

ELEVATION - TYPICAL CANTILEVER SIGN SUPPORT
(LOOKING UPSTATION)

SUMMARY OF QUANTITIES

PAY ITEM NO.	STANDARD ITEM NO.	DESCRIPTION	UNIT	CONTRACT QUANTITY
		CLEARING SITE, STRUCTURE	LUMP SUM	
		FOUNDATION EXCAVATION	C.Y.	
		TEMPORARY SHEETING	S.F.	
		CONCRETE IN STRUCTURES, FOOTINGS	C.Y.	
		REINFORCEMENT STEEL IN STRUCTURES	LB	

GENERAL NOTES

A. DESIGN CRITERIA

DESIGN SPECIFICATIONS

2001 AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS WITH CURRENT INTERIM.

NJDOT BRIDGES AND STRUCTURES DESIGN MANUAL, CURRENT EDITION.

DESIGN LOADS

DESIGN WIND VELOCITY ---- 80 MPH; (ABOVE AASHTO SPECIFICATIONS APPENDIX C)
DESIGN ICE LOAD ----- 3 PSF

FATIGUE LOADS

ALL STRUCTURAL DETAILS HAVE BEEN ANALYZED AGAINST FATIGUE CATEGORY II IMPORTANCE FACTOR VALUES AS DESIGNATED IN THE ABOVE AASHTO DPECIFICATIONS.

VARIABLE MESSAGE SIGN (VMS) STRUCTURES

REFER TO THE NJDOT BRIDGES AND STRUCTURES DESIGN MANUAL WHEN FURNISHING SUPPORT STRUCTURES FOR VARIABLE MESSAGE SIGNS (VMS).

CONCRETE DESIGN STRESSES

SPECIFIED COMPRESSIVE STRENGTH (f'c) (CLASS B) ---- 3,000 PSI
EXTREME FIBER COMPRESSIVE STRESS (fc) ----- 1,200 PSI

REINFORCEMENT STEEL DESIGN STRESS

YIELD STRENGTH (fy) (A615, GRADE 60) ---- 60 KSI
TENSILE STRESS (fs) ---- 24 KSI

STRUCTURAL STEEL DESIGN STRENGTHS

YIELD STRENGTH (Fy)
PIPES (A53, TYPE S OR TYPE E, GRADE B) ---- 35 KSI (MIN.) *
(API 5L, GRADE B) ---- REFER TO API SPECIFICATIONS

* FABRICATORS ARE ADVISED THAT REPAIRS TO THE MATERIALS WILL NOT BE PERMITTED. IF TEARING, CRACKING OR ANY DEFECT OCCURS, THE MATERIAL WILL BE REQUIRED TO BE REPLACED.

FOUNDATIONS

MAXIMUM FOUNDATION DESIGN BEARING PRESSURE ---- 2.5 KSF
FOOTINGS ARE DESIGNED SUCH THAT A MINIMUM OF 75 PERCENT OF THE FOOTING IS ALWAYS IN CONTACT; A MAXIMUM OF 25 PERCENT OF THE FOOTING IS IN UPLIFT.

BEARING PILES SHALL BE CAST-IN-PLACE CONCRETE PILES WITH A MINIMUM BEARING CAPACITY EQUAL TO 50 KIPS.

REFER TO THE NJDOT BRIDGES AND STRUCTURES DESIGN MANUAL FOR ALTERNATE FOUNDATION DESIGN CRITERIA.

CAMBER

PERMANENT CAMBER EQUAL TO L/1000 HAS BEEN PROVIDED IN ADDITION TO THE DEAD LOAD CAMBER.

B. MATERIALS

I. STEEL

STEEL PIPE SHALL BE CERTIFIED BY MILL TEST REPORT TO MEET ASTM SPECIFICATION A53, TYPE E OR S, GRADE B WITH THE EXCEPTION THAT API 5L, GRADE B MAY BE USED WHEN THE SPECIFIED WALL THICKNESS IS GREATER THAN 1/2". ONLY ELECTRICAL RESISTANCE WELDED (ERW) MANUFACTURED SINGLE SEAM PIPE IS PERMITTED. HOWEVER, WHEN THE REQUIRED PIPE SIZE IS GREATER THAN 24", DOUBLE SEAM PIPE MAY BE USED. A MILL TEST REPORT MUST BE PROVIDED, CERTIFIED AND SIGNED BY THE PIPE MANUFACTURER, CONTAINING PHYSICAL AND CHEMICAL PROPERTIES AND THE MANUFACTURING PROCESS USED TO PRODUCE THE PIPE.

ALL OTHER STEEL SHALL CONFORM TO ASTM SPECIFICATION A709 (AASHTO M270) GRADE 36 OR GRADE 50. ALL SPECIFIED STEEL PLATES SHALL MEET SUPPLEMENTARY REQUIREMENTS FOR NOTCH TOUGHNESS (CHARPY TESTING, ZONE #2)

UPON COMPLETION OF FABRICATION, THE FABRICATOR SHALL PROVIDE A NOTARIZED CERTIFICATION OF COMPLIANCE AS PER THE REQUIREMENT OF THE NJDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, INCLUDING A LEGIBLE COPY OF ALL MILL TEST REPORTS FOR MATERIALS INCORPORATED INTO THE WORK. ALSO, A COPY OF QC REPORTS SHALL BE PROVIDED.

STEEL ANCHOR BOLTS, NUTS AND WASHERS SHALL CONFORM TO ASTM SPECIFICATION F1554, GRADE 36 OR 55. THE ANCHOR BOLTS SHALL BE HOT DIP GALVANIZED AS PER ASTM SPECIFICATION A153, CLASS C.

CHORD SPLICE ASSEMBLY FASTENERS SHALL BE HIGH STRENGTH STEEL CONFORMING TO ASTM SPECIFICATION A325 AND SHALL BE HOT DIP GALVANIZED AS PER ASTM SPECIFICATION A153, CLASS C. ALL OTHER FASTENERS SHALL BE STAINLESS STEEL CONFORMING TO ASTM SPECIFICATION A320, GRADE B8, CLASS 1.

CAPS FOR THE ENDS OF CHORDS AND TOPS OF POSTS SHALL BE STEEL BOLTS CONFORMING TO ASTM SPECIFICATION A709 (AASHTO M270) GRADE 36 OR 50 AND SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH ASTM SPECIFICATION A123.

WELDING OF STEEL SHALL BE AS SPECIFIED IN AWS D1.1, CURRENT EDITION, AND THE NJDOT STANDARD SPECIFICATIONS.

AFTER COMPLETE FABRICATION, EACH STEEL SECTION SHALL BE HOT DIP GALVANIZED ACCORDING TO THE REQUIREMENTS OF ASTM SPECIFICATION A123, AND AS MODIFIED BY THE NJDOT STANDARD SPECIFICATIONS. A SINGLE DIP GALVANIZING PROCESS IS PREFERRED IF SIZE PERMITS.

REFER TO THE NJDOT STANDARD SPECIFICATIONS FOR CRITERIA ON FURNISHING MATERIALS OTHER THAN SPECIFIED ABOVE.

II. ALUMINUM

ALUMINUM SHALL CONFORM TO THE ASTM SPECIFICATIONS AND ALLOYS LISTED BELOW:

APPLICATION	ASTM SPECIFICATION	ASTM ALLOY
ROLLED OR EXTRUDED SHAPES	B308	6061 - T6
PLATES	B209	6061 - T6
DRAWN SEAMLESS TUBES	B210	6061 - T6
EXTRUDED TUBES	B221	6061 - T6

WELDING OF ALUMINUM SHALL BE AS SPECIFIED IN AWS D1.2, CURRENT EDITION, AND THE NJDOT STANDARD SPECIFICATIONS.

THE SIGN PANEL SHALL BE INSTALLED LEVEL. THE CONTRACTOR MAY FIELD DRILL THE SIGN SUPPORTS AS REQUIRED TO ACHIEVE THIS.

III. REINFORCEMENT STEEL

ALL REINFORCEMENT STEEL SHALL BE ASTM A615, GRADE 60.

IV. CONCRETE

ALL CONCRETE SHALL BE "CLASS B" AS DEFINED IN THE NJDOT STANDARD SPECIFICATIONS UNLESS OTHERWISE SPECIFIED BY THE DESIGNER.


V. SIGN LIGHTING SYSTEM SUPPORTS

SIGN HANGERS SHALL BE ALUMINUM OR STEEL. LUMINAIRE SUPPORTS SHALL BE ALUMINUM OR STEEL. THE STEEL SHALL CONFORM TO ASTM A709 GRADE 36 OR GRADE 50 AND SHALL BE HOT DIP GALVANIZED IN ACCORANCE WITH ASTM SPECIFICATION A123. STEEL SURFACES SHALL BE PREVENTED FROM COMING INTO CONTACT WITH ALUMINUM SURFACES BY MEANS OF APPROVED PADS PLACED BETWEEN THE DISSIMILAR METALS. PADS SHALL BE STAINLESS STEEL CONFORMING TO ASTM SPECIFICATION A240, TYPE 304 OR APPROVED EQUAL. CONNECTING U BOLTS SHALL BE STAINLESS STEEL CONFORMING TO THE NJDOT STANDARD SPECIFICATIONS. INSTALLATION OF SIGN LIGHTING SYSTEM SHALL BE ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS.

INDEX OF DRAWINGS

DRG. NO.	DESCRIPTION
CA-D1	GENERAL NOTES AND ELEVATION
CA-D2	STRUCTURE AND FOUNDATION SCHEDULES
CA-D3	FOUNDATION DETAILS
CA-D4	TRUSS AND POST DETAILS - SHEET 1
CA-D5	TRUSS AND POST DETAILS - SHEET 2
CA-D6	POST BASE AND FOUNDATION DETAILS
CA-D7	SIGN AND LIGHTING SYSTEM SUPPORT DETAILS
CA-D8	TYPICAL ELECTRICAL DETAILS

CONTROL SECTION		JOB NO. _____	
DES. BY		CHK. BY	
DWN. BY		CHK. BY	
EST. BY		CHK. BY	
SPECS. BY			
IN CHARGE OF _____			

 **SIGN STRUCTURE DRG. CA-D1**
NEW JERSEY DEPARTMENT OF TRANSPORTATION
BUREAU OF STRUCTURAL ENGINEERING

CANTILEVER SIGN SUPPORT STRUCTURES
GENERAL NOTES AND ELEVATION

ROUTE: SECTION:

SCALE: NONE

BRIDGE SHEET NO. OF 

BD008D-02 - Index CA-D7 Changed
BD007D-02 - ORIGINAL SHEET