

STANDARDS AND SPECIFICATIONS
FOR
SUBDIVISIONS, SITE CONDOMINIUMS
AND
OTHER DEVELOPMENT PROJECTS

April 28, 1999

Revised October 19, 2000

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Revised January 25, 2018

Revised February 22, 2018

BENZIE COUNTY ROAD COMMISSION

HONOR MI 49640

BENZIE COUNTY ROAD COMMISSION
RESOLUTION #1999-4
NEW STREET SPECIFICATIONS

WHEREAS, this board has heretofore, from time to time, adopted various requirements and specifications for the construction of streets and highways for county roads and streets, and streets within subdivisions that will, when constructed, become a part of the county road system under the jurisdiction and control of this Board, and

WHEREAS, this Board is desirous of establishing uniform standards and specifications for the construction of said streets and highways, and

WHEREAS, this Board has prepared a publication entitled, "Standards and Specifications for Subdivisions, Site Condominiums, and Other Development Projects",

NOW THEREFORE BE IT RESOLVED, that this Board hereby adopts requirements contained in the publication entitled "Standards and Specifications for Subdivisions, Site Condominiums, and Other Development Projects", as the official standards and specifications to be followed in the construction, reconstruction, or improvements of streets and highways under the jurisdiction of this Board.

BE IT FURTHER RESOLVED, that this Board hereby directs that the publication entitled "Standards and Specifications for Subdivisions, Site Condominiums, and Other Development Projects" shall be marked as the official street standards and specifications and placed on file in the office of the Secretary of the Board of the County Road Commission at Honor, Michigan, and

BE IT FURTHER RESOLVED, that all prior requirements and specifications for the construction of streets and highways are hereby repealed.

Yeas: 3

Nays: 0

CERTIFICATION

I, Brenda J Rae, Secretary of the Board of Benzie County Road Commission, do hereby certify that the above resolution is a true and correct copy of an excerpt from the minutes of the meeting of said Board held April 28, 1999, as appears on record in the office of said Road Commission; that I have compared the same with the original and it is a true transcript therefrom.

IN WITNESS WHEREOF, I have hereunto set my hand at Honor, Michigan this 29th day of April, 1999.

Brenda J Rae
Secretary of the Board

INDEX

Preliminary Requirements	4
Required Improvements and Specifications	5
Definitions	5
Right of Way Width	5
Street Layout	6
Street Names & Signs	6
Plan & Profile	7
Clearing & Grubbing	7
Grading	7
Drainage Structures, Guardrail & Erosion Control	8
Surfacing	8
Inspection	9
Final Approval	10
Road Costs	10
Form to Report Road Costs	11
Table 1	12

The Plat Act

All plats intended to be recorded with the Register of Deeds must be in conformity with the "Subdivision Control Act" - Act 288, Public Acts of 1967, as amended.

Preliminary Requirements

In accordance of Sec. 113:

In order that subdivision plats may be prepared in conformity with the general highway and street plans of the Board, the subdivider shall have prepared a preliminary plan of the area that is to be platted. The plan shall be prepared under the direction of a Registered Land Surveyor, Registered Professional Engineer, or Licensed Architect and shall be drawn to a convenient scale not smaller than one inch equals two hundred feet.

The preliminary plan shall give the location of the proposed subdivision with reference to the section and township in which the parcel is situated. The plan shall show the proposed street and alley layout, lot and plat dimensions (dimensions to the nearest foot are adequate on the preliminary plan), and governing factors such as adjoining existing and proposed subdivisions, streams, bodies of water, highways, railroads, parks, cemeteries, natural water courses, sewers, or any other physical feature that might affect the layout of the plat.

Three copies of the preliminary plan prepared as noted above shall be submitted to the Board, together with a letter requesting preliminary approval of the plan. One copy of the preliminary plan will be returned to the proprietor with notations from the Board.

A drainage plan shall be submitted indicating the manner in which surface drainage is to be disposed of.

To accomplish this will usually require making use of existing ditches, natural water courses, or constructing tributaries thereto. In all cases, an easement of the required width shall be provided when the drain crosses private property within the subdivision or adjacent to it. The drainage plan may be superimposed on the preliminary plan, or it may be submitted as a supplement to the preliminary plan.

These published minimum requirements and specifications are subject to change without notice by the Board of County Road Commissioners. The Board reserves the right to require construction to higher standards where warranted by special conditions.

REQUIRED IMPROVEMENTS AND SPECIFICATIONS

The owner of the platted lands, or his agents, shall be required to drain, grade and surface the streets and alley shown on the plat in accordance with the standards and specifications of the Board of County Road Commissioners.

The Requirements for Layout and construction of roads in land subdivision plats submitted for approval are in accordance with Act 288 P.A. 1967, and the regulations established under 105c of the Act.

DEFINITIONS

- Board:** The Board of County Road Commissioners of the County of Benzie , State of Michigan.
- Engineer:** The BCRC or any representative designated by the BCRC Manager to carry out the duties of the BCRC engineer as entailed by the Plat Act.
- Proprietor:** The owner or owners of the lands to be platted.

RIGHT OF WAY WIDTH

Unless otherwise approved by the Board, the following minimum widths of right of way will be required for all public roads, streets, and alleys.

Primary Roads	100 Feet with an additional 10 foot utility easement on each side of the road.
Local Roads and Streets	66 feet with an additional 10 foot utility easement on each side of the road if the road is constructed according to Typical
Cross	Section 1A..

All pedestals and boxes shall be located at or behind the right of way line.

Note: Township, local government or village specifications may vary. It is the proprietor's responsibility to check with their local agency.

Greater right of way width may be required by the Board when considered necessary.

Section line and quarter line roads shall be centered on said lines unless an exception is approved by the Board.

Half width dedications of roads, streets, or alleys will be accepted only when the boundary of the proposed plat coincides with the boundary of a plat on which a half road, street or alley has been previously dedicated.

STREET LAYOUT

The street layout shall conform to the pattern established by adjacent roads and streets. All existing public roads, streets or alleys that terminate at the boundaries of a proposed plat must be connected with the street system of the proposed plat.

The Board of County Road Commissioners MAY require, in the case of a Plat laid out adjacent to a Primary Road, that those lots immediately adjacent to said Primary Road be required to have access by way of a platted street other than said Primary Road. Access limitations shall be included in the plat restrictions. The layout of streets and alleys in a proposed plat shall provide a continuous circuit for travel except when in the opinion of the Board, the lands to be subdivided are limited in area or are subject to a natural barrier. In such cases, a dedication that provides access to another road or street at one end only, will be acceptable if a cul-de-sac with a minimum 72 foot right-of-way radius is provided at the terminus of the street to permit turning in a continuous circuit. (See drawing No 3). Two roads intersecting property lines at street intersections shall be connected by a minimum 30 foot radius. (See drawing No.2). When the proposed plat abuts unplatted land, street extensions shall be provided to the Title line of the unplatted areas, and easements for temporary cul-de-sacs may be submitted in these cases as required by the Board.

STREET NAMES & SIGNS

Road and street dedications shown on plats shall be designated by name. Roads and streets that are extensions of, or are in line with existing roads and streets must be named to agree with those in existence. Other streets may be given such names that the Proprietor may choose, subject to approval of the Board.

The Proprietor shall erect name signs that are white reflectorized on a green background. The design of the signs shall be similar to road name signs in use on county roads. Other signs as required shall be in accordance with the "Michigan Manual of Uniform Traffic Control Devices", and erected by

the Proprietor. Other signs that will be erected by the Proprietor include, but are not limited to stop signs, and 25 mph speed limit signs. The Board will furnish and erect all signs at the Proprietor's expense if so elected.

Signs marked "Private Road" shall be erected and maintained by the Proprietor. Private Road signs shall be erected at the entrance to all county roads.

PLAN AND PROFILE

Plan and profile drawings shall be prepared by the Proprietor's Engineer in complete enough detail to be used as construction plans. The drawings shall show the proposed gradients of all roads and streets and the location of drainage facilities and structures, as well as other pertinent information.

Design shall be in accordance with current AASHTO standards. The design speed will be a minimum of 30 MPH. Higher speeds may be required. Vertical curves will be used on all grade changes. A maximum grade of ten percent will be allowed, but lessor grades are desired. A minimum grade of 0.5 percent will be required. A maximum grade of 0.5 percent will be allowed across intersections and cul-de-sacs. A minimum of fifty feet of flat gradient (maximum 0.5 percent sloped away from the main road or street) measured from the shoulder line shall be provided at the approach of a secondary road or street to a main road or street.

Three copies of the plan and profile drawings shall be forwarded to the Benzie County Road Commission Board of Commissioners for approval. One copy will be returned to the Proprietor's engineer with approval or revisions marked thereon. Approval must be obtained before construction begins.

CLEARING AND GRUBBING

All trees, stumps, brush, and roots thereof shall be entirely removed from within the limits of grading, and disposed of outside the right of way.

GRADING

Centered on the street right of way, a roadway shall be constructed conforming to the requirements shown on the Board's Standard Plans, (see drawing No. 1A). Roadways shall have a minimum width of 32 feet in commercial and 28 feet in residential subdivisions. Wider roadbeds and

flatter slopes are recommended whenever possible to provide for less maintenance, better longevity and a more pleasing appearance.

The presence of other than granular material in the subgrade will require a full width 24 inch granular subbase. All peat, muck, silt, topsoil and other unsuitable materials shall be removed from beneath the roadbed as approved by the BCRC. The level of finished grade shall be at least 3 feet above the water table.

DRAINAGE STRUCTURES, GUARDRAIL AND EROSION CONTROL

Drainage structures shall be installed as indicated on the Drainage Plan. The minimum diameter of culverts across roads shall be fifteen inches. The bottom ends of culverts shall extend to the bottom of the slope. Either concrete culvert pipe or corrugated metal pipe of the required size may be used, provided they meet Michigan Department of Transportation specifications for strength. Other materials may be used if approved by the BCRC.

Steel beam guardrail will be required on all fills where the slope is greater than 1 on 3, except if the height of the fill is less than 10 feet.

Bridges shall be designed for HS-20 on all roads.

Culverts at driveway entrances shall be provided either by the Proprietor or lot owners. Minimum diameter of driveway culverts shall be twelve inches. A suggested minimum culvert length is 24 feet. Driveways in cut sections shall be constructed along with the grading. The drive shall not be more than 18 inches above the shoulder at the right of way line, with the low point above the ditch line.

Top soil shall be placed on all cuts and fills. The areas shall be seeded and mulched or sodded. Other methods of erosion control may be used with approval of the BCRC.

Check dams shall be installed in ditches that exceed a three percent grade, at intervals spaced so that the grade between checks does not exceed three percent. (See Table I)

SURFACING

An Aggregate surface shall be placed on the prepared subgrade in accordance with the Standard Plan for subdivision grading. Trenching will be required prior to placing the aggregate to provide minimum surfaced width of twenty eight (28) feet of aggregate.

A minimum total depth of six inches for residential or eight inches for commercial/industrial of surfacing 22A aggregate, Michigan Department of Transportation specifications shall be placed in two courses, and each shall be compacted to 95%.

Alleys shall be surfaced as directed by the BCRC.

Approaches to existing hard surface roads or streets shall be surfaced as directed by the BCRC.

The Board will require streets and roads to be surfaced with a leveling course of HMA Mixture 13A or LVSP at 165 lbs/syd and a top course of HMA13A or LVSP at 165 lbs/syd. Surfacing of private roads will not be required. Shoulders shall be top dressed with 23A road gravel after paving. On grades exceeding seven percent, HMA Curb may be required to control surface runoff.

Asphalt/concrete will stop at the culvert/center of the ditch. If no ditch is present, asphalt/concrete will stop ten feet from the edge of the snowplowed/maintained shoulder.

INSPECTION

Inspections by the BCRC will be done according to the following schedule:

1. Before preliminary approval.
2. During any unsuitable soil removal
3. After grading but before graveling.
4. Before surfacing.
5. During paving operations.
6. Before final approval.

If it becomes necessary to re-inspect construction work which did not meet required standards, a \$100.00 fee will be charged to cover the cost of each subsequent inspection. There will be no inspection of construction work during the winter months.

It shall be the Proprietor's responsibility to provide engineering inspection during construction. The Proprietor's Engineer shall utilize certified inspection personnel for testing density, aggregate, bituminous mixtures and concrete. As a minimum, the following items shall be inspected/tested:

1. Subgrade compacted to 95% TMD, 12" minimum depth.
2. Sub-base - Material analysis, depth, and density (95%).
3. Aggregate base - Material analysis, depth, and density (98%) of maximum unit weight.
4. Bituminous Surfacing - Approved mix formula.

FINAL APPROVAL

In accordance with the "Subdivision Control Act of 1967", as a condition for final approval, the Board will require conformance with their Published Construction Standards.

Completion of all required improvements relative to streets, alley, and roads, or deposit by the Proprietor with the board in the form of cash, a certified check or irrevocable bank letter of credit, whichever the Proprietor selects, or a surety bond acceptable to the Board, in an amount to insure completion of all improvements within a period of two years from the date of approval of the plat by the Board will be required. Costs of publishing notices and recording fees are to be paid for by the developer.

In accordance with the "Subdivision Control Act of 1967", Sec. 258, as a condition for final approval, the Board will require copies of agreements, covenants or other documents showing the manner in which areas to be reserved for the common use of the residents of the subdivision are to be maintained.

ROAD COSTS

Due to new accounting procedures under GASB34 the road commission is required to report the cost of new roads taken into the system beginning in 2002. This includes all roads that are accepted into the system in 2002 regardless of when construction began. As part of the final acceptance the developer will be required to submit the attached form (Report of Subdivision Road Costs) before the road will be accepted into the system.

REPORT OF ROAD COSTS

Road Name _____

Land Cost (R.O.W.) = _____

Subbase, Tree Removal, Ditching & Culverts = _____

Gravel, Asphalt, Shoulder = _____

Bridges & Structures = _____

Signs & Guardrail = _____

Total Cost = _____

Signature Developer/Representative: _____

Title: _____

Office Use Only

Township: _____

T____N, R____W,

Sect. _____

Date Taken into System: _____

Liber: _____ Page: _____

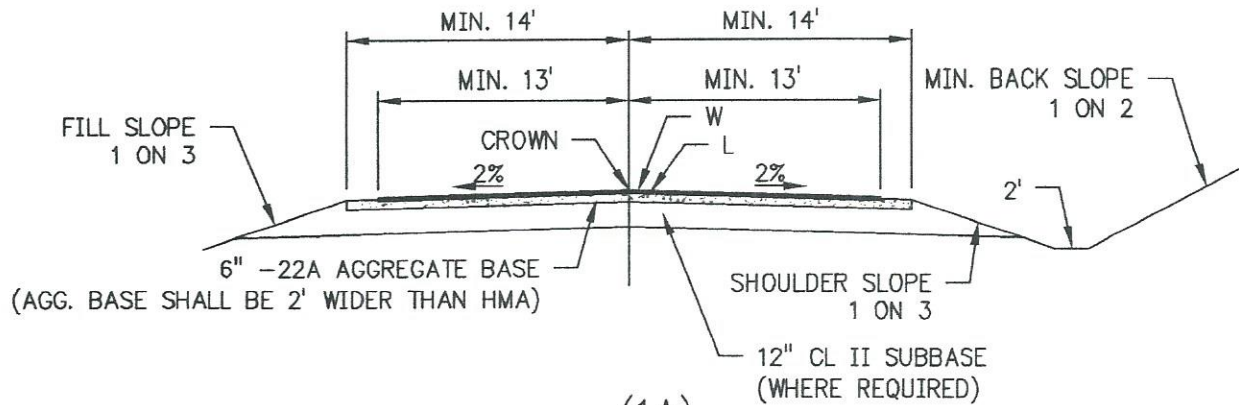
TABLE 1

Check Dams

% Grade	Distance between 1.5' High	1.0' High
10	20'	15'
9	25'	17'
8	30'	20'
7	40'	25'
6	50'	35'
5	75'	50'
4	150'	100'

Method of check dam construction shall be approved by the BCRC.

BENZIE COUNTY ROAD COMMISSION
STANDARD PLANS FOR SUBDIVISION ROAD GRADING

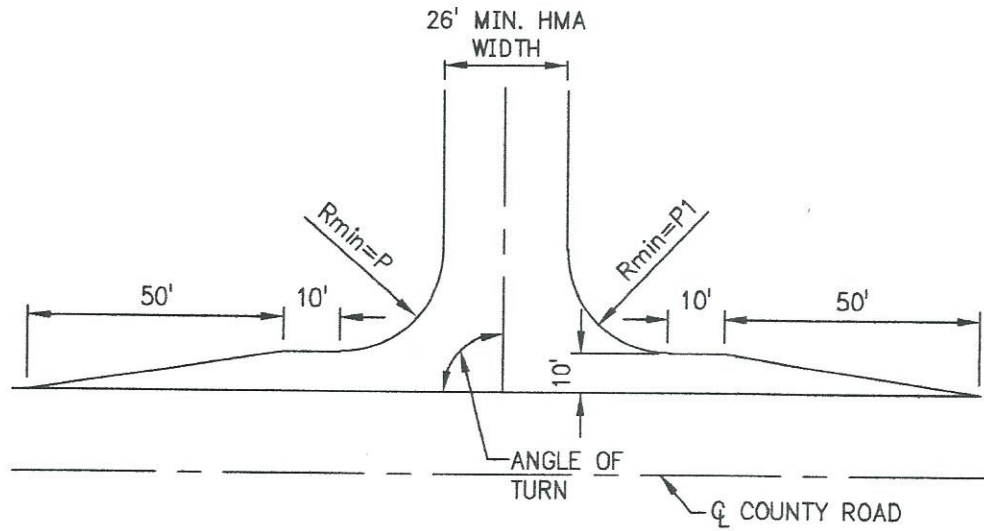


(1A)
TYPICAL CROSS SECTION

NOTE:

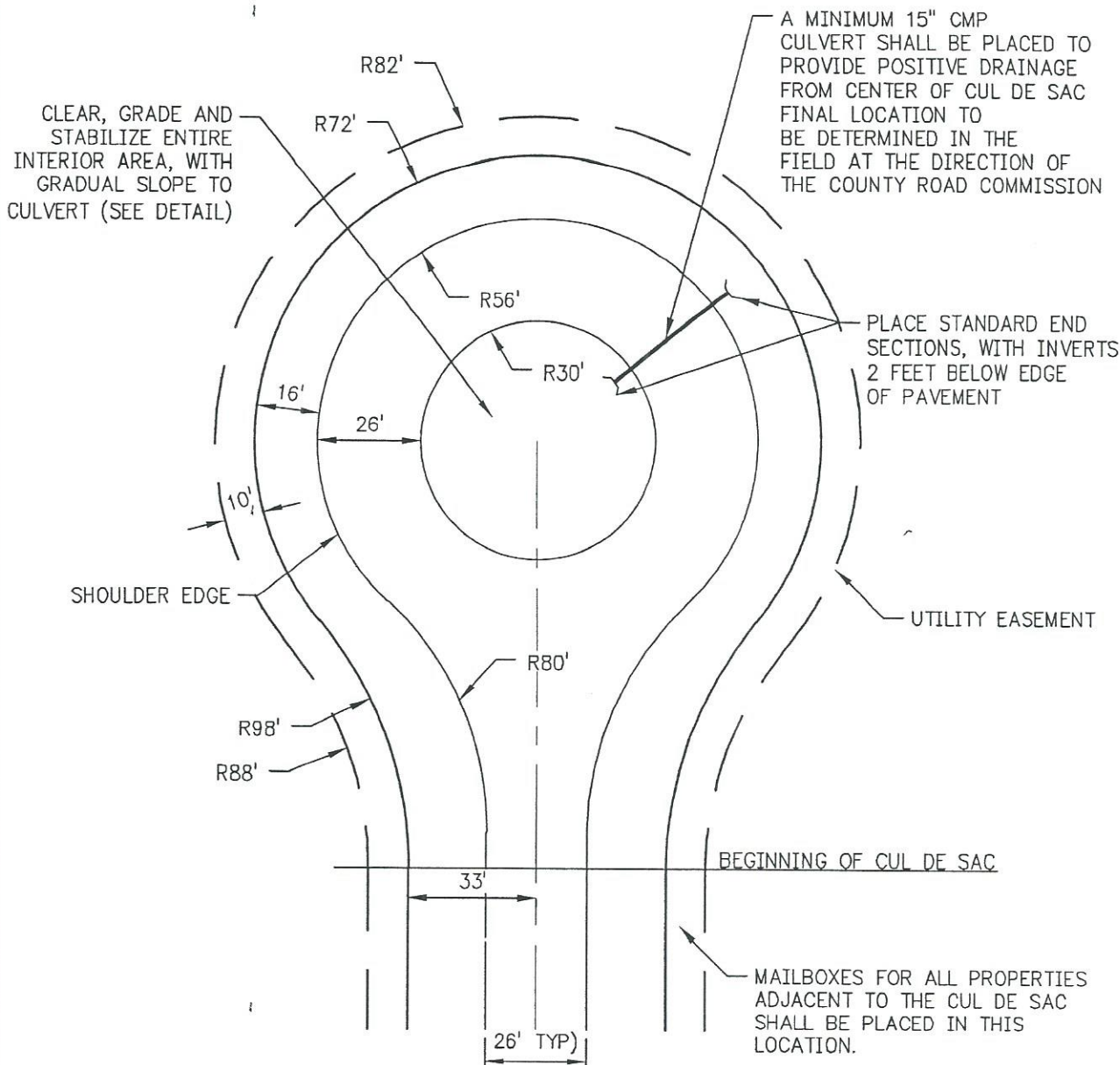
- DITCHES SHALL BE OF SUFFICIENT DEPTH TO PERMIT PLACING OF DRIVEWAY CULVERTS.
- TOPSOIL AND ORGANIC MATERIAL SHALL BE REMOVED AND SUBGRADE SHALL MEET CL II GRANULAR SPECIFICATIONS OR 12" CL II SUBBASE SHALL BE CONSTRUCTED PRIOR TO PLACEMENT OF AGGREGATE BASE.
- W = HMA 13A OF LVSP, OR 4E1 WEARING COURSE @ 165 LBS/SYD.
- L = HMA 13A OF LVSP, OR 4E1 LEVELING COURSE @ 165 LBS/SYD.

BENZIE COUNTY ROAD COMMISSION
ENTRANCE DETAIL FOR PROPOSED PLATS

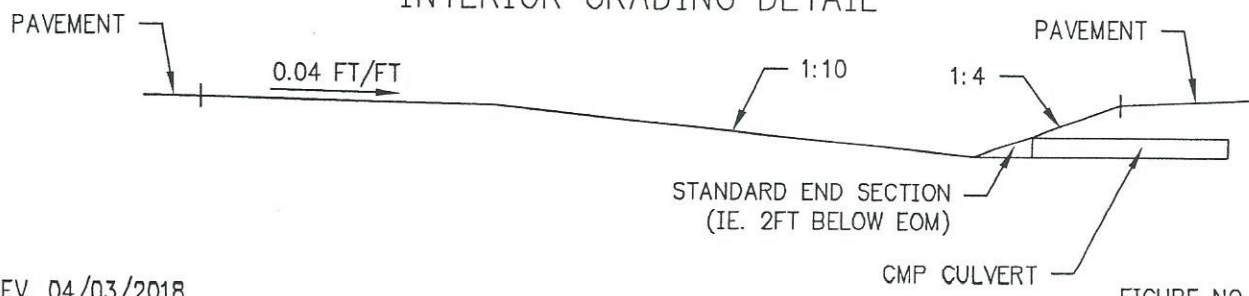


ANGLE OF TURN	P1	P
DEGREES	FEET	FEET
60-69	40	30
70-79	35	30
80-99	30	30
100-109	30	35
110-120	30	40
60 MINIMUM		
120 MAXIMUM		

BENZIE COUNTY ROAD COMMISSION TYPICAL CUL-DE-SAC



INTERIOR GRADING DETAIL



REV. 04/03/2018

FIGURE NO. 3