

GENERAL

1. SCOPE
THE GENERAL NOTES AND TYPICAL DETAILS ARE GENERAL AND APPLY TO THE ENTIRE PROJECT EXCEPT WHERE THERE ARE SPECIFIC INDICATIONS TO THE CONTRARY.
2. APPLICABLE SPECIFICATIONS AND CODES
CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE UNIFORM BUILDING CODE. THE ABOVE SHALL GOVERN EXCEPT WHERE OTHER APPLICABLE CODES OR THE FOLLOWING NOTES ARE MORE RESTRICTIVE.
3. DIMENSIONS
STRUCTURAL DIMENSIONS CONTROLLED BY OR RELATED TO MECHANICAL OR ELECTRICAL EQUIPMENT SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.
4. PROVISIONS FOR EQUIPMENT
MECHANICAL AND ELECTRICAL EQUIPMENT SUPPORTS, ANCHORAGES, OPENINGS, RECESSES AND REVEALS NOT SHOWN ON THE STRUCTURAL DRAWINGS BUT REQUIRED BY OTHER CONTRACT DRAWINGS SHALL BE PROVIDED PRIOR TO CASTING CONCRETE.
5. CONSTRUCTION LOADS
STRUCTURES HAVE BEEN DESIGNED FOR OPERATIONAL LOADS ON COMPLETED STRUCTURES. DURING CONSTRUCTION, STRUCTURES SHALL BE PROTECTED BY BRACING WHEREVER EXCESSIVE CONSTRUCTION LOADS MAY OCCUR.
6. DRAINAGE SURFACES
SLOPE DRAINAGE SURFACES UNIFORMLY TO DRAIN. SLOPE SHALL BE 1/4" PER FOOT EXCEPT WHERE NOTED OTHERWISE ON THE PLANS.

ALUMINUM

1. APPLICABLE CODE
ALUMINUM CONSTRUCTION SHALL CONFORM TO THE LATEST EDITION OF THE ALUMINUM CONSTRUCTION MANUAL OF THE ALUMINUM ASSOCIATION.
2. MATERIAL
UNLESS OTHERWISE INDICATED, STRUCTURAL ALUMINUM SHALL BE ALLOY 6061-T6 AS SPECIFIED IN ASTM B-308, EXCEPT HANDRAILS WHICH SHALL BE 6063-T6.
3. ALUMINUM IN CONTACT WITH OR EMBEDDED IN CONCRETE
ALUMINUM IN CONTACT WITH OR EMBEDDED IN CONCRETE SHALL BE COATED IN ACCORDANCE WITH THE SPECIFICATIONS.
4. BOLTS
ALL BOLTS USED IN CONNECTION WITH ALUMINUM MEMBERS SHALL BE STAINLESS STEEL AISI 316, UNLESS OTHERWISE NOTED.

CONCRETE

1. APPLICABLE CODE
CONCRETE CONSTRUCTION SHALL CONFORM TO THE LATEST EDITION OF THE ACI BUILDING CODE (ACI-318).
2. REINFORCING STEEL DETAILS
ALL DETAILING, FABRICATION, AND ERECTION OF REINFORCING BARS, UNLESS OTHERWISE NOTED SHALL BE IN ACCORDANCE WITH MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES (ACI-315), LATEST EDITION.
3. DESIGN STRESSES
 - A. CONCRETE, ULTIMATE COMPRESSIVE STRESS AS SPECIFIED.
 - B. ALL REINFORCING STEEL SHALL BE ASTM A615, GRADE 60
4. CONCRETE COVER
CONCRETE COVER FOR REINFORCING BARS SHALL BE AS FOLLOWS WITH MINIMUM COVER OF ONE BAR DIAMETER.
 - A. FOOTINGS AND FOUNDATION MATS CAST ON GROUND - 3"
 - B. CONCRETE TO BE IN CONTACT WITH LIQUID - 2-1/2"
 - C. CONCRETE TO BE IN CONTACT WITH GROUND OR WEATHER.
 - (1) BARS GREATER THAN #5 - 2-1/2"
 - (2) BARS #5 OR LESS - 2"
 - (3) DRILLED PIERS - 3" TO VERTICAL BARS
 - D. CONCRETE NOT TO BE EXPOSED TO GROUND, WEATHER, OR LIQUID.
 - (1) BEAMS AND COLUMNS - 2" TO SPIRALS OR TIES.
 - (2) SLABS AND WALLS, - 1-1/2"
5. ADDED TOP STEEL IN SLABS
IN SLABS WITH ONE MAT OF REINFORCING OR BOTTOM REINFORCING ONLY AND WHERE BEAMS OR WALLS ARE PARALLEL TO MAIN REINFORCING IN SLAB, PROVIDE ADD'L. #4 @ 18" IN TOP OF SLAB PERPENDICULAR TO BEAM OR WALL. EXTEND BARS 2'-0" BEYOND FACE OF BEAM OR WALL. WHEN SLAB IS ON ONE SIDE ONLY, TERMINATE BARS WITH STANDARD HOOK ON OTHER SIDE OF BEAM OR WALL.
6. VERTICAL CONSTRUCTION JOINTS
VERTICAL CONSTRUCTION JOINTS IN SLABS AND BEAMS SHALL BE PERMITTED NEAR MIDSPAN ONLY.
7. PENETRATIONS
PENETRATIONS OTHER THAN SHOWN SHALL NOT BE ALLOWED WITHOUT ENGINEERS APPROVAL.
8. EXTRA ACCESSORY BARS
IN ADDITION TO NORMAL ACCESSORIES USED TO HOLD REINFORCING STEEL FIRMLY IN POSITION, EXTRA ACCESSORY BARS SHALL BE USED AS FOLLOWS:
 - A. IN SLABS #5 BARS AT 36" O/C MAXIMUM TO SUPPORT TOP REINFORCING STEEL.
 - B. IN WALLS WITH TWO CURTAINS #3 U OR Z SHAPE SPACERS AT 6'-0" O/C E.W.
9. BAR LAP SPLICE LOCATIONS FOR GRAVITY LOADS
ALL BOTTOM BARS MAY BE SPLICED @ SUPPORTS ONLY.
TOP BARS MAY BE SPLICED @ CENTER OF SPAN ONLY.
10. BAR SPLICES
ALL DOWEL & LAP LENGTHS SHALL BE AS SHOWN ON TABLE FOR BARS SPACED 6" C/C OR MORE, IF SPACING IS LESS THAN 6" C/C, REFER TO ACI - 315, 1988.
11. RESTRICTED BAR ANCHORAGE
IN CASES WHERE REINFORCING BARS CANNOT BE EXTENDED AS FAR AS REQUIRED DUE TO THE LIMITED EXTENT OF THE ADJACENT CONCRETE STRUCTURE, THE BARS SHALL EXTEND AS FAR AS POSSIBLE AND END IN STANDARD HOOKS.
12. STANDARD HOOKS
BARS ENDING IN RIGHT ANGLE BENDS OR HOOKS SHALL CONFORM TO THE REQUIREMENTS OF PAR. 7.1, ACI-318.
13. SLOPING SLABS
MONOLITHIC SLABS WITH TOPS THAT ARE SLOPED SHALL HAVE BOTTOMS SLOPED THE SAME AMOUNT, MAINTAINING A UNIFORM SLAB THICKNESS, UNLESS OTHERWISE SHOWN.
14. SIDEWALK SLABS
CONCRETE SLABS SUPPORTED BY GROUND, UNLESS OTHERWISE NOTED, SHALL BE 4" THICK REINFORCED WITH WWF 6X6 - W1.4 X W1.4 AT MID-DEPTH OF SLAB.
15. CHAMFERS
EXCEPT AS OTHERWISE REQUIRED, EXPOSED CONCRETE CORNERS AND EDGES SHALL HAVE 3/4" CHAMFERS.
16. ANCHOR BOLTS
USE OF HEADED ANCHOR BOLTS SHALL BE GOVERNED BY THE FOLLOWING TABLE:

BOLT DIAMETER	1/2"	5/8"	3/4"	7/8"	1"	1-1/8"	1-1/4"
MIN. EMBEDMENT IN STRUCTURAL CONCRETE	4"	4"	5"	6"	7"	8"	9"
ALLOWABLE SHEAR	2000#	3000#	3560#	4150#	4150#	4500#	5300#

 ALL BOLTS SHALL BE STAINLESS STEEL UNLESS OTHERWISE NOTED.
EMBEDMENT LENGTH FOR BOLTS IN TENSION SHALL BE DETERMINED BY THE ENGINEER.
17. PLACING CONCRETE IN FOOTINGS
WHEN CONCRETE FOOTINGS AND SLABS ARE SHOWN TO BE IN THE DIRECT CONTACT WITH SOIL, IT SHALL BE UNDERSTOOD THAT THE SOIL IS UNDISTURBED.

STEEL

1. MATERIAL
ALL STRUCTURAL SHAPES, BARS, PLATES AND SHEETS INDICATED ON THE DRAWINGS SHALL BE STEEL MEETING ASTM A - 36.
2. APPLICABLE CODE
ALL STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH LATEST AISC "SPECIFICATIONS FOR DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS."
3. FIELD-BOLTED CONNECTIONS
ALL FIELD-BOLTED CONNECTIONS SHALL BE MADE WITH ASTM A325 BOLTS. (SEE NOTE 4)
4. A325 BOLT CONNECTIONS
A325 BOLT CONNECTIONS SHALL BE FRICTION TYPE UNLESS OTHERWISE SPECIFICALLY NOTED OR PERMITTED. MAKE SUCH CONNECTIONS TO COMPLY WITH "SPECIFICATIONS FOR STRUCTURAL JOINTS USING ASTM A325 BOLTS", APPROVED BY RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS AND ENDORSED BY AISC. TIGHTENING OF NUTS SHALL BE DONE WITH LOAD INDICATOR WASHERS. THE MINIMUM BOLT TENSION FOR THE SIZE OF BOLT SHALL BE IN ACCORDANCE WITH AISC STANDARDS.
5. BOLTS FOR BEAM CONNECTIONS
ALL BOLTS FOR BEAM CONNECTIONS SHALL BE ASTM A325 WITH A MINIMUM DIAMETER OF 5/8" UNLESS OTHERWISE NOTED. WASHERS SHALL BE INSTALLED UNDER NUTS OF FASTENERS WHEN REQUIRED BY THE SPECIFICATION FOR STRUCTURAL JOINTS.
6. WELDING
WELDING SHALL BE DONE IN ACCORDANCE WITH "STRUCTURAL WELDING CODE-STEEL", AMERICAN WELDING SOCIETY (AWS) (D1.1-88 AND REV.)
7. ELECTRODES
WELDING SHALL BE PERFORMED WITH E70XX ELECTRODES.
8. WELD SIZES
SIZES OF FILLET WELDS NOT SHOWN SHALL CONFORM TO MINIMUM SIZES AS SPECIFIED BY AISC "SPECIFICATIONS FOR DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS".
9. EXPANSION BOLTS
WHERE EXPANSION BOLTS OR CONCRETE ANCHORS ARE NOTED ON THE PLANS OR SPECIFICATIONS, ANCHORS SHALL BE HILTI HVA ADHESIVE ANCHORS WITH TYPE AISI 316 STAINLESS STEEL BOLTS.
10. GALVANIZED MEMBERS
ALL MEMBERS SHOWN AS GALVANIZED SHALL BE HOT DIP GALVANIZED AFTER FABRICATION AND SHALL CONFORM TO ASTM A-123 AND ASTM A-386.
11. NOT DETAILED CONNECTIONS
ALL CONNECTIONS NOT DETAILED OR OTHERWISE NOTED SHALL BE STANDARD AISC WELDED OR AISC BOLTED CONNECTIONS. CONNECTIONS FOR BEAMS SHALL BE DESIGNED TO CARRY REACTION EQUAL TO $\frac{W_c}{2L}$ AS TABULATED IN AISC HANDBOOK PART 2.
12. FIELD PAINTING
FIELD PAINTING AND TOUCH-UP SHALL BE PERFORMED ON ALL FIELD JOINTS OF STEEL.

BAR SIZE	TENSION BAR - LAP & EMBEDMENT LENGTHS					
	EMBEDMENT (IN.)		LAP LENGTHS (IN.)			
	CLASS A	CLASS B	CLASS B		CLASS C	
	TOP	OTHER	TOP	OTHER	TOP	OTHER
#3	1 2	1 2	1 3	1 2	1 7	1 2
#4	1 3	1 2	1 7	1 2	23	1 6
#5	1 7	1 2	22	1 6	29	20
#6	22	1 5	28	20	37	26
#7	30	21	38	27	50	36
#8	38	28	49	36	65	47
#9	49	35	64	46	83	60
#1 0	62	45	81	58	105	76
#1 1	77	55	100	71	131	93

- A. TOP BARS ARE HORIZONTAL REINFORCEMENT SO PLACED THAT MORE THAN 12" OF CONCRETE IS CAST IN THE MEMBER BELOW THE BARS.
- B. OTHER BARS ARE ALL BARS OTHER THAN TOP BARS.
- C. ALL LAP SPLICES SHALL BE TYPE C EXCEPT, CLASS B LAP-LENGTHS MAY BE USED ONLY IF NOT MORE THAN 50% OF BARS ARE LAP SPLICED WITHIN ONE LAP LENGTH.

RECORD DRAWING
BASED ON INFORMATION
SUPPLIED BY THE CONTRACTOR
DATE: 10/2/92 BY: LDS



User: Hugo Trevino
R0KDWG29.DWG
OCT 2, 1992
10:20:12 A.M.

ACAD Plot 12
OCT 2, 1992

DATE	REVISION	BY	CHECKED

DESIGNED:	JOB NO. ROK89005
DRAWN:	DATE 11/19/90
TRACED:	SCALE NO SCALE
CHECKED:	

FREESE AND NICHOLS, INC.
CONSULTING ENGINEERS
FORT WORTH - ARLINGTON - AUSTIN, TEXAS

CITY OF ROCKWALL, TEXAS
EASTSIDE PUMP STATION

GENERAL
STRUCTURAL NOTES

SHEET
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