

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	1999-161-1	COOK	75	20
STA.		TO STA.		
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT	
D-91-411-99				

**STRUCTURAL DESIGN CRITERIA:**

- BUILDING CODE: INTERNATIONAL BUILDING CODE (IBC) 2006; PUBLISHED BY INTERNATIONAL CODE COUNCIL, INC.
- AMERICAN NATIONAL STANDARDS INSTITUTE CODE, ASCE 7-05 MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES; PUBLISHED BY AMERICAN NATIONAL STANDARDS INSTITUTE, INC.
- STEEL DESIGN CODE: SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS, ALLOWABLE STRESS DESIGN (ASD) 2005; PUBLISHED BY THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION.
- CONCRETE DESIGN CODE: BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE, ACI 318-05; PUBLISHED BY AMERICAN CONCRETE INSTITUTE.
- STRUCTURAL STEEL: SEE SPECIFICATION.
- CONCRETE COMPRESSIVE STRENGTH: 4000 PSI AT 28 DAYS.
- MASONRY COMPRESSIVE STRENGTH (f<sub>m</sub>): 1500 PSI.
- REINFORCING STEEL: ASTM A615, GRADE 60 EPOXY COATED.
- WELDED WIRE FABRIC: ASTM A185.

**FIELD MEASUREMENT NOTES:**

- ALL DIMENSIONS OF EXISTING CONSTRUCTION ARE APPROXIMATE; CONTRACTOR SHALL MAKE ALL NECESSARY FIELD MEASUREMENTS OF EXISTING STRUCTURES, BREECHING AND EQUIPMENT TO VERIFY DIMENSIONS SHOWN ON DRAWINGS AND TO PROVIDE DIMENSIONS NOT SHOWN, PRIOR TO FABRICATION. COSTS FOR MODIFICATIONS OF NEW CONSTRUCTION, DUE TO LACK OF CONFIRMATION OF DIMENSIONS BY FIELD MEASUREMENTS SHALL BE BORNE BY CONTRACTOR.
- CONTRACTOR'S STRUCTURAL STEEL DETAILER SHALL MAKE NECESSARY FIELD MEASUREMENTS OF EXISTING STRUCTURAL STEEL CONNECTIONS TO ENSURE NEW CONNECTION DETAILS SHOWN ON SHOP DRAWINGS ARE COMPATIBLE WITH EXISTING CONNECTIONS AND ARE CONSTRUCTABLE AS DETAILED.

**CONCRETE DEMOLITION NOTES:**

- REMOVE CONCRETE TO LIMITS SHOWN.
- AT LIMITS OF CONCRETE TO BE REMOVED WHERE EXISTING CONCRETE IS TO REMAIN, PERFORM REMOVAL AS FOLLOWS:
  - WHERE LIMITS OF CONCRETE REMOVAL FORM A CORNER, CORE DRILL (3" DIA MINIMUM) CONCRETE AT CORNER PRIOR TO SAW CUTTING. OVER CUTTING BY SAW AT CORNERS IS NOT PERMITTED.
  - INITIATE REMOVAL BY SAW CUT. SAW CUTS MAY BE MADE THROUGH ENTIRE THICKNESS OF CONCRETE UNLESS EXISTING REINFORCING IS SHOWN TO REMAIN AND EXTEND INTO SUBSEQUENT NEW CONCRETE CONSTRUCTION.
  - WHERE SAW CUTTING THROUGH ENTIRE SECTION IS NOT POSSIBLE DUE TO SPACE LIMITATIONS FOR EQUIPMENT OR WHERE NOT PERMITTED DUE TO RETENTION OF EXISTING REINFORCING, REMOVE CONCRETE BY PRE-DRILLING SERIES OF HOLES ALONG LINE OF REMOVAL TO WEAKEN CONCRETE AND THEN REMOVE CONCRETE BY USE OF HAND HELD JACK HAMMERS.
  - EXISTING CONCRETE TO REMAIN SHALL NOT BE DAMAGED BY CONCRETE REMOVAL PROCESS. INSPECT CONCRETE TO REMAIN AT DEMOLITION LIMITS AND REPORT TO ENGINEER ANY EVIDENCE OF DAMAGED CONDITIONS.
  - EXISTING REINFORCING BARS THAT ARE TO BE RETAINED SHALL NOT BE DAMAGED BY DEMOLITION PROCESS. DAMAGED BARS OR BARS BENT EXCESSIVELY BY DEMOLITION PROCESS SHALL BE CUT AND MECHANICALLY SPLICED AT CONTRACTOR'S EXPENSE.

**CONCRETE NOTES:**

- EXPOSED CONCRETE CORNER CHAMFER: 3/4" UNLESS SHOWN OTHERWISE.
- PROVIDE PIPE SLEEVE FOR ALL PIPES AND CONDUITS THAT PASS THROUGH MASONRY OR CONCRETE. MAKE SLEEVES IN WALLS FLUSH AND EXTEND SLEEVES IN FLOORS 4" ABOVE TOP OF FLOOR UNLESS SHOWN OTHERWISE.
- PROVIDE SETTING TEMPLATES TO POSITION ANCHOR BOLTS PRIOR TO PLACING CONCRETE. ACCURATELY POSITION BOLTS TO ASSURE CORRECT VERTICAL AND HORIZONTAL LOCATION TO MATCH STEEL OR EQUIPMENT BOLT PATTERN.
- ALL METAL FABRICATIONS EMBEDDED IN CONCRETE, OTHER THAN REINFORCING AND ANCHOR BOLTS, SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 AND ASTM A386 AS APPLICABLE.
- CONCRETE SHALL NOT BE LOADED UNTIL IT HAS ATTAINED SUFFICIENT STRENGTH TO SAFELY WITHSTAND LOADING AND UNTIL REQUIRED SHORING AND BRACING HAVE BEEN INSTALLED.
- DO NOT PLACE LOADS WITHIN 6 FEET OF CONSTRUCTION JOINT IN SLABS FOR AT LEAST 7 DAYS AFTER SLAB IS PLACED.
- DO NOT PERFORM ANY OPERATIONS NEAR GROUND FLOOR SLAB PLACEMENT WHICH COULD CAUSE VIBRATION OR SETTLEMENT OF THE SUPPORTING SOIL STRATA FOR AT LEAST 7 DAYS AFTER SLAB IS PLACED.
- CONSTRUCTION CRANE OR OTHER HEAVY ERECTION EQUIPMENT WILL NOT BE PERMITTED ON SLABS.

**CONCRETE NOTES (continued):**

- FOUNDATION WALLS SHALL BE ADEQUATELY BRACED DURING CONSTRUCTION.
- CONTRACTOR IS RESPONSIBLE FOR PREVENTION OF FLOATATION OF STRUCTURES DURING CONSTRUCTION.
- MAXIMUM LENGTH OF CONCRETE PLACEMENT IN ANY DIRECTION, UNLESS SHOWN OTHERWISE: A. SLABS: 25 FEET.
- UNLESS NOTED OTHERWISE, DO NOT BACKFILL TUNNELS, VAULTS OR PIT WALLS UNTIL TOP SLAB HAS BEEN INSTALLED AND ALL CONCRETE HAS ATTAINED 100% OF DESIGN STRENGTH.

**REINFORCING STEEL NOTES:**

- ALL REINFORCING STEEL SHALL BE EPOXY COATED.
- CONFORM WITH ACI 318 AND ACI STANDARD FOR "DETAILS AND DETAILING OF CONCRETE REINFORCEMENT."
- REINFORCING SHALL BE CONTINUOUS AROUND ALL CORNERS UNLESS SHOWN OTHERWISE.
- SHIFT REINFORCING BARS TO CLEAR ANCHOR BOLTS AND EMBEDDED ITEMS; OBTAIN ENGINEER'S APPROVAL AND ADD EXTRA REINFORCING BAR IF REQUESTED BY ENGINEER. CUTTING OF REINFORCING BARS NOT PERMITTED.
- REINFORCING SHALL BE CONTINUOUS THROUGH CONSTRUCTION JOINTS UNLESS SHOWN OTHERWISE.
- TERMINATE ALL REINFORCING STEEL AT EXPANSION JOINTS UNLESS SHOWN OTHERWISE.
- TACK WELDING TO REINFORCING BARS IS NOT PERMITTED.
- LAP ALL #11 AND SMALLER BAR SPLICES AND WELD OR MECHANICALLY CONNECT ALL #14 AND LARGER BAR SPLICES UNLESS APPROVED OTHERWISE BY ENGINEER.
- MINIMUM BAR SPLICE LAP LENGTH SHALL BE AS SHOWN. WHERE LAP LENGTH IS NOT SHOWN ON DRAWINGS, USE MINIMUM LENGTH SHOWN IN THE FOLLOWING TABLE.

REINFORCING BAR MINIMUM SPLICE LAP LENGTH IN INCHES										
BAR SIZE	#3	#4	#5	#6	#7	#8	#9	#10	#11	
TOP BARS	24	32	40	48	70	80	90	102	113	
OTHER BARS	19	25	31	37	54	62	70	78	87	

- CLASS B SPLICE FOR f<sub>y</sub> = 60,000 PSI, f'<sub>c</sub> = 4000 PSI, NORMAL WEIGHT CONCRETE, UNCOATED BARS AND FOLLOWING:
  - CLEAR SPACING OF BARS 2 BAR DIA AND COVER BAR DIA, OR
  - CLEAR SPACING OF BARS DIA BAR AND COVER DIA BAR, AND STIRRUPS OR TIES THROUGHOUT LAP NOT LESS THAN ACI CODE MINIMUM.
- TOP BARS ARE DEFINED AS HORIZONTAL BARS PLACED SO THAT MORE THAN 12" OF CONCRETE IS CAST IN THE MEMBER BELOW THE BAR.
- EPOXY COATED REINFORCING STEEL:
  - USE 1.5 TIMES LAP LENGTH LISTED IN TABLE WHERE COVER IS LESS THAN THREE BAR DIAMETERS OR CENTER TO CENTER SPACING OF BARS IS LESS THAN 7 BAR DIAMETERS.
  - USE 1.2 TIMES LAP LENGTH LISTED IN TABLE FOR BARS WHERE COVER AND SPACING BOTH EXCEED VALUES LISTED IN ITEM 1).

FOR TENSILE AREA SPLICE FOR WELDED WIRE FABRIC, USE 2 SPACINGS OF WIRES PLUS 2"

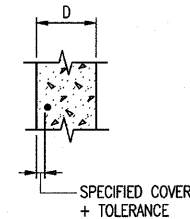
- SPLICE LAP LENGTH FOR WELDED WIRE FABRIC SHALL BE NOT LESS THAN 6" OR SPACING OF WIRES PLUS 2" WHICHEVER IS GREATER.
- LOCATE SPLICES WHERE SHOWN. WHERE NO SPLICES ARE SHOWN, TOP REINFORCING IN SLABS AND BEAMS MAY BE SPLICED IN MIDDLE ONE-HALF OF SPAN BETWEEN SUPPORTS AND BOTTOM REINFORCING MAY BE SPLICED OVER OR NEAR SUPPORTS.
- REINFORCING BAR SPLICES PERMITTED ONLY WHERE SHOWN OR APPROVED BY ENGINEER.
- FOR SLAB REINFORCING BARS, PLACE BARS SPANNING IN THE SHORT DIRECTION WITH MINIMUM CONCRETE COVER SPECIFIED UNLESS SHOWN OTHERWISE.
- PROVIDE STANDARD 90 DEGREE HOOKS FOR TOP REINFORCING BARS AT DISCONTINUOUS END OF ALL BEAMS UNLESS SHOWN OTHERWISE.
- EXTEND TOP REINFORCING BARS OF BEAMS INTO ADJACENT SLAB 2'-0" MINIMUM BEYOND FARTHEST EDGE OF INTERSECTED BEAM WHEN BEAM IS DISCONTINUOUS AT INTERSECTING BEAM UNLESS SHOWN OTHERWISE.
- EXTRA REINFORCING SHALL BE IN ADDITION TO REINFORCING SHOWN OR NOTED.
- ALL BARS INDICATED AS BEING BENT SHALL HAVE STANDARD 90 DEGREE HOOKS UNLESS SHOWN OTHERWISE. 180 DEGREE HOOKS ARE AN ACCEPTABLE ALTERNATE WHERE APPROVED BY ENGINEER.
- PROVIDE EXTRA HAIRPIN REINFORCING AROUND ALL ANCHOR BOLTS LARGER THAN 3/4" DIAMETER. EXTEND LEGS OF HAIRPIN THE STANDARD EMBEDMENT LENGTH. SPACE HAIRPINS, ALONG BOLT, 1-1/2" FROM SURFACE AND AT 3" ON CENTER AROUND UPPER 1/3 OF ANCHOR BOLT EMBEDMENT (8" MAXIMUM).

**REINFORCING STEEL NOTES (continued):**

ANCHOR BOLT DIAMETER	HAIRPIN SIZE UNLESS SHOWN OTHERWISE
<1-1/2"	#3
1-5/8" TO 2" INCL	#4
>2"	#5

- ALL BARS SHALL BE SECURELY PLACED IN FINAL POSITION PRIOR TO PLACING CONCRETE. PLACING BARS INTO WET CONCRETE IS PROHIBITED.
- REINFORCING CONCRETE COVER UNLESS OTHERWISE SHOWN: 1 1/2" WITH FOLLOWING EXCEPTIONS; 2" FOR #6 BARS AND LARGER FOR CONCRETE EXPOSED TO EARTH OR WEATHER; 3" WHEN DEPOSITED AGAINST EARTH; 3/4" FOR WALLS AND SLABS NOT EXPOSED TO EARTH OR WEATHER.

MAINTAIN 2" FOR WATER-CONTAINMENT STRUCTURES.



SPECIFIED COVER	TOLERANCE	
	D ≤ 12"	D > 12"
3/4"	-1/8", +1/4"	-1/8", +3/8"
1"	±1/4"	-1/4", +3/8"
1 1/2" OR GREATER	±3/8"	-3/8", +1/2"

NOTE: TOLERANCES APPLY ONLY AT LOCAL ANOMALIES. SIZE CHAIRS AND SPACERS FOR SPECIFIED COVER.

**MASONRY WALL REINFORCEMENT:**

- JOINT (HORIZONTAL) REINFORCEMENT:
  - MATERIAL: SEE SPECIFICATIONS.
  - SIZE: STANDARD 9 GAGE.
  - SPACING 16" OC VERTICALLY. PLACE ADDITIONAL JOINT REINFORCEMENT AS FOLLOWS:
    - IN FIRST AND SECOND HORIZONTAL JOINTS ABOVE AND BELOW OPENINGS. EXTEND 30" MINIMUM EACH SIDE OF OPENING.
    - CONTINUOUS IN FIRST AND SECOND JOINTS BELOW TOP OF WALLS.
    - AT OTHER LOCATIONS NOTED ON DRAWINGS.
  - LAP JOINT REINFORCEMENT ENDS 6" MINIMUM.
  - REINFORCE JOINT CORNERS AND INTERSECTIONS WITH PREFABRICATED CORNER AND "T" INTERSECTION JOINT REINFORCING.
- CELL (VERTICAL) REINFORCEMENT:
  - MATERIAL: DEFORMED BARS CONFORMING TO SPECIFICATIONS. BAR SIZE: #5, UNLESS NOTED OTHERWISE;
  - REINFORCED CELL HORIZONTAL SPACING: 2'-0" MAXIMUM. PLACE ADDITIONAL CELL REINFORCEMENT AS FOLLOWS:
    - IN CELL IMMEDIATELY ON EACH SIDE OF CONTROL AND EXPANSION JOINTS.
    - IN TWO ADJACENT CELLS LOCATED IMMEDIATELY ON EACH SIDE OF OPENINGS.
    - AT ALL CORNER CELLS.
    - AT ALL OTHER LOCATIONS WHERE NOTED ON DRAWINGS.
  - LAP REINFORCING BARS AS FOLLOWS: #4 BAR: 2'-6", #5 BAR: 3'-0", #6 BAR: 3'-6".
  - REINFORCING SHALL EXTEND FULL HEIGHT OF WALL EXCEPT WHERE INDICATED OTHERWISE OR WHERE INTERRUPTED BY WALL OPENINGS.
  - EACH REINFORCED CELL FOR EXTERIOR MASONRY WALL SHALL HAVE A #5 DOWEL CAST IN FOUNDATION.
  - EACH REINFORCED CELL FOR INTERIOR MASONRY WALL SHALL HAVE A #5 DOWEL EITHER CAST IN SLAB OR DRILLED AND EPOXY GROUTED 6" INTO SLAB.
  - EACH REINFORCED CELL SHALL BE GROUTED FULL AND PROPERLY CONSOLIDATED.
- BOND BEAM REINFORCEMENT:
  - 2-#5 BARS, UNLESS NOTED OTHERWISE.

PLOT DATE = 3/22/2010  
FILE NAME = D:\68828-161-1-S-01.dgn  
PLOT SCALE = 1/8"=1'-0"  
USER NAME = MUSENY



REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

**STRUCTURAL GENERAL NOTES - SHEET 1**

SCALE: VERT. NO SCALE  
HORIZ. DATE: 3/23/2010

DRAWN BY: A.T.  
CHECKED BY: A.N.