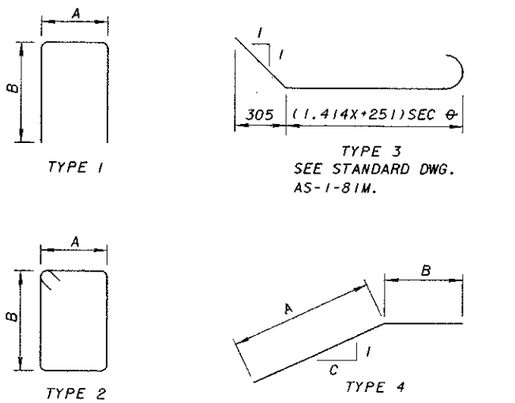
REINFORCING STEEL FOR STRAIGHT WINGWALL ABUTMENTS

MARK	LENGTH	TYPE	A	B	C
A25M01	*	STR			
A25M02	*	STR			
A25M03	*	STR			
A16M01	*	STR			
A16M02	*	STR			
A16M03	*	STR			
A16M04	*	STR			
A16M05	*	STR			
A16M06	*	4	*	*	*
A16M07	SERIES BAR	1	650	*	
A16M08	*	1	650	*	
A16M09	*	2	*	775	
A16M10	*	2	800	*	
A16M11	*	2	800	*	
A16M12	*	1	550	*	
A16M13	*	STR			
D25M01	*	3			

BENDING DIAGRAMS

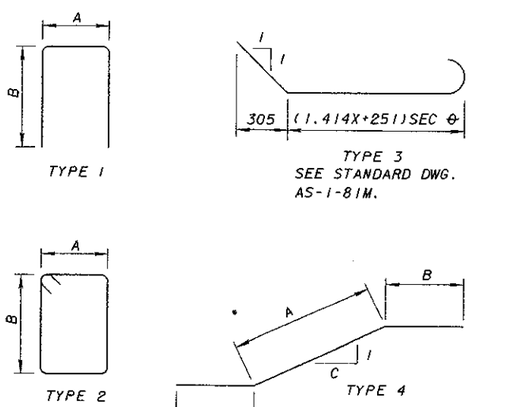


* DIMENSIONS VARY

REINFORCING STEEL FOR U-TYPE ABUTMENT

MARK	LENGTH	TYPE	A	B	C
A25M01	*	STR			
A25M02	*	STR			
A25M03	*	STR			
A25M04	*	STR			
A16M01	*	STR			
A16M02	*	STR			
A16M03	*	2	*	775	
A16M04	*	1	350	*	
A16M05	SERIES BAR	1	350	*	
A16M06	*	STR			
A16M07	*	1	350	*	
A16M08	*	1	350	*	
A16M09	*	2	*	775	
A16M10	*	2	800	*	
A16M11	*	2	800	*	
A16M12	*	1	550	*	
A16M13	SERIES BAR	STR			
A16M14	*	STR			
A16M15	*	4	*	*	*
A16M16	*	STR			
D25M01	*	3			

BENDING DIAGRAMS



* DIMENSIONS VARY

GENERAL:

DETAILS SHOWN ARE TYPICAL FOR A STEEL BEAM OR GIRDER BRIDGE WITH ELASTOMERIC BEARINGS.

LIMITATIONS: THESE ABUTMENT DETAILS ARE INTENDED FOR USE ON STRAIGHT ALIGNMENT STRUCTURES WITH SKEWS NOT GREATER THAN 45 DEGREES, A BRIDGE EXPANSION LENGTH UP TO 80 000 mm OR A TOTAL LENGTH OF 125 000 mm. FOR SKEWS GREATER THAN 45 DEGREES SPECIAL DESIGN SHALL BE PERFORMED AS THE ABUTMENT BEAM SEATS SHOWN ON THESE PLANS, WOULD NEED TO BE SPECIFICALLY DESIGNED FOR THAT SKEW TO ACCOMODATE THE BEARING RETAINER ASSEMBLIES.

SEMI-INTEGRAL ABUTMENT DETAILS CAN BE USED ON WALL TYPE ABUTMENTS, SPILL THRU TYPE ABUTMENTS ON TWO OR MORE ROWS OF PILES, SPREAD FOOTING TYPE ABUTMENTS FOUNDED ON ROCK, OR ABUTMENTS ON DRILLED SHAFTS. THIS ABUTMENT DESIGN SHOULD NOT BE USED ON NEW STRUCTURES WITH SPREAD FOOTINGS FOUNDED ON SOIL OR EXISTING STRUCTURES WHERE SPREAD FOOTINGS ON SOIL ARE EXPECTED TO CONTINUE TO HAVE SETTLEMENT.

DIMENSIONS: ALL DIMENSIONS SHOWN ON THESE DRAWING ARE IN MILLIMETERS EXCEPT OTHERWISE NOTED.

BEARING RETAINERS

RETAINERS ARE REQUIRED FOR ANY BRIDGE STRUCTURE WITH A SKEW OF 30 DEGREES OR MORE. NEW BRIDGE STRUCTURES OR REHABILITATED BRIDGE STRUCTURES WITHOUT PHASED CONSTRUCTION SHALL REQUIRE TWO RETAINER ASSEMBLIES AT EACH ABUTMENT. THE RETAINERS SHALL BE INSTALLED AT THE OUTSIDE (FASCIA) BEAM LINES. STRUCTURES THAT REQUIRE PHASED CONSTRUCTION SHALL HAVE AT LEAST TWO RETAINER ASSEMBLIES INSTALLED AT THE OUTSIDE BEAMS LINES FOR THE FIRST PHASE OF CONSTRUCTION. AN ADDITIONAL RETAINER SHALL BE INSTALLED AT THE NEW OUTSIDE BEAM OF EACH ADDITIONAL PHASE OF CONSTRUCTION.

CONSTRUCTION PROCEDURE: ANCHOR BOLTS SHALL BE EITHER CAST IN PLACE BY USE OF A TEMPLATE OR FIELD DRILLED AND EPOXY GROUTED AFTER THE ERECTION OF THE STRUCTURAL STEEL BEAMS. CARE SHALL BE TAKEN TO ASSURE THAT THE ANCHOR BOLTS DO NOT INTERFERE WITH REINFORCING STEEL. THE RETAINER SHALL BE POSITIONED AND TIGHTENED BEFORE THE CONCRETE IS POURED FOR THE BEAM END ENCASEMENT. A BLOCK OF POLYSTYRENE FILLER MATERIAL, 200 mm IN WIDTH AND THE HEIGHT AS REQUIRED BY THE PLANS SHALL BE INSTALLED OVER THE TOP OF THE RETAINER ASSEMBLY BEFORE THE CONCRETE PLACEMENT.

MATERIALS: THE STEEL RETAINER ASSEMBLY AND THE SQUARE PLATE WASHER SHALL BE THE SAME GRADE OF STEEL AS THE MAIN STRUCTURAL MEMBERS. ANCHOR BOLTS AND NUTS SHALL BE ASTM A325M. STEEL RETAINER ASSEMBLIES SHALL HAVE THE SAME PROTECTIVE COATING AS THE MAIN STRUCTURAL STEEL. ANCHOR BOLTS, NUTS AND SQUARE PLATE WASHERS SHALL BE GALVANIZED AS PER 711.02.

PAYMENT FOR LABOR, MATERIALS, FABRICATION, PROTECTIVE COATING, GALVANIZING, POLYSTYRENE AND INSTALLATION OF THE RETAINER ASSEMBLIES SHALL BE INCLUDED WITH ITEM 516, ELASTOMERIC BEARINGS.

ELASTOMERIC BEARINGS

STEEL LOAD PLATE AND THE HP SHAPE (SUPPORT MEMBER): THE DESIGNER SHALL SPECIFY THE STEEL MATERIAL FOR THE LOAD PLATE AND THE HP SHAPE SUPPORT MEMBER ARE TO BE THE SAME GRADE OF STEEL AS THE MAIN STRUCTURAL MEMBERS. WELDING SHALL BE CONTROLLED SO THAT THE STEEL LOAD PLATE TEMPERATURE AT THE ELASTOMERIC BONDED SURFACE DOES NOT EXCEED 150 DEGREE CELSIUS AS DETERMINED BY THE USE OF PYROMETRIC STICKS OR OTHER TEMPERATURE MONITORING DEVICES.

NEOPRENE PLACEMENT

INSTALL A 900 mm WIDE STRIP, 2.5 mm THICK, GENERAL PURPOSE, HEAVY DUTY NEOPRENE SHEET WITH NYLON FABRIC REINFORCEMENT AT LOCATIONS SHOWN IN THE PLANS. SECURE THE 900 mm WIDE NEOPRENE SHEETING TO THE CONCRETE WITH 32 x 3.0 mm (LENGTH x SHANK DIAMETER) GALVANIZED BUTTON HEAD SPIKES THROUGH A 25 mm OUTSIDE DIAMETER, 3 mm GALVANIZED WASHER. MAXIMUM FASTENER SPACING IS 225 mm. OTHER SIMILAR GALVANIZED DEVICES WHICH WILL NOT DAMAGE EITHER THE NEOPRENE OR THE CONCRETE MAY BE USED SUBJECT TO THE APPROVAL OF THE ENGINEER.

CENTER THE NEOPRENE STRIPS ON ALL JOINTS. FOR HORIZONTAL JOINTS, SECURE THE HORIZONTAL NEOPRENE STRIP BY USING A SINGLE LINE OF FASTENERS, STARTING AT 150 mm (+/-) FROM THE TOP OF THE NEOPRENE STRIP. FOR THE VERTICAL JOINTS SECURE THE VERTICAL NEOPRENE STRIP BY USING A SINGLE VERTICAL LINE OF FASTENERS, STARTING AT 150 mm (+/-) FROM THE VERTICAL EDGE OF THE NEOPRENE STRIP NEAREST TO THE CENTERLINE OF THE ROADWAY. FOR VERTICAL JOINTS, INSTALL 2 ADDITIONAL FASTENERS AT 150 mm CENTER TO CENTER ACROSS THE TOP OF THE NEOPRENE STRIP ON THE SAME SIDE OF THE VERTICAL JOINT AS THE SINGLE VERTICAL ROW OF FASTENERS IS LOCATED.

THE VERTICAL NEOPRENE STRIPS SHOULD OVERLAP THE HORIZONTAL STRIPS. LAPS IN THE LENGTH OF THE HORIZONTAL STRIPS DUE TO MATERIAL MANUFACTURING SHALL BE AT LEAST 300 mm IN LENGTH, IF NOT VULCANIZED OR ADHESIVE BONDED, 150 mm IN LENGTH IF THE LAP IS VULCANIZED OR ADHESIVE BONDED. NO LAPS ARE ACCEPTABLE IN VERTICALLY INSTALLED NEOPRENE STRIPS.

THE NEOPRENE SHEETING SHALL BE 2.5 mm THICK GENERAL PURPOSE, HEAVY DUTY NEOPRENE SHEET WITH NYLON FABRIC REINFORCEMENT. THE SHEETING SHALL BE "FAIRPRENE NUMBER NN-0003", BY E. I. DUPONT DE NUMOURS AND COMPANY, INC., "WINGPRENE" BY THE GOODYEAR TIRE AND RUBBER COMPANY, OR AN APPROVED ALTERNATE. THE NEOPRENE SHEETING SHALL CONFORM TO THE FOLLOWING:

DESCRIPTION OF TEST	ASTM METHOD	REQUIREMENT
THICKNESS, mm	D751	2.5 +/- 0.25
BREAKING STRENGTH, GRAB WXF, N, MINIMUM	D751	3130 x 3130
ADHESIVE 25 mm STRIP, 50 mm MINIMUM, N MINIMUM	D751	27
BURST STRENGTH (MULLEN) MPa, MINIMUM	D751	9.65
HEAT AGING 70 HOURS T 100° C, 180° BEND WITHOUT CRACKING	D2136	NO CRACKING OF COATING
LOW TEMPERATURE BRITTLENESS 1 HOUR AT -40° C, BEND AROUND 6 mm MANDREL	D2136	NO CRACKING OF COATING

PAYMENT FOR LABOR, MATERIALS AND INSTALLATION OF THESE ITEMS SHALL BE INCLUDED IN ITEM 511, CLASS C CONCRETE, ABUTMENT, AS PER PLAN.

DESIGN AGENCY
OFFICE OF STRUCTURAL ENGINEERING

STATE OF OHIO DEPARTMENT OF TRANSPORTATION
Brad Fagrell — 2-12-97
ADMINISTRATOR — DATE

REVISIONS	DESIGNED WLF	DRAWN WLF	CHECKED MRG/JS	REVIEWED LMW
			SICD-1-96M	

STANDARD
SEMI-INTEGRAL CONSTRUCTION DETAILS