

GENERAL NOTES:

- 1. THE LOCATION OF EXISTING UTILITIES, INCLUDING UNDERGROUND UTILITIES, IS INDICATED ON THE DRAWINGS INSOFAR AS THEIR EXISTENCE AND LOCATION WERE KNOWN AT THE TIME OF PREPARATION OF THE DRAWINGS. HOWEVER, NOTHING IN THESE CONTRACT DOCUMENTS SHALL BE CONSTRUED AS A GUARANTEE THAT SUCH UTILITIES ARE IN THE LOCATION INDICATED OR THAT THEY ACTUALLY EXIST, OR THAT OTHER UTILITIES ARE NOT WITHIN THE AREA OF OPERATIONS. THE CONTRACTOR SHALL MAKE ALL NECESSARY INVESTIGATIONS TO DETERMINE THE EXISTENCE AND LOCATIONS OF SUCH UTILITIES. THE CONTRACTOR SHALL PAY FOR ANY DAMAGE TO AND FOR MAINTENANCE AND PROTECTION OF EXISTING UTILITIES AND STRUCTURES.
- 2. THE CONTRACTOR IS DIRECTED TO DIG AND LOCATE ALL UTILITIES, IN ADVANCE OF THE PIPELAYING, TO ALLOW FOR ADJUSTMENTS, DUE TO CONFLICTS WITH THE UTILITIES, IN THE HORIZONTAL AND VERTICAL LOCATION OF THE PIPE LINE.
- 3. SURVEY INFORMATION OBTAINED FROM TOPOGRAPHIC SURVEY COMPLETED IN THE WINTER OF 1993 BY MATTERN AND CRAIG INC., ROANOKE, VA.
- 4. BENCHMARKS ARE AS NOTED ON DRAWINGS.

STRUCTURAL GENERAL NOTES:

- 1. MATERIAL DESIGN STRENGTHS:
CAST IN PLACE CONCRETE:
ENCASEMENT (NORMAL WEIGHT).....F'C = 3,000 PSI
ALL OTHER CONCRETE (NORMAL WT).....F'C = 4,000 PSI
REINFORCING STEEL, DEFORMED
(ASTM A615, GR. 60).....FY = 60,000 PSI
SOIL BEARING CAPACITY1000 PSF
- 2. DESIGN CODES

VIRGINIA UNIFORM STATEWIDE BUILDING CODE, 1990 EDITION (BOCA 1990)
ACI 318-89 "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE."
ASCE 7-88 "MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES."
- 3. DESIGN LIVE LOADS:
ROOF LOADS:
SNOW LOAD 33.6 PSF
LATERAL LOADS:
EARTH LOAD, EQUIVALENT FLUID PRESSURES......75 PCF
- 4. CONTRACTOR SHALL COORDINATE AND VERIFY SIZE AND LOCATION OF ALL ANCHOR BOLTS, SLEEVES, OPENINGS, ETC. TO SUIT EQUIPMENT PROVIDED.
- 5. ALL INFORMATION ON EXISTING CONDITIONS IS OBTAINED FROM BEST AVAILABLE SOURCES. THE ACTUAL AS-BUILT CONSTRUCTION MAY POSSIBLY DIFFER FROM WHAT IS ASSUMED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS NOTED ON THE CONTRACT DOCUMENTS, AND SHALL NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BETWEEN THE EXISTING CONDITIONS AND THE CONTRACT DOCUMENTS.
- 6. THE CONTRACTOR SHALL REQUEST IN WRITING AND HIGHLIGHT ON THE SHOP DRAWINGS ANY PROPOSED CHANGES IN THE MATERIALS, DETAILS, ETC. INDICATED ON THE DRAWINGS OR SPECIFICATIONS. ANY CHANGES MUST BE APPROVED BY THE ENGINEER IN WRITING.
- 7. THE DESIGN, ADEQUACY, AND SAFETY OF ERECTION BRACING, SHORING, TEMPORARY SUPPORTS, ETC. IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

FOUNDATIONS

- 1. FOUNDATION DESIGN IS BASED ON A SUBSURFACE INVESTIGATION BY GEOTECHNICS, INC. DATED MARCH 31, 1993 COMMISSION NUMBER 1875.
- 2. FOOTING ELEVATIONS SHOWN REPRESENTS THE MINIMUM DEPTH TO WHICH FOOTINGS SHALL BE CARRIED. IF FOOTING EXCAVATIONS REVEAL DISTURBED, UNSTABLE, OR UNSUITABLE SOIL, THE ENGINEER SHALL BE NOTIFIED. ALL UNSUITABLE FOUNDATION MATERIAL SHALL BE REMOVED AND FOOTINGS SHALL REST ON PRE-ENGINEERED FILL USING SUITABLE MATERIAL OR COMPACTED #21A BASE COURSE WITH A MINIMUM BEARING CAPACITY OF 3,000 PSF. COMPACT EACH LAYER OF FILL OR BACKFILL TO 95% OF THE MAXIMUM DENSITY AT OPTIMUM MOISTURE CONTENT AS DETERMINED BY ASTM D 698. DO NOT DISTURB EXISTING FOUNDATIONS.

CONCRETE

- 1. ALL REINFORCING SHALL BE DETAILED, FABRICATED AND PLACED IN ACCORDANCE WITH ACI 315-80, REVISED 1986 UNLESS OTHERWISE NOTED. ALL SPLICES SHALL BE CLASS B TENSION WITH ALL APPLICABLE MODIFICATION FACTORS, UNLESS OTHERWISE NOTED. SPLICES NOT INDICATED MAY BE PROVIDED IF PROPERLY DETAILED ON SHOP DRAWINGS AND APPROVED BY THE ENGINEER. EMBEDMENT LENGTHS SHALL BE EQUAL TO TENSION DEVELOPMENT LENGTHS UNLESS OTHERWISE NOTED. DOWELS IN WALL SHALL MATCH SIZE AND SPACING OF MAIN REINFORCING BARS UNLESS OTHERWISE NOTED. SPREAD REINFORCING AT OPENINGS AND SLEEVES UNLESS OTHERWISE DETAILED. DO NOT CUT REINFORCING BARS. CONCRETE PROTECTION FOR REINFORCEMENT SHALL CONFORM TO ACI 301-89 AND SHALL BE INDICATED ON THE SHOP DRAWINGS. ALL SPLICE LENGTHS AND EMBEDMENT LENGTHS, BENDING DIAGRAMS, AND ASSEMBLY DIAGRAMS SHALL BE INDICATED ON THE SHOP DRAWINGS. PROVIDE 2-#5 CONTINUOUS AT THE TOP OF ALL WALLS. THE CONTRACTOR SHALL KEEP A COPY OF ACI 301-89 AT THE JOBSITE.

- 2. MAJOR CONSTRUCTION JOINTS ARE SHOWN. INTERMEDIATE JOINTS IN WALLS AND SLABS ARE NOT SHOWN UNLESS REQUIRED BY THE DESIGN. ALL CONSTRUCTION AND CONTROL JOINTS SHALL BE SHOWN ON THE SHOP DRAWINGS. CONSTRUCTION JOINTS MAY BE OMITTED OR RELOCATED IF PROPERLY DETAILED ON THE SHOP DRAWINGS AND APPROVED BY THE ENGINEER. (JOINT LOCATIONS MUST BE APPROVED BY THE ENGINEER BEFORE SUBMITTING REINFORCING STEEL SHOP DRAWINGS).
ALL CONSTRUCTION JOINTS IN THE FINISHED WATER RESERVOIR AT OR BELOW ELEVATION 1625 SHALL HAVE WATERSTOPS.
- 3. THE UNIT OF OPERATION OF CONCRETE PLACEMENT SHALL NOT EXCEED 45 FEET IN ANY DIRECTION. AT LEAST 72 HOURS SHALL ELAPSE BEFORE CONCRETE IS PLACED ADJACENT TO PREVIOUSLY CAST CONCRETE.
- 4. BACKFILLING ADJACENT TO RESERVOIR WALLS SHALL NOT OCCUR UNTIL THE TOP SLAB HAS BEEN PLACED AND CONCRETE HAS REACHED 70 PERCENT OF ITS 28-DAY DESIGN COMPRESSIVE STRENGTH. BACKFILLING ADJACENT TO CANTILEVER RETAINING WALLS SHALL NOT OCCUR UNTIL WALL CONCRETE HAS REACHED ITS 28-DAY DESIGN COMPRESSIVE STRENGTH.
- 5. CHAMFER ALL EXPOSED EDGES OF CONCRETE 1 INCH.
- 6. CONCRETE SHALL BE PLACED IN LAYERS NOT OVER 18 INCHES DEEP AND EACH LAYER SHALL BE COMPACTED BY MECHANICAL INTERNAL-VIBRATION EQUIPMENT SUPPLEMENTED BY HAND SPADING, RODING AND TAMPING. VIBRATORS SHALL NOT BE INSERTED INTO LOWER COURSES THAT HAVE BEGUN TO SET. CONCRETE SHALL BE PLACED BY CHUTES OR ELEPHANT TRUNKS WHEN THE VERTICAL DROP EXCEEDS 4'-0".
- 7. CONTRACTOR SHALL NOTIFY ENGINEER 48 HOURS PRIOR TO PLACING ANY CONCRETE SO THAT REINFORCEMENTS, SLEEVES, PIPES, INSERTS, HANGERS, ETC., CAN BE INSPECTED FOR CONFORMANCE WITH PLANS AND SPECIFICATIONS.
- 8. EXPANSION ANCHORS SHALL BE TRUBOLT BY RAMSET FASTENING SYSTEMS, RED HEAD BY ITT PHILLIPS DRILL DIVISION, KWIK-BOLT HILTI FASTENING SYSTEM, OR APPROVED EQUAL, AND SHALL BE GALVANIZED. MINIMUM WORKING (SERVICE) LOADS SHALL BE AS FOLLOWS FOR 4000 PSI CONCRETE:

DIAMETER (INCHES)	SHEAR (LBS)	TENSION (LBS)
1/2	1700	1375
5/8	2650	1650
3/4	3830	2535
7/8	4915	3315
1	6720	4000
1-1/4	8020	5750

- 9. EPOXY ANCHORS OF EQUAL SIZE AND MATERIAL MAY BE SUBSTITUTED FOR EXPANSION ANCHORS PROVIDED MINIMUM WORKING (SERVICE) LOADS ARE EQUAL TO OR GREATER THAN THOSE FOR EXPANSION ANCHORS. EPOXY ANCHORS SHALL BE STAINLESS STEEL AND SHALL BE HILTI HVA ADHESIVE ANCHORS TYPE H.A.S. STD., MOLLY PARABOND BY EMHART, RAWL CHEM-STUDS, OR APPROVED EQUAL.

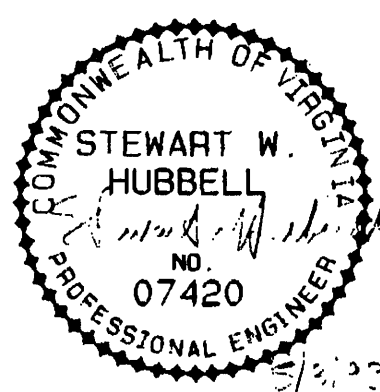
STEEL

- 1. ALL HANDRAILS SHALL BE ALUMINUM.



Mattern & Craig
CONSULTING ENGINEERS SURVEYORS

DESIGNED:	RWB
DRAWN:	FMP
CHECKED:	JMD



REV.	DATE	DESCRIPTION	BY	APP.
1	8-9-94	RECORD DRAWING	ASB	

DATE
MAY
1993
COMM.
1249

FALLING CREEK FINISHED WATER RESERVOIR
CITY OF ROANOKE, VIRGINIA

GENERAL NOTES