

# STRUCTURAL GENERAL NOTES

## ITEM 513, STRUCTURAL STEEL MEMBERS, LEVEL UF, AS PER PLAN

ALL REQUIREMENTS OF 513 APPLY TO SHOP FABRICATED MEMBERS. PERFORM WORK FOR FIELD-FABRICATED MEMBERS ACCORDING TO ITEM 513, EXCEPT AS MODIFIED HEREIN. THE DEPARTMENT WILL NOT REQUIRE THE CONTRACTOR PERFORMING FIELD FABRICATION TO BE PRE-QUALIFIED AS SPECIFIED IN SUPPLEMENT 1078. SUBMIT A WRITTEN LETTER OF MATERIAL ACCEPTANCE, 501.06, TO THE ENGINEER. PROVIDE SHOP DRAWINGS ACCORDING TO 513.04 OR SUPPLY THE ENGINEER WITH "AS-BUILT" DRAWINGS MEETING 513.04 AFTER COMPLETION OF FIELD FABRICATION. THE ENGINEER WILL REVIEW THE SUBMITTED DRAWINGS FOR CONCURRENCE WITH THE FINAL AS-BUILT CONDITION. IF NECESSARY, THE ENGINEER MAY CONTACT THE OFFICE OF STRUCTURAL ENGINEERING FOR TECHNICAL ASSISTANCE. IF THE ENGINEER IS SATISFIED WITH THE "AS-BUILT" DRAWINGS AND THE DELIVERED MATERIALS, SUPPLY A COPY OF THE DRAWINGS, STAMPED AND DATED, ALONG WITH MICROFILM, TO THE STRUCTURAL, WELDING AND METALS SECTION OF THE OFFICE OF MATERIAL MANAGEMENT FOR RECORD PURPOSES.

THE FOLLOWING MEMBERS ARE INCLUDED IN THIS ITEM:  
SPLICE AND COVERPLATE RETROFIT

ITEM 511, CLASS HP CONCRETE, BRIDGE DECK, AS PER PLAN  
ITEM 511, CLASS HP CONCRETE, BRIDGE DECK (PARAPET), AS PER PLAN  
ITEM 511, CLASS HP CONCRETE, SUBSTRUCTURE, AS PER PLAN  
ITEM 511, CLASS HP CONCRETE, TEST SLAB

### GENERAL REQUIREMENTS:

THE PROVISIONS OF ITEM 511 SHALL APPLY EXCEPT AS NOTED BELOW.

### MIX OPTIONS:

ALL SUPERSTRUCTURE, BRIDGE DECK, PARAPET, MEDIAN BARRIER, AND APPROACH SLAB CONCRETE SHALL BE THIS MIX (HP4, AS PER PLAN). ALL OTHER STRUCTURE CONCRETE SHALL BE THIS MIX OR MIX 2 CONCRETE.

THE FOLLOWING PROPORTIONS WILL BE USED AS A STARTING MIX DESIGN:

### CONCRETE TABLE

QUANTITIES PER CUBIC YARD  
AGGREGATES (SSD)

HP4, AS PER PLAN (GGBF SLAG + MICROSILICA)			
AGGREGATE TYPE	GRAVEL	LIMESTONE	SLAG
FINE AGGREGATE (LB)	1245	1245	1245
* #8 COARSE AGGREGATE (LB)	360	360	315
* #57 COARSE AGGREGATE (LB)	1315	1335	1155
TOTAL (LB)	2920	2940	2715
CEMENT CONTENT (LB)	400	400	400
GGBF SLAG (LB)	170	170	170
MICRO-SILICA (LB)	30	30	30
WATER TO CEMENTITIOUS RATIO +/- .01	0.43	0.43	0.43
AIR CONTENT +/- 2%	7	7	7

\* ALL COARSE AGGREGATE SHALL HAVE AN ABSORPTION OF 1.00% OR GREATER AS DEFINED PER ASTM C127

THE WEIGHTS SPECIFIED IN THE CONCRETE TABLE WERE CALCULATED FOR MATERIALS OF THE FOLLOWING BULK SPECIFIED GRAVITIES (SSD): NATURAL SAND AND GRAVEL 2.62, LIMESTONE SAND 2.68, LIMESTONE 2.65, SLAG 2.30, FLY ASH 2.65, GGBF SLAG 2.90, MICROSILICA SOLIDS 2.20, AND PORTLAND CEMENT 3.15. FOR AGGREGATES OF SPECIFIED GRAVITIES DIFFERING MORE THAN PLUS OR MINUS 0.02 FROM THESE, THE WEIGHTS IN THE TABLE WILL BE CORRECTED.

### PARAPET CONSTRUCTION (FORMED AND Poured):

FORMS SHALL NOT BE REMOVED UNTIL AT LEAST 2 HOURS AFTER THE FINAL SET. DETERMINATION OF THE FINAL SET SHALL BE AS PER ASTM C266 (GILLMORE NEEDLE). TESTING SHALL BE PERFORMED BY THE CONTRACTOR AT NO COST TO THE STATE.

THE MINIMUM CONCRETE SLUMP DURING PLACEMENT OF FORMED CONCRETE PARAPETS SHALL BE 6 INCHES, WITH A MAXIMUM SLUMP OF 8 INCHES.

### CRACK CONTROL JOINTS:

FOR BOTH SLIP FORMED AND FORMED AND Poured PARAPETS, THE CONTRACTOR SHALL CONSTRUCT 1 1/2" DEEP AND 1/4" WIDE CRACK CONTROL JOINTS SPACED AT A MINIMUM OF 6 FT AND A MAXIMUM OF 10 FT ON CENTER. THE CRACK CONTROL JOINTS SHALL BE MADE IN THE COMPLETE CIRCUMFERENCE OF THE PARAPET, STARTING AND ENDING AT THE ELEVATION OF THE TOP OF THE CONCRETE DECK. THE CONTRACTOR MAY EITHER FORM THE CRACK CONTROL JOINTS IN THE FORM LINERS, OR, WITHIN 24 HOURS OF PLACEMENT, SAW CUT THE CRACK CONTROL JOINTS IN WITH THE USE OF AN EDGE GUIDE, FENCE, OR JIG WHICH IS REQUIRED TO ENSURE THAT THE CUT JOINT IS STRAIGHT, TRUE, AND ALIGNED ON ALL FACES OF THE PARAPET. THE ENTIRE LENGTH OF EACH CONTROL JOINT SHALL BE SEALED TO A MINIMUM DEPTH OF 1 1/2" WITH POLYURETHANE OR POLYMERIC MATERIAL CONFORMING TO ASTM C920, TYPE S.

BASIS OF PAYMENT: PAYMENT FOR THE ABOVE COMPLETED AND ACCEPTED QUANTITIES WILL BE MADE AT THE CONTRACT BID PRICE FOR:

ITEM	UNITS	DESCRIPTION
511E50001	CUBIC YARD	CLASS HP CONCRETE, BRIDGE DECK, AS PER PLAN
511E50101	CUBIC YARD	CLASS HP CONCRETE, BRIDGE DECK (PARAPET), AS PER PLAN
511E50201	CUBIC YARD	CLASS HP CONCRETE, SUBSTRUCTURE, AS PER PLAN
511E52000	LUMP	CLASS HP CONCRETE, TEST SLAB

### ITEM 518 - 6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS, AS PER PLAN

ANIMAL GUARDS SHALL BE PROVIDED AT THE OUTLET OF THE DRAINAGE PIPES, STEEL BOLTS OR RODS FOR THE ANIMAL GUARDS SHALL BE GALVANIZED PER CMS 711.02. SEE STD DWG. DM 1.1 FOR ADDITIONAL DETAILS AND NOTES. THE ANIMAL GUARDS AND CRUSHED AGGREGATE SLOPE PROTECTION ARE INCIDENTAL TO ITEM 518 - 6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS, AS PER PLAN.

### MAINTENANCE OF TRAFFIC

FOR MAINTENANCE OF TRAFFIC NOTES AND DETAILS, REFER TO SHEETS 85 THRU 243 OF 1679.

### ITEM 512 - SEALING OF CONCRETE SURFACES

THE COLOR OF THE CONCRETE SEALER FOR PARAPETS, ABUTMENTS AND PIERS SHALL BE BUFF, FEDERAL COLOR NO. 595B-27722.

### ITEM 514 - PAINTING

NEW STEEL SHALL BE CLEANED AND PRIME PAINTED IN THE SHOP AND FIELD PAINTED WITH AN INTERMEDIATE AND FINISH COAT OF PAINT.

PAINT PROPOSED BEAMS LIGHT BLUE, GLOSS, FCN 595B-15450.

### PORTABLE CONCRETE BARRIER

FURNISHING, INSTALLING, MAINTAINING AND REMOVING PORTABLE BARRIER ON THE BRIDGE SHALL BE INCLUDED IN ITEM 614 OF THE ROADWAY QUANTITIES FOR PAYMENT.

## ITEM 202, PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN

### DESCRIPTION:

THIS ITEM SHALL INCLUDE THE ELEMENTS INDICATED IN THE PLANS AND GENERAL NOTES THAT ARE NOT SEPARATELY LISTED FOR PAYMENT. ITEMS TO BE REMOVED INCLUDE CONCRETE DECK, OVERLAY, PARAPETS, DECK JOINTS, BEARINGS, BACKWALLS, WINGWALLS, PORTIONS OF EXISTING ABUTMENT STEM AND FOOTING, AND OTHER APPURTENANCES FROM STEEL SUPPORTING SYSTEMS (BEAMS, GIRDERS, CROSS FRAMES, ETC.). THE PROVISIONS OF ITEM 202 APPLY EXCEPT AS SPECIFIED BY THE FOLLOWING NOTES. PERFORM WORK CAREFULLY TO PROTECT PORTIONS OF SUCH SYSTEMS THAT ARE TO BE SALVAGED AND INCORPORATED INTO THE PROPOSED STRUCTURE. THE USE OF EXPLOSIVES, HEADACHE BALLS AND/OR HOE RAM TYPE OF EQUIPMENT IS PROHIBITED. SUBMIT CONSTRUCTION PLANS ACCORDING TO CMS 501.05.

PROTECTION OF STEEL SUPPORT SYSTEMS: BEFORE DECK SLAB CUTTING IS PERMITTED, DRAW THE OUTLINE OF PRIMARY STEEL MEMBERS IN CONTACT WITH THE BOTTOM OF THE DECK ON THE SURFACE OF DECK. DRILL SMALL DIAMETER PILOT HOLES 2 INCHES OUTSIDE THESE LINES TO CONFIRM THE LOCATION OF FLANGE EDGES. DECK CUTS OVER OR WITHIN 2 INCHES OF FLANGE EDGES SHALL NOT EXTEND LOWER THAN THE BOTTOM LAYER OF DECK SLAB REINFORCING STEEL. CUTS MADE OUTSIDE 2 INCHES OF FLANGE EDGES MAY EXTEND THE FULL DEPTH OF THE DECK. PERFORM WORK CAREFULLY DURING CUTTING OF THE DECK SLAB TO AVOID DAMAGING STEEL MEMBERS THAT ARE TO BE INCORPORATED INTO THE PROPOSED STRUCTURE. REPLACE OR REPAIR STEEL MEMBERS DAMAGED BY THE DECK SLAB CUTTING OPERATIONS AT NO COST TO THE PROJECT. AT LEAST 7 DAYS BEFORE PERFORMING REPAIR WORK, SUBMIT A PROPOSED REPAIR PLAN, DEVELOPED BY AN OHIO REGISTERED PROFESSIONAL ENGINEER TO THE DIRECTOR. OBTAIN THE DIRECTOR'S APPROVAL BEFORE PERFORMING REPAIR.

REMOVAL METHODS: THE CONTRACTOR MAY REMOVE CONCRETE BY CUTTING AND BY MEANS OF HAND OPERATED PNEUMATIC HAMMERS EMPLOYING POINTED OR BLUNTED CHISEL TYPE TOOLS FOR REMOVALS OVER STRUCTURAL MEMBERS (STEEL I-BEAM), THE CONTRACTOR MAY USE A HAMMER HEAVIER THAN 35 POUNDS BUT NOT TO EXCEED 90 POUNDS UNLESS APPROVED BY THE ENGINEER. REMOVAL METHODS OVER STRUCTURAL MEMBERS SHALL ENSURE ADEQUATE DEPTH CONTROL AND PREVENT NICKING OR GOUGING THE PRIMARY STRUCTURAL MEMBERS. DUE TO THE POSSIBLE PRESENCE OF ATTACHMENTS (E.G., FINISHING MACHINE, SCUPPER AND FORM SUPPORTS, ETC.) TO EXISTING STRUCTURAL MEMBERS, PERFORM WORK CAREFULLY DURING DECK REMOVAL TO AVOID DAMAGING STRUCTURAL MEMBERS THAT ARE TO REMAIN. REPLACE OR REPAIR STRUCTURAL MEMBERS DAMAGED BY THE REMOVAL OPERATIONS AT NO COST TO THE PROJECT. AT LEAST 7 DAYS BEFORE PERFORMING REPAIR WORK, SUBMIT A PROPOSED REPAIR PLAN, DEVELOPED BY AN OHIO REGISTERED PROFESSIONAL ENGINEER TO THE DIRECTOR. OBTAIN THE DIRECTOR'S APPROVAL BEFORE PERFORMING REPAIR.

DECK REMOVALS - COMPOSITE DECK DESIGNS - STEEL SUPERSTRUCTURES: DUE TO THE PRESENCE OF WELDED STUDS TO THE EXISTING STRUCTURAL STEEL, SUBMIT A DETAILED PROCEDURE OF THE DECK REMOVAL TO THE ENGINEER AT LEAST 7 DAYS BEFORE CONSTRUCTION BEGINS. DEPARTMENT ACCEPTANCE IS NOT REQUIRED. THE PROCEDURE SHALL INCLUDE ALL DETAILS, EQUIPMENT AND METHODS TO BE USED FOR REMOVAL OF THE CONCRETE OVER THE FLANGES AND AROUND THE STUDS. REPLACE OR REPAIR MAIN STEEL AND STUDS DAMAGED BY THE REMOVAL OPERATIONS AT NO COST TO THE PROJECT. AT LEAST 7 DAYS BEFORE PERFORMING REPAIR WORK, SUBMIT A PROPOSED REPAIR PLAN, DEVELOPED BY AN OHIO REGISTERED PROFESSIONAL ENGINEER TO THE DIRECTOR. OBTAIN THE DIRECTOR'S APPROVAL BEFORE PERFORMING REPAIR.

EXISTING WELDED ATTACHMENTS: REMOVE EXISTING WELDED ATTACHMENTS (E.G., FINISHING MACHINE AND FORM SUPPORTS; AND SUPPORTS FOR SCUPPERS AND BULB ANGLES WHICH ARE TO BE REMOVED) LOCATED IN THE DESIGNATED TENSION PORTIONS OF THE TOP FLANGES OF EXISTING STEEL MEMBERS AND GRIND THE FLANGE SURFACES SMOOTH. CAREFULLY GRIND PARALLEL TO THE FLANGES.

SUBSTRUCTURE CONCRETE REMOVAL: REMOVE CONCRETE BY MEANS OF APPROVED PNEUMATIC HAMMERS EMPLOYING POINTED AND BLUNT CHISEL TOOLS. HYDRAULIC HOE-RAM TYPE HAMMERS WILL NOT BE PERMITTED. THE WEIGHT OF THE HAMMER SHALL NOT BE MORE THAN 35 POUNDS FOR REMOVAL WITHIN 18 INCHES OF PORTIONS TO BE PRESERVED. OUTSIDE THE 18 INCH LIMIT, THE CONTRACTOR MAY USE HAMMERS NOT EXCEEDING 90 POUNDS UPON THE APPROVAL OF THE ENGINEER. DO NOT PLACE PNEUMATIC HAMMERS IN DIRECT CONTACT WITH REINFORCING STEEL THAT IS TO BE RETAINED IN THE REBUILT STRUCTURE.

CUT LINE CONSTRUCTION JOINT PREPARATION: SAW CUT BOUNDARIES OF PROPOSED CONCRETE REMOVALS 1 INCH DEEP. REMOVE CONCRETE TO A ROUGH SURFACE. LEAVE THE EXISTING REINFORCING STEEL, IF REQUIRED IN THE PLANS, IN PLACE. INSTALL DOWEL BARS IF SPECIFIED. PRIOR TO CONCRETE PLACEMENT ABRASIVELY CLEAN JOINT SURFACES AND EXISTING EXPOSED REINFORCEMENT TO REMOVE LOOSE AND DISINTEGRATED CONCRETE AND LOOSE RUST. THOROUGHLY CLEAN THE JOINT SURFACE AND EXPOSED REINFORCEMENT OF ALL DIRT, DUST, RUST OR OTHER FOREIGN MATERIAL BY THE USE OF WATER, AIR UNDER PRESSURE, OR OTHER METHODS THAT PRODUCE SATISFACTORY RESULTS. EXISTING REINFORCING STEEL DOES NOT HAVE TO HAVE A BRIGHT STEEL FINISH, BUT REMOVE ALL PACK AND LOOSE RUST. THOROUGHLY DRENCH EXISTING CONCRETE SURFACES WITH CLEAN WATER AND ALLOW TO DRY TO A DAMP CONDITION BEFORE PLACING CONCRETE.

MEASUREMENT & PAYMENT: THE DEPARTMENT WILL MEASURE THE QUANTITY OF REMOVALS ON A LUMP SUM BASIS. THE DEPARTMENT WILL PAY FOR THE ACCEPTED QUANTITIES OF REMOVALS AT THE CONTRACT PRICE FOR ITEM 202, PORTIONS OF STRUCTURE REMOVED OVER 20 FOOT SPAN, AS PER PLAN.

### FOOTINGS

FOOTINGS SHALL EXTEND A MINIMUM OF 3 INCHES INTO BEDROCK OR TO THE ELEVATION SHOWN, WHICHEVER IS LOWER.

### ITEM 202, APPROACH SLAB REMOVED, AS PER PLAN

THIS WORK CONSISTS OF THE REMOVAL OF APPROACH SLABS, INCLUDING PARAPETS, PRESSURE RELIEF JOINTS, AND SLEEPER SLABS.

### ITEM 503, COFFERDAMS, CRIBS AND SHEETING, AS PER PLAN

THE DESIGN SHOWN ON THE PLANS FOR TEMPORARY SUPPORT OF EXCAVATION IS ONE REPRESENTATIVE DESIGN THAT MAY BE USED TO CONSTRUCT THE PROJECT. THE CONTRACTOR MAY CONSTRUCT THE DESIGN SHOWN ON THE PLANS OR PREPARE AN ALTERNATE DESIGN TO SUPPORT THE SIDES OF EXCAVATIONS. IF CONSTRUCTING AN ALTERNATE DESIGN FOR TEMPORARY SUPPORT OF EXCAVATION, PREPARE AND PROVIDE PLANS IN ACCORDANCE WITH CMS 501.05. THE DEPARTMENT WILL PAY FOR THE TEMPORARY SUPPORT OF EXCAVATION AT THE CONTRACT LUMP SUM PRICE FOR COFFERDAMS, CRIBS, AND SHEETING. NO ADDITIONAL PAYMENT WILL BE MADE FOR PROVIDING AN ALTERNATE DESIGN.

### ITEM 601, ROCK CHANNEL PROTECTION, TYPE A WITH FABRIC FILTER, AS PER PLAN

ROCK CHANNEL PROTECTION SHALL BE GROUTED IN PLACE. GROUT SHALL CONSIST OF ONE PART PORTLAND CEMENT, THREE PARTS SAND AND ENOUGH WATER TO ALLOW THE GROUT TO FLOW INTO THE JOINTS AND CRACKS.

### ITEM 526 - REINFORCED CONCRETE APPROACH SLABS (T=17"), AS PER PLAN

THE CONTRACTOR SHALL CONSTRUCT THE APPROACH SLABS PER DETAILS PROVIDED ON PLAN SHEETS [48 | 56] THRU [51 | 56]. WORK SHALL INCLUDE THE HMWM SEALER, 3" PRECOMPRESSED FOAM JOINT, THE CONSTRUCTION OF THE PARAPET/BARRIER CONCRETE, PARAPET SURFACE TREATMENT AND ASSOCIATED REINFORCING. PAYMENT SHALL BE INCLUDED WITH ITEM 526, REINFORCED CONCRETE APPROACH SLABS (T=17"), AS PER PLAN.

### ENVIRONMENTAL COMMITMENTS

FOR ENVIRONMENTAL COMMITMENT NOTES SEE ROADWAY SHEET 41 OF 1679.

### ABBREVIATIONS

N.F. = NEAR FACE	P.E.J.F. = PREFORMED EXPANSION JOINT FILLER
F.F. = FAR FACE	C.P.P. = CORRUGATED PLASTIC PIPE
E.F. = EACH FACE	BOTT. = BOTTOM
TYP. = TYPICAL	INV. = INVERT
MIN. = MINIMUM	FWD. = FORWARD
STA. = STATION	CONC. = CONCRETE
SPA. = SPACES	EA. = EACH
CONST. = CONSTRUCTION	HMWM = HIGH MOLECULAR WEIGHT METHACRYLATE
APPR. = APPROACH	STD. = STANDARD
EL. = ELEVATION	DWG. = DRAWING
C.I.P. = CAST-IN-PLACE	DIA. = DIAMETER
BRG. = BEARING	(R) = TO BE REMOVED
EX. = EXISTING	(TR) = TO REMAIN
PH. = PHASE	(TBR) = TO BE RELOCATED
A.P.P. = AS PER PLAN	FTG. = FOOTING
R.A. = REAR ABUTMENT	JT. = JOINT
F.A. = FORWARD ABUTMENT	PROP. = PROPOSED
EXP. = EXPANSION	
P.C.B. = PORTABLE CONCRETE BARRIER	