AT&T WIRELESS PCS, INC.

DRILLED PIERS

GENERAL

1.1 SCOPE
EXCAVATION, CASING, DEWATERING, REINFORCING STEEL AND CONCRETE FOR DRILLED PIERS FOUNDATIONS.

1.2 RELATED SECTIONS
ALL CONCRETE WORK SHALL BE IN STRICT ACCORDANCE WITH THE APPLICABLE SECTIONS OF SPECIFICATION CAST IN PLACE CONCRETE WITH THE ADDITIONAL REQUIREMENTS OF THIS SECTION.

1.3 REFERENCES

A. ACI (AMERICAN CONCRETE INSTITUTE)

1. ACI 336.1 STANDARD SPECIFICATION FOR END BEARING DRILLED PIERS.

2. ACI 336.3R SUGGESTED DESIGN AND CONSTRUCTION PROCEDURES FOR PIER FOUNDATIONS.

B. ASTM (AMERICAN SOCIETY FOR TESTING AND MATERIALS).

THE APPLICABLE STANDARDS OF THE AMERICAN SOCIETY FOR TESTING AND MATERIALS ARE LISTED IN THE ACI STANDARDS AND ARE A PART OF THIS SPECIFICATION.

1.4 SUBMITTALS

A. THE CONTRACTOR SHALL MAKE A COMPLETE REPORT AND RECORD OF EACH DRILLED SHAFT INSTALLED. THE REPORT SHALL CONTAIN ALL DIMENSIONS, LOCATION OF DRILLED SHAFT, ELEVATION OF BOTTOMS AND TOP AS ACTUALLY POURED, VOLUME OF CONCRETE PLACED, OUTSIDE AIR TEMPERATURE AND ANY OTHER PERTINENT DATA.

1.5 QUALITY ASSURANCE
REFER TO CAST-IN-PLACE, ARTICLE 1.4.

1.6 INSPECTION AND TESTING
REFER TO CAST-IN-PLACE, ARTICLE 1.5.

PRODUCTS

2.1 REINFORCING BARS

1. ASTM A615, GRADE 60, NEW DEFORMED BILLET-STEEL BARS, PLAIN FINISH

2.2 CONCRETE MIX

1. ALL CONCRETE CONSTRUCTION SHALL COMPLY WITH ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE". COLD WEATHER PROTECTION SHALL BE IN ACCORDANCE WITH ACI 306. IN HOT WEATHER, COMPLY WITH ACI 305.
2. DRILLED PIER CONCRETE SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH F'C=3,000 PSI TO 4,000 PSI. CHECK THE FOUNDATION DESIGN FOR THAT TOWER.

2.3 CASING

A. TEMPORARY CASING IF REQUIRED SHALL BE MINIMUM 1/4 INCH THICK STEEL CONFORMING TO ASTM A36 OR A252. THE CASING SHALL BE SINGLE LENGTH WITH A MINIMUM INSIDE DIAMETER EQUAL TO THE DRILLED PIER DIAMETER SPECIFIED ON THE DRAWINGS. THE CASING SHALL BE OF SUFFICIENT WALL THICKNESS TO WITHSTAND HANDLING STRESSES, CONCRETE, HYDROSTATIC OR EARTH PRESSURES.

EXECUTION

3.1 DRILLED SHAFT FOUNDATION

A. THE TOWER FOUNDATION SHALL BE A DRILLED SHAFT TYPE PIER.

B. ALL DRILLED SHAFT FOUNDATIONS SHALL BE INSTALLED BY A DRILLED SHAFT CONTRACTOR SPECIALIZING IN THE TYPES OF DRILLED SHAFTS SHOWN ON THE DRAWINGS AND WHO HAS HAD EXPERIENCE IN THE CONSTRUCTION OF DRILLED SHAFTS AT THE DEPTHS AND DIAMETERS SHOWN.

C. THE DRILLED SHAFT FOUNDATION SHALL BE FOUNDED ON SOLID UNDISTURBED SOIL. BOTTOM OF THE SHAFT SHALL BE EXCAVATED TO A LEVEL PLANE AND CLEARED OF LOOSE MATERIAL. NO WATER SHALL BE STANDING IN THE BOTTOM OF THE DRILLED SHAFT EXCAVATION AT THE TIME OF PLACING OF THE CONCRETE.

D. STEEL CASINGS SHALL BE USED IN UNSTABLE SOIL TO PREVENT COLLAPSE OF SHAFT WALL WHERE FLUID CONDITIONS EXIST AND WHERE WATER WOULD CARRY SAND, SILT OR EARTH INTO THE EXCAVATION. CASINGS SHALL BE ADDITIONAL COST TO THE OWNER.

E. PRIOR TO PLACING THE CONCRETE, THE CONTRACTOR SHALL MAKE THE DRILLED SHAFT ACCESSIBLE TO AT&T WIRELESS SERVICES FOR INSPECTION. ACCESS TO THE SHAFT INTERIOR SHALL BE IN COMPLIANCE WITH ALL OSHA AND MIOSSA REQUIREMENTS FOR CONFINED SPACE ENTRY. THE DRILLED SHAFT CONTRACTOR SHALL PROVIDE ALL NECESSARY SAFETY EQUIPMENT INCLUDING LIGHTS, HARNESSES, LIFTING DEVICES, VENTILATION FANS AND AIR MONITORING EQUIPMENT.

F. PLACE REINFORCING CAGE AND CONCRETE IMMEDIATELY AFTER INSPECTION AND ACCEPTANCE OF DRILLED SHAFT. PLACE CONCRETE CONTINUOUSLY WITHOUT INTERRUPTION VIBRATING EACH SHAFT FULL DEPTH.

G. IF TEMPORARY CASINGS ARE USED, WITHDRAW IN A MANNER TO MAINTAIN A HEAD OF CONCRETE AT LEAST 5' ABOVE BOTTOM OF CASING.

H. LOCATION TOLERANCE: 1/24 OF DRILLED SHAFT DIAMETER OR 3", WHICHEVER IS LESS.

I. PLUMBNESS TOLERANCE: 1.5% OF LENGTH MAXIMUM.
J. TOP OF DRILLED SHAFT ELEVATION TOLERANCE: PLUS OR MINUS 1".

K. CONCRETE SHALL BE PLACED DIRECTLY AGAINST THE DRILLED SHAFT EXCAVATION SIDES WHILE STILL IN A PLASTIC STATE.

L. MOISTURE LOSS FROM CONCRETE SURFACE PLACED AGAINST FORMS SHALL BE MINIMIZED BY KEEPING THE FORMS WET UNTIL THEY CAN SAFELY BE REMOVED. AFTER FORM REMOVAL, CONCRETE SHALL BE CURED BY THE METHOD DESCRIBED BY STEP M.

M. APPLY A CURING COMPOUND IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS TO THE EXPOSED PORTION OF THE CONCRETE PIER.

N. A MINIMUM OF THREE CONCRETE TEST CYLINDERS SHALL BE TAKEN FROM EACH DRILLED SHAFT. AN ADDITIONAL SET OF THREE CYLINDERS SHALL BE TAKEN IF THE VOLUME OF CONCRETE PLACED IN A SHAFT EXCEEDS 50 CUBIC YARDS, AN ADDITIONAL CYLINDER SHALL BE TAKEN DURING COLD WEATHER CONCRETING AND CURED ON THE PROJECT SITE UNDER THE SAME CONDITIONS AS THE CONCRETE IT REPRESENTS.

O. ONE SLUMP TEST AND ONE ENTRAINED AIR TEST SHALL BE MADE FOR EACH SET OF CONCRETE CYLINDERS TAKEN.

P. THE ANCHOR BOLTS AND SETTING TEMPLATES SHALL BE DESIGNED AND PROVIDED BY THE TOWER (MONOPOLE) MANUFACTURER AND INSTALLED BY THE CONTRACTOR. USE TEMPLATES AND NECESSARY POSITIONING DEVICES TO PROPERLY LOCATE THE ANCHOR BOLTS AND TO MAINTAIN THE PROPER POSITION DURING CONCRETE PLACEMENTS AND CURING.

Q. DIRECTION AND CENTERING OF THE ANCHOR BOLT TEMPLATE SHALL BE COORDINATED WITH MONOPOLE MANUFACTURER INFORMATION, SHOP DRAWINGS AND CONSTRUCTION DOCUMENTS. AT&T WIRELESS SERVICES SHALL APPROVE ANCHOR BOLT LOCATION PRIOR TO POURING CONCRETE.

R. THE TOWER (MONOPOLE) BASE PLATE LEVELING PLATE SHALL BE LEVELED.

S. EVERY REASONABLE EFFORT SHALL BE MADE TO OBTAIN A DRY HOLE AND PLACE THE CONCRETE IN THE DRY. IF THE UNCONTROLLABLE INFILTRATION OF GROUND WATER EXCEEDS 1/4 INCH RISE PER MINUTE, THE HOLE SHALL BE PLACED BY TREMIE METHOD APPROVED BY A GEOTECHNICAL ENGINEER.

3.2 REINFORCEMENT

A. ALL REINFORCING USED IN THE CONCRETE SHALL BE CONTINUOUS UNLESS DETAILED OTHERWISE.

B. PROVIDE A MINIMUM OF 4" OF COVER ON ALL REINFORCING STEEL.

C. THE REINFORCING CAGE SHALL BE CONSTRUCTED PRIOR TO COMMENCEMENT OF THE DRILLED SHAFT EXCAVATION. THE SPACING OF REINFORCING CAGE STIRRUPS IS BASED ON STRUCTURAL DESIGN CONSIDERATIONS. ADDITIONAL STIRRUPS MAY BE REQUIRED TO BE PROVIDED BY THE DRILLED SHAFT CONTRACTOR TO MAINTAIN THE SHAPE AND INTEGRITY OF THE REINFORCING CAGE DURING MOVEMENT AND PLACEMENT.

3.3 CURING
REFER TO CAST-IN-PLACE, ARTICLE 3.6.

CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 SCOPE
THIS SECTION COVERS THE TECHNICAL REQUIREMENTS FOR FURNISHING AND PLACEMENT OF CAST-IN-PLACE CONCRETE.

1.2 REFERENCES
ACI 301: SPECIFICATION FOR STRUCTURAL CONCRETE FOR BUILDINGS
ACI 305: HOT WEATHER CONCRETING
ACI 306: COLD WEATHER CONCRETING
ACI 318: BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE
ACI 336.1: STANDARD SPECIFICATION FOR END-BEARING DRILLED PIERS

1.3 SUBMITTALS

1.3.1 SUBMIT TO AT&TWS CONCRETE MIX DESIGNS FOR ALL WORK, PREPARED IN ACCORDANCE WITH ACI 301.

1.3.2 SUBMIT TO AT&TWS REINFORCING STEEL SHOP DRAWINGS, WHEN SPECIFICALLY REQUESTED ON THE DESIGN DRAWINGS.

1.3.3 SUBMIT FOR RECORD THE JOBSITE RECORD INCLUDING: DATE AND TIME OF PLACEMENT, LOCATION, QUANTITY, AIR TEMPERATURE, CONCRETE TEMPERATURE, DELIVERY SLIP NUMBER, AND TEST CYLINDER SAMPLE NUMBERS.

1.3.4 SUBMIT FOR RECORD RESULTS OF ALL CYLINDER TESTS

1.4 INSPECTION

1.4.1 SCHEDULE ALL LOCAL JURISDICTION INSPECTIONS REQUIRED FOR WORK

1.4.2 SCHEDULE ALL SPECIAL INSPECTION AS SPECIFICALLY REQUIRED ON THE DESIGN DRAWINGS.

1.4.3 NOTIFY AT&T AND ALLOW THE OPPORTUNITY TO INSPECT REINFORCEMENT AND SUBGRADE PRIOR TO CONCRETE PLACEMENT.

1.4.4 ALL TESTING AND INSPECTION AGENCIES SHALL MEET THE REQUIREMENTS OF ASTM E329. TESTS OF CONCRETE SHALL BE PERFORMED BY AN ACI CONCRETE FIELD TESTING TECHNICIAN 1, OR EQUIVALENT CERTIFICATION.

1.4.5 ALL CONCRETE STRUCTURES SHALL BE CONSTRUCTED AT THE LOCATIONS AND IN CONFORMANCE WITH THE LINES, GRADES AND DIMENSIONS SHOWN ON THE DRAWINGS.

1.5 TESTING

1.5.1 FIELD TESTING OF CONCRETE SHALL BE PERFORMED BY AN INDEPENDENT TESTING ENTITY.

1.5.2 TAKE SAMPLES IN ACCORDANCE WITH ASTM C172.

1.5.3 PERFORM AIR CONTENT TESTS IN ACCORDANCE WITH ASTM C173.

1.5.4 PERFORM SLUMP TESTS IN ACCORDANCE WITH ASTM C143.

1.5.5 PREPARE AND CURE MOLDED CYLINDERS IN ACCORDANCE WITH ASTM MIX FOR EACH DAY THAT CONCRETE IS PLACED.

1.5.6 TEST MOLDED CYLINDERS IN ACCORDANCE WITH ASTM C39. TEST ONE CYLINDER AT 7 DAYS AND THE REMAINING 1 CYLINDER AT 28 DAYS.

1.5.7 THE CONTRACTOR IS RESPONSIBLE FOR SCHEDULING BUILDING DEPARTMENT INSPECTIONS REQUIRED FOR HIS SCOPE OF WORK.

1.5.8 ALL REINFORCING STEEL SHALL BE INSPECTED AND RELEASED BY AT&T WIRELESS SERVICES PRIOR TO PLACEMENT OF CONCRETE PIER. CONTRACTOR SHALL NOTIFY AT&T WIRELESS SERVICES 48 HOURS BEFORE PLACING CONCRETE.

PART 2 - PRODUCTS

2.1 REINFORCING MATERIALS

A. REINFORCING STEEL: ASTM A615, GRADE 60, NEW DEFORMED BILLET-STEEL BARS, PLAIN FINISH.

B. ALL REINFORCING BARS SHALL BE CLEAN OF ALL RUST, SCALE, CORROSION OR DIRT AND SHALL BE BENT COLD.

C. PROVIDE CORNER BARS AT ALL INTERSECTIONS.

D. ALL STEEL REINFORCING LAPS SHALL BE A MINIMUM OF 24" BAR DIAMETER.

2.2 CONCRETE MATERIALS ADMIXTURES: AS REQUIRED FOR LOCAL CONDITIONS AND WORK AGGREGATE: ASTM C-33.

PORTLAND CEMENT: ASTM C-150, TYPE I.

MIXING WATER: POTABLE

2.3 CONCRETE MIX

2.3.1 PROPORTION CONCRETE MIX IN ACCORDANCE WITH ACI 301.

2.3.2 PROVIDE MINIMUM 28-DAY COMPRESSIVE STRENGTH AS FOLLOWS, UNLESS NOTED OTHERWISE ON THE DESIGN DRAWINGS:

3000 PSI DRILLED PIERS

3000 PSI SHELTER FOUNDATIONS

PART 3 - EXECUTION

3.1 GENERAL
PERFORM ALL WORK IN ACCORDANCE WITH DESIGN DRAWINGS, LATEST EDITION OF REFERENCES LISTED, SITE-SPECIFIC GEOTECHNICAL INVESTIGATION REPORT, AND ACCEPTED INDUSTRY PRACTICE.

3.2 INSERTS, EMBEDDED COMPONENTS AND OPENINGS

A. CONTRACTOR SHALL CHECK ALL CIVIL, ARCHITECTURAL, STRUCTURAL AND ELECTRICAL DRAWINGS FOR OPENINGS. SLEEVES, ANCHOR BOLTS, INSERTS AND OTHER ITEMS TO BE BUILD INTO THE CONCRETE WORK.

B. COORDINATE THE WORK OF OTHER SECTIONS IN FORMING AND SETTING OPENINGS, RECESSES, SLOTS, CHASES, ANCHORS, INSERTS AND OTHER ITEMS TO BE EMBEDDED.

C. EMBEDDED ITEMS SHALL BE SET ACCURATELY IN LOCATION, ALIGNMENT, ELEVATION AND PLUMBNESS. LOCATE AND MEASURE FROM ESTABLISHED SURVEYED REFERENCE BENCHMARKS.

D. EMBEDDED ITEMS SHALL BE ANCHORED INTO PLACE IN A MANNER TO PREVENT MOVEMENT DURING CONCRETE PLACEMENT AND CONSOLIDATION. COMPONENTS FORMING A PART OF A COMPLETE ASSEMBLY SHALL BE ALIGNED BEFORE ANCHORING INTO PLACE. PROVIDE TEMPORARY BRACING, ANCHORAGE AND TEMPLATES AS REQUIRED TO MAINTAIN THE SETTING AND ALIGNMENT.

E. THE TOWER CAGE WILL HAVE A MINIMUM OF THREE INCH (3") CLEARANCE FROM EARTH ON THE SIDE AND FROM THE BOTTOM OR AS INDICATED ON THE FOUNDATION DRAWINGS.

F. CONTRACTOR PLACE 20 MIL PVC OR EQUAL VAPOR BARRIER MATERIAL BETWEEN EARTH AND CONCRETE IN BUILDING FOUNDATION.

3.3 REINFORCEMENT PLACEMENT

A. PLACE REINFORCEMENT ACCORDING TO CHECKED AND RELEASED DRAWINGS AND IN ACCORDANCE WITH ACI 301 AND ACI 315.

B. ACCURATELY POSITION, SUPPORT AND SECURE REINFORCEMENT AGAINST DISPLACEMENT FROM FORMWORK CONSTRUCTION OR CONCRETE PLACEMENT AND CONSOLIDATION. SUPPORT REINFORCING ON METAL CHAIRS, RUNNERS, BOLSTER, SPACERS AND HANGERS.

C. SPLICES OF REINFORCING BARS SHALL BE CLASS B UNLESS SHOWN OTHERWISE ON THE DRAWINGS. SPLICES SHALL BE STAGGERED. FULL DEVELOPMENT LENGTH SHALL BE PROVIDED ACROSS JOINTS.

D. LOCATE REINFORCING TO PROVIDE CONCRETE COVER AND SPACING SHOWN ON THE DRAWINGS AND SPECIFICATIONS.

E. INSTALL WELDED WIRE FABRIC IN AS LONG OF LENGTHS AS PRACTICABLE. LAP ADJOINING PIECES AT LEAST ONE FULL MESH PLUS 2" AND A MINIMUM OF 8". LACE WITH TIE WIRE.

F. SUPPORT ALL SLAB REINFORCEMENT AT THE REQUIRED DEPTH AND SECURE PRIOR TO PLACING CONCRETE. DO NOT PULL WELDED WIRE FABRIC UP INTO FRESH CONCRETE AS IT IS PLACED. DO NOT FLOAT WELDED WIRE FABRIC DOWN INTO FRESH CONCRETE.

G. WELDING OF AND TO ANY REINFORCING MATERIALS INCLUDING TACK WELDING OF CROSSING BARS IS STRICTLY PROHIBITED.

3.4 CONCRETE PLACEMENT

A. PRIOR TO PLACING CONCRETE, THE FORMS AND REINFORCEMENT SHALL BE THOROUGHLY INSPECTED. ALL WOOD CHIPS, DIRT, ETC. SHALL BE REMOVED; ALL TEMPORARY BRACING; TIES AND CLEATS REMOVED; ALL OPENINGS FOR UTILITIES PROPERLY BOXED; ALL FORMS PROPERLY SECURED IN THEIR CORRECT POSITION AND MADE TIGHT. ALL REINFORCEMENT AND EMBEDDED ITEMS SHALL BE SECURED IN THEIR PROPER LOCATIONS. ALL OLD AND DRY CONCRETE AND DIRT SHALL BE CLEANED OFF AND ALL STANDING WATER AND OTHER FOREIGN MATTER REMOVED.

B. PLACING OF CONCRETE SHALL BE IN ACCORDANCE WITH ACI 301 AND ACI 304 AND SHALL BE CARRIED OUT AT SUCH A RATE THAT THE CONCRETE PREVIOUSLY PLACED IS STILL PLASTIC AND INTEGRATED WITH THE FRESHLY PLACED CONCRETE. CONCRETING, ONCE STARTED, SHALL BE CARRIED ON AS A CONTINUOUS OPERATION UNTIL THE SECTION IS COMPLETED. NO COLD JOINTS SHALL BE ALLOWED, UNLESS OTHERWISE SPECIFIED ON THE FOUNDATION DESIGN DRAWING.

C. ALL CONCRETE SHALL BE THOROUGHLY CONSOLIDATED AND COMPACTED BY VIBRATION, SPADING, RODDING OR FORKING DURING THE OPERATION OF PLACING AND DEPOSITING IN ACCORDANCE WITH ACI 309. THE CONCRETE SHALL BE THOROUGHLY WORKED AROUND REINFORCEMENT, EMBEDDED ITEMS AND INTO THE CORNERS OF THE FORMS SO AS TO ELIMINATE ALL AIR AND STONE POCKETS.

3.5 FINISHING

A. FINISHING OF FLOOR SLABS SHALL BE IN ACCORDANCE WITH ACI 302.1, SECTION 7.2 WITH A MINIMUM OF THREE TROWELINGS. THE SLAB FINISH TOLERANCE AS MEASURED IN ACCORDANCE WITH ASTM E 1155 SHALL HAVE AN OVERALL TEST F NUMBER FOR FLATNESS, FF = 20 AND FOR LEVEL, FL = 15. THE MINIMUM LOCAL F NUMBER FOR FLATNESS, FF = 15 AND FOR LEVEL, FL = 10.

B. SURFACES OF THE SHELTER SLABS SHALL RECEIVE TWO COATS OF A CLEAR SEALER/HARDENER.

C. ABOVE GRADE WALL SURFACES SHALL HAVE A SMOOTH FORM FINISH AS DEFINED IN CHAPTER 10 OF ACI 301.

D. EXTERIOR WALKS AND CONCRETE PAVED AREAS SHALL BE FLOATED AND RECEIVE A "BROOMED" FINISH UNLESS INDICATED OTHERWISE ON THE DRAWINGS.

E. NOTES: FOR SHELTER FOUNDATION

CHAMFER ALL EXPOSED EDGES.

TOP OF ALL PIERS AND FOUNDATION SHALL BE LEVEL TO +/- 1/4" WITH TROWEL FINISH.

CONCRETE STRENGTH TO 3000 PSI AT 28 DAYS.
DEAD WEIGHT OF BUILDING IS SUFFICIENT TO RESIST OVERTURNING.

ANCHOR BOLTS RESIST ONLY HORIZONTAL SLIDING DUE TO WIND LOAD. A MINIMUM OF TWO REQUIRED PER 15' OF BUILDING LENGTH.

FOUNDATION DESIGN BASED UPON 2000 PSF MINIMUM ALLOWABLE SOIL BEARING AND 3000 PSI CONCRETE.

CONTRACTOR SHALL CHECK BUILDING STRUCTURAL DRAWING, SHEET 1, FOR TIE DOWN INFORMATION.

CONCRETE SHALL BE CAST ON 20 MIL OR EQUAL VAPOR BARRIER AND SHALL NOT BE CAST AGAINST EARTH.

COVER REBAR MINIMUM 3" UNLESS OTHERWISE NOTED.

3.6 CURING

A. FRESHLY DEPOSITED CONCRETE SHALL BE PROTECTED FROM PREMATURE DRYING AND EXCESSIVELY HOT OR COLD TEMPERATURES AND SHALL BE MAINTAINED WITH MINIMAL MOISTURE LOSS AT A RELATIVELY CONSTANT TEMPERATURE FOR A PERIOD OF TIME NECESSARY FOR THE HYDRATION OF THE CEMENT AND PROPER HARDENING OF THE CONCRETE.

B. CURING SHALL IMMEDIATELY FOLLOW THE FINISHING OPERATION. CONCRETE SHALL BE KEPT CONTINUOUSLY MOIST AT LEAST OVERNIGHT. IMMEDIATELY FOLLOWING THE INITIAL CURING AND BEFORE THE CONCRETE HAS DRIED, ADDITIONAL CURING SHALL BE ACCOMPLISHED BY ONE OF THE FOLLOWING MATERIALS OR METHODS:

PONDING OR CONTINUOUS SPRINKLING.

ABSORPTIVE MAT OR FABRIC KEPT CONTINUOUSLY WET.

NON-ABSORPTIVE FILM (POLYETHYLENE) OVER A PREVIOUSLY SPRINKLED SURFACE.

SAND OR OTHER COVERING KEPT CONTINUOUSLY WET.

CONTINUOUS STEAM (NOT EXCEEDING 150F) OR VAPOR MIST BATH.

SPRAYED-ON CURING COMPOUND APPLIED IN TWO COATS, SPRAYED IN PERPENDICULAR DIRECTIONS.

C. THE FINAL CURING SHALL CONTINUE UNTIL THE CUMULATIVE NUMBER OF DAYS OR FRACTION THEREOF, NOT NECESSARILY CONSECUTIVE DURING WHICH TEMPERATURE OF THE AIR IN CONTACT WITH CONCRETE IS ABOVE 50F HAS TOTALED SEVEN (7) DAYS. CONCRETE SHALL NOT BE PERMITTED TO FREEZE DURING THE CURING PERIOD. RAPID DRYING AT THE END OF THE CURING PERIOD SHALL BE PREVENTED.

FENCE AND GATES

PART 1 - GENERAL

1.1 SCOPE:
THIS SECTION COVERS THE TECHNICAL REQUIREMENTS FOR THE FURNISHING AND ERECTION OF GALVANIZED STEEL FENCING.

PART 2 - MATERIALS:

2.1 FRAMEWORK: TYPE II STEEL PIPE

TYPE II - PIPE MANUFACTURED FROM STEEL CONFORMING TO ASTM A 569, COLD-FORMED, HIGH FREQUENCY WELDED AND HAVING A MINIMUM YIELD STRENGTH OF 50,000 PSI. EXTERNAL SURFACE TRIPLE COATED WITH 1.0 OUNCE + 0.1 OUNCE OF ZINC PER SQUARE FOOT, .30 + 15 MICROGRAMS OF CHROMATE PER SQUARE INCH AND 0.5 + 0.2 MILS OF CLEAR, CROSS LINKED POLYURETHANE. INTERNAL SURFACE COATED, AFTER WELDING, WITH A ZINC-RICH BASED ORGANIC COATING HAVING AND 87% ZINC POWDER LOADING CAPABLE OF PROVIDING GALVANIC PROTECTION.

PIPE SHALL BE STRAIGHT, TRUE TO SECTION AND CONFORM TO THE FOLLOWING WEIGHTS:

PIPE SIZE OUTSIDE DIAMETER	TYPE II WEIGHT LBS./FT.
1-5/8"	1.84
2"	2.28
2-1/2"	3.12
3"	4.64
4"	6.56

2.2 FABRIC: ZINC-COATED
ZINC-COATED FABRIC SHALL BE GALVANIZED AFTER WEAVING WITH A MINIMUM 1.2 OUNCES OF ZINC PER SQUARE FOOT OF SURFACE AREA AND CONFORM TO ASTM A 392, CLASS 1.

FITTINGS: PRESSED STEEL OR CAST IRON, GALVANIZED WITH A MINIMUM OF 1.2 OUNCES OF ZINC PER SQUARE FOOT OF SURFACE AREA, ALL CONFORMING TO ASTM F 626

2.3 CONCRETE MIX
ASTM C 94 PORTLAND CEMENT CONCRETE WITH MAXIMUM 3/4" AGGREGATE HAVING A MINIMUM COMPRESSIVE STRENGTH OF 2,500 PSI AT 28 DAYS.

COMPONENTS

2.4 FENCE POSTS:

FABRIC HEIGHT	LINE POST O.D. TYPE II	TERMINAL POST O.D. TYPE II
SEE PLANS	2 1/2"	3"

2.5 GATE POSTS:

SINGLE GATE WIDTH	DOUBLE GATE WIDTH	POST O.D. TYPE II
6'	12'	4"

STATE OF MISSOURI
ROBERT E. POLK, JR.
E-20082
REGISTERED PROFESSIONAL ENGINEER

REVISIONS

NO.	DATE	DESCRIPTIONS

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TITLE: SPECIFICATIONS

DATE: 2-18-1996
DRAFTED: M. Roth
PROJECT NO.: 297000

SHEET: SPEC-2