full superelevation to full crown section*

**** *May be increased to 15% with special attention to maintenance consequences*

Stopping and Passing Sight Distance

The stopping and passing sight distances should be at least the minimum shown in Table 3 for the design speed used on the roadways. Figure 4 is an example of how sight distance is calculated.

Table 3. Minimum Sight Distances

MINIMUM SIGHT DISTANCES IN FEET							
Design speed MPH	20	25	30	35	40	50	55
Stopping sight distance: Stopping distance, feet: AASHTO figure 3.1, page 112	115	155	200	250	305	425	495
K value for: *							
Crest vertical curve	7	12	19	29	44	84	114
Sag vertical curve	17	26	37	49	64	79	96
Passing sight distance: Passing distance, ft. 2-lane AASHTO page 124	710	900	1090	1280	1470	1625	1835
K value for: *							
Crest vertical curve	180	289	424	585	772	943	1203

**Note: K value is a coefficient by which the algebraic difference in grade may be multiplied to determine the length in feet of the vertical curve which will provide minimum sight distance.*

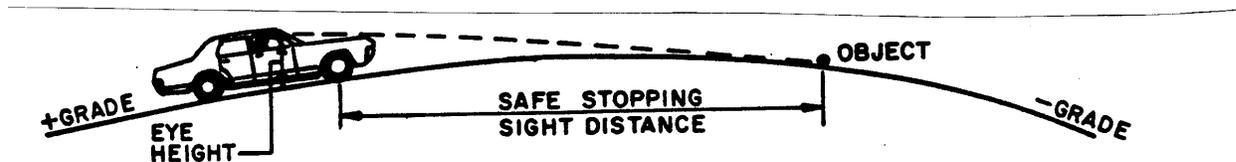


Figure 4. Sight Distance Measurement

Assumptions: Height of Eye = 3.50' above road surface
Object Height = 2.0' (tail light of a passenger car)

Roadway Cross-Section

1. Roads in Teton County, Idaho must be designed for an average daily traffic volume (ADT) for the design life of the road. Gravel roads shall assume a 10-year design life while the longevity of a paved road will be assumed as 20 years.
2. Equivalent single axle loads (ESAL's) shall be computed using a specific ADT and knowing the percentage of the traffic volume accounting for each vehicle class, as well as the ESAL weight for each class.
3. Paved roads will be designed using the AASHTO Pavement Design Method or approved design software.
4. Unpaved roads will be designed using the AASHTO Gravel Road Design Manual or approved design software. Unpaved roads will assume a 4" top coarse gravel layer as the wearing course. Roads that are to be chip-sealed will be designed using this method.
5. Roads located in areas where there is poor quality subgrade may be designed incorporating a geogrid. It is recommended that the geogrid be paired with a geotextile if subgrade conditions are indicative of pumping.
6. Design thicknesses may be modified by design of a geotechnical engineer, but must be approved by the Teton County, Idaho Engineer.
7. The typical roadway details for major collectors, minor collectors, local roads, recreational access roads, driveways, and shared use roads are shown on the following pages. These guidelines show the cross-section characteristics required for roadways within Teton County, Idaho. The details are for both rural and urban situations.
8. For industrial type subdivisions, the typical curb and gutter section should be used with a forty foot (40') face to face of vertical curb and gutter. The asphalt thickness should be at least four (4) inches in depth.
9. The typical curb and gutter section shown on the typical roadway details may be required on subdivisions having density of one home per acre or greater.
10. Approaches should be in conformance with the Manual for Use of Public Right-of-Way Standard Approach Policy, LHTAC, current edition.
11. All irrigation facilities shall be removed and maintained outside the public right-of-way. Highway ditches may not be used for conveying irrigation water of any type.

12. The roadway cross-section outside the paved area and inside the remaining public right-of-way should follow the general guidelines of the *Roadside Design Guide*, published by AASHTO, current edition. This Guide may be used to determine safety characteristics for any appurtenance such as signing, rocky outcrops, or general hazards to the traveling public.

Major Collectors

(See Figure 2 for major collector routes in Teton County)

Rural collector routes serve commuters on an intra-county basis and are generally shorter than arterial routes such as state highways. Major collector roads in the rural setting “serve county seats not on arterial routes, larger towns not directly served by higher systems, and other traffic generators of equivalent intra-county importance, such as consolidated schools, shipping points, county parks, and important mining and agriculture areas; link these places with nearby larger towns or cities, or with routes of higher classifications; and serve the more important intra-county corridors” (AASHTO, 2004).

Although the designation of a major collector is not based on average daily traffic (ADT), major collectors in Teton County as defined in Figure 2 generally have a traffic volume exceeding 400 vehicles per day. The major collector standard for Teton County, Idaho is shown in Table 4 below, while the cross section can be seen in Figure 5.

Table 4. Major Collector Standard

Lane Width (ft)	Shoulder Width (ft)	Road Width (ft)	ADT (veh/day)	Speed Limit (mph)
11	4*	30	400+	45-55

*4 foot shoulder lanes are to accommodate bike traffic as recommended by AASHTO.

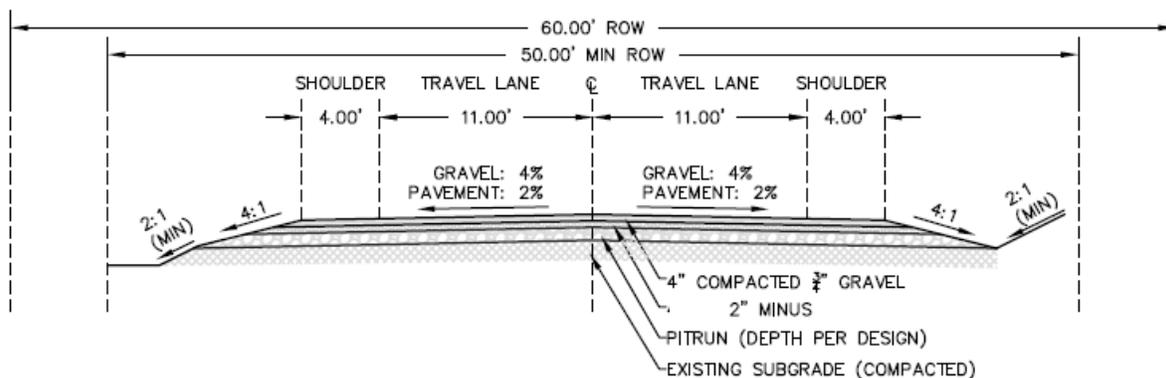


Figure 5. Major Collector Cross-Section

Major collectors will typically be constructed with a paved wearing surface. However, major collectors having an ADT of less than 400 may be built as a gravel road and can expect 3-year minimum longevity.

Minor Collectors

(See Figure 2 for minor collector routes in Teton County)

Minor collector roads differ from major collectors in that these routes should be “spaced at intervals consistent with population density to accumulate traffic from local roads and bring all developed areas within reasonable distances of collector roads; provide service to the remaining smaller communities; and link the locally important traffic generators with their rural hinterland” (AASHTO, 2004).

Although the designation of a minor collector is not based on ADT, major collectors in Teton County as defined in Figure 2 generally have a traffic volume ranging from 150 to 400 vehicles per day. The road standard for minor collectors in Teton County, Idaho is shown in Table 5 below, while the cross-section may be viewed in Figure 6.

Table 5. Minor Collector Standard

Lane Width (ft)	Shoulder Width (ft)	Road Width (ft)	ADT (veh/day)	Speed Limit (mph)
10	2	24	150-400	35-45

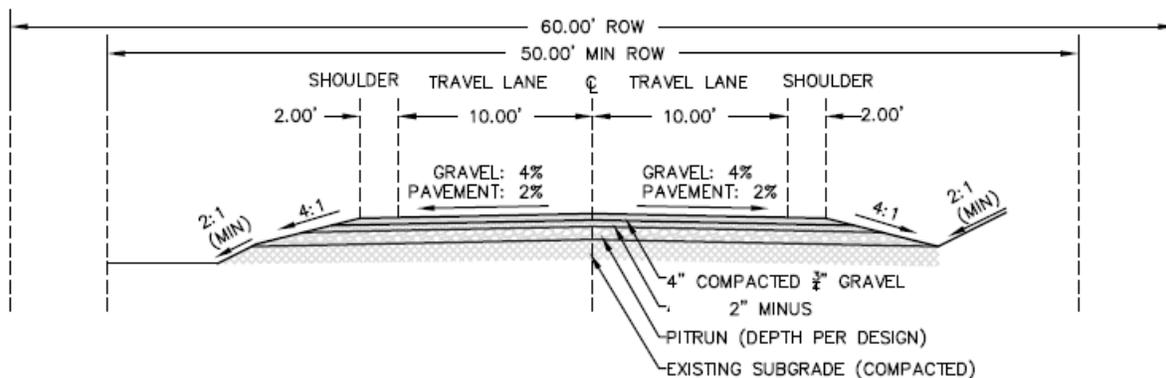


Figure 6. Minor Collector Cross-Section

For paved minor collectors having an ADT exceeding 400 and that are identified as bike routes, shoulders should be widened to establish bike lanes. AASHTO recommends the use of 4 foot shoulders for bike traffic. The road cross section for minor collectors with accommodating bike lanes can be seen in Table 6 below.

Table 6. Minor Collector Standard w/ Bike Lanes

Lane Width (ft)	Shoulder Width (ft)	Road Width (ft)	ADT (veh/day)	Speed Limit (mph)
10	4	28	400+	35-45

Minor collectors can be constructed with either a paved or gravel wearing surface. It should be noted that a paved surface will increase the longevity of the roadway, and can also elevate the speed limit

Local Roads

(See Figure 2 for local routes in Teton County)

According to the American Association of State Highway and Transportation Officials (AASHTO): “The rural local road system, in comparison to collectors and arterial systems, primarily provides access to land adjacent to the collector network and serves travel over relatively short distances. The local road system constitutes all rural roads not classified as principal arterials, minor arterials, or collector roads.” Local roads typically serve 65-75% of the total rural road length in a given county.

Local roads as defined in Figure 2 generally have an ADT of less than 150 vehicles per day, although many exceed this value. The design standard for local roads in Teton County, Idaho is outlined in Table 7 below, while the cross-section may be viewed in Figure 7.

Table 7. Local Road Standard

Lane Width (ft)	Shoulder Width (ft)	Road Width (ft)	ADT (veh/day)	Speed Limit (mph)
9	2	22	<150	25-35

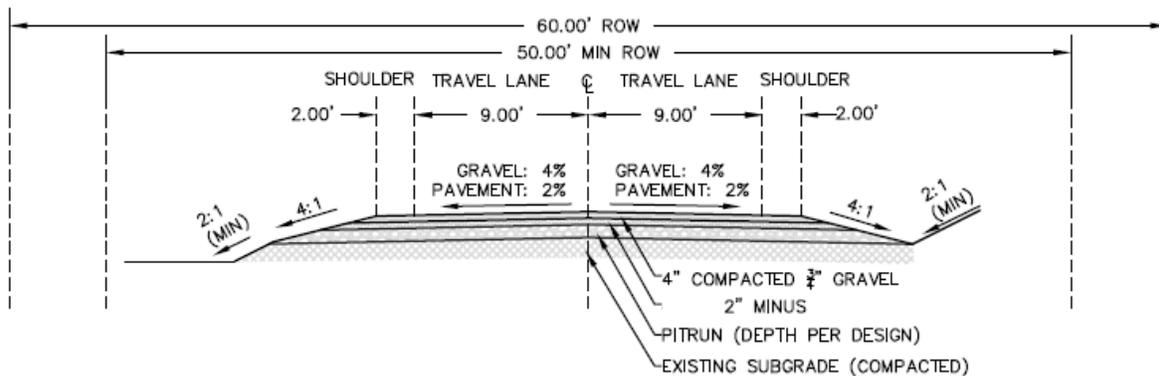


Figure 7. Local Road Cross-Section

Local roads are typically constructed with a gravel wearing surface, although a paved surface is also applicable.

Recreational Access Roads

Recreational accesses are generally Forest Service roads and are not listed on the functional classification map for Teton County, Idaho. According to AASHTO: “Recreational and scenic roads serve specialized land uses, including parks, tourist attractions, and recreation facilities, such as campsite or boat-launch ramps. Traffic is open to the general public, and their users are more likely than users of other functional sub-classes of local roads to consist of unfamiliar drivers. Recreational and scenic roads do not generally carry significant volumes of truck traffic, but do serve recreational vehicles including motor homes, campers, and passenger cars pulling boats and other

trailers. In many cases, these roads carry high seasonal traffic volumes. Recreational and scenic roads may accommodate a wide range in speeds and trip lengths may be fairly long.” The design standard for recreational access roads in Teton County, Idaho is shown in Table 8 below, while the cross-section may be seen in Figure 8.

Table 8. Recreational Access Standard

Lane Width (ft)	Shoulder Width (ft)	Road Width (ft)	ADT (veh/day)	Speed Limit (mph)
6-8	1	14-18	<150	15-25

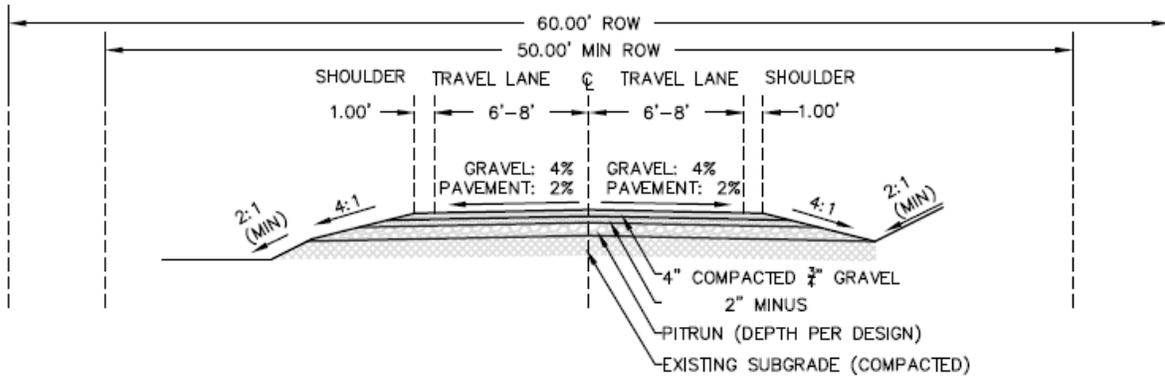


Figure 8. Recreational Access Road Cross-Section

It should be noted that AASHTO recommends the use of an 8 foot travel lane for recreational roads while the forest service standard ranges from 6-7 feet for a travel lane. Access roads usually incorporate a gravel wearing surface but can be paved.

Driveways

A driveway is an access from a public road to two parcels of land or less. A roadway that serves as an access to three or more parcels shall be deemed a local road, and adheres to local road standards. Driveway requirements for Teton County, Idaho are summarized in the following sections.

The design standard for a driveway in Teton County, Idaho is outlined in Table 9 below, while the cross section can be seen in Figure 9.

Table 9. Driveway Standard

Lane Width (ft)	Shoulder Width (ft)	Total Width (ft)
6	2	16

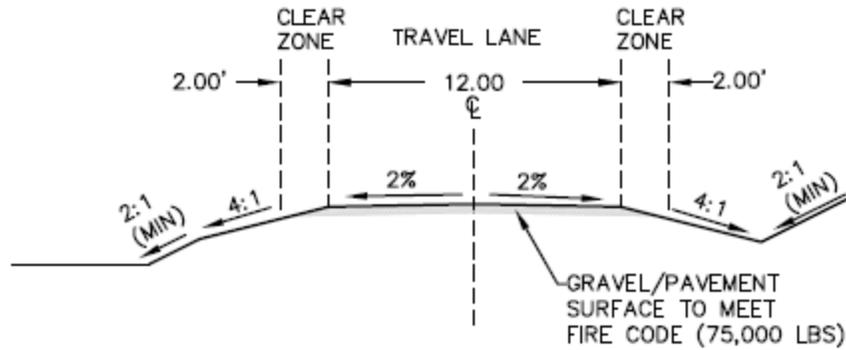


Figure 9. Driveway Cross-Section

Driveway Pull-outs

Dead-end driveways in excess of 400 feet shall have pullouts every 400 feet. Turnouts will allow for emergency vehicles to pass when necessary. Pullouts need to be 35 feet long to accommodate a typical fire engine. The design for driveway pullouts can be seen in Figure 10 below.

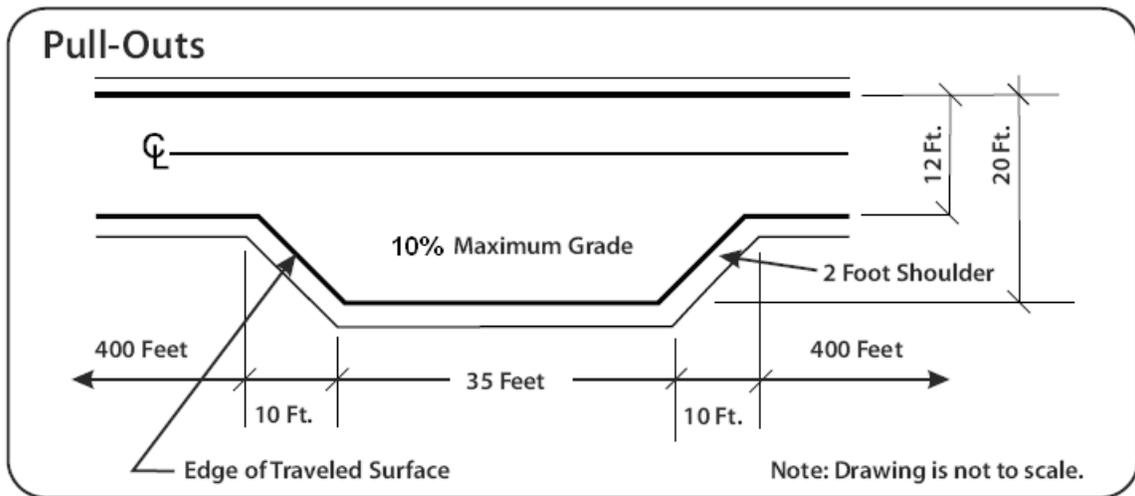


Figure 10. Pull-Out Standard

Driveway Turnarounds

For dead-end driveways exceeding 150 feet in length, an approved turnaround is required for emergency vehicles to be able to reverse their direction at a residence. Turnarounds shall adhere to the current International Fire Code. Two examples of acceptable turnarounds are shown on the following page. The first is the “Hammerhead” turnaround which can be seen in Figure 11. An additional turnaround option is the “Y” configuration and can be viewed in Figure 12.

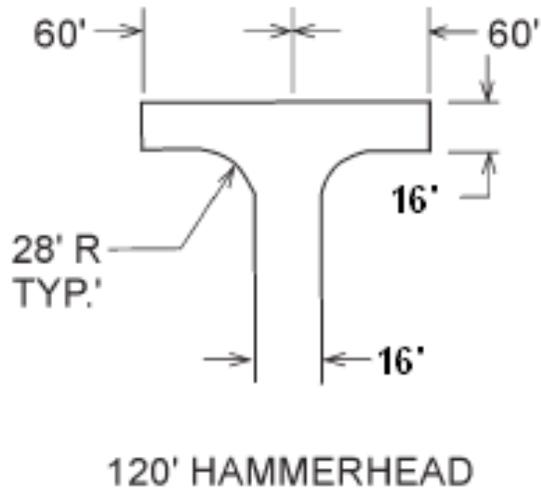


Figure 11. Hammerhead Style Turnaround

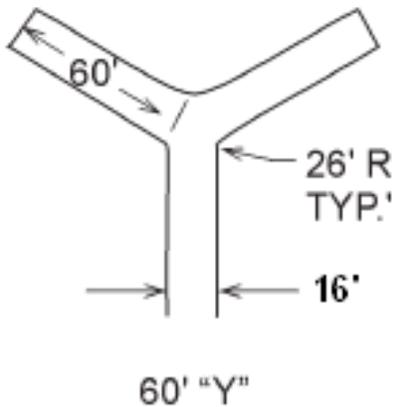


Figure 12. Y Configuration Turnaround

Driveway Grade

Driveway grades shall not exceed 10%. Grades steeper than 10% can be approved by the fire marshal.

Driveway Clearance

A vertical clearance of 13 feet 6 inches above all driveways must be maintained.

Driveway Surfacing

Driveways must be graveled or hard-surfaced.

Driveway Drainage

Driveways must have adequate drainage in order to negate erosion. Drainage shall be diverted from driveways into roadside ditches. When applicable, corrugated metal culverts will be designed to convey drainage. Culverts are required at all intersections with county roads unless otherwise approved.

Driveway Permits

All new access into county roads, including driveways require the appropriate permit.

Drainage

1. All drainage facilities for the project should be designed by a registered professional engineer and approved by Teton County, Idaho in conjunction with the roadway plans. The design shall be based on the Idaho Transportation Department's publication, *Urban Storm Sewer Design for Idaho Highways*, latest edition, or procedures as set forth by Teton County, Idaho. The design storm return period for drainage systems shall be at least ten (10) years. Any disruption of the normal drainage pattern of the area to be developed must have special consideration to accommodate future drainage.
2. Culverts used for drainage purposes should be of corrugated steel, aluminum, HDPE, or concrete with the thickness and cover over the top of the pipe being in conformance with Table 10 below (other types of materials may be used when approved by Teton County, Idaho):

Table 10. Culvert Requirements

DIAMETER (INCHES)	STEEL THICKNESS (INCHES) ***	ALUMINUM THICKNESS (INCHES)	CONCRETE CLASS**	COVER REQUIRED *
12 through 36	0.064	0.060	V	12" minimum

* *Cover may be reduced to six inches (6") on residential driveways.*

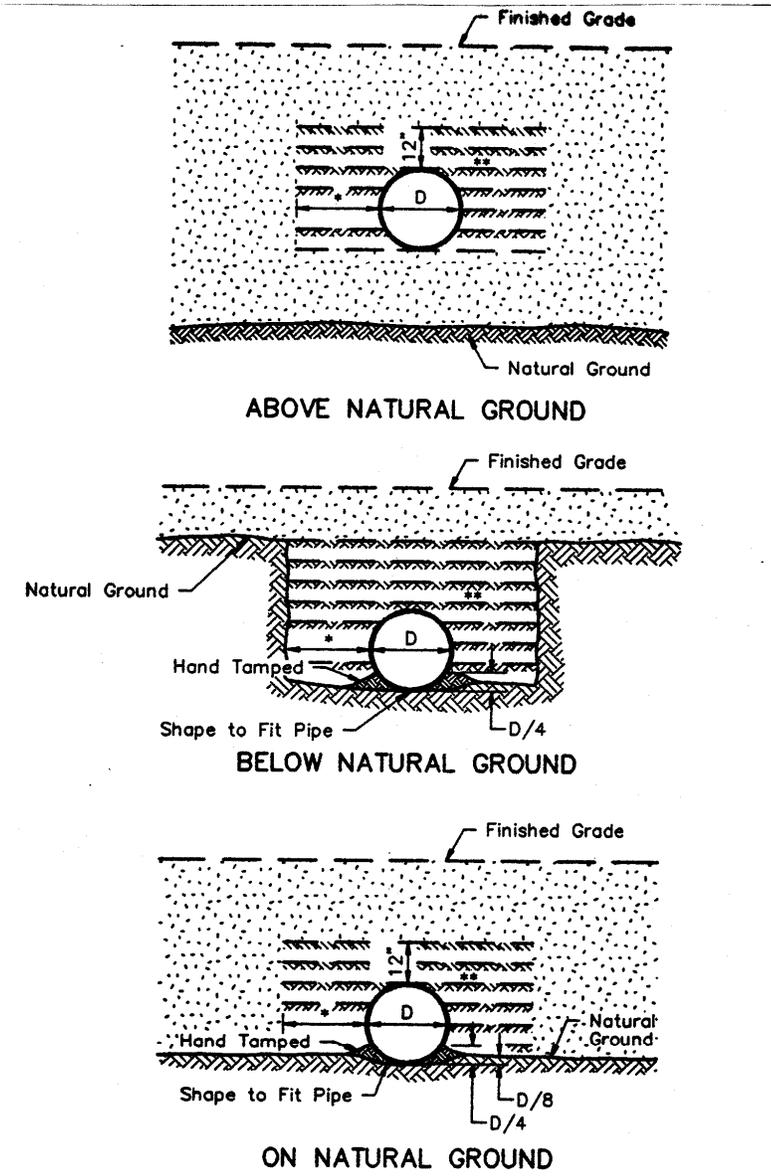
** *Other classes of concrete pipe may be used if proper cover is provided in accordance with manufacturer's recommendations.*

*** *This assumes a corrugated metal pipe with 2 2/3" x 1/2" corrugations. Culverts or mutiplate installations larger than 36" in diameter or any structure under extreme fills shall have special consideration.*

3. Culverts across the roadways shall be a minimum of 18 inches (18") diameter or the size necessary to take care of the design volume of water, whichever is

greater. Culverts under approach roads or driveways shall have a minimum diameter of 18 inches (18”), a minimum length of thirty feet (30’), and shall meet the requirements of Section G,2. Combined irrigation/drainage culverts crossing roadways shall have clean-out boxes on each end at the edge of the public right-of-way. Teton County recommends, and may require that culverts be designed by a registered professional engineer, licensed in Idaho. Culverts which cross the roadway shall be designed by a registered professional engineer, licensed in Idaho.

4. All necessary drainage easements for accommodating drainage structures shall be shown and recorded on the plans or the plat as a part of the approved plans or plat. Drainage easements necessary for draining storm water across private property shall be shown on the plans or plat and recorded with Teton County, Idaho by a letter from the Applicant describing the areas containing the easements such as lot lines, blocks, etc.
5. Disruption of natural drainage ditches and subsequent use of the roadway ditch to convey the natural drainage is not acceptable.
6. Dry wells may be used in special circumstances where all other possibilities of taking care of storm water drainage have been explored and there is no feasible alternate to dry well installation. Should drywells be necessary, they should be designed by a registered professional engineer, licensed in Idaho.
7. When a curb and gutter roadway section is proposed, a complete storm sewer system must be designed and constructed under the review of a registered professional engineer. Storm water disposal and maintenance thereof may be the responsibility of the developer or a homeowner’s association.



- NOTE: * D or 12" whichever is greater
 ** Mechanical compacted backfill. Place in 6" layers. Each LHS shall specify the type of material to be used for backfill.

Figure 14. Typical Culvert Installation

Structures

1. Bridge structures shall be designed by a professional engineer, registered in the State of Idaho, in accordance with AASHTO *Standard Specifications for Highway Bridges*, latest edition.
2. The design vehicle for bridge design shall be a minimum HS-20 truck.
3. The minimum width of a bridge structure from the face-to-face of curb or the face-to-face of the guardrail or bridge rail shall be the full width of the approach roadway including pavement width and shoulder width, plus two feet eight inches (2'-8").
4. The vertical clearance above waterways shall be two feet above the 50 year flood, and sixteen feet (16') over other roadway surfaces.
5. Only structures of steel, steel and concrete, or treated wood shall be used. Teton County, Idaho may approve other materials.
6. Retaining walls shall be reinforced concrete, bin walls, reinforced earth, or concrete crib walls. All retaining wall structures shall be designed by a registered professional engineer and shall be approved by Teton County, Idaho prior to their construction.

Signing

1. All traffic control devices (signing, pavement markings, and traffic signals) shall be shown on any design plans. The traffic control devices and their application shall conform to the *Uniform Manual of Traffic Control Devices* as adopted in Idaho.
2. All signs shall be installed by the Applicant prior to the acceptance of the project by Teton County, Idaho, unless approved otherwise by the county.
3. All temporary traffic control shall conform to the MUTCD, latest edition.

Guardrail

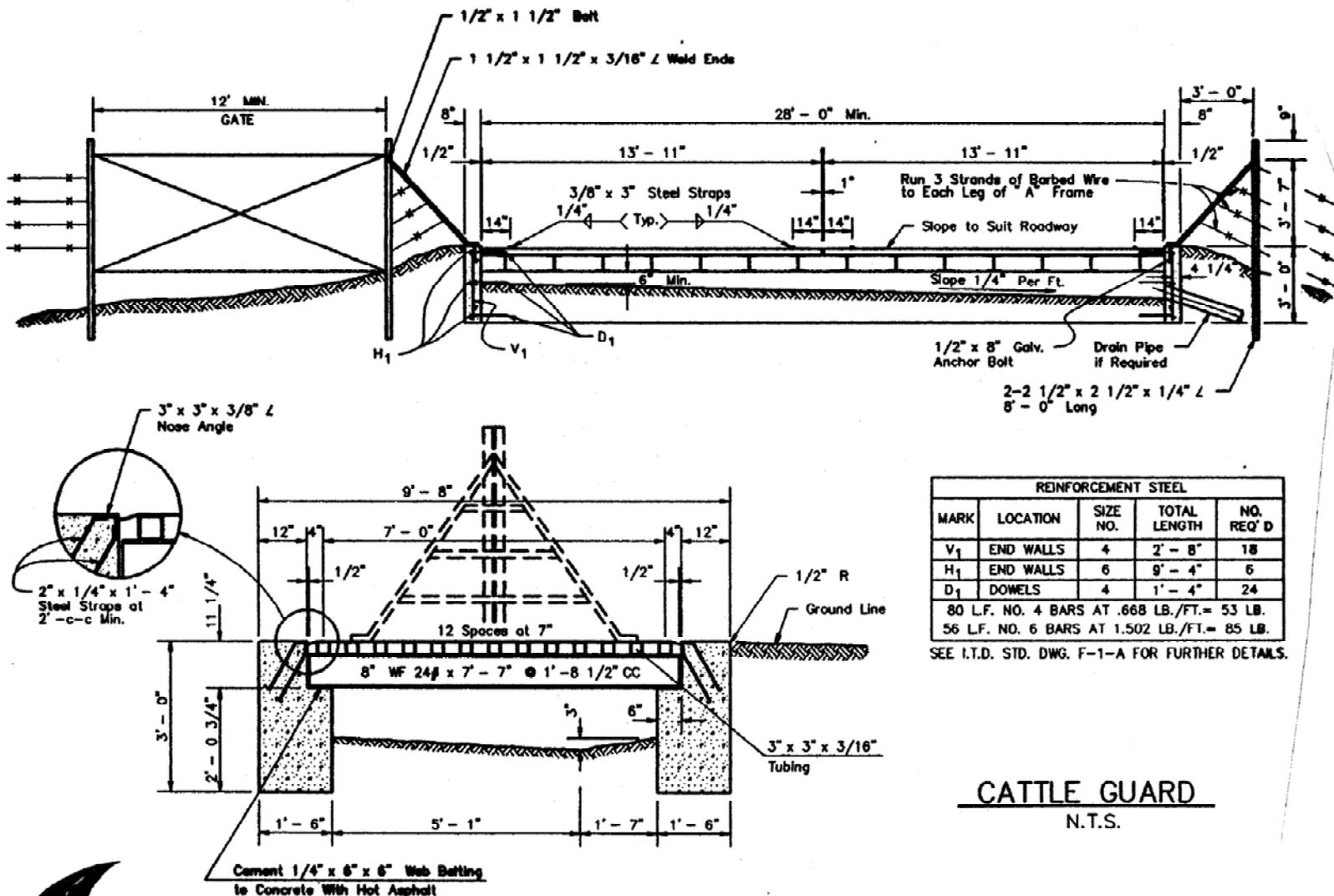
1. Guardrail may be necessary in certain areas depending upon the need for protection of the traveling public. Teton County, Idaho reserves the right to determine the need for guardrail under each separate circumstance. The guidelines of the *AASHTO Roadside Design Guide*, latest edition, may be used in developing appropriate and cost effective roadside safety provisions.
2. The type of guardrail to be installed shall be determined by Teton County, Idaho based on need, location and maintenance considerations.

Striping and Pavement Markings

1. Teton County, Idaho may determine pavement marking requirements subject to MUTCD requirements. The color, pattern and dimensions of marking shall be in conformance with the MUTCD, latest edition. Paint quality shall be the same as that used by the Idaho Transportation Department for their pavement markings.
2. Roads with shoulders designated as bike lanes shall be striped and identified as a bike route. Bike lanes will be 4 feet wide on both sides of the traveled way.

Cattle Guards

1. Cattle guards shall be constructed in conformance with Figure 15. Other types of cattle guards may be approved by Teton County, Idaho.
2. Section 40-2310, Idaho Code, regulates the installation of cattle guards on local highways and should be referenced as necessary. Teton County, Idaho encourages placing cattle guards on private property when necessary on private approaches.
3. Section 40-203(5), Idaho Code, speaks to obstruction of the public right-of-way and the misdemeanor offense involved.



REINFORCEMENT STEEL				
MARK	LOCATION	SIZE NO.	TOTAL LENGTH	NO. REQ' D
V ₁	END WALLS	4	2' - 8"	18
H ₁	END WALLS	6	9' - 4"	6
D ₁	DOWELS	4	1' - 4"	24
80 L.F. NO. 4 BARS AT .668 LB./FT.= 53 LB.				
56 L.F. NO. 6 BARS AT 1.502 LB./FT.= 85 LB.				

SEE I.T.D. STD. DWG. F-1-A FOR FURTHER DETAILS.

CATTLE GUARD
 N.T.S.



FIGURE III, L, 1

Figure 15. Cattle Guard Standard

CONSTRUCTION SPECIFICATIONS

Clearing and Grubbing

1. Clearing and grubbing shall consist of the removal and disposal of all organic and other deleterious material from the public right-of-way. All material removed under clearing shall be disposed of off of the public right-of-way.

Subgrade

1. The subgrade shall consist of the natural materials remaining after all topsoil and duff (organic material) have been removed and good construction material is remaining. The determination of the extent to which topsoil shall be removed shall be left to the discretion of Teton County, Idaho, who may require soil and compaction test results to document the acceptability for construction.
2. In solid rock excavation, the solid rock shall be excavated to six inches (6") below the finished subgrade elevation and back-filled with approved granular materials.
3. Unstable subgrade conditions shall be remedied by sub-excavation and back-filling with approved granular material under the direction of Teton County, Idaho. Geotextile material may be required.
4. All construction shall be controlled by slope stakes or grade stakes that have been placed by a professional engineer or professional surveyor licensed in the State of Idaho prior to the construction operations. Said slope stakes shall conform to the Typical Slope Stake Installation Method, Figure 16.
5. Subgrade shall be compacted to a density no less than ninety-five percent, (95%) of the AASHTO T-99 Proctor Density.
6. The subgrade shall be observed by Teton County, Idaho prior to placing any ballast. Teton County, Idaho must have at least twenty-four (24) hours notice prior to the need for observation. Such 24 hours notice shall be given such that the observation can be made during the county's normal working hours and work week.
7. Prior to requesting observation of the finished subgrade, grade stakes set to finished subgrade elevation shall be in place on fifty foot (50') stationing at centerline and shoulders or ditch, unless a variance is granted.

NOTE:

1. Slope stakes required on 50' intervals.
2. Reference stakes required on 100' intervals.
3. Staking shown for 1' ballast, 4" crushed base and 2" surfacing.

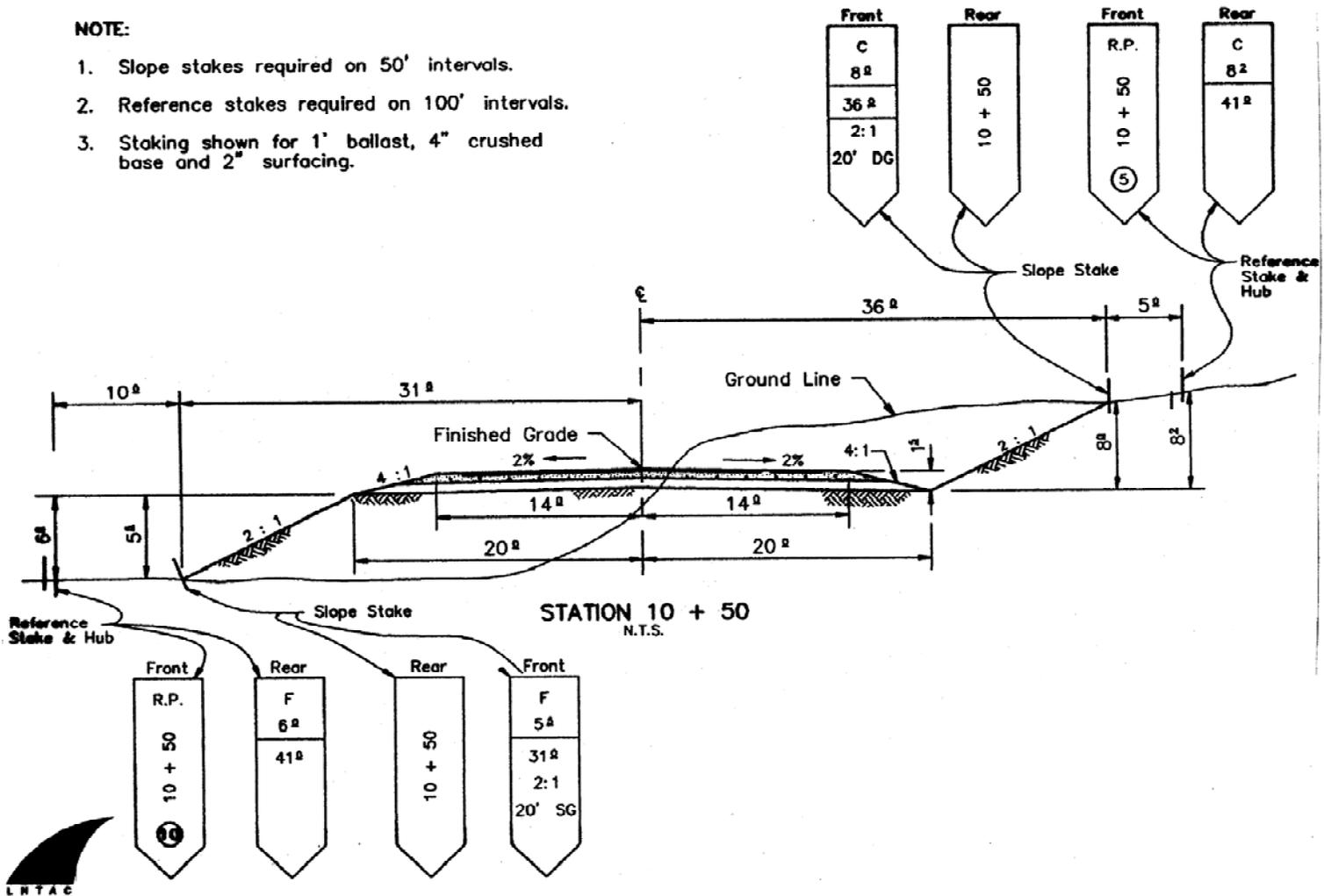


Figure 16. Typical Slope Stake Installation Method

MATERIALS

Sub-base or Ballast

Pit Run

1. Approved pit run material may be used for the ballast course which shall be placed to a minimum of twelve inches (12”) in thickness. The material shall be durable, have a sand equivalent not less than 30, and shall meet the following gradations:

Table 11. Sub-base or Ballast Gradations

TYPE A		TYPE B (bank run)	
SIEVE SIZE	% PASSING	SIEVE SIZE	% PASSING
6”	100	12”	100
3”	60-100	10”	90-100
2”	40-100	2”	n/a
1”	30-80	1”	n/a
#4	10-40	#4	10-40
#200	3-12	#200	3-20

2. **TYPE B (bank run) material may only be used with approval from Teton County.** TYPE B material shall be constructed in layers not to exceed eight inches (8”) in thickness and shall be compacted using mechanical methods to at least ninety-five percent (95%) of the AASHTO T-99 Proctor Density. A 4” layer of compacted 2-inch minus material must be placed above TYPE B material.
3. Observation of the ballast is necessary by Teton County, Idaho prior to the placing of base material. Teton County, Idaho must have at least twenty-four (24) hours notice prior to the need for the observation. Such 24 hours notice shall be given such that that the observation can be made during the county’s normal working hours and work week.
4. Prior to requesting observation of the finished ballast, red top stakes set to finished ballast elevation, shall be in place on fifty foot (50’) stationing at centerline and shoulders.
5. All culvert installations crossing the highway or street shall be installed before any base material is placed. Installation should conform to Figure 14.

2-Inch Minus

1. Approved material may be used for the ballast course which shall be placed to a minimum of four (4") in thickness. The material shall meet the following gradations:

Table 12. 2-Inch Minus Gradations

SIEVE SIZE	% PASSING
2-1/2"	100
2"	90-100
1"	55-83
#4	30-60
#30	10-25
#200	2-12

2. The material shall be constructed in layers not to exceed four inches (4") in thickness and shall be compacted using mechanical methods to at least ninety-five percent, (95%) of the AASHTO T-99 Proctor Density.
3. Observation of the ballast is necessary by Teton County, Idaho prior to the placing of base material. Teton County, Idaho must have at least twenty-four (24) hours notice prior to the need for the observation. Such 24 hours notice shall be given so that the observation can be made during the county's normal working hours and work week.
4. Prior to requesting observation of the finished ballast, red top stakes set to finished ballast elevation, shall be in place on fifty foot (50') stationing at centerline and shoulders.
5. All culvert installations crossing the highway or street shall be installed before any base material is placed. Installation should conform to Figure 16.

Base Material (for pavement)

1. The crushed aggregate for the base course shall be four inches (4") in depth after it has been compacted and shall comply with the gradations in Table 12 below.

Table 13. Base Material Gradation

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

2. The crushed aggregate base shall not show more than a loss of thirty-five percent (35%) under the Los Angeles Abrasion Test and the sand equivalent shall not be less than 30.
3. The material shall be laid in one or more layers to develop the compacted depth of four inches (4") minimum. Material shall be mechanically compacted by rolling to ninety-five percent (95%) of the AASHTO T-99 Proctor Density. Care shall be taken to see that the aggregate is placed in such a manner that it will have uniform mixture throughout.
4. The finished base material must be observed and approved by Teton County, Idaho prior to placing the surface course. The notification for the observation must be twenty-four (24) hours prior to the observation and must be requested for observation during the county's normal working hours and work week.
5. Prior to requesting observation of the finished base material, blue top stakes will be set to finished base elevations at fifty foot (50') stationing on curves and one hundred foot (100') stationing on tangents at centerline and shoulders.
6. The surface of any base course, when finished, shall be such that when tested with a ten foot (10') straightedge placed on the surface with its centerline parallel to and perpendicular to the centerline of the street, the maximum deviation from the surface of the edge of the straight edge shall nowhere exceed 0.04 of a foot. In addition, the finished grade shall not deviate more that 0.05 of a foot at any point from the staked elevation.
7. If asphalt concrete surfacing is to be placed on the base course, no portion of the complete surface of the base course shall be more than 0.04 of a foot below the edge of a straight ten feet (10') in length laid parallel to and perpendicular to

the centerline of the roadway. In addition, the finished grade shall not deviate more than 0.03 of a foot at any point from the staked elevation.

8. Should patching of the base course be necessary in order to meet the above tolerances, it shall be performed using methods and aggregates approved by Teton County, Idaho or a designated representative.

SURFACE MATERIAL

The surface type shall be approved by the Teton County, Idaho, but can generally be considered either gravel surface or asphalt surface.

Gravel Surface

1. The crushed aggregate for the wearing surface shall be four inches (4") in depth after it has been compacted and shall comply with the gradations in Table 13 below.

Table 14. Surface Gravel Material Gradation

SIEVE SIZE	% PASSING
3/4"	95-100
3/8"	67-83
#4	48-68
#16	30-45
#40	15-35
#200	10-18

Plasticity Index: 4-12

2. The crushed aggregate base shall not show more than a loss of thirty-five percent (35%) under the Los Angeles Abrasion Test and the sand equivalent shall not be less than 30.
3. The material shall be laid in two or more layers to develop the compacted depth of four inches (4") minimum. Material shall be mechanically compacted by rolling to ninety-five percent (95%) of the AASHTO T-99 Proctor Density. Care shall be taken to see that the aggregate is placed in such a manner that it will have uniform mixture throughout.
4. The finished base material must be observed and approved by Teton County, Idaho prior to placing the surface course. The notification for the observation must be twenty-four (24) hours prior to the observation and must be requested for observation during the county's normal working hours and work week.

5. Prior to requesting observation of the finished base material, blue top stakes will be set to finished base elevations at fifty foot (50') stationing on curves and one hundred foot (100') stationing on tangents at centerline and shoulders.
6. The surface course, when finished, shall be such that when tested with a ten foot (10') straightedge placed on the surface with its centerline parallel to and perpendicular to the centerline of the street, the maximum deviation from the surface of the edge of the straight edge shall nowhere exceed 0.04 of a foot. In addition, the finished grade shall not deviate more that 0.05 of a foot at any point from the staked elevation.
7. If chip seal surfacing is to be placed on the base course, no portion of the complete surface of the base course shall be more than 0.04 of a foot below the edge of a straight ten feet (10') in length laid parallel to and perpendicular to the centerline of the roadway. In addition, the finished grade shall not deviate more that 0.03 of a foot at any point from the staked elevation.
8. Should patching of the surface course be necessary in order to meet the above tolerances, it shall be performed using methods and aggregates approved by Teton County, Idaho or a designated representative.

Magnesium Chloride

1. Magnesium chloride dust palliative shall consist of a magnesium chloride base agent, water, and other enhancement or non detrimental ions. The chemical analysis shall conform to the following:

Chemical Constituents	Percent by Weight
Magnesium Chloride (MgCl ₂)	30 to 35
Enhancing or Non detrimental Ions	0 to 5
Water	65 to 72
2. This product shall meet applicable regional, state and federal requirements for products applied to road surfaces.
3. Test data certifying compliance with the specifications prior to the start of the project may be required. Also jobsite samples may be tested by County any time during the project.
4. Equipment shall provide for uniformly applying material. The distributor and equipment shall be capable of uniformly distributing material at uniform pressure on variable widths of surface at readily determined and controlled rates from 0.20 to 0.60 gallons per square yard. The allowable variation from any specified rate shall not exceed plus or minus 0.02 gallon per square yard. Distributor equipment shall include a tachometer, pressure gages, and accurate volume measuring devices or a calibrated tank. Distributors shall be equipped with adjustable spray bars.

5. The roadbed shall be prepared before and after the application of Magnesium Chloride.
6. The specified amount of Magnesium Chloride solution shall be placed on the road surface in an accurate manner with a pressurized spreader bar. Applications will vary from .25 gallon/sq. yard to .50 gallon/sq. yard. The application procedure will be determined on a case by case basis by a representative of the County. No more than 0.30 gallon/sq. yard shall be spread in any pass.
7. The County reserved the right to test and verify the application rate at any time before, during, or after the application of Magnesium Chloride. If the applied rate does not meet the required application rate with the tolerances specified in 2.2 A the contractor shall immediately stop work and until the correct application rate is achieved. The contractor is responsible for achieving the correct application rate.
8. Treating the gravel roads with “Mag” can increase the design life by 75%.

Asphalt Surface

1. The surface type shall be approved by the Teton County, Idaho, but can generally be considered one of four types: the hot mix asphalt; the three shot asphalt chip surface; the emulsion type treatment with chip seal; and, cutback asphalt cold mix with chip seal.
2. Equipment used for asphalt construction, regardless of the type of surface treatment, shall meet the following criteria for each type of equipment.
 - a) The bituminous mixture hauling trucks shall be pneumatic tired and equipped with a smooth-lined tight dump body free from cracks, holes or deep dents capable of hauling material without loss during transit. Dump body and gate shall be capable of control discharge onto the road bed or into approved spreaders or pavers when required. The dump body shall be constructed or equipped to retain the heat of the mixture above the minimum specified for lay-down.
 - b) Motor graders shall be a pneumatic tired, self-propelled machine with sufficient power and traction and adequate wheel base to efficiently perform the work.

- c) Bituminous pavers shall be self-contained, power propelled units provided with an activated screed or strike-off assembly, heated if necessary and capable of spreading and finishing courses of bituminous plant mix material in lane widths applicable to the specified typical section in thickness as shown on the plans. The paver shall be equipped with a receiving hopper having sufficient capacity for a uniform spreading operation. The hopper shall be equipped with a distribution system to place the mixture uniformly in front of the screed. The screed or strike-off assembly shall effectively produce a finished surface of the required smoothness and texture without tearing, shoving or gouging the mixture. The paver shall be capable of being operated when laying mixtures at forward speeds consistent with satisfactory laying of the mixture. The paver shall be in good working order and subject to the review of Teton County, Idaho.

- d) Rollers shall be of the pneumatic-tired, steel-wheeled or vibratory steel-wheeled type and shall be in good working order.
 - (1) The pneumatic tired roller shall be of between 30-40 ton capacities, have seven wheels as a minimum with pneumatic tires of equal size and ply. Tires shall be uniformly inflated so that the air pressure of the several tires will not vary by more than five pounds per square inch. The rollers may be operated with tire inflation pressures and wheel needs within the range of the manufacturer's recommendations on the size and ply of tire being used. The wheels shall be staggered on the front and rear axles to provide complete coverage of the area on which the rollers travel. Rollers shall be capable of starting, stopping and reversing directions smoothly without jerking or backlash, and shall be equipped with positive accurate steering control. Wobble wheel rollers will not be permitted for the compaction of paver-laid base or the final rolling of the last bituminous mixed course. When used to compact paver-laid asphalt, the rollers shall be equipped with smooth tread tires close fitting scrapers for each wheel and a system for uniformly washing the wheels without excessive water. Power units shall have adequate power and traction to move the roller at variable speeds under normal rolling

conditions. The roller shall have an effective rolling width of not less than sixty inches (60”).

- (2) A smooth-faced steel wheel roller shall be of a two axle or three axle tandem design and when fully ballasted shall have a gross weight of eight tons or more, with no specified contact pressure. All smooth faced steel wheel rollers shall be self-propelled and capable of starting, stopping, and reversing directions smoothly without jerking or backlash. Rollers shall be equipped with positive accurate steering control. The face of all rollers shall be smooth and free from defects which will mar the surface of the material being compacted. Each wheel or roller shall be equipped with adjustable spring scrapers and a system shall be provided for uniformly moistening the full width of each roller or wheel without an excess of water. No diesel fuel is allowed on roller surfaces.
 - (3) Vibratory compactors of the roller type shall have a minimum width of sixty inches (60”), a minimum static load of sixty (60) pounds per inch of width and generate a minimum centrifugal force of 250 pounds per inch of width based on the manufacturer’s rating. Compactors shall be operated in accordance with the manufacturer’s recommendations at a speed of two to five miles per hour.
- e) The asphalt distributor must be in good working order and shall be designed and operated so a uniform application of asphalt can be applied. It must include a tachometer showing the feet per minute and the number of feet covered, a tank thermometer, and a gauge to measure the quantity of the asphalt in the distributor.
 - f) The aggregate spreader shall be a self-propelled machine independent of the truck, supported by at least two axles and four wheels with pneumatic tires and equipped with a means of applying cover material with positive controls so material will be uniformly deposited over the full width of the asphalt application.

3. Hot Mix Asphalt:

- a) The hot mix asphalt surfacing may be used providing it meets the following requirements and is constructed under the direction of Teton County, Idaho.
- b) The mix used for the hot mix asphalt must be an approved asphalt mix design. Mix design characteristics must be submitted and approved by Teton County, Idaho prior to its use.
- c) The aggregate used in the asphalt concrete mix must meet the following gradation:

Table 15. Hot Mix Aggregate Gradation

SIEVE SIZE	% PASSING
3/4"	100
1/2"	95-100
3/8"	75-90
#4	50-75
#8	35-60
#30	15-35
#50	10-35
#200	4-8

It must have a Los Angeles Wear showing not greater than 30% loss, a Sand Equivalent greater than 40, and not have over 2% absorption. Not less than 60% by weight of the aggregate particles retained on the No. 4 sieve shall have at least two fractured face.

- d) The asphalt shall be an 85/100 type penetration or the equivalent AC-10. Performance based asphalt grades may be used if approved by Teton County, Idaho.
- e) The asphalt mix shall be laid only when the ambient air temperature is greater than 55 degrees Fahrenheit and rising and the mix is at a temperature not less than 235 degrees, nor more that 280 degrees Fahrenheit.
- f) After lay-down by a paving machine, the mixture shall be thoroughly and uniformly compacted with power rollers. Rolling of the mix shall begin as soon after spreading as it will bear the roller without undue displacement or hairline

cracking. Initial rolling shall be done longitudinally. The rollers shall overlap on successive trips. Alternate trips of the roller shall be slightly different lengths. Unless otherwise directed, the initial or breakdown rolling shall consist of a complete coverage of the paving mixture performed with a two-axle tandem roller. Initial breakdown rolling shall be followed by three complete coverage's with a pneumatic-tired roller while the temperature of the mixture is at, or above 140 degrees Fahrenheit. The final rolling shall be performed by a three-axle steel-wheeled tandem roller. Rolling shall be performed in such a manner that cracking, shaving, or displacement shall be avoided. Final rolling shall be completed the same day the pavement is placed. Sufficient rollers shall be furnished to handle the output of the plant. Rolling shall continue until all rolling marks are eliminated, and the surface is of uniform texture and true to grade and cross section. To prevent adhesion of the mixture to the roller, the wheels shall be kept properly moistened. Excessive water will not be permitted on the roller surfaces. The use of diesel fuel on the roller surfaces is strictly prohibited.

The final mat thickness after compaction shall be no less than the depth prescribed by Teton County, Idaho.

- g) The completed hot mix asphalt concrete surface course shall have a field density equal to or greater than the percentages shown below:
 - (1) Residential street section shall be a minimum of 95%.
 - (2) Industrial, arterial, or collector streets shall be 97%.

- h) In residential street sections when utilizing a correlated nuclear densitometer used in the backscatter mode, the allowable tolerance ranges shall be:
 - (1) A minimum of 92% at any test location.
 - (2) A minimum of 94% running average for any three consecutive tests.
 - (3) Three consecutive tests in the tolerance range will require corrective action.
 - (4) The average for all density tests for any residential street project will be 95%.

- i) In arterial, collectors, and industrial sections, when utilizing a correlated nuclear densitometer in the backscatter mode, the allowable tolerance ranges will be:
 - (1) A minimum of 93% at any test location.
 - (2) A minimum of 96% running average for any three consecutive tests.
 - (3) Three consecutive tests in the tolerance range will require corrective action.
 - (4) The average for all tests on any arterial, collector or industrial section of street or project shall be 97%.

- j) The final surface shall be of a uniform texture and shall conform to line and grade shown on the plans. Before final acceptance of the project or during the progress of the work, the thickness of all courses will be determined by Teton County, Idaho. Core samples of the completed asphalt will be provided by the applicant or contractor. All unsatisfactory work shall be repaired, replaced, or corrected.

Both density and thickness shall be carefully controlled during construction and shall be in full compliance with plans and specifications.

For the purpose of testing the surface on all courses, a ten foot (10') straightedge shall be used.

The straightedge shall be held in successive positions parallel and perpendicular to the street centerline in contact with the surface, and the entire areas checked from one side to the other. Advances along the pavement shall be in successive stages of not more than half the length of the straightedge.

Irregularities which may develop before the completion of rolling shall be remedied by loosening the surface mix and removing or adding materials as may be required. Any irregularities or defects which are found after the final rolling, which vary more than 0.02 of a foot in ten feet for surface courses, shall be corrected. All minor surface projections, joints, and minor honey-combed surfaces shall be repaired smooth to grade, as may be directed by Teton County, Idaho.

4. Triple Shot Asphalt Chip Surface

- b) The triple shot asphalt and chip course shall be constructed under the direction of Teton County, Idaho and shall consist of two applications a BST (Otta Seal) coat followed by one application of a chip seal coat.
- b) The previously placed base or surface material shall be shaped and rolled using a tandem steel wheel roller prior to the application of the asphalt penetration coat. The ambient air temperature shall be at least 80 degrees Fahrenheit and rising at the time of the application of the penetration shot.
- c) The type of asphalt to be used for the penetration shot shall be specified by Teton County, Idaho. The asphalt material shall be heated to its upper range for spraying temperature as recommended by the Asphalt Institute prior to application. The time allowed for the oil to penetrate between the application of the oil and the application of the cover material shall be specified by Teton County, Idaho.

The cover coat material shall meet the requirements of Teton County, Idaho. The application shall be rolled with a pneumatic wheel roller. Twenty four (24) hours following the penetration application, the mat shall be rolled with a steel wheel roller.

- d) Curing of the penetration course shall require thirty (30) days of ambient air temperature above 80 degrees Fahrenheit before placing the first seal coat or until approved by Teton County, Idaho. Typically the chip seal coat will be placed the following year. Also, the use of this arrangement will require an extension of or a second performance bond to be supplied to Teton County, Idaho for covering the year's work.
- e) Prior to the chip seal coat the roadway shall be power-broomed and/or flushed to remove all loose materials and dust. The type of liquid asphalt shall be specified by Teton County, Idaho. Approved chips shall be applied with a chip spreader and rolled with a pneumatic wheel roller immediately behind the distributor.

5. Asphalt Emulsion Surface Treatment with Chip Seal

- a) The asphalt emulsion surface treatment may be used, provided it meets the following requirements and is constructed under the observation of Teton County, Idaho.

The mixture may be prepared either in a stationary pug mill or blended on the road bed using the windrow and motor patrol process.

- b) The cover coat aggregate used in the asphalt emulsion surface must meet the requirements of Teton County, Idaho.

The composite aggregate shall be free of clay, all vegetable matter, and other extraneous matter occurring either free or as a coating on the particles. Not less than seventy percent (70%) by weight of the coarse aggregate retained on the No. 4 Sieve shall be particles having at least one fractured face. In addition, the aggregate must show a Los Angeles Wear for not greater than thirty percent (30%) loss and Sand Equivalent of greater than thirty (30).

- c) The emulsion used for this mixture shall be either CMS-2S or CMS-2S-R as approved by Teton County, Idaho. Generally, the CMS-2S-R shall be used for the coarser gradations of aggregate. The asphalt content shall have a range of between five percent (5%) and seven percent (7%) with the optimum being between six percent (6%) and six and one half percent (6-1/2%) by weight. The asphalt emulsions shall be used in a temperature range of 140 degrees Fahrenheit minimum to 180 degrees Fahrenheit and, under no circumstances, shall the temperature of the emulsion be allowed to exceed 180 degrees Fahrenheit.
- d) The aggregate and emulsion mixture shall be placed on the prepared base and windrowed to a uniform mixture. The mixture shall be processed for drying purposes until ready for the final layout of the mixture at which time the contractor is to blade it to its final grade as shown by the appropriate grade stakes at centerline and shoulder line. At the contractor's option, the bituminous mixture may be placed by using a conventional paving machine or base paver.

During placing and laying operations, the ambient air temperature must be a least 80 degrees Fahrenheit and rising.

- e) Immediately following spreading or laying, material shall be compacted by rolling. Initial rolling shall be performed with a steel tandem or three-wheel roller followed by rolling with a pneumatic tire roller. Final rolling shall be performed sufficient to eliminate any roller marks or other irregularities. Transverse joints shall be rolled first, then longitudinal joints, then the entire mat. Rolling of the layer shall be longitudinal and commence at the outer edge of the road and progress towards the center except that on super-elevated curves rolling shall progress from the lower to the upper edge. Rolling shall continue until the surfacing is of uniform texture and degree of compaction and is true to grade and cross section. Areas inaccessible to rollers shall be compacted with mechanical tampers. The final compacted mat shall be no less than two inches (2") in thickness.
- f) Compaction of the mixture shall be to 95 percent of the AASHTO T-99 Proctor Density.
- g) A single layer chip seal shall be applied to the completed emulsion surface treatment under the observation of Teton County, Idaho.

Chip Specifications

The 1/4" chip specification for Teton County, Idaho is shown in Table 16.

Table 16. 1/4" Chip Specification

Sieve Size	Percent by Weight Passing
3/8"	100
1/4"	75-100
#4	0-35
#8	0-5
#200	0-3

Recommended Oil: CRS-2R (Asphalt Emulsion)
 Recommended Oil Application Rate: 0.3 Gal/Sq-Yd
 Recommended Chip Application Rate: 25lbs/Sq-Yd

The 3/8" chip specification for Teton County, Idaho is shown in Table 17.

Table 17. 3/8" Chip Specification

Sieve Size	Percent by Weight Passing
1/2"	100
3/8"	95-100
#4	0-15
#8	0-5
#200	0-2

Recommended Oil: CRS-2R (Asphalt Emulsion)
 Recommended Oil Application Rate: 0.35 Gal/Sq-Yd
 Recommended Chip Application Rate: 28 lbs/Sq-Yd

The 1/2" chip specification for Teton County, Idaho is shown in Table 18.

Table 18. 1/2" Chip Specification

Sieve Size	Percent by Weight Passing
1/2"	100
3/8"	30-55
#4	0-15
#40	0-5
#200	0-3

Recommended Oil: CRS-2R (Asphalt Emulsion)
 Recommended Oil Application Rate: 0.4 Gal/Sq-Yd
 Recommended Chip Application Rate: 33 lbs/Sq-Yd

The BST chip (Otta Seal) specification for Teton County, Idaho is shown in Table 19.

Table 19. BST Chip Specification

Sieve Size	Percent by Weight Passing
3/4"	100
5/8"	80-100
3/8"	36-98
1/4"	20-80
#4	10-70
#200	0-10

Recommended Oil: MC-3000 or MC-800 (Cutback)
 Recommended Oil Application Rate: 0.4 Gal/Sq-Yd
 Recommended Chip Application Rate: 47 lbs/Sq-Yd

Observation and Testing

All required observation shall be done by Teton County, Idaho. All testing required in these standards or required by the county will be done at the expense of the applicant or contractor. Teton County has the right to waive testing requirements.

Additional Detail & Specification

Additional details and specifications not shown here may be found in the Idaho Standards for Public Works Construction.

REFERENCES

Federal Highway Administration Manual on Uniform Traffic Control Devices

Idaho Standards for Public Works Construction

Local Highway Technical Assistance Council Manuals -

Right-of-Way Use Manual - Standard Approach Policy

Right-of-Way Use Manual - Permits for Utilities and Encroachments

Idaho Transportation Department Standard Specification for Highway Construction

American Association of State Highway and Transportation Officials -

Roadside Design Guide

Policy on Geometric Design of Highway and Streets

Standard Specifications for Highway Bridges