STD84.DGN

GENERAL NOTES FOR SIGN SUPPORTS:

DESIGN SPECIFICATIONS:
STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS, CURRENT EDITION AND TENNESSEE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.

CONCRETE:
TO BE CLASS "A" (CAST IN PLACE) f'c = 3000 psi. SEE SPECIAL PROVISIONS.

REINFORCING STEEL:
TO BE ASTM A615, GRADE 60. STANDARD C.R.S.I. HOOK DETAILS SHALL APPLY.

WELDING:
SHALL CONFORM TO AWS D1.1 LATEST REVISION.

MATERIAL SPECIFICATIONS - BOLTS:
1.) ANCHOR BOLTS SHALL BE ASTM F1554 GRADE 55 ksi WITH THREADS CONFORMING TO THE REQUIREMENTS OF ASTM A563.
2.) NUTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A563.
3.) HARDENED STEEL WASHERS SHALL BE ASTM F436.
4.) U-BOLTS MAY BE FABRICATED FROM ASTM F1554 GRADE 36 ksi MATERIAL OR CONFORM TO THE REQUIREMENTS OF ASTM F708.
5.) STRUCTURAL BOLTS SHALL BE ASTM A325.
6.) STAINLESS STEEL NUTS, BOLTS, U-BOLTS AND WASHERS MAY BE SUBSTITUTED FOR ANY OF THE ABOVE REFERENCED MATERIALS.
7.) ALL HARDWARE, EXCEPT STAINLESS STEEL, SHALL BE HOT DIPPED GALVANIZED ACCORDING TO ASTM A153 OR MECHANICALLY GALVANIZED ACCORDING TO ASTM B695.

MATERIAL SPECIFICATIONS - ALUMINUM:
SHALL CONFORM TO THE REQUIREMENTS OF SECTION 5 OF THE DESIGN SPECIFICATIONS.

MATERIAL SPECIFICATIONS - STEEL:
1.) MATERIAL FOR POST, CHORDS AND BRACING MEMBERS TO BE ASTM A36 STEEL OR ASTM A53 GRADE B PIPE.
2.) MATERIAL FOR STRUCTURAL SHAPES AND PLATES TO BE ASTM A36 STEEL.
3.) MATERIAL FOR POST CAPS AND CHORD CAPS SHALL BE ASTM A27 STEEL.
4.) ALL STEEL SHALL BE GALVANIZED AFTER FABRICATION IN CONFORMANCE WITH THE REQUIREMENTS OF ASTM A123. DAMAGE TO THE COATING SHALL BE REPAIRED.

PARAPET BASE MOUNTS:
BASE PREPARATION SHALL BE AS SHOWN ON TENNESSEE DOT STANDARD STD-8-2.

MEDIAN BARRIER BASE MOUNTS:
BASE PREPARATION SHALL BE AS SHOWN ON TENNESSEE DOT STANDARD STD-8-3.

BASE INSTALLATION:
THE ANCHOR BOLT SHALL BE THREADED OVER THE ENTIRE PROJECTING LENGTH. ONE HEX LEVELING NUT SHALL BE USED ON BOTTOM SIDE OF BASE PLATE WITH THE CLEARANCE BETWEEN THE NUT AND CONCRETE NOT TO EXCEED ONE INCH. ONE HEX NUT WITH ONE HARDENED WASHER SHALL BE USED ON TOP AND BOTTOM SIDE OF BASE PLATE. THE TOP NUT SHALL BE TORQUED TO PRODUCE A CLAMPING FORCE EQUAL TO 60% OF THE ANCHOR BOLT YIELD CAPACITY. THE SPACE BETWEEN THE BASE PLATE AND TOP OF CONCRETE SHALL NOT BE FILLED WITH GROUT. AN ANCHOR BOLT ALIGNMENT CAGE WITH A TOP BOLT TEMPLATE SHALL BE USED AND WELDING OF ANCHOR BOLT TO CAGE WILL NOT BE PERMITTED. THE TOP TEMPLATE SHALL BE HELD LEVEL AND THE ALIGNMENT CAGE SHALL BE SIDE BLOCKED TO REMAIN CENTERED DURING CONCRETE PLACEMENT. BASE INSTALLATIONS THAT REQUIRE ELECTRICAL CONDUITS SHALL BE GROUNDED IN ACCORDANCE WITH THE DETAILS SHOWN ON TENNESSEE DOT STANDARD T-L-1A.

BASE MOUNT AS DETAILED ON THIS SHEET SHALL APPLY ONLY TO THE FOLLOWING STRUCTURES:
1.) OVERHEAD SIGN STRUCTURES
2.) BALANCED AND UNBALANCED BUTTERFLY
3.) CANTILEVER
4.) SIGN BRIDGES
5.) SIGN BRIDGE CANTILEVERS
6.) HIGH-LEVEL LUMINAIRE SUPPORT STRUCTURES
7.) SPAN WIRE MOUNTED TRAFFIC SIGNALS
8.) STRAIN POLES
NOTE: SEE FIGURE 1.1.3C THROUGH 1.1.4E(4) OF THE REFERENCED SPECIFICATIONS FOR DETAILS REGARDING ITEMS 1 THROUGH 8, ABOVE.

SUPPORT STRUCTURE DESIGN:
1.) THE MEMBERS MUST BE DESIGNED ACCORDING TO THE PROVISIONS OF THE REFERENCED SPECIFICATIONS. THESE PROVISIONS INCLUDE BUT ARE NOT LIMITED TO MOMENT, SHEAR, TORSION AND FATIGUE ANALYSIS FOR THE DESIGNATED CONFIGURATION. THE DESIGN WIND VELOCITY SHALL BE 90 mph APPLIED TO MAXIMUM PLANS SURFACE EXPOSURE AREA MULTIPLIED BY A FACTOR OF 1.5 FOR FUTURE SIGN SURFACE ADDITIONS. STRUCTURE ACTUAL AND DESIGN SURFACE AREA SHALL BE EXPLICITLY INDICATED IN THE DESIGN CALCULATIONS AND ON THE SHOP DRAWINGS.
2.) EACH DESIGN AND SHOP DRAWING MUST BE STAMPED BY A REGISTERED PROFESSIONAL ENGINEER. THE DESIGN AND SHOP DRAWING FOR EACH STRUCTURE IS TO BE SUBMITTED TO THE DIVISION OF STRUCTURES INSPECTION AND REPAIR SECTION.

SHOP DRAWINGS:
1.) ALL SHOP DRAWINGS FOR OVERHEAD, CANTILEVER AND BUTTERFLY SIGN STRUCTURES SHALL CONTAIN SIGN STRUCTURE ID NUMBERS FOR EACH STRUCTURE.
2.) THE CONTRACTOR SHALL SUBMIT DESIGN AND SHOP DRAWINGS ON CD'S. THE DRAWINGS MUST BE .PDF OR .TIF FORMAT. INFORMATION TO BE PRINTED ON THE CD AND THE CASE LABEL TO INCLUDE PROJECT NUMBER, COUNTY NUMBER, CONTRACT NUMBER, SIGN STRUCTURE ID NUMBER, DATE OF FABRICATION, NAME OF FABRICATOR AND STATION.

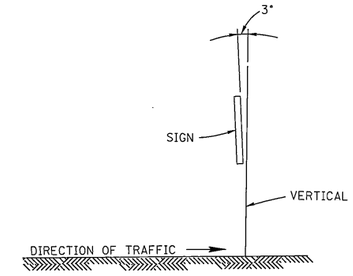
SOIL FOUNDATION DESIGN:
1.) DESIGN OF SUPPORT STRUCTURAL FOUNDATION INCLUDING PROCUREMENT OF SITE SPECIFIC GEOTECHNICAL DATA AND GENERATION OF SOIL ANALYSIS REQUISITE FOR THE FOUNDATION DESIGN SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. ALL COSTS ASSOCIATED WITH THE FOUNDATION INCLUDING DESIGN AND SOIL ANALYSIS SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE.
2.) FOUNDATION SHALL BE DESIGNED FOR SOIL OR ROCK. COMBINED SOIL/ROCK FOUNDATIONS ARE DISALLOWED. A SOIL ANALYSIS SHALL BE PERFORMED FOR EACH FOUNDATION LOCATION. THE MANDATORY TEST BORING RECORD PROVIDED FOR EACH FOUNDATION LOCATION SHALL REPORT THE TYPES AND DEPTHS OF EACH SOIL STRATA, THE "N" VALUES (NUMBER OF BLOWS PER FOOT USING A SPLIT SPOON SAMPLER), AND Pp (PASSIVE PRESURE) VALUES IN ksf FOR EACH SOIL STRATA. THE SOIL ANALYSIS SHALL BE PERFORMED AFTER FINAL FILL COMPACTION FOR FOUNDATIONS LOCATED IN NEW EMBANKMENTS.
3.) CONTRACTOR SHALL SUBMIT FOUNDATION DESIGN, DRAWINGS, SOIL ANALYSIS AND TEST BORING RECORDS TO THE DIRECTOR OF THE DIVISION OF STRUCTURES FOR APPROVAL. CONTRACTOR SHALL ENSURE THAT A REGISTERED PROFESSIONAL ENGINEER STAMPS EACH DOCUMENT.

BASIS OF PAYMENT:
THE STRUCTURE WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR THE VARIOUS TYPES AND SIZES SHOWN ON PLANS, COMPLETE IN PLACE AND ACCEPTED.

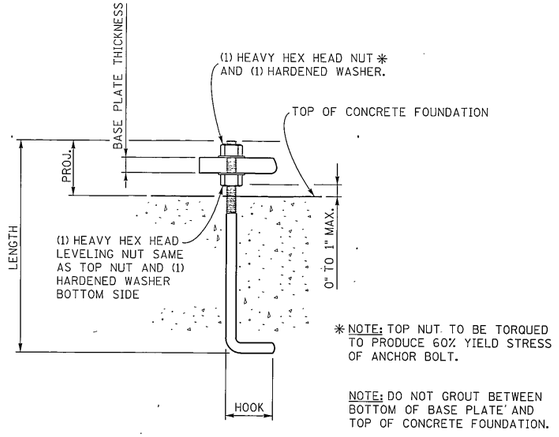
SIGNS ON BRIDGES:
ALL OVERHEAD AND CANTILEVER SIGN STRUCTURES MOUNTED ON BRIDGES SHALL BE EQUIPPED WITH VIBRATION DAMPERS.

LABELING OF OVERHEAD AND CANTILEVER SIGN SUPPORTS:

THE SIGN STRUCTURE ID NUMBERS, DATE OF FABRICATION, AND NAME OF THE FABRICATOR SHALL BE PERMANENTLY ATTACHED TO THE SIDE OF ONE OF THE UPRIGHTS ON THE SIDE ADJACENT TO THE ROADWAY. THEY SHALL BE LOCATED A MINIMUM OF 4'-0" AND A MAXIMUM OF 6'-0" ABOVE THE BASE PLATE. THE LETTERS SHALL BE A MINIMUM OF 3/8" TALL. THE LETTERS SHALL BE DIE CUT OR ENGRAVED INTO THE METAL BEFORE GALVANIZING AND SHALL BE READABLE AFTER GALVANIZING. ALL EXCESS GALVANIZING SHALL BE BRUSHED OFF. THE LOCATION AND DESCRIPTION OF THE DATA MUST BE SHOWN ON THE SHOP PLANS. STENCILING WITH PAINT WILL NOT BE ALLOWED. IF A FABRICATOR ELECTS TO PLACE THE REQUIRED INFORMATION ON A STEEL PLATE, THEN THE PLATE MUST BE BENT TO CONFORM TO THE COLUMN SURFACE PROFILE AND WELDED ALL AROUND BEFORE GALVANIZING.



OVERHEAD SIGN ORIENTATION



* NOTE: TOP NUT TO BE TORQUED TO PRODUCE 60% YIELD STRESS OF ANCHOR BOLT.

NOTE: DO NOT GROUT BETWEEN BOTTOM OF BASE PLATE AND TOP OF CONCRETE FOUNDATION.

ANCHOR BOLT DETAIL

(STRAIGHT ANCHOR BOLTS WILL BE ALLOWED, PROVIDED DEVELOPMENT LENGTH CAN BE OBTAINED. UNDER NO CONDITIONS WILL DRILLED AND GROUTED ANCHOR BOLTS BE ALLOWED)

(CANTILEVER AND BUTTERFLY SIGN BASES SHALL REQUIRE A MINIMUM OF 8 ANCHOR BOLTS 1½" IN DIAMETER)

CONST. NO.

PROJECT NO.	YEAR	SHEET NO.
	2003	

REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
SIGN, LUMINAIRE AND TRAFFIC SIGNAL SUPPORTS 2003

DESIGNED BY C.M. HILES DATE 2-03
DRAWN BY K.L. FRANKENFIELD DATE 2-03
SUPERVISED BY C.M.HILES DATE 2-03
CHECKED BY R.L. CRAWFORD DATE 2-03

CORRECT Edward P. Wasserman
ENGINEER OF STRUCTURES

STD-8-4