

**DESIGN SPECIFICATIONS**

THESE STRUCTURES CONFORM TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY OFFICIALS, 1983, INCLUDING 1984 THROUGH 1988 INTERIM SPECIFICATIONS AND THE OHIO SUPPLEMENT TO THESE SPECIFICATIONS.

THE DESIGN DATA IS AS FOLLOWS:

DESIGN LOADING - HS20-44 CASE I AND THE ALTERNATE MILITARY LOADING.

CONCRETE CLASS S - COMPRESSIVE STRENGTH 4500 PSI SUPERSTRUCTURE.

CONCRETE CLASS C - UNIT STRESS 1,333 PSI SUBSTRUCTURE.

REINFORCING STEEL - ASTM A615, A616, OR A617  
GRADE 60 UNIT STRESS 24,000 PSI

**REFERENCE SHALL BE MADE TO:**

STANDARD DRAWINGS:

- AS-1-81 DATED 11-27-81
- BR-1 DATED 5-29-79
- RB-1-55 DATED 2-2-59
- SD-1-69 DATED 6-12-69
- EXJ-4-87 DATED 1-5-89

SUPPLEMENTAL SPECIFICATIONS:

- NO. 836 - CONCRETE CURING AND PROTECTIVE MEMBRANE DATED 11-12-85
- NO. 927 - SELF-LUBRICATING BRONZE BEARING PLATES DATED 10-19-81

**DECK PROTECTION METHOD**

EPOXY COATED REINFORCING STEEL, TOP AND BOTTOM MAT. SEALING OF CONCRETE SURFACES.

**MONOLITHIC WEARING SURFACE**

MONOLITHIC WEARING SURFACE IS ASSUMED, FOR DESIGN PURPOSES, TO BE 1" THICK.

**EXISTING STRUCTURE VERIFICATION**

DETAILS AND DIMENSIONS SHOWN ON THESE PLANS PERTAINING TO THE EXISTING STRUCTURES HAVE BEEN OBTAINED FROM PLANS OF THE EXISTING STRUCTURES AND/OR FROM FIELD OBSERVATIONS AND MEASUREMENTS. CONSEQUENTLY, THEY ARE INDICATIVE OF THE EXISTING STRUCTURES AND THE PROPOSED WORK BUT SHALL BE CONSIDERED TENTATIVE AND APPROXIMATE. THE CONTRACTOR IS REFERRED TO CMS SECTIONS 102.05 AND 105.02.

CONTRACT BID PRICES SHALL BE BASED UPON A RECOGNITION OF THE UNCERTAINTIES DESCRIBED ABOVE AND UPON A PREBID EXAMINATION OF THE EXISTING STRUCTURES BY THE CONTRACTOR. HOWEVER, ALL PROJECT WORK SHALL BE BASED UPON ACTUAL DETAILS AND DIMENSIONS WHICH HAVE BEEN VERIFIED BY THE CONTRACTOR IN THE FIELD.

PLANS OF EXISTING STRUCTURES ARE AVAILABLE FOR EXAMINATION AT THE OHIO DEPARTMENT OF TRANSPORTATION; DISTRICT 12 OFFICE; 10100 BROADWAY AVENUE, GARFIELD HTS, OHIO.

**ITEM 202 - PORTIONS OF STRUCTURES REMOVED**

THE FOLLOWING INFORMATION APPLIES TO ALL STRUCTURES. FOR NOTES SPECIFIC TO EACH BRIDGE, SEE ITEM 202 - PORTIONS OF STRUCTURES REMOVED ON SHEET [4/78], [21/78], [39/78], AND [61/78].

ONLY PNEUMATIC OR HAND TOOLS THAT WILL GIVE RESULTS SATISFACTORY TO THE ENGINEER SHALL BE USED IN THE REMOVAL OF CONCRETE. EXTREME CARE SHALL BE TAKEN TO AVOID DAMAGING THE EXISTING STRUCTURAL STEEL AND REINFORCING STEEL WHICH IS TO REMAIN IN PLACE. THE WEIGHT OF THE HAMMER SHALL NOT BE MORE THAN 60 POUNDS FOR REMOVAL WITHIN 18 INCHES OF PORTIONS TO BE PRESERVED. OUTSIDE THE 18 INCH LIMIT, HAMMERS NOT TO EXCEED 90 POUNDS MAY BE USED WITH THE APPROVAL OF THE ENGINEER. ANY SALVAGED REINFORCING STEEL WHICH IS MADE UNUSABLE BY THE CONTRACTOR'S CONCRETE REMOVAL OPERATION SHALL BE REPLACED WITH NEW STEEL AT HIS COST.

REMOVAL OF EXISTING SUPERSTRUCTURE CONCRETE SHALL BE BY MEANS OF EQUIPMENT AND PROCEDURES, APPROVED BY THE ENGINEER, WHICH ARE CHOSEN AND EMPLOYED SO AS TO PREVENT DAMAGE, SUCH AS SAW CUTS AND DENTS, TO THE EXISTING STEEL AND TO PROVIDE PROTECTION FOR THE ROADWAY BELOW. THE CONTRACTOR SHALL SUBMIT A DEMOLITION PLAN TO THE ENGINEER FOR HIS APPROVAL PRIOR TO THE START OF ANY REMOVAL OPERATIONS.

THE ALUMINUM BRIDGE RAILS WITH POSTS SHALL REMAIN THE PROPERTY OF THE LAKE COUNTY ENGINEER AND SHALL BE LOADED ONTO THE CONTRACTOR'S TRUCKS, HAULED TO THE LAKE COUNTY ENGINEER'S GARAGE AT 3461 LOST NATION ROAD IN WILLOUGHBY, OHIO 44094, AND UNLOADED THERE IN A PREDESIGNATED AREA BY THE CONTRACTOR'S MEN.

ALL THE REMOVAL, TRANSPORTATION, AND HANDLING OF THE RAILING AND THE PROTECTION OF THE PUBLIC SHALL BE PAID FOR UNDER ITEM 202 - PORTIONS OF STRUCTURES REMOVED.

**CONSTRUCTION JOINT PREPARATION**

WHERE POSSIBLE, SAW CUT BOUNDRIES OF PROPOSED CONCRETE REMOVALS 1" DEEP. REMOVE CONCRETE TO A ROUGH SURFACE. RETAIN EXISTING REINFORCING STEEL AS INDICATED IN PLANS. INSTALL DOWEL BARS AS SPECIFIED. PRIOR TO CONCRETE PLACEMENT, ABRASIVELY CLEAN JOINT SURFACE AND EXPOSED REINFORCEMENT TO REMOVE LOOSE AND DISINTEGRATED CONCRETE AND LOOSE RUST. THEN, THE JOINT SURFACE AND THE EXPOSED REINFORCEMENT SHALL BE THOROUGHLY CLEANED OF ALL DIRT, DUST, OR OTHER FOREIGN MATERIALS BY THE USE OF WATER, AIR UNDER PRESSURE, OR OTHER METHOD THAT PRODUCES RESULTS SATISFACTORY TO THE ENGINEER. THE CONCRETE BONDING SURFACE SHALL BE WET WITHOUT FREE WATER AS CONCRETE IS PLACED.

**DISPOSAL OF REMOVED MATERIAL**

ALL CONCRETE, STEEL, REINFORCING STEEL, ETC. REMOVED FROM THE STRUCTURES, UNLESS OTHERWISE SPECIFIED, SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED BY HIM FROM THE SITE.

UNDER NO CIRCUMSTANCES SHALL ANY REMOVED MATERIAL BE PERMITTED TO REMAIN ON THE PREMISES, RIGHT-OF-WAY, OR STREETS PENDING DISPOSAL OF SAME OR FOR ANY OTHER PURPOSES, UNLESS OTHERWISE SPECIFIED BY THE ENGINEER.

**UTILITY LINES**

ALL EXPENSE INVOLVED IN RELOCATING (INSTALLING) ANY AFFECTED UTILITY LINES SHALL BE BORNE BY THE OWNER(S). THE CONTRACTOR AND OWNER(S) ARE REQUESTED TO COOPERATE BY ARRANGING THEIR WORK IN SUCH A MANNER THAT INCONVENIENCE TO EITHER WILL BE HELD TO A MINIMUM.

EXTREME CARE SHALL BE TAKEN BY THE CONTRACTOR TO AVOID DAMAGING EXISTING UTILITY LINES THAT ARE TO REMAIN IN SERVICE THROUGH THE DURATION OF THE PROJECT.

**MAINTENANCE OF TRAFFIC**

FOR DETAILS OF TRAFFIC PROTECTION AND TRAFFIC MAINTENANCE, SEE MAINTENANCE OF TRAFFIC PLANS.

**ITEM 509 - REINFORCING STEEL, GRADE 60**

THIS ITEM SHALL BE USED TO REPLACE REINFORCING STEEL WHICH IS BENT, ELONGATED, MISSING OR EXTREMELY CORRODED. BARS SHALL BE THE SAME SIZE AS ORIGINAL BARS AND SHALL BE PLACED AS NEAR AS POSSIBLE TO THEIR ORIGINAL LOCATION. BARS SHALL BE LAPPED ACCORDING TO SECTION 509.08. PAYMENT FOR THIS ITEM SHALL INCLUDE THE COST OF ALL MATERIALS AND LABOR NECESSARY TO COMPLETE THE ABOVE WORK, INCLUDING REMOVAL OF EXISTING STEEL. ANY EXISTING REINFORCING BARS WHICH ARE TO BE INCORPORATED INTO THE NEW WORK AND WHICH ARE MADE UNUSABLE BY THE CONTRACTOR'S REMOVAL OPERATIONS SHALL BE REPLACED WITH NEW STEEL AT HIS COST.

THE ESTIMATED QUANTITY OF REINFORCING STEEL TO BE USED FOR THIS PURPOSE WHEN AND AS DIRECTED BY THE ENGINEER SHALL BE 200 POUNDS PER STRUCTURE.

**ITEM 509 - EPOXY COATED REINFORCING STEEL, GRADE 60**

THIS ITEM SHALL CONSIST OF FURNISHING AND PLACING EPOXY COATED REINFORCING STEEL INCLUDING THE DOWEL BAR SPLICERS OR MECHANICAL CONNECTORS AS SHOWN ON SHEET [14/78] AND [31/78].

**ITEM 511 - CLASS S CONCRETE, SUPERSTRUCTURE, AS PER PLAN**

CLASS S CONCRETE SHALL BE USED FOR THE REPLACEMENT OF PARAPETS (AND SIDEWALKS WHERE APPLICABLE) IN ADDITION TO ALL OTHER SUPERSTRUCTURE WORK.

**A. PLACEMENT LIMITATIONS**


CONCRETE SHALL NOT BE PLACED IF THE AMBIENT AIR TEMPERATURE OR PREDICTED AIR TEMPERATURE DURING THE DURATION OF THE POUR IS 80 F OR GREATER.

PLACEMENT OF CONCRETE SHALL BE COMPLETED UNDER FAVORABLE ATMOSPHERIC CONDITIONS. FAVORABLE ATMOSPHERIC CONDITIONS EXIST WHEN THE SURFACE EVAPORATION RATE AS AFFECTED BY THE AMBIENT AIR TEMPERATURE, CONCRETE TEMPERATURE, RELATIVE HUMIDITY, AND WIND VELOCITY IS 0.1 POUNDS PER SQUARE FOOT PER HOUR OR LESS. FIGURE (1) SHALL BE USED TO DETERMINE GRAPHICALLY THE SURFACE EVAPORATION RATE. FIGURE (1) MAY BE FOUND ON PAGE 11 OF SUPPLEMENTAL SPECIFICATION 845. FAVORABLE ATMOSPHERIC CONDITIONS MAY REQUIRE PLACEMENT DURING LATE EVENINGS (6:00 P.M. TO OFFICIAL SUNSET), NIGHT (OFFICIAL SUNSET TO OFFICIAL SUNRISE), OR EARLY MORNING (SUNRISE TO 8:00 A.M.). PLACEMENT DURING THESE TIMES WILL BE CONSIDERED TO MEET THE REQUIREMENTS FOR FAVORABLE ATMOSPHERIC CONDITIONS PROVIDED THAT THE TEMPERATURE LIMITATION ABOVE IS MET.

IF PLACEMENT OF THE CONCRETE IS TO BE MADE AT NIGHT, THE CONTRACTOR SHALL SUBMIT A PLAN WHICH PROVIDES ADEQUATE LIGHTING FOR THE WORK AREA AT LEAST FIFTEEN (15) CALENDAR DAYS IN ADVANCE AND SHALL RECEIVE WRITTEN APPROVAL FROM THE ENGINEER BEFORE PLACING THE CONCRETE.

**B. SET RETARDER**

A SET RETARDER (705.12) SHALL BE REQUIRED WHEN AN AMBIENT AIR TEMPERATURE OF 60 F OR GREATER IS PREDICTED.

 <b>COLPETZER-THOMAS, INC.</b> AN ENGINEERING GROUP <small>WILLOUGHBY • MENTOR • NORTH CANTON • STEUBENVILLE • LORAIN</small>							1/78
<b>GENERAL NOTES</b>  <b>ALL STRUCTURES</b>  LAKE COUNTY							
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED	
B.J.A.	J.L.J.	J.L.J.	R.J.C.	JEA	11-15-88		

REVIEWED BY BURGESS & NIPLE, LTD.  
M.P.B. 8-03-89