GENERAL PROVISIONS FOR THE DESIGN & CONSTRUCTION OF PUBLIC ROADWAYS

NELSON COUNTY, KENTUCKY

As Adopted by Nelson County Fiscal Court,

January 18, 2000

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1. INTRODUCTION:

The purpose of these General Provisions is to establish the minimum standards required for the design and construction of public roadways in Nelson County. These General Provisions are intended to assist a private developer in the design and construction of sub-division roadways which will be dedicated (once properly constructed) to the Nelson County Government for public use, repair, and maintenance. These provisions are to be a supplement to the Joint City-County Planning Commission's "Sub-Division Regulations, Nelson County".

2. DEFINITIONS:

Nelson County Fiscal Court-

The local Government Agency which shall be responsible for all current and future repair and maintenance of existing and newly developed County roadways.

NCRD-

Nelson County Road Department - when used in these provisions shall mean the Nelson County Road Department Supervisor or other designated representative of the Nelson County Fiscal Court. The NCRD shall be responsible construction review and inspection of any proposed public roadway.

The NCRD is located at 820 West Stephen Foster, Bardstown, KY 40004. Phone Number is (502) 348-1880.

NCE -

Nelson County Engineer - when used is these provisions shall mean the County Engineer employed by the Nelson County Fiscal Court. The NCE shall be responsible for the design review and construction review of any public roadway owned and maintained by the Nelson County Fiscal Court.

The NCE's office is located at the Nelson County Landfill, 1025 Airport Road, Bardstown, KY 40004, Phone # 502-348-1876, Fax # 502-348-1819.

KYSS-

The Kentucky Standard Specifications for Road and Bridge Construction- The standard specification book commonly used for all new, repair, and maintenance work associated with State highways and bridges in Kentucky. The Edition of this book to be utilized shall be that edition which is in effect when the design/construction plans for a new proposed County roadway has been submitted to the NCRD for approval. When the term "Engineer" or phrase "as approved by the Engineer" is used in the KYSS - it shall be construed to mean the NCE (authorized representative). The KYSS shall be the minimum standard utilized for construction and inspection of Nelson County Public Roadways. Any developer who intends to utilize a different specification than the KYSS shall specifically identify the difference in the Construction Plans.

3. PROCEDURES

All developers/contractors who wishes to construct a new road or extend an existing road and of which that developer intends to dedicate ownership of that road to the Nelson County Fiscal Court once constructed shall accomplish the following:

a. Comply with all zoning regulations required by the Nelson County Joint City-Planning Commission.

b. Comply with "Subdivision Regulations, Nelson County Kentucky" developed by the Planning Commission.

c. Submit "Construction Plans" (with or after the "Preliminary Plat" submittal) to the NCE for review. No construction of a proposed public roadway shall begin until the NCE has reviewed the Construction Plan.

d. Review the site with the NCE - Be prepared to discuss locations of borrow material, sample locations and number of proctors (to be used for Soil densities), cross drain culverts, easements, and right of ways.

e. Revise initial construction plans to comply with the NCE comments and concerns. Re-submit the final for final approval by the NCE.

g. Once the Construction Plans have been approved by the NCE, Construction may begin (provided the preliminary plat and other requirements of the Planning Commission have been complied with).

NOTE: Any construction activities which begin prior to construction plan review and approval shall be at the owners own risk.

4. ROADWAY DESIGN AND CONSTRUCTION.

a. Construction Plans-

All newly developed roadways - either in subdivisions or extensions of existing roads, which are intended to be dedicated to the County at a later date - shall be required to have construction plans. These construction plans shall be submitted to, reviewed by, and approved by the NCE prior to construction.

To assure proper review and approval of the Constructions Plans prior to Final Plat approval, the Construction Plans shall be submitted to the NCE a minimum of ten (10) working days prior to the Planning and Zoning subdivision plat review committee meeting. This subdivision plat review committee meeting is typically held on the on the third Wednesday of each month.

These plans shall be in sufficient detail to properly inform the NCE/NCRD of all fills, cuts, ditches, culverts, bridges, preliminary lot layout, and any other information necessary which may be required for a County owned roadway. The plans shall comply with the following:

1. Roads shall be designed and constructed in accordance with this document and the "SUBDIVISION REGULATIONS, For all Nelson County".

2. The minimum requirements for Construction Plans shall be:

A. Plan, profile, curve data etc. of the roadway showing roadway cuts, fills, alignment, and road grades.

B. Existing contour lines at minimum of five feet (or closer for hilly sites). Contour lines shall be of sufficient detail to depict all hills, creeks, sink holes, ponds, and other features which might impact roadway construction.

C. Typical roadway cross-section showing pavement structure, width,

and side drainage ditches.

D. Roadway location with respect to subdivision lot layouts, adjacent property owners, connecting roads (names), new phases (proposed), etc.

E. Cross drain culverts - including size, lengths and location, and material (including head walls). Culverts shall be sized for a 25 year storm event and certified by a Professional Engineer. Show all retention structures if required.

F. Roadway side ditches and proposed driveway culverts

G. Roadway "right of way' to be dedicated to the County,

H. Utility easements with proposed utilities,

I. Construction or maintenance easements if needed.

J. If septic tanks/lateral fields are to be used for sewage disposal, provide a copy of the preliminary on-site evaluation provided by the Nelson County Health Department.

K. All plans shall be prepared, sealed, and signed by a Licensed Professional Engineer of Kentucky who routinely prepares such design assuring that all features such as culverts, bridges, and any other structures are properly designed to carry intended loads.

L. All variances to the above requirements shall be specifically noted or requested.

b. Specifications-

All materials and procedures utilized in the design and construction of a new County roadway shall comply with the appropriate Section in the KYSS such as concrete, asphalt, dense graded aggregate, pipe materials, etc. Typical details such as culvert headwalls shall be as specified in the Standard Drawings Manual developed by the Kentucky Department of Highways. Reference to this manual shall be made when

designing such structures. Any variance to this manual shall be noted.

c. Roadway Construction (to subgrade)-

All roadway fills and cuts shall be shown on the plans. In areas that require embankments to be constructed, the developer shall understand they will be required to comply with SECTION 207 - Embankment of the KYSS. Soil Proctors (target densities) may be required as determined in the Construction Plan review this will depend on the soil type at the proposed development site. Proctors will involve soil samples to be collected and sent off to an acceptable laboratory with target densities (with acceptable moisture contents) developed for the soil to be used in the embankment construction. Field Densities will be routinely checked by using Nuclear Density Meters operated by an approved Construction Inspection company. These field densities will be responsibility of the developer/contractor when required by the NCE.

Density reports shall be routinely provided to the NCE during construction. Embankments material which fail the field density check will be required to excavated, refilled, and compacted with suitable material in accordance with the KYSS.

The minimum in place dry density of subgrade soils utilized for subgrade construction shall be as described in Section 205 of the KYSS. Specifically, all subgrade construction shall obtain 95 % of the maximum density (based on the proctor) or 98 pounds per cubic foot (which ever is greater).

d. Roadway Construction (Pavement Structure):

The minimum pavement structure for Public Roadways in Nelson County shall constructed to minimum of Six (6) inches Dense Graded Aggregate, Three (3) Inches of Asphalt Base course, and a one (1) inch Asphalt Surface Course.

Use of Concrete roads or any other variance from this minimum standard shall be prepared and submitted by a Licensed Professional Engineer for approval to the NCE.

1. Dense Graded Aggregate (DGA): The DGA to be used shall comply with the KYSS in that the DGA shall be run through a pugmill and water added to achieve a moisture content of plus or minus 2% of optimum. The DGA may be placed in one lift no thicker than 6 inches compacted. The DGA shall be spread with a stone spreader capable of obtaining a uniform depth. For roads less than 300 feet in length, tailgate spreading may be used provided it is graded to the correct depths. The DGA shall be compacted while still wet to 84% of solid Volume. The contractor shall be responsible for testing compaction which shall comply with the KYSS. 2.03 X 62.43 X .84 = 138 LB/CF

Subsurface drain (rock trenches) bleeders shall be constructed/cut/installed with a #57 stone at about 100 foot centers along the roadway's edges to drain any subsurface water from the DGA to ditch-lines when the roadway shoulders are constructed of clay material.

2. Asphalt Bituminous Base Course: The Asphalt base shall be laid in one lift

and compacted. The initial compaction pass shall be with a static roller and at least two more passes of a roller in the vibratory mode or as specified by the KYSS Section 401.17 "Compaction". Finish rolling shall be accomplished with a static roller.

3. **Asphalt Tack Coat:** Asphalt tack coat shall be applied to any Asphalt Base Course prior to Surface Placement. The Tack Coat shall comply with and be applied as specified in Section 407 of the KYSS.

4. **Asphalt Bituminous Surface Course:** The surface course shall be placed and compacted as required by the KYSS.

Both the Bituminous Base and Bituminous surface shall meet the current KYSS for gradation and asphalt content for work on similar projects by the Kentucky Department of Transportation. The Bituminous base shall be compacted to within 95% of the Job Mix formula for the material being used. (Ref. KYSS Section 403). The contractor shall provide density reports on the compaction.

The pavement width shall be as described in the Subdivision Regulations. No DGA shoulders will be required unless determined necessary by the NCE. At ATTACHMENT # 1 is the "typical" roadway section intended to be used. Any variance to this section shall be shown on the construction plans when practical.

e. Slopes / Ditches / Culverts

1. **Slopes** - The grades of the proposed roadway shall be specifically shown on the profile sheet. Roadway Side slopes (embankment fill areas, including over culverts) shall be a maximum (steepest) of a three (3) to one (1) vertical - 3:1.

2. **Ditches** - Parallel roadway ditches shall typically be a "V" type ditch with a 3:1 side slope designed to a depth to properly channel surface drainage away from the pavement structure. Typical ditches shall be shown on the plan and profile sheets. When the roadway grade is greater than a 5 percent grade, side ditches shall be rip rap lined two feet up each side slope.

All other ditches shall be seeded and strawed with a seed Mixture I, of Section 212 of the KYSS. Any variance of this mixture shall be identified in the Construction plans. The rates of application shall be as detailed in Section 212.

All disturbed right of way areas shall be seeded at a rate of eighty (80) pounds per acre. Within 48 hours of seeding, the area shall be mulched with straw mulch at rates required by the KYSS Section 212.

3. **Culverts** - Culverts shall be sized to carry the flow rates expected for a 25 year storm event. In the design, the HW/D ratio shall be as close to 1.0 as is practical however shall not exceed 1.5, or overtop the road, or cause unnecessary ponding. * 100 YR STORM CAN NOT OVERTOP A ROAD (1' BELOW)

Culvert material shall be as a minimum aluminized corrugated metal pipe

(ACMP), 16 gage thickness complying with ASTM A819 and AASHTO M 274 and the KYSS. Alternatives pipe material may be utilized provided the Owner/Developer specifically identifies and request a variance on the construction plans. All materials to used shall comply with the KYSS.

Cross drain round culverts twenty -four (24") inches or larger shall require concrete headwalls. All concrete box culverts require headwalls. The culvert length shall be what is necessary for the 3:1 embankment slope to toe out at the culvert flow-line. Rip Rap (shot limestone rock) shall be required at culvert inlets/outlets. The minimum size for a roadway cross drain culvert shall be eighteen (18") inches.

All culverts (box or pipe), and utility structures (pipelines) with the pavement structure area shall be constructed and properly backfilled in accordance with Section 611 of KYSS.

f. Right of Ways

Right of Ways to be dedicated to the County shall be a minimum the width identified in the "Subdivision Regulations". Permanent right of way markers shall be installed at all roadway change of direction. These right of way marker locations shall be shown on the construction plans.

g. Easements

All utility, construction, and/or maintenance easements shall be shown on the Construction plans. Typically, no utility easements shall be located in the right of way

unless specifically requested and identified on the plans. All underground utilities which cross the roadway (i.e. - electric lines) shall be specifically shown on the construction plans. All utilities which are to be installed in the County right of way shall have "Utility Identification Tape" installed during backfill of the utility trench. This identification tape shall be placed at about 18 inches above the utility.

All utilities which are installed within the pavement structure area shall be properly backfilled and compacted in accordance with Section 611 of the KYSS.

h. Curb & gutters/sidewalks

Curb, gutters, and sidewalks shall be installed when required by the Nelson County Planning Commission's Sub-division Regulations. The minimum sizes/configuration for the curb/gutters and sidewalks are shown at the attachments. Any variance from this detail shall be identified in the Construction Plans.

Adequate surface drain structures (i.e. curb box inlets with clean out manholes) shall be installed along the curb and gutters (at all low points in roadways or at sufficient intervals along relatively flat roadways as designed by the Engineer) to allow surface water drain off from the pavement structure.

The design engineer shall take into account any subsurface drainage problems which could result from curb/gutter installation due to the site's soil/clay material and/or terrain. The requirement for subsurface drainage is a designer decision.

CATCH BASIN CLEAN OUT SPACE NOT TO EXCEED 150'

I. Street Lighting

One street light shall be installed at each new subdivision roadway which intersects an existing public roadway. Waiver of this requirement shall be at the County's discretion. Installation of the street light shall be coordinated by the County with the appropriate Electric Utility Company. The owner/developer shall make a one time payment of $500 per light to the Nelson Fiscal Court.

After the initial payment, the Nelson County Fiscal Court will assume the cost of providing electricity and maintenance of any street light.

Additional lights may be installed within the new subdivision at the discretion of the developer or subdivision association. Future maintenance and payment thereof will be agreed to on a case by case basis.

The style selected and location of each street light are to be made only after consultation with the appropriate utility provider and Nelson Fiscal Court for all lights to be maintained by the County.

j. Street signs

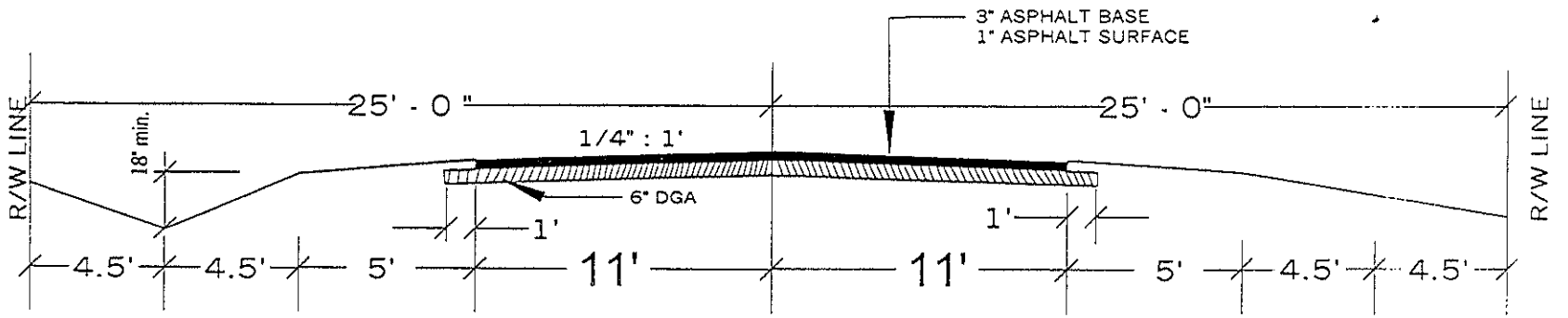
A list of the Street's names shall be provided to the NCRD for a particular development. It shall be the responsibility of the NCRD to purchase and install all street signs for new and old developments.

k. Stormwater Management & Drainage Plan and Encroachments on County Roads:

Storm water management and drainage plans shall be submitted as required by County Ordinance.

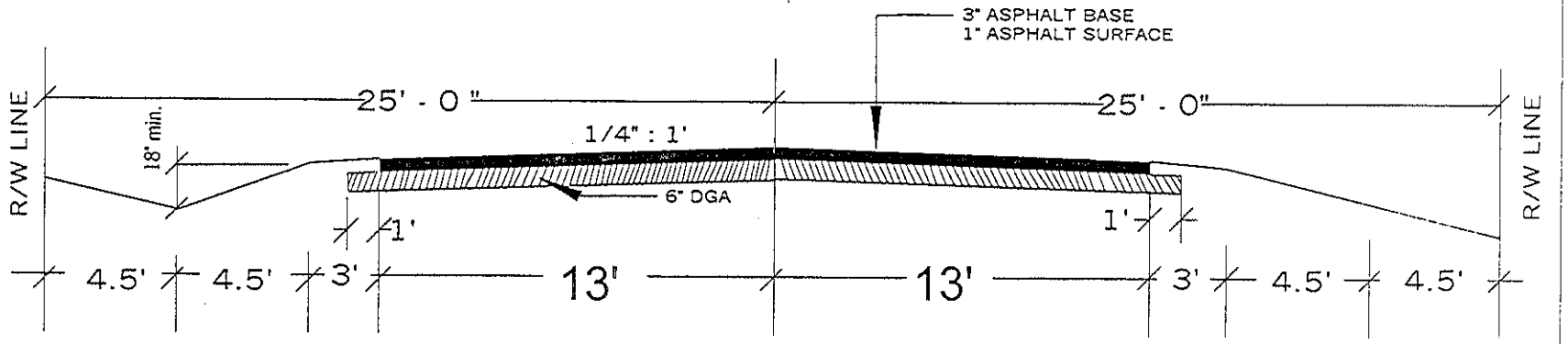
Encroachment permits for drive entrances onto County roads shall be submitted as required by County Ordinance.

ATTACHMENTS



TYPICAL COUNTY STREET SECTION

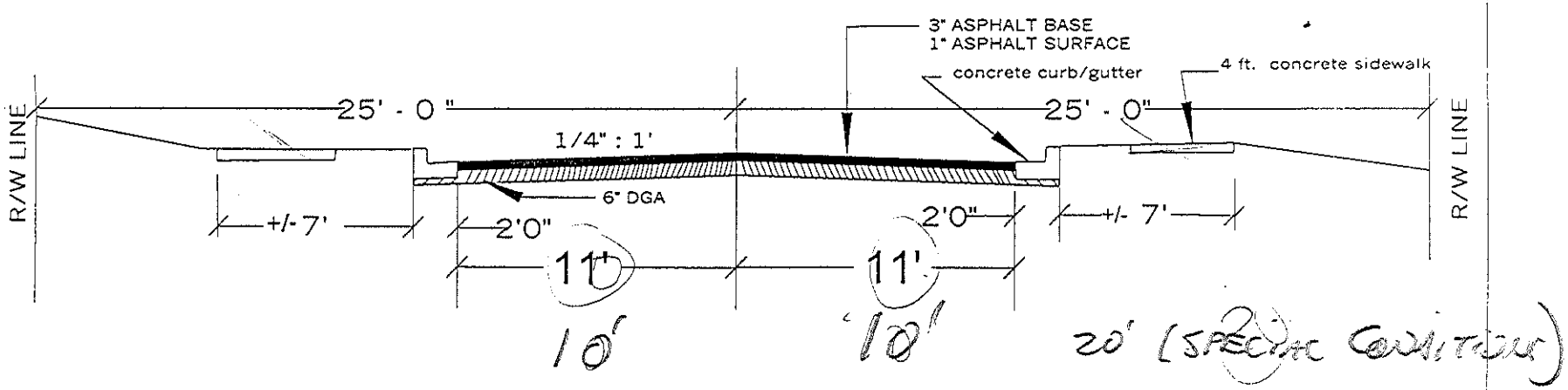
6" DGA BASE, 3" BIT BASE, 1" BIT SURFACE



TYPICAL CITY STREET SECTION

6" DGA BASE, 3" BIT BASE, 1" BIT SURFACE

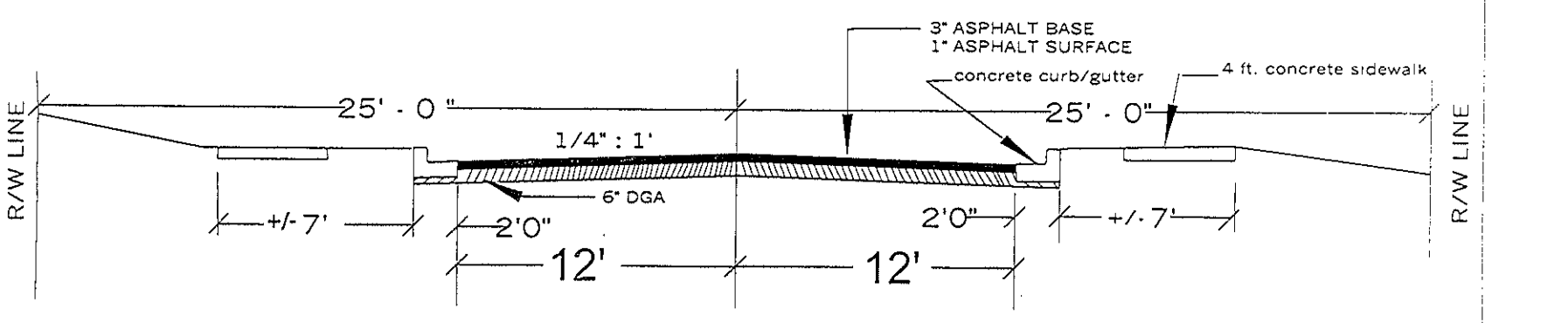
not to scale



TYPICAL COUNTY STREET SECTION

(curb/gutter & sidewalks)

6" DGA BASE, 3" BIT BASE, 1" BIT SURFACE



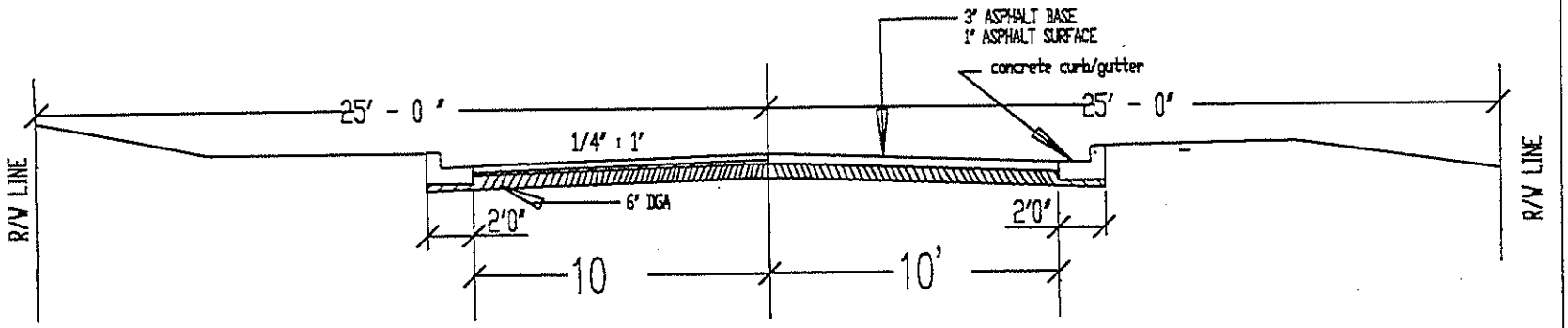
TYPICAL CITY STREET SECTION

(curb/gutter & sidewalks)

6" DGA BASE, 3" BIT BASE, 1" BIT SURFACE

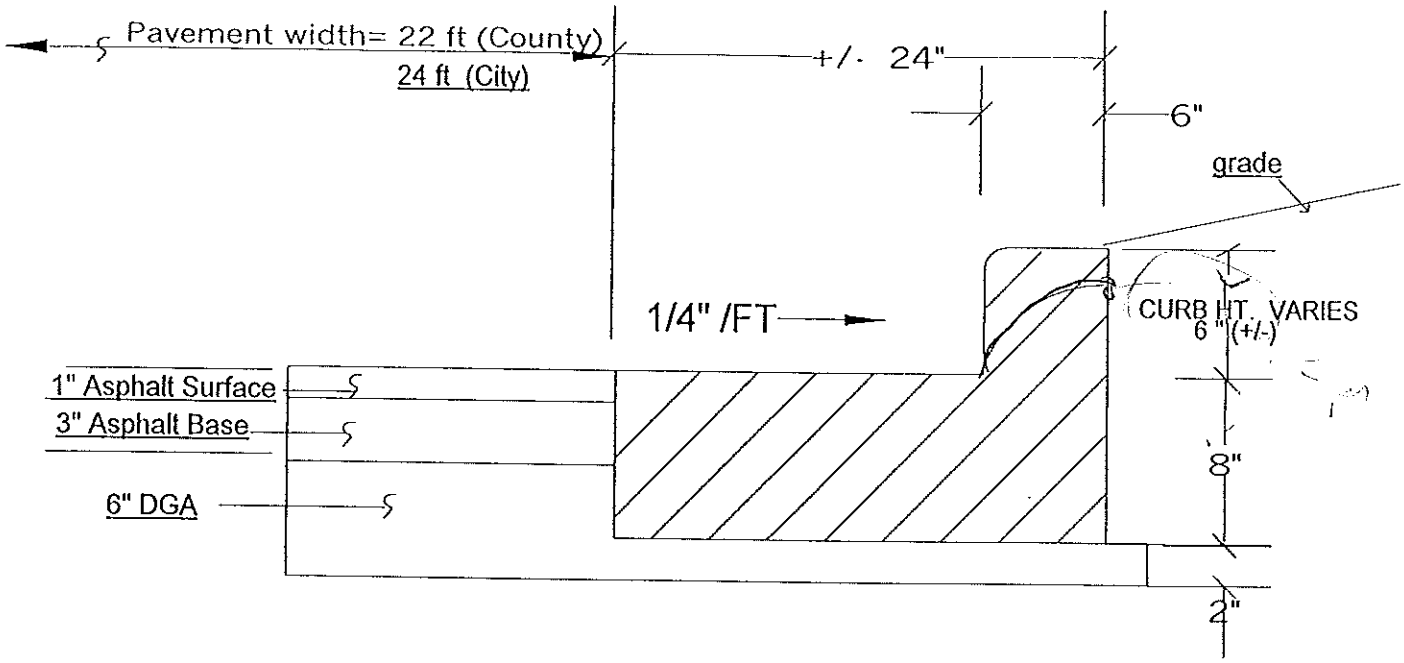
not to scale

Detail APPROVED for use by Nelson County Fiscal Court on June 18, 2002

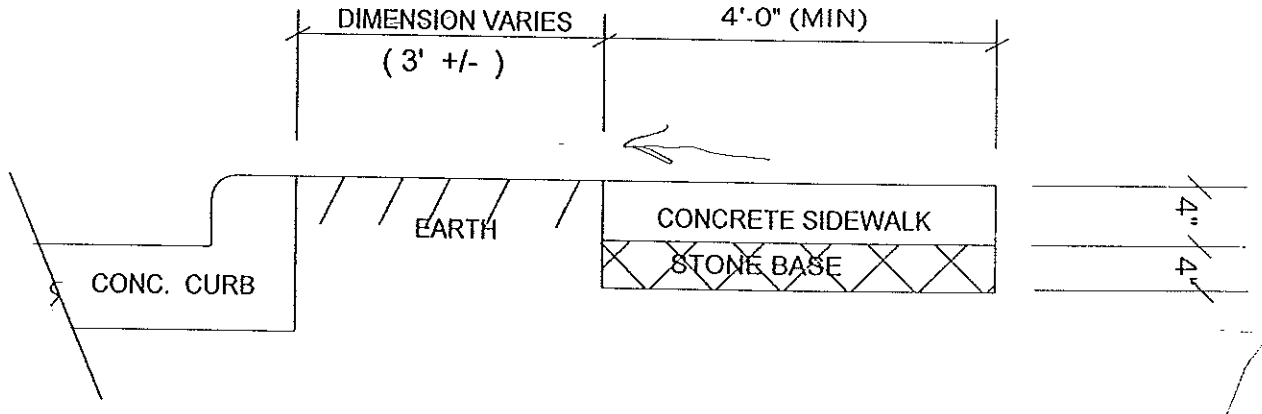


TYPICAL COUNTY STREET SECTION
(curb&gutter section / MAY BE USED when lot width equal to or greater than 100 ft.)
6" DGA BASE, 3" BIT BASE, 1" BIT SURFACE

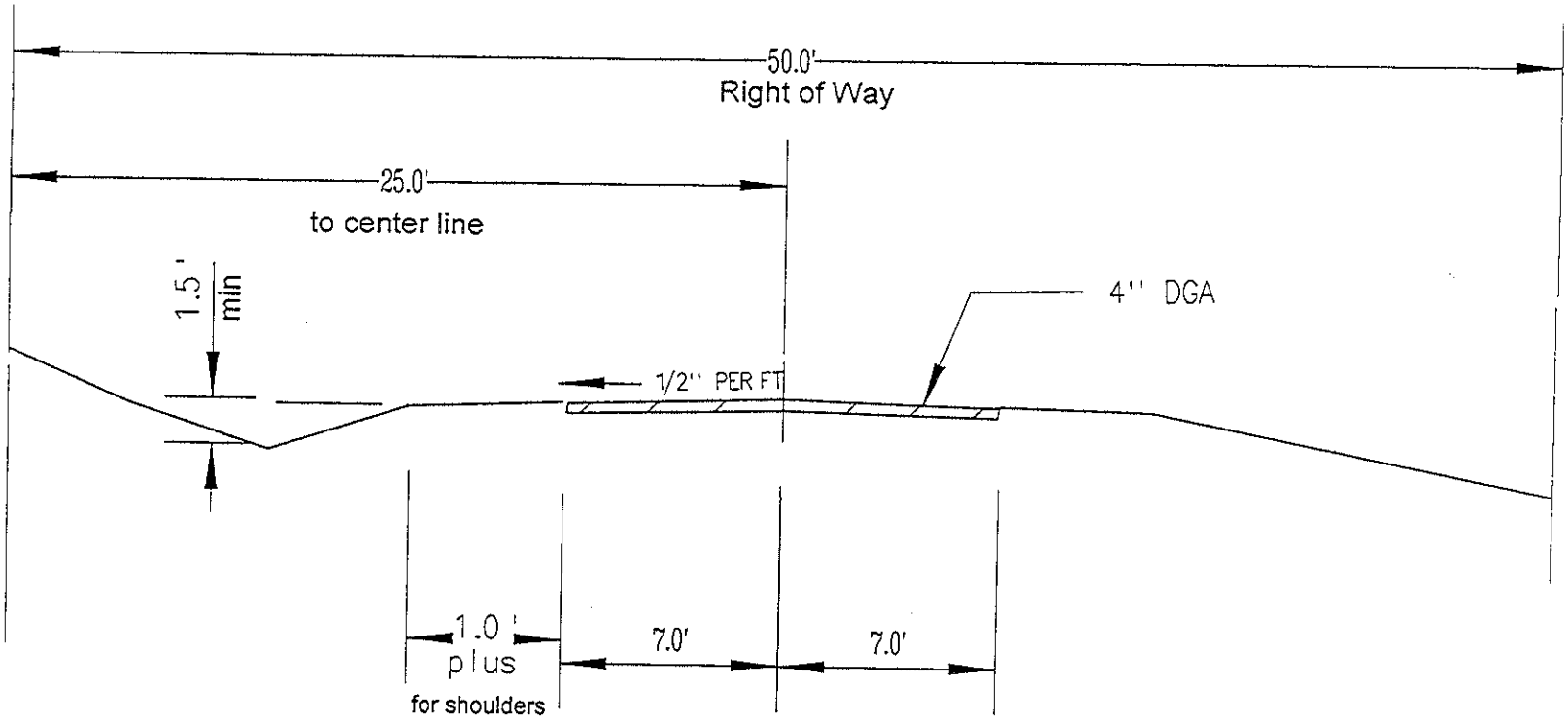
NTS



TYPICAL DETAIL
CURB & GUTTER



TYPICAL DETAIL
CONCRETE SIDEWALK



PRIVATE ROAD

TYPICAL SECTION
(nts)

IDYDOT GEOMETRIC DESIGN STANDARDS TO BE USED FOR COUNTY ROADWAYS

EXHIBIT 700-01

COMMON GEOMETRIC PRACTICES
RURAL LOCAL ROADS

		TRAFFIC VOLUME					
	TERRIAN	UNDER 50 A.D.T.	50-250 A.D.T.	250-400 A.D.T.	400-1500 A.D.T.	1500-2000 A.D.T.	OVER 2000 A.D.T.
MINIMUM DESIGN SPEED (M.P.H.) ⑥⑦	LEVEL	30		40	50		
	ROLLING	20	30		40		
	MOUNTAIN	20			30		

	DESIGN SPEED	UNDER 400 A.D.T.	400-1500 A.D.T.	1500-2000 A.D.T.	OVER 2000 A.D.T.
PAVEMENT WIDTH (FEET) ④⑧	15 MPH	18	20 ⑨	20	22
	20 MPH				
	25 MPH			22	24 ⑪
	30 MPH				
	40 MPH				
	45 MPH	20	22		
	50 MPH				
	55 MPH	22		24 ⑪	
	60 MPH				
MIN. GRADED SHOULDER WIDTH (FEET) ⑤	ALL SPEEDS	2	5 ⑨⑩	6	8
MIN. CLEAR ROADWAY WIDTH OF NEW AND RECONSTRUCTED BRIDGES	ALL SPEEDS	APPROACH ROADWAY WIDTH			

MINIMUM RADIUS (FEET)	DESIGN SPEED	eMAX. 4%	eMAX. 6%	eMAX. 8%
	20 MPH	125	115	105
	25 MPH	205	185	170
	30 MPH	300	275	250
	35 MPH	420	380	350
	40 MPH	565	510	465
	45 MPH	730	660	600
	50 MPH	930	835	760

NORMAL PAVEMENT CROSS SLOPES ③	RATE OF CROSS SLOPE = 2%							
NORMAL SHOULDER CROSS SLOPES	EARTH = 8%				PAVED = 4%			
MAXIMUM GRADE (PERCENT)	M.P.H.	20	25	30	35	40	45	50
	LEVEL	8	7					6
	ROLLING	11		10			9	8
	MOUNTAIN	16	15	14		13	12	10
MINIMUM STOPPING SIGHT DISTANCE ①	(FEET)	115	155	200	250	305	360	425
MINIMUM PASSING SIGHT DISTANCE ②	(FEET)	710	900	1090	1280	1470	1625	1835

① MINIMUM STOPPING SIGHT DISTANCE BASED ON HEIGHT OF EYE OF 3.5 FT AND HEIGHT OF OBJECT OF 2.0 FT. CONSIDER BOTH HORIZONTAL AND VERTICAL ALIGNMENT.

② MINIMUM PASSING SIGHT DISTANCE BASED ON HEIGHT OF EYE OF 3.5 FT AND HEIGHT OF OBJECT OF 3.5 FT. CONSIDER BOTH HORIZONTAL AND VERTICAL ALIGNMENTS.

③ NORMAL PAVEMENT CROSS SLOPES ON BRIDGES IS 2%.

④ CONSIDER CURVE WIDENING ON PROJECTS WITH SIGNIFICANT TRUCK VOLUMES.

⑤ WIDEN 3 FT FOR GUARDRAIL.

⑥ WHERE SELECTED DESIGN SPEED IS > 50 MPH, USE COMMON GEOMETRIC PRATICES EXHIBIT 500-02 FOR RURAL COLLECTOR ROADS.

⑦ DOCUMENT AND RETAIN JUSTIFICATION FOR A DESIGN SPEED LESS THAN THE REGULATORY OR POSTED SPEED IN THE PROJECT FILES.

⑧ FOR ROADS < 400 ADT, REFER TO AASHTO'S "GEOMETRIC DESIGN GUIDELINES FOR VERY LOW-VOLUME LOCAL ROADS (ADT≤400)".

⑨ FOR ROADS IN MOUNTAINOUS TERRAIN WITH DESIGN VOLUME OF 400 TO 600 VEH/DAY, USE 18 FT TRAVELED WAY WIDTH AND 2 FT SHOULDER WIDTH.

⑩ MAY BE ADJUSTED TO ACHIEVE A MINIMUM ROADWAY WIDTH OF 30 FT FOR DESIGN SPEEDS > THAN 40 MPH.

⑪ WHERE THE WIDTH OF THE TRAVELED WAY IS SHOWN AS 24 FT, THE WIDTH MAY REMAIN AT 22 FT ON RECONSTRUCTED HIGHWAYS WHERE SAFETY RECORDS AND ALIGNMENT ARE SATISFACTORY.